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THE EARLY HISTORY OF FELT

By BERTHOLD LAUFER

THE art of making felt by rolling, beating, and pressing animal hair or flocks of wool into a compact mass of even consistency is assuredly older than the art of spinning and weaving. In point of time, felted stuffs followed immediately, or originated contemporaneously with, the custom of using animal skins or furs as garments. Felting was practised in times of great antiquity both in Asia and Europe, but it was restricted to these two continents. It is noteworthy that it has always been absent in Africa. Even in ancient Egypt where sheep were reared and their wool woven into cloth felt was unknown. It did not exist either in aboriginal America. The ancient Peruvians, although they had domesticated the llama and alpaca, did not conceive the notion of felt.

There are ancient records extant that give references to felt in Chinese, Greek, and Latin literatures. We must not imagine, however, that for this reason the Chinese, Greeks, and Romans were the first nations to have made use of felt. The Greeks lived in proximity to the roving Scythians of southern Russia; and the vast steppes stretching east of the Ural and the Caspian sea across Russian and Chinese Turkestan into southern Siberia and Mongolia were, from earliest times, the playground of ever moving tribes, restless like the waves of the oceans, of Iranian, Turkish, Mongol, and Tungusian nationalities. These tribesmen of nomadic habits subsisted on the wealth of their flocks consisting of cattle, camels, sheep, goats, and horses. The making of felt naturally presupposes the existence of wool-furnishing domestic animals like sheep, goat, and camel. While it is true that felt can be made and has been made from the hair of wild animals, the supply of such hair is not plentiful enough to establish the industry on a large scale. It is therefore clear that solely peoples who possess a large stock of herds of wool-bearing sheep and camels could call into life

a flourishing felt industry. This reason alone, however, would hardly be sufficient to ascribe the invention of felt to the nomadic population of Asia and to disclaim it for the Chinese and the Greeks; the two latter nations also had domesticated sheep, and the Greeks manufactured sheep-wool into garments. The ancient Chinese, although they had sheep, never utilized its wool for clothing. The Chinese, as well as the Greeks and Romans, assuredly understood the preparation of felt, and the Chinese still prepare it, but the manufacture of this article had a limited importance among them. Eliminate felt from Chinese, Greek, and Roman civilizations, and they would still remain what they are, not being in the least affected by this minus. Eliminate the same element from the life of the nomadic populations, and they would cease to exist, they would never have come into existence. With these peoples felt is a fundamental of culture, an absolutely essential feature and necessity of life, while with the highly civilized nations like the Chinese, Indians, Greeks, and Romans it is a side issue, an incident, an element of occasional and minor importance.

The use of felt, therefore, has reached its maximum intensity and its climax among the nomadic tribes of Asia, and this is the principal reason why we are compelled to attribute the invention of felt, both the initiative and the perfection of the process, to the Asiatic nomads. This means, of course, that the Chinese, the Indians, and the Greeks learned the art from the latter, while the Romans adopted matter and word from their masters, the Greeks. Another interesting point of difference is that to the civilized nations felt was simply a utilitarian product which they adopted because it was useful and practical, whereas among the nomads it was associated with religious and ceremonial practices. It was part and parcel of their life, inseparable from their inward thoughts. Which of the many hundreds of tribes of inner Asia was the original inventor of felt, it is impossible to ferret out in the present state of our knowledge. The beginnings of the art are lost in the dawn of human civilization. Neither the ancient Scythian nor the ancient Turkish tribes had any system of writing so that no records of their earliest history are preserved in their own languages; for all that we know about them we are indebted to the records of the Chinese and the Greeks. Archaeology, to some extent, comes to our rescue, for some ancient remains of felt have been discovered in Central Asia. More than that, the ancient mode of life of the Turkish, Mongol, and Tibetan tribes is still preserved in full vigor: they still manufacture felt as their ancestors did thousands of years ago, they still utilize it for exactly the same purposes. By combining historical, ethnological, and archaeological methods the ear-

ly history of felt can be reconstructed with a fair degree of accuracy and completeness.

In the light of the preceding remarks it is clear that no credence can be attached to the European legend according to which the invention of felt is ascribed to Saint Clement, who while on a pilgrimage placed carded wool in his shoes to protect his feet, the constant pressure and moisture changing this wool into felt.

No detail of the early process of felting is preserved by any Chinese or Greek author, but there can be no doubt that in principle the ancient process was identical with that prevailing in Asia at the present time. This primitive process is practically the same everywhere. The principal instrument used is a large mat. The wool is spread out on this mat layer upon layer until the desired thickness is secured, the wool for the upper layers being generally of a better quality or finer texture than that in the interior and lower layers. Grease or oil mixed in water serves as size. The mat is rolled up under firm pressure with the feet (some people use the back of the forearm in this process), then it is unrolled and rerolled from the opposite end. This manipulation of rolling forward and backward occupies a considerable time; revolving is continued for four or five hours, when the fibers become firmly and closely intertwisted. The felt is now taken up, washed with soap and water, dried, and again stretched on the mat and dried in the sun. Colored patches of felt or wool are arranged on it in India and Turkestan, and the whole is then again subjected to the rolling process for several hours, when the material is completed and fit for use. In India the finer kinds of felt are trimmed with a mowing-knife, which greatly improves the appearance and brings out the distinctness of the colors.

Felt in China

In the earliest documents of the Chinese, the Book of Songs (*Shi king*) and the Book of History (*Shu king*) no mention is made of felt. It appears in Chinese records toward the end of the Chou dynasty (fourth to third century B.C.), and felt rugs seem to have been used at that time as mattresses to sleep upon. At the outset it is improbable that the Chinese could be regarded as the inventors of felt. They raised sheep, but never utilized their wool for any fabrics. Hemp and other fibrous plants, as well as silk, furnished the staple for clothing. Woolen materials have always been alien to Chinese civilization. There was no cattle-breeding on a large scale, and consumption of milk and any dairy products was unknown. The Chinese were (and still are) essentially a nation of agriculturists. From early times, the north of China was in close contact with central and northern Asia teeming

with a vast pastoral population, for the greater part of Turkish and Tungusian nationality. These ever restless hordes perpetually poured over the Chinese frontiers and raided and pillaged the villages of the farmers. The most dreaded of these predatory foes were the Hiung-nu, as they are styled in the Chinese annals, who have been identified with the Huns. From about 1400 B.C. the Chinese were constantly engaged with them in a life and death struggle. The Chinese armies in the beginning were usually the losers as they opposed their infantry to the mobile cavalry and mounted archers of their enemies. The Hiung-nu, a Turkish tribe, subsisted on cattle, fed upon flesh and milk, and used leather obtained from the skins of their domestic animals as clothing and armor; in addition to leather garments they wore coats or overcoats of felt and lived in tents covered with the same material. It is very probable that the Chinese made their first acquaintance with felt during their long military and diplomatic intercourse with the Hiung-nu which lasted for many centuries. In 307 B.C. Wu-ling, king of the principality Chao, adopted the clothing and the tactics of shooting with the bow on horseback from the nomadic tribes. Chinese garments were spacious, loose, and flowing, and a serious obstacle to riding and shooting, while the costume of the nomads was tight-fitting and equipped with tall boots. There is no doubt that on the occasion of this reform movement in dress also articles of felt and perhaps the manufacture of felt itself were adopted by the Chinese. The country inhabited by the nomads is known to them under the name "the land of felt."

Under the Han dynasty (201 B.C.–A.D. 220) felt was well established in China and used in the form of mats. The Emperor Wen (179–152 B.C.) of this dynasty wore a felt cap on his hunting expeditions. The felt of the nomads is alluded to by the philosopher Huai-nan-tse, who lived in the second century B.C.; his statement implies that in his time felt was still unknown south of the Yangtse region.

At the end of the third century A.D. the use of felt was still regarded as something foreign and barbaric, for it is on record that in the period T'ai-k'ang (A.D. 280–290) when fillets and girdles of felt were introduced as a novel fashion, the people ridiculed this custom and said, "China apparently has been conquered by the nomads (Hu), for felt is a product of the nomads, and now with felt fillets and girdles we adopt their styles."

In A.D. 532 Yüan Siu was placed upon the throne as tenth emperor of the Northern Wei dynasty by Kao Huan, who sent four hundred horsemen to meet him. The future emperor betook himself into a felt tent to don imperial regalia. He was then escorted to the east gate of the palace, and according to an ancient custom of the Toba, one of the northern nomad tribes

from which the Wei dynasty issued, he was lifted by seven men on a piece of black felt; and while seated on it, he bowed toward the west, imploring Heaven. This was an old usage of the nomads of central Asia, and we shall encounter it again among Turks and Mongols.

A certain Liu Ling-ch'u, who lived in the fifth century A.D., is said to have cut human figures out of felt for magical purposes. This idea was doubtless borrowed from the nomads, for it was an ancient Turkish and Mongol custom, more of which will be said below, to fashion religious images from felt and to keep them in leather cases.

A felt cap is referred to in the *Ts'an luan lu*, a diary kept by Fan Ch'eng-ta during his journey from the capital to Kwei-lin in Kwang-si, on his appointment to that prefecture in A.D. 1172.

Not only in the north, but also in the west and southwest were the Chinese surrounded by felt-using nations. The vast area occupied at present by the provinces of Se-ch'wan and Yün-nan was anciently populated by many different aboriginal groups of tribes partially related to the Tibetans, partially to the Siamese (Tai family), and partially of independent stock, prior to the advent of the Chinese. The latter, in the course of several centuries, penetrated those regions, subdued the very warlike aborigines, and colonized the country. Many of the tribes were annihilated, others were pushed back into inhospitable high mountains, still others migrated into Siam and Burma, others survive to this day. The earliest reference to felt in this territory is made in the Annals of the Han Dynasty with reference to a tribe inhabiting Se-ch'wan, called the Jan-mang, who were essentially sheep-breeders and manufactured felt as well as various kinds of woolen stuffs; the Chinese annalist records as a remarkable fact that they understood the art of treating the diseases of sheep.

The present province of Yün-nan was formerly occupied by the powerful kingdom of Nan-chao from which at a later date the present-day Siamese issued. The men of the Nan-chao tribes of Yün-nan wore one-piece blankets of felt in the ninth century (according to the *Man shu*, written by Fan Ch'o about A.D. 860). The same author also relates the curious fact that many men in the country P'iao wore white felt. Now P'iao was situated 75 days' journey south of Yung-ch'ang in Yün-nan and corresponds to Pyū, name of the prominent tribe at Prome, the ancient capital of Burma. Whether felt was at that time manufactured in Burma is not known; it seems more likely that it was imported there from Yün-nan.

An important document bearing on felt is contained in the *Ling wai tai ta*, written by Chou K'ü-fei in A.D. 1148 (ch. 6, p. 12). This work gives a geographical description of the two southern provinces, Kwang-tung and

Kwang-si, as well as many valuable notes on the ethnography of the native inhabitants, their customs, products, and manufactures. The author emphasizes the wealth of sheep in the land of the Southwestern Man as they are called by the Chinese, and says that they produce felt and woolen cloth in great quantity.

> From their chieftains downward to the lowest man there is not one who would not throw over his shoulders a piece of felt. The sole difference between the two classes is that the chieftains wear an embroidered shirt on their skin and don the felt over it, while the common people wear the felt directly over their skin. The felt of northern China is thick and solid; in the south felt pieces are made to a length of over thirty feet and to a width of from sixteen to seventeen feet. These are doubled along their width, and the two ends are sewed together, so that they are from eight to nine feet wide. They take a piece of felt lengthwise and wrap it around their body, fastening it with a belt around their loins. The women follow the same practice. During the daytime they are thus wrapped up; at night they sleep in their felt blankets; whether it rains or the sun shines, whether it is cold or warm, these are never separated from their bodies. In their upper part these blankets are decorated with designs like walnuts. Those which are long and big and yet light in weight are held in the highest esteem, and those manufactured in the country of Ta-li (in Yün-nan) are regarded the best.

What this Chinese author noted some eight hundred years ago still holds good for the majority of aboriginal tribes in Yün-nan and southern China. Most of these, particularly the Lolo and Moso, still wear a blanket or a sort of sleeveless coat made of a single piece of white felt as a protection against chill and rain both in winter and summer. Many authors relate with amazement that they never part with this outfit, even in intensely hot weather.

In 1863 S. Wells Williams (*The Chinese Commercial Guide*, 5th ed., Hongkong, 1863, p. 119) wrote,

> Felt caps are worn by the poor throughout the whole country. They are of various shapes and different degrees of fineness; some are made hollow so that when pulled out, they resemble a double cone. The felt cuttings are collected from the manufacture of druggets, caps, soles of shoes, and leggings, to be boiled down and felted over again.

Felt is still manufactured in China into caps, rain-hats, coats, stockings, shoes, shoe-soles, tablecloths, rugs, and carpet-bags. In Suchow the industry is still very much alive. Boys are fond of felt caps, especially when trimmed with colored silk and provided with ear-muffs of fur. The fishermen on the Great Lake (T'ai Hu) wear large, broad-brimmed felt hats plain or trimmed with black satin (specimens collected by me in Field Museum, Chicago).

The method employed by the Chinese in preparing felt is the same as that used by the Tibetans, Mongols, and Turks, with a single exception: the first step they take is to loosen the wool by means of a large bow by tightening the string and jerking it off in rapid motion. This process is derived from that of treating cotton, and the bow in either case is identical. The layers of wool are heaped up on a bamboo mat and carefully moistened with water sprayed from the mouth in the same manner as our Chinese laundrymen moisten linen. Then the wool is rolled up in the mat which is rolled to and fro, and pressed by means of the feet.

Felt in Tibet

In ancient times felt and hide formed the common material for the clothing of the Tibetans, according to the Chinese Annals of the T'ang Dynasty (A.D. 618-906). Felt was also used in Tibet for plates. Even the kings of Tibet were clad in garments of felt; when Srong-btsan sgam-po, the first king of Tibet known in history, married a Chinese princess in A.D. 641, he adopted, in order to please his refined consort, the cultured manners and customs of China and discarded his felt and fur robes which had to give way to Chinese silk and brocade. The Chinese Annals inform us also that the men of rank in Tibet lived in large felt tents called *fu-lu* (Tibetan *sbra*); this kind of tent served for military purposes, and there were big ones capable of holding several hundred men; they formed a military camp. The pastoral population of Eastern Tibet, however, has always lived in square tents covered with a black cloth densely woven from yak-hair. In this respect and in its squadrangular shape the Tibetan tent contrasts with the Mongol circular felt tents and represents a dwelling-type of its own. This tent of yak-hair stuff goes back to a venerable age, for it is referred to as early as the sixth century in the Annals of the Sui Dynasty with reference to the Tang-hiang (Tangut), a Tibetan tribe living in the vicinity of the Kukunor. The same people, however, as emphasized by the Chinese annalist, held felt in highest esteem and looked upon it as the finest ornament.

In central Tibet all men, even the Dalai Lama, wear a high-crowned, red-fringed felt hat; the women wear a red felt hat in the summer. The felt made by them is praised by a Chinese author of the eighteenth century; it is also worked up, he adds, into boots. In fact, the women of Tibet mostly wear high felt boots. These are of the same shape as the leather boots usually worn by men and reaching up to the knees. These felt boots are trimmed with colored patches, the lower part white, then red and green. Like the leather boots they are lined with woolen cloth, while the soles are always of

leather. The Tibetan boot is devoid of a heel. The Tibetan nomads wear high conical felt hats with a large brim turned downward.

The most interesting object made of felt by the Tibetans is a poncho which consists of a long rectangular strip of felt with a hole in the center to put the head through, and which is used on horseback in rainy weather. Most Tibetans spend the whole day in the saddle. When traveling in Tibet for more than a year, I always carried such a felt poncho with me and found it immensely useful; it was a perfectly safe protection in the most violent rain and snowstorms and completely envelops the horse as well as the rider. Similar rain ponchos are used in Asia Minor.

W. W. Rockhill describes the production of felt in Tibet as follows:

> Its mode of manufacture is extremely simple. The wool, having been first picked over, is spread out a handful at a time on a large piece of felt on the ground, each handful overlapping the preceding one in such a way that a piece of uniform thickness and of whatever size is desired is made. This is rolled up tightly and with much pounding of the closed fist and then unrolled, and this work is kept up for an hour or more; then the roll is soaked in water and the work of rolling, unrolling, kneading, and beating with the closed fist goes on for another hour or two. I was told that a piece of felt had to be kneaded at least 1,000 times before it was ready for use. After the roll has been left to dry for a while it is opened, and by pulling it slightly in different directions the surface is made smooth, and the edges are trimmed with a knife. Sometimes it is bleached. Altogether, Tibetan and Mongol felt is vastly inferior to that made by the Chinese.

Felt in India

Felt appears to have been known in India in ancient times. Nearchus, who accompanied Alexander the Great on his expedition to India and as admiral of his fleet in 325 B.C. discovered a sea route between the Indus and the Euphrates, reports that the inhabitants of India understood the art of felting wool (Strabo XV. 1, 67). It is on record in the Chinese Annals of the T'ang Dynasty that in the beginning of the period T'ien-pao (A. D. 742-756) tribute gifts were dispatched to the imperial court by the king of the island of Ceylon, and among these presents pieces of white felt figured conspicuously. In this connection it is worthy of mention also that according to an old Chinese account of Java two kinds of felt were obtainable on the island—one dyed a color like granite and another dyed a deep crimson.

John Fryer, who traveled in India and Persia from 1672 to 1681, writes that at Surat the horses were covered warmly with a kind of felt or flockwork, two or three double. Both woven and felted blankets (*kambala*) were made in northern India.

In India felt is at present manufactured in Ladak, Jeypore, Rajputana, Hyderabad and other places, felts being used for blankets, carpets, cushions, bedding, cloaks, and leggings. Colored wool is often used with great effect in producing patterns on the surface of the material. The best sort of felt consists entirely of sheep's wool, or is a mixture of wool with goat's and camel's hair picked and cleaned.

Felt Among Iranians and Turks

The Chinese Buddhist pilgrim Fa Hien started in A.D. 399 on his memorable long journey to India overland from China by way of Central Asia, of which he has left a fascinating account. Passing through the kingdom of Shen-shen south of and not far from Lake Lob (Lob-nor), he made this entry in his diary:

> The clothes of the common people are coarse, and like those worn in our land of Han (China), some wearing felt and others coarse serge or cloth of hair; this was the only difference seen among them.

This is the earliest account of the use of felt in a region of what is now Chinese Turkestan. Turkestan means "land of the Turks." At the time of Fa Hien's visit, however, Turkestan was not yet conquered by Turks, who were then confined to southern Mongolia, but was densely populated by Iranian tribes, members of the Indo-European family, who had a highly flourishing civilization. The Iranian stock at that time covered an immense territory, stretching from the confines of China on the west through the plains of Chinese and Russian Turkestan far into the steppes of southern Russia; for the Scythians so called by the Greek historians are members of the same group, and all of them are close relatives of the Persians. All the tribes belonging to this great Iranian family were active and energetic producers of felt, and it may even very well be the case that they were the initiators of the technique. Certain it is that woven rugs and carpets were first produced in their midst, and as in my estimation carpet-weaving sprang up after and as a consequence of felted rugs, it stands to reason that it was Iranians who invented the manufacture of felt.

Herodotus (IV, 46) describes the Scythians as living on carts which were the only houses they possessed. Rawlinson comments justly that their wagons carried a tent consisting of a light framework of wood covered with felt or matting, which could be readily transferred from the wheels to the ground. Hesiod, the Greek poet, says that Phineus was carried by the Harpies "to the land of the milk-fed nations whose houses are wagons." Aeschylus (Fettered Prometheus 709) sings of the "wandering Scyths who dwell in

latticed huts high-poised on easy wheels." The Scythians also were in the constant habit of wearing felt caps or hats.

The fact of an Iranian felt industry is signally confirmed by the combined testimony of Chinese and Greek observers. Fa Hien has just been called to the witness-stand. According to the Chinese Annals of the T'ang Dynasty, the king of Sogdiana, who resided at Samarkand, was in the habit of wearing a felt hat adorned with gold and precious stones.

The Persian Magi, the priests of Zoroaster, wore high turbans of felt, reaching down on each side so as to cover the lips and sides of the cheeks (Strabo XV. 3, 15). The Lycians who accompanied Xerxes, king of Persia, on his expedition to Greece, were clothed with felt caps surrounded by plumes (Herodotus VII, 92). The Persian soldiers in Xerxes' army wore light and flexible caps of felt which were called tiaras. The Medes and Bactrians were equipped with the same kind of headgear as the Persians. The Armenians were also styled "wearers of felt." Strabo characterizes the Persian cap as "a felt in the shape of a tower," adding that these caps were necessary in Media on account of the cold climate. The king of Persia was distinguished by a stiff felt hat which stood erect, whereas his subjects wore their tiaras folded and bent forward (Xenophon, Anabasis II. 5, 23). Hence in *The Birds* of Aristophanes, the father of comedy, the cock is ludicrously compared to the Great King, his erect comb being called his "Persian cap" (*kyrbasia*). The Athenians no doubt considered this form of the tiara as an expression of pride and arrogance. Xenophon alludes to felted quilts manufactured in Media and spread out as couches or rugs on the ground to sit upon. The Medes also availed themselves of bags and sacks made of felt, and the Persians used felt for the trappings of their horses.

In Anglo-Indian a rug felt is styled *numda* or *numna*. This word is derived from Hindustani *namda* and Persian *namad*. These felt rugs to this day form a special product of the home industry of Khotan whence large consignments are annually exported to Ladak and Kashmir. Sir Aurel Stein (*Sand-buried Ruins of Khotan*, p. 402) has discovered the earliest mention of these felt rugs under the name *namadis* in a Kharoshthi document found in the ruins of Khotan and dated in the ninth year of King Jitroghavarshman, which relates a transaction by a certain Buddhagosha concerning some household goods pawned perhaps or taken over on mortgage. The articles are enumerated in detail, and their value is indicated. Besides sheep, vessels, wool-weaving appliances, and some other implements, this list contains also the felt rugs *namadis*.

Still more fortunate, Sir Aurel succeeded in wresting from ancient refuse heaps and buried temple-ruins of Chinese Turkestan numerous remains of

old felts, which are described in his monumental work *Serindia*. These, in all probability, are the earliest felt remains now in existence that have survived the ravages of time; they are preserved in the British Museum. They should be carefully examined and analyzed some day by a felt expert. Such a study may throw an unexpected light on the early technique of felt making and its historical associations.

Of felt pieces and fragments discovered by Sir Aurel Stein in Chinese Turkestan may particularly be mentioned a felt pad of kidney shape covered with buff silk, a conical headgear in carefully gored yellow felt shaped like a Phrygian cap, shoe-soles, a fragment with a wave-scroll pattern in thin crimson felt sewed on; fragments of felt dyed yellow, red, and scarlet; small pieces of yellow felt painted on a tempera surface with floral and geometrical designs in a variety of colors, and many others. With reference to his discovery of crimson felt it may not be amiss to call to mind the purple or scarlet felt used for draping the funeral pile of Hephaestion when this friend of Alexander the Great died at Ecbatana in 324 B.C. and was interred at Babylon with splendid obsequies by order of his master.

In his work *Ruins of Desert Cathay* Sir Aurel writes,

> Kök-yar is famous throughout Turkestan for its excellent felts, and a good deal of the manifest ease prevailing in these homesteads was no doubt derived from the profits of this flourishing industry.

In the ruined fort of Miran he found a well-preserved felt pouch which might have formed part of a soldier's equipment (plate 138, fig. 27). Kök-yar is also renowned for its felt socks called *paipak*, and Karghalik is the great market for them. In another passage he says,

> Clean mud walls and gaily-colored Khotan felts (*kirgiz*) make even a bare little room look cheerful and homely on a winter evening.

Another archaeological discovery of importance was made two generations ago by W. Radloff in graves of southern Siberia which belong to the Iron age. From these he brought to light a felt boot or sock, the sole of which was wrought from a very fine kind of felt. This was the product of some ancient Turkish tribe. Pointed caps appear frequently on stone monuments or on bronze plaques of southern Siberia, and these were doubtless made of felt.

Reference was made above to the ancient Hiung-nu or Huns as having dwelt under felt tents, and this type of habitation has been characteristic of most Turkish tribes in Asia through all ages. In the sixth century of our era a new Turkish nation inhabiting what is at present southern Mongolia came to the attention of the Chinese, and was called by them Tu-küe

which transcribes the very word "Turk" and which represents the first appearance of this name in history. These Tu-küe, in the same manner as their predecessors, clothed themselves in hide and wool and lived in felt tents. The Kozlov expedition in northern Mongolia, the results of which were published in 1925, found a felt carpet bordered with embroidered silk beneath the coffin in the main tomb excavated. This splendid specimen may be attributed to Hiung-nu workmanship, and is believed to date from the first century before our era. Thick felt soles embroidered with silk or thin thread were also brought to light from the same group of graves. For illustrations see *Burlington Magazine*, April, 1926.

The Kirgiz, another ancient Turkish tribe, according to the Chinese Annals, wore white felt caps, with the exception of their chief, who in the winter wore a sable hat and in the summer a pointed metal helmet with a turned-up tip. They joined pieces of felt together to make tents; the chiefs lived in small tents.

The Shi-wei, an ancient tribe of Manchuria (now extinct), although they lived in huts covered with coarse mats, had felt tents in the Turkish manner placed on carts; these were obviously used for traveling. In lieu of felt, the Chinese Annals say, they placed a package of grass under the saddles of their horses.

In electing their chieftains the Turkish tribes were accustomed to lift them on a white felt rug, not on a carpet. In ceremonial ritual the oldest customs of a tribe are purely preserved and rigidly adhered to, and it is plainly manifested by this practice that the use of felt rugs preceded that of woven rugs among the Turks. It is an interesting fact also that in the Turkish epic poems which clearly mirror a true picture of their ancient primitive life the art of weaving is never mentioned, whereas sewing, embroidering, and felting are referred to as the sole pastime and handicraft of women.

The manufacture of felt covers is the most important home industry of the Kirgiz-Kaizak in Russian Turkestan, and is almost exclusively the business of women. Felts are used by them for covering their tents (yurts), as rugs, door curtains, saddle covers, pouches, bottle cases, mittens, and mattresses. Their sale forms a significant source of income for them; for the Russians also, especially the Cossacks, and the sedentary town-population of Turkestan like the Sarts, make ample use of felt material, e. g. for window shutters, mattresses, and particularly for packing merchandise to be transported by caravan. Owing to the preponderance of felt used in a variety of ways in their equipment, the Cossacks have received from the regular troops the nickname "felt troops." The inhabitants of the towns of

Russian Turkestan also produce felt, but this article is less durable and inferior in quality to the Kirgiz felt. The town products are cheaper and even finer, softer, and smoother than the unpretentious Kirgiz felt, but the latter is ten times as strong as that of the Sarts. This point is of great interest, for it confirms my opinion that felt was originally an invention of pastoral, not sedentary peoples. The latter have merely imitated the former, and while their product is more elegant and refined in appearance, it does not rival the original in solidity and durability. The Kirgiz make white and black felt; the former is regarded as the better one. Besides felt covers the women also make felt hats from white wool for the men. The Turkmens produce from felt slings for the use of boys in killing birds.

For the making of felt the summer wool of sheep is preferred, especially the first wool of the lambs born in the spring. Oil-cake serves as size, and is mixed with the water which is sprinkled over the wool spread over a reed mat. It is first beaten with rods until the mass reaches the same level. The wool is usually arranged in two layers, a lower one of brown cheaper wool and an upper one of white wool. The mat is then rolled up as tightly as possible and tied with cords. This package is rolled to and fro over the ground, pulled along with a rope by some experienced old people, and pushed with the feet by a number of girls following it. The cords are tightened from time to time. Finally the mat is removed, the wool is rolled up again and rolled and rerolled for several hours, while water is continually sprinkled on it. The woolen layers are then spread out, dried at the sun, and the felt is ready, supple and smooth like cloth. Patterns are cut out of colored felt, laid on the felt rug and beaten into it.

Among the Turkish tribes of Central Asia the white wool is first separated from the dark one. The layers are spread out on horse skins and are beaten. They are then sprinkled with water and rolled between two reed mats until the mass is solid. First it is rolled with the hands, then continued with the feet, while six or eight women with arms akimbo shove the roll along in equal pace not unlike the movements of a dance, and songs are chanted at the same time. Patterns, if desired, are laid out in dyed wool.

Franz von Schwarz, formerly astronomer of the Tashkent Observatory, in his book *Turkestan* (1900), makes the following interesting observation:

> Among the natives of Russian Turkestan the belief prevails that scorpions, phalanges, tarantulas, karakurts and snakes cannot move on felt mattresses and that consequently one is safe from their attacks by sleeping on felt covers. In how far this opinion is founded on fact I cannot say with certainty; but this much I know that I myself during my travels when as a rule I used felt covers as a padding for my

camp-bed, was never attacked by scorpions, etc., even in places which teemed with this vermin.

Felt among the Mongols

Marco Polo (book I, ch. 52), the Venetian traveler of the thirteenth century, writes that

> the houses of the Mongols are circular and are made of wands covered with felts. These are carried along with them whithersoever they go; for the wands are so strongly bound together, and likewise so well combined, that the frame can be made very light. They also have wagons covered with black felt so efficaciously that no rain can get in. These are drawn by oxen and camels, and the women and children travel in them.

In the same manner Plano Carpini, in 1246, describes the Mongol houses as

> round and artificially made like tents, of rods and twigs interwoven, having a round hole in the middle of the roof for the admission of light and the passage of smoke, the whole being covered with felt, of which likewise the doors are made.

Ibn Batuta, the eminent Arabic traveler of the fourteenth century, when he betook himself to Sarai, was conveyed in a four-wheeled wagon on which he says was placed a sort of pavilion of wands laced together with narrow thongs; it was very light, covered with felt or cloth, and equipped with latticed windows, so that the traveler inside could look out without being seen; he could change his position at pleasure, sleeping or eating, reading or writing during the journey.

Some of the tents were collapsible, others were massive and stationary. On this point we are informed by Carpini as follows:

> Some of the huts are speedily taken to pieces and put up again; such are packed on the beasts. Others cannot be taken to pieces, but are carried bodily on the wagons. To carry the smaller tents on a wagon a single ox may serve; for the larger ones three oxen or four, or even more, according to size.

The carts that were used to transport the valuables of the Mongols were covered with felt soaked in tallow or ewe's milk, to make them waterproof. The stilts of these carts were rectangular, in the form of a large trunk.

White felt played a significant role among the Mongols during the coronation ceremony. The king was placed on a mat of white felt which was spread on the ground. In A.D. 1206 Temuchin was crowned emperor at an assembly of the princes of Mongolia when he assumed the title Chingiz Khan. On this occasion he was seated upon a rug of white felt and was reminded of the importance of the duties to which he was called. An orator who spoke in the name of the nation addressed the new lord thus:

Direct thy eyes on the felt on which thou sitteth. If thou wilt well govern thy kingdom, thou wilt rule gloriously, and the whole world will submit to thy sway; but if thou wilt do the reverse, thou wilt be unhappy and be outcast and become so indigent that thou wilt not even have a piece of felt on which to sit.

This was not merely intended as a moral exhortation, but the ceremony was imbued with a deeper significance. Among the Mongols, even of the present time, white felt is a material endowed with a sacred character. Placing a person on a white felt rug means expressing to him good wishes for his welfare. For this reason a bride is seated on a white felt during the marriage ceremony, or people at the point of starting on a long journey receive this honor. An animal selected for a sacrifice to the gods is slaughtered on a white felt. The women therefore, in speaking of felt, carefully avoid the common word for it (*ishighei*), which is a term of respect, but substitute for it the words *dzulakhai* or *tolok*. It is on record also that the felt rug which served for the inauguration of Chingiz, dignified by the fortune of the world conqueror, was long preserved by his successors as a palladium and sacred relic.

Timur or Tamerlan (1336-1405), the formidable conqueror, is credited with the invention of a kind of felt hat for the use of his troops when he invaded Persia. These headgears guarded his soldiers more efficiently from the sun and rain than turbans, and distinguished them from their enemies.

Of all facts connected with the history of felt the most singular is that the images of their gods were fashioned by the Mongols from this material. Plano Carpini, who in the year 1246 went as ambassador to the Great Khan of the Mongols, informs us:

They have certain idols made of felt in the image of a man, and these they place on either side of the door of their dwelling; and above these they place things made of felt in the shape of teats, and these they believe to be the guardians of their flocks, and that they insure them increase of milk and colts. Whenever they begin to eat or drink, they first offer these idols a portion of their food or drink.

Friar Rubruk, who also made the wearisome journey to Mongolia, has this story to tell:

And over the head of the master is always an image of felt, like a doll or statuette, which they call the brother of the master; another similar one is above the head of the mistress, which they call the brother of the mistress, and they are attached to the wall; and higher up between the two of them is a little lank one, who is, as it were, the guardian of the whole dwelling.

Marco Polo, with reference to the god of the "Tartars," says,

They have a certain god of theirs called Natigay, and they say he is the god of the

earth, who watches over their children, cattle, and crops. They show him great worship and honor, and every man has a figure of him in his house, made of felt and cloth; and they also make in the same manner images of his wife and children. The wife they put on the left hand and the children in front. And when they eat, they take the fat of the meat and grease the god's mouth withal, as well as the mouths of his wife and children.

Friar Odoric of Pordenone, who visited northern China between 1322 and 1328, speaks of the Minor Friars as exorcising devils among the Mongols and throwing into the fire their idols which are made of felt, while all the people of the country round assemble to see their neighbors' gods burnt.

Felt gods formerly existed among the Turks also. Captain John Smith, the same who wrote *The General History of Virginia, New England and the Summer Isles*, has given a vivid description of the life of the Tartars of southern Russia in his *True Travels, Adventures, and Observations in Europe, Asia, Africa, and America, from 1593 to 1629* (London, 1630). He describes the houses of the princes as

> very artificially wrought, both the foundation, sides, and roof of wickers, ascending round to the top like a dove-coat; this they cover with white felt or white earth tempered with the powder of bones, that it may shine the whiter, sometimes with black felt, curiously painted with vines, trees, birds, and beasts.

His most interesting contribution is the description of the felt gods as follows:

> Having taken their houses from the carts, they place the master alwayes towards the north; over whose head is alwayes an image like a puppet, made of felt, which they call his brother; the women on his left hand, and over the chiefe mistris her head, such another brother; and betweene them a little one, which is the keeper of the house; at the good wives beds-feet is a kids skinne, stuffed with wooll, and neere it a puppet looking towards the maids; next the doore another, with a dried cowes udder, for the women that milke the kine, because only the men milke mares; every morning, those images in their orders they besprinkle with that they drinke, bee it cossmos [kumis] or whatsoever, but all the white mares milke is reserved for the prince. Then without the doore, thrice to the south, every one bowing his knee in honour of the fire; then the like to the east, in honour of the aire; then to the west, in honour of the water; and lastly to the north, in behalfe of the dead.

The Mongols, in making felt, wet and beat sheep's wool with sticks, then press it, and tie the rough strips of wool to grazing horses who drag them across the smooth grass surface of the plain and thus complete them.

Felt among Greeks and Romans

The earliest Greek allusion to felt (Greek *pīlos*) occurs in Homer's Iliad (X, 265), where it is said that Odysseus wore a hide helmet lined with felt.

Felt was used by the Greeks for cuirasses and garments, especially rain cloaks; chiefly, however, for tight-fitting caps of a conical shape to be pulled over one's ears to ward off cold or rain (Greek *pilídion*, Latin *pilleolum*). Such a cap was generally worn by artisans and sailors, and appears in artistic representations as their characteristic outfit. Hephaestus and Daedalus wear it as craftsmen; Charon and Odysseus, as seafarers. Brimmed hats also were made of felt. It is a curious coincidence that the Greek fishermen were equipped with a felt cap as their fellow-workers in China still are. In the description of a fisherman's apparatus Philippus mentions "the felt cap encompassing his head and protecting it from wet."

Boots and socks were likewise made of felt, and there is an instance on record that it was used in lieu of armor by Caesar's soldiers when they were much annoyed by Pompey's archers and in need of arrow-proof jerkins (*Bellum civile* III, 44). Thucydides refers to a similar expedient to protect the body from arrows. Even in besieging and defending cities felt was used, together with hides and sackcloth, to cover the wooden towers and military engines.

The ancients used chiefly sheep wool for making felt, more rarely the hair of goat, camel, hare, and beaver. It seems that felt was sometimes used to cover the bodies of animals. According to Aristotle, the Greeks clothed their sheep with soft wool either with skins or with pieces of felt, and the wool turned gray in consequence.

The Romans received the use of felt together with its name from the Greeks (Latin *pileus, pilleus, pileum* or *pilleum*); this word, in particular, denotes the tight-fitting felt cap worn by the Romans at meals, theatrical performances, and festivals. It is a curious fact that the felt cap was among the Romans a symbol of liberty; when a slave obtained his freedom, he had his head shaved and wore the skull-cap of undyed felt. On the other hand, slaves when they were sold by their master, wore this cap as a sign that the seller would not offer any guaranty for them. The phrase *ad pileum vocare* ("to call to the felt cap") had the meaning "to call the slaves to freedom, to provoke them to rebellion through promises of freedom." At the death of Nero in A.D. 68 the common people roamed about in the streets of Rome as an expression of their joy. Suetonius, in his Life of Nero, speaks on this occasion of the "felted mob" (*plebs pileata*). In allusion to this custom the figure of Liberty on the coins of Antoninus Pius (A.D. 138-161) holds the cap in her right hand.

Pliny (VIII, 73) writes that

> wool is compressed also for making felt, which when soaked in vinegar is capable of even resisting iron; and what is still more, after having gone through the last process, wool will even resist fire.

Papadopoulo-Vretos, in 1845, made this communication to the Academy of Inscriptions and Letters of Paris:

I have macerated unbleached flax in vinegar saturated with salt, and after compression have obtained a felt, with a power of resistance quite comparable with that of the famous armor of Conrad of Montferrat; seeing that neither the point of a sword, nor even balls discharged from fire-arms, were able to penetrate it.

The felting process was denoted by the verb *cogere* ("to bring together, to pile up"). A felter was called a *coactor*, *coactiliarius*, or *coactor lanarius* ("wool felter"); his art was designated *ars coactiliaria;* felt products were styled *coacta*. In an edict of the Emperor Diocletianus (A.D. 285-305) is mentioned a horse-cover of felt under the term *centunclum equestre coactile*.

The question may be raised whether the Romans transmitted the knowledge of felt to the Celtic and Germanic peoples, or in other words whether the use of felt in mediaeval and modern Europe is a heritage of classical civilization. The Germanic languages have a word for felt in common: German *filz*, Dutch *vild*, Danish-Swedish *filt*, Anglo-Saxon *felt*. This word is connected by linguists with Old Slavic *plusti*. It is noteworthy that the word for felt in the Romanic languages is not based, as might be expected, on Latin *pileus*, but on the Germanic word: Italian and Portuguese *feltro*, Spanish *fieltro*, French *feutre* (Italian *feltrare*, French *feutrer*, "to felt"), hence mediaeval Latin *filtrum*. It is therefore probable that the Romanic nations received the knowledge of felt not from the ancient Romans, but from Germanic tribes early in the middle ages. The latter may have acquired the art from their eastern neighbors, the Slavs; and the Slavs derived their knowledge from Scytho-Siberian-Turkish peoples. The Russian word for felt, *woilok*, is a loan-word based on Turkish *oilik* ("that which serves as a cover"); the same word appears in Polish as *wojlok*.

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EARLY CULTURES OF ATLANTIC EUROPE

By C. DARYLL FORDE

THE study of European prehistory began with a linear historical classification of major periods— of chipped stone, polished stone and bronze. It was soon recognized that more subtle distinctions and subdivisions were necessary in the presentation of the early advances of human culture, but attempts to give breadth to this one-dimensional scheme were long delayed, and the efforts of Breuil, Obermaier and others to map out the distributions and regional variations of paleolithic cultures are but slowly being reflected in the general body of scientific thought. Stranger still, however, a series of later cultures in which more abundant material affords the opportunity for discrimination based on the variations of elaborate artefacts such as pottery, are viewed by all but a small band of specialists as falling into a broad category known as the neolithic.

Recognition was but slowly accorded to the occurrence of copper implements in certain of these pre-bronze age cultures and even then when the terms "eneolithic" or "chalcolithic" had come into current use, the real significance of the early copper-using cultures as, in many instances, the progenitors of "neolithic" cultures was entirely missed and the development of agriculture, pottery and settled habitation was regarded vaguely as the achievements of new races which moved in undifferentiated groups into lands freed from the grip of ice.

The field aspects of these later cultures differ fundamentally from the paleolithic in two important features which can scarcely be overestimated— the far more infrequent occurrence of stratified sites and the preponderance of material obtained from burial sites over that from habitations. Yet despite the scarcity of invaluable stratigraphic data it is actually possible at the present time to attempt a far more detailed delimitation of culture provinces and lines of movement for the so-called "neolithic" and "chalcolithic" periods than may ever be possible for the paleolithic.

Although the old hiatus once believed to have existed between paleolithic and "neolithic" times has now been bridged by the discovery of the post-Magdalenian cultures referred to collectively as mesolithic or epipaleolithic,[1] it yet remains true that the establishment of the so-called

[1] The term epipaleolithic, although clumsy, is the more suitable since these cultures are not functionally intermediate, and do indeed represent the final efforts of paleolithic groups.

"neolithic" cultures in Europe represented a real break in historical continuity. There is very definite evidence for almost every region that the appearance of agriculture, pottery, and polished stone tools, was not due to the slow experimenting of epipaleolithic groups, but to the arrival of new peoples of distinct cultural tradition who had practised these crafts before their penetration of western Europe in the ameliorated climatic conditions of the sub-Boreal phase.

The routes and periods by which these elements of the new cultures were propagated varied considerably in different areas. Although it is probable that in some areas epipaleolithic groups acquired such arts as pottery-making by slow diffusion, the major process was one of colonization by new peoples. Successions of communities propagated one from another, moving along the riverways, crossing heathland and moor and skirting the dense post-glacial forests, established themselves in new territory that was virtually empty.

Some elements in the later epipaleolithic industries are most satisfactorily accounted for by the arrival of a vanguard of neolithic folks among relatively numerous epipaleolithic survivors. The variations already developed in the "neolithic" provinces of southern and eastern Europe, the distinctiveness of the various cultures surviving from the old stone age and above all the different conditions, geographical and cultural, under which the new contacts were effected, resulted in blends of distinct character which were themselves extended over considerable areas.

Pottery first appears sporadically in western Europe in later epipaleolithic cultures shortly before the establishment of true "neolithic" settlements. It is difficult to believe that dwindling remnants of food-gatherers would have independently discovered the art of pottery and perhaps the elements of agricultural practice at the very period when peoples among whom these crafts were well established were extending westwards across Europe and already lay at their threshold.

These theoretical considerations are further strengthened by a consideration of the epipaleolithic cultures themselves. Since Piette's identification of a distinct post-Magdalenian, pre-Neolithic layer at the entrance to Mas d'Azil (Ariège, France)[2] the distribution and relationships of the various cultures have been provisionally established.

The Tardenoisean phase is characterised by microlithic flint industries. The microlith or pigmy flint was especially developed in consequence of the adoption of a composite tool in which small flint blades were set in wood or bone. This development is variously claimed to have taken place

[2] Assoc. française pour l'avancement des sciences, Pau, 1892.

in the western Mediterranean or in northern Africa. While the Solutreans and Magdalenians successively occupied western and central Europe, the Aurignacian culture continued relatively undisturbed further to the south. Burkitt[3] lays great stress on the development shown in the stratification in the Grotte des Enfants, Mentone, since Tardenoisean types may here be seen slowly emerging from older Aurignacian forms. Early microlithic industries have been discovered elsewhere in this immediate area especially in southern Italy (Romanelli, Otranto) and Sicily (Termine Imerese).

Obermaier[4] and Bosch Gimpera,[5] however, insist on a North African origin for these industries, and believe them to have been originally introduced into Europe by extensive and prolonged migrations of Capsians from northwest Africa into the Iberian peninsula.

Contemporaneous and in some areas blending with the Tardenoisean was the culture represented at Mas d'Azil. Childe[6] rightly insists on the distinctness of the Azilian culture as a degeneration from the Magdalenian. The purest Azilian stations are characterised not by microliths but by numerous rough bone harpoons made, like the Cantabrian harpoons of Magdalenian date, of deer horn and perforated for hafting, and Azilian flint types can be similarly related to the Spanish Magdalenian.[7] The relations between the Azilian and Tardenoisean cultures are difficult to define since the latter has rarely been found in a well defined stratigraphical sequence. Both were, however, directly continuous from preceding, if distinct, paleolithic cultures.

Composite tools with their associated microlithic industry were propagated northwards in the wake of the retreating reindeer in the warming climate of post-Magdelenian times. They were introduced over the greater part of Europe, continued in use throughout the kitchen-midden period, and survived in many of the later, neolithic, settlements. (Figs. 1 and 2.)

In the Baltic area, which had been closed to man throughout the glacial period, the microlithic technique appears in the Maglemosean culture[8] of the first occupants. On account of the highly individualized forms in

[3] Burkitt, M. C., Prehistory, 1921 p. 145, Idem, Our Early Ancestors, 1926, p. 19.

[4] Obermaier, H. Fossil Man in Spain.

[5] Bosch Gimpera, Ensayo de una reconstruccion de la etnologia prehistorica de la peninsola Iberica, 1923.

[6] Childe, V. G., Dawn of European Civilization, 1925, p. 6.

[7] Obermaier, H. Das Palaeolithikum und Epipalaeolithikum Spaniens, Anthropos, 14–15, 1919–20, p. 165.

[8] Johansen, K. F. Une station du plus ancien age de la pierre. *Mem. Soc. Roy. Antiquaires du Nord (subsequently cited as MSAN.)* 1918–19.

bone work, including narrow harpoons barbed on one side, pierced antler tools and hafts, the Maglemosean is sometimes claimed to have originated

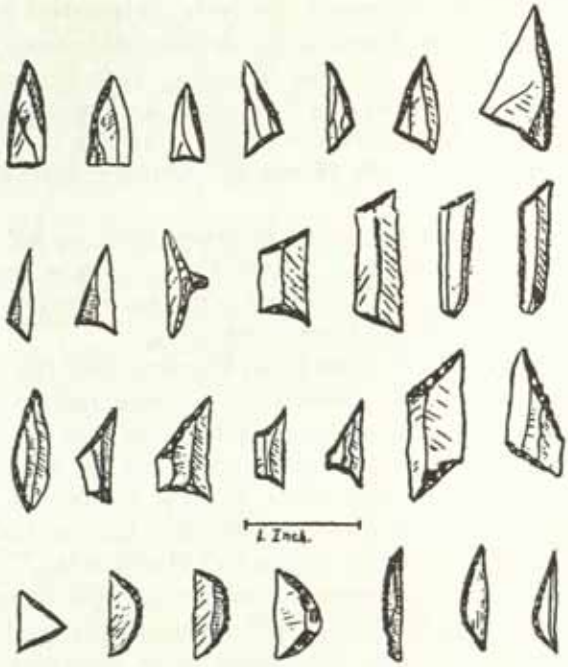

FIG. 1. Tardenoisean microliths from Western Europe. (after Burkitt)

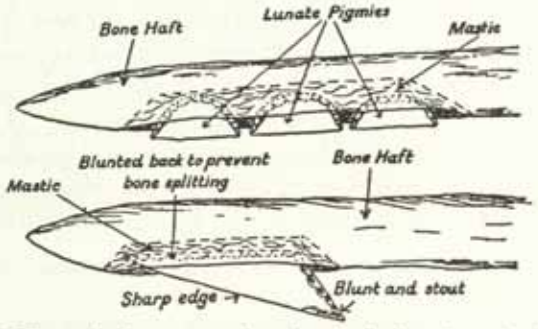

FIG. 2. Theoretical reconstruction of method of setting microliths in composite tools. (after Burkitt)

independently of earlier or contemporaneous cultures elsewhere in Europe. But the bone harpoons and chisels clearly derive from Magdalenian types and the engravings on bone frequently recall paleolithic forms. Bosch-

Gimpera suggests "Capsian" intermixture to account for the microlithic industry. Burkitt while admitting the close parallels between Maglemosean and Tardenoisean in the use of flint, yet claims that

> like the Tardenoisean [the Maglemosean] was aware of the advantages of a composite tool, but there is no reason for interrelating the two cultures.[9]

But it is, on the contrary, highly improbable that two adjacent cultural provinces should at the same period independently conceive and develop an instrument so specialized as the composite flint and wood or bone tool. Burkitt has himself adduced evidence for the slow development of microlithic technique in the Mediterranean area and since the Maglemoseans cannot have penetrated northward into the Baltic region before the retreat of the Yoldia Sea and the beginning of Ancylus times, there can be little doubt that their ancestors previously lived within the sphere of Azilio-Tardenoisean culture; for we have definite evidence that the Tardenoisean culture, as such, penetrated effectively into Poland and south Russia in the east and as far north as the British Isles. Furthermore Kosłowski[10] has shown that some of the characteristic traits of Maglemose also occur in epipaleolithic cultures of northeastern Europe. This suggests that the Maglemoseans reached Scandinavia from the southeast and that some elements of their culture are to be traced back to the upper palaeolithic of Moravia. It is, in any case, clear that the Maglemosean culture represents a further extension of the southern epipaleolithic, with which were amalgamated other elements, such as the superior technique in bonework, which may have been contributed by upper paleolithic groups in north central Europe.

At a later stage there followed a remarkable adaptation to the abundant shell life in the warming waters of the Atlantic shores. A series of coastal settlements, which have left evidence of their occupation in large kitchen-middens of shell debris, extended from Portugal to the Baltic. The abundance of pigmy flintwork in the lower levels of the shell mounds indicates that everywhere they were established by Azilio-Tardenoisean folk. At Mughem (Cabezo d'Aruda etc.) in Portugal a late Tardenoisean date is indicated by the presence of the trapeze from the lowest levels. Chisel-bladed ("transverse") arrowheads are also claimed for the Portugese shell mounds.[11] This type of arrowhead does not appear further north in Europe until Ertebolle and Campigynan times. The Mughem type is

[9] Burkitt, Our Early Ancestors, p. 39.

[10] Kosłowski, L., L'Epoque mesolithique en Pologne, L'Anthropologie, 36, 1926.

[11] Childe, Dawn, p. 4 and fig. 2.

distinct from these late forms and may be merely a Capsian trapeze, but the appearance of such arrowheads in the early Portuguese shell mounds would present no difficulty since the chisel-edged arrowhead was in use in Upper Egypt from early predynastic times and early diffused westwards in North Africa.[12]

The coastal settlements of the Landes and the shores of Bas Medoc (France) may be earlier still since triangles and micro-burins (pigmy gravers) abound, but the trapeze is not well developed.[13] Similar industries extend further north along the French coast around the estuary of the Loire (Buttes de Rocher, Guérande) and in southern Finistère (La Torche, Ile de Sein, etc.).[14]

In the Baltic area the shell mounds (Ertebolle) succeed the Maglemosean culture and proceed directly from it. The continuity is so close that it is difficult to consider the Danish kitchen-middens as directly related to the shell mounds of the Atlantic coast. It is not impossible, however, that shell mound folk from the Atlantic, penetrating the Baltic area, produced the Danish kitchen-midden culture by taking over the characteristic Maglemosean stone and bone tools. Since, however, apart from microlithic flintwork, which was common to the greater part of Europe at this time, there are no direct links between the ill-defined cultures of the earlier Atlantic shell mounds and the Danish kitchen-middens, such a suggestion rests only on similarity of habitat and approximate contemporaneity.

But the Danish midden culture also affords evidence of close connection with other early settlements. In the more interior districts of western Europe a further specialization appeared in the Campignyan culture, of which numerous habitations have been found in northeastern France and Belgium.[15] This culture which has frequently been misrepresented as

[12] Cf. Childe, The Most Ancient East, 1928, p. 69.

[13] Cf. Burkitt, M. C., Prehistory, p. 150.

[14] Du Chatellier, P., Les Epoques Préhistorques et Gauloises dans le Finistère, p. 9 ff; idem, Le Kjoekenmoedding de la Torche, Mem. Soc. d'Em. Côtes du Nord, 1881.

[15] Confusion as to the position of the Campignyan culture has been occasioned largely by the frequent survival of Campignyan tools in neolithic settlements. Furthermore, the excavations of the original site near Bouillancourt-en-Sèry, Seine Inférieure, were not well controlled and the conditions there are uncertain. Neolithic elements including polished stone celts and sherds were among the material recovered, but it is uncertain whether the station itself was late and mixed or whether stray, surface neolithic material was confused with material from the hut foundations proper. But the existence of a well defined inland culture parallel with the shellmounds can be hardly doubted for the characteristic tools have been reported from closed finds over a wide area in north eastern Europe; see Capitan, L., Le Campignien, Rev. Ecole Anthrop. de Paris, 1898.

early, in the sense of incipient, neolithic, is remarkable for the development of simple but effective chipped tools, the Campigny pick and hatchet. The workmanship required was not of high order but the economy of means whereby a sharp and tolerably straight edge was produced in the hatchet indicates decided originality and emancipation from the paleolithic tradition. This form occurs occasionally in Maglemosean stations, but whether such stations are late and the hatchets intrusive cannot yet be determined. It is possible, although unlikely, that the form was first developed in the Baltic area. Roughly shaping a piece of flint or stone to flat triangular form, a large flake was struck off at the broad end, leaving a cutting edge between the new surface and the underside of the flint.

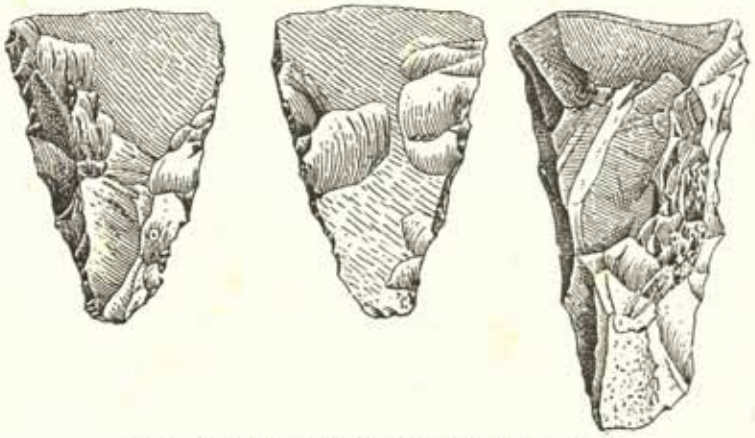

FIG. 3. Campignyan axe-hatchets. (after Déchelette)

(Fig. 3.) The chisel-bladed arrowhead which is also abundant in Campignyan settlements was produced with a similar technique. For the rest, the stone work consists of rough picks, scrapers and awls and occasional small gravers. Well characterized microliths and the composite tool were probably absent.[16]

The Baltic kitchen-middens already referred to were closely related to the Campignyan culture; hatchets, arrow-points, picks and awls of Campigny type are abundant. Although there is little evidence to indicate the relative dates of the cultures, it is generally assumed that the distribution of these forms indicates Campignyan intrusion in the Baltic area as a strong formative influence on the midden culture.

[16] Campignyan forms survived in many backward settlements of neolithic and even later times, and the hatchet is by no means always a certain guide to the date of its context. cf. Childe, V. G., Dawn, p. 18.

In all these industries so far reviewed there is no trace of the true neolithic arts. The only domestic animal is the dog, which had been used since Azilian times. But in the upper levels of several of these epipaleolithic cultures the first signs of the new crafts appear. A little poor pottery occurs in the uppermost layers of the shell mounds at Mughem (Portugal); yet except for a few coarse sherds, pottery is still absent in the later shell mounds of Asturia.[17] De Morgan's[18] claim that the Campignyans throughout possessed domestic animals, tilled the soil and made incised pottery, has never been generally admitted, for these traits are all intrusive in the Campignyan proper as established elsewhere while the site in question was inadequately investigated. But that Campignyan settlements survived after the "neolithic" intrusions and have left on their floors objects borrowed or copied from the new peoples, there can be little doubt.

In the Ertebolle shellmound culture of the Baltic a definite pottery form appears. Coarse conical based pots of poorly baked clay occur occasionally throughout the greater part of this culture. But this ware is no prototype of the later neolithic wares of this region. It is found occasionally in dolmen times, but only in remote corners where shellmound folk survived. Although this Ertebolle pottery undoubtedly precedes true neolithic forms in the area and no prototype has been found in a more advanced culture it is not seriously regarded as an independent development by any but those who would derive all the neolithic arts from the Baltic region.[19] True neolithic celts and pottery of the dolmen type are found only in the uppermost layers of middens such as Langeland, which continued to be occupied in full neolithic times. At Limhamm (South Sweden) the upper levels of a midden yielded the bones of domestic animals and grains of wheat, others have yielded objects of passage-grave date.[20] The evidence is everywhere the same, that neolithic civilization was introduced by new peoples among whom its fundamental crafts were already long established.

Elements of the Megalithic Civilization

In the west these new arts and crafts are primarily associated with the builders of massive stone tombs known as megalithic monuments. The megalithic builders are therefore the first truly civilized people in Atlantic Europe, and we may avoid the ambiguous and frequently in-

[17] Sella, V. dcl.; El Asturiesne, Mem. com. invest. pal. y prch. No. 32, 1923.

[18] De Morgan, J. Prehistoric Man, 1924, p. 7.

[19] e. g. Kossinna, G., Die Deutsche Vorgeschichte, Mannus Bibliotek, No. 9, 1912.

[20] Childe, V. G. Dawn, p. 15.

accurate term "neolithic" by characterizing their variant cultures as part of a Megalithic Civilization in which the massive stone tomb is a stable and distinctive element. During the period of its expansion other civilizing forces were penetrating the area from central Europe, but the megalithic civilization was dominant throughout the region as a whole.

Although their habitations have frequently been lost or obscured by the occupations of subsequent peoples, the rough stone monuments of the megalith builders have, in virtue of their size and solidity, remained as permanent memorials to this early civilization. Pillage and demolition, operating at an ever increasing rate since Roman times, have destroyed much evidence. Many megalithic structures have been entirely obliterated, others ruined and partly destroyed. But the labor involved in their erection has been less readily available in later times for their destruction. Many have in consequence been preserved almost intact.

Destruction has, moreover, been sporadic; tenacious of existence as they are in well tilled plains as well as on barren uplands, there is good reason to believe that their present numbers and distribution represent fairly well, if only in diminished approximation, the areas of settlement and concentration of the early peoples who built them.

The range of the West European megalithic monuments extends from the Iberian peninsula and the islands of the Western Mediterranean through France and the British Isles to the lands flanking the entrance to the Baltic Sea. They are found in the heart of rocky plateaux in central France e.g. the departments of Averyron, Lozère etc., along the low shores of Denmark and in the most inaccessible islands to the far north of Scotland. (Fig. 4.)

It has long been claimed that similarities in the structure of these monuments and parallels to be observed in certain items of their furniture, indicated a community of origin and the spread of an early civilization in Atlantic Europe.[21]

With increasing comparative knowledge both of the megalithic cultures in western Europe and of the early civilizations of the Ancient East and the Aegean, a considerable literature has grown up around the problem of the origins of megalithic architecture and the civilization it connotes. Although an independent origin for megalithic architecture in the separate areas is occasionally claimed, it is generally accepted that there is an ultimate and genetic relationship between the megalithic remains of Western

[21] For early discussions of the subject see Fergusson, Rude Stone Monuments in all countries, and Montelius, Der Orient und Europa, Stockholm, 1899.

Europe. It is established moreover, despite a few dissentient voices,[22] that they indicate the line of an early spread of the fundamental arts and crafts of civilization in a northerly direction from Iberia and the Western Mediterranean. On the foundations of Montelius' *Orient und Europa* a

FIG. 4. The Megalithic culture of Western Europe.

number of writers have elaborated the thesis of an ultimate oriental source for the elements of the megalithic culture, claiming that its westward spread represents a major process in the rise of European civilization com-

[22] E.g. Kossinna, G., *Die deutsche Vorgeschichte*, Mannus Bibliotek, No. 9, 1912, p. 7 ff, who claims a Baltic origin and a southward diffusion. Sophus Müller criticised these views on the basis of the Scandinavian material, in L'Age de Pierre en Slesvig, MSAN, 1914–18, p. 26 ff.

parable to the diffusion along the Danube corridor more recently demonstrated by Childe.[23]

The megalithic peoples frequently erected standing stones (menhirs) either singly or in rows (alignments) and circles (cromlechs), but the central element of the megalithic architecture is the tomb and the vast majority of the monuments are undoubtedly funerary in character. Although variations were developed, essentially similar types of tombs are to be found throughout the entire range. The importance of variations as indications of the sequence of settlement will be discussed later. The furniture of these tombs yields important indications of the activities of the people and, as has already been said, of their external relations. Occasionally where a well preserved settlement is found in conjunction with a megalithic necropolis, as at Los Millares in Almeria,[24] a fairly detailed reconstruction of the whole settlement and life of the community can be made. But more frequently the disturbance of subsequent occupations, the lack of even approximately closed finds, with consequent uncertainty of chronological relationships and, above all, the rarity of systematic exploration, combine to reduce to meagre proportions our knowledge of their habitations and daily life.

The concentration and permanence of their tombs indicate that the megalithic builders were a sedentary people. Although it has been claimed, on negative evidence, that Long Barrow People in Britain were simple pastoralists, there is adequate evidence for the practice of agriculture in the megalithic culture in western Europe as a whole. The sedentary and agricultural characters of the megalithic peoples is abundantly testified in Iberia in the stations of the South. In Denmark, the frequent imprint of grains of barley occurs on the dolmen pottery[25] and in Brittany, as elsewhere, there is indirect evidence of the cultivation not only of food grains, but also of materials for weaving textiles.

The forms and ornament of pottery associated with megalithic tombs are of the greatest value in the establishment of interrelations. Specific forms such as the bell beakers, indicating contact between different areas will be considered later, but the wide distribution of a group of decorative techniques including the Combed Style (*style denté* of Sophus Müller), is of great significance for the area as a whole since their distribution is

[23] Dawn of European Civilisation, 1925; The Danube thoroughfare and the beginnings of Civilisation in Europe, Antiquity, Vol. I, p. 79; and his forthcoming book 'The Danube in Prehistory' (Oxford).

[24] Siret, L. L'Espagne préhistorique. Rev. Questions Scientifiques, 1893, p. 518, fig. 168.

[25] Sophus Müller, p. cit., p. 63.

very wide and coincides to a remarkable degree with that of the megalithic tombs. "Comb" ornament includes designs of zoned bands, triangles, lozenges and zigzags (both direct and reserved) all executed with a comb-like instrument (a comb or toothed wheel of wood or bone) the imprint of which left a line of small sharp incisions. The imprint is usually oblique in relation to the direction of the decorated band or the lines of the vessel. This style is specially well developed in the bell beaker where it is frequently encrusted, but it occurs on other forms and is associated with other decoration on the same pot, including incised and "pecked" ornament effected with pointed tools, cardium shell impressions and, in some areas, imprints of two-stringed cords. Incisions and cord imprints were sometimes filled with a white calcareous paste, emphasizing the design against the dark, frequently burnished background of the ware. The whole group of techniques combined to form the Fine Early Style ("riche style ancienne") as defined by Sophus Müller in the later dolmens and early passage graves of Denmark.[26] The various techniques are common to settlements throughout the Atlantic littoral and western Mediterranean. The resemblances are not merely general, they include specific analogies in technical detail as well as remarkable parallels in complex designs. Comparing specimens from Iberia and Denmark, Sophus Müller[27] claims that:

> with this perfect correspondence between very complex ornamental motifs, one cannot doubt that there is a close relationship between the two examples. But this relation extends to the entire style studied here; the fundamental motives are in great part the same, the designs and their employment equally resemble one another . . . . . There existed a common artistic style which we may provisionally call the Hispano-Danish, and this style appears in Denmark and the south at corresponding points in the cultural evolution.

The pottery of Angelhu Ruju (Sardinia) with zigzag and lozenge decorations, direct and reserved, has precise parallels in Iberia and Brittany as well as in Denmark. In his more elaborate analysis of the early pottery styles of Europe[28] the unity of the Fine Early Style throughout the western Mediterranean and the Atlantic littoral is demonstrated in detail. Figs. 5 and 6.

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[26] MSAN., 1914–19, p. 85 ff.

[27] MSAN., 1914–19, p. 93. cf. figs. 57 and 65; see also Siret L. Questions de Chronologie et d'Ethnographie Iberique, Paris, 1913, pp. 206 ff. p. 214.

[28] Sophus Müller, MSAN., 1920–24, Communautés Stylistiques en Europe dans le recent age de la pierre, pp. 207 ff.

FIG. 5. Sherds of incised ware in the *Fine Early Style*, Denmark. (after Sophus Müller).

FIG. 6. Sherds of bell beaker pottery decorated by *comb* impression, Carmona, Andalucia (after Åberg) (1/2?).

The Culture Sequence in Iberia

The megalithic chambers of Spain and Portugal are generally considered to follow an evolutionary sequence indicating an Iberian origin for the rough stone tomb. A slow development of material culture is said to accompany the elaboration of more massive sepulchres. This sequence adapted first by Cartailhac from Montelius' classification of Scandinavian megaliths has been discussed in a long series of archeological writings.[29] Bosch Gimpera even claims to identify a division into five successive periods (late neolithic, early copper age A and B, full copper age A and B) to be correlated with various alleged stages in the evolution of the megalith grave.[30]

It is sometimes assumed that the megalithic chamber was not originally covered by a mound but originated in North-Western Iberia as a large polygonal boxlike construction of rough stones which imitated a natural cave. Desire to increase the protection of the dead led to the erection of a covering tumulus which, in its turn, since the burial was collective and used for many generations, demanded a gallery allowing access to the chamber.

At a further stage by hypothetical processes variously alleged to have been indigenous (Bosch Gimpera, Leeds etc.) or to have been introduced from the eastern Mediterranean (Wilke, Obermaier, etc.) a domed roof was produced by corbelling the upper courses of a dry-walled chamber. At this same period, the megalith-builders began to excavate into the ground, especially on a hill-slope, thus burying the megalithic tomb, to which access was gained by a descending ramp. To this stage also are ascribed the rockhewn, non-megalithic, passage-tombs, such as Palmella, in south-west Portugal. Meanwhile the megalithic passage-dolmen con-

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[29] See especially—Cartailhac, E. *Les Ages Préhistoriques de l'Espagne et du Portugal*, Paris, 1886: Siret, L., L'Espagne Préhistorique, *Rev. Quest. Scientifiques*, Brussels, 1893, and Questions de Chronologie et d'Ethnographie, Paris, 1913; Dechelette, J. Essai sur la Chronologie Préhistorique de la Peninsule Iberique, *Rev. Arch.*, 12, 1908, pp. 219 ff.; Wilke, G., Südwesteuropäische Megalithkultur . . . . , *Mannus Bibliotek*, 7, 1912; Leeds, E. T., The Dolmens and Megalithic Tombs of Spain and Portugal, *Archaeologia*, 70, 1918–20, pp. 201 ff.; Bosch Gimpera, P., La Arqueologia Preromana Hispanica, in Schulten's *Hispania* (Appendix), Barcelona, 1920; Obermaier, H. El dolmen de Matarrubilla, Sevilla, *Comision de Investigaciones Paleontologicas y Preistoricas*, 1919–21, No. 26; Åberg, N., *La Civilisation Enéolithique dans la Peninsule Iberique*, Leipzig, 1921; Bosch Gimpera and Pericot, L., Les Civilisations de la Peninsule Iberique . . . , *L'Anthropologie*, 35, 1925, pp. 409 ff. Bosch Gimpera, P., Pyrenäenhalbinsel, B. Neolithikum und Kupferzeit, Reallexikon der Vorgeschichte, 1928, 10, p. 348 ff.

[30] L'Anthropologie, 35, 1925, p. 414 ff.

tinued in use and degenerated into the covered gallery in which distinction between funerary chamber and passage was lost and the scale of the monument frequently reduced. The final stage was reached in the closed slab-cist of much smaller dimensions in which only one to two bodies were buried.

Such a typological series has the attractive quality of appearing to explain without remainder the genesis and evolution of the megalithic tomb. So long as attention is restricted to the forms of selected tombs, its very neatness all but compels acceptance. But the analyses of geographic distribution, of tomb furniture, and of relationships with the megalithic culture in Western Europe as a whole, bring out the grave difficulties involved in the application of this typology. Tombs closely resembling these alleged stages are to be found in widely separated areas, e.g., S. France, Brittany, N.E. France, the British Isles, and the Western Baltic region. In the last area a definite chronological sequence of the same kind has been claimed and widely accepted. If the evolution of a series of successive types in Iberia be valid, then, since the various types are represented so widely elsewhere, it might be expected that the successive stages of megalithic architecture were propagated as developed throughout Western Europe; that the simple closed dolmen, for example, was carried along the Atlantic margin at a time previous to the elaboration of the passage dolmen and the cupola tomb in Iberia. If this were so, the grave goods of the tombs would be expected to show great homogeneity throughout the megalithic areas and in each region they should vary more or less definitely according to the type of tomb, i.e., the furniture parallels should tend to be with the tombs of the same type in different areas rather than with tombs of different types in any one area. This, however, is not so. Apart from the tombs themselves, it has required long discussion and marshalling of evidence to establish true cultural unity between the different "megalithic" areas.[31] In France as a whole and more especially in the Breton peninsula, it is very difficult to impose a chronological sequence of this type, and tombs of very different form, from square-chambered passage dolmens to slab-cists, are found from their grave goods to belong to the same period.[32] In Iberia elaborate incised and "combed" ornament is almost entirely absent in the small dolmens of N. Portugal and Galicia and very rare in the smaller

[31] The significance of the megalithic culture was long obscured by these distinctions, as summarized in the terms "neolithic" "chalcolithic," "bronze age," etc. with their chronological implications.

[32] Le Rouzic, Z., Carnac, Fouilles faites dans la region. Campagne de 1921. Nancy, 1922, p. 118, and Forde, C. D., The megalithic monuments of Southern Finistère, Ant. Journ. **7**, 1927, pp. 13, 21.

passage dolmens further south in Central Portugal. On the "evolutionary" theory the megalith builders had at this stage little knowledge of these decorative techniques which are abundant in the larger megalithic tombs of the south. Yet in Denmark these styles occur with their undoubted southern affinities in some of the small dolmens as well as in the *chambres des géants* (passage dolmens).

Since the theory of a slow evolution of megalithic architecture in western Iberia receives little corroboration from the comparative study with other megalithic areas in western Europe, it becomes very necessary to examine its foundation and to inquire whether there may not be other explanations of the variety of megalithic forms in Spain and Portugal and of the parallels between the Iberian forms and those of other areas.

The arrangement of any typological sequence, however neat the dovetailing of objects and however probable the a priori grounds adduced, must always depend for its final validity on a demonstration of the agreement of the proposed sequence with the known or probable history of other objects found associated with the several elements. The "primitive" tombs should yield prototypes of the grave goods found in the "later" and more magnificent passage-dolmens, rock-cut tombs and corbelled vaults. In brief, the typological sequences of the objects found in the megalithic monuments should certainly run parallel with the evolution of the tombs themselves. Bosch Gimpera claims that this is so; he contents himself, however, with somewhat isolated descriptions of tombs and of objects which he would assign to the various stages. Without complete analysis of the material, these elaborate subdivisions cannot be regarded as proven.

Åberg's survey, based primarily on the Iberian museum collections, is far more comprehensive and impartial. It reveals the difficulties of integrating the theory of megalithic "evolution" with the evidence of the grave furniture. He adheres to the orthodox theory of the development of megalithic architecture, but in his summaries of the tomb material and in the inventories of a large number of monuments of different types, no evidence is adduced to confirm us in the belief that there occurred in northwestern Portugal the invention of the simple dolmen which was in the course of time elaborated into the great megalithic tombs and cupolas of Alcalá, Nora and Antequera or the rock-cut chambers of Palmella. Åberg admits the lack of evidence; he shows, for example, that one element or another of the fully developed Palmella furniture occurs frequently in small passage dolmens. He accounts for the sporadic distribution of the Palmella-Ciempozuelos incrusted ware by saying that

the pottery of Palmella was not the only one in use at that period.

It is shown that other incised and unornamented wares described as typical of the passage dolmens coexist with Palmella forms in the same tombs.[33] Indeed the unornamented pottery which is generally claimed to be special to the megaliths of central Portugal and more "primitive" than the Palmella ware is shown to be frequently associated with 'Palmella' and incised wares in a single tomb, and is, moreover, closely similar to that characteristic of the slab cists.[34]

This is an alarming result for it approximates pottery yielded by monuments near either end of the postulated megalithic evolution. Åberg realizes that

> the funerary furniture should follow the evolution of the types of tomb

but admits that

> in the material at our disposal it is impossible to demonstrate this evolution outside that which concerns small details such as the schist and marble idols and the tanged arrowheads. We are not, then, up to the present, able to establish a division in periods.

Despite the admirable commonsense of this analysis, he attempts to mitigate its destructiveness to the theory of a long megalithic evolution by appealing, in the absence of corroborative evidence, to the theory that since the megalithic monuments were collective tombs used for a long period

> the most ancient furniture might then have been removed, destroyed, or mixed with more recent objects and one could scarcely distinguish the first from the second.

This, however, is no avenue for retreat. The slab-cists are not collective monuments and it has already been claimed that their pottery has "primitive" features and resembles that of the "earlier" of the Portuguese megaliths. Can we, in any case, assume the existence of a hypothetical primitive furniture in the smaller passage dolmens which was systematically removed by a later people to the confusion of archaeologists? The furniture of the slab-cists, moreover, varies considerably from region to region and approximates that of the larger tombs of their vicinity. In central Portugal metal is absent from the cists and their furniture corresponds so completely with that of the abundant passage dolmens of the area that Correia justly insists that they cannot be regarded as intermediate forms in an evolution

[33] Åberg, op. cit., pp. 113–114.
[34] Åberg., op. cit., pp. 113–114.

since they are individual graves and contemporaneous with the "dolmens."[35] In Algarve to the south, on the other hand, where ribbed copper daggers and occasional flat celts were placed in the magnificent corbelled passage tombs of Alcalá, copper objects also occur in the cists, among them, significantly enough, Palmella points,[36] and in one case callaïs beads.[37] (Fig. 7.)

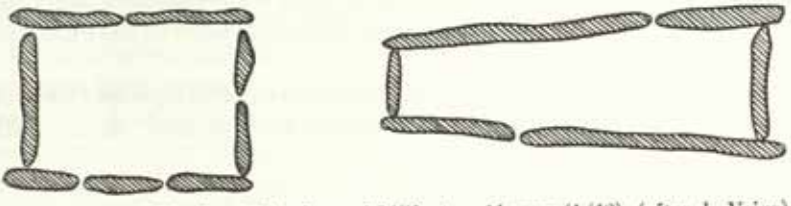

FIG. 7. Megalithic cists, Odemira and Milfontes, Algarve (1/40). (after da Veiga)

Åberg is, however, far more judicious than most writers on the megalithic civilization of Iberia and admits that he remains

a little circumspect of the conclusions to which M. Bosch Gimpera has arrived.

Despite his obvious affection for the megalithic evolution of Montelius and Cartailhac he yet must admit

that the culture with which we are dealing here, represents a period the duration of which is relatively short.[38]

It becomes transparent therefore that the great galleries and cupolas of Algarve, Huelva, Andalucia and Almeria, the rock-cut tombs of Palmella, and the passage dolmens of central Portugal and western Spain are virtually contemporaneous. The smaller passage dolmens have a poorer but not earlier furniture; they represent a "poorer element of the population" or, in other words, a provincial degradation typical of peripheral areas.

We have now to consider the alleged priority of the closed dolmen in which, it is assumed, is to be found the genesis of the megalithic idea. There is, in the first place, every reason to regard the originally free standing dolmen as a myth; no furniture has ever been recovered from these exposed chambers, and Leeds claims that traces of tumuli are to be found

[35] Correia, V., El Neolitico de Pavia. Com. invest. pal. y preh., No. 27, 1921, p. 71, and fig. 55.

[36] e.g., the cist necropolis of Odemira, Villa Nova, Serro de Eira da Estrada etc., Estacio de Veiga, Antiquedades monumentaes do Algarve, 1886–91, 4, pp. 112–140. Plates 11–13.

[37] Maudinheiro. Estacio de Veiga, op. cit., 4, p. 120, Plate 13.

[38] Åberg, op. cit., p. 115.

round many, while others are known to have been previously covered by a mound both in north Portugal and northeastern Spain.[39] There is little doubt, as Cartailhac realized long ago, that the free-standing dolmen is a ruin and that all megalithic chambers were originally concealed in a tumulus. It follows that the ingenious derivation of the passage dolmen from the free-standing dolmen consequent on the erection of a tumulus, loses its theoretic force. It must also be realized that many of the apparently simple dolmenic ruins may often be the relics of destroyed passage dolmens, for a closing slab on the fourth side is rarely found and Leeds has even gone so far as to account for this by suggesting an unclosed three-sided type of dolmen.[40] Finally, closed dolmens are sporadic in Portugal, where this alleged type is found in close proximity to passage dolmens.

In north Spain—Galicia, the Basque province, the Spanish Pyrenees, and northern Catalonia—rectangular closed dolmens are well-known.[41] But they are not early; their grave contents are similar to those of the passage dolmens in the same areas and in the East, because of their undoubted "chalcolithic" features, are frequently described as cists.[42]

The claim that megalithic architecture originated in Iberia with a simple, closed, and probably freestanding chamber relies entirely therfore on the sporadic and ruined tombs of north Portugal from which practically no furniture has been recovered. These tombs are assumed to be early, in deference to the Scandinavian sequence, although small closed chambers equally "primitive" in construction are known to be late further east in the Pyrenean culture.

The geographic distribution of the various tomb types carries us a stage further in the problem. The focal points of the "copper age" civilization of Iberia lie in the south. The magnificent tombs whether rock-cut, megalithic or corbelled, are found, with very few exceptions, in the southern provinces of Portugal and in southern Spain (Andalucia and Granada).

Leeds distinguishes the finer monuments from the smaller passage dolmens, referring to the former as "megalithic tombs." He notes that they are frequently subterranean, i.e. have been excavated in a hillside. From the entrance there is a descending ramp, which occupies the outer part of the

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[39] Leeds, op. cit., p. 202.

[40] ibid., p. 202.

[41] Bosch Gimpera, P. Prehistorica Catalana, Encyc. Cat. p. 107 ff.; Pericot y Garcia, La civilisation megalitica catalana, Barcelona, 1925.

[42] Cf. Leeds, op. cit., p. 230.

gallery. There is not, however, an absolute distinction between these monuments and the surface passage-dolmens. Many intermediate forms, partly buried and partly covered by a tumulus are known.[43] Moreover, certain very fine and massive monuments certainly of this class were constructed above ground level, e.g. dolmen de Soto.[44] These tombs are generally of great size and elaborate construction. The forms of chamber are varied: polygonal, rectangular, circular. Both the megalithic and drystone walling are employed, often within a single monument and the circular chambers are domed by means of corbelling. In the great necropolis of Alcalá, Algarve, some of the tombs are almost entirely megalithic, while others are carried out in ashlar walling.[45] A similar juxtaposition of megalithic and corbelled types is found at Los Millares, Almeria, in the southeast.[46]

The smaller Portuguese passage dolmens which are as a rule of comparatively rough construction, and for which little or no excavation was undertaken, are more remote in geographical position occurring in greatest numbers in central and north Portugal.[47] Their furniture, although poorer, prohibits any attempt to date them appreciably earlier than the large "megalithic tombs" of the south, for they frequently contain pottery and votive objects of the same type as the southern tombs, e.g. schist plaques and croziers.

The alleged prototypes of this architecture, the "simple dolmen" and passage dolmens with very short galleries, are still more remote. They do not occur in the south and are rare in central Portugal. They are found, as we have already noted, in Northern Portugal, Galicia, the Basque province, Navarra and Catalonia. These "primitive" forms are not concentrated on a limited area but span the base of the peninsula from west to east and are associated with small passage dolmens and undoubtedly degenerate covered galleries.

Several conclusions can now be suggested. In the first place, the megalithic tombs of the Iberian peninsula fail to show that slow elaboration of grave goods which the theory of local origin and development would expect. The less imposing tombs have the unfortunate habit of yielding objects typical of the great southern centres and cannot legitimately be dated early. Secondly, the quality of megalithic construction deteriorates as

[43] Leeds, op. cit., pp. 204, 205.

[44] Obermaier, H., El Dolmen de Soto, Huelva, Boletin de la Soc. Esp. de Excursiones, 32, p. 1 ff. and figs.

[45] Estacia de Veiga, Antiguidades monumentaes do Algarve, 1, p. 248, 3 p. 137.

[46] Siret, L'Espagne préhistorique, Rev. Quest. Scientifiques, 34, 1893, p. 522.

[47] Leeds, op. cit., p. 213.

one passes northward in the peninsula and the possibility immediately suggests itself that the classical typology begins at the wrong end, that the history of megalithic construction in Spain is, in the main, one of degeneration. This would explain why the megalithic monuments of the north, in Spain and Portugal alike, are of less elaborate construction, and would at the same time account for the occurrence in the Catalan tombs of objects typologically late. It would appear, therefore, that the traditional typology is an example of the frequent mistaking of the degraded for the primitive. Leeds admits that the "evolutionary" sequence raises great difficulties, that the problem of distribution

> is in no way simplified by a survey of the material known up to the present time. Indeed it would seem to be rendered even more difficult than before.[48]

There are indeed insuperable difficulties. If the megalithic tomb evolved in western Iberia from a simple closed chamber to a large galleried tomb, partly excavated underground, and developing variants with corbelled vaults and rock-cut analogues, it is strange that there should be an almost complete geographical separation between the first and last stages in the development.

Finally, if the simple dolmens and small galleries are at the beginning of the series, their furniture should be homogeneous and fairly uniform; but there is actually a more considerable variation between the furniture of the various groups of small dolmens, passage dolmens and galleries in the north, i.e. between the Catalan, Basque, Galician and north Portuguese, than between the grave goods of the great megalithic tombs in the south from the Tagus to Almeria. Between the southern centres, considering the vigor of their civilization, there is an astonishing uniformity; Siret and Déchelette[49] long ago pointed out their essential synchronism.

The affinities of the more northern Portuguese passage dolmens are with the western group of megalithic tombs. This is evidenced above all by the distribution of schist plaques and croziers. The Catalan monuments, on the other hand, dominantly reflect the Almerian and western Mediterranean cultures with their greater wealth of metal objects, poverty of polished tools, and distinctive types of bell beaker ornamentation.

If, as Leeds[50] and Childe[51] have claimed, the Catalan megaliths are more closely related to the trans-Pyrenean cultures of southeastern France, it would follow that the polygonal dolmens of northwestern

[48] Op. cit., p. 225.
[49] Rev. Arch., 1908, p. 219 ff.
[50] Op. cit.
[51] Dawn, p. 277–278.

Iberia (N. Portugal and Galicia) and the square chambers of the northeast represent architectural degeneration in different areas and have no direct typological relationship to one another, while the associated grave furniture is likewise derived from distinct proximate sources.

If the results of this analysis are accepted we must regard the Iberian megalithic culture as first developing in two related southern centres, Southern Portugal, Huelva and Andalucia in the southwest and Almeria and eastern Granada in the southeast. (See Fig. 4, page 28).

While tomb construction with rough unshaped but small rock material built up without the use of mortar (dry-stone or ashlar walling) is elaborately developed in both areas, the use of large, truly megalithic blocks, is more extensively developed in the west and that, moreover, in the lesser and more remote centres from which the furniture is less rich, especially in metals. There are also found in the western area groups of rock-cut tombs of which those at Palmella are the most famous. These sepulchres were hewn in a soft rockface from which a passage often widening out into one or more bulging antechambers leads to a circular chamber. This form as at Alapraia (Cascaes) and Folha de Barradas (Cintra) and Palmella, is very uniform and was executed elsewhere in megalithic blocks, e.g. Ordem, (Pavia).[52] It should also be realized that the polygonal chamber of the western passage dolmen is merely the angularization of the circular chamber of the drywalled and rock-cut tombs consequent on the use of a few large flat-faced megalithic slabs. Since the evidence has clearly indicated that megalithic construction degenerated in the more northern parts of the peninsula it would appear that the circular chamber, frequently provided with smaller side chambers and approached by a long corridor was the original Iberian type. It was executed by excavation in soft rock, by construction in ashlar walling covered by a tumulus, thus imitating a subterranean tomb, and again in megalithic blocks which afforded solidity without demanding the same care in construction as the corbelled tomb, but at the same time limited the scope of the architect on account of the clumsiness of the material. (Fig. 8.)

The close interrelations between the two southern centres have frequently been noted, but their distinctive traits should also be briefly described. In the southwestern area copper is not generally abundant. At Palmella there are found only a number of curious copper points splayed at the top into flat oval shapes somewhat resembling an unrolled racquet pin (fig. 9). These Palmella points have also been recovered from mega-

[52] Cp. Correia, V., El neolitico de Pavia, Com. Inv. Pal. y. Preh, 27, 1921, p. 63 ff and figs. 50, 56–58.

lithic tombs in the southwest[53] and at Los Millares in the east. In the corbelled tombs of Alcalá, however, flat copper celts and tanged daggers are also numerous. (Fig. 10.) The flintwork is throughout of very high quality. Pressure-flaked arrowheads, mitriform and triangular untanged

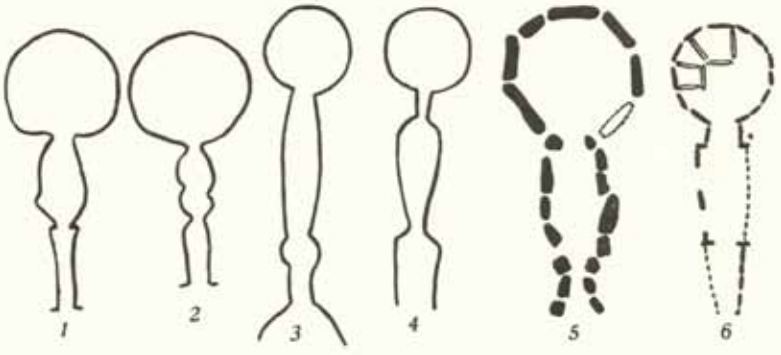

FIG. 8. Rock-cut tombs and their megalithic counterparts in S. W. Iberia. 1, 2, Palmella; 3, Alapraia (Cascaes); 4, Folha de Barradas (Cintra); 5, Ordem (Cascaes); 6, Marcella (Algarve). (1, 3, 4, 5 after Correia, 2, 6 after Cartailhac. Scales not uniform).

forms with long thin barbs are most characteristic (fig. 11,1-5). These arrowheads do not extend into the northern Portuguese area where the flintwork is characteristically microlithic, triangles and trapezes again indicating the intrusion of the southern culture into an area of surviving epipalaeolithic groups.

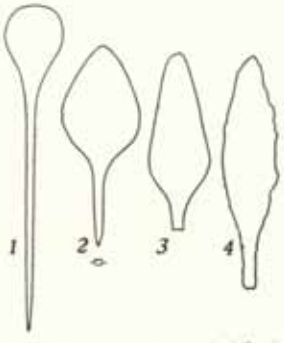

FIG. 9. Copper points, Palmella (1/4). (after Åberg)

Finely shaped polished axes of greenstone, diorite etc., whose wider relations will be considered later, are concentrated in the south. Bone but-

[53] E.g., from the ruined passaged dolmen adjacent to the dolmen de Soto. Cf. Obermaier, H. Dolmen de Soto, p.

tons with V-perforation, ornaments and occasional small receptacles of stone, are among the objects indicating the direction whence came much of the inspiration of this culture. But most characteristic and essentially

FIG. 10. Copper tools from corbeled tomb, no. 3, Alcalá (c. 1/4). (after de Veiga).

native, are the schist plaques and croziers carefully decorated with incised rectilinear and occasionally anthropomorphic designs. The schist plaque

FIG. 11. Iberian arrowpoints. 1–5, Alcalá (1/1) 6, 7 Los Millares (1/2).

is indeed the "type ornament" of the southwestern province, it extends rarely and in poor specimens into northern Portugal. Occasional rough plaques are found in Almeria but, although of the same family, they are

clearly distinct from the southwestern type. Cylindrical "idols" of stone or bone with very degraded incised face symbols, or simple carved knobs on top are also characteristic of this area and distinct from the "phalange" idols made from animal bones which are found in Almeria. Beads of the light green stone generally known as callaïs were used abundantly; they appear to be concentrated in the lower Tagus region, for nearly eight hundred have been found in the tombs of the province of Estramadura, nearly four hundred in Alemtejo and over ninety further south in Algarve. No less than 286 were recovered from three of the tombs at Palmella and they have been obtained in large numbers from other individual tombs.[54]

Two distinct wares are associated with the tombs of this area. Especially characteristic of the Palmella tombs are a variety of forms suggesting the development and crystallization of the bell beaker form and ornament. The majority of the Palmella pots are more squat, more deeply constricted at the waist, and more pointed at the base, than is the standardized bell beaker which was so widely diffused throughout western Europe. (Fig. 12.)

FIG. 12. Palmella beakers. (after Cartailhac)

These and other forms of which hemispherical bowls are the most characteristic, are decorated with elaborate incised and "comb" designs. This ware is

[54] Personal communication from Miss. L. F. Chitty.

not confined to Palmella and such megalithic tombs as the passage dolmens of Seixo and Ordem and the corbelled tombs of Monge and San Martinho, but is found in cave burials extending over a considerable part of southwestern Spain (Estramadura and Andalucia) while a richly ornamented group of this ware was yielded by a cave find in central Spain (Ciempozuelos). (Figs. 13, 14.) In other tombs of which the Algarve groups are the most

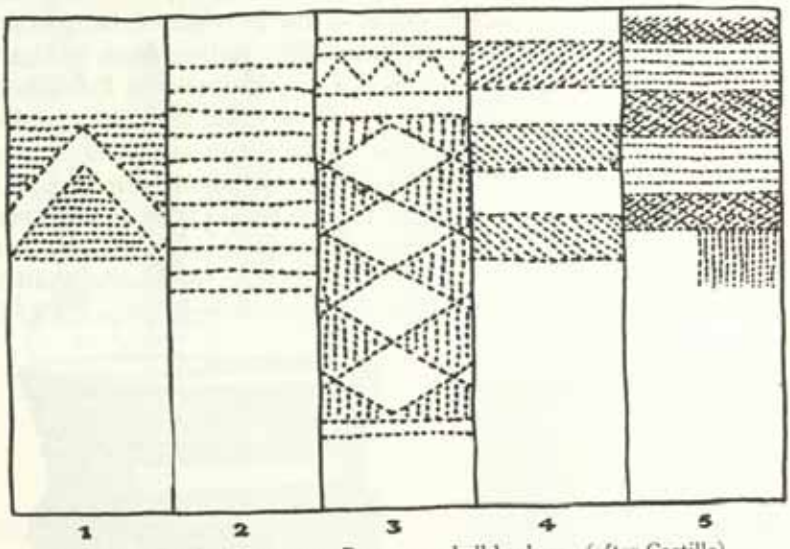

FIG. 13. Comb ornament on Portuguese bell beakers. (after Castillo)

magnificent, burnished unornamented pottery of distinct forms is found, globular pots and low carinated bowls being the most frequent types. Such ware has been frequently found to the exclusion of the Palmella type, e.g. in the chamber of Nora, but it is difficult to follow Bosch Gimpera's claim that it is clearly later in date[55] since, as Åberg[56] points out, so many other elements are found in association with both wares e.g. schist plaques, marble idols, copper points etc. Bosch Gimpera considers that the later date of the Alcalá and Marcella tombs is further indicated by the greater abundance of copper objects, flat celts, and even arrowheads. If these are a consequence of Almerian influence, as he suggests, some lapse of time may be implied, but Algarve itself is particularly rich in copper ores and ancient workings are indicated in the vicinity of the megalithic concentration in the maps of Estacio da Veiga, while the design of Marcella is a megalithic homology to the rock cut tombs of Palmella, etc.

[55] L'Anthropologie 35, 1925, p. 419.

[56] Åberg, op. cit., p. 114.

The megaliths in central and northern Portugal are of smaller and less elaborate construction. Stone axes are but roughly polished and the fine

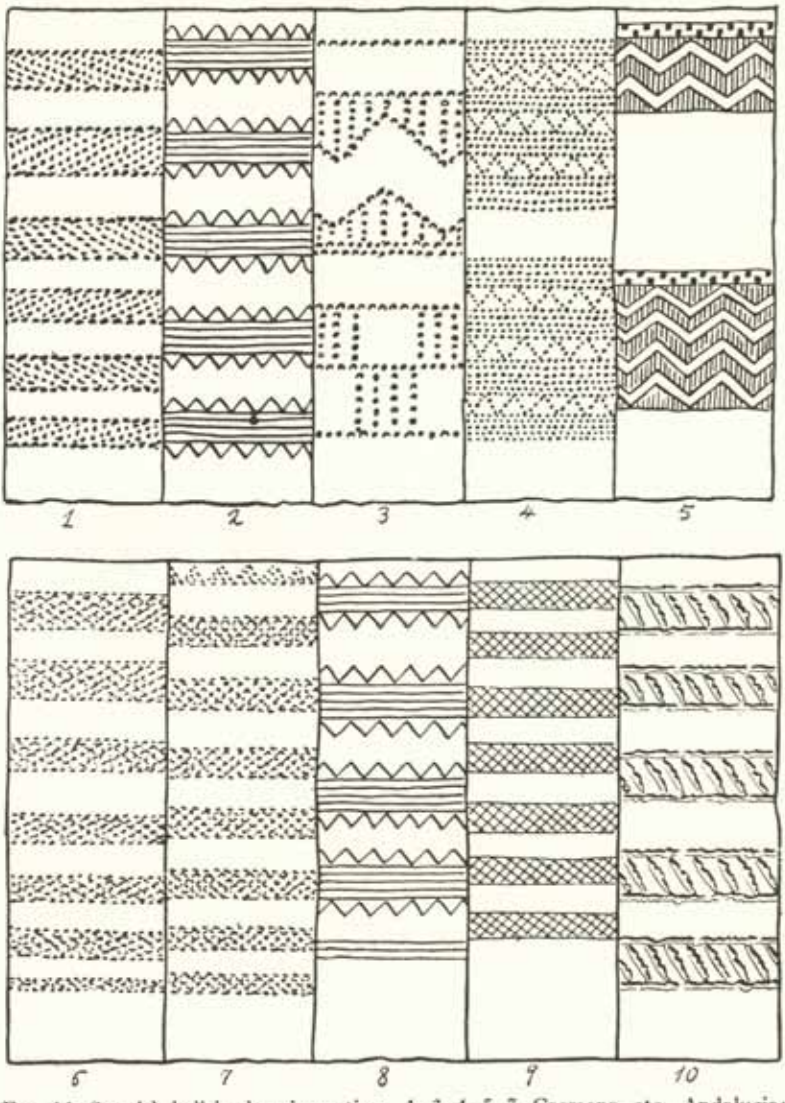

FIG. 14. Spanish bell beaker decoration. 1, 3, 4, 5, 7, Carmona, etc., Andalucia; 2, 6, 8, 9, 10 Los Millares, etc., Almeria. (after Castillo)

flint work of the south is lacking. Palmella pottery does not occur but the forms show relations with the unornamented wares of the south. The

schist plaque thins out rapidly in Alemtejo but callaïs and other beads are numerous in the tombs of the central Portuguese area.

The extensive excavations of the Sirets have yielded abundant material for the delineation of the culture of southeastern Iberia, which is concentrated especially in Almeria and eastern Granada; extensive villages and megalithic cemeteries have been explored, the station of Los Millares is especially remarkable, a large settlement occupied a bluff overlooking the Andarax river, a deep ditch cutting off the sections that were not protected by the cliffs. Rectangular houses in dry stone walling occupied the site to which water was led by an aqueduct from a hillside spring. A group of "forts" overlook the village from neighboring hills. The cemetery which occupies the inner section of the bluff extends over a considerable area. Over a hundred tombs are disposed in small groups, some are quadrangular and of megalithic construction, but the majority have circular corbelled

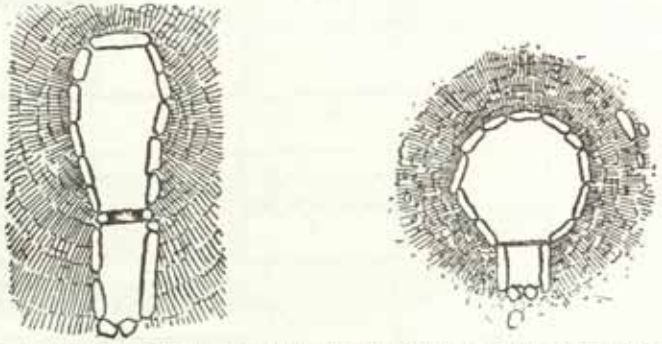

FIG. 15. Los Millares, Megalithic gallery (Tomb 8) and Tomb with corbeled chamber (no. 2). Note the holed-stone entry in tomb 8. (after Siret, no scale given)

chambers of dry stone walling. (Fig. 15.) Siret describes the corbelled tombs as follows:

the chambers are generally three to five metres in diameter, occasionally six. The walls are frequently lined with (megalithic) schist slabs to the height of a metre on which traces of plaster and paintings are found . . . . . The vaults and walls of construction would be about a metre thick but they cannot be distinguished from the rest of the mound which surrounds them. A single or double ring of upright stones retains the earth of the mound . . . . . On one side, generally that facing the sea, i.e. the east . . . . the wall of the chamber is pierced by a passage way which is frequently divided into a series of antechambers by other doors. The passage is constructed with upright slabs or dry stone, the roof is of flat slabs or corbelled. The portals are built of a frame of slabs or by a single holed

stone . . . . . The passage is entered by descending two or three steps . . . . . Some tombs are partly and others entirely buried in the earth.[57]

The burials in these chambers may be as great as one hundred. Although traces of partially burned bone and cloth are occasionally found, inhumation is the rule.[58] (Figs. 16, 17.)

FIG. 16. Los Millares, entrance to Tomb 17. Note the entrance to a lateral chamber at the left of the antechamber, the holed-stone entry to the main chamber, and the broken schist pillar which supported the dome. (after Siret)

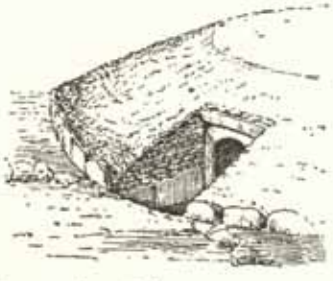

FIG. 17. Los Millares, Restoration of the entrance to a tomb. Note the sunken forecourt and the megalithic retaining wall. (after Siret)

Similar settlements are known at Almizaraque and Las Canteras in the same immediate region. Other cemeteries are found further west at Belmonte, Purcherra, and Gor.

The furniture is extremely rich. Copper is more abundant than in the west, flat celts, daggers and awls, pincers and pins, are standard tools, and

[57] Siret, L. R.Q.S., Bruxelles, 34, 1893, p. 522 ff.

[58] Ibid.

the implements of polished stone are correspondingly rare and insignificant. (Fig. 18.) The flint work (knives, daggers, and arrowheads) is as magnificent as in the west; lozenges and mitriform, points of similar form and execution, are found in abundance. But there is also an extensive development of tanged points, which are rare in the western area. (Fig. 11,6-7.) Small stone pots, generally of alabaster, recall similar occasional finds in the west. e.g. at Palmella. Ornaments of amber, callaïs, amethyst and jet, and a dagger of hippopotamus ivory indicate the extensiveness of trade relations.

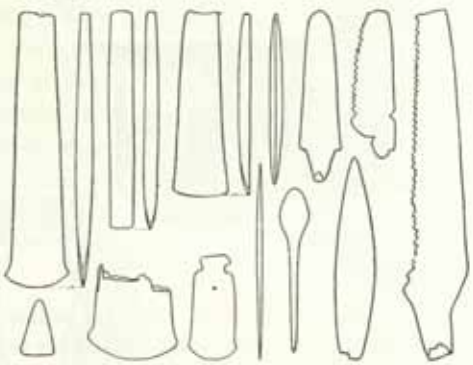

FIG. 18. Copper tools, Los Millares, etc., Almeria. (1/4) (after Siret)

The pottery again falls into two groups, but both wares are found together in the tombs. The one is richly ornamented with incised and comb decoration in which geometric, animal and ritualistic designs are found. In this group fall a number of bell beakers of fully developed form decorated very restrainedly in the combed style with parallel horizontal bands of oblique markings. (Fig. 14.) Other pottery is burnished but undecorated, the technique of manufacture being apparently similar to that of the corresponding western wares.

In the southeastern region other sites have been found which Siret and Bosch Gimpera attribute to earlier periods. At El Garcel and Trez Cabezos village sites yielded a variety of polished stone tools (axes, chisels, gouges) of diorite, fibrolite and greenstone with a burnished pottery. A small stone "violin" idol strongly reminiscent of Aegean forms (Early Minoan, Troy II etc.) is a remarkable feature at El Garcel. This "idol" is also known in the west, e.g. from the settlement of "El Castillo" near Pavia, Alemtejo, Portugal.[59] Arrowheads are completely lacking but numerous

[59] Correia, op. cit., p. 18.

microlithic flints, including characteristic Tardenoisean trapezes and triangles abound.

The village of Gerundia and the slab cist graves of Palaces, Puerto Blanco, and Velez Blanco[60] show a somewhat more elaborate culture, including callaïs beads, bracelets of pectunculus shell, copper pins and awls, while at Parazuelos and Campos copper celts and arrow points are abundant. Although it is possible that these sites record the elaboration of the Almerian civilization, it is yet equally probable that they represent outlying and minor settlements of the fully developed culture. The idols and ovoid pots suggest east and mid-Mediterranean sources; slag of copper ores was found at El Garcel[61] while the occurrence of Tardenoisean flint forms might well follow from the intrusion of Almerians among epipaleolithic aborigines. In any case these settlements do not afford prototypes for the megalithic chambers of Los Millares etc.; burials are in caves or slab-protected trenches.

The Almerian culture extended rapidly along the eastern shore of Spain, but megalithic construction did not accompany it here. In Murcia, Valencia, and Aragon, extending far up the Egro valley, trench and cave burials, and settlements yield fairly rich furniture of Almerian arrowheads, fibrolite axes, stone beads, together with occasional beakers and copper tools. In southeastern Catalonia (Tarragona, Barcelona and eastern Lerida) an important center developed. Pectunculus bracelets, callaïs beads and fine stone celts are found in the burials of this area in which megalithic construction, save for a menhir-like pillar indicating the site, is again generally absent. The abundance of trapezes and lack of arrowheads conform to the condition of Palaces and Puerto Blanco in the south, which implies for Bosch Gimpera that the Catalonian extension preceded the occupation of intervening country.

In the Pyrenean area of northeastern Catalonia, Navarra, and the Basque provinces, megalithic chambers (passage tombs, galleries, and small closed chambers) reappear abundantly. The abundance of copper and zoned beakers indicates Almeria as the dominant influence. But the relation may have been indirect, arriving via southern France, for, as Leeds has shown, the Pyrenean culture both in tomb form and furniture is homogeneous on both sides of the range and most closely related to the Provencal culture.[62] Bosch Gimpera regards the Pyrenean megaliths as derived from the west and points to the elaborate design, zigzags, bands of

[60] l'Anthropologie, 35, 1925, p. 432.

[61] de Motos, L'edad neolitico en Velez Blanco. Com. invest. pal. y. preh. No. 19.

[62] Leeds, E. T., op. cit., p. 230.

triangles etc. on beakers found in northeast Catalonia with bone buttons and prismatic plaques with V-perforation as indications of this source. But although our knowledge of the monuments further west is extremely inadequate, there is no reason to believe that these, any more than the north Portuguese tombs, bridge the gap between Catalonia and southwest Iberia and the V-pierced bone ornaments may well have their closest parallels in Sardinia. So that provisionally the isolated Pyrenean group is more safely to be linked with the neighboring culture in southeastern France, whose character will be discussed later.

There is no doubt, however, that southwestern influence penetrated this area for typical southwestern incrusted pottery with radial designs of the Palmella-Ciempozuelos type are found in cave burials in northern Catalonia,[63] and in a group of small galleries and caves in the district of Solsona in Lerida (north Catalonia). But with the latter group are found square V-pierced bone buttons, copper daggers, points, etc. and tanged arrow points related to southeastern forms and the culture is undoubtedly mixed.[64]

The Almerian and southwestern civilizations did not penetrate so freely into the central plateau of Iberia. Bosch Gimpera groups together as one culture the two very distinct provinces that are indicated by the pottery found in cave burials in this area. In the north, relief decoration by means of plastic bands, buttons etc., together with lines of irregular thumbnail impressions on the bands or rims, is found almost exclusively in a large series of cave finds. Regarding these as a local Iberian development, he considers that similar types in southern France indicate northern extension of Iberian Capsians, but as Poisson[65] points out, the distribution of this pottery in Spain forms a triangle based on the Pyrenees whose point extends southward only to Madrid. Not only does its distribution fail to coincide with the undoubtedly earlier centers of Capsian culture in Spain but it further suggests a trans-Pyrenean source for the style. Plastic ornament is a characteristic feature of the "neolithic" settlements of the continental interior, e.g. the western lake dwellings and the fortified stations of the middle Rhine. Forms related both to these and to the northern Iberian are recorded over the intervening areas in stations of the "Camp de Chassey" type and in caves in the Alpes Maritimes and the Central plateau of Lozère, Dordogne, and Ariège.[66] There can be little doubt there-

[63] E.g., Cova fonda de Salamo.

[64] Åberg, op. cit., p. 147 ff. for an admirable summary of the material of this region.

[65] Les Civilisations néolithiques et énéolithiques de la France, Rev. Anth. 38, 1928, p. 246.

fore that the north Spanish plastic ware represents a continental movement into the Iberian peninsula that was arrested and engulfed by later movements of the megalithic culture.

In the southern section of central Spain, cave finds of pottery are associated with polished stone axes, flintwork of southwestern and Almerian types and copper tools (flat celts, daggers, awls etc.). The pottery of this region is decorated with bands of incised lines, and zones and zigzags in the comb technique. These cave finds mingle with the megalithic tombs of western Andalucia, and in the vicinity of Carmona, a little east of Sevilla, a rich variety of bell beakers have been obtained from settlements, caves and megalithic tombs. The richness of the Andalucian material on the fringe of the megalithic area and the Ciempozuelos finds further north have led Bosch Gimpera and Castillo[67] to claim that the bell beaker style was elaborated here and introduced into the southwest from the central province. But the Palmella pottery would appear to offer an equally good typological series for the evolution of the bell beaker, while the varying richness of the cave finds, in pottery and other furniture, which is taken to indicate evolution from a simple neolithic to a copper age culture, more probably resulted through gradations in cultural remoteness from the southern centres.

The Bell Beaker

The bell beaker affords a remarkably valuable cultural index in the early cultures of Western Europe. Exceptionally standardized in form and ornamented in characteristic and unmistakable techniques it is distributed over a very wide area extending from the central Mediterranean to the English Channel. Characteristic throughout southern Portugal and Spain, extending in large numbers into the northeast, the earlier 'Atlantic' bell beaker is more abundant in Iberia than elsewhere. But although it is generally accepted that this crystallization of form and ornament took place in southern Iberia, and that the mature bell beaker, whether of western or central European form, is everywhere derived from the Iberian, its early development is nevertheless obscure. Siret and others have suggested that its shape and ornament are derived from basketry prototypes. This explanation has been widely accepted and more recently Childe has carried it a stage further. Remarking the general similarity to the earliest known Egyptian pottery—the beakers of the Badari culture

[66] Cf. Schuckhardt, C. West Europa als alter Kultur kreis. 1913, cp. Poisson, op. cit., pp. 250–252.

[67] Alberto del Castillo, La ceramica incisa de la cultura de las cuevas de la peninsula Ibérica, Barcelona, 1922.

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—he suggests that both were produced in imitation of archaic esparto grass basketry forms in use in Africa from the remote past until the present day. Surviving on the southern fringes of the Sahara, this form either in basketry or already translated into pottery formed one element of a slow cultural drift which introduced shell bracelets, disc beads, and later hollow based arrowheads of African types into northeast Africa and Iberia.[68]

Bosch Gimpera and Castillo while not denying the influence of basketry in both form and ornament have claimed to have identified the actual scene of the elaboration of the bell beaker in the region of Carmona, insisting that it and other forms, together with comb and incrusted decoration used there, were strictly autochthonous and only later grafted on to the megalithic culture. But the pottery of the Carmona region is derived from both megalithic tombs and cave finds on the fringe of the southwestern megalithic centre. With the exception of the Ciempozuelos cave finds further north the richest ornament and greatest variety of forms are associated directly with megalithic tombs[69] and it is only on the assumption, which we have already questioned, that the megalithic culture developed slowly from rude beginnings in north Portugal, that this pottery can be regarded as originally dissociated from the southern cultures. But the character of the wares of the Carmona region and of the Palmella tombs undoubtedly afford some clue to the development of the beaker. The tall slender bell beaker, decorated in bands of 'combed" ribbons, zigzags or triangles, is not characteristic of these wares. The dominant forms are hemispherical shapes and low, waisted bowls with a smoothed carination (figs.12), which indeed are squat compressed bell beakers. At Palmella a whole series of gradations from the squatter form to normal bell beaker shape can be observed, and it is immediately suggested that the bell beaker may well have developed in western Iberia as Bosch Gimpera claims, by a heightening of the low, waisted carinated bowl. The elaborate radial patterns and incrusted technique of the Carmona, Palmella, and Ciempozuelos bowls and beakers are remote from basketry patterns, although such influence may have come in later on as a formative influence in the decoration of horizontal ribbons, zigzags etc. The carinated bowl, both decorated and burnished,

[68] Childe, Most Ancient East pp. 232ff.

[69] The tombs and stations of this region have been excavated by Bonsor but the data are incompletely published; see Bonsor, O. Les colonies agricoles pre-romaine de la vallée du Bétis, Rev. Arch, 1899. Åberg, op. cit. pp. 120 ff. gives a brief summary based on a more recent examination of the Bonsor collections. Castillo, La ceramica incisa de a cultura de las cuevas . . . . , 1922, undertakes a detailed analysis of the pottery of central Spain, suggesting the development of bell beaker ornament in this region from early incised and 'boquique' cave wares.

is almost as widely distributed in Atlantic Europe as the beaker itself. It is a leading tomb ware in Brittany, appears with ornament of southern origin, "combed triangles," "oculi" etc. in Denmark, and has moreover archaic predecessors in clay and stone in the eastern Mediterranean. It would therefore appear unnecessary to lean heavily on the uncertainties of basketry prototypes, but to accept the evidence of the varying forms in Iberia itself as indicating the development and crystallization of the bell beaker from the low, waisted bowl.

In its later form the Iberian beaker is surprisingly uniform in shape and range of ornament. In Almeria a very restrained ornament of incised and combed ribbons and triangles was almost exclusively used, and beakers of precisely this type appear in areas so far apart as southern Italy and the Channel Islands.

The Ancestry of the Megalithic Culture

If the Iberian megalithic culture was already at a high level of achievement in the earliest centers of the south, the problem of its origin is pushed one stage further back and must be sought, not in the degraded megaliths of northern Portugal but in some higher civilization elsewhere. Such an inquiry raises extremely complicated problems not only on account of the gaps in our knowledge but also from the baffling diversity of clues.

Explanation of the western megalithic cultures in terms of the civilization of the Ancient East have long been advocated and controverted as a "*mirage orientale*," and the obscurity of the problem has been heightened by the conflict of data and hypothesis. Serious difficulties arise since parallels in tomb form and items of furniture are found in eastern centers which are widely separated in space and time, while no single cultural province can be claimed as the source of even the greater part of the Iberian culture.

The passage chamber tomb which is the primary and original "megalithic" type in the west was characteristic in all the early centers of higher civilization. The rock-cut tombs of the Old Kingdom in Egypt and the excavated *dromos* tombs of Early and Middle Minoan Crete are obviously parallel in plan and function and the fact that many of the finest Iberian tombs are excavated in the ground is of great importance. The corbelled chamber may also be related directly to Aegean prototypes. The famous Mycenean "*tholoi*" are later than the Iberian and Déchelette[70] has shown

[70] Essai sur la chronologie préhistorique dans la peninsule ibérique, Rev. Arch., XII' 1908, p. 219.

the impossibility of Sirert's[71] attempt to synchronize Los Millares with the late Minoan Bronze Age culture of Mycenae. But the corbelled beehive was used as a tomb in Crete at least as early as the later part of the Early Minoan period. The Messaran vaults,[72] although not direct prototypes for Iberian forms, are nevertheless significant in the technique of their construction. In other early Aegean cultures, slablined cists which accompany the megalithic tombs in the west, were used as sepulchres for very long periods.

The furniture, especially in Almeria, affords many if isolated Aegean parallels. The El Garcel type of violin idol resembles those of Troy I and II[73] and belongs to the great family of east Mediterranean figurines. The Almizaraque figurine also has close parallels in lead at Troy II[74] and in marble in the Cyclades. The "oculi" ornament incised on Los Millares[75] pottery and reappearing sporadically as far north as Denmark, has early Troadic prototypes[76] (fig. 19) and the ivory pommel (?) knob from Nora, Algarve,[77] is also of early Trojan form.

Analogies from Crete include the stone and wooden pillar supports in Los Millares "beehives,"[78] the horns of consecration" from Campos and further west at Campo Real.[79] The alabaster pots of Los Millares recall Cycladic pyxides[80] and are themselves related to small stone jars in the southwest, e.g., at Palmella.

But the magnificant flintwork of the arrowheads, on the other hand, is not Aegean in its associations. Typologically it is related to that of predynastic Egypt, where the mitriform arrowhead was developed as early as Badarian times. Nilotic prototypes have also been suggested for the schist plaques and croziers of the southwest.[81]

The tanged daggers and flat copper celts of Almeria and Algarve are of the forms that were being made in Egypt, Troy, and Cyprus in the early part of the third millennium.

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[71] Siret, L. Orientaux et Occidentaux en Espagne. Rev. Quest. Sci. (extract), 1907, *and* Questions de Chronologie, Paris, 1913.

[72] Xanthoudides, The vaulted tombs of Messarra, 1924.

[73] Cf. Siret, L. L'Espagne préhistorique, R.Q.S., 34, p. 515 and figs. 156–8.

[74] Déchelette, op. cit., p. 239.

[75] Siret, L'Espagne préhistorique, p. 221–225.

[76] Cf. Dechelette, op. cit., p. 225.

[77] Cartailhac, fig., 226.

[78] Dechelette, op. cit., p. 239.

[79] Bonsor, Colonies agricoles, p. 302, figs., 11–15.

[80] Dechelette, op. cit., p. 239.

[81] Cf. Dechelette, op. cit., p. 229.

The low carinated bowls that are so prominent in the undecorated pottery of the west frequently recall the beautiful stone bowls of Late Predynastic Egypt and Early Minoan Crete.

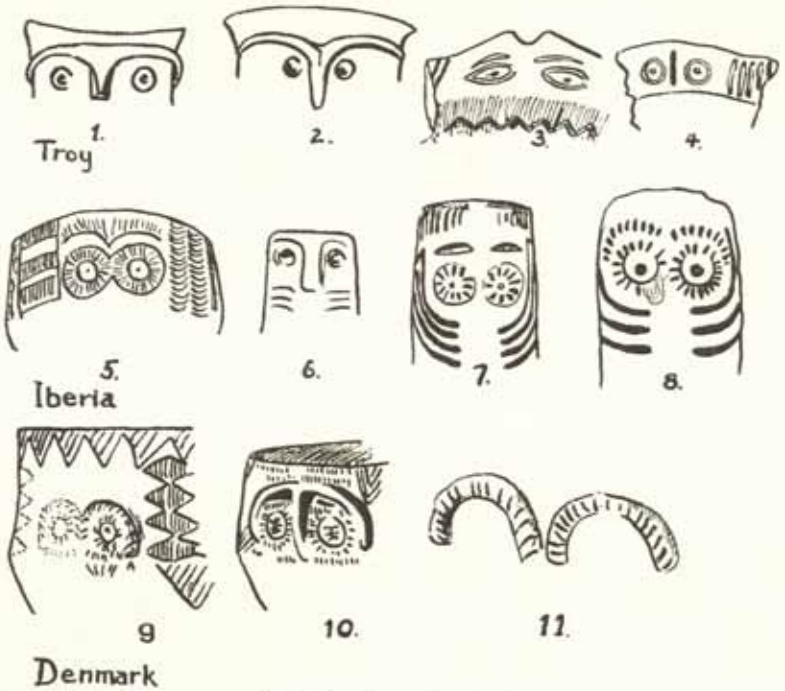

FIG. 19. Oculi ornament. 1, 2, Face Urns, Troy II (after Perrot and Chipiez); 3, 4, Incised designs on sherds from Troy I (after Schliemann); 5, Incised designs on bowl, Los Millares (after Siret) 6, Head of schist plague, Portugal (after Siret); 7, Head of cylindrical marble idol, Madrid Museum (after Siret); 8, Head of cylindrical marble idol, Algarve, Portugal (after Åberg); 9, Incised ornament on bowl from the passage-dolmen Gundestrup (after Nordmann); 10, Incised and plastic ornament on bowl from passage-dolmen of Kallup, Seeland (after Reallexikon der Vorgeschichte); 11, Plastic ornament on another bowl from Gundestrup. (after Nordmann)

Sophus Müller has claimed that all the techniques and decorative elements employed in the finer wares of the western megalithic cultures were developed at the eastern end of the Mediterranean. In the Egyptian and Nubian wares of the Old Kingdom comb imprints, incrusted bands, triangles and diamonds, and the fine burnishing of black wares were fully developed and continued in use for long periods. Citing similar wares from Gezer (Palestine), he traces these ornamental styles through the

copper age cultures of Italy and the islands of the western Mediterranean.[82] Melida[83] has also shown remarkable similarities between the rich ornament of the southwest Iberian beakers and that of Old Kingdom painted and incrusted wares in Egypt.

Since all these miscellaneous parallels afforded by objects from the entire range of the early Iberian culture indicate very real links with the Eastern Mediterranean we should expect to find some mid-Mediterranean culture which acted as intermediary. But although the early civilizations of Southern Italy and Sicily betray immense indebtedness to the Aegean, they do not represent an incipient stage of the Iberian culture.

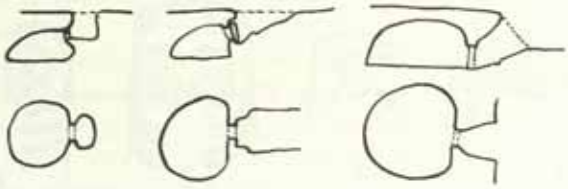

FIG. 20. Rock-cut tombs. 1, Sicily; 2, Pianosa; 3, Palmella. (after Cartailhac)

The Sicilian rock cut tombs (fig. 20) might be considered Iberian prototypes, and the V-pierced bone button, copper daggers, and celts may have reached Spain from the mid-Mediterranean but the most definite evidence of contact points in the reverse direction and is afforded by zoned bell beakers of Almerian type in Sicily and Italy. In Sardinia,[84] however, the tombs of a highly developed copper age culture afford evidence of a strong formative influence on the west. The extensive necropolis of galleried rock cut tombs at Anghelu Rugu[85] in the northwest of the islands and the cave finds of San Bartolomeo on the east have on the one hand afforded abundant evidence of Aegean influence. The wares of the lower strata of cave finds have been compared to Early Minoan types,[86] marble idols of late Early Cycladic type were found in three tombs at Angelhu Ruju, and much of the later pottery indicates an Aegean inspiration and reproduces Minoan forms, while the architecture of the tombs, with their multiple rock-hewn chambers, stepped-passage or pit entrance, anticella, pillars with carvings of bulls' heads, high prowed boats etc., show a dependence on eastern

[82] MSAN., 1920–24, pp. 228 ff. and literature there cited.

[83] O. Archeologo Português, 24, pp. 24 ff.

[84] Childe, Dawn, chap. 7, pp. 101 ff. gives a brief account of the Sardinian material.

[85] For the exploration of Anghelu Ruju by Taramelli see Notizie degli scavi di Antichita, Roma, 1, 104, p. 305 ff. and Monumenti Antichi, 19, p. 409 ff.

[86] Childe, Dawn, p. 102.

funerary custom which are inexplicable on the basis of sporadic "trading" relations with the east. The grave goods of these Sardinian tombs also contain objects characteristic of the west, of which the bell beaker is the most conspicuous. But while some items clearly indicate reflex movements from Iberia, others such as the polypod bowls, V-pierced buttons, spool beads and spheroid mace-heads, tanged daggers, and pectunculus shell bracelets and perforated whetstones more probably indicate the proximate source of much of the Iberian and southern French megalithic cultures.[87] The rock cut tombs of the Balearics and the galleries of Provence are most probably derived from the Sardinian types (figs. 21, 22, 23).

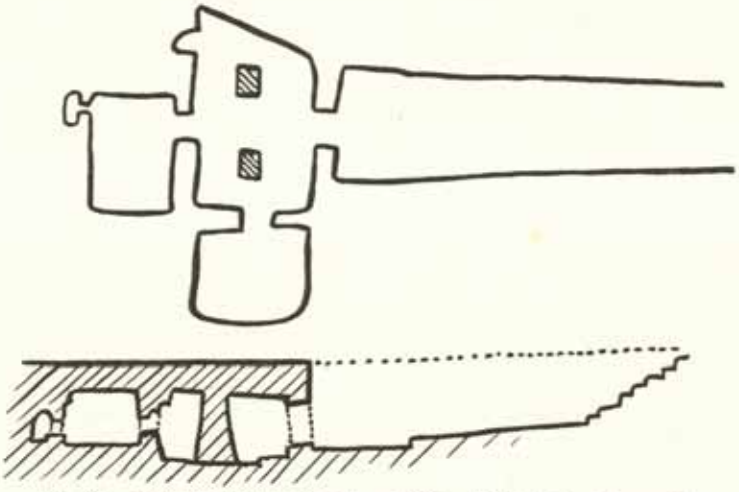

FIG. 21. Angheln Ruju, Sardinia, tomb 20 bis 1/150. (after Taramelli)

The tombs of Angelhu Ruju, and the Giants Graves which reproduce them in megalithic architecture, were, however, in use for very long periods of time, objects of Bronze Age and later periods have been recovered, and grave goods of earlier periods have doubtless been removed or scattered in the course of later interments.

The picture of the early civilization of the island is therefore blurred and often uncertain, but the intermediacy of tomb form and the evidence of grave goods undoubtedly indicate that the continuity between the higher civilizations of the east and the megalithic culture is to be sought in the blending of cultures in the early settlements of the western Mediterranean.

[87] Cf. Childe, Dawn, p. 106 who suggests that much Iberian influence in southern France came via the Sardinian culture.

Despite the multiplicity of eastern prototypes, the chronology of the Iberian culture remains uncertain. The bell beaker affords the most definite clue, for it appears fully developed in the Villafiati culture of

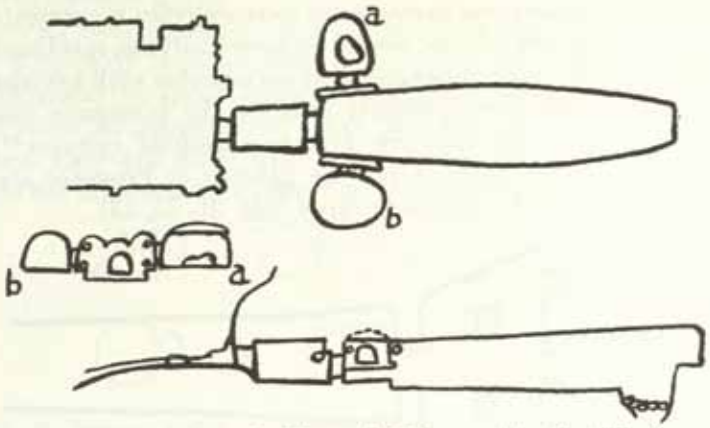

FIG. 22. Rock-cut, St. Vincent de Majorca. (after Cartailhac)

Sicily which, as Childe has shown,[88] must be dated to the second half of the third millennium. The Early Minoan and Trojan parallels to Iberian objects range over the entire period of the third millennium, while the

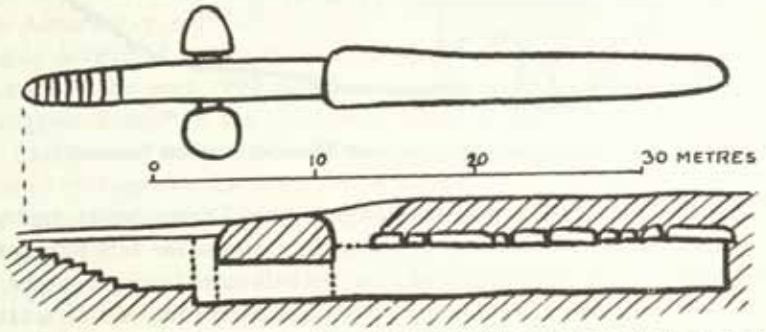

FIG. 23. Grotte des Fées, near Arles, Provence (after Cazalis de Fondouce.)

evidence of ceramic ornament, if given full weight, indicates Egyptian influence dating back to the beginning of the third millennium. The higher cultures of southern Iberia were probably established by 2500 B.C. The halberds and the segmented beads of El Argar clearly indicate that the earlier Almerian culture had ended before 1600 B.C.; for the paste beads

[88] Dawn, pp. 99–100.

are of Middle Minoan III date in Crete and an Iberian halberd was found in a shaft grave of that period at Mycenae. We are left therefore with a period of eight or nine hundred years, at the end of the third and the beginning of the second millenium, during which the Iberian peninsula exerted a paramount influence in the colonization and traffic of the Atlantic littoral.[89]

Southern France

That the early cultural developments in Iberia were related to the appearance of civilized peoples throughout western Europe has long been obvious from the wide and correlated distribution of such fundamental elements as stone tomb forms, polished axes of diorite and other hard stone, and distinctive types of pottery. But the occurrence in various areas of unique and specialized ornaments and utensils enables us to define relations more exactly. The range of distributions of specific forms of tombs, of callaïs beads, of bell beakers of various types, etc. affords a basis for the more exact delineation of lines of expansion, of areas of colonization, and of the reflex traffic which followed the establishment of new centers.

Iberia was undoubtedly the major focus from which the framework of early Atlantic civilization was extended, and the several lines of expansion may be followed in our analysis. Some influence was, as we have seen, undoubtedly transmitted back into the central Mediterranean, as is evidenced by the Almerian beakers of Sardinia and Sicily and the occasional megaliths of S. Italy. Established in southern France in the region of the Rhone delta, the megalithic culture also penetrated extensively the interior of western Europe. The Provençal culture crossed the Cevennes and extended into the barren plateau of southern France. Across the low ranges at the head of the Rhone valley another centre was established in the flint-bearing chalk ridges of the Paris basin. In this area the survival of Campignyans and the intrusion of continental elements combined with the strange environment to produce a variant culture in which Iberian traits are nevertheless obtrusive.

The megalithic tombs of southeastern France extend from the low hills overlooking the Rhone delta up into the Cevennes and southern section of the central massif on the west and into the Alpine fringe on the east. Subterranean and slab-roofed galleries, corbelled chambers, large closed "dolmens," smaller dolmenic cists, and natural caves were all used for interment in this region.

[89] This chronology is confirmed in Scandinavia where Danubian elements in the grave goods have enabled Childe to date the dolmen period from about 2500 to 2200 B.C. and the passage graves from 2200 to 1650 B.C. cf. Dawn, p. 212.

The group of four large tombs in Provence near Arles are probably among the earliest in the area.[90] These so-called "Grottes" des Fées, de Bounias, de Source and de Castellet, are long, relatively narrow galleries, sometimes with side chambers, excavated in the soft rock of the low hills and roofed with megalithic slabs. The Grotte des Fées, the largest, is nearly twenty-five metres long and four metres wide at the widest point of the main chamber (fig. 23). Source, the smallest, is 16.6 m long and considerably larger than the average passage tomb. From Castellet alone a relatively complete grave furniture has been obtained. In addition to an abundant flint work (arrow heads and spear points) and a zoned bell beaker of "Almerian" type, over a hundred discoid callaïs beads and numerous olive-shaped beads, one of callaïs and one of gold were recovered. The tanged copper dagger and V-pierced bone button found at Bounias supplement the evidence from Castellet and indicate the close relations with Iberia and the western Mediterranean.[91]

Bosch Gimpera[92] assumes the Provençal culture to be an extension of the northeast Catalonian. But the tombs are far more elaborate than anything found in that area and Leeds has, as we have seen, reversed the process and shown the strong probability that the megaliths of Pyrenean Spain represent a late movement back into the Peninsula from France.

Moreover, detailed structural analogies with the Provençal galleries are found in the rock-cut tombs of the Balearics. The similarity of the St. Vincent tomb, Majorca, and the Grotte des Fées near Arles has been repeatedly cited.[93] The Balearics were themselves in intimate contact with both Almeria and the copper age culture of Sardinia that was responsible for the elaborate rock-cut tombs of Angelhu Ruju. Childe[94] has already suggested that the bell beaker reached southern France not directly from Almeria but through the activities of mariners of the Sardinian culture. He would in this way also account for the prismatic V-pierced plaques that accompany the beakers in northern Catalonia. But although the archaeological record from the Balearics is very inadequate, the evidence of tomb form points rather to this more western island group as the immediate source of the greater part of the Provençal culture. The finely worked

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[90] Cazalis de Fondouce, Les allées-couvertes de Provence, 2 vols., 1873.

[91] Déchelette, Manuel d'Archéologie, 1, p. 405 ff., summarizes the data and gives a short bibliography for this group of tombs.

[92] Rev. Anth., 1925, p. 349, and Reallexikon der Vorgeschichte, Frankreich, 14, 24 ff. which at the same time affords the most systematic general account of the French cultures.

[93] Déchelette, Manuel, I, p. 419 and cp. Cartailhac, Les Ages Préhistoriques, p. 142.

[94] Dawn, p. 277.

callaïs beads, however, appear to be direct Iberian imports, and there can be little doubt that there was at this period long continued, if sporadic, intercourse berween all the major centres established in southeastern Spain, the Balearics, Sardinia, and southern France.

The Provençal galleries are unique in their area but a corbelled passage tomb of the same period occurs in the Cevennian fringe at Collorgues, Gard,[95] and the grave goods of the "dolmen" of Cranves far away in the Haute Savoie indicate the northeastern extension of this culture. Numerous rectangular dolmens, which may in some instances be degenerate galleries, trench graves, and cave burials yielding similar though poorer furniture extend into the mountain country on either side.[96] In these upland areas, especially in the heart of the southern massif, this culture lingered on for a very long period. The "dolmens" of Aveyron, relatively small box-like constructions occasionally with holed stone entries,[97] yield grave goods which indicate the gradual infiltration of Bronze Age types.[98] Trefoil and raquet pins of bronze betray central European contacts effected, according to Childe,[99] by the intrusive group who built the Bronze Age barrows of Savoy and Jura. But the helical copper bangles which first appeared somewhat earlier may be related to similar forms in use at El Argar, the bronze age culture that succeeded to Los Millares in Almeria. Other elements of the later furniture are bewildering. Slate palettes, segmented and phallic beads,[100] have East Mediterranean parallels at the end of the third millenium. The occurrence of such types in late tombs in association with iron beads and riveted daggers has never been satisfactorily explained.[101]

[95] Nicolas, Sepulture de Collorgues, A.F.A.S., 1889,2 pp. 629 ff.

[96] In Hérault, Gard, Ardèche, Lozère, Aveyron, etc. in the Massif to the west and in Var, Alpes Maritimes, Hautes Alpes etc. in the Alpine ranges to the east.

[97] Dechelette, I, p. 403.

[98] The long period indicated for the megalithic culture in southeastern France is divided by Bosch Gimpera into three stages of which the galleries of Arles, the dolmen of Stramousse (Alpes Maritimes) and the beehive Collorgues are typical of the first establishment of the culture. In the next "transitional" stage the bell beaker has disappeared but copper objects, including helical bangles and rhomboid points are more abundant e.g., Dolmen de Taurine, Aveyron. The final stage belongs to the full Bronze Age, e.g. Dolmens de la Liquisse, de Couriac etc. Aveyron. See Bosch Gimpera, Rev. Anth., 1925, pp. 346–355. An inventory of tombs and burials said to belong to the various stages is given and the literature relative to the area is well summarized.

[99] Dawn, p. 280.

[100] See especially Congrès Internationale d'anthropologie, Norwich meeting, 1868, p. 354 ff. and plate.

[101] Childe, Dawn, pp. 278 ff. briefly discusses this problem.

Further west in the northern foothills of the Pyrenees and extending almost to the Biscayan coast a culture of somewhat different aspect is found. Megalithic galleries, dolmenic cists and cave burials in this area have yielded a very uniform furniture characterized by bell beakers, finely polished celts occasionally of greenstone, flint daggers, callaïs and occasionally gold beads. Relations were apparently closest with the southeastern area in its first period. But several curious features appear in this culture. The major group of megaliths is found on the Plateau of Ger. Two galleries (Pouy Mayou and Pouy de la Halliade) were explored by Piette,[102] others to the north, of which Taillan yielded the most complete grave goods, had been previously excavated by Pothier.[103] La Halliade is the only angled gallery reported in southern France. This form is frequent in Brittany and was probably developed there. At La Halliade also a beaker decorated with true cord impressions occurs. This ornament, although found sporadically elsewhere, e.g., Domen de Cranves[104] is again best known in the Breton peninsula where tubular gold beads are also occasionally found. It would therefore seem that some movement from the northwest is indicated. But true cord impression is also found on two isolated beakers from northeastern Spain, i.e., from the "dolmen" of Pagobakoitza[105] near San Sebastian in the Basque country and from the passage dolmen of Puertas de Garcia Rodrigues, Coruna, Galicia.[106] Both are of the same type, zoned beakers with oblique "combed" ornament, but the horizontal bounding lines of the zones were found by cord impression. They are, however, distinct from the Breton and Halliade specimens, in which closely packed horizontal cord impressions cover the entire body of the beaker.

In addition to bell beakers, tripod and polypod bowls are found in Taillan, la Halliade, and elsewhere in this area. These bowls are quite un-Iberian, but somewhat similar forms occur in association with bell beakers in Sardinia (Anghelu Ruju and San Bartolomeo) to which Childe[107] looks for their source. Since, apart from the corded specimen, the beakers are of the mature zoned type characteristic of Almeria and the western Mediterranean, there can be little doubt that there was also intrusion from that area. But the culture of the southwestern area, established probably at the period of maximum activity, was short-lived. It neither lingered on

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[102] Piette, E. Note sur les tumulus de Bartres et d'Ossun, Mat. 1881, p. 522.
[103] Pothier, Les tumulus du Plateau de Ger, Paris, 1900.
[104] Åberg, op. cit., fig. 313*a*.
[105] Åberg, N., op. cit., p. 157.
[106] Bosch Gimpera, Arqueol. prerromana, p. 164 and idem, Reallexikon, 4, p. 349.
[107] Dawn, p. 106.

like that of Aveyron and the Cevennes, nor was it abruptly ended by an incursion of new peoples and no Bronze Age settlements or tombs are found in the area.

Galleries and Rock-cut Tombs of the Paris Basin

The megalithic tombs of the Paris basin (departments of Seine-et-Oise, Oise and Aisne) form a very specialized group of very uniform type. They are subterranean galleries, from seven to as much as fifteen metres in length, constructed in megalithic and drystone walling, without any covering mound. In general, a short and somewhat narrower ante-chamber precedes the long rectangular gallery and they are separated by a megalithic slab, in which a circular hole has been cut. Over half the galleries reported have holed stones and this trait is one of the most characteristic features of the group.[108] (Fig. 24.)

Fig. 24. The gallery of La Justice, Seine-et-Oise, length 18 m. (after Cartailhac).

In considering the frequency of the holed stone entry in the area the character of the local building material must be borne in mind. Although the device itself was doubtless introduced from elsewhere, the soft sandstone and chalk offered opportunities for its execution which were denied in Brittany and similar areas, in which megalithic architecture was normally executed in hard igneous rocks and shales, so that the frequency of the holed stone in Seine-et-Oise may be at least in some measure a function of the local conditions. Its appearance raises difficult problems because the long gallery or cist with holed stone entries or partitions is widely distributed as a Bronze Age burial form in central Europe and Sweden. But there the furniture is very different and almost certainly later in actual date than that from northeastern France or from the rectangular galleries of Brittany, so that the derivation of the last two from central European forms is practically impossible. The rarity of the type in the major Breton centers suggests, as we shall see, that it was brought in by a distinct movement from the Paris basin. The structural similarity of the Paris galleries to the sunken galleries of Provence and so ultimately to Iberian and Western Mediterranean forms is clear, where the holed stone and its probable

[108] Thirty tombs are listed by Déchelette, Manuel, I, p. 400 and one or two have been reported since, e.g., Pierre Platte de Presles, Seine-et-Oise; cp. Bottet, Rev. Arch., 28, 1928, pp. 1–13 and plate.

prototype, the narrow entrance to the chambers of rock-cut tombs, are also to be found. In discussing this problem Kendrick does not consider southern prototypes on the assumption that the south Iberian tombs are late.[109] But we have argued on quite other grounds that this Iberian "evolutionary series" does not in fact exist and that the holed stone tombs that are cited by him, i.e. Gor and Cueva di Viera, Antequera,[110] are among the first fruits of megalithic architecture. No mention is made, moreover of the fact that the holed stone is a characteristic feature of the tombs of Los Millares,[111] where, moreover, the megalithic, as distinct from the dry walled tombs, consist of bulging oblong chambers separated by a partition from a gallery little narrower than the chamber,[112] i.e., an incipient form of the gallery with vestibule as found in the north. (Figs. 15 and 16.) "Rectangular" partitioned tombs also occur in Algarve, e.g., Nora and Alcala III.[113]

As far as Brittany alone is concerned, the proximate source would appear to be, as is generally agreed, northeastern France. Bosch Gimpera[114] although "tempted to derive (the Paris galleries) from Brittany" yet decides that

> it is, however, more probable that it is in the South, where these types represent the end of an autochthonous development in the Pyrenean culture, that we must seek the point of departure for this type and explain the Breton forms from those of North France and not inversely.[115]

The burials in the Paris galleries were very numerous and interments in successive periods are in some cases, as at Mureaux[116] indicated by the separation of the bones and grave goods by later pavings.

In close geographical proximity to these megalithic galleries, and associated with them in grave goods, are a series of tombs related to the megalithic culture but of very different form. These are the so-called "grottoes" of the Marne, rock-cut tombs excavated in the soft chalk ridges that outcrop in the country immediately to the east of the galleries. In the finer tombs low, vaulted rectangular chambers, from two to nearly four metres square, and one to nearly two metres high, were excavated

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[109] Kendrick, The Axe Age, p. 45.

[110] Kendrick, op. cit., p. 45.

[111] Cf. Siret, L., L'Espagne préhistorique, Rev. Quest. Scientifiques, XXXIV, 1893, pp. 522–523 and fig. 174.

[112] Cf. Los Millares, No. 8, *in* Siret, op. cit. fig. 170.

[113] See Estacio da Veiga, op. cit. 1, Plate XII, p. 248 and 3, Plate XIII, p. 137.

[114] Rev. Anth., 1927, 37, p. 211.

[115] Loc. cit.

[116] Verneau, L'Allée Couverte des Mureaux, L'Anthropologie, 1890, p. 175.

at the end of a descending ramp. The main chamber was frequently preceded by a smaller antechamber. The portals at the entrance and between the chambers are extremely small and repeat the features of the holed stones of the galleries, not only in their size and shape, but also in the recessed panels in which they are set. Resembling the design of Cretan and the Provençal tombs in the open sloping "dromos" which leads up to it, the chamber itself is square in the east Mediterranean and Sardinian style and distinct from the circular types characteristic of southwestern Iberia; but the shallow vaulting of the roof resembles that of Palmella, and here again the crown of the vault was frequently opened from above and covered with a rock slab.

The careful design here described was restricted to a few of the tombs and these contained fewer burials and a richer furniture. The majority were more roughly hewn, irregularly shaped, and crowded with corpses. But their form and grave goods indicate a class distinction rather than any chronological separation from the finer tombs.

The furniture of the galleries and rock-cut tombs of the Paris basin is distinguished from that of the other megalithic areas in the south and west by the frequency of bone tools, points, picks, axe hafts and even axes modeled on stone forms.[117] Polished flint axes are also more abundant in this area than elsewhere in the west. These characteristics are all associated with the special environment of this area. Deprived of abundant sources of hard igneous and metamorphic rock, but richly supplied with flint from the scarps of the Marne, it is not surprising that bone and flint were used extensively. We have also to consider the probability that pre-megalithic folk, using bone extensively and perhaps already, as Åberg[118] claims, in possession of the technique of grinding flint axes, were occupying this area when the tomb builders first penetrated it.

But evidence of the southern source of this occupation is not lacking, the famous "goddess" carvings on the walls of the Marne "grottoes" may be related to anthropomorphic designs on Iberian idols and plaques and to the wall carving in the Dolmen de Soto, Huelva.[119] The statue menhirs of the Cevennes region, although of uncertain date, may serve in some instances, e. g. Collorgues, as an intermediate link. The frequency of tre-

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[117] E.g., among the furniture of inhumations beneath slabs at Chateau de Niey. The other furniture was characteristic of the galleries; cp. Bottet, B., Rev. Arch. 28, 1928, p. 14 and figs.

[118] Åberg, N., Studier öfver den yngre Stenåldern i Norden och Västeuropa.

[119] Obermaier, H., El Dolmen de Soto, Bull. Soc. Esp. Excursiones, 32, 1924, pp. 1 ff and figs.

phining on the skulls recovered from the grottoes, also connects the area with southern France, where this operation was most extensively developed.

The callaïs beads and greenstone celts also found in the rock-cut tombs, serve further to integrate this culture with the megalithic culture of the south and west. But it is in the meantime uncertain whether these materials were obtained from Brittany or the south. The former is a very probable source since there is abundant evidence of the introduction of the northeastern type of gallery into the Breton peninsula, while flint from Grand Pressigny in the west is found in both the galleries and the grottoes. A bell beaker sherd from Bennemont, Seine and Oise, may also indicate southern or Breton connections.[120]

Childe[121] regards this northern culture as very late in date and roughly contemporary with the latest period in the Cevennes, basing this opinion largely on the bronze rings and flanged celts occasionally recovered from the galleries and the relative lateness of trephining in the South. But the synchronism with Breton tombs containing bell beakers (see p. 74) precludes so late a dating and the sporadic objects of Bronze Age date can readily be explained by disturbance or secondary burials. The characteristic furniture throughout indicates a relatively early date for the original settlement of the tomb builders and metal is characteristically restricted to occasional beads and blades of copper in the Marne tombs.

Little is known of the megalithic tombs that are scattered through the intervening area between the northeast and the Breton peninsula. The well known tomb at Fontenay le Marmion in Calvados is very different from the northeastern types. Beneath a very large tumulus of blocks of local chalk a dozen passage tombs had been erected in two rows, opening on opposite sides of the mound. The circular chambers were all corbeled and dry stone walling was used throughout except for the roofing of the gallery. The furniture and burials were mostly contained in small megalithic coffers within the chambers.[122] Structurally this monument is most closely related to the Breton corbeled tombs, and the practice of building several passage chambers within a tomb also occurs in Brittany.[123]

The bell beaker is doubtful, and certainly not characteristic in the culture of northeastern France. In southern France, as in Almeria, it is an

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[120] Kendrick, Man, 29, 1929, p. 18.

[121] Dawn, p. 283.

[122] Sausse, Le Tumulus de Fontenay-le-Marmion, Calvados. Rev. Arch., 1, 1897, pp. 163 ff. Déchelette, Manuel I, p. 397 gives a brief account and sketch of the tomb.

[123] e.g., Rondossec, Carnac, three passage dolmens and Rosmeur, S. Finistère, where two passage tombs, one of them corbelled, are covered by the same mound.

occasional but typical ware in the megalithic tombs. In Savoy, beakers are found both in megalithic and cave burials but in its later history it is divorced from megalithic construction, as it was in Murcia and southern Catalonia, and penetrates the continental interior. It may be, as Childe, Siret, and others believe, that the "beaker folk" were already a distinct ethnic element in southern Iberia; it is in any case clear that the ware itself, in its long history in central Europe and in its reappearance in the west in the Bronze Age culture of Britain, was finally and completely separated from the megalithic civilization in which it first appears.

North of the Savoy group the trail is temporarily lost. Bell beakers reappear, but in a new context, in the copper age cultures of the middle Rhine. They are here associated with a hill fort people whose burial furniture characteristically includes copper daggers and archers' wrist guards. In addition to the bell beaker, another strange feature appears in this culture: numerous and large, point-butted polished stone axes, are found in the crouched cist or trench burials. These axes are strangely similar to those of the south Breton tombs. While it is possible that the large point butted celt and the beaker traveled together across France to the Rhineland, we are in the meantime at a loss to explain on this hypothesis the manner in which the two *de luxe* products of the Breton culture should be transferred many hundreds of miles to a people the atmosphere of whose culture is very remote from the megalithic civilization of the west. Despite the point butted celts therefore, it would seem more reasonable to look for contact across the smaller gaps which separate the Savoy area from the middle Rhine. In Savoy, the bell beaker is intrusive in a poor, ill characterized culture. It is more easy to conceive of its being carried into the Rhineland by the same intrusive and less stable people of the south than by the preoccupied builders of Armorica.

Schumacher[124] bridges the gap between the two areas by invoking the "flint camps" of Lorraine and suggests an approach to the Rhine by the Moselle; Åberg and Bosch Gimpera are more disposed to favor movement through Alsace and the Belfort Gap, for which there is now perhaps some slight direct evidence, since Forrer[125] and Schaeffer[126] have claimed beaker influence on certain Alsatian pottery styles found in association with wrist guards and other elements.

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[124] Schumacher, C., Siedelungs und Kulturgeschichte der Rheinlande, Mainz, 1921.

[125] Forrer, R. F., Nouvelles decouvertes *etc.* Cahiers d'archeologie d'Alsace, p. 33, quoted by Poisson, Rev. Anth, 1929, p. 62.

[126] Schaeffer, F.A.S., Les tertres funeraires dans la forêt de Hagenau, Hagenau, 1926, p. 323.

More recently Kraft[127] and Castillo[128] have advocated a more eastern route from the Rhone to the upper Rhine, through the territory of the western lake dwellings. But the beaker was never established in the lake dwellings and it is difficult to believe in a passage however rapid through this region which would leave practically no trace on either the migrants or the occupants.

Schumacher has claimed that the introduction of the bell beaker into central Europe was the work of the Middle Rhine culture picturing an original impulse from the Vosges or the Ardennes as a more or less armed invasion resulting in the occupation of a series of fortified posts extending along the Rhine from Spiers to Köln and spreading out into Hesse Wurtemburg, Thuringia and Saxony. It is difficult in the meantime to decide whether the appearance of Iberian beaker forms further east in Bohemia, Hungary and Silesia marks out the last drives of this eastern movement or is an indication of movement across the Brenner from northern Italy. Castillo claims that[128] the Upper Austrian beakers are definitely closer to the Italian than to the Rhenish and concludes that the Mediterranean beaker folk penetrated deeply into Saxo-Thuringia to encounter their cousins from the Rhineland.

The Megalithic Civilization of Brittany

But the megalithic culture in western Europe was dominantly a maritime civilization and its spread northwestwards along the Atlantic coastlands was far more intensive than the interior expansion so far discussed.

The Breton peninsula projecting westwards to the north of Iberia was the scene of a colonization which rivaled the southern Iberian centres in achievement and density of settlement and affords a valuable commentary on the Iberian culture. Although western Iberia and Brittany were at this period in closer contact than any two areas lying at an equal distance, we do not find complete transplantation of any but the main cultural elements. Traded goods and imitated objects undoubtedly exist and there was undoubtedly extensive migration, but for the most part there is a marked individualization and divergence. The culture of the area will be considered in some detail since, while it is vital to the understanding of the problem, its position is often misrepresented and its essential features are less well known than the Iberian and Danish.

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[127] Kraft, G. K. Die Stellung der Schweiz innerhalb der bronzezeitlichen Kulturgruppen Mitteleuropass. Anzeiger. für. Schw. Altertumskunde, 1927–8.

[128] Castillo, La cultura del vaso campaniforme, Barcelona, 1927.

The general littoral distribution of the megalithic tombs of the Breton peninsula (fig. 25)[129] and the existence of several maritime focal points, leaves us in little doubt not only that the original implantation was effected by sea, but also that maritime traffic was of major importance in the propagation of the culture of the peninsula. The many islands to the south and far west of this coast were occupied without exception and on some, e. g. Groix, megalithic remains are very numerous.

The coastal distribution of the south which links, by littoral extensions and penetrations of the lower reaches of the estuaries, the several major centres of Loire Inférieure, the gulf of Morbihan and southern Finistère, extends on a somewhat diminished scale along the western coasts. Dense

FIG. 25. Distribution of Megalithic monuments in Brittany. Reduced and generalized from a detailed survey; the grading of the stippling indicates the relative density of the distributions.

groups of megalithic remains survive on the Cap Sizun and Crozon peninsulas and the littoral distribution continues through Léon, the northwestern quadrant of Finistère. But in northeastern Brittany coastal settlements dwindle. Apart from one or two clusters behind St. Brieuc and about the estuary of the Rance, megalithic remains are few. The maritime circuit of the peninsula was incomplete and the littoral propagation, so intense in the south and west, faded out in the northeast, where scattered in-

[129] This map generalizes the results of a survey of the distribution of megalithic monuments in Brittany, undertaken in 1925–8.

terior distribution and variant tomb types indicate inland movement from south Brittany and the Paris basin to the east.

Although we know nothing of the vessels used at this period, the conditions of ancient shipping even as late as Roman times force us to realize the great risks and losses involved in open sea journeys along the Atlantic coast. Yet the evidence of distribution and tomb form suggests a direct trans-Biscayan route from Iberia to the Breton peninsula, for megaliths are absent along the shores of southwestern France, while those of the Vendée and southern Loire Inférieure have not yielded evidence of the magnificence of Southern Morbihan in Brittany and are, moreover, of late and degenerate type.[130] The concentration of Iberian goods and parallels on the south Breton coast indicates direct relations between this area and the southern peninsula.

The most conspicuous concentration of tombs and settlements lies along the southern coasts of the Department of Morbihan from the Étel river to the Gulf of Morbihan, to the south of the towns of Auray and Vannes. This region includes the megalithic remains of the numerous islands of the Gulf, of the peninsulas of Rhuys and Quiberon. Within this comparatively small zone, less than forty km. long and rarely extending more than ten km. from the open sea, several hundred megalithic structures have survived into recent times. All the more important Breton tomb forms occur, together with stone circles, alignments and solitary menhirs in considerable numbers. The South Morbihan region affords, therefore, an almost complete view of the megalithic civilization of Brittany. It appears to have been the earliest and primary, and it was undoubtedly the most important, center of this prehistoric occupation.

The standard and most common form in this region is the passage dolmen with rectangular chamber. The dolmen of Kercado, (fig. 26) one of the best preserved monuments in Brittany, to the northeast of Carnac, is of this form. The tomb is enclosed in a round tumulus of very regular form, 3.5 m. high, 20 m. in diameter, and surmounted by a menhir situated over the center of the interior chamber. A megalithic gallery about 7.5 m. led up to this rectangular chamber, 3 m. × 2.5 m and 2.5 m high. The remains of a stone circle surround the tumulus. This description represents in summary all that was reported by its first modern explorers,[131] but the careful excavations of le Rouzic have disclosed structural features of the greatest

[130] Cp. Pitre de Lisle, Mat., 3, 1886, pp. 285 ff., who notes the marked distinctions between the tombs to the north and south of the Loire estuary.

[131] R. Galles et M. Lefèvre. Dolmen de Kércado en Carnac, B.S.P.M., 1863, pp. 5, 73, 78.

interest.[132] A series of excavations round the base of the tumulus have shown that the mound was not a simple heap of *gal-gal*, or broken rock fragments, but had been faced with ashlar walling about 1.5 m. high. Round the periphery of the tumulus at the base of this wall ran a causeway simi-

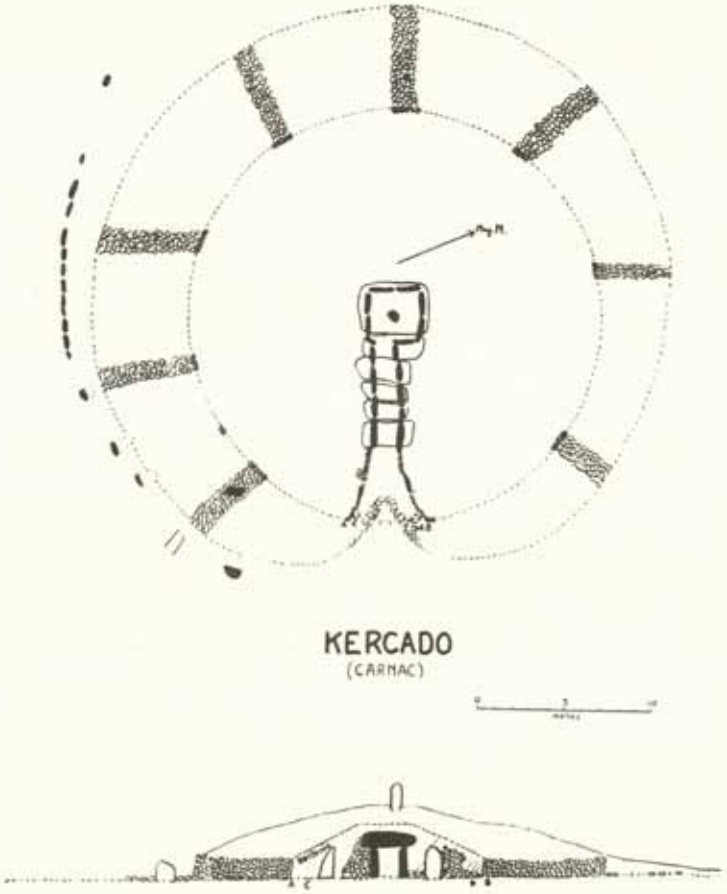

FIG. 26. Passage dolmen of Kercado, S. Morbihan (after le Rouzic). The parts of the encircling pavement exposed in recent excavations are indicated in the plan.

larly constructed of closely packed, uncemented stones. This causeway from 3 to 6 m. wide was further flanked by the stone circle. These stones,

[132] M. Le Rouzic has in preparation a detailed account of the megalithic tombs in Morbihan; plans of the more important tombs have recently been published in his "Corpus des Signes Gravés des Monuments Megalithiques de Morbihan," 1927.

as in the cromlech of St. Pierre, Quiberon, were erected in close juxtaposition, forming a megalithic wall.

The entrance to the tomb was also carefully built. The gallery splayed out towards the entrance, was largely constructed of dry stone walling and merged into the retaining wall of the tumulus. The paved way curved in to follow the line of this vestibule, on either side of which, near its outer extremities, two hearths were found. A menhir in line with the entrance of the tomb had been erected outside the range of the cromlech, which was broken at this point. Le Rouzic's discoveries at Kercado are of the greatest importance. There is no reason to believe that the structure is in any sense unique; the monument was in a fairly good state of preservation and the retaining wall, paved way and hearths had all been concealed by accumulated rubble fallen from the tumulus. A series of concentric retaining walls were discovered by le Rouzic in the tumulus of the corbeled tomb at Ile Longue. He also reports traces of a masonry wall round the ruined Table des Marchands, and a megalithic walling to the tumuli of Manio, Kerlescan and Pendrec in this area.[133] Maximum value may therefore be given to the structural features which this monument has retained. Both the design and the methods employed in building the tumulus are obviously related to those recorded by Siret at Los Millares and elsewhere in Iberia and recur in the chambered cairns of Scotland. The grave goods included bell beakers, carinated bowls, callaïs beads and a small green-stone celt.[134] Passage dolmens essentially similar to Kercado but in varying states of preservation occur commonly in this region, e. g. Keriavel, Petit Mont,[135] Mané Lud,[136] etc. The distinction between the passage and chamber is sometimes less marked, being indicated only by slight angles in the megalithic wall and an enlargement of the inner end of the tomb.[137] The famous and long violated tomb on Gavr'inis, about 15 m. long, with its magnificent but problematic carvings, is of this form. (Fig. 27.)

The polygonal form of passage dolmen is more rarely met with, although a form better known in S. Finistère, with a very short slab-closed gallery and a rounded chamber, occurs at Ploemeur across the Etel (dolmen de St.

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[133] B.S.P.M., 1921, p. 85, and Carnac, Fouilles, p. 117.

[134] Galles, op. cit., Musée Vannes, Musée Miln, Carnac, and verbal information from Z. le Rouzic.

[135] See Le Rouzic, Carnac. Fouilles faites dans la région. B.S.P.M., 1912 (extract).

[136] Galles, L. Etude sur Mane Lud, B.S.P.M., 1864, (Extrait).

[137] In the best preserved of the three dolmens of Mané Kerioned, there is only a slight angle on one side. The chamber itself enlarges towards the interior to double the gallery width; see Le Rouzic, Corpus, fig. on p. 105.

Adrien).[138] The rectangular passage dolmen occurs in more complicated form, in which several chambers of similar size are constructed, each with access to the main chamber of the gallery. The type is well represented at Locqueltas, Locoal-Menden, Er Groh, Erdeven, and Keriavel III, Carnac. The latter yielded bell beaker and other pottery decorated in the combed style and two callaïs beads.[139]

The famous tomb of Mané Rutual, Locmariaquer, has a double chamber. The smaller first chamber is rectangular and behind it lies a larger polygonal chamber covered by an enormous (now broken) capstone.[140] (Fig. 27).

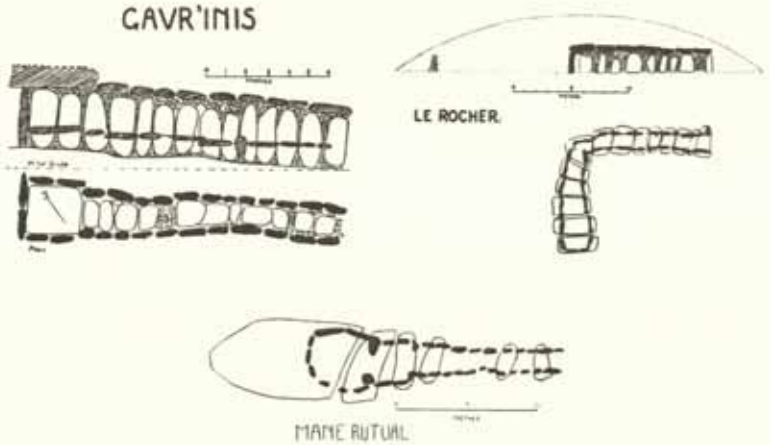

FIG. 27. Tomb types in S. Morbihan. (after le Rouzic)

The close kinship between the Breton passage-dolmen and the Iberian tomb of similar form is obvious and has long been recognized. In Brittany the chamber is more frequently rectangular and the development of multiple chambers of equal size is special, but the type as a whole is essentially the same. As in Iberia, dry walling is used to fill in gaps in the megalithic walling. The Gavr'inis type, in which the chamber is but little broader than the gallery, occurs also in Spain. The dolmen de Soto, Huelva, for example, although a little larger, is constructed in precisely the same manner with a chamber and gallery of similar proportions. Double chambers built one behind the other occur in Iberia, e. g. the Cueva de Romeral,

[138] Le Rouzic, Carnac, Fouilles, 1921, p. 19 and fig. on p. 26.

[139] B.S.P.M., 1886, p. 95.

[140] B.S.P.M., 1860 and 1885; Catalogue du musée de la Societé Polymathique, Vannes, p. 25.

Antequera, Andalucia, where, however, the chambers are circular, vaulted and separated by a short corridor.

The straight covered gallery *allée couverte* is not frequent in southern Morbihan. It is, however, very important elsewhere and, while the distribution suggests important and special lines of movement, it is possible to show that it is an integral part of the megalithic culture and virtually contemporaneous with the passage dolmens. The *allée couverte* du Net, St. Gildas de Rhuys,[141] in the S. Morbihan area, contained bell beakers and typical "megalithic" grave goods. The most interesting features of the Kerlescant tomb near Carnac are the two "holed stone" entries, one in a lateral wall in the shorter of the two compartments, and the other in the megalithic wall separating the two. Both these entries had been formed by carving away a semicircular hole on the sides of two adjacent slabs. Lukis reported a similar entry in one side wall in another gallery about 24 m. long at Kertearac, quite close to Kerlescant; this monument has since been entirely destroyed. The passage dolmen of Garen-Dol, Kerlouan, Morbihan, and the laterally chambered Parc-ar dolmen, St. Pol de Léon, N. Finistère, also had holed entries constructed in a similar manner.[143]

Evidence from both tomb and grave goods indicates the close relation between the Breton galleries and those of northeastern France[144] and the same form extends into the Channel Islands where the "long cist" of Le Couperon, Jersey, shows detailed structural similarity with the Kerlescant tomb.[145] The tombs of N. Brittany indicate still more strongly the closeness of this connection. In northern Ille-et-Vilaine, the Côtes-du-Nord, the rectangular *allée couverte* is the standard tomb form. The magnificent tomb of Esse, three kilometres from Rétiers, reproduces all the characteristic features of the galleries of the Paris basin, while Tresée (Maison des Feins) further north, has another resemblance to the Seine tombs, since it is buried in the ground and shows no trace of a covering tumulus.[146]

[141] Le Rouzic, Z. Carnac, Fouilles, 1921, p. 8.

[142] Lukis, Journ. Brit. Arch. Ass. 24, 1868, p. 40 ff.; see also Salmon, P., Dolmen avec Tumulus et Cromlech à Kerlescan, Commune de Carnac, Paris, 1887. The monument had been opened and explored in 1851 when the megalithic roofing slabs were nearly all removed; the objects then recovered are not recorded. The investigations of Lukis disclosed the furniture still preserved. A Bronze Age single-handed pot, also recovered at this time, is preserved in Vannes Museum.

[143] Salmon, P. op. cit., p. 6.

[144] Forde, C. D., The Megalithic Gallery in Brittany, Man, 29, 1929, 80, contains a detailed account of the material summarized here.

[145] Cf. Kendrick, The Axe Age, 1925, p. 23 ff.

[146] Bézier, op. cit., p. 148, Pl. 13 and cf. Danjou, Bull. Soc. Arch. Ille-et-Vilaine, 1880 (extract). A gallery at La Turballe, Guèrande, Loire Inférieure, is also partly excavated in a natural mound. Cf. Bull. Soc. Arch., Nantes, 22, 1883, pp. 115–116.

Megalithic galleries of the same type are frequent further west in the Côtes du Nord.[147] The gallery of Tertre de l'Eglise in this area contained inhumations, some forty polished stone celts, beads and a metal (copper?) "dagger." Tombs of the same type occur at La Poterie,[148] and on Ile Grande,[149] and further east.[150]

The same tomb form extends into N. Finistère, where a small but spacious example 8.5 m. long occurs at St. Pol de Léon.[151] The gallery of Mougan Bihan near Commana, Sizun, was 13 m. long. The gallery of Kerbannalec near Beuzec-Cap-Sizun, in the southwest, resembled the Kerlescant tomb in that a row of megalithic slabs had been erected parallel to the chamber along one side. Its contents relate it definitely to the southern culture, for a carinated bowl with groups of vertical incisions was found, with flint points and a spindle whorl, but the closed gallery is rare in southern Finistère and the form of this tomb undoubtedly suggests relations to the northern types. (Fig. 28.)

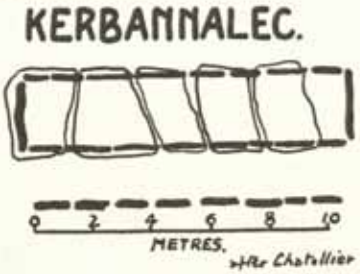

FIG. 28. Gallery of Kerbannalec, S. Finistère.

It is therefore clear that the covered gallery implies a distinct tradition in the megalithic architecture of Brittany and indicates an extensive movement from the Paris basin to the east.

There also appears in Brittany a tomb form which is extremely rare elsewhere. This is the angled gallery (*allée coudée*) of which Le Rocher, Plougou-

[147] Fornier. Mem. Soc. d'Emulation, Côtes du Nord, 1872, p. 1; Harmois, A-L., Inventaire des découvertes archéologiques du département des Côtes-du-Nord. Mem. Soc. d'Emulation, Côtes-du-Nord, 47, 1909, pp. 5–6.

[148] Harmois, A.-L., La Potérie, Lamballe, Mem. Soc. d'Emulation, 44, 1911, p. 1 and cf. Mat., 1884, p. 478.

[149] Harmois, Inventaire, 1912, p. 219.

[150] De la Chénelière, G. Inventaire des monuments megalithiques compris dans le département des Côtes-du-Nord (subsequently cited as Inventaire), Mem. Soc. d'Em., 17, 1880, pp. 129–130, 107–8; Mem. Soc. Arch. Côtes-du-Nord, 1845, p. 16 ff.

[151] Du Chatellier, Ep. Préh., p. 101 and cf. Mougan Bihan, Sizun, Mat. 1884, pp. 553–555 and figs. 257–8.

melen, in southern Morbihan, is a fine example. The gallery consists of two sections at right angles, the one leading into the other. The walls of the upper gallery are not parallel but splay out at the upper end, suggesting a definite chamber. (Fig. 27.)

The gallery of Pierres Plates, whose walls are decorated with a group of very important carvings, is also angled. The inner gallery was closed to form a separate chamber and a lateral chamber was built out at the bend. In S. Finistère, the right-angled gallery of Poulguen has parallel walls and a division into compartments, suggesting analogy with the Kerlescant type.[152] Many of the uprights in both galleries show carvings resembling those of Morbihan, but of a less elaborate character.[153]

The carvings on Le Rocher, Pierres Plates, Luffang, (another angled gallery considerably ruined) are all of one type, the "octopus" (?) design. A somewhat similar design occurs at Lizo in a tomb probably of the same form,[154] while one of the designs carved at Poulguen,[155] is of related character. The association of this design with the angled gallery may indicate the restriction of a certain motif to a special tomb type and also possibly represents a chronological distinction. On this assumption, the absence of the angled gallery in Iberia suggests its development further north at a period later than the first megalithic occupation of Brittany. It must however be realized that in technique and appearance these designs are closely related to the "buckler" designs of Ile Longue, Mané-er-Hroëk, etc. and one or two of the carvings at Pierres Plates are of the "buckler" type[156] while the furniture of le Rocher and Lizo is not to be distinguished from that of the megalithic tombs in general, so that the difference in time, if any, is small.

Massive closed chambers are also found in the S. Morbihan region. That at Tumiac should perhaps be regarded as a shortened gallery and it is largely built of dry stone walling,[157] but the "dolmen" in the west end of Moustoir tumulus of the same form, was entirely megalithic.[158] (Fig. 29.)

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[152] Martin, A. Nouvelles explorations du Tumulus de Poulguen. Bull. Soc. Arch. du Finistère, 29, 2, 1902, p. 23. For a description of this tomb and a report of the various explorations see Forde, C. D., Ant. Journ., 1927, p. 7.

[153] Chambered variants of this type are known, as e.g., Run Aour, S. Finistère, and Kergonfalz, Bignan, central Morbiham.

[154] See La Rouzic, Z. Corpus des Signes Gravés, p. 29 and appropriate plates.

[155] Forde, C. D. Ant. Jour., VII, 1927, p. 19, fig. 5.

[156] Le Rouzic, Z. Corpus, Plates 90 and 94.

[157] Galles, R. B.S.P.M., 1862, p. 1.

[158] B. S. P. M., 1864, p. 117.

Distinct from these are the closed chambers of Mané-er-Hroëk.[159] and St. Michel. The famous tumulus at Mané-er-Hroëk was originally a hundred metres long. There is no gallery and the megalithic blocks, although of great size, were not orthostatic but disposed horizontally to form a chamber of cyclopean walling 3.9 m. long by 2.8 m. wide and 1.50 m. high, supporting megalithic capstones (fig. 30). On one side of the chamber a carved upright had been erected. The furniture included ten large greenstone axes and nearly a hundred small celts of fibrolite. Callaïs beads were found with the axes but no pottery is recorded. The mode of burial is very doubtful. It is generally assumed to have been inhumation on the meagre data of Galles' report.

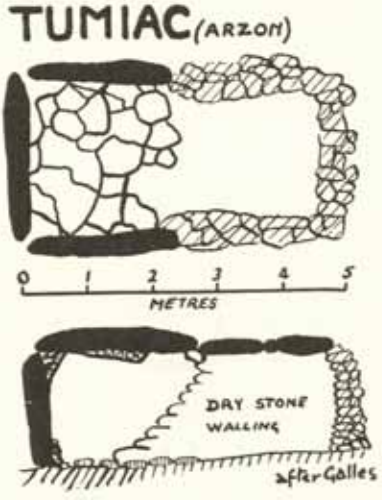

FIG. 29. Closed chamber in the Tumulus of Tumiac, Arzon, S. Morbihan.

The central chamber at Mont St. Michel, which was surrounded by a large number of small cists, is very similar to Mané-er-Hroëk but of slightly smaller dimensions.[160] This tomb also contained magnificant greenstone axes. Bosch Gimpera[161] reports a poor and perhaps doubtful beaker. The wealth of axe furniture and lack of pottery associated with exceptional forms of chamber in huge tumuli have led to the suggestion that these tombs

[159] This tumulus was very summarily excavated by R. Galles in 1862; see brief report in B. S. P. M., 1863, p. 18, cf. also Catalogue, Vannes, 1921, p. 21.

[160] Galles, R. Rapport à M. le Prefet du Morbihan sur les Fouilles du Mont St. Michel *and* B. S. P. M., 1862, p. 7. This tomb has since been investigated by the Societé Polymathique and M. le Rouzic.

[161] Bosch Gimpera, Rev. Anth., 1926, XXXVI, p. 335, Reallexikon, 4, 38.

are chronologically distinct from the other megalithic chambers. Le Rouzic, Childe,[162] and Bosch Gimpera[163] consider them later than the other tombs, while Åberg[164] suggests that they are earlier since they contain no bell beakers. These conclusions appear to be very uncertain. It must, in the first place, be realized that only a very small minority of the megalithic tombs have been preserved intact for modern exploration, and Tumiac, Mané-er-Hroëk and St. Michel have probably retained their funiture in virtue of their closed chambers buried in large tumuli with no entrance gallery. Greenstone axes, as such, although so abundant and finely worked, do not constitute a chronological distinction and it is argued elsewhere that the bell beaker is associated with the megalithic culture in Brittany from the beginning. It must also be remembered that Tumiac, although a closed tomb, does not closely resemble Mané-er-Hroëk or St. Michel. At

FIG. 30. Closed chamber in the Tumulus of Mané-er-Hroëk, Locmariaquer, S. Morbihan. (after le Rouzic)

Tumiac the tumulus was roughly circular "(conoid)" and not elongated. Orthostatic slabs and ashlar walling were employed. In it, moreover, carvings of the Gav'rinis type occur on the supports and burial was by inhumation, while at St. Michel incinerated remains were found. The elongated triangular form of the ceremonial axes, although rare elsewhere, is frequently represented in carvings on the pillars of many tombs of more normal type, e. g. Gavr'inis, Mané-Lud etc.[165] The main shield-like carv-

[162] Dawn, p. 281.
[163] Rev. Anth., 1927, p. 209; Reallexikon, 4, 44.
[164] Civilisation énéolithique ibérique, p. 174.
[165] Le Rouzic. Corpus Des Signes Gravés . . . . , Paris, 1927, p. 42 ff. and pl. 108.

ing on the Mané-er-Hroëk pillar is of the family of designs from Ile Longue (corbeled passage tomb), Mané Kérioned and Grah Niol (passage dolmens) etc.[166] In these three tombs, moreover, large numbers of small fibrolite and other axes of the trapezoidal type accompanied the ceremonial axes, so that we remain doubtful whether these tombs were early or late in the megalithic phase. The greenstone axes and callaïs beads, the carvings of Tumiac and Mané-er-Hroëk, and the instability of burial practice suggest rather that they are an integral part of it and can have been little earlier or later than the passage dolmens.

A well-preserved corbeled "beehive" tomb—the tumulus of Ile Longue—is found on one of the islands of the Gulf. In an elaborately constructed circular tumulus with three concentric retaining walls, is a rectangular chamber with rounded corners, approached by a gallery of megalithic blocks and ashlar walling. The lower part presents very Iberian features in the megalithic walling of the lower part of the chamber.[167]. Its corbeled roof was originally nearly five metres high. The tomb was explored in early times and no furniture has been preserved. But apart from the structural features of retaining wall and splayed entrance recalling the conditions discovered later by Le Rouzic at Kercado, its erection in the megalithic period is confirmed by the numerous carvings discovered in the restoration of the monument in 1907.[168] The main carvings are of the "buckler" type and show clear parallels to the design on the Mané Rutual passage dolmen capstone, the Table des Marchands headstone, the Mané-er-Hroëk pillar and above all to the megalithic block found close by the ravaged tumulus of Moustoir.[169] The ruins of other corbeled chambers are found in S. Morbihan e. g. St. Germain, Erdeven.

At Rosmeur,[170] near Penmarc'h in S. Finistère, a corbeled passage tomb was found, together with a covered gallery in a single circular tumulus. The furniture of the gallery, which was better preserved, did not indicate a particularly late date for the monument.

Small roughly-made coffers of heaped stones were also used at the same time as megalithic tombs. The graves in the "tertre du Manio" Carnac, built previous to the surmounting alignments of Kermario were of this

[166] Le Rouzic, op. cit., p. 31 cf. Pl. 24 with Pl. 26, 33, 65 etc.

[167] Cf. the dolmen de la Granja, Badajos. See Obermaier, H., El Dolmen de Matarrubilla, p. 36 and pl. 2, and Los Millares see Siret, L., L'Espagne préhistorique, p. 522.

[168] Le Rouzic, B. S. P. M., 1916; Corpus, p. 182 ff., Pl. 60–66 and casts in Musée Miln, Carnac.

[169] Corpus, pls. 39, 56 and 138.

[170] Du Chatellier, P., Les deux tumulus de Rosmeur, Point de Penmarc'h, (Finistère). Mat., 10, 1879, p. 145.

type.[171] The monument consisted of a low, roughly-rectangular, dry-walled mound. The central stone-walled, slab-covered chamber was flanked by a menhir, at the foot of which four polished stone axes were discovered. This chamber was surrounded by a large number of minute square coffers, whose interior measurement was little more than a quarter of a metre each way. These were found throughout the length of the mound. Each was constructed with small blocks of stone and surrounded by other small slabs leaned against the walls. In one, pottery was found in sufficient quantity to determine the close relationship of these tombs to the megalithic culture.[172] Similar coffers surround the central "dolmen" of Mont St. Michel and occur in the mounds of Castellic and Crucuny.[173] The indiscriminate passage of the alignment of Kermario, a part of the great system of Carnac alignments, across the low almost imperceptible mound of Manio, undoubtedly indicates that the former were built later than the tombs and probably after they had been forgotten. Although they are difficult to date, we cannot claim that the alignments are later than the megalithic culture as a whole, so that the coffers themselves are relatively early. (Fig. 31.)

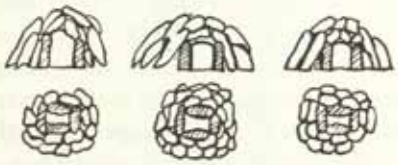

FIG. 31. Small coffers in the Tertre du Manio, Carnac, S. Morbihan (after le Rouzic.)

It appears probable that even in Brittany, despite the general hardness of its rocks, rock-cut tombs were occasionally hewn in the softer outcrops as burial places by the megalithic people. Du Chatellier describes "souterrains" in Finistère which may have belonged to the megalithic civilization.[174] At Pont Croix, a circular vaulted chamber 2 m. in diameter and 1.6 m. high was approached by a narrow descending cutting 50 cm. wide and 3 m. long. The furniture—black earth, charcoal and pottery fragments—suggest a "megalithic" burial but no details are given. A tomb of somewhat similar form is reported to the southeast in Loire Infèrieure, at Roche Trocante, near Arthon. Here there is a subterranean gallery ending in a chamber described as "rounded after the manner of a vault, regularly hewn in the cal-

[171] Le Rouzic, Z., Carnac, Fouilles, Campagne 1922, p. 47 ff.

[172] Ibid., p. 118, cf. B.S.P.M., 1921, p. 87.

[173] Le Rouzic, Z., Fouilles, 1922, Carnac, Tertre du Castellic, Pl. IX, p. 137: Tumulus du Crucuny, Pl. 1 and p. 5 ff.

[174] Grottes sepulcrales artificielles dans le Finistere, Mat. I, 1884, p. 75 ff.

carious rock." The entrance is very small but the gallery 7.8 m. long and 2.1 m. wide enlarges to a height of 1.9 m.[175] These descriptions although inadequate, indicate a form related to the "grottoes" of the Marne. Unfortunately no furniture is recorded. Other "souterrains" of different form probably belong to the Iron Age e. g. La Tourelle.[176]

Du Chatellier also reports two natural caves used as a burial place in megalithic times at Guesseny and Kerouan, Finistère. Both contained cinders, polished stone axes, human and animal bones. In the second, cinerary urns "of various periods" were found.[177]

In Finistère and elsewhere there occur, together with tombs of more normal types, forms which show considerable variation from those so far discussed.[178] They are groups of large chambers flanking a central "dolmen." These grouped chambers were generally erected in sets of two, three or four, the whole system being covered by a long, low tumulus. In some cases, e. g. at Pen-ar-Menez, the central covered chamber might better be called a gallery, although it is quite short. It does not, however, afford access to the flanking chambers in the manner of the multiple-chambered dolmens of Morbihan. The flanking chambers are larger than the central "dolmen", of rectangular form about 2 m. along each side and built in megalithic blocks of varying height. They show no sign of having been covered by megalithic capstones. Sometimes, however, as for example in the group east-north-east of Kervignon and again at Kervastel, a quantity of large stones were found among the upper layers of the earth that filled the chambers. It appears that these chambers were generally protected by heaping rough stone blocks on the top after they had been filled with earth. It is also possible that they were sometimes roofed with wood, which has since disappeared. Between Tronwal and Kervantic are the ruins of a group of four "dolmens" flanked by numerous chambers. At Kervignon a further group was explored by du Chatellier; as elsewhere the large flanking chambers were not covered by megalithic capstones.[179]

Grouped chambers of this type are not confined to the south and occur frequently further north, e.g. the complex tomb of open chambers at Lanildut, Guiligny, N. Finistère.[180] Marsille[181] reports similar uncapped

[175] Pitre de Lisle. Dictionaire archéologique, B.S. Arch., Nantes, 1885, V., P. 2.

[176] Cf. du Chatellier, op. cit.

[177] Ep. Préh. pp. 15, 16.

[178] A more detailed account of the megalithic monuments of Southern Finistère is given in Ant. Jour., 1927, 7, pp. 1 ff.

[179] Mat., 1881, p. 267.

[180] Du Chatellier, Ep. Préh., p. 148.

[181] B.S.P.M., 1924, pp. 8–9.

and grouped chambers in central Morbihan at St. Marcel and Serent, while the chambers of Grand Carreau Vert, Loire Inférieure, were grouped together as in S. Finistère.[182]. The megaliths to the south of the Loire in this *département* and in the Vendée contrast with those further north in the complicated plans of their chambers, but data are not adequate to attempt to establish precise parallels with Finistère.[183]

Slab cists containing burials and furniture similar to that of the megalithic monuments are numerous in the west. They are found singly and in groups. Some are below tumuli and others are buried in the ground with no surface indication of their presence. Both inhumations and cremated burials are reported from these cists and from simple trench graves. The grave goods, although generally poor, are not distinct from those of the larger megalithic tombs and are certainly not related to the later Bronze Age culture of the peninsula.[184]

In Finistère as in Morbihan we have clear evidence that the megalithic chamber was not the only means of disposal of the dead. As in Iberia, trench graves, cave burials and slab-lined cists were all used. Many factors, such as locality, wealth and labor, undoubtedly affected burial practice in different areas and at different times. Although we are justified in speaking of a "megalithic culture" it must nevertheless be recognized that the megalithic tomb was not invariably used.

I have shown elsewhere that in relation to the great centre of southern Morbihan, S. Finistère manifests the conditions of a marginal area of lower culture in which there was nevertheless a great density of settlement. The traditions and techniques of megalithic architecture were less firmly rooted and crude but novel tomb forms were developed. This would appear to be equally true of the country south of the Loire in the east and also apart from influence from northeastern France, of north Brittany as a whole.

Dominant Iberian influence is again indicated in the tools and ornaments recovered from Breton tombs and settlements. As in Iberia, handles are not found on the pottery of this period, but flat and pierced lugs, vertical and horizontal, are extensively used. Two pottery forms are of the greatest significance, the bell beaker and the carinated bowl.

Beakers of varied proportions, workmanship and ornament, although less numerous than the rougher spheroid pots, are characteristic of the entire range of tombs. They are inextricably mixed with other wares and cannot

[182] Pitre de Lisle, Mat. 3, 1886, pp. 279 ff. and figs. 103–4.

[183] Ibid., p. 285.

[184] See Forde, C. D., Ant. Journ., 7, pp. 28 ff. for an inventory and analysis of these burial types.

be assigned to one tomb-type or period. The finest are essentially "Iberian" and of fully developed form. On the whole, however, the ornament is less elaborate and the restraint suggests that it was introduced into Brittany at a date relatively late in its history in Iberia. But as we are unable to correlate it in Brittany with any one type of tomb or a specific region, we cannot decide its chronological position here. The negative evidence of the Mané-er-Hroëk tomb-type is quite ambiguous, and since it is found so abundantly in the passage dolmens of the Carnac-Locmariaquer region it would seem most probable that it accompanied the first settlement. (Fig. 32.)

FIG. 32. Bell beakers, Morbihan, Brittany. (after Castillo.)

The carinated bowls are also found in tombs of various types (fig. 33). They are generally undecorated except for groups of vertical plastic ribs on the upper wall, e.g. Renongard and Kerugou, Finistère, etc. A similar

design is produced by the incision of groups of vertical lines on the upper wall e.g. the bowl, 16 cms. wide and 10 cms. deep from the *allée couverte* of Kerbannelec, Beuzec Cap Sizun, Finistère, has three groups of six vertical incisions.[185] Others are taller with less pronounced carination e.g. Lesconil, Finistère. The carinated bowl occurs widely in Iberia. It is associated especially with the "megalithic" tombs and passage dolmens of the south and west. In the Portuguese passage dolmens, as in Brittany, plastic ribs are sometimes used to decorate the concave upper part of the bowl.[186] Their presence reinforces the evidence of the beakers that there was direct traffic by sea between S. Iberia and the Breton peninsula.

The "combed" and incised ornament on beakers and other pottery includes obliquely hachured bands, zigzags, incised and reserved, and other patterns known from S. Iberia. But the more elaborate designs of the Palmellan and Andalucian wares do not occur.

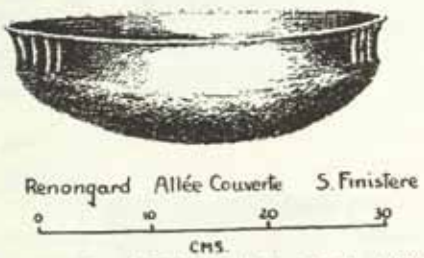

FIG. 33. Carinated bowl, Brittany (after du Chatellier). Note the plastic ornament of vertical ribs.

But the pottery of the Breton culture was not entirely derived from Iberian forms, and the abundance of plastic ornament, curvilinear bands, knobs and lugs, suggests that early continental fabrics penetrated this area. Déchelette[187] has shown the relation in both form and ornament between such Breton wares and that of the "Camp de Chassey" and other stations in eastern France. More specifically the small flat-bottomed goblets characteristic of the Paris region recur occasionally in Brittany, e. g. La Roche, Dongues, Loire Inférieure, while rough imitations of Baltic dolmen forms ('collared flasks') are also known (Lann-Blaën, Guidel, Morbihan and Kerandrèze, Moëlan, Finistère).

It has already been shown that callaïs, the green bead material, was used abundantly in Brittany. With the exception of a single bead from a tumulus

[185] Du Chatellier, P., Mem. Soc. d'Em. Côtes du Nord, 17, 1880, p. 199 and Pl. 10.

[186] Leeds, E. T., op. cit., p. 220.

[187] Manuel, I, p. 559; see Reallexikon, 4, pp. 36–7, for a brief analysis of the wares associated with the Breton culture.

in Loire Inférieure (Motte Ste. Marie) it is confined to southern Morbihan. In all, over five hundred beads and pendants have been recorded and preserved. Among the prehistoric collections at Vannes there are no less than 405 beads and pendants from the great tombs of Tumiac (249), St. Michel (107) and Mané-er-Hroëk (49). There is also a rich collection in the Musée Miln at Carnac from the tombs of St. Michel (29) Mané Lud (26) and Kercado (203).[188]

Although well known from many prehistoric sites in western Europe, callaïs is nowhere, outside Portugal, as abundant as in southern Morbihan. About 130 beads are recorded in Provence a few from southeastern Spain, from the tombs of the French Pyrenees, the Massif Central (Lozère and Aveyron) and the Marne.[189] The Breton specimens are as fine as any in color and size. Some of the pendants are over 4 cms. long. The beads are small and discoidal in shape with irregular facets; larger olive-shaped beads are more rare. The bead from Motte Ste. Marie, Loire Inférieure, was more carefully shaped than is usual in Brittany. Those of Provence are smaller still and more often cylindrical. The Portuguese beads show a much wider range of size and form. They are olive-shaped, globular, discoid and cylindrical. Cartailhac pointed out that the beads of Morbihan are very rough in comparison with the finest Portuguese specimens. He placed the Provençal halfway between in quality of workmanship.[190]

Callaïs is chemically close to turquoise and the two substances may occur together. But although its character is well known, no west European source for the material has been reported. Brittany is itself an area geologically favorable to its occurrence.[191] But while the existence of large quantities of roughly worked material might favor a Breton source for the callaïs which was then trafficked back to Iberia and more elaborately worked there, the views that it was carried with the bell beaker into Brittany, or again was discovered a second time, locally by Iberians in Brittany, remain equally possible. In any case the distribution of worked callaïs is of great significance and indicates the extent to which a single ornamental material was adopted through western Europe at this period (cf. map, fig. 4).

[188] To the 56 beads already recorded from this tomb are added a further 147, recently discovered by M. le Rouzic.

[189] See Marsille, op. cit., B.S.P.M., 1924 and Cazalis de Foudouce, De l'emploie de callais dans l'Europe occidentale aux temps préhistoriques. Congrès International d'anthropologie à Lisbonne, 1880, pp. 314 ff.

[190] Cartailhac, Les Ages Préhistoriques de l'Espagne et du Portugal, p. 131.

[191] Cf. Lacroix, Mineralogie de la France, IV, p. 486 and de Limur, Bull. Soc. d'Em., Cotes du Nord, 1874, p. 94.

Le Rouzic has recently recovered a segmented blue paste bead from a passage dolmen at Parc-er-Guren, Carnac.[192] This bead, which was found in the earth on the floor of this long ravaged tomb, is of a well known late Middle Minoan type. Similar beads have been recovered in England, but they are found in round barrows of the second period of the Bronze Age, while in Iberia, the most probable source of the Breton specimen, this type has been found only in a late grave of the El Argar culture (tomb of Fuente Alamo) where segmented beads in bone and "glass" were found in association with pedestaled bowls and a bronze sword.[193] The discovery of a fragment of a riveted copper (?) dagger indicates that the Carnac bead probably relates to a secondary burial of later date than the fragments of "dolmenic" and bell beaker pottery that were also sifted from the floor.

In southern Morbihan considerable numbers of large point butted greenstone celts have been found. Like callaïs these are especially associated with the three large closed chambers of this area, but similar forms have been found elsewhere in Brittany in passage dolmens, galleries and hoards.[194] The workmanship is extraordinarily fine and some forms show beveled sides with median ridges and splayed blades characteristic of metal forms. The materials used were jadeite, chloromelanite, various pyroxenite rocks (augites), and occasionally diorite. These are undoubtedly local, for although outcrops of every variety have not been found, the metamorphosed pyroxenites and amphibolites of southeastern Brittany are an obvious source for such materials and extend over the precise area from which the axes have been found.[195] (Fig. 34.)

But these axes also suggest Iberian connections, for large specimens of very similar form have been reported from Algarve in southern Portugal[196] and Siret[197] records an extensive use of greenstone for axe material at El Garcel and Los Millares in the southeast.

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[192] Cf. Man, 36, 1929, p. 69.

[193] Siret, L. Las Primeras Edades, pl. 68., Cf. Åberg, op. cit., p. 163.

[194] In a monograph now being prepared for publication a detailed enquiry into the character, distribution, and sources of these axes will be given.

[195] Cp. Damour, Comptes Rendues de l'Academie des Sciencies, 61, 1865, pp. 313 ff., pp. 359 ff., 63, 1866, pp. 1038; Lacroix, Mineralogie de la France, I, p. 615. Barrois, Les pyroxenites du Morbihan, Ann. Soc. Geol. du Nord, 1887.

[196] Estacio de Veiga, Antiguidades, 2, p. 369 and Pl. 16; of Cartailhac, Les Ages Préhistoriques, p. 194 ff. Da Veiga found forty-three, mostly of diorite in two circular (?corbeled) chambers at Aljezur with schist plaques and large flint blades. Cartailhac figures very fine specimens of unknown source in local collections.

[197] L'Espagne préhistorique, R.Q.S., 1893, pp. 489 ff.

But other elements of the stone grave goods derive from eastern and northern types. Flint axes of forms related to those of the Paris basin are occasionally found in the Breton tombs. Perforated axes of a variety of types are known. Bored hammer axes rounded at one end of the type found in the chamber at Petit Mont, Morbihan,[198] have frequently been reported in Loire Inférieure,[199] while symmetrical double bladed axes occur in Morbihan and Finistère.[200] Both these types are well known Baltic forms characteristic of the passage tombs and later separate graves.[201]

The curious knobbed axes, unbored diorite celts terminating in a rounded knob, which occur as stray finds in Morbihan and Vendée may also be related to the polygonal battle axes of the Danish dolmens.[202]

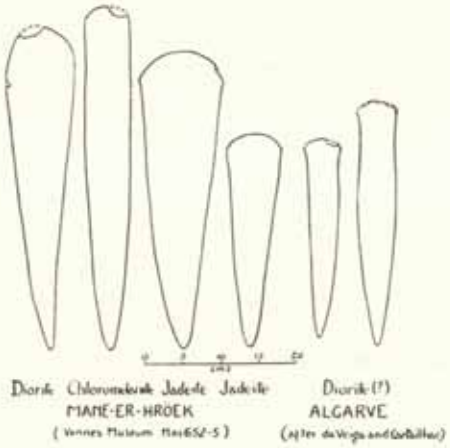

FIG. 34. Ceremonial greenstone axes.

Spheroid[203] and discoid[204] maceheads are occasionally found in Breton dolmens, but the former, although not Iberian, are probably of southern origin and can be paralleled in Sicily and the early Sardinian culture.

The megalithic culture of Brittany has been frequently regarded as truly "neolithic" in the sense that the use of metals was quite unknown.

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198 B.S.P.M. 1912, p. 118. Vannes Museum, No. 592.

199 B. S. Arch. Nantes, 64, p. 28 and fig. and 61, p. 33 and fig.

200 Forde, C. D., Ant. Journ., 7, 1927, p 12.

201 Cp. Montelius, La Suède préhistorique, p. 12 and fig. 5. from Bohuslan; idem, Antiquités suédoises, figs. 33 and 34.

202 Marsille, L. Catalogue, Vannes, p. 40. Cp. Åberg, Studier, 1912, p. 24.

203 E.g., Souc'h, Finistère.

204 E.g., Moustoir, Morbihan, of marble (?). B.S.P.M., 1864, p. 117 and Vannes Museum, no. 586.

Although Déchelette[205] rightly pointed out that such absence of metal indicated a process of impoverishment with northward migration, the view that this region was an early and "primitive" megalithic area has but slowly been discredited. In the scattered reports of the exploration of tombs in this area the use of gold and copper by the megalith builders is abundantly proven.

Bracelets and armlets of thin sheet gold are reported in southern Morbihan. Two were found in a pot containing cinders and charcoal in one of the three parallel galleries of Rondossec, near Carnac. They are of thin sheet gold, closed by interlocking the thin ends and ornamented by transverse stencil-like cuts in the broader part.[206] A "diadem" of thin sheet gold ornamented in a similar manner with horizontal slits is reported from a late cist burial in Algarve in association with "Palmella" copper points.[207] Two smaller bracelets formed of narrow bands of thin gold similarly closed by hooking together the tapered ends were recovered from the ruined dolmen of Belz, Morbihan, in 1862.[208]

Five small gold strips, the largest 8 cms. long and 2 cms. wide, pierced at each end with six small holes, were found by Le Rouzic in his exploration beneath the floor at Mané Lud.[209] These fragments appear to have been used to decorate the hilts of instruments or weapons.

From the tomb of Kerallant II, St. Jean Brevelay, in central Morbihan, a tubular gold bead 1.3 cms. long, formed by rolling a thin sheet and decorated by three incised lines on the edge, was recovered together with a "bracer" and several beakers.[210] Nine similar tubular gold beads, the first 1.8 cms. long, were found by Pitre de Lisle in the chamber of Motte Ste. Marie, Loire Infèrieure. These are related to the tubular gold beads of Castellet (Provence) and Halliade. The tomb was a divided gallery, 5 m. long, with incinerated remains. The other furniture included a very finely shaped callaïs bead and a bell beaker also of very superior quality.[211]

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[205] Manuel, d'Archeologie Paèhistorique 1.

[206] Mat., 1865, 2, p. 494; 1867, 3, p. 25; Trésors de l'Armorique occidentale, Soc. d'Em. Côtes-du-Nord, Plate 10, Nos. 1 and 2; Histoire naturelle du Morbihan, p. 210, and facsimile in Vannes Museum, No. 1257.

[207] Santo Bento de Balagues, da Veiga, op. cit., 4, Plate 4.

[208] Trésors, 10, 3, and 4.

[209] B.S.P.M., 1912, Fouilles, p. 6. A large hollow and spherical gold "bead," 3.2 cms. in diameter, decorated in *repoussée* was recovered from Er Roh, la Trinité. This is, however, almost certainly of later date and Roman objects (coins etc.) were also found.

[210] Vannes Museum, no. 39.

[211] Pitre de Lisle, Notice sur les fouilles du tumulus de Motte Ste. Marie, Loire Infèrieure. Bull. Arch., 1891, pp. 36 ff. The discovery of an Armorican Bronze Age arrowhead, the only

Mortillet obtained several objects from the small closed dolmen of Kerouaren to the northwest of Plouhinec, Morbihan. They were a gold "bracelet" 21 cms. long, 14 cms. wide, three gold hooks and a helix of gold wire. With them were found a beaker and a "bracer" 11 cms. long.[212] The report is very summary and the data not adequate to decide whether the bracelet was of the Belz or Rondossec types. Gold hooks are reported elsewhere; le Rouzic recently recovered two hooks in hammered gold from Kercado with the later finds of callaïs and tanged arrowheads.[213]

Objects of copper have been more rarely reported. They are, however, well authenticated in certain instances. In the small gallery of Penquer, Plozevet, S. Finistère, with a bell beaker and a "bracer" was found an unriveted copper dagger with a blunt tang. The other furniture included polished stone axes of normal type of diorite and fibrolite, a greenstone pendant, a conical V-pierced bone button and a very finely worked laurel leafed arrowhead.[214]

A similar dagger was recovered from the grouped chambers of Souc'h.[215] Du Chatellier describes them both as "bronze" but no analyses had been made. They are of the west European type that can be paralleled in Iberia and south Italy and there is little doubt that the Breton, like the former, are of copper.[216]

Metal objects were also recovered from the group of tombs at Lesconil.[217]

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one reported in Loire Inférieure, and a "quadrangular bonze point" in this tomb is surprising since further west callaïs and Armorican arrowtips never occur together. There were altogether seven chambers below the tumulus, but the others were damaged. In the center was a suspiciously Bronze Age "pyramid of stones." We can only conclude that the tomb was either very late and one of the few transition burials in Brittany or else less "intact" than Pitre de Lisle has claimed.

[212] De Mortillet, Une serie d'explorations à Plouhinec, pres Lorient, Mat. 1, 1884, p. 378.

[213] Verbal information and Musée Miln, Carnac.

[214] du Chatellier, P. Nouvelles explorations dans les communes de Plozevet et de Plouhinec. Rev. Arch., 2, 1883, pp. 1 ff.

[215] Ep. Préh., p. 48.

[216] A very small copper "dagger" 7.5 cms. long of similar form was found by du Chatellier in the gallery of Kerandrèze, Moëlan Finistère (9.2 ms. long). The other furniture included diorite celts, a fine flint blade retouched along both sides, a tanged and barbed arrow head (*not* of the Bronze Age type), several pots and sherds, among which was a rough "collared flask," and incinerated remains and cinders among which was found another small and a very corroded metal object which appeared to be the remains of a copper wire ring. Bosch Gimpera cites a copper dagger with bell beaker from Petit Morin, near St. Simon, Ploemeur, Morbihan. (see Rev. Anth., 1926, XXXVI, p. 327).

[217] Exploration de quelques sepultures de l'Age du Bronze, Mem. Soc. d'Em., Côtes-du-Nord, 1883, Nécropole de Lesconil, du Chatellier, P., pp. 37 ff. and Plates 3 & 4.

The forms of the greater number of these chambers suggest that they were constructed in the megalithic period[218] but when investigated by du Chatellier in recent times they showed signs of serious disturbance and may have been used by Bronze Age people. In an oval-chambered passage dolmen in this group (11 m. long with chamber 3 m. by 5 m. and deeply excavated in the ground) two flat, straight-sided "bronze" celts and a "bronze" chisel were found with the incinerated remains in the chamber.[219] In the same chamber were found eight flat amber beads each pierced laterally with three holes.[220] Amber is recorded nowhere else in megalithic Brittany. In form these beads resemble the center pieces of the Danish passage grave necklaces. A copper dagger, 13.5 cms. long, similar to that of Penquer, was found in another chamber in this group. Late Bronze Age objects, i.e. winged celts etc. had previously been recovered by peasants from the neighborhood of this necropolis.

Flat copper axes, similar to that of Lesconil have been recovered as stray finds in Brittany. They are quite distinct from the metal objects of the Bronze age tombs.[221] The condition of Lesconil was, as we have seen, too unsatisfactory to permit of definite conclusions, but since the Bronze Age people entered Brittany with an advanced metallurgical technique, and the unflanged celt was rare, it is difficult to attribute these rough axes to them. It would therefore appear most probable that they do indeed belong to the megalithic culture and are related to the flat copper celts of Southern Iberia (Algarve, Los Millares and the later culture of El Algar) and the Mediterranean.[222]

The V-pierced button from Penquer, which is very rare in megalithic Brittany, tends to confirm the southern derivation of the copper daggers and flat celts.

Copper bangles are reported in Finistère from Souc'h and St. Dreyel. These monuments in the commune of Plouhinec are both grouped chambers. The ornaments of Souc'h were helixes of copper wire, the larger

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[218] Op. cit., cf. Plate III.

[219] Op. cit., p. 40. These celts have not been analysed but are probably copper.

[220] Op. cit. p. 41.

[221] Ep. Préh. p. 44–45.

[222] This suggestion is perhaps weakened by Marseille's discovery of a flat copper celt, 12.9 cms. long, a tanged *copper* dagger, 13.5 cms. long, and the lower portion of the blade of another, 6 cms. long, in a Bronze Age cist—the tumulus of Coet-en-Garf, Elven, (Morbihan), —associated with a riveted Bronze Age dagger, 20 cms. long and 29 magnificent Armorican Bronze Age arrowheads. It is possible, however, to regard this tomb as early and to some extent transitional, for unriveted copper daggers are not typical of these tombs and cannot therefore be regarded as indicating Bronze Age intrusion when found in megalithic tombs.

bracelets had two twists. The smaller "ring" was precisely paralleled at St. Dreyel, where a small flat copper (?) chisel was also recovered. In both tombs typical "megalithic" stone axes, pendants and pottery[223] accompanied these metal objects.[224] A gold helix from Kerouaren, Morbihan, has already been noted.

Helical bangles and rings first appear in Spain at El Argar.[225] They are here of copper, bronze, silver, and gold. Flat unflanged copper and, occasionally, bronze celts are abundant. Since callaïs persists in this culture one is inclined to consider the helixes and flat celts of Finistère and southern Brittany as evidence of Iberian contact at a late period in the megalithic culture of Brittany, when the El Argar culture was beginning its career in Almeria. But helical gold rings also occur in Algarve, where they may also be relatively late (e.g. the cist of Quinta da Aqua Branca) with closed rings of gold, a thin gold strip and an unriveted copper dagger.[226]

The finds here reported undoubtedly indicate an acquaintance with the tools of the western Copper Age and with simple gold ornaments. Flat copper axes, unriveted daggers and gold objects may, moreover, have been in use among the megalithic people for a considerable time before they were deposited in tombs. The existence of so called "bracers" which Siret and Sophus Müller more reasonably regard as whetstones[227] also suggests a use of copper more extensive than is indicated by the grave finds. It cannot, however, be claimed that the megalithic people made extensive use of metallurgical knowledge. The workmanship is rudimentary and poor. Although, on the one hand, the finds imply that they were not entirely ignorant of the use of metals and were therefore capable of identifying and exploiting ores, it is quite certain, on the other hand, that no advanced techniques were introduced or developed during the megalithic period in Brittany.

British Isles

The megalithic culture penetrated the British Isles. Extensive settlements and many ruined chambers are found throughout western and northern Britain. Although there are faint traces of early movements

[223] Cf. Du Chatellier, Potéries préhistoriques, Plate I, 2; V, 14; IX, 12; XII, 6; II, 2.

[224] Musée de Kernuz, and Ep. Préh., pp. 48 and 229.

[225] Siret, L. Les premiers ages du metal dans le sud-est de l'Espagne, Rev. Quest. Scientifiques, 1888 passim.

[226] O. Archeologo Português, 2, p. 241. figs. 142, 143.

[227] Questions, p. 400; MSAN., 1920–24, p. 223 and Cp. Rev. Arch; 33, 1898, p. 223, the example from Penquer showed signs of such use.

from Central Europe[228] the megalith builders were again the pioneers of higher civilization. The distribution reflects their southern origin but extensive demolition of tombs and the surprising scantiness of grave goods have obscured precise relationships. In Devon and Cornwall, where the first impact of Breton or Iberian migrants might be expected, the megalithic remains, although abundant, have been rifled with such completeness that their typological relationships are quite uncertain.

The open flint-bearing chalk uplands of Wiltshire and the similarly unforested Cotteswold Hills were the scene of extensive settlements. The chambers of this area were built in "long barrows," an elongated mound of a form occasionally found in Brittany.[229] The multiple chambers of many of English and Welsh "passage graves" and the frequency of cremation also suggests that Brittany was the dominant intermediary (fig. 35). But the forms soon degenerated, false portals replace the forecourt and

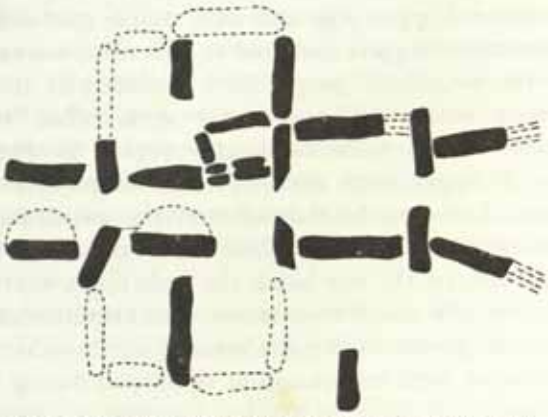

FIG. 35. Multiple chambered tomb of true passage-grave type Nympsfield, Gloucestershire. (after Crawford.)

corridor, and rough chambers were built opening on the side of the mound (fig. 36). Megalithic chambers are lacking in the long barrows of the southern parts of Wiltshire and Dorset. Local supplies of suitable stone are lacking in these more southerly districts and the culture was apparently not sufficiently vigorous to induce the transportation of megalithic blocks over long distances, as was done in Iberia and in Britain itself in the later, Bronze Age, monument of Stonehenge.

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[228] Cf. Childe, Dawn, p. 286

[229] E.g. Mané Lud, & Mont St. Michel.

Megalithic construction is similarly absent in the long barrows of Yorkshire. The burned timber found in these barrows suggests that here the megalithic chamber was reproduced in wood and consumed by fire after the completion of the interments.[230]

But voyagers from the south along the western coasts introduced the passage tomb in a less degenerate form in the remote northerly parts of the island. The chambered cairns of western and northern Scotland are corbeled tombs with precise analogies in southern Iberia. The greater number are found in three groups in the maritime parts of Argyllshire on the west coast, Sutherland, Caithness on the northeastern mainland, and in the Orkney islands to the far north.

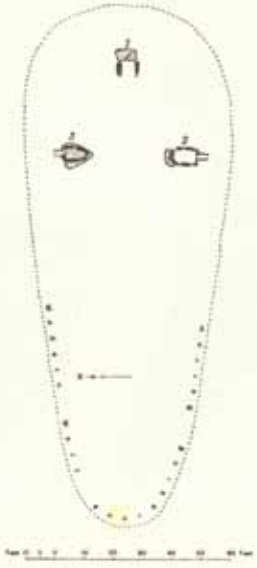

FIG. 36. British Long Barrow of false passage-grave type. Windmill Tump. Rodmarton, Gloucestershire. (after Crawford.)

The Caithness cairns which are the most considerable group are of two types—"horned" and round cairns. The longest horned cairns resemble

[230] For early descriptive accounts of the English long barrows see Greenwell and Rolleston, British Barrows, Oxford, 1877; for Wiltshire, Thurnam, Archaeologia, 42, and for Gloucestershire, Sir John Maclean: Trans. Bristol and Glouces. Arch. Soc. 5. More recent detailed surveys of southwestern groups have been undertaken by O.G.S. Crawford, Ordnance Survey, Professional Papers. No. 6. 1922, and The Long Barrows of the Cotswolds, 1925. Wheeler, Prehistoric and Roman Wales, 1927, gives an admirable account of the Welsh megaliths and the problem of their relationship to the English barrows.

long barrows but the splayed entrance characteristic of such long barrows as Long Tump in Gloucester, is here developed into long projections which are repeated on a smaller scale at the short end (fig. 37, 3).

The chambers are well constructed corbeled tombs of oval shape generally divided into three compartments by the projection of megalithic blocks from the walls—a device employed by the megalith builders of Almeria, northern France, and elsewhere. At Camster the passage tombs, two in this instance, opened in the side of the cairn but usually, e.g. Yarhouse, Ormiegill etc., the chamber is built at the wider, higher end of the mound and the passage leads into it between the horns. Other horned cairns are approximately square in plan, e.g. Ormiegill, Garrywhin, Caithness (fig. 37, 1).

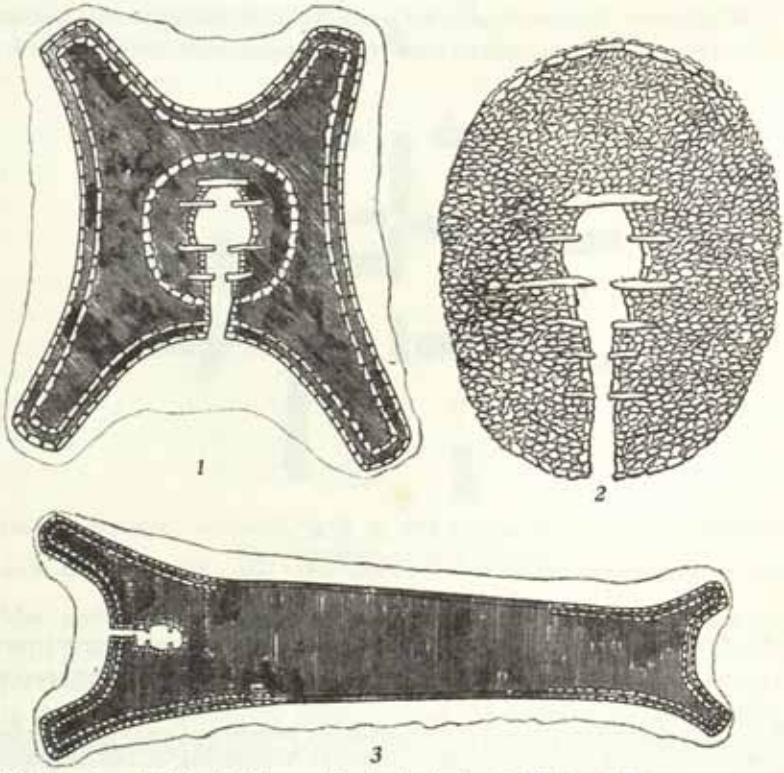

FIG. 37. Chambered Cairn, Caithness, Scotland. 1, Ormiegill, length 66 feet; 2, Yarhouse, 60 feet; 3, Yarhouse, 190 feet. (after Anderson.)

Among the small group of chambered cairns in Sutherland one long cairn at Skelpick has two circular chambers linked by a short passage,[231]

[231] Anderson, J., Scotland in Pagan Times, The Bronze and Stone Ages, 1886, p. 264, fig. 259.

reminiscent of the Iberian type, best known in the Cueva de Romeral, Antequera, Andalucia.

In the same area, large circular cairns are found (fig. 37, 2). These contain chambers of essentially the same type, projecting megalithic slabs being used to separate the compartments of the usually triple chamber. But the form of the chamber is often rectangular and the clear distinction between chamber and gallery sometimes lost. Remarking the architectural degeneration and similarity in plan of these round chambered cairns to the later bronze age mounds in which no chamber was built, Anderson suggested that the round type is later in this area[232] and the round cairns of Camster and Yarhouse certainly show various degrees of deterioration in tomb design.[233] But the scanty furniture recovered does not indicate any considerable difference in period, and the round cairns, like the horned, afford evidence of the careful construction of a double walling which surrounded and limited the mound, similar in purpose and appearance to the wallings found in Iberia and Brittany. The chambered cairns of all forms precede the Bronze Age invasion which introduced the continental beaker, riveted daggers and spear-heads of bronze which are found in the cist and trench burials of the formless cairns of this later age.[234]

While the chambered cairns of the mainland are of types familiar in Iberia and Brittany, the Orkney tombs, of which Maes Howe is the most famous, are still more remarkable. They reproduce in dry-stone walling the Sardinian and Balearic features of rectangular chambers and lateral niches. The latter are rare in Iberia outside Los Millares, Almeria, and the magnificent tombs of Alcalá in Algarve in the west. Such elaborate architecture in these remote northern islands no doubt indicates, as Childe suggests, that they afforded harborage on the circuitous route round northern Scotland by which Baltic amber and English jet reached southern Iberia and the western Mediterannean.[235]

But although there can be no doubt that Iberian and Breton traders and colonists touched at numerous points on British shores, there is a break in the cultural continuity, the greater part of the grave goods that were so characteristic of the continental cultures are lacking. No callaïs beads or bell beakers crossed the Channel, although the latter are abundant in the Channel Islands in tombs of Breton type, and the few potsherds recovered

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[232] Anderson, pp. 263–4.

[233] Anderson, figs. 249–256.

[234] Cp. Childe, Dawn, p. 291.

[235] But the chambered cairns, in some cases, continued to be used in the early period of the Bronze Age; cf. Proc. Soc. Ant. Scotland, 50, p. 221.

in the south, e. g. from West Kennet long barrow, Wiltshire, belong rather to early central European and Baltic groups. Iberian and Breton types are restricted to carinated bowls and occasional greenstone celts found in the Scottish cairns and laurel leaf arrowheads of superior technique which have been recovered both in Scotland and southern England.

It would seem that although expeditions and settlements from Brittany and Iberia reached Britain, the extensive colonization and intercommunication so characteristic of the more southern areas, was attenuated here. Domestic animals, agriculture, and the elaborate funerary ritual were propagated within the island, but external contact and traffic was precarious.

Amber beads and flint daggers of Danish passage grave type are found in the round barrows of the early Bronze Age in Britain and show clearly that the invasion of eastern England by continental beaker folk cut short the earlier Atlantic culture in southern Britain.[236] But the megalithic tradition exerted considerable influence on the invaders who adopted the custom of building ceremonial stone circles and elaborated this megalithic form in the magnificent monument of Stonehenge. The continuance of southern traffic is indicated by the "Iberian" oculi and incised ornament on the limestone "drums" from Folkton, Yorkshire,[237] and the spool-shaped beads that are frequently met with in the barrows of the early Bronze Age, and later in the second period by the segmented blue paste beads of late Middle Minoan type. These have been recovered from the later round barrows of Wiltshire and were imitated locally in Scotland.

But the continental invasion did not so seriously disturb the westernmost outpost of the megalithic culture in Ireland. The magnificent tombs of the eastern coast indicate that the implantation here was part of the process that carried the corbeled tomb up the western coast of Britain. The famous tomb of New Grange is more closely related to the Scottish cairns than to the long barrows of southern England. The carvings of New Grange have long been compared to those of Gavr'inis in Brittany and more recently Breuil[238] and Macalister[239] have instituted a systematic comparison of the carvings on megalithic blocks in Ireland with those of other areas, tracing relationships with Brittany, Galicia and southern Iberia.

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[236] Cf. Childe, Dawn, p. 296 and idem, When did the beaker folk arrive?, Archaeologia, 74.

[237] British Museum Guide, Bronze Age, p. 90, fig. 86.

[238] Breuil, H., Les petroglyphes d'Irelande, Rev. Arch. 1921, 13, p. 75.

[239] Breuil and Macalister, A study of the chronology of Bronze Age sculpture in Ireland, Roy. Irish Acad., 1921.

But although there is little doubt that Ireland played a considerable part in the early traffic of the Atlantic coast, the data are both scanty and conflicting, and it is in the meantime difficult to assess accurately the relations of the Irish megalithic culture. At a later period when separate graves had superseded the megalithic tomb the El Argar culture exerted considerable influence in Ireland, which became a center whence, in connection with the gold trade, late Iberian types were carried eastwards to England and the continent.[240]

The Northern Megalithic Cultures

The megalithic culture of the Baltic is best known in Denmark, archaeologically the most carefully explored territory in Europe, but it extended eastwards beyond the Oder in the north German coastlands of Mecklenburg and Pomerania, southwest into Hanover, Oldenburg and the province of Drenthe in northern Holland, and northwards along the southern and eastern coasts of the south Swedish peninsula.[241]

In Denmark the megalithic tombs are concentrated on the Islands of the Cattegat and the eastern shores of the peninsula and the grave goods are from the beginning blended with central European elements. According to the culture sequence which has been so elaborately worked out for the Danish area the earliest megaliths are rectangular chambers without galleries, buried in round or oval tumuli.[242] Simple in construction and built of massive slabs, the type is most reminiscent of northern Spanish forms and detailed parallels are afforded by tombs in this area. The practices of narrowing the entrance by converging the upright slabs and of closing the chambers with a slab only half the height of the entrance are to be found in both regions,[243] (fig. 38) and in one "dolmen" of this type in N. Spain was found the broken half of a bored axe which may be of Scandinavian provenance.[244]

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[240] Crescentic gold plaques, "lunulae," of Irish type are reported from "dolmens" in Galicia, (Sivelo, R. B. Antiguedades de Galicia, 1875, pl. on p. 110, quoted by Breuil, op. cit., p. 77,) and from Breton Bronze Age tombs.

[241] Cf. Almgren's map of the distribution of the older megalithic tombs of the Baltic region, reproduced in Reallexikon der Vorgeschichte, 8, p. 35, plate 56.

[242] See Sophus Müller, L'age de la pierre en Sleswig, MSAN, 1914–19, p. 9ff. for a brief illustrated account of tomb forms and furniture.

[243] Cf. Sophus Müller, MSAN, 1914–19, p. 14 and fig. 10 with Aranzadi, D. T., Exploracion de siete dolmenes de la sierra de Ataun-Borunda, San Sebastian, 1920, p. 37, fig. 8a and p. 41, fig. 9a; and Sophus Müller, op. cit., p. 14ff. and fig. 11 with Aranzadi, op. cit. p. 20ff. and figs. 2a. and 3a.

[244] Aranzadi, D. T., Exploracion de ocho dolmens de Altzania, San Sebastian, 1920, pp. 17 ff. and fig. 8.

But already in the northern tombs we find a furniture including collared flasks, funnel-neck beakers and amphorae with polygonal battle axes, which derives largely from the warlike invaders who occupied the interior of the peninsula and buried their dead in trenches below mounds of earth, ("Separate Graves").

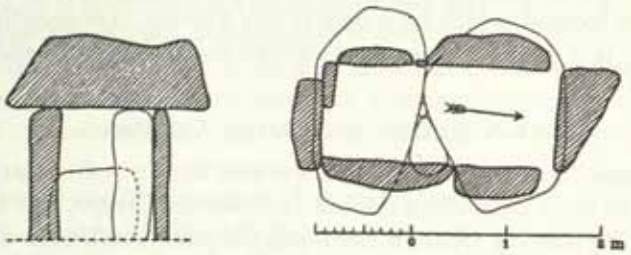

FIG. 38. Dolmen of Starup, Jutland. (after Sophus Müller)

At a later period more elaborate tombs, derived from the passage dolmens of the south, were built with carefully chosen and some cases shaped megalithic blocks. Corbeling was not adopted in this area and even walling in dry stone is rare and restricted to packing between megalithic blocks. The massive oval chambers of the Scandinavian "Chambres de Géants" (fig. 39) form a very uniform group of tombs distinct in plan from the pass-

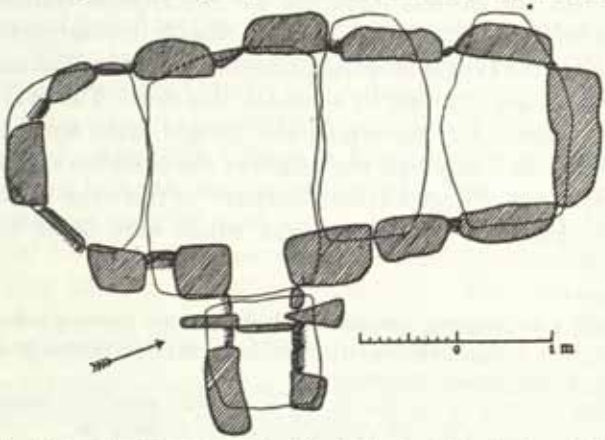

FIG. 39. Danish Passage-grave, Bevtoft, Jutland. (after Sophus Müller)

age tombs of other areas, but lateral chambers are fairly common in Jutland and the triple chambered tomb at Alsbjerg,[245] recalls the plan of the Caithness chambers.

[245] Nordmann, C. A. Jaettestuer i Danmark nya fynd, Nordisker Fortisminder, 2, 1918, p. 118.

The furniture of these tombs affords the most definite evidence of southern contacts. The characteristic pottery, angular bowls decorated in the "rich style" with "comb," shell, cord and incised ornament, derive both form and decoration from the south and can in many instances be precisely paralleled in Iberia and the western Mediterranean. "Oculi" and rayed circles occur in later bowls of this type which, if not imports, denote the continuing influence of southern types.

The reflex of this southern inspiration is to be seen in the amber ornaments of southern Iberia, often reproducing Danish forms, and the triply bored amber "center pieces" of Lesconil, Finistère.

But central European and Danubian traits are again prominent, as in the angular two-bladed battle axes, the pedestaled bowls and ladles, while the beaker in its continental form begins to penetrate at the end of the period.[246] That the smaller closed dolmens continued to be built in the period of the passage graves is clear from the frequent merging of grave goods. The richly ornamented pottery is found in the smaller tombs of Jutland[247] while "dolmen" pottery has been recovered from passage graves in the same area, e. g. Birkelund and Mogenstrup, East Jutland, the pottery from which included examples similar to that from the earliest known dolmens.[248] Such finds throw doubt on the schematic view that the passage graves are invariably later than the smaller tombs, and, at the very least, there was considerable overlap between the two forms of tomb. Similarly passage graves continued in use for a very long time in some areas and contain in the upper layers of the burial remains characteristic of the later cists and separate graves..

The passage grave builders extended southwards into Holland (Drenthe etc.) carrying with them a tomb furniture in the main characteristic of the Danish area.[249]

At a later period, corresponding with the full Bronze Age in central Europe, a subterranean megalithic gallery with holed stone entry was introduced. This form extended into Sweden and northeastern Germany. In Denmark the culture of these so-called "long cists" is completely merged with that of the separate graves. Beautifully made flint daggers, frequently

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[246] Nordmann, C. A., op. cit. p. 117 and fig. 81.

[247] Cf. Sophus Müller, MSAN, 1914–18, p. 70.

[248] Nordmann, op. cit. p. 116–117 and figs. 66–67.

[249] An elaborate study of the Dutch megaliths is now available in van Giffen's "The Hunnenbedde in the Netherlands," 2. vol., Utrecht, 1927–8. Cp. idem, Les Pays Bas, Region intermediaire, Rev. Anth., 1928, pp. 226ff.

imitating metal forms in the most obvious manner[250] and rough straight-sided pots are characteristic. The problem of the relation of the "long cists" is extremely confusing. The most obvious parallels are afforded by the galleries of northeastern France and since objects of late type have been recovered from some of these tombs it is possible that they afforded an indirect prototype for the Scandinavian "long cist." In the absence of any similarity in grave goods such a relation has generally been rejected and an eastern origin sought for both forms. But the north French galleries are associated with rock-cut tombs and the grave goods are on the whole of southern type while the similarities of the French and Scandinavian galleries are too close to admit of completely diverse origins.

At the end of the long cist period in Scandinavia, bronze tools and ornaments began to penetrate the area and became abundant in the rich bronze age of the north. Here as elsewhere the megalithic culture was overwhelmed by new peoples to whose life and customs it contributed little.

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[250] Cf. Sophus Müller, Flint dolkene i den nordiske stenalder, Nordiske Fortisminder, 1, 1890–1903, pp. 123ff. and plates, for a detailed study of the Scandinavian daggers which are primarily associated with the separate grave culture.

TOBACCO IN NEW GUINEA

By E. D. MERRILL

THE myth that is more or less prevalent among some ethnologists, but not among botanists, to the effect that tobacco was known to and used by the natives of New Guinea previous to the arrival of Europeans in Malaysia, apparently originated with Dr. O. Finsch from whose paper the following passage is quoted:[1]

Nächst dem Betel bildet Tabak (*Kuku*) bei Männern wie Frauen, Alt und Jung, ein fast unentbehrliches Genussmittel. *Die Tabakspflanze ist ohne Zweifel auch an dieser Küste Neu-Guineas eigenthümlich, und ihre Cultur wurde längst vor Ankunft der Europäer in der Weise betrieben, wie ich dies noch bei den Koiäri im Innern und anderwärts an der Küste sah* [italics mine]. An den Missionsstationen hat sich bereits amerikanischer Stangentabak (I, Seite 102) eingeführt und ist im Verkehr das beliebteste Tauschmittel geworden, ja hat an manchen Orten, wie z. B. Port Moresby, den eingebornen Tabak gänzlich verdrängt. Dagegen haben sich europäische Tabakspfeifen keinen Eingang verschafft, sondern man bedient sich allgemein des:

Baubau (Nr. 930, 1 Stück), Rauchgeräth, bestehend aus einer 1.4 M. langen Röhre aus Bambu, an der einen Seite offen, an der anderen vor dem Ende mit einem kleinen Loche; mit eingebranntem und eingravirtem Muster. Maiva-District.

Dieses eigenthümliche Rauchgeräth ist an der ganzen Südostküste Neu-Guineas, von Torres-Strasse bis Ost-Cap, gebräuchlich und für dieses Gebiet charakteristisch. Der Gebrauch ist folgender: Der in eine kleine Düte aus Baumblatt gestopfte, grob zerpflückte Tabak wird in die kleine Oeffnung des Baubau eingesetzt und nun mit dem Munde am breiten, offenen Ende gesogen, bis die Röhre voll Rauch ist. Dann nimmt man das Dütchen heraus, hält die Endöffnungen zu und saugt aus dem kleinen Loche den Rauch ein. Jeder nimmt ein paar Züge und gibt den Baubau seinem Nachbar, worauf das Vollsaugen der Röhre aufs Neue beginnt. Diese Rauchmetode hat eine ausserordentlich starke Wirkung, wird trotzdem aber schon von Kindern leidenschaftlich geübt. Die schönsten Baubau kommen aus Freshwater-Bai und sind durch ihre reichen Verzierungen in zierlichen eingebrannten oder eingeritzten Mustern oft beachtenswerthe Producte papuanischen Kunstfleisses.

Doctor Finsch's direct statement regarding tobacco in New Guinea previous to the arrival of the Europeans appears to me to be merely an

[1] Finsch, O. Ethnologische Erfahrungen und Belegstücke aus der Suedsee. Ann. Nat-hist. Hofmus. Wien **3**: 327. 1888.

expression of personal opinion, and is not supported by any corroborative evidence. Unquestionably tobacco was known to and used by the Papuan aborigines *long before Europeans established any permanent settlements in New Guinea,* but it must be remembered that Amboina for a long period subsequent to 1520 was the most important European settlement in eastern Malaysia, and that it is only a few miles from the western end of New Guinea, from whence it would be the most simple matter to introduce tobacco and its use into New Guinea; and tobacco was unquestionably introduced into Amboina by the Portuguese, shortly after their establishment there.

Doctor Albert B. Lewis has recently published a pamphlet on tobacco in New Guinea,[2] the general purport of which seems to be the thesis that the practice of tobacco smoking originated independently among the New Guinea aborigines on the basis of a native species of tobacco allied to the Australian *Nicotiana suaveolens.* The following quotations are significant:

> The natives . . . . utilized their own tobacco long before the trader's tobacco became known to them.

The strong closing statement (p. 10)

> In the Arfak Mountains of western New Guinea tobacco has been raised, smoked and traded to the coastal peoples since the memory of man, according to one writer. (p. 1). Altogether the facts seem to point to an ancient use of an indigenous New Guinea species of tobacco probably closely related to the Australian species.

does not seem to be warranted, based as it is on what may be interpreted as circumstantial evidence.

The arguments appear at first glance to be rather conclusive except that apparently the author is theorizing with almost no botanical evidence to support his conclusions, certainly with no New Guinea botanical material for purposes of study and comparison. It seems to me that he has overlooked a very significant fact in that cultivated plants of distinct economic importance are disseminated even among the most primitive peoples with surprising rapidity when once introduced into a new region. As examples, the following American species now universally found throughout the old world tropics may be cited: tomato, tobacco, sweet potato, maize, lima bean, guava, chili pepper, to mention only a few, several of which are everywhere completely naturalized.

Another important fact is that Amboina, very close to the western end of New Guinea, first visited by the Portuguese in 1511 and definitely colo-

[2] Lewis, A. B. Use of tobacco in New Guinea and neighboring regions. Field Mus. Anthropology Leafl. **17**: 1–10, *pl. 1–2*, 1924.

nized by them in 1521, was the first important center in Malaysia for the introduction and dissemination of economic American plants, and the Portuguese were pioneers in this field because of their colonies in the tropics of both hemispheres. They were soon followed by the Spaniards operating through the Philippines, and thus first Amboina, and later the Philippines, became the centers of introduction and dissemination of economic American plants in Malaysia. The long continued Acapulco-Manila galleon service was an important trade route operating continuously for about 250 years previous to 1815, through which medium important economic plants were interchanged between the eastern and western tropics.

Rumphius clearly describes the American *Nicotiana tabacum* in his monumental Herbarium Amboinense[3] but the date of publication (1747) is misleading as the work was published many years after the author's death; the manuscript was completed in 1690, but most of it was written before 1670. It is only logical to conclude that as the true American tobacco was well known in Amboina at a very early date in colonial history, it was thence transmitted with its uses to New Guinea, which is only a few miles from Amboina. One can readily determine from an examination of Rumphius' classical work that even in the early colonial period trade existed between Amboina and New Guinea.

Doctor Matthew Stirling, who knows from personal experience conditions of primitive life in the interior of New Guinea, recently informed me in a personal conversation that in his opinion the tobacco commonly grown and used in New Guinea is the ordinary American species, *Nicotiana tabacum*. This view is substantiated by Dr. W. Docters Van Leeuwen, Director of the Botanical Garden at Buitenzorg, who accompanied Dr. Stirling on his New Guinea trip. Dr. Docters Van Leeuwen, writing under date of June 17, 1929, states that all the tobacco he saw in New Guinea both in the plains and in the mountains was almost without doubt *Nicotiana tabacum*, and that he has seen no botanical material from New Guinea representing other than this species; assuredly neither of these authorities would confuse the characteristic American *Nicotiana tabacum* with any "native species" allied to the very different *N. suaveolens*. Dr. Docters van Leeuwen further states that Dr. Baumée of Buitenzorg is of the opinion that the tobacco grown in New Guinea is *Nicotiana tabacum* but that *N. rustica* may also be cultivated there; both are, of course, American in origin. Plants grown at Berkeley, California by Dr. T. H. Goodspeed, from New Guinea seed, and those recently received from the Brandis ex-

[3] Rumphius, G. E. Herbarium Amboinense **5**: 225. 1747.

pedition to New Guinea all represent a form of *Nicotiana tabacum* with relatively narrow, strongly petioled leaves. This is an inferior commercial type closely approximating the forms that first reached Europe as figured in some of the Herbals published within the first century after Columbus' voyages.

I am merely attempting to substantiate the probabilities that the commonly grown and used tobacco in New Guinea is a form of the common American *N. tabacum*; that it was unquestionably introduced into New Guinea from Amboina shortly after the Portuguese established their factory in the latter island in 1521; and that the use of tobacco, i.e. smoking, was introduced into New Guinea with the plant and did not originate independently in that island as Dr. Lewis seems to infer. The fact that the natives of New Guinea have developed a special type of pipe and special methods of smoking has no bearing on the botanical origin of plant used; for that matter both the Chinese and the Turks have done exactly the same thing, and no one assumes that tobacco was known in either China or in Turkey previous to the discovery of America. Is not the type of pipe and method of smoking tobacco in New Guinea merely an adaptation of the pipe and opium smoking? It would be interesting, in this respect, to determine how long the Chinese have had contacts with New Guinea; it seems probable that this contact may be an old one in view of the fact that early Chinese contacts in the Philippines and in the Sunda Islands antedate or at least approximate the beginnings of the Christian era.

Professor A. R. Radcliffe Brown of the Department of Anthropology, University of Sydney, in answering Doctor Goodspeed's inquiry regarding the use of tobacco among the aborigines in Australia, under date of July 26, 1929 states that it would seem that tobacco was not used in Australia in any way before the coming of the white man. In parts of South Australia and Queensland the natives use a solanaceous nicotine-bearing plant *Duboisia hopwoodii* but this they chew and do not smoke. Native tobacco pipes of a form commonly used in the Malay Archipelago are found only in the northern parts of Australia, Arnheim Land and the Cape York Peninsula. As far as Arnheim Land is concerned the evidence points to the introduction of these pipes and of tobacco smoking by people coming from the Malay Archipelago, and chiefly from Celebes. It would seem that they taught the coastal natives the use of tobacco and supplied them with tobacco in exchange for other products. In Arnheim Land when the natives run out of tobacco they use certain leaves for smoking, which have not as yet been botanically identified. There is no very satisfactory information as to the origin of tobacco smoking in the Cape York Peninsula,

but it seems likely that it is a comparatively recent innovation and comes down from Torres Straits. The general body of evidence is therefore that nowhere in Australia was tobacco used until the habit was introduced from outside the continent within the past two centuries.

My comment on Professor Radcliffe Brown's statement, as summarized above, is that it is highly improbable that the smoking of tobacco in New Guinea was developed on the basis of a native species of tobacco allied to the Australian *Nicotiana suaveolens;* particularly in view of the fact that the aborigines in Australia made no use of the Australian native *Nicotiana*, and further in view of the fact that there is no botanical evidence that anything approximating *Nicotiana suaveolens* occurs in New Guinea.

Ethnobotany is in many respects a fascinating field, but the ethnobotanist is treading on dangerous ground when he develops a theory without reference to botanical material to test it. There is almost no field in the borderland of systematic botany where there are more pitfalls to be avoided in drawing conclusions than in the general field of the origin and dissemination of cultivated plants. Let us hope that sometime field explorers in the general field of ethnology will realize the necessity, not only of taking critical notes on cultivated plants and plant uses among aboriginal peoples, but that they will also realize the absolute necessity of preparing adequate botanical specimens from which accurate identifications may be made.

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OPPORTUNISM AND THE FACTORS OF INVENTION

By H. S. HARRISON

IN DISCUSSIONS concerning the origin and development of simple inventions there are two broad propositions which seem to meet with general acceptance:

(1) That the initial steps can be explained as practical applications of suggestions arising out of the reactions of natural objects or materials to forces imposed upon them, and

(2) That inventions have progressed by summation of small changes.

There has been little consideration of the extent to which the first of these propositions may throw light upon the origin of the evolutionary steps recognized in the second, and the steps themselves are left in a category which has no limits and no subdivisions. A distinction between discovery and invention is scarcely attempted, and although it is obvious that a cross-bow or a battle-axe is more remote from its point of origin than a spear-thrower or a flint knife, there is no terminology by means of which expression can be given to any differences that may be identifiable in the character and number of the inventive steps, or of the factors that have been at work. Yet it is certain that the steps in the evolution of any given artifact cannot have been all alike and of equal importance, and also that whilst one artifact may be the end result of a long and varied series of changes, another may have come to rest very near its starting-point. The expression "difficult invention" is not infrequently employed, but it is not explained how or why the invention is more, or less, difficult. As a rule the meaning seems to be that it is difficult to imagine in what way man obtained the primary suggestion, and the invention may be actually an easy one, given certain, though perhaps unusual, conditions precedent. The discussion of such questions is commonly in relation to the problem of "independent invention," and this expression itself, as ordinarily used, tends to confusion. This is partly owing to the fact that the word invention is often applied indiscriminately to a complex of human activities (e.g. agriculture), of which even the products are not shaped or constructed artifacts, as well as to such artifacts in general; and partly also because the expression is used in such a way as to place on an equality artifacts which are by no means comparable in their complexity and length of pedigree. In speaking of independent invention, moreover, it is rarely that an attempt is made to indicate the

stage in evolution at which the independence is supposed to have become operative.

Much of this inadequacy of thought and expression arises from a lack of terms by means of which the steps in invention can be resolved into something more specific than a series of "gradual modifications." Man can only think when he has words to embody thought, and there are no accepted terms for use in the analysis of inventions. Two or three years ago I put forward[1] an attempted classification of the main "factors" of invention, and I welcome the opportunity afforded to me by the Editor of this Journal of submitting a more developed, though still restricted, scheme on the same lines, for the consideration of American students of human culture.

The attempt to force a popular word into a scientific straitjacket must lead to distortion, and it would be futile to assign exact and arbitrary meanings to the words "discovery" and "invention." As regards the first, however, we must at least limit it for our purposes to discoveries that yield new knowledge of natural forces, and of the nature and reactions of material substances (including both natural objects and human artifacts) under varying conditions; and the process is not one of finding but of finding out. Invention must be left for the moment with its current and vague popular meaning, though it will be suggested later that an invention, in the sense of a certain kind of single inventive step, can be distinguished from a discovery; and also that, while some such steps are directly due to discovery, and are in fact applied discoveries, others are the results of knowledge and some little foresight. In the course of the discussion it will be necessary to hazard some hypotheses and speculations as to the course of development of a few early inventions, but it must be observed that the validity of the general argument does not rest upon the plausibility of the individual speculations. Parts of the argument are, moreover, supported by evidence from modern methods of invention and research, which differ in degree—though in high degree—and not in kind, from those of early Neanthropic man. It will be kind of the reader to attribute any appearance of dogmatism to the need for condensation and short-circuiting, since the writer claims no inspiration for his arguments, and no finality for his conclusions. It is only in fiction that conclusions are final.

Discovery

That man, while still an ape-man, made numerous discoveries that his contemporaries did not make, was due to his arboreal hands and his simian

[1] Man, 74, 101, 143, 1926; 28, 1927; also article "Material Culture" in *Encyclopedia Britannica*, 14th Ed., 1929.

mentality, and to these must be credited his first adventures in tool-using. He hit upon uses for common objects, and even if they were not essential to his survival, or to his welfare, they gave him a new interest in life. As a tool-user, and before he made implements for himself, he was purely a discoverer, imitative and inquisitive. He was also entirely an opportunist, casual and myopic, depending for his progress upon the more obtrusive of the many suggestions thrust upon him by everyday events, and arising out of his manipulative powers and propensities. The raw materials that he found ready for use, such as wood and stone, were those about which he first acquired the knowledge leading later to his metamorphosis from a tool-user into a tool-maker. As time went on he discovered by various chances the existence and the properties of materials which were only obtainable after some process of separation (e. g. sinew), extraction (metals), compounding (alloys), and construction (linear and flat textiles, though these are artifacts). We cannot doubt, for example, that copper was at first an attractive and malleable kind of stone, with which he was familiar as native copper, long before he found out that copper ores would yield the metal. This he must have ascertained by accident, since he could have had no preconception of a relationship between the two, still less of a method of obtaining one from the other. All this was a matter of discovery, and the same is true up to the production of the alloy, bronze, though the more accurate finding out of the best proportions of the two ingredients was due to something more than mere chance; the potentialities of colored earths and shining stones were by this time making an impression, with the result that opportunism was tempered with persistence. The smelting of iron ore, whether preceded by the use of meteoric iron or not, was therefore an outcome of nascent metallurgical knowledge, and we may regard the advance as due to directional research in the sense that metal was desired, even though it may have been copper that was at first expected. The intention was directional, but neither the best methods nor the exact results could be foreseen. It is arguable that directional research—the laying of traps for suggestions—has not yet got beyond this essential opportunism, and never will. If the result of an investigation has been predicted in advance, there is no discovery, but merely a confirmation of theory, which itself is based on knowledge. A discovery is a revelation of the unpredictable, or at least the unpredicted. It is the unexpected that matters, and trees of knowledge often grow from "snags."

It has been necessary to make these preliminary observations on the subject of discovery in order to clear the way for the conclusion that whatever meaning we may attach to the word invention, we must exclude

from its scope the production of materials, whether these are as nearly natural as tempered potter's clay, or as artificial as duralumin or tomato sauce. An invention must have imposed form and not substance only, and it may have artificial structure and mechanism in addition. This limitation excludes also such activities as agriculture and the domestication of animals, since it is not possible to apply the terminology of invention to these adventures in discovery; we must also recognize that there are arts and crafts, such as pottery-making and stone-working, which have developed through discovery alone, though their products have form as well as substance. They have been evolved but not invented, and their evolution has been the result of series of discoveries, out of which artifacts as well as processes and methods have arisen. An earthenware pot or a flint knife is an invention by courtesy rather than by right, but it would tend to confusion to deny the popular title to any shaped or constructed artifact, however simple.

Turning now to the real subject of this essay, we may first consider what part is played by discovery in the origin of artifacts, especially of implements, beginning low down in the scale.

Primary Mutations

If casual pebbles and sticks were the earliest implements, it is clear that discoveries of their properties and uses led to the experience which resulted in their permanent adoption. Either during their use, or by the chance of selection, acquaintance was made with the edge and the point, but, not until sharp stones, wooden clubs, and pointed sticks were shaped intentionally, however crude the methods and results, did man become the tool-making animal of the familiar definition. Just as by this step he crossed a threshold, so also did the implements themselves. The stick with sharpened end, and the pebble fractured to obtain an edge, were artifacts, poles apart from the natural objects picked up and utilized. A pebble was either intentionally broken, to provide a tool, or it was not, and the step from one to the other, viewed objectively, was abrupt and discontinuous, however similar the implements. For such abrupt steps, both initial and progressive, I have suggested the use of the biological term *mutation*, to distinguish them from more gradual and less decisive changes which are cumulative in their effects. Since the first purposeful modification of a natural object to produce a type of artifact was in all cases fundamental, the term *primary mutation* is applicable.

A primary mutation is therefore due to the application of a discovery, made by chance, for the creation of an artifact out of a natural object. The

chipped stone, the pointed digging-stick, the pick, the club, the simple reed blow-tube, and other one-piece implements, may be traced to primary mutations arising out of simple observations and discoveries. Other changes followed on these initial steps. In the beginning one club, for example, was much like any other, except for the accident of choice, and it was only when development occurred that diversity arose, incidentally with the result that the place of origin of modern or recent wooden clubs from all over the world can be determined at a glance. A factor of the greatest importance in the production of this diversity in the form of similar artifacts has been *variation*.

Variations

During the use of the various types of early implements it was found that certain forms were more convenient or effective than others, and a limited degree of standardization was arrived at. Obviously, however, these forms were not preconceived, since they were the results of an opportunist selection of shapes that were due to chance variations. At a later stage, these early *random variations* were succeeded, though never wholly displaced, by *selective variations*, which may have been the result of whim, or of a sense of symmetry, and which passed into *adaptive variations* when the intention was to carry the implement along a line which seemed to be leading to improved efficiency. The intention became directional not only in respect of the production of reliable tools, but also to a very limited extent in the evolutionary sense. It was not directional, however, in the sense that an unknown type was preconceived and adopted as a standard of perfection. Man's intentions may be directional in invention as well as in discovery, but in the devising of his means[2] he cannot get outside his limitations. This may be exemplified by a brief comparison of the early with the late, the simple with the complex, and the aeroplane presents itself as an instructive example.

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[2] Man's ultimate material *aims* are due to, or arise out of, his need or desire for food, shelter, warmth (fire and clothing), and aid in moving himself and his goods from place to place. His *means* are the materials, methods, implements, machines, and other artifacts, that enable him to achieve these aims. Other and less material aims, such as those which find expression through his instrumental music and his personal ornaments, also require material means for their satisfaction. As culture develops, means tend to assume the guise of aims, and aims become aspirations and ambitions. But an artifact is never an ultimate aim, since it is always a means to a material or other end. If space permitted it might be argued that aims—except that of procuring food—as well as means, have their origin in environmental suggestion, though this is perhaps sufficiently obvious.

It may be assumed as at least highly probable that if birds and other animals had never flown, man would never have dreamt of flight, and in his first such dreams he confidingly endowed himself with wings to flap. He became an angel or an Icarus, with no great profit to himself. His aim was directional—for some reason or other he wanted to fly—but for his means he depended at first upon ineffectual imitations, which after long years of trial and error gave rise to a crescendo of successes. The exact nature of the means was beyond his powers of prediction—he did not know what the perfect aeroplane would be like, and he does not know it yet. But he experimented, combined, and calculated, as well as guessed, and men in many parts of the world took pains, and gave their lives, to place themselves in a position to provoke and receive suggestions from the behavior of appliances that gradually approached nearer and nearer to the aeroplane as we know it. The motor-car tells a similar, though less hazardous, story.[3] If man is as far-seeing and forethoughtful as some of his admirers think, why did his first motor-cars look as though the horse had been forgotten—and also prove, often enough, that it should not have been forgotten?

To return to our variations, it is clear that the size and form of any one-piece artifact, or of any such component of a compound artifact, may be altered very considerably by the cumulative effect of a number of changes each small in itself. Larger variations in size may occur, however, but these are such as might have been produced by the summation of a number of small changes, and we may still call them variations, however large they are.

In some instances, variational modifications arise through the copying from other artifacts of features of form, with resultant changes in shape and proportions; we may call this generalized and basic factor *imitation*, accepting it as a "common tendency" of the human and the simian mind. It also plays a part in mutational progress.

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[3] Both the aeroplane and the motor-car afford good examples of what I have called canalized opportunism, which occurs at times and places at which for one reason or another many of the intelligent members of a community are bent upon the production of efficient appliances for some special purpose. It has apparently, for example, been manifested by the Eskimo, who must have efficient hunting weapons if they are to live. In their case it is the canalized opportunism of experience; in civilization experiment is added, under such intensive conditions as to lead to an enormous increase in the rate of progress. It may be that the early Neanthropic people who laid the foundations of agricultural civilizations did so by an environmental guidance or compulsion comparable with, though very different from, that which has influenced the Eskimo in the past.

Numerical Mutations

A type of change which in effect is sudden and discontinuous is that which involves a repetition of parts, such as barbs on a spear, spokes in a wheel, and even outriggers on a canoe. In their discontinuity, increases and decreases of such components, viewed objectively, are mutations rather than variations, and they may be associated with the former as *numerical mutations*. They are mutations of a non-inventive kind but they are not dependent on discovery. Addition and subtraction, in such cases as these, may be accepted as arising out of one of these just-mentioned common tendencies which appear to have so much to answer for, especially in pre-Columbian America. If the change in the number of outriggers on a canoe from one to two, or from two to one, may be regarded as a case of numerical mutation, the careful discussion by Dixon[4] of the distribution of the single and the double outrigger-canoe has little bearing on the general question of independent evolution. The mutation is rigidly conditioned, since only one of two results can be reached, and to pass from the single to the double, or *vice versa*, according to circumstances, would involve only one mutational step—perhaps easier from two to one than from one to two—and independent invention seems not too improbable.

Free-mutations

Many implements of simple types may be regarded as resulting from a primary mutation, followed by variation, and this is sufficient to account for the forms of most stone implements; methods of working (percussion, pressure, grinding) do not concern us here, since they are due to pure discovery. The earlier flint hand-axes of the Old Stone Age had a thick butt for grasping, and in spite of differences in size and proportions a considerable degree of standardization had been reached, at the end of one line of variation. The type was an "expression point", and when the edge had extended all round the margin of the tool it was on its way to a later expression point, the sharp-rimmed ovate. This would almost seem to require a haft or a holder, though there is no evidence that it was ever mounted. It may be that the first "invention" of a holder or grip was associated with this or with some simpler form, for the protection of the hand against a sharp edge in the wrong place. The first step may have been the hasty seizing of a handful of moss, or a loose piece of skin, to interpose between the hand and the flint, and so the discovery came within easy range. However the idea arose, the first such grip attached

[4] R. B. Dixon, The Building of Cultures, 1928.

to a blade, with permanence in view, constituted a step which cannot be regarded as a variation. It was a decisive discontinuous step, of a mutational character. If, moreover, it was the crystallization of an expedient, and was not due to imitation or transfer of a known device, it was what may be called a *free-mutation*. Whereas, therefore, a primary mutation (initiating a type of artifact) arises out of a discovery made in relation to a natural object or material, a free-mutation is a modification affecting an existing artifact, and is based upon a discovery made during its use or manufacture. Both these types of mutation are due to discovery, and their application demands only such skill and ingenuity as is possessed by the maker, who is not a prophet but an opportunist. He is scarcely even an inventor, since he looks no further ahead than the immediate step that he has stumbled upon.

Clear and demonstrative examples of free-mutation are not easy to specify, owing to our ignorance of the early stages of development of ancient types of artifacts. The harpoon may well embody one of these, however, since it must be regarded as a derivative of the spear, and since the device of the detaching point is clearly not a product of variation, nor in all probability of cross-mutation (see below). The exclusion of the possibility of the spontaneous generation of such a device—and even of devices that are in appearance much more obvious—in the human mind is fundamental to the argument throughout this paper.

We may suppose that spears with attached bone (or wooden) points lashed to, or both fitted into and lashed to their shafts, were used against aquatic animals, and that the point sometimes broke away, with resultant loss; it may be that the method of tying sometimes allowed the lashing to become partly unraveled, the point leaving the shaft but remaining entangled with the line, which held also to the shaft. Another possibility is that the lashing was specially devised to prevent the loss of the point, if this broke away. In any case the observation was sooner or later made that a detaching point, which remained connected by a line with the shaft, was a useful feature in a spear to be used against aquatic animals, and harpoons were intentionally made with this end in view. The discovery was due to accident, perhaps often repeated before it was purposefully utilized, and its application comes within the definition of a free-mutation.

Free-mutation may well be the explanation of the unusual type of spear-thrower, with socket instead of peg for the spear, found in New Guinea, and formerly in use in one or two other island groups of the Pacific. Here we may suppose that the "translation" of the implement from wood into bamboo gave rise to the chance discovery that the fitting of the

spear into a socket was at least as convenient for discharge as resting it against a peg, and that the method of construction was better suited to the nature of the new material.

Many other speculations might be made as to the interposition of free-mutation in the development of early implements. The first angled-hafting of a stone hand-tool for the production of an axe may have arisen by free-mutation, though in later developments of this kind of hafting another type of mutation was no doubt involved, of a nature to be presently discussed.

An instructive appliance for consideration in relation to variation and mutation is the pestle and mortar. It would appear to be safe to assume that the first mortars were hollows produced on rock-surfaces, or on large blocks of stone, by pounding hard seeds with a heavy pebble. Slow as the actual production of a depression may have been, it was as much accidental, or incidental, as the fracturing of a pebble by a chance blow, and it only appeared as a primary mutation at a later stage, in the pecking out of a cavity in imitation of those that had been produced as by-products. The pestle may have owed its elongated form to recognition that the deeper the cavity the longer should the pounder be, and the mutation by which the artificially-shaped pestle replaced the natural pebble may have been considerably later than that which gave rise to the first shallow mortars; it seems probable, however, that elongated pestles were first made in wood. There were obviously opportunities for variation in relation to the width, depth, and other proportions of the mortar, and to the size and proportions of the pestle; in the further evolution of the two parts of the simple stone appliance no other factor need have been at work.

Substitution

At some stage or other, however, possibly owing to a shortage or absence of suitable stone, wood was used instead, and here again we meet with that factor of *substitution* or *translation* which has been of fundamental importance in invention. A new material, at first treated as nearly as possible in the same way as the old, and made into similar shapes, reacts in a different way, and reveals new openings to the opportunist. This factor is too well known to call for further exemplification, but we may note in passing the enormous signification of the substitution of metal for stone, and of iron for copper and bronze. In the case of the pestle and mortar the immediate outcome was not very striking, though wooden pestles and mortars could be made of larger size, were more readily portable, and more easily shaped.

Cross-Mutations

In one direction, however, the new material gave an opening for a mechanical development. In some of the appliances from eastern and southeastern Asia especially (though not exclusively, since there are similar forms recorded in eastern Europe) there is attached to the middle or the upper end of the wooden pestle, a beam or bar projecting horizontally at right angles; this beam is balanced on or attached to a support or fulcrum in such a way that pressure on its end raises the pestle, which on release falls back into the mortar, and thus performs its function. The working of this simple type of mechanical pestle is usually done by man-power, but the addition of further mechanism enables animals or water-power to be utilized. As regards the pestle with lever, there is no conceivable way in which the latter could be developed on the pestle by variation, and the change was therefore a sudden and discontinuous one—a mutation. Nor can we imagine that any method of using the pestle itself led to the idea of adding a lever by free-mutation. This must, in fact, have been in use in some other connection, and its application to the pestle is a good example of that process of transfer or hybridization, with adaptation, for which I propose the term *cross-mutation*. It should be noted that it was the translation of the pestle from stone into wood that made mechanical improvement relatively easy, not only as regards the simpler type worked by man-power, but also those more developed forms in which an animal or running water did the work. We may compare with the levered pestle, the levered corkscrew of modern times, though in this case the cross-mutation was less simple.

For another cross-mutation we may examine the development of another food-appliance, the rotary quern. It may be assumed that various types of push-quern were evolved on the basis of a primary mutation, followed by variation. At a stage when one of the less specialized types—and it was from such types, as in the animal kingdom, that new departures took their origin—was in the form of a lower stone upon which was rotated an upper stone almost as large, but having no localized articulation with it, there appeared the familiar axial peg of the rotary quern, passing into or through a hole in the upper stone. Here again it is not possible to see how such a feature could have arisen either by variation, or by a discovery made during use or manufacture of the hand-mill. We are entitled to regard the improvement as due to the influence of some other rotary appliance with pivot or axis, and it is conceivable that the potter's wheel supplied the necessary suggestion. In any case it was clearly a cross-mutation, as defined, though perhaps the passage of the hole right through the upper stone, for feeding-in the grain, was the result of a later free-mutation, and the same may be

said of the hand-hold in the form of a stick fixed in a hole in the upper surface of the upper stone.

Free-mutations and cross-mutations are transforming steps in the evolution of an invention, in greater or less degree, since they change its structural or mechanical character. Often the question as to which type of mutation was responsible in any particular case is impossible to decide, but the fact that a mutation effects a significant change, of a determining character, places it in sharp contrast with variation, which may lead to nothing beyond variety of form. From the stage at which a mutation has intervened, variation may, however, carry an invention along several different lines, and on one of these there may be developed a feature of form which promotes the discovery or forecasting of another mutation. It must be noted that none of the simpler appliances with which we are concerned can have had many mutations in its history.

Change of Function

A subordinate factor, which has nevertheless had some influence in the development of certain inventions, is that of *change of function*, with which may be linked that of change of method of use. It seems probable, for example, that the digging-stick was earlier than the spear, and that its occasional use as a stabbing weapon may have led to variation in the direction of greater length to form a lance or javelin. If the plough is a derivative of the pick or hoe, as is usually assumed, the first step was to drag the simpler implement over light soil to produce a furrow, instead of using it for hacking up the ground and breaking clods. In this case the change was of importance, since it initiated the development of an appliance of some complexity. Again, the first adze may have been a hoe with stone or metal blade. Assuming the development of the Asiatic fire-piston from a tubular instrument used for other purposes (see below), the initial change of function as well as of method of use is particularly clear, and the same is true if the first fire-drill was a boring drill, as may well have been the case. Such changes would usually be followed by variations and mutations.

The basis of change of function is discovery, of a character similar to those which gave rise to primary and free-mutations, and it may have been an easy and likely discovery (plough), or an apparently unlikely one (fire-piston). It must be observed, however, that although a discovery may be easy and obtrusive, this is no guarantee that it will be applied and developed. A pastoral or agricultural people might make the discovery that pellets could be blown through a hollow reed, but this would not be likely to lead them to the development of the blow-tube, used with poisoned darts. Simi-

larly, a people using the pick in simple plant-cultivation might easily discover that it would produce a furrow when dragged through the ground, but this would not of itself make the plough inevitable. Many beginnings must have come to an end before they got a start.

Environment

If space permitted it would be interesting to discuss the question of limiting and guiding factors in invention, but these are many and varied. The nature of materials available is obviously of prime importance, and this point may be touched upon in connection with the influence of environment.

The effect of similar natural environments in producing similar human reactions may be conspicuous in relation to general mode of life, but in its bearing upon the detailed nature of the artifacts evolved it needs examination. Two jungles or two deserts in different parts of the world may be closely similar climatically, but their animal, vegetable, and mineral products may be so different as to influence greatly the nature of the suggestions that become obtrusive. Since man actively pursues his ends, but casts about him for his means, a small difference in the character of a material—still more its absence or rarity—may be a determining factor in the hit-or-miss upon which the origin and development of his artifacts has often depended. Emphasis on environmental similarities, as giving rise to similar inventions, is also apt to ignore the historical and prehistorical bases upon which a given culture has been built up.

Many inventions have only been arrived at along a course that was predetermined in the limitations of the human mind. The loom, for example could only have been produced by a people who already made flat textiles in some more direct way, the spindle was a necessary step in the evolution of the spinning-wheel, and the oar and rudder were dependent on the pre-existence of the paddle. With the evolution of culture the natural environment becomes of less importance than the artificial.

The Objective Point of View

In this attempted analysis of the inventive process, an objective point of view has necessarily been adopted. Greater stress has been laid upon the ultimate responses of the human brain and hand to the reactions of the inert materials and artifacts, than upon the transitional mental stages which must often have intervened between a first discovery and its practical application; or between the first inkling of the possibility of a cross-mutation, and the carrying out of the transfer and adaptation. It must be

accepted as highly probable that in early times especially, man needed frequent repetition of a suggestion before he adopted it—this is still true, as advertisers demonstrate—and that innumerable suggestions must have fallen on stony ground and failed to germinate. Often, no doubt, as in our own time, it required the exceptional man to make the discovery or invention, and force its adoption on his tribe.

To picture a free-mutation, such as that by which the harpoon arose from the spear, as a single objective event arising out of a single subjective discovery, is to err by over-simplification. The same is true to a still greater extent with regard to cross-mutations, as so far defined. For example, after the first method of angled-hafting had come into use in the tool to which it gave rise, (say a hammer-stone held in the bend of a withy) it may well be that the second application of the method, to form another tool, (say an axe similarly constructed) was a direct transfer, but as other tools hafted in this way were produced the "principle" became established. In this and other directions there was accumulated a number of methods and devices—constituting a body of knowledge—that could be drawn upon for the improvement of artifacts that had reached a stage when their construction suggested the possibility of further development; and insofar as the term cross-mutation implies direct transfer it exaggerates the individuality of the process. We must suppose that early man, as soon as he had unconsciously achieved the possibility of cross-mutation, found room in his mind for simple practical ideas upon which he could draw when opportunity offered. His cross-mutations became less and less a matter of direct transfer and adaptation, and more and more an exploitation of the stock of knowledge of his time and circumstances. No Edison can do more, except insofar as during his inventive efforts he happens on fertile discoveries.

Mutations and Invention

It is evident that cross-mutation, which is based on transfer and adaptation, is a process that involves no new discovery, and does not depend on chance. In its material application it is a fulfilment of a prediction, however simple, and it is therefore the result of foreknowledge and foresight, however elementary. These qualities are, however, those which we expect of an inventor, and if it were necessary to define the meaning of the term "an invention," in the sense of the single real inventive step, it could be done in the same terms as those which define a cross-mutation. Primary and free-mutations, on the other hand, involve no foresight and no prediction, since they are based on happenings that are unexpected, and consist in appreciating a discovery and adopting it for the production or improvement of an

artifact; here the step is not "an invention," if we are so rash as to attempt to give this term a precise meaning.

Since cross-mutation could only begin to play a part in invention when there were devices or features which admitted of transfer from one artifact to another, it is obvious that in the early days of man there was little opportunity for the intervention of this factor. He was only beginning to build up appliances which embodied transferable features, and primary mutation, free-mutation, discovery, and variation had to pave the way to cross-mutation. Modifications of *form* through the "influence" of one artifact on another may be regarded as merely a matter of imitation, which rises to the level of cross-mutation only when construction and especially mechanism are involved. We are familiar with the fact that modern invention concerns itself mainly with mechanisms[5] and machines which comprise components that are movable in relation to each other, and this is the most important field of cross-mutation. If we exclude imitative modifications of form alone from this field, we may allow on the fringe of it those mutational changes which affect construction. It was in this marginal territory that man made his first efforts in cross-mutation, and perhaps the earliest of all were such transfers as those arising out of his knowledge of ways of attaching two components together to make one artifact, methods of hafting being among the earliest. As this knowledge grew, and as he became familiar with tangs, sockets, sleeves, perforations, shouldered hafts, and the like, he was able to extend and combine such features for the improvement of constructed implements of many types. Later still, with the development of mechanisms, such as those in which rotary motion was utilized, other possibilities opened up, and his cross-mutations involved a greater ingenuity and foresight. He became an inventor in the modern sense of the word, insofar as it is definable. In our own day cross-mutations are not so simple as they were, and transfers are made of mutational and variational complexes, the analysis of which involves research into technological literature and Patent Office records. The origins of such mechanisms as pulley-systems, ball-bearings, universal joints, differential gears, gyroscopes, to select a few at random, need not be entirely matters of speculation, however, and investigation would reveal something of the extent to which chance discovery and cross-mutations have been active in their pro-

[5] It must be borne in mind that any implement must be considered in relation to the work it is intended to perform, and that, for example, if movement of another material object is the immediate end in view, the implement and the object may together form a mechanism. This is the case with the spear-thrower and the spear, the bow and the arrow, and even the corkscrew and the cork.

duction. To an enquirer of two hundred years ago the problems would have been far less numerous and far less difficult of solution; little more so, indeed, than they would have been two or even four thousand years ago. In modern times too many anastomosing paths have been trodden by too many people for single footprints in any direction to stand out conspicuously.

Primary mutation is scarcely possible in modern invention, while free-mutation is difficult to identify, though it must, for example, have played a part in the evolution of the gliders from which the aeroplane developed. Discovery in relation to materials and natural forces is always with us, and its running contribution to the achievements of invention in modern times needs no emphasis. Substitution is still an important accessory factor in invention, but discovery and cross-mutation are predominant.

It may seem that even if discovery is still dependent on opportunism—calculating and persistent, the opportunities being trapped and ambushed—invention has passed beyond this phase. This is not so, however, since cross-mutation can only come into action in relation to an appliance that chances to have reached a stage at which it can profit by a transfer of a known device, and since research in one direction may happen to produce a mechanism or machine at the right time for its application to another appliance. The internal combustion engine and the glider—both mutational complexes—afford a case in point. Opportunism is no longer purblind and obtuse, but it is still a mainstay of invention as well as of discovery. The intelligence and ingenuity of man come into action in the recognition of the opportunities, as well as in the tests and experiments out of which they arise, and in the selection or the working-out of the methods by which they can be made to bear practical fruit.

We may deduce from the foregoing that directional invention (as distinct from that directional research which is the quest of discoveries) is dependent on cross-mutation, and that it began with the first mutational transfers, perhaps in Late Palaeolithic times. Not until within the last two hundred years, or less, was material culture so far advanced and so progressive as to enable us to speak of an "age" of directional invention and research, marked out from the earlier ages by its concentration on material objectives, by the variety of its methods and materials, and by its utilization of natural forces artificially evoked and controlled. The "tank" of today, and the war-chariot of some 5000 years ago, are both, however, due

[6] By "man" is here meant Neanthropic man, and more especially the stock that was responsible for the evolution of the chief elements of Neolithic culture. The evidence suggests that Palaeanthropic man was much slower in the uptake.

to the reactions of the human mind to environmental stimuli, and there are no grounds for the assumption that the mechanism of man's mind has undergone a change.[6] In the course of time he has added innumerable artifacts to his environment, and he has accumulated and recorded knowledge, with the result that he now starts his discoveries and inventions from a far higher level than did the ancient Sumerians or our own Elizabethans. But it is a difference in training and in starting-point, and not in the essentials of the method of progression. Experiment is experience sharpened to a point—useful as a digging-stick, but not as a divining-rod.

Independent Invention

The bearing of the analytical method upon the vexed question of independent invention cannot be discussed in detail, but it may be suggested that its adoption would at least enable the "evolutionist" to gauge the depth of his evolutionism, and it might do even more for him than that. One or two examples of the application of the method may be roughly outlined.

The fire-piston in Europe and Asia is perhaps the most frequently cited instance of (assumed) independent invention, and the evidence is insufficient either to confirm or disprove the assumption. For the sake of argument, let it be accepted. In Asia the instrument must have arisen through the use of some tubular appliance, though there is no agreement as to whether this was the tube-bellows, the pestle and mortar for areca-nut, the blow-tube, small brass cannon, or some other tubular artifact. The discovery that a forceful thrusting of the closely-fitting rod down the tube led to the production of fire, could only have been made by chance, perhaps in the attempt to remove an obstruction from an appliance in use, or in course of manufacture. It was a simple discovery of a phenomenon in itself as "natural" as the sparking of two pieces of iron pyrites—though far less likely to come under notice—and we may regard the fire-piston as a result of free-mutation, by which there was at first a change of function of the artifact that promoted the discovery. Subsequent modifications of form and material do not concern us, since there are no non-essential similarities that we need consider between the Asiatic and the European types—the significance of the assumed independence rests entirely on the independent discovery and exploitation of the inflammatory possibilities of the sudden compression of a body of air in a confined space.

In Europe the phenomenon appears to have been discovered during the use of a compression-pump for the charging of air-guns, and the appliance had therefore been directly—though unknowingly—adapted for

the production of heat. Here again a chance discovery gave rise to a free-mutation, in this case certainly associated with a change of function of the compression-pump, at any rate during the early confirmatory experiments. That the discovery not only became the basis of a lecture experiment, but also gave rise to a personal or domestic convenience, was mainly if not entirely due to the fact that at the time of the discovery (about 1800), there was something of a hue-and-cry after better methods of fire-making than the flint-and-steel. If it had been delayed until after friction matches had been produced, in 1827, it is probable that the evolutionist of today would never have thrown a favorite controversial missile.

The fact that in Southeast Asia there were several kinds of simple tubular appliances in common use cannot be put forward as evidence of independent evolution of something in the nature of a compression-pump, an instrument of long and varied pedigree. The independence consists essentially in a chance discovery, made in two regions, of a physical phenomenon, and while we may be surprised that the discovery was ever made in Asia (since we find it difficult to imagine exactly how it was made), it is easy to see that in Europe it was inevitable, given the kind of apparatus that was in use. As regards the application of the discovery for the production of the Asiatic fire-piston, we may perhaps associate it with a certain local open-mindedness in relation to methods of fire-making, which are particularly varied in the Southeast.

The case is one in which coincidence has been at work in respect of three factors:

(1) "Tubularity" of artifacts.
(2) Chance discovery (depending upon 1) of a natural phenomenon.
(3) Open-mindedness, or special demand, leading to utilization of the discovery.

Even if importance could be attached to similar inventions made independently under contrasting conditions of culture, there is nothing here to strain the long arm of coincidence. Though the coincidences are three, only one of them has any weight, and they do not form a chain such as must be postulated for the independent evolution of appliances in which mutation, variation, substitution, and other factors have played their parts. No diffusionist need pose as an apologist for the duplicity of the fire-piston.

The fire-piston (under the assumption made) may be regarded as a good example of convergence, but if it had arisen in Asia, as well as in Europe, from a compression-pump, also independently evolved, it would have been necessary to compare the lines of evolution in the two cases, to

ascertain the extent to which parallelism had occurred. These lines would only have been ascertainable by marking out points upon them, and this would be dependent upon some system of analysis of invention. Nor would the parallel lines consist of a single pair, as will be realized if we consider the phylogeny of the woodman's axe or the domestic chopper, with iron blade having a horizontal socket, or shaft-hole, for the haft.

Beginning with the primary mutation which led more or less directly to the first chopping-tool, passing through variations in form, and discoveries of methods, leading to a stone celt, hafted, through mutation and perhaps through one or more cross-mutations, in a perforation in a wooden haft, we may trace the production of the horizontal socket through a free-mutation resulting from the bending over into a loop of the long butt of a copper blade (the metal having been substituted for stone), to embrace the head of the haft on one side. Before reaching this stage, however, we have to interpolate the discoveries that led to the use of copper, and the smelting of copper ore. Before the socket became completed we have also to allow for the discovery of a method of casting. As far as essential form is concerned this gives us the woodman's axe, and omitting bronze from the story, as being on a side line, we have still to add the discoveries that led to the use and production and working of iron. The fire-piston is more simple than it seems, while the axe is more complex. As far as I am aware no one has upheld the independent evolution of the axe of the type in question in two parts of the world, from the very beginning of its initiation in an edged pebble, but even to start from the stone blade held in its perforation would demand more than one series of evolutionary steps arranged in parallel, or, as has been suggested in the case of the socket of the shaft-hole copper axe-head in South America, a striking demonstration of convergence.

It will be noted that in this, as in other cases, discoveries of method and processes have to be taken into account in dealing with inventions, since form is dependent upon method of shaping, while material may call for processes of extracting and combining. Evolutionary parallelism in form, construction and mechanism may also require parallelism in development of method.

A facile assumption of the frequent occurrence of independent invention ignores the many convergent influences that may be needed, even in the case of artifacts that appear to be simple; the assumption itself seems to depend upon an uncritical belief in the widespread originality of human thought and action, proceeding on lines which are more rather than less predetermined by those irresistible common tendencies which have never

been defined. But man is not an originator, since his vision ranges no further than what is known, or than what can be deduced from what is known. Even his imagination has not the freedom of the skies. His discoveries are gifts of the gods, earned or unearned increment, and by cross-mutation he is able to adapt and combine the material outcome of old discoveries for the production of what is new. For his ground-work he relies upon social and individual memory, which may or may not be embodied in artifacts and embedded in written records. He departs from his latest model with trepidation, and is only reassured by success. He is also blinded by it, and forgets the fumblings of his predecessors and himself.

If for the independent evolution of a single type of artifact it is often necessary to draw a big draft on coincidence, there is one case in which the necessity results in an oppressive overdraft. The New World appliances and artifacts which correspond closely with those of the Old World, and for which independent origin is claimed, vary in number but are seldom few, and most of them are such as would require many coincidences for their independent evolution. If coincidence on such a scale could be accepted, the diffusionist would need to give up his *a priori* case not only as regards the New World, but within the limits of the Old, and the common tendencies of the human mind would again be in the ascendant, subject to control by history and archaeology alone.

In conclusion, since I have presumed to deny originality to my species, I must disclaim it for myself. Many years ago Pitt-Rivers wrote (in 1875) of the flint implements of the European River-Drift,

> They were not designed outright, as the 19th century man would have designed them for special uses, but arose from a selection of varieties produced accidentally in the process of manufacture. . . . One is almost tempted to ask whether the principle of causation lay mostly in the flint or in the flint-worker.[7]

This is the opportunist view here set forth at greater length, and with a qualified extension to include the exception made by Pitt-Rivers. That man's inventions develop by an accumulation of small modifications is too well-established to need support by quotation; this is partly due to the insistence of Pitt-Rivers, and it has been further emphasized by others, especially by Balfour, who has also laid stress upon the great importance of "hybridization." I can only claim to have made the endeavor to carry matters a stage further, in order to show that the "modifications" may be defined and classified in such a way as to aid in the comprehension of the

[7] Lane-Fox Pitt-Rivers, lecture reprinted in The Evolution of Culture and other Essays Oxford, 1906.

inventive process. It is not suggested that it is always, or even usually, possible to analyze an artifact with such completeness as to assign their relative degrees of importance to the factors concerned in its evolution, or to decide what factor has been at work at each point. Variations are more easily distinguished from mutations than are free-mutations from cross-mutations, and there will be uncertainties in most analyses. There does not seem, however, to be any escape from the conclusion that there are real subjective and objective distinctions between variations and mutations, and between free-mutations and cross-mutations, as these are defined in this paper.

Those who regard inventions as the outcome of a common human genius that can far transcend experience and knowledge, and who believe that man preconceives his means as well as his aims and aspirations, will no doubt disagree with much that is written here; but such a view is contradicted by the age-long slowness of the growth of human material culture, which is primarily an outcome of the imitative and enquiring tendencies of the anthropoid stock. Man has often been defined in terms that do not flatter him, but he remains convinced that though other apes have lost a tail, he alone has gained a power of reasoning, and it may at any rate be granted that he is the only rationalizing opportunist known to science.

THE HORNIMAN MUSEUM,
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A STONE CULTURE FROM NORTHERN LABRADOR AND ITS RELATION TO THE ESKIMO-LIKE CULTURES OF THE NORTHEAST

By WILLIAM DUNCAN STRONG

IT HAS long been noted that the presumably oldest horizons revealed by archaeologists in northeastern North America have certain factors in common which rather suggest a simplified Eskimo culture. If such resemblances are not fortuitous, which seems unlikely considering the uniform negative and positive characteristics these cultures possess, they may either be accounted for by Eskimo influence on the early Indian population or by assuming that the specialized Eskimo and northeastern Indian cultures arose from some such common substratum. So long as these early cultures were only found in known Indian territory immediately adjacent to the southern boundary of the Eskimo range in historic times, the theory of direct Eskimo influence seemed most probable. Recent archaeological exploration, however, has extended this earlier stone culture far to the northeast into regions long occupied by the Eskimo. In the light of this evidence the problem assumes somewhat new proportions.

In the course of my two seasons' archaeological reconnaissance in northeastern Labrador, several stone age sites were found that were markedly different from the later Eskimo remains and even more divergent from the present wood and bone-working culture of the Naskapi Indians.[1] That the latter people were comparatively recent comers into northeastern Labrador is evidenced by many cultural factors,[2] and since these ancient sites revealed a stone-working technique rather similar to that of the Eskimo I was at first inclined to attribute their origin to an earlier branch of that people.[3] Since then, however, a wider study of the archaeological problem involved has shown that these Eskimo-like artifacts occur commonly in early northeastern cultures as far south as New York and are throughout associated with certain other types suggesting early Indian rath-

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[1] The new data on which the present study is based were secured while the author was a member of the Rawson-MacMillan Subarctic Expedition of Field Museum in 1927–28, and are published with the permission of the latter institution.

[2] A conclusion first stated by Turner (267, 1894), which is in accord with the ethnological data I secured during the winter of 1927–28. Compare also Birket-Smith, 214–215, 1918.

[3] Am. Anthr., n.s., 31: 235, 1929. *Also* Annual Report, Field Museum of Natural History, 7: 422, 1929.

er than Eskimo affiliation. As a result my opinion has changed and I am now convinced that in this old stone age culture of northeastern Labrador we have traces of an earlier Indian population which preceded both the Eskimo and the Naskapi in the region. The reasons for this change may be clearer when the new archaeological evidence has been briefly presented and discussed in relation to the Eskimoan and the earlier Indian cultures of the northeast.

Three main sites of this early stone culture in northeastern Labrador were discovered in the district between Hopedale and Nain and traces of the culture were encountered elsewhere in the same region. Two sites were on the coast, one at Sharp Hill located at the head of Jack Lanes bay, the other on a large island some fifteen miles south of the same bay on a narrow fiord locally known as Windy Tickle. The third site was in the interior about forty miles west of Jack Lanes bay at the end of a large unnamed lake. It may be designated as Northwest Corners from the trappers' name for a small river that enters the lake near here. This last site was discovered by the Naskapi Indians who directed me to the place. The sites varied in size, surface finds at Windy Tickle and Sharp Hill being made over an area of an acre or more, while the Northwest Corners site evidently represented a small camp, since all the artifacts were found within a space of twenty by thirty feet.

The Windy Tickle site is on a geologically recent beach and while the terraces on which the other two sites were located may be of Pleistocene origin, no artifacts were found there under circumstances indicating their deposition during that period.[4] The artifacts secured at all three sites had for the most part been exposed by the natural agencies of wind and water erosion, but digging in the moss and soil at Windy Tickle and Northwest Corners revealed a few more artifacts near the exposed deposits at depths of from five to ten inches, where hard-packed gravel or granite were encountered. The statement of Jacques Cartier in 1534, that "in all the said north coast I did not find a cartload of earth though I landed in many places," is no great exaggeration, and it is obvious that in such a region depth can rarely be a criterion of age. There were no other surface indications to distinguish these sites which could only be located by the naturally

[4] The great unglaciated region of the Torngat mountains, which Kidder called attention to on the basis of Fernald's botanical findings as a possible location of Pleistocene man, is just north of the region under discussion. I travelled over a part of it by dog sled, but the snow and ice of early spring prevented adequate archaeological examination. It is a high bleak region, at present unoccupied. See Kidder, 74–75, 1927; for the geology of the region, Coleman, 22, 26, 1921.

exposed artifacts. At both coastal sites a very few white, porcelain-like bone fragments were found, but careful digging at the interior site revealed no bone at all. At Windy Tickle a few fire-blackened rocks were found under the moss near bone fragments and artifacts, but there was no other indication of camp débris. The grouping of the artifacts in the wind-blown spaces rather suggested hearth centers and there were probably others in the moss and thin soil which we were unable to locate.

The sites themselves gave some evidence as to the habits of these early people. That at Sharp Hill was located on a terrace overlooking the river and the bay (Pl. 1*a*). It was obviously a native workshop, more chips and rejects being found on the exposed areas (Pl. 1*b*) than finished implements. Exposed veins of quartz on Sharp Hill and a vein of clear chalcedony now covered by about two feet of moss and soil on the river terrace had both been quarried by primitive methods. At Windy Tickle a considerable camp of these people had evidently been located as evidenced by the scattered artifacts, calcined rocks, and occasional bone fragments. Among the latter occurred white, porcelain-like phalanges of a polar bear, suggesting that these early people were hunters of no mean order. The interior site at Northwest Corners was apparently a small caribou-hunting camp located on the high shore of a lake giving a splendid view over two estuaries (Pl. 2*a*). Today the Davis Inlet band of Naskapi often camp near here (Pl. 2*b*) to watch for the migrating caribou which swim the lake. Since these people have only occupied this territory for the last two generations, there seems no reason to assign the older remains to their immediate ancestors.[5]

Chipped stone points of translucent chalcedony and quartz were the most common artifacts at these sites, heavy spear or dart points being most frequent (Pl. 3), ranging from thin well-chipped pieces with a short tang (Pl. 3*a*, *b*, *f*, *g*, *m*), to crude, thick oval points with no tang (Pl. 3 *o*, *p*). One very heavy and crudely chipped point of basalt (Pl. 3*j*) from Sharp Hill was the largest. This artifact rather suggests the point of a spear for large sea mammals. Besides quartz and chalcedony, fine-grained granite (Pl. 3*h*) and red jasper (Pl. 3*i*) were also used in making dart points. A few small arrowpoints were found at Sharp Hill and Windy Tickle, but only the heavier points were found at Northwest Corners. These would be the right size for deer spears and it is worth noting that the modern Indians use ground bone spear heads of about this size for the same purpose. They claim to have always used bone and not stone for such points prior to

[5] Strong, 278, 285, 1929.

a

b

PLATE 1

(*a*) Sharp Hill site at base of hill in center of photograph.
(*b*) Wind-eroded area where artifacts were found.

a

b

PLATE 2

(*a*) Northwest Corners site, looking toward the southeast.
(*b*) Northwest Corners site from the South. Deserted Indian camp in foreground.

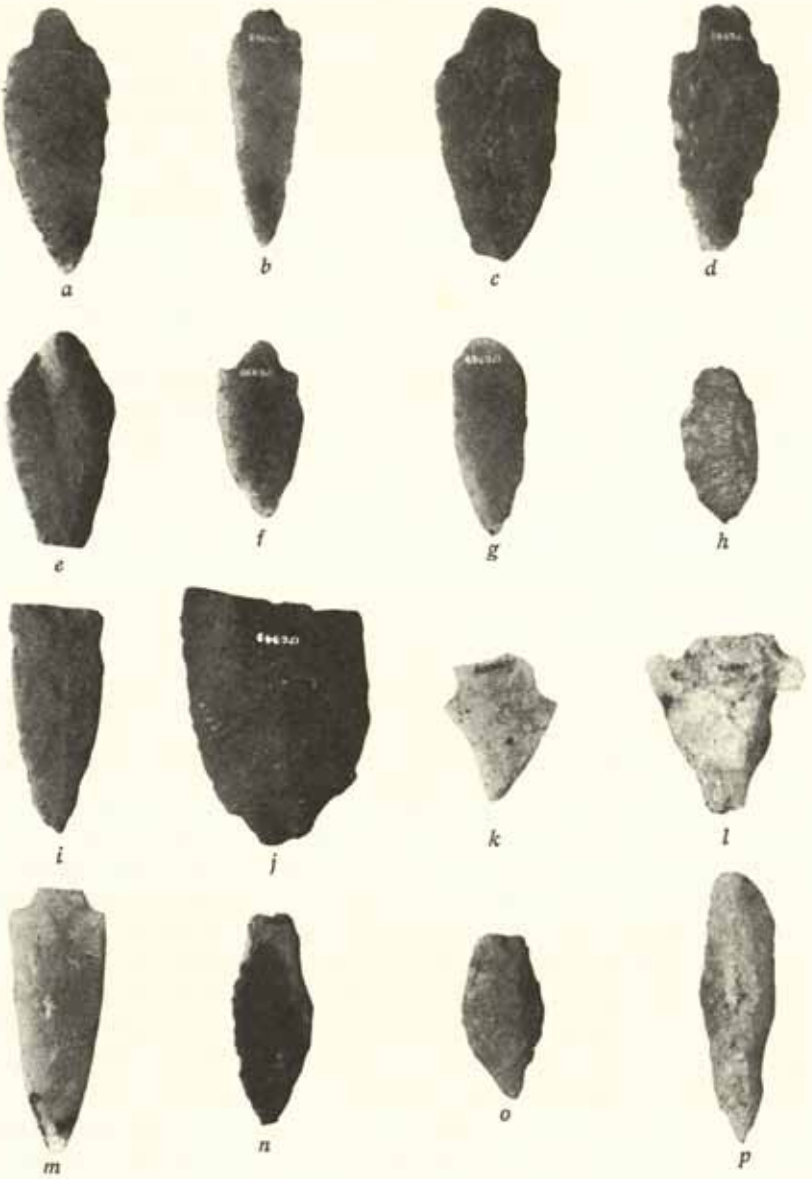

PLATE 3

Artifacts from Labrador stone culture sites. Northwest Corners: *a* (8.5 cm.), *b* (7.3), *c* (8), *d* (7.8), *e* (6.8), *f* (5.8), *g* (7.3); Sharp Hill: *h* (5), *i* (7.2), *j* (8), *k* (4.9), *l* (5.7); Windy Tickle: *m* (8.4), *n* (7), *o* (5.5), *p* (8.5).

acquiring iron. The arrowpoints usually have a small tang (Pl. 4*n-u*) and are often chipped from flat flakes of clear chalcedony or of quartz. There is a general gradation in size from the smallest arrowpoint up to the larger dart or spearpoint. Several points ground from thin pieces of slate were found both at Sharp Hill (Pl. 4*j*) and Windy Tickle (Pl. 4*k*, *l*), thus introducing another technique.

Scrapers were found at all three sites, large oval turtle-back forms (Pl.4*a*) thick, square forms of quartz resembling a plane blade (Pl.4*c-e*), and a plano-convex type with chipped stem (Pl. 4*b*) from the interior site, being the main types distinguishable. At Windy Tickle a beautifully chipped semi-lunar knife of translucent chalcedony (Pl. 4*g*) was found. At Sharp Hill a ground semi-lunar knife or *ulu* of mica schist (Pl. 4*i*) and several fragmentary knives ground from red sandstone (Pl. 4*c*) were also secured. Besides these, two more problematical objects of ground slate from Windy Tickle suggest knives (Pl. 4*f*, *h*). We found only one object of soapstone at any of these sites. This was a triangular gorget from Windy Tickle (Pl. 5*c*) with a small gouged hole in each corner. However, an old Eskimo woman, now dead, who visited the Sharp Hill site many years ago is said to have found at least one soapstone vessel there, as well as a ground stone ulu and many chipped points.

At Windy Tickle I picked up two much weathered and eroded ungrooved celts of oval form (Pl. 5*f*, *g*). The Naskapi stated that two very similar artifacts had been found by them at the Northwest Corners site, but had been lost by the Indian children playing with them. The two from Windy Tickle are ground from metamorphosed igneous rock. At the same site a chisel of altered granite, deeply patinated, was also found (Pl. 5*e*). This was roughly flat or convex on one side and had been ground to a broad sharp edge. It may be worth noting that this specimen as well as one of the celts both show the flattening on one side which seems to characterize the majority of such objects from Nova Scotia, New Brunwsick, and Ontario.[6] According to Piers this is an indication of their having been hafted adze-fashion. A short heavy gouge of disintegrating serpentine was found at the Sharp Hill site (Pl. 5*d*). This is an unusually interesting type of implement. According to geologists at Field Museum the extreme decomposition of this specimen implies a considerable antiquity, for serpentine is a very resistant mineral and the disintegration has obviously taken place since the tool was shaped. In addition to the foregoing types the sites yielded many hammerstone or battered nodules of granite, hornblende (Pl. 5*i*),

[6] Piers, 34, 1895.

and quartz (Pl. 5*h*), as well as slate rubbing or polishing stones (Pl. 5*a*, *b*). Especially at Sharp Hill, where an old aboriginal quarry was located, there were many chips and rejects, two quartz points from that site (Pl. 3*k*, *l*) probably being in this latter category. The foregoing include practically all the types of implements found at these sites.

Certain other scattered finds in the region suggest that more intensive work here would reveal other sites of this culture and possibly provide a link between the early stone culture and the known Eskimo remains, all of which seem to be much more recent.[7] Bearing on the problem at hand was the discovery of a large, ungrooved, chipped celt of translucent chalcedony found at a depth of from one to three feet by an Eskimo digging peat at Nain.[8] The technique and material of the specimen, as well as the fact that the site of Nain was first settled by the Moravians in 1771, suggests that the old stone culture was represented here long prior to that time. Two stone adze blades (Pl. 6*a*, *b*) are said to have been found by an Eskimo in a stone grave on an island near Nain, but I was unable to get in touch with the original finder. The first (Pl. 6*a*) is an oval, flat blade ground at both ends but sharpest at the large end; the other (Pl. 6*b*) is rounded at one end, thick in the middle, and ground down smoothly to a broad blade. Both are made of a hard, fine-grained slate. The next three specimens shown in plate 6 were found by another Eskimo on a small island near Zoar bay. The first two (Pl. 6 *c*, *d*) are carefully ground stone adzes, flat on both surfaces. Plate 6*d* is made of green stone, suggesting jade in appearance, and is identical with Eskimo adze blades from Alaska and the central Arctic. Plate 6*e* was found on the same island, but is much worn and heavily patinated in contrast to the others. The material is sand-etched limestone. It rather suggests the woman's stone knives found at Sharp Hill and may represent a different culture from the other two artifacts, which seem to be Eskimoan.

The next nine specimens illustrated in Plate 6*f-n* are well chipped points of red quartzite, flint, basalt, and translucent chalcedony, all of which came from the surface on the eastern shore of Big Island just north of Davis Inlet. They were found by two white boys from the latter place and the collection which they kindly gave to me originally contained some half dozen beautifully chipped points of translucent chalcedony, identical in type with those from Northwest Corners and Windy Tickle sites (Pl. 3*b*, *m*).

[7] Expeditionary conditions were such that most of the archaeological work had to be done by canoe, a slow and ineffective means of travel where such great distances and treacherous channels are involved.

[8] Owned by E. P. Wheeler of Ithaca, New York, and examined by the writer at Nain.

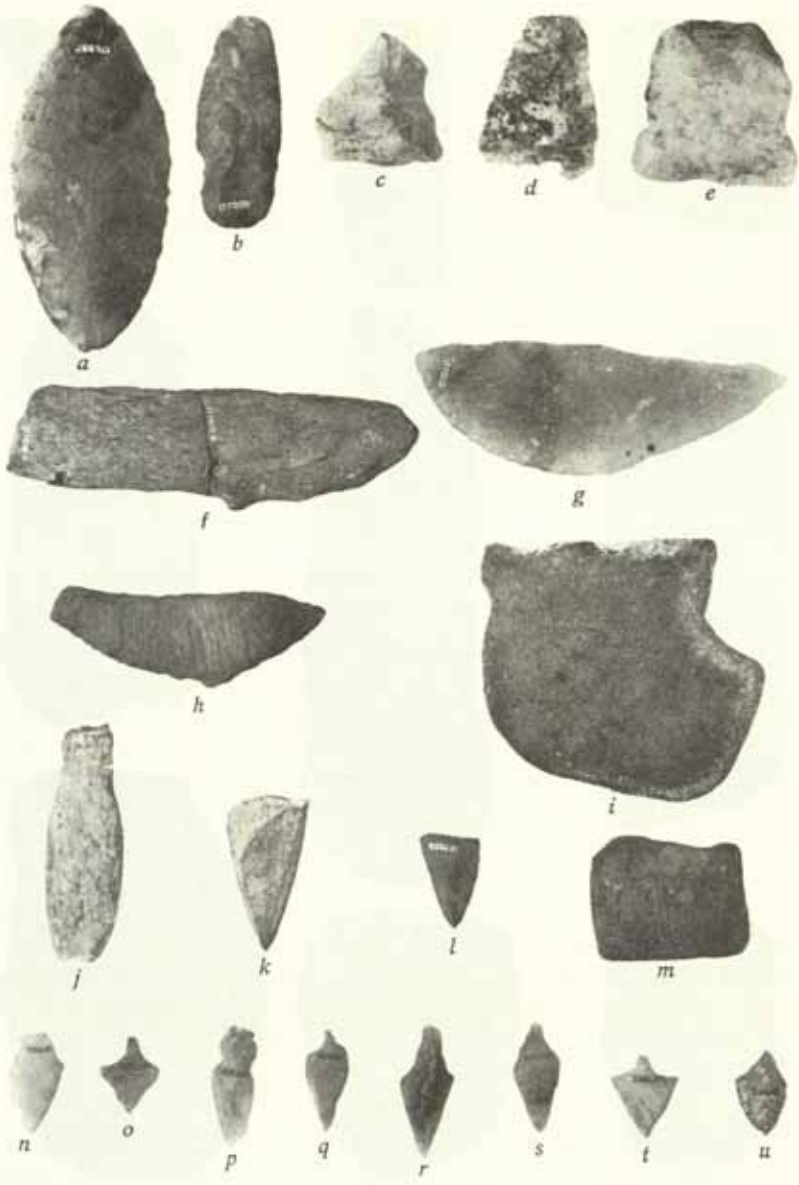

PLATE 4

Artifacts from Labrador stone culture sites. Northwest Corners: *a* (11 cm.), *b* (7), *c* (4); Sharp Hill: *d* (6), *e* (5); Windy Tickle: *f* (12.8), *g* (12), *h* (9); Sharp Hill: *i* (10), *j* (7.5); Windy Tickle: *k* (5), *l* (3); Sharp Hill: *m* (5); Windy Tickle: *n* (3.4), *o* (2.6), *p* (4), *q* (3.2), *r* (4.4), *s* (3.8), *t* (2.7); Sharp Hill: *u* (3).

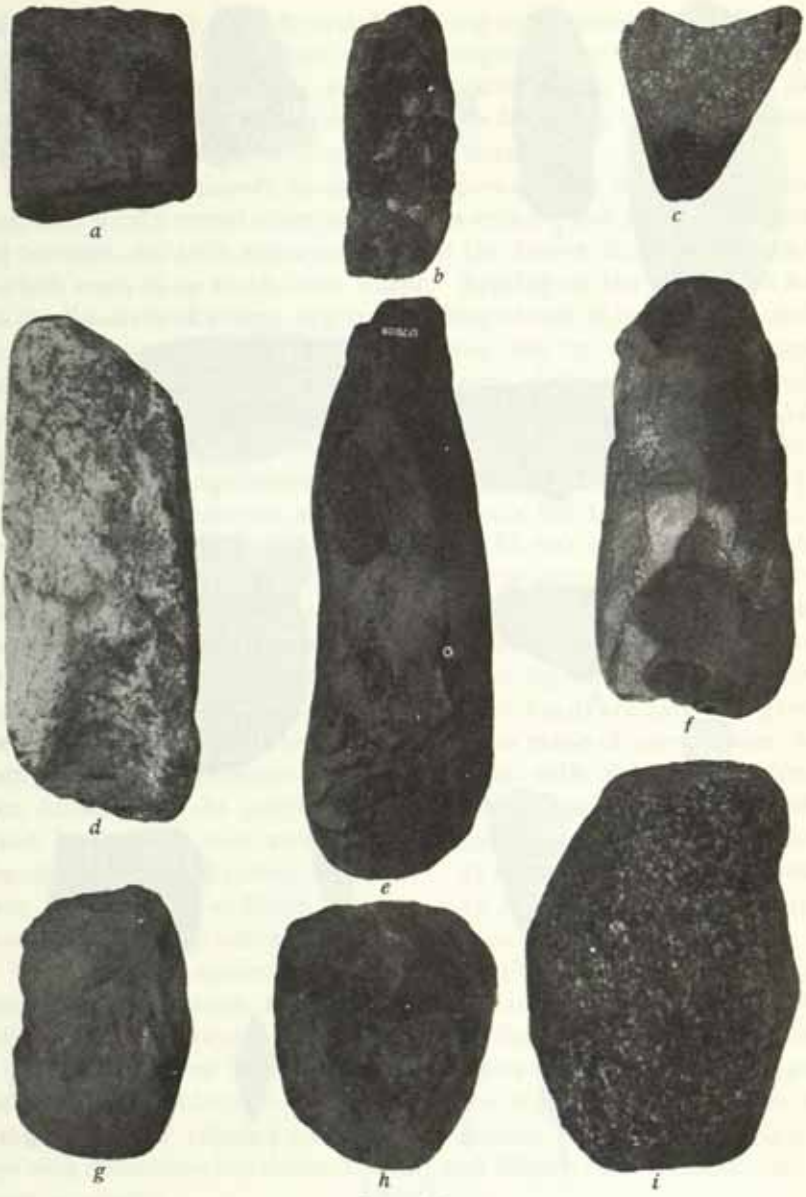

PLATE 5

Artifacts from Labrador stone culture sites. Northwest Corners: *a* (5.5 cm.); Windy Tickle: *b* (8), *c* (7); Sharp Hill: *d* (15); Windy Tickle: *e* (17.5), *f* (13.5), *g* (8); Sharp Hill: *h* (7), *i* (11.8).

Unfortunately these chalcedony specimens were taken by a visitor at our winter quarters. The notched points from Big Island are rather unique in possessing a large tang with deep notches at each side. The type is more characteristic of Indian than Eskimo workmanship, and since these points were found in association with types identical with those from Windy Tickle and Northwest Corner sites I am inclined to believe that they all represent the old stone culture under discussion. They were all found on bare, wind-eroded areas and, according to their finders, were unassociated with any stone cairns or house ruins. The last two small arrowpoints (Pl. 6 *o*, *p*) were found by Eskimo on one of the outer islands near Hopedale; Plate 6*p*, a small point made of translucent chalcedony, is of interest due to its deeply convex base, a characteristic of both Indian specimens from the south and certain old Central Eskimo forms connected with the Thule and Cape Dorset cultures.[9]

There is a striking difference between the sites known to be of Eskimo origin in northeastern Labrador and those we have been discussing. The former are characterized by large, rectangular or rounded house pits, circular or square stone tent rings, and stone graves, gift caches, and box traps on the hills behind the village sites. In front of the house pits or near them are usually small middens made up of masses of animal bones, primarily of the seal but also including those of the whale, walrus and caribou. Most of those we examined and excavated dated from early mission times, that is, the latter half of the eighteenth century, and contained objects showing early Caucasian contact. The bulk of the material, however, was Eskimoan and consisted for the most part of steatite (cooking pots and lamps), bone, antler, and ivory work, with stone implements other than steatite in a decided minority. Like the stone, sod and whalebone houses, stone graves, gift cairns and box traps, the material culture revealed by excavation most closely resembles the Thule and the later Eskimo cultures of the central arctic.[10] The stone artifacts from these Labrador Eskimo ruins resemble those of the old stone culture in the presence of a few broad-shouldered, narrow-tanged, chipped points of clear chalcedony and quartz; square plane-like quartz scrapers; flat polishing stones and hammerstones, features that are widespread in native American culture. Ground slate arrow or spearpoints, stemmed scrapers and ground stone woman's knives were not found at any of the Labrador Eskimo sites ex-

[9] Mathiassen, 2: 164, 1927. Jenness, 432, 1925.
[10] Mathiassen, 2: 163-4, 1927.

cavated.[11] These types occur in the old Thule and Cape Dorset cultures,[12] and may be associated with old Labrador Eskimo sites, although we found none in our excavation. Both the Thule and Cape Dorset cultures, like the known Labrador Eskimo sites, are characterized by bone, antler, ivory, and steatite artifacts, whereas the Labrador stone culture under discussion contains almost nothing of these materials and possesses in addition such unique types as the gouge, ground chisel, and oval celt, which are not at all characteristic of the Eskimo. Moreover, these stone culture sites are entirely without the surface indications or abundant bone débris that mark the Eskimo remains. Certain isolated finds such as the stone adzes previously described, suggest that an older Eskimo culture may yet be distinguished in northeastern Labrador that will bridge the wide gap between the old stone culture and the later bone and steatite-working Eskimo culture. This is a possibility, but until such evidence comes to hand I incline toward the belief that the true Eskimo culture reached northeastern Labrador in much the fully developed form revealed in the eighteenth century ruins. If so, this leaves the earlier stone culture with its Eskimo-like stone *ulus*, ground slate points, and chipped scrapers to be otherwise accounted for.

When we turn to the south and consider the early, especially the pre-pottery cultures, new light is thrown on the problem. Many years ago Lloyd described a site some twenty miles east of Forteau bay at the head of L'Anse du Diable, where aboriginal workshops were located. In many pits in the sand, ranging from those fifty by thirty feet with a depth of ten feet to smaller pits only two feet deep, he found clusters of chipped points and flakes. Other points were found in the vicinity. These hollows were located near quartz veins thinly covered with moss. The points were made of quartz and rock crystal (translucent chalcedony?), artifacts of the two materials being generally segregated on opposite sides of a brook. Lloyd was inclined to believe that these were not made by the Montagnais Indians who lived forty-odd miles inland, nor by the Eskimo who then occupied the coast, but regarded the site as an older Indian workshop.[13]

[11] Hawkes, 95–98, 1915, gives a general description of the old type *ulu* without a tang, but does not figure or describe any from Labrador. All that I found had had iron blades with a bone or iron tang between blade and handle. Hawkes found none of the larger stone tools common to Eskimo culture elsewhere, but assumes that the ancient Labrador Eskimo used them.

[12] Mathiassen, op. cit., 84; Jenness, 432, fig. 4, 1925.

[13] Lloyd, 39–44, 1874. Attention might be called in passing to the small stone ruins at Forteau bay described in the same paper. They seem to have been quite similar to the stone ruins on Sculpin island near Nain, and the empty cairns suggest Eskimo origin.

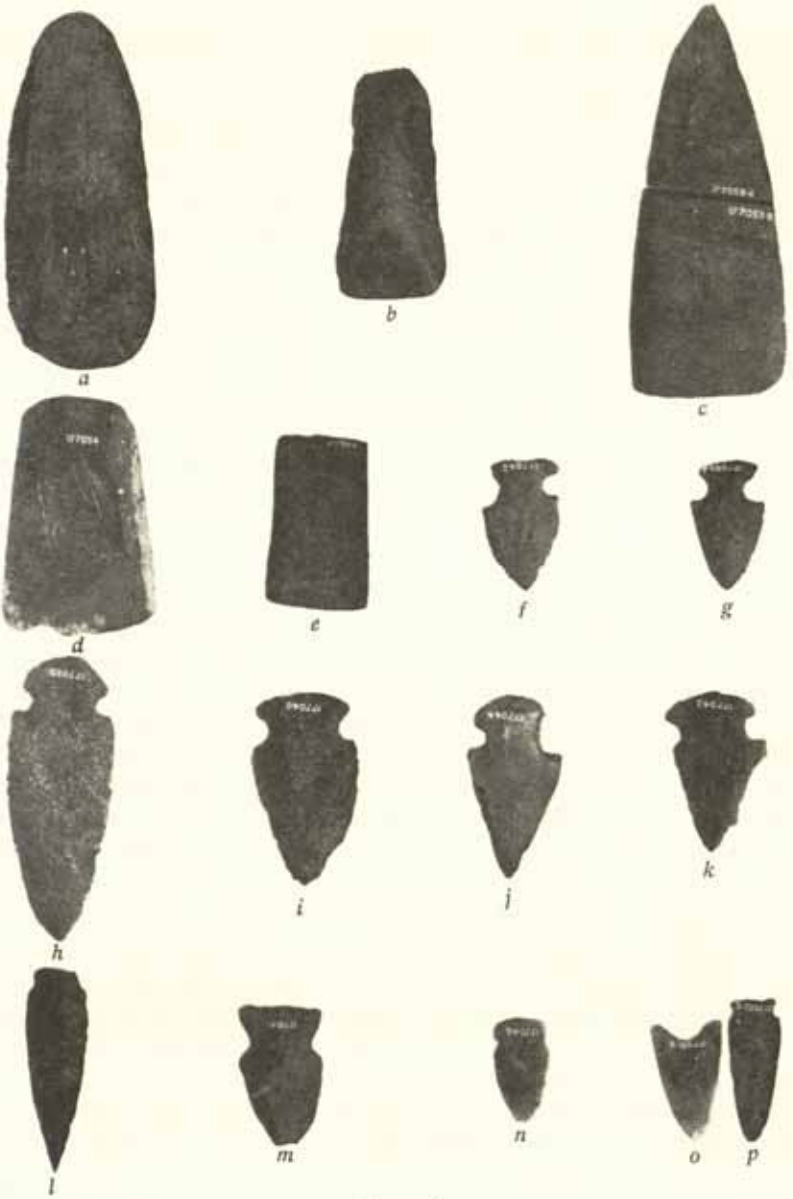

PLATE 6

Artifacts from various sites. Island near Nain: *a* (11.5 cm.), *b* (7.3); Island near Zoar: *c* (12.5), *d* (7.8), *e* (5.5); Big Island: *f* (4.2), *g* (4.1), *h* (9), *i* (6), *j* (6), *k* (5), *l* (6. 5), *m* (4.3), *n* (3.3); Island near Hopedale, *o* (4), *p* (4.6).

No other types of artifacts are mentioned, and as the types found are not illustrated we may only note the general resemblance of the site to those farther north.

Very recently Wintemberg has reported workshop sites just south of Forteau bay near Blanc Sablon and Bradore where numerous spear and arrowpoints were found amid chips and rejects.[14] The majority of these are of chert and quartzite, many of them being small and delicately chipped, as well as stemmed or notched. Other leaf-shaped forms and plano-convex scrapers are also noted. No finished stone adzes or ungrooved celts were found, although near the Bradore site part of a highly polished stone gouge was picked up. At about the same place sherds of pottery with roulette decorations and similar in type to those from Algonkian sites in Ontario and Maritime provinces were found. According to Wintemberg, the potsherds were associated with the workshop sites.[15] Judging from outline sketches kindly sent me by Mr. Wintemberg, the chipped points are very similar to those from my northern sites. It may be noted that near the Blanc Sablon site human remains covered with red paint were found under an overhanging rock. This is regarded as a Beothuk burial.[14] A detailed comparison of these sites must await the full publication of Mr. Wintemberg's findings.

In southern Labrador at Tadousac on the north shore of the St. Lawrence, Speck found on a high terrace back from the river a native workshop closely comparable to that previously described at Sharp Hill. The site had been exposed by wind action, revealing amid chips and rejects, quartzite blades of oval form and large size, turtle back and square plane-like scrapers, semilunar knives, gouges, chisels, plummets, hammerstones, and ground slate points which were long and slender. The extreme corrosion and patination of these specimens was marked and the majority of them were broken as though by long exposure. No pottery or bone implements were found here. Speck is inclined to regard this Tadousac site as representing a very old proto-Algonkian culture, possibly related both to the Beothuk of Newfoundland and the Red Paint culture of Maine.[16] This site has since been worked by Wintemberg who confirms the absence of pottery and adds that the points were mostly large, crudely chipped, and that there were no stemmed or notched forms.[17] In general characteristics, range of implement types, evidences of antiquity, and lack of pottery this

[14] Am. Anthr., n.s., 31: 333, 1929, and personal communications from Mr. Wintemberg
[15] Letter of May 29, 1929.
[16] 427–33, 1916.
[17] Letter of May 29, 1929.

site closely approximates the stone culture of northern Labrador. It differs in lacking the stemmed and notched points that occur at the northern sites, but the similarity still remains a striking one.

The archaeology of Newfoundland awaits adequate and systematic investigation, but enough is already on record to indicate that the region is of fundamental importance in regard to the present problem. Sites on the northeast coast described by Lloyd[18] are quite similar to those just discussed in Labrador. They represent both dwelling places and workshops, the specimens being covered by the thin soil overlying the granite. Small soapstone vessels, plummets, ungrooved celts, gouges, chisels, ground slate points, hornstone and quartzite arrow and "dart" points with notched or concave bases, small triangular scrapers of quartz and hornstone as well as those with a flat base and chipped stem,[19] rubbing stones, chips and rejects make up the list of artifacts found in these sites. Associated with such artifacts at one site were fragmentary calcined bird bones and a few crumbling human bones.[20] To date pottery does not seem to have been found in any Newfoundland sites. Other dwelling and workshop sites of the same culture have been located on the coast and in the interior.[21]

It has been rather generally accepted that these sites are of Beothuk Indian origin since these unfortunate people, who were exterminated by 1829, were the only permanent inhabitants of Newfoundland at the time of its discovery. The recent work of Jenness and Wintemberg suggests that the Beothuk formerly occupied the adjacent Labrador mainland, and Wintemberg is inclined to believe that there are really two different cultures represented in Newfoundland, an early type represented by the stone gouges and ground slate points and a later Beothuk culture.[22] Later Beothuk burials containing a few objects of European manufacture have been found, often in caves or under overhanging ledges, the skeletons being wrapped in bark and associated with much red ocher. Chipped stone points, small bone harpoon heads, unique bone carvings with geometric decoration, soapstone vessels, birch-bark utensils and iron pyrites are characteristic grave finds.[23] The use of the gouge, the manufacture of

[18] 233–248, 1875.

[19] These are identical with one from the interior site in northern Labrador. Compare Lloyd, plate XI, figs, 4, 7, 1875, with plate 4*b* of this article. Skinner, plate VI, fig. *m*, 1919, shows a similar type from an old New York site. Boas, 388, fig. 8, 1907, shows a very similar hafted Eskimo scraper from Southampton island.

[20] Lloyd, 233–248, 1875.

[21] Howley, 326–330, 1915.

[22] Letter of May 29, 1929.

[23] Howley, 328–335, 1915.

soapstone pots, and the grinding and flaking of similar stone implements[24] rather tend to link the historic Beothuk and the earlier workshop sites, but this is a question that can be more accurately answered on the completion of archaeological work now in progress in Newfoundland.

Since the Beothuk used abundant red ocher in their burials, lacked pottery as well as certain types of implements, and if the older Newfoundland sites can be attributed to them, had other types such as the gouge, chisel, ungrooved celt, and long slate "bayonet" points, they may well have been related to the Red Paint people of Maine whose caches or burials are characterized by the presence or absence of the same traits. As Speck[25] and others have pointed out, the Beothuk were in all probability the last representatives of the early Algonkian (or pre-Algonkian?) population in the northeast. That they were influenced by the Eskimo who reached Newfoundland before historic times seems very probable, [26] and may well account for their highly developed soapstone and bone working in later times. There are, however, certain Eskimo-like characteristics in the older culture which seem quite widespread in the early cultures of the northeast and the significance of which will be discussed hereafter.

In New Brunswick, kitchen middens are found on the coast which are characterized by the presence of shell and bone, although the majority of implements have been found in the interior.[27] Baird notes, however, that stone implements are more numerous in New Brunswick shell heaps than in those of New England.[28] A coastal village site excavated by Mathew at Bocabec consisted of house pits containing oval, chipped scrapers and implements of quartz, semilunar knives, ground slate points, gouges, and very fragmentary bone awls and harpoon points.[29] Certain of the stone implements showed signs of extreme weathering and Mathew was inclined to regard them as representing an older period than the other material. Two types of pottery were also distinguished in upper and lower levels. The specimens from the New Brunswick interior illustrated by Bailey, include heavy, notched and unnotched points, small arrowpoints with a narrow tang, ground slate "bayonet" points, plummets, grooved and ungrooved celts, chisels, pestles, and hammerstones.[30] These are mostly

[24] Lloyd, 236, 244, 1875.

[25] 15, 1922.

[26] According to Howley, certain sites in northwestern Newfoundland characterized by bone and ivory work are quite possibly of Eskimo origin (330, 1915).

[27] Bailey, 7, 1887.

[28] 292, 1881.

[29] 5–29, 1892.

[30] Op. cit., 1–16, 3 pls.

surface finds made on the shores of interior lakes and rivers. Several native quarries where chalcedony was obtained are on record, as well as workshop sites where finished gouges, celts, scrapers, spear and arrowpoints have been found associated with flakes and rejects. Certain of these implements are much corroded on their exposed surfaces and appear to be very ancient.[31] Pottery has been found associated with stone implements at various sites, but the types occurring in such association do not seem to have been noted elsewhere than at Bocabec. Whether a pre-pottery culture can be distinguished in New Brunswick is not clear, but the types of stone implements described from Bocabec and those from the interior camp and workshop sites seem closely comparable to artifacts of the stone culture in northern Labrador.

On Prince Edward Island, Fewkes dug in several small shell heaps, securing two stone celts and an ivory harpoon point similar to others found in Nova Scotia. Pottery is not mentioned in any of the various shell heaps examined. He was inclined to see Eskimo influence in the walrus ivory harpoons but did not believe the Beothuk had anything to do with the sites.[32] The data on which these conclusions are based, however, seem too slender to bear much weight.

In Nova Scotia small kitchen middens are found along the coast and native workshops are rather numerous in the interior, especially near high banks along the fishing streams. These are marked by chipped stone artifacts chips, rejects, and in one case by numerous gouges.[33] In the north, hard, slaty flint, felsite and quartz were used in the manufacture of chipped points, while in the southern part of the province, agate, jasper, and fine-grained minerals found along the Bay of Fundy were more commonly employed. Stemmed, notched, and round-ended spearpoints occur, thick scrapers, many ungrooved celts (often much eroded), chisels, hammerstones, rubbing stones, ground slate points, semilunar knives, a few plummets, and iron pyrites are noted. Toggled harpoons, awls, and knapping tools made of walrus ivory have been found (presumably on the coast). Grooved axes, pestles, stone pipes, and copper knives are rare, while shell artifacts are unknown. Considerable crude, brownish-gray pottery decorated with incised designs has been found, but its exact association with the various types of stone artifacts is not clear.[34]

[31] Mathew, 66, 1900, and Kain, 494, 1902.
[32] 30, 1896.
[33] Patterson, 237–239, 1889.
[34] Ibid., 239–252.

As yet no culture sequences seem to have been distinguished, although a find made during the excavation of a canal at Milton, Queens county,[35] which consisted of slate "bayonet points," stone chisels and gouges, rather suggests the Red Paint culture of Maine and possibly a pre-pottery horizon. Piers calls attention to the fact that grooved axes are rare in Nova Scotia, New Brunswick, and Ontario, while the ungrooved celts found in these provinces are usually flatter on one side than the other, indicating that they were hafted adze-fashion. He stresses the fact that the Eskimo used this type of implement and states that formerly these people occupied Nova Scotia, being driven out by the Micmac.[36] However this may be, there is no doubt that many Eskimo-like artifacts have been found in the region. It would seem probable that this is due both to recent contacts with the Eskimo and to the presence of the old Eskimo-like culture under discussion.

According to Boyle, the numerous semilunar knives of ground slate found in the northeastern part of Ontario were probably of Eskimo origin.[37] Wintemberg is also impressed by the Eskimoan resemblances in these and in the bone and ivory harpoons from the same province.[38] It is of interest that these harpoons are also very numerous in Iroquoian sites, occurring also in post-Caucasian times.[39] The ground slate blades and points found in northeastern Ontario occur in association with pottery bearing an Algonkian type of decoration, stone gouges, ungrooved celts, stone adzes, chipped stone points for arrows, spears and knives (a few of quartz and quartzite), drill points, scrapers, rubbing-stones, and in some cases with slate gorgets, pendants, bird amulets, bannerstones, and stone pipes.[40] Such an association suggests Indian rather than Eskimo affiliation and presents a culture somewhat more complex but essentially similar to the stone culture found in northern Labrador. Since Ontario is much nearer to the sources of ceramic diffusion, the occurrence of pottery is not remarkable, although a later cultural stage is probably represented here than is the case in northern Labrador and certain other regions in the northeast.

The pre-Neutral or Algonkian sites excavated by Wintemberg in Oxford and Waterloo counties differ from the above in the presence of cylindrical roller pestles, grooved stone axes, bird amulets, boat stones, stone tubes,

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[35] Piers, 34, 1895.
[36] Ibid., 37–47.
[37] 22, 1906.
[38] 36, 50, 1905.
[39] Wintemberg, op. cit., 54.
[40] Personal communication from W. J. Wintemberg, May 29, 1929.

and earthenware pipes.[41] Semilunar slate knives, ground slate points, and gouges are lacking, while the great majority of chipped points are of chert. These two cultures are evidently related, but the Eskimo-like culture traits appear in the former and, so I would presume, earlier of the two. Thus, while no pre-pottery culture has been distinguished in Ontario there is in the northeastern part of the province a culture akin to the stone culture of northern Labrador and marked by the same very general Eskimo-like characteristics we have noted throughout the northeast.

Passing farther to the south we find in the Red Paint culture of Maine striking similarities to the early northern types. These sites, found for the most part along the river valleys of Maine, are presumably cremated burials characterized by masses of red ocher.[42] In these caches are found many chipped points of translucent quartzite, which material, according to Moorehead, comes from Labrador.[43] The types are identical with those from Ontario, New Brunswick, Newfoundland, and northern Labrador. Gouges, chisels, ungrooved celts, polished slate arrowpoints or knife blades and more especially slender slate "bayonet points," flat perforated stone crescents, plummets, and rubbing stones are all characteristic.[44] Some fragments of bone have been found, but these were either calcined or extremely fragmentary. The occurrence of iron pyrites and flint nodules for firemaking in nearly every cache have been noted.[45] About twenty per cent of the stone tools have begun to disintegrate, especially where they have been in contact with iron pyrites.[46] The so-called Algonkian sites differ from the foregoing in the presence of pottery; grooved axes; stone pipes; stone tablet-shaped, bone or shell ornaments; etc.[47] They also lack the characteristic Red Paint artifacts. Willoughby[48] and Dixon[49] regard the Red Paint people as probably related to the Beothuk of Newfoundland; Moorehead, on the other hand, suggests that they might be the ancestors of the Eskimo.[50]

In New York the earliest and Eskimo-like culture distinguished by Parker, underlying what he calls the Early Algonkian strata, is characterized by semilunar slate knife blades, rubbed slate double-edged knives,

[41] Wintemberg, 37–49, 1900, and letter of May 29, 1929.
[42] Moorehead, 141, 1922.
[43] Ibid., 112.
[44] Moorehead, 262–3, 1916.
[45] Moorehead, 143, 1922.
[46] Ibid., 133.
[47] Ibid., 149–150.
[48] 52, 1898.
[49] 76, 1914.
[50] 151, 1922.

large broad-shouldered chert arrow or spearpoints, ungrooved celts, gouges, polishing stones, scrapers, fragments of soapstone vessels, figurines and ornaments of unusual shape, and a few simple bone harpoon points.[51] The graves are shallow and empty, and the fire pits show little refuse aside from calcined bone fragments. As in Maine, Nova Scotia, and Newfoundland iron pyrites are found in these sites.[52] Parker believes that this culture appertains to the Eskimo or to a people strongly influenced by them.[53] The Eskimo-like culture is succeeded by that termed the Earliest Algonkian, which is characterized by crude implements, large clumsy spears, steatite vessels, crude clay pottery, occasionally polished stone implements, net sinkers, large flakes of stone notched at the top for choppers, and now and then a grooved ax or celt. These latter sites are usually located on high river terraces.[54] There are, according to Parker, Eskimo-like influences to be observed in this stratum and there is some blending of the two cultures.[55] It is worth noting that bone implements are relatively numerous in the Algonkian sites, walrus ivory artifacts being found along the St. Lawrence and whalebone cut on Long Island.[56] Pottery, which is lacking in the early Eskimo-like culture, is found throughout the Algonkian and Iroquoian strata. Skinner notes that certain of the oldest (lower) layers of mounds on Manhattan island are without pottery,[57] and in the rubbed points and semilunar slate knives found on Howlands island sees Eskimoan, or even older forms.[58] Thus, the detailed study of New York archaeology reveals a pre-pottery culture with certain Eskimo-like characteristics underlying the later Algonkian and Iroquoian strata. It is this older culture that bears the closest resemblance to the stone culture of northeastern Labrador.

To the west the earlier cultures are obscured by the various specialized mound-building peoples whose impressive remains have attracted more attention and presented more alluring problems. In the Ohio region the

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[51] Parker, 79, 1920; Beauchamp, 69–72, 1897, notes that slate *ulus* are most frequently found at the east end of Lake Ontario and assigns such camp sites to the Eskimo.

[52] The majority of Eskimo stone graves I examined in Labrador contained nodules of iron pyrites. This method of obtaining fire is widespread among the Eskimo. Since no burials of the old stone culture in Labrador were encountered, it is uncertain whether they used such fire-making implements although it would seem probable.

[53] 81, 1920.

[54] Ibid., 48.

[55] 81, 1920.

[56] Ibid., 76.

[57] 132, 1920.

[58] 45, 1919.

underlying culture seems to have Algonkian affinities although its persistence alongside certain of the mound cultures has so far obscured its earlier phases. Characteristic of this general Algonkian culture, according to Shetrone, are notched, stemmed and unstemmed chipped flints, grooved and ungrooved celts or axes, gorgets or tabular artifacts, pestles, grooved hammerstones, banner stones, and other problematical objects.[59] The special study of Algonkian surface finds and village sites must proceed further before the development and earlier phases of the culture become clear.

From the foregoing it can be seen that the earliest cultures yet distinguished (excepting the somewhat obscure but probably earlier Trenton Argillite culture) in the region between the Great Lakes and northeastern Labrador have many factors in common. The occurrence of polished stone gouges, chisels, ungrooved celts, stone gorgets, large chipped points, ground slate points or ground semilunar knives is common to all. Bone implements are relatively rare, but when present as in New York, Ontario, New Brunswick, Nova Scotia, and Newfoundland, the most striking artifact is a simple harpoon of bone or ivory. The problematical plummet stone is present in nearly all these cultures and it may be significant that there are two such artifacts from northeastern Labrador in the museums at Ottawa and St. Johns,[60] although I personally found none in the region. Pottery is absent from this early culture in New York, Maine, Newfoundland, and when present, as in Ontario and New Brunswick, is rather simple and not overabundant. Logically one might predicate pre-pottery horizons in the latter provinces, but if so they have not as yet been distinguished.

The occurrence of certain almost universal Eskimo traits such as the use of steatite, the woman's knife of ground stone, simple bone or ivory harpoon points, the polishing of slate points or blades, and often the presence of iron pyrites, forms one of the most uniform and striking aspects of these early horizons. This fact has led nearly all authorities to ascribe such cultures directly or indirectly to the Eskimo. That all these traits occur grouped in the earliest horizons of the northeast argues against their gradual infiltration from an outside source, while the fact that a culture containing most of the above traits, as well as heavy chipped points for hunting, and gouges and ungrooved celts for wood-working, occurs in northern Labrador apparently antedating the arrival of the true Eskimo, militates against direct Eskimo origin. This stone culture of northeastern Labrador ties up much more closely with the older Indian cultures to the south than it does with the

[59] 165–168, 1920.

[60] Personal communication from Diamond Jenness, Nov. 20, 1928.

developed Eskimo culture, and if it can be assigned to any historic people the Beothuk of Newfoundland seem the most logical candidates. These people might well have represented the last survivors of the culture driven to their island home by the later incursion of the Labrador Eskimo from the north and the Algonkian groups from the south and west. The problem is complicated by the apparently late southeastern movement of the Eskimo who occupied Labrador, for in spite of the almost universal hostility between Indian and Eskimo in historic times there must have been some cultural contacts between them. As a result, certain Indian-Eskimo correspondences due to these late contacts must be carefully separated from the older Eskimo-like characteristics mentioned above.

A wider view of native American culture shows that all the so-called Eskimo traits in these early northeastern horizons are equally characteristic of the northern Indian. Furthermore, they are in accord with a great number of other important correspondences in both the material culture and religious concepts of the two peoples.[61] This most interesting and suggestive problem is essentially one of ethnology and cannot be more than mentioned at the present time. It has, however, a direct bearing on the theory formulated by Rink[62] and amplified by Boas[63] and Steensby[64] that the Eskimo were originally an inland-dwelling group; the ancestors of the modern Eskimo having moved, or been forced to move, to the arctic coast where they developed their specialized winter culture. Recently this theory has received considerable confirmation, Jenness having demonstrated that this is exactly what has taken place among the Copper Eskimo[65] while the findings of the Fifth Thule Expedition indicate that the Caribou Eskimo, an inland-dwelling group of tribes between Chesterfield inlet and Yathkyed Lake still have a culture closely akin to that of the northern Indian and of the simplest Eskimo type.[66] The complex development of other Eskimo has evidently been due to their adoption of a specialized winter culture enabling them to live on the arctic ice. Such a life not only permits but necessitates constant travel, a fact which accounts for the wide movements

[61] Speck, 292–299, 1926, Birket-Smith, 1918, and Steensby, 172–186, 1916, deal with this subject. The culture of the Naskapi Indians reveals in addition to the recent Eskimo influences (see present author, 287, 1928), various older and seemingly more fundamental similarities,—a matter to be dealt with in a later paper on the Naskapi.

[62] 215, 1871.

[63] 355–370, 1901. 564, 570, 1907.

[64] 204–207, 1916.

[65] 540–551, 1923.

[66] Geog. Rev., 13: 625–27, 1923. Unfortunately Birket-Smith's detailed and comparative monograph on these people was not available when the above was written.

of the groups that achieved this double phase of activity. Mathiassen has pointed out a later movement from west to east of certain of these groups comprising the Thule culture, who carried the fully developed Eskimo culture from Alaska to Greenland and Labrador.[67] But of the truly primitive Eskimo horizon from which these various cultures may have developed we as yet know nothing. Considering the deeper resemblances between northern Indian and Eskimo cultures which are coming to light it seems highly significant that we have in northeastern North America a rather widespread early archaeological horizon which contains nearly all the basic elements essential to the development of both Indian and Eskimo cultures as they appeared in historic times.

The problem of Eskimo origins is still too complex for this to be more than a suggestion. On linguistic grounds Thalbitzer,[68] Sapir,[69] and Bogoras[70] favor a western or Siberian origin for the Eskimo, while recent excavations in the Bering sea region have revealed a rich and complex culture that may antedate the Thule culture in the west.[71] This culture is characterized by an ornate and curvilinear type of decoration that suggests the art of the northwestcoast Indian, although its roots may be in northeastern Asia.[72] Here again we are dealing with an advanced and complex culture, the antecedents of which will only be revealed by further excavations in Alaska and northeastern Siberia.

The final solution of the problem concerning the origin of the Eskimo must depend on a complete synthesis of archaeological, ethnological, and linguistic data. These at present are not in agreement. That in northeastern North America there exists a very early culture containing practically all the potentialities for both Eskimo and northern Indian cultural development should not be overlooked in any such study.

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[67] 1927.
[68] 235–238, 1904.
[69] 82–83, 1916.
[70] 1925.
[71] Jenness, 78, 1928. Compare Mathiassen, 49–56, 1929.
[72] Jenness, 78, 1928.

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THE NEGRO IN THE NEW WORLD: THE STATEMENT OF A PROBLEM

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THE Negro in the New World has given rise to a situation which is of the utmost scientific importance, and which, in the final analysis, may have far-reaching practical significance. In affording an opportunity for study of a problem which is not only of itself worthy of consideration but which may also contribute impressively toward the understanding of some of the basic questions which confront the study of man, it deserves far greater attention than it has received, if advantage is to be taken of the peculiarly fortunate alignment of data which only await gathering to be utilized.

I

Let us restate some of the fundamental problems with which we are confronted in the study of mankind. We may group them under two principal headings,—those which arise from the consideration of Man's physical form, and those which present themselves in the study of his languages and cultures. To what extent, the physical anthropologist asks, may it be said that a given physical type holds its aboriginal form through the vicissitudes of its historical experiences? What is the effect of environment on human types? Does Man retain his different racial characteristics no matter where he may be transported? Thus, it is said that American environment is making the hair-form of Caucasians straight like that of the aboriginal Indian. Or, again, one hears that the development of pigmentation in a race is the function of the amount and intensity of sunlight to which it is exposed, and the Caucasoid Hindu is pointed to as affirming this position. Again, there are the whole group of problems which center about the question of the physical results of racial crossing. Is there a decrease of fertility with race-mixture? What is the effect on the behavior of the crossed individuals when compared with pure breeds? To what extent are the processes of Mendelian heredity that the biologist has observed in non-mammalian forms operative in Man? All of these troublesome questions await data, and data of a nature not too easily obtained. Man is a slow-breeding animal, and the life of the student appears almost hopelessly short in view of the length of time necessary to bring about the conditions to be observed.

The same is true of our linguistic and cultural problems. The student of language and of culture is himself conditioned by his own culture, and

this makes it difficult for him to obtain adequate and satisfactory data bearing on them or sometimes even to see clearly the problems he attacks. Thus, we realize the importance of knowing the extent to which cultural phenomena, like physical forms, are tenacious. We know, in a very rough sort of way, that a simple material culture will give way before a more efficient one much more quickly than one type of social organization will be given up for another. But when an aboriginal culture is vigorously suppressed, will anything remain in spite of everything? Will there be any residuum so subtle that only painstaking research will bring it to light? Again, we see that the problems of the manner in which cultures intermingle is of the utmost importance to our understanding of cultures as a whole. Yet we ask almost in vain the extent to which the differential rate of acceptability of new cultural traits makes for the harmonious combination of elements which are quite diverse in historical reality. This may perhaps be observed most satisfactorily in linguistic forms, yet on the problem as a whole we are almost completely at a loss.

More difficult than all are the problems which arise from our attempt to study the interaction between the biological form of man and his cultural behavior. As we survey a people, we are at once arrested by the questions: What of their culture is racially conditioned and what culturally? Why does the white child, when presented with a picture-puzzle, tend to put it together more quickly than the Indian but with more mistakes? Is this the result of the different cultural patterns of the social groups in which the children have been brought up, or is it caused by something inborn which will manifest itself in all aspects of their cultural behavior as they mature? We find an amazing variety of types of cultural behavior in the world, yet, if these are sketched in large enough perspective, they will seem curiously alike. Whether we observe similarities or differences, in physical form or cultural behavior, depends, in the final analysis, on the type of problem to be solved. But we all realize that differences both in race and civilization are to be found, and that if we can establish any correlation between the two, there will at least be the possibility of investigating more clearly any possible causal relationship which may exist.

II

Perhaps the fundamental difficulty in our study of these problems is the absence of control conditions. The biologist, working with the short-lived lower forms of life, can breed them in great numbers and through many generations, and thus observe the processes of heredity. He can cross various types at will, and in numbers permitting statistical analysis of his

results. Not so the student of human biology. His laboratory is the world over, and he can only at best approximate laboratory conditions. The problem is even more perplexing when we approach the study of cultural or linguistic data. At least, in the study of physical anthropology, we may take reasonably exact measurements by means of which, through statistical manipulation, we may approximate results coming from controlled laboratory experiments. At least, for the physical anthropologist, the length of the head is something directly comparable on all human beings, no matter what the racial type or the cultural background. But when we attempt to compare cultural data we come at once into difficulties arising from definition. Is a paddle in one culture really the same as that in another? Is totemism one thing, or many? In order to answer even such fundamental questions, we must know the setting of the phenomenon we are studying in the cultures of which it forms a part. And it is on the rock of disregard of the cultural associations which adhere to a given trait in different cultures that the extreme diffusionists may well come to wreck.

We must agree, then, that the only way in which problems of this sort are ever to be answered is through searching out situations in which we find the necessary controls presented to us, and studying these. Thus, in the consideration of the processes of cultural change, if we find a people of a known cultural background, who have been presented with known cultural alternatives and have accepted some and rejected others, we may obtain light on the implications of their action by studying what they have done. If, further, we find that people with the same general cultural background have been presented with different cultural opportunities, then by analyzing what they have refused and retained in each case we may make our conclusions clearer and more acceptable. The same holds true for the consideration of problems involving change in physical form. And it is because the Negro offers almost the most accessible and most easily verifiable conditions of this sort, that we may regard him as offering one of the most promising possibilities for investigation.

III

What, then, is the nature of the data obtainable from the Negro in the New World and in Africa, which will contribute to the understanding of some of our fundamental problems? Let us first consider the aspects of the situation which bear on the problems of man's physical form and the processes of racial amalgamation and change. To begin with, the unmixed Negro is found in numerous environments. In West Africa, in South America, in the West Indies, and in the United States, there are hun-

dreds of thousands of persons of unmixed Negro blood. The tropical West-African provenience of the New World Negro is not climatically different from many localities where he is found in the western hemisphere. Are any differences manifest between unmixed Negroes in the two regions? Has the pure Negro in tropical America and tropical Africa the same physical form and physiological processes? Furthermore, the Negro is not only found in the tropics, but also in the sub-tropical Bahamas and the southern United States, and in the temperate zone both in the United States and Brazil. Can it be said that he clings to his essential racial characteristics? Or has the descendant of the West African made fundamental physical adaptations to the colder climates to which he has been exposed? We cannot for a moment minimize the difficulties which lie in the path of the student who attacks these problems; the difficulty of gathering his data, and the greater difficulty of evaluating it. But it is there, both in Africa and the Americas, and needs only the patience, the time, and the workers to collect and analyze it.

Ever since the seventeenth century, the Negroes in all this region have lived in contact with whites, with extensive mixture between the races resulting, while, although to a far lesser degree, there has been contact with American Indians as well. The availability of the data for studies of race-crossing and its results is obvious. And the material is present in such quantity that the difficulty which Fischer found in his study of the Bastards of South Africa, that of small numbers available, need not be feared. The problem becomes the more enticing when we realize, also, that there are not only large differences between these races but within them as well. Africans from all portions of the West Coast and the Congo are represented in the New World, while in the United States, Brazil, and the islands and littoral of the Caribbean sea they have crossed with English, Spanish, Dutch, French, Danish, and other European types. In a word, we find all degrees of mixture between numerous types both of whites and Africans present in the region.

When we turn to the field of cultural investigation, however, we become even more impressed at the amount and kind of data the Negro offers. To begin with, the problem which is the bane of most ethnological research is not present; for as far as the Negro is concerned, we know, within reasonably precise limits that are capable of more precise definition where the New World Negroes came from. The cultural background of Africa is better understood than the physical form of the African, to our resulting advantage in this aspect of the study. On the other hand, much is known, and it should not be difficult to gather more and more cultural information con-

cerning the Negro on this side of the Atlantic. The folklore collections are impressive in their extent, linguistic studies and those of Negro dialects are beginning to be given the attention they deserve, while religious and ceremonial practices have for many years fascinated students in various portions of the Americas. With better knowledge of the African cultures we shall have an adequate basis to investigate the affiliation of those cultural traits the American Negro has retained in his contact with white and Indian civilizations. On the other hand, further investigation on this side of the Atlantic must result in more data from which to draw conclusions as to the nature of the African cultural survivals which are manifest in the behavior of the Negro in the Caribbean, the United States, and in South America.

It is quite possible on the basis of our present knowledge to make a kind of chart indicating the extent to which the descendants of Africans brought to the New World have retained Africanisms in their cultural behavior. If we consider the intensity of African cultural elements in the various regions north of Brazil (which I do not include because there are so few data on which to base judgement), we may say that after Africa itself it is the Bush Negroes of Suriname who exhibit a civilization which is the most African. As a matter of fact, unless the observer omitted to take their language into consideration, and unless he were familiar with small elements obtained from the whites with whom these people were in contact while they were in slavery and the Indians whom they drove out of the Guiana bush, he would assume, at first glance, that their culture was wholly African. Next to them, on our scale, would be placed their Negro neighbors on the coastal plains of the Guianas, who, in spite of centuries of close association with the whites, have retained an amazing amount of their aboriginal African traditions, many of which are combined in curious fashion with the traditions of the dominant group. Next on our scale we should undoubtedly place the peasants of Haiti, especially their religious life and their folklore, as they present numerous aspects which would at once be familiar to the Africanist. And associated with them, although in a lesser degree, would come the inhabitants of neighboring Santo Domingo. From this point, when we come to the islands of the British, Dutch, and(sometime) Danish West Indies, the proportion of African cultural elements drops perceptibly, but in their folklore, in such matters as the combination of aboriginal African with their Christian religious practices, and in the curious turns of phrase to be noted in their tales, we realize that all of African culture has not by any means been lost to them. Next on our table we should place such isolated groups living in the United States as the Negroes of the Savan-

nahs of southern Georgia, or those of the Gullah islands off the Carolina coast, where African elements of culture are still more tenuous, and then the vast mass of Negroes of all degrees of racial mixture living in the South of the United States. Finally, we should come to a group where, to all intents and purposes, there is nothing of the African tradition left, and which consists of people of varying degrees of Negroid physical type, who only differ from their white neighbors in the fact that they have more pigmentation in their skins.

The importance of the mere fact that there is a racial type for which such a list can be made is enormous. To what extent are cultural elements which are constant in all this varied list to be discerned? What do the Africans do that the inhabitants of the Negro quarter of New York City also do? May we find perhaps, on close examination that there are some subtle elements left of what was ancestrally possessed? May not the remnant, if present, consist of some slight intonation, some quirk of pronunciation, some temperamental predisposition? And if we do find these, may we ascertain the extent to which they are increasingly present as we find Negroes removed from white influence? That such factors are to be discovered is quite possible, and this fact is something to be reckoned with in all studies of the Negro. And the important part of the matter is that the discovery of any constants will throw as much light on the behavior of the African as it will on that of the New World Negro. For in the final analysis, and in the nature of the case, the most illuminating method of studying the presence of cultures is by considering conditions in which culture has maintained itself under stress and strain. What is retained and what discarded will point our way to understanding what is found in Africa, as it may well make for a greater understanding of the processes of culture as a whole. Certainly if we find that whatever has been retained by the Negroes in all these varying cultural adventures is constant throughout all the groups, we shall at least have a lead as to what to look for when we attempt to unravel situations arising out of an unknown historical past. And this is the sort of problem that presents itself to the anthropologist as the rule and not as the exception.

Data of this kind should also point toward an understanding of the nature of the interrelation of physical form and culture, as merely a cursory consideration of the Negro in his cultural wanderings is conducive to thought on the matter. That the problem is a very practical one is patent to one reading the literature of the Negro in the United States. Almost everything that he does has been attributed to innate qualities. Yet if in our survey of all these cultures we find some elements always the same,

while others vary with differences in historical background and cultural contacts, the problem will be restricted by that much, and we can then go on from that point in our attempt to determine whether these results have been determined biologically or culturally. Has the Negro, for example, a definite temperament? Is he always happy? What is it that makes him like to sing and to dance? Is he, by and large, to be regarded as extraverted wherever found? A Negro economist who is making a study of Negro business activities in the United States finds himself puzzled by just this sort of problem. "Why is it," he asked me, "that Negroes living in a civilization essentially pecuniary turn to poetry, music, and painting rather than to business as soon as they have acquired a social surplus?" And that this question is not an idle one is apparent to those who are conversant with the development of the so-called "New Negro" movement in the United States, which has attracted so many of the younger Negroes.

There is the matter of folklore. How stable is the folklore of the Negro? We know that Negro tales are affected by the cultural contacts of their tellers; that the Dutch Negroes have Dutch elements in their stories, the French ones French elements. But aside from this, what common elements, African and not European, are to be discerned in all of them? Are the "voodoo" of the southern United States, the dances of Haiti, the winti of Dutch Guiana all manifestations of the biological make-up of the Negro which is to be seen in the pure form in the dances and other religious rites of the Africans and in attenuated form in the hysteria shown in the "revivals" of the Christian Negro churches from time to time in the United States? Or are these latter cultural carry-overs? Why does the Negro in Dutch Guiana use "tjari kɔ' " for the expression "to bring," and why do we find exactly the same expression in the folktales of the comparatively Europeanized Negroes of Jamaica? Why has the Twi day-name Kofi (Cuffee) persisted in the United States in spite of the rigorous manner in which the African elements of culture have been weeded out?

What of Negro music? It has been claimed by Professor von Hornbostel that the spirituals of the United States are essentially European folksongs created by the innate musical genius of the African, and that only the motor behavior which biologically determines the manner in which they are sung is African. But would this type of motor behavior persist in crossing? For the appearance of the mixed Negroes and the pure ones when singing these songs is quite the same. Or shall we find that there are gradations of intensity of African stylization in the music of these peoples to correspond with the degree of intensity of African elements in the general culture? In all these problems, the question comes up: What is innate and what cul-

tural? Investigation into the manner in which the Negro has accommodated himself to all the different cultural backgrounds into which he was brought as a slave should constitute a significant step toward an understanding of the interrelation of the processes of culture and physical form.

So much for the problem and opportunities for gathering data contributing to its solution. That the Negro in the New World offers a wide and profitable field for study, which should result in findings of the utmost importance for Africanists, Americanists, and those who are interested in the larger aspects of human existence, should be apparent. We must consider the kind of information needed for an understanding and solution of the problem presented by the Negro.

IV

In the consideration of physical form, the problem must be first attacked in Africa itself. Until we know more of the essential nature of the people and cultures of the region from which the New World Negro was brought, studies made on this side of the Atlantic can have little general significance. What distinct tribal differences are found in West Africa and the Congo? What is the variation of pigmentation in the native African? What is the range of nostril width? Of lip thickness? What are the differences to be found in facial form, in bodily proportions, in functional processes? The measurements of families, especially adults of both sexes and of children of both sexes and all ages, are badly needed. How does the African child grow? In what manner are African physical characteristics inherited? All of these points need elucidation, for we have had too much measuring of cephalic index on a miscellaneous group of Africans, and not enough systematic study of other traits in related descent lines. In the case of the American Negro, having the necessary comparative data, we may do two things. In the first place, we may point with greater certainty to the African provenience of certain isolated New World groups. And for studies of racial crossing and its effects, we can have the greater certainty as to the nature of the basic stocks from which this African portion of the ancestry of the mixed American Negroes came, which we have for the other, the European portion.

Another aspect of the attack on the problem is the cultural one. Any serious contribution to this phase must also be based on far greater knowledge of African cultural processes than we possess at present. This is especially true of linguistic material. Thus, we know almost nothing about the significance of tone in the vast majority of West African and Congo languages. We know almost as little about their basic phonetic elements, thus it is here that we may find the most subtle survivals. Both in Haiti and in

Suriname we find that the double closure (gb) is employed in certain terms, while it is reasonable to suppose, on the basis of present knowledge, that the tendency toward tonal inflection which characterizes many languages of West Africa is one of the most tenacious elements in the New World Negro's culture. That there is tone, no longer significant but none the less present, few who have heard the American Negro talk under stress can doubt. Much more definite information as to its rôle both in Africa and here is essential before we can draw conclusions of any validity. Furthermore, such a matter as the use of the falsetto to express surprise, so characteristic to the Negroes of the New World wherever they are found, is one concerning which no Africanist has enlightened us; perhaps because it has not been realized that it was a point of importance. But if we can establish such unconscious behavior patterns as present among Negroes wherever they may be found, will it not be of significance when fitted in with other data?

Religion, folklore, social organization will all repay the most careful study. And not only the reports of these cultural manifestations themselves, but the consideration of the attitudes of the people are needed. Why did the Negro acquiesce in slavery itself as complacently as he seems to have done? Was it something essential in his make-up, or was it because the only cultural fact that was familiar to him in the civilization of the Americas was that of slavery? What is the significance of the great family solidarity of the Negroes, something noted by all who have had contact with them? It is not strange that we find a form of social organization in Suriname, that is almost typical of West Africa, but why in the United States is there such great objection among Negroes to allow their children to be cared for in institutions? Why is it that families, themselves almost on the poverty line, will take under their wing a homeless child rather than give him to strangers? What is the relation of the phenomena of religious hysteria so familiar to students of the Negro in the United States, Haiti, the Guianas and the West Indies to similar African phenomena? And to what extent is the folklore of the Western Negroes today, to what extent has it been deflected by the culture of the whites? Until we know more of African folk-material we cannot adequately answer these questions.

On the other hand, this is not to say that were African physical types and cultures much better known than they are, sufficient information would be available regarding the Negroes of this side of the Atlantic to make important progress with the problem. The first line of attack is one essentially historical, and a matter for the trained archivist. Where did the slaves brought to the New World come from? It is not enough to know that they represent tribes from Sierra Leone to San Paõ de Loando. It

would be strange were no tribal names found tucked away in the records of the slavers; if a careful investigation into the problem of the places where shipment was made from Africa did not at least reveal the towns on which slave caravans converged from the interior. In the records of the ports of the southern United States and the West Indies, of Suriname and Brazil; in the archives of Lisbon and Rotterdam and Gothenburg and Gloucester and Liverpool and other shipping centers of the 17th and 18th centuries, it is fairly certain that careful search will reward us with a flood of light as to the exact provenience of the Negroes. We know that "Coromantynes" were brought to the New World, but who were these people? Ashanti, perhaps, but we cannot be sure. And although the names of some tribes are known to us, this, again, is not enough, and even the scattered references to these have not been collected and made available to us.

Data on the physical anthropology of the Negroes of the western hemisphere is also sadly lacking. Up to five years ago, nothing had been done to study the Negroes of the United States, and today relatively little is known of their physical form. Of the West Indians we know less, while of the Negroes of central America and northern South America we know practically nothing. And the culture and physical form of Brazilian Negroes are *terra incognita*. Studies of pure-blood and mized Negroes in all these regions are badly wanted, and, although progress has been made in the United States, almost all the questions which were posed for the Africanist working in physical anthropology might also be posed for the student of the Negro in the New World. Work in this hemisphere takes on added importance, since measurements on some of the islands of the West Indies, and in Brazil, where there has not been the insistence on the color-line which has characterized other islands and the United States, should reveal the influence which prejudice, a cultural fact, has had in forming the physical types to be found.

In the realm of culture, only in folklore has work been carried on to an extent to be of use to us, and even here there are far more data to be collected. What of the lore of the Negroes in the Spanish-speaking countries of Central America? We know nothing of it, and practically the same is to be said of Brazil and many of the West Indian islands. In linguistics, studies of variations of dialect in the European languages spoken by the New World Negroes are practically non-existent, nor has any notice been taken of the manner in which the tonal survival to be noticed is employed. Yet the scientific importance of such studies, especially if carried on by one familiar with African linguistics, should be of the first order. No systematic study of

the religious practices of the Negroes of the United States from the point of view of the ethnologist has been carried on to my knowledge. Yet survivals of African religious practices offer a fertile field for study. We have many collections of Negro spirituals, but the extent to which they are similar or different from the songs of the Africans and the West Indians and South American Negroes is unknown. Indeed, the point becomes striking when it is realized that a book review by Professor von Hornbostel, perhaps the only man conversant both with African music and the spirituals, threw more light on the problem of the rise of American Negro music and on the cultural processes involved, than any of the lengthier works dealing with the music of the Negroes where his comparative knowledge was lacking. Certainly it is in folklore, religion, and music that much of the attack must be centered. For it is principally here, certainly as far as the Negroes of the United states and most of the West Indies are concerned, that possible African cultural survivals are to be salvaged.

The problem is not a small one. But that it is of great significance for the study of man's physical form and culture, and particularly for an understanding of the Negro both in Africa and America, cannot be doubted. And if we realize that it deserves far more attention than it has received, and that it must be perceived and approached by many workers on a vast scale, we shall have made the first step toward its solution.

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SOME NEGLECTED DATA BEARING ON CHEYENNE, CHIPPEWA, AND DAKOTA HISTORY

By JOHN R. SWANTON

WHILE I do not wish to minimize the historical value of tradition when it is carefully handled, we have frequent illustrations of the extent to which uncritical reliance on it may lead astray. A case in point is the circumstances surrounding the destruction of the old Cheyenne town on Sheyenne river, North Dakota, and the time when it took place. Mooney, relying on traditions reported by Williamson, supposed that the attackers were Dakota and so expressed himself both in his paper on The Cheyenne Indians in the *Memoirs of the American Anthropological Association* (Vol. I, Pt. 6) and the article on that tribe in the *Handbook of American Indians* (Bull. 30, Bur. Am. Ethn.). Will, in an article on The Cheyenne Indians in North Dakota (*Proceedings of the Mississippi Valley Historical Association*, 7; 67–78), rejects this view in favor of a Cheyenne tradition in which the hostile party is represented as Assiniboin, and Grinnell in his elaborate work on *The Cheyenne Indians, their History and Way of Life*, (New Haven, 1923), follows him as to his general conclusion. Speaking of the retirement of the Cheyenne southward, he says:

> I believe that the Cheyenne tradition of their being driven south refers to early attacks on them by the Assiniboines, perhaps in company at first with the Crees and later with the Ojibwa. That there may have been occasional individual quarrels between Cheyennes and Sioux and between Cheyennes and Mandans is possible and even likely, but I believe nothing in the nature of a general war (p. 23).

These writers discuss the whole matter at considerable length evidently wholly ignorant of the fact that there is a circumstantial account of the capture of this fort by the chief who led the attack and a French Canadian employee of the North West Company who seems to have been directly cognizant of the whole affair. In brief, the Cheyenne town was not destroyed by the Dakota, nor yet by the Assiniboin or Cree, but by a body of Chippewa Indians led by Sheshepaskut, head chief of those bands of Chippewa which were forcing their way southwest at the end of the eighteenth century. The French Canadian was Jean Baptiste Cadotte the younger, who, in 1799, was in charge of a post of the North West Company on the banks of Red Lake River, where the Clearwater joins it, a site now occupied by the town of Red Lake Falls, Minnesota. The account itself is in David

Thompson's *Narrative of his Explorations in Western America, 1784–1812*, of which a splendidly edited and executed edition was published by the Champlain Society in 1916. As this is readily available, there should be no further excuse for ignorance on this particular point and the work in general is one that no student of the Northern Plains and Upper Missouri Valley tribes can afford to neglect. Thompson was an employee of the Hudson's Bay and North West companies between the years 1784 and 1807, and a partner in the latter from 1807 to 1812.

On March 25, 1799, this adventurer arrived at Cadotte's post. On the 27th he set out again along Red Lake river and at two in the afternoon of that same day

> came to seven Tents of Chippeways and to Sheshepaskut (Sugar) the principal Chief of the Chippeway Tribe; he appeared to be about sixty years of age, and yet had the activity and animated countenance of forty. His height was five feet, ten inches. His features round and regular, and his kind behaviour to all around him, and to strangers, concealed the stern, persevering Warrior, under whose conduct the incursions of the Sioux Indians were repressed, and the Village Indians driven to the Missisourie (p. 253).

Thompson started on again next day but continuous thaws forced him to return to Cadotte's house to wait for the river to clear of ice so that he could proceed by canoe, and he was there from March 31 to April 9. One day, during this enforced period of idleness, he says:[1]

> The Chief, Sheshepaskut, with a few men arrived, with a few Beaver Skins and Provisions; I enquired of him, the cause of his making war on the Chyenne Indians and destroying their Village, and the following is the substance of our conversation. Our people and the Chyenne's for several years had been doubtful friends; but as they had Corn and other Vegetables, which we had not and of which we were fond, and traded with them, we passed over and forgot, many things we did not like; until lately; when we missed our Men who went hunting, we always said, they have fallen by the hands of our enemies the Sieux Indians. But of late years we became persuaded the Chyennes were the people, as some missing went to hunt where the Sieux never came; We were at a loss what to do; when some of our people went to trade Corn, and while there, saw a Chyenne Hunter bring in a fresh Scalp, which they knew, they said nothing, but came directly to me. A Council was called, at which all the Men who had never returned from hunting were spoken of by their relations; and it was determined the Chyenne Village must be destroyed: As the Geese were now leaving us, and Winter [was] at hand, we defered to make war on them until the next Summer; and in the meantime we sent word to all the men of our tribe to be ready and meet us here when the berries are in flower. Thus the

[1] Thompson's own orthography and punctuation are preserved.

winter passed; and at the time appointed we counted about one hundred and fifty men. We required two hundred, but some of the best hunters could not come, as they had to hunt and fish for the families of the warriors that came. We made our War Tent, and our Medicine Men slept in it; their Dreams forbid us to attack them until the Bulls were fat; the Chyenne's would then leave their Village weak to hunt and make provisions. To which we agreed.

The time soon came, and we marched from one piece of Woods to another, mostly in the night until we came to the last great Grove that was near to the Village. Our Scouts were six young men. Two of them went to a small Grove near the Village, and climbing up the tallest oaks, saw all that passed in the Village and were relieved every morning and evening by other two.

We thus passed six days, our provisions were nearly done, and we did not dare to hunt. Some of our men dreamed we were discovered and left us. On the seventh morning, as we were in council, one of the young men who were on the watch came to us, and gave us notice that the Chyennes had collected their Horses and brought them to the Village. We immediately got ourselves ready and waited for the other young man who was on the Watch; it was near mid day when he came and informed us that a great many men and women had gone off hunting, and very few remained in the Village. We now marched leisurely to the small Grove of Oaks to give the hunting party time to proceed so far as to be beyond the sound of our Guns. At this Grove we ought to have remained all night and attack the next morning; but our Provisions were done, and if they found the Bisons near; part of them might return; From the Grove to the Village was about a mile of open plain; as we ran over, we were perceived, there were several Horses in the Village on which the young people got, and rode off.

We entered the Village and put everyone to death, except three Women; after taking every thing we wanted, we quickly set fire to the Village and with all haste retreated for those that fled at our attack would soon bring back the whole party, and we did not wish to encounter Cavalry in the Plains.

Here the old Chief lighted his pipe, and smoked in a thoughtful manner. Mr. Cadotte then took up the narrative. Those left in charge of the village were twelve Men of a certain age, and as there was not time to scalp them in the manner they wished, their heads were cut off, put into bags; with which, and the prisoners, they marched through the Woods to the camp near the Rainy River. Here they recounted their exploits, and prepared for a grand war dance the next day: which accordingly took place. One of the three Women prisoners was a fine steady looking woman with an infant in her arms of eight months, which they in vain tried to take from her. Each time she folded it in her arms with desperate energy, and they allowed her to keep it.

The war circle being made by the Men, their Wives and Children standing behind them, the three prisoners were placed within the war circle; the heads taken were rolled out of the bags on the ground: and preparatory to their being scalped, the whole circle of Men, Women, and Children with tambours rattles and flutes, shouted the War whoop, and danced to the song of Victory. The prisoner Woman

with her infant in her arms did not dance, but gently moved away to where the head of her husband was lying, and catching it up, kissed it and placed it to the lips of her infant; it was taken from her and thrown on the ground; a second time she seized it, and did the same; it was again taken from her, and thrown on the ground; a third time she pressed the head of her husband to her heart, to the lips of herself and child; it was taken from her with menace of death: holding up her infant to heaven, she drew a sharp pointed Knife from her bosom, plunged it into her heart; and fell dead on the head of her husband. They buried her, and her infant was taken to, and brought up at, the Rainy River House.

The old Chief still smoking his pipe, said the Great Spirit had made her a Woman, but had given her the heart of a Man. (pp. 261–3)

The last section may be recommended to the consideration of those readers who still suppose romantic attachment between individuals of opposite sexes among primitive people was unknown.

Unfortunately the above material does not enable us to date the principal event exactly but this can probably be done if the date of occupancy of Rainy River House is determined. It hardly seems possible to place it much before 1790, and this throws out most previous estimates. It is probable, however, that other bodies of Cheyenne had advanced already as far as the Missouri.

Just beyond the sections quoted is very important information bearing on the relations between the Chippewa and Dakota during the westward migration of the two and here we gain some insight into the technique of Woodlands and Plains fighting.

Our discourse then turned on the Sixty Seven souls, Men, Women and Children that two springs ago [i.e., in 1797] were destroyed by the Sieux Indians at the Sand Lake of the Mississippe [the present Sandy Lake in Aitkin County] where they were making Sugar; the Chief replied that he did not know what to say to it; it was a bad affair and they longed to revenge it: but they in a manner brought it on themselves. For several years there had been no regular war between us, they had left the Woods, made very little use of Canoes, and having many Horses were living in the Plains and had we waited, would have left the whole of the Woods to us. The Sand Lake was finely wooded with large Maples, which had never been tapped; this tempted our people, they went and made a great deal of Sugar; this did for once, and the Sieux took no notice of it; but when they returned the next spring, this was making that Lake their own, the Sieux did not care for it, but would not allow it to be taken from them. They formed a war party and so completely surprised our people that not one escaped, and the enmity that was dying away between us is now as bad as ever. While they keep the Plains with their Horses we are not a match for them; for we being foot men, they could get to windward of us, and set fire to the grass; When we marched for the Woods, they would be there before us, dis-

mount, and under cover fire on us. Until we have Horses like them, we must keep to the Woods, and leave the plains to them. (pp. 263–264)

It would seem from this that the Dakota did not make as much use of maple sugar as the Chippewa. It also proves that the westward movement of the former tribe was the result of attractive as well as repulsive forces, the acquirement of horses and fascination of bison hunting no less than the pressure of the Chippewa and their fuller equipment with firearms. With all that, as late as 1797 we find them still claiming a territory as far east as Sandy Lake and punishing intruders upon it. On May 6, 1799, Thompson himself reached Sandy Lake (called by him "Sand Lake") and found it held by the Chippewa, but

the Men were hunting on what is called the War Grounds, that is, the debatable lands between them and the Sieux Indians,

and these do not seem to have been far off, for it may be assumed, from what the Chippewa chief had said, that his people would not be likely to venture out of the woodlands.

It is unfortunate that Thompson does not say what division of Dakota claimed Sandy Lake, but I gain the impression that it was not a part of the Santee. From what Hennepin and others tell us it seems to the writer that the Dakota bands afterwards known as Yankton and Teton originally lived north, or slightly northwest of the others, that the Chippewa attacks came from north and northeast, and that while the Santee who were driven from Mille Lacs retired south upon the Mississippi, the Yankton, Teton, and their allies moved directly west. On one of Thompson's maps the southern head of Red river is called "Sieoux River," and it still bears the name Bois de Sioux. To this the Dakota in the region in question probably retired. It would seem doubtful whether their settlements extended as far as the Missouri much before the time of which we are speaking, which means that their westward extension has been very modern.[2]

Finally, it is evident that a careful historical study of the territory embraced in what is now central Minnesota would considerably illuminate our knowledge of the northern Plains tribes. It is evident that many of them took their departure into the Plains from this neighborhood.

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[2] Unless, indeed, the *Gens de l'Arc* encountered by Vérendrye in 1742 belonged to this tribe, but the fact has yet to be demonstrated.

BOOK REVIEWS

PRINCIPLES AND METHODS

Are We Civilized? Human Culture in Perspective. ROBERT H. LOWIE. New York; Harcourt, Brace and Co., 1929. 306 pp. ($3.00).

In this painfully progressive age when most anthropological questions are decided by the newspapers, when almost anyone who has dug up somewhere a skull or a few bones proclaims in the press a new "early man," when so many who stumble in the soil over a handful of pottery sherds proudly announce *urbi et orbi* the discovery of a new culture type, it is a veritable relief and pleasure to peruse a book such as Dr. Lowie has presented us. Not that there is a lack of popular books on anthropological subjects. There are a few serious ones, but, as in other sciences, we have also had our share of cabaret entertainers, vaudeville performers, rope dancers, and saxophone jazz players. Dr. Lowie's book differs advantageously from the present average wholesale manufacture of printed material designed for the uplifting of the masses. It is at once the production of mature scholarship coupled with wide reading and keen thinking, and more than that—it is the book of a man of culture and a philosopher who has seen and observed much of life and who has his own ideas about men, things, and events. Besides, he is an eminent teacher, and he is amply endowed with that faculty which makes the real scholar, but which is growing rarer and rarer among modern scholars—the faculty of thinking objectively, without bias, without newspaper and mob psychology.

After some introductory chapters on culture, geography and heredity, Dr. Lowie discusses food, food etiquette, fire and cooking, domestic animals and cultivated plants, housing, dress and fashion, crafts and industries, travel and transportation, sex and marriage, family, clan and state, prestige and etiquette, education, writing, art, religion, hygiene and medicine, science, and progress.

The veterans in the profession will naturally meet with many old acquaintances in these pages, and it is not so much novelty of facts or boldness of speculation that characterize the book. It is rather the ingenious way in which well sifted facts or the latest results of research are skillfully utilized, arrayed and combined to drive home a certain point or to open the reader's eyes. Dr. Lowie's main object is to demonstrate how slow the progress of civilization has been, how closely allied we still are with primitive man and that the difference between savagery and civilization is merely one of degrees, not of principle. As an introduction into modern anthropological thought, as a guide into the workshop of a clear-minded and honest thinker, this book is excellent and is bound to fulfill a mission. I hope that it will find many readers both among students and laymen, and that they will enjoy the book as much as I did. It will doubtless act as a catharsis of the mind, purge many a soul, dispel doubts and prejudices, lead to a juster appreciation and evaluation of

cultural achievements, and stimulate many to independent thinking. This book is entertaining on every page; it is written in a pleasant, vivid and poignant style often blended with a dose of wit or sound sarcasm. Dr. Lowie is never dull or pedantic, and his diction is felicitously free from the current anthropological jargon as "phenomena, material culture, diffusion, divergence," etc. Another refreshing feature of the book is that its author is not merely an American anthropologist in the commonly accepted narrow sense, i.e., one whose horizon is limited by the Indians and Eskimos of North America; he is equally familiar with Africa and the South Sea islands, he is even at home in China and Siberia, and displays an unusual insight into the mental development of European society. In other words, the subject is treated from a universal culture-historical standpoint, and this is exactly what makes the book alive, attractive, and colorful.

It contains a goodly number of clever aperçus or pointed paragraphs which are worth memorizing. Here is one of them:

> Men get intoxicated with their theories and are willing to die for them. It is a pity, though, that they want others, too, to die for them.

I must confess that I am in a state of mind where I would no longer give a dime to any one for a new theory, but I am always enthusiastic about new facts, data, and thoughts.

A pleasing point in the make-up of the volume is the absence of the tiresome and meaningless halftones by which the majority of popular works are disfigured and needlessly increased in price. The thirty-eight pen and ink drawings scattered over the pages of this volume are well chosen, to the point, and instructive.

As this book will surely run through several editions, I submit a few remarks bearing on details for the author's consideration in the next edition.

Dr. Lowie (pp. 247, 260) subscribes to the idea that we got quinine from the American Indians. This seems to be a favorite dogma of American anthropologists. In Wissler's *The American Indian* (p. 20) the genus Cinchona even parades among "plants cultivated by the natives of the New World before 1492." No species of Cinchona, of course, has ever been cultivated in America, and the notion that the Indians had any knowledge of the medicinal properties of the bark hangs on very slender threads. The celebrated Sir George King opens his *Manual on Cinchona Cultivation* as follows:

> Of the date and manner of the first discovery of the curative effects of cinchona bark in malarious fevers we know nothing. And we are almost equally ignorant of who the discoverers were, some writers claiming that merit for the aborigines of South America, while others assert, and with apparently greater accuracy, that not only did the Indians know nothing of the virtues of the bark, until these were pointed out by their conquerors, the Spaniards, but that they still refuse to use the bark as a febrifuge.

C. R. Markham, in his excellent book *Peruvian Bark* (London, 1880), likewise points out that the aborigines of South America appear, except perhaps in one locality, to have been ignorant of the virtues of Peruvian bark. This locality is in the neighborhood of Loxa, 230 miles south of Quito, where the use of the bark is alleged

to have first been made known to Europeans by the Indians of Malacotas. This statement, however, emanates solely from the French botanist Joseph de Jussieu who examined the cinchona trees of Loxa in 1739. There is no other evidence for aboriginal use of the bark. None of the early Spanish chroniclers of Peru refers to it. The indifference to and in many cases even prejudice against the use of Peruvian bark among the Indians, according to Markham, is very remarkable. Poeppig, in 1830, observed that in the province of Huanuco, Peru, the people, who are much subject to tertian agues, have a strong repugnance to its use. Humboldt also noticed this aversion to using the bark among the natives; and Dr. Spruce made the same observation with respect to the people of Ecuador and Colombia, explaining that they refer all diseases to the influence of either heat or cold and suppose all fevers to proceed from heat. They justly believe bark to be very heating, and hence their prejudice against its use in fevers which they treat with cooling drinks. For these reasons it is most improbable that the discovery of the febrifuge properties of the bark is due to Indians.

The home of the pineapple is in Brazil, not in the Antilles, as stated on p. 62 (see *Science Monthly*, 248, 1929).

In the chapter "Food Etiquette" reference should be made to the invention and use of chopsticks by the Chinese and the other nations who came under the spell of Chinese civilization, and good table-manners in consequence of their use (cf. my remarks in *Ivory in China*, p. 67). Even small inventions may have a large bearing on the development of manners and institutions.

The mariner's compass was assuredly invented by the Chinese, but the so-called south-pointing chariot must be discarded as a figment (p. 115).

Human traction still lingers on. In the Far East there are the rickshaw and the sedan chair (p. 117).

The statement itself is correct, but no one endowed with historical sense should name the riksha and the sedan chair in one and the same breath. The former is quite a recent invention made by an American or Japanese (the authorship is controversial) and has followed the European to all treaty ports of China and Japan; there is nothing "native" about it, and it is absurd to choose as a museum exhibit as is done e.g. in the Grassi Museum of Leipzig, a Japanese woman seated in a riksha. The sedan chair, on the contrary, is a very ancient institution all over the East.

It was the Hindus who developed our system of *numerals* and the Arabs who brought it into Europe during the middle ages (p. 267).

"Numerals" is the wrong word; what is meant here is, of course, the digits.

The suggestion that the Chinese may have received a vague impulse toward writing from Babylonia (p. 182) does not evoke an echo in my breast. An hypothesis is only permissible if it is able to explain satisfactorily at least some aspects of a problem; but if an hypothesis explains nothing at all, as it does in this case, it has no raison d'être and is superfluous. The combination of "woman" and "child"

in a Chinese character does not express the Chinese concept of happiness, as stated on p. 185. This character, read *kao* in the third tone, means "good, right, kind, dear;" read *kao* in the fourth tone, it means "to like, to love, to be pleased." The conclusion that "the history of writing is a grimly sardonic commentary on man's stupidity" may be partially correct; in its generalization it is somewhat unfair. In my estimation Chinese writing is one of the most ingenious systems ever conceived by the human mind.

The chapter on writing should contain at least a brief reference to paper, ink, and printing. We miss a chapter on barter and commerce, trade routes and navigation, currency and money.

It is correct that cast iron was unknown among the ancients and in medieval Europe (p. 90), but it is certainly older than the fifteenth century. The Chinese were masters in the casting of iron as early at least as the beginning of our era (Han period), and many fine specimens of this early art are on exhibition in Field Museum (for illustration and description of some of these see Laufer, *Beginnings of Porcelain*, plate II, and *Chinese Clay Figures*, plate XXI). The Chinese applied to iron the same casting methods with which they had previously treated bronze. What they learned from outsiders was a particular method of forging iron as practised by the people of Kucha, an Iranian nation in Turkestan (not from Turkish nomads to the north, as said on p. 89). It is a very remarkable fact that the Chinese have always been, and still are, experts at casting iron (their cast-iron temple-bells, for instance, are technical masterpieces with which other nations have nothing to compare), but that their knives and swords of wrought iron are poor productions, certainly much poorer than any African and Malayan ones.

Perhaps the best and most interesting chapter of the book is the last, devoted to science, and with this outline I am fully in accord. I almost feel like saying that it is with regret that I plainly agree with the author's remarks on the attitude of scientists during the World War. He compares the attitude of scientists of 1918 with those in 1813 when men of learning had not yet been debauched by chauvinism. But there remains another point to be considered. From the sixteenth to the eighteenth century European scholars all conversed and wrote in one common language—Latin, and they formed a small exclusive minority, a veritable aristocracy of the intellect. In our days science is something different, it has settled down to a business, and maintains and commands workers by the thousands. Science is now democratized, organized, standardized, militarized, commercialized. The old noble, unselfish, aristocratic spirit is gone forever. There are a few leaders followed by immense armies, and in addition to the regulars there is also a learned mob and the great mud-slinging scientific(?) proletariat bursting with jealousies, so characteristic of Germany, but perhaps no less of other lands too. Dr. Lowie summarizes the history of science as follows:

> In the accumulation of knowledge there has been great progress. In the psychology of the scientific observer there has been no fundamental change since the Reindeer Age. In point of scientific ethics the last hundred years mark a period of retrogression.

Unfortunately, this latter observation is only too true.

The main question raised by this stimulating book, Are we civilized? may be plainly answered, "We have evolved with much pain some sort of a civilization, but we are still far from being civilized and humanized." Leaving aside our undeniably vast progress in technical matters and comfort of living in consequence of it, our civilization is less characterized by what we do than by what we do not. We no longer offer human sacrifices or burn witches at the stake or demand from a widow that she follow voluntarily her husband into the grave; but we have more civilized substitutes: we cheerfully sacrifice thousands of lives every year to the Moloch of speed and kill as many in railroad and factory accidents, we still have the revenge of the law, capital punishment (not to speak of lynchings) and a cruel prison system. I hope that in the next edition of his book Dr. Lowie will ventilate the question, Why are prisons? Why are prisons a creation of European-American civilization? Why could primitive man and the civilized Oriental nations get along without them?

Another chapter that might profitably be added to this book should deal with primitive survivals and fake cults in our own midst. The *Chicago Tribune*, after a careful inquiry into the subject, once computed that fortune-tellers, clairvoyants and such like folks in the city of Chicago reap more than half a million dollars annually, not, as one might rashly suppose, from dupes, feeble-minded or lowbrows, but from society women alone. The advertisements in our Sunday papers furnish any amount of instructive data testifying to prevalent beliefs in magic, astrology, horoscopes, chiromancy, dreams, incarnations, cults, etc.

Finally I wish to add to the "Hints for further reading" an old book which I find few of our colleagues have read—*The Martyrdom of Man* by Winwood Reade, first published in England in 1872 and perpetuated through twenty-four editions. A new American edition was published by E. P. Dutton Company in 1926. This remarkable book may well be designated in a way as a forerunner or avatar of Lowie's.

BERTHOLD LAUFER

In the Beginning; the Origin of Civilization. G. ELLIOT SMITH. (New York: William Morrow & Co., 1928. 86 pp. $1.00.)

Gods and Men; the Attainment of Immortality. W. J. PERRY. (London: Gerald Howe, Ltd., 1927. 87 pp. 2s. 6d.)

These two little volumes appear in the series "The Beginning of Things," edited by Professor G. Elliot Smith and published, respectively, by Gerald Howe in England and William Morrow in the United States. Both booklets give a lucid presentation of the views of culture entertained by the leaders of the British Diffusionist school and therefore merit careful perusal. The strong points in the authors' position are clear. They are free from biological dogmatism: instead of interpreting social behavior exclusively in terms of heredity, they concede as much importance to the social environment as any sane student could wish (Elliot

Smith, 14, 19). They attempt to see culture as one connected whole and trace connections over the entire globe. They stress the part played by degeneration in human history, and they give due weight to the difficulty of technological invention.

In short, several of their cardinal principles, when stated in abstract form, are impeccable. Unfortunately they are entangled with others of doubtful quality; and they are applied without constant attention to ethnographic and chronological considerations, and indeed with disregard of their consistency with one another.

Perhaps the clearest illustration of all these weaknesses is provided by the conception our authors entertain of man in the days before farming. According to Professor Elliot Smith, this Natural Man lived "much in the same way as the apes do," without houses and clothes, "having neither arts nor crafts beyond the making of implements of the chase" (p. 31),—a statement, by the way, not readily reconciled with his "aptitude for pictorial art and craftsmanship" (p. 21).

> He has neither religion nor social organization, neither hereditary chiefs nor any formal laws or ceremonies, either of marriage or for the disposal of the dead (p. 22).

This is supposed to have been the condition of all mankind until about 4,000 B. C. and to be still the condition of such mere food-gatherers as the Pygmies, the Vedda, the Eskimo, the Lapps, the Dene, the Salish, the Nevada Indians, and the Tierra del Fuegians, all of whom are credited with a "surprising uniformity" of custom. This assertion is, of course, untenable. The reindeer-breeding and butter-churning Lapps are not food-gatherers at all; and the well-clad seal-hunting Eskimo differ considerably from the shivering Fuegians or the root-digging Shoshoneans of the Basin. Going back to first principles, material inventions *are* difficult, but they are not impossible, as all adjustments to purely local conditions prove. The Arctic peoples of Eurasia and America certainly were not going about naked before the blessings of Egyptian civilization reached them, and at what period of Egyptian history were skis and snow-goggles in vogue?

According to both our authors, the American natives began to obtain their cultural capital about 2,000 years ago (Elliot Smith, 83), though the pyramids of Middle America were not erected until about six centuries later, so that the vitalizing impulses from there northwards presumably date back only to about 600 A.D. Indeed, we are told (Perry, 19) that

> The tribes of the United States cannot have practiced agriculture for many centuries.

Naturally, we wonder how long that is supposed to be. Two things, at least, would have to be accounted for,—the specialization of farming techniques and the different varieties of maize. Can we suppose that the Hopi learnt to dry-farm overnight or that the Hidatsa, hitherto almost apelike, suddenly evolved a method of getting crops in North Dakota? Again, how are we to explain the domestication of the llama and the alpaca? It takes time to get animals to breed freely in captivity, and who taught the Peruvians? What would have suggested the idea of breeding guanacos to the Polynesians, who at best had only the chicken and the pig?

The whole conception of diffusion as proceeding from one single source is fallacious; and the assumption (Perry, 18) that because North American aborigines owe maize to Middle America they also owe everything else to the same source is not valid. Europeans also owe maize to Mexico, but they derived neither ironwork nor steamships nor Christianity from that source. Mr. Perry concedes in a recent article that the cart wheel is earlier in Babylonia than in Egypt and was diffused to the Nile from there. The Chinese borrowed navigation from the Malays, felting and cavalry tactics from nomadic neighbors, glass from the West; and they have given us rag-paper, tea, and porcelain. Where, in the historically known cases, is there not rather an interchange than an irreversible stream of cultural goods?

If this holds for the material arts, it holds with tenfold force for much of non-material culture. In the former, a technically advanced people enjoys undoubted advantages. But for evolving the game of cat's cradle, the mother-in-law taboo, teknonymy, a dual number, or marriage by exchange of sisters, the Eskimo and the Semang are as well prepared as the Egyptians of 2,800 B.C., the Greeks of Pericles' period, or the most sophisticated European of today. The British diffusionists flatly deny this as regards beliefs in the supernatural. According to them, the concept of the soul could not have been originated by Natural Man, nor could that of divinity. Both first developed in Egypt about 3,000 B.C. and thence travelled to the hitherto non-religious heathen. For reasons I do not understand, the idea that dreams or visions might have suggested the notion of spiritual existence is flouted. That notion only evolved, we learn, when a king was mummified in order to be revived as

> the supreme life-giver of the State. The instinctive craving for life impelled men to devise measures for overcoming the disabilities of death (Perry, 87).

This view, according to which Negroes, Australians, and American Indians were wholly without beliefs in the supernatural from two to four thousand years ago again raises difficulties, especially when coupled with the view essential to the scheme that the subsequent religious career of all tribes is one of progressive bowdlerization. What conceivable interpretation can be given to Paleolithic burials apart from some notion of survival? And how does this doctrine fit in with its fellow-tenet that

> from the earliest times the members of our species (*Homo sapiens*) have regarded certain shells as elixirs of life and sought for them far and wide as amulets credited with tremendous magical powers (Elliot Smith, 50)?

Surely such powers represent a notion of the supernatural, and if Paleolithic man was capable of it, why not the Australian or the American Indian of, say, 500 A.D.?

Further, neither aboriginal ritual nor aboriginal belief can be interpreted solely or even largely in terms of degeneration. If Egyptian religion was the wholly impersonal procedure of mummification Perry (p. 71) describes; if Mexican ritual was nothing but a bowdlerized form of this prototype; then where, when, and how did that intensely personal religion of the Eastern and Plains Indian originate? Mr. Perry does not allow "many centuries" for the development. But how explain

a growth of such intensity and with so many minor variations in that way? And even if it conceivably developed within the space of, say, five hundred years, it would still not be a *decadent* ritualism but a growth of a wholly novel order.

These comments are not offered in a spirit of captious criticism. They are attempts to apply Messrs. Elliot Smith's and Perry's scheme in the concrete manner which an adequate historical reconstruction demands. They may be able to overcome some of the difficulties indicated; they can hardly ignore them. Even in their present form it cannot be denied that they stimulate an open-minded reader to re-examine the foundations of his convictions,—and that is always a good thing.

ROBERT H. LOWIE

Some Elements of Sexual Behavior in Primates and their Possible Influence on the Beginnings of Human Social Development. GERRIT S. MILLER, JR. (Journal of Mammalogy, 9: 273–293, 1928.)

In this paper Mr. Miller gives a valuable summary of eleven papers on the subject indicated in the title and takes to task Professors W. I. Thomas and B. Malinowski, as well as Mr. Brieffault and the reviewer, for ignoring the facts revealed. Since, however, not a single one of the articles abstracted was published at the time of Dr. Thomas' *Source Book*, and only three of them were available when the reviewer's *Primitive Society* appeared, two of the writers criticized seem to merit a fair measure of exoneration.

As for the upshot of the zoological observations, Mr. Miller points out that speculative anthropology is at fault in ascribing to *primates* patterns of sex behavior belonging to domestic ungulates and carnivores. Specifically, monkeys generally lack a period of heat or rut.

> Both sexes are ready for sexual activity at all times; and any reluctance on the part of a female arises either from fear or dislike as regards some particular male or from physical indisposition (p. 284).

The only differences Mr. Miller recognizes between human and anthropoid sex behavior are "a socially effective sentiment of love, and the physical and psychological possibility of rape" in man.

Mr. Miller is right in insisting that the biological facts concerning primate sex behavior must be considered by anthropologists who deal with ultimate origins of human family life. He seems, however, to overlook two facts. First, by no means do all anthropologists emulate Dr. Malinowski's bold attempt to go back to the prehuman beginnings. All of them know that what we consider as license is a widespread, perhaps universal phenomenon. Nevertheless, it holds true that *on the human level* the individual family is never abrogated by such usages. I, for one, am dealing with Andamanese, Australians, Chukchi, not with *Homo alalus* or *Pithecanthropus*. Secondly, while gratefully recognizing the interest of the facts emerging from Mr. Miller's summary, I do *not* find on closer reading that biology yields unequivocal findings. One author (p. 287 f.) describes the gorilla as monogamous, another as fiercely polygamous, one is doubtful as to the chimpanzee, another

calls it "usually monogamous." If there is neither uniformity among all primates nor agreement as to the behavior of the same species, zoology is not yet in a position to provide a solid foundation for anthropological reconstruction of the nascent stages of family life.

Notwithstanding these reservations, Mr. Miller's article is eminently worth reading, and ought to give students of social organization a stimulus to keep abreast of relevant zoological observations.

ROBERT H. LOWIE

Ein Versuch zur Rettung des Evolutionismus. P. W. SCHMIDT. (Internationales Archiv für Ethnographie, 29: 99–126, 1928.)

This is a rejoinder to a Dutch work (see AMERICAN ANTHROPOLOGIST, 31: 507, 1929) by Dr. Fahrenfort, in which Father Schmidt's views on primitive monotheism are assailed as dominated by a priori dogmatism. Needless to say, Father Schmidt is amply able to take care of himself. He points out many misunderstandings on the part of his critic, as well as a rather surprising unfamiliarity with the relevant ethnographic literature.

Not being acquainted with Fahrenfort's book, the present writer is not in a position to enter into the details of the controversy, which include such points as the interpretation of the Melanesian Qat, the Australian Bundjil, and other mythological figures. On several more general questions it is possible, however, to be quite definite. Father Schmidt is certainly right in denying that a preconception in form of unilinear evolution is any more warranted scientifically than any other preconception. As to the special point at issue, I see no a priori difficulty in crediting even very primitive tribes with a belief in a high-god. The concrete evidence seems to me of widely varying cogency in different cases. Thus, it is far too meagre for my taste as to the Tasmanians but wholly satisfactory for some of the Californians. Further, I have a high regard for the scientific character of Fathers Gusinde and Koppers (see AMERICAN ANTHROPOLOGIST, 26: 414, 1924) and believe that their statements on the Fuegians merit the most serious attention. Errors of observation and interpretation are always possible, but they are by no means limited to this problem or to believers in primitive monotheism. So unimpeachably fair a scholar as Dr. Swanton once questioned Morgan's statement that the Crow had maternal clans, yet such is undoubtedly the fact. From a similar bias I formerly denied that the Assiniboine had a clan organization, but I am now inclined to believe that they had at least traces of it. If Fathers Gusinde and Koppers are more receptive than other investigators to the notion that the Yamana have a high-god belief, they have provided reasons for their conclusion, which can be checked by the concrete evidence presented, e.g. in the prayers addressed to Watauinewa. Certainly if they had exercised the Machiavellian cunning ascribed to them and their preceptor, they would have suppressed the phrase "murderer in the sky," which is hardly consistent with the reverence due to a Supreme Being.

Evidence may be adduced from another domain of culture. Father Schmidt has described the Pygmies as monogamous and emphasized the stability of matri-

mony in the tribes of this *Kulturkreis* (*Völker und Kulturen*, 79, 1924). Father Schebesta has by no means suppressed contradictory evidence: he states that polygamy is permitted, though rare; and that childless unions are markedly brittle (*Bei den Urwaldzwergen von Malaya*, 93f., 271, 1927).

I am thus unable to detect that Father Schmidt exerts a sinister influence on his disciples. The whole of this more or less recurrent controversy strikes me as curiously anachronistic. It is especially strange when ethnologists, with whom it is a matter of professional honor to enter sympathetically into the psychology of head-hunters, cannibals and fetichists, find it impossible to divest themselves of prejudice in dealing with their fellow-students.

ROBERT H. LOWIE

Reallexikon der Vorgeschichte. Herausgegeben von MAX EBERT. Zwölfter Band. (Berlin: Walter Gruyter & Co., 1928. 466 pp., 115 pls.)

Volume XII of Ebert's encyclopedia contains substantial articles on the linguistic grouping of the Semites (14–50, Johs. Pedersen), of the Scythians (236–251, Max Vasmer), and the Slavs (273–291, P. Diels). The archaeological problems connected with the Scythians are discussed by J. Kostrzewski and G. Wilke (230 236), Slavic prehistory by R. Beltz (251–273). Sicily and the "Sikuler" are treated by Corrado and Ippolito Cafici (123–159, 188–207). The article on Siberia (55 71) is divided up among Obermaier for the Paleolithic, Gero v. Merhart for the Neolithic, and Tallgren for the Bronze Age. Stonehenge is described by A. Mahr (442–450).

In a contribution on South Africa (463–466) Obermaier reviews the meagre evidence, but without having been able to utilize Burkitt's recent summary (see AMERICAN ANTHROPOLOGIST, 31: 156, 1929). His treatment of the Solutrean (301–304) conveniently familiarizes the reader with Obermaier's present position. Following Hillebrand, he finds the origin of the Solutrean in Hungary, where caves harbor archaic prototypes—frequently in quartzite—of the laurel-leaf blade, which are strongly reminiscent of degenerate fist-hatchets, so that Mousterian affinities are indicated. In one grotto these finds overlie a meagre Aurignacian layer, elsewhere they underlie well-finished, elongated blades tending towards increasing thinness and flatness. This relatively advanced Eastern Solutrean extended into Poland, Moravia, Austria, and South Germany, but never reached North Germany, and eastward seems to have penetrated the Ukraine. Introduced into France, the technique attained the acme of perfection in the classical Solutrean. Obermaier seems to favor an independent origin of laurel-leaf blades in Central Africa, Somaliland, India, and America.

Thurnwald again contributes copiously on primitive social organization and government. His articles on the "Sippe" (170 sq.), the sororate (310), slavery (209 sq.), "Soziale Entwicklung" (312–330) and the state (358–373) may be specially cited. "Sippe" and "Klan" are not synonymous for Thurnwald, though the fluidity of these social units is recognized. He defines the clan primarily as a *political*

unit of kinsmen, who may be descended from several ancestors, while the Sippe is a lineage of relatives descended from the same ancestor and linked together for *economic* labor (170, 172). In the paragraphs on the sororate an error should not be allowed to pass unnoticed. While the levirate and the sororate occur among sibless tribes, it hardly holds true that these institutions are *mainly* (*hauptsächlich*) confined to such peoples; they often go hand in hand with a full-fledged clan organization.

Needless to say, no anthropological reader of this volume will fail to be instructed and stimulated by its rich and varied contents.

ROBERT H. LOWIE

Der Gang der Kultur über die Erde. ALFRED HETTNER. (Leipzig: B. G. Teubner, 1928).

The first edition of Hettner's *Gang der Kultur über die Erde*, a slender pamphlet, was stimulating to me because of its sketch of the Europeanization of the earth. In the past several centuries the culture areas of the earth have been terrifically deformed, destroyed, and replaced by the expansion of Western economy over the face of the earth. Commonplace enough the idea is, but a comparative analysis in geographic terms is needed and Hettner's essay is suggestive in its treatment of colonies of settlement, of hybridization, of exploitation, and of political domination imposed upon surviving native culture. If there is going to be such a thing as political geography, Hettner has written a program of inquiry for the modern colonial system.

In the present, second edition, the essay becomes a book of 164 pages, a book that attempts to review the course of development of cultures, for the whole world and for all time, in terms of the environmental conditioning of these developments. Ratzel redivivus, one suspects in the initial statement, only to find that the notes on geographic adaptation are pretty modest and obvious. The ambitious title of the book notwithstanding, it is really not pretentious in tone. I can think of nothing with which to compare it more fittingly than with a series of extension lectures of the more sober sort. For that class of reader it will probably be of value; to the professional anthropologist, or geographer, or historian it has very little to offer.

It seems to me therefore inappropriate to cite errors. The author has no original data to offer, only an already familiar interpretation. A three-page summary of pre-Columbian culture in America, followed by six pages on the classical Mediterranean, and seven on European culture in the Middle Ages and modern time,—how can one deal with the world at such a rate without abstracting sketchily from intermediate summaries? If one gets hold of a book that is outdated, or poor, one's orientation becomes distorted; certainly one cannot have critical judgment in all these matters of the origin of man, of prehistory, of primitive societies, of historical cultures. It would appear that Hettner has read pretty widely and pretty well, though certainly not profoundly. Hettner has no Messianic compulsion so far as

I know, which would urge him to write such a book, and in that respect he contrasts favorably with a number of his geographic colleagues. It may have been written under the same incentive that produces the majority of our text books, and I incline to regard it in the same manner, as a superior potboiler. You begin with sufficient knowledge of regional geography; you next select historical facts, in particular those concerned with changes in economy and population and relate them "genetically" to the physical environment. Though I have seen this done for a good many years, the manner of this causal association is still obscure to me. Nor does Hettner enlighten the reader as to the nature of this conditioning; he simply uses reasonable restrictions on his imagination. Without new data, without any new technique of inquiry, without original working hypothesis, without emphasis on a geographic critique of the concept of area or of cultural succession, I really know no very good reason why a student should read this book, unless it be that he provides a sufficient place for the work of Eduard Hahn's studies and a good appreciation thereof. Incidentally Hettner was one of the first to see the importance of Hahn's work. This review ends on a minor theme, suggested perhaps by the author's quaint shift, in closing denunciation of the *Schuldlüge*.

C. O. SAUER

NORTH AMERICA

An-nik-a-del. The History of the Universe as told by the Mo-des-se Indians of California. Recorded and edited by C. HART MERRIAM. (Boston: The Stratford Co., 1928.)

Dr. Merriam knows how to present Indian tales beautifully well. He has the sense of the dramatic qualities in the unwritten literature of the Indians. There is something faintly weird, distant, primeval, in the charm of the Indian stories. Grotesqueness is a strong element; so also is naïveté, a special kind of naïveté which consists in stressing the irrelevant. The sense of doom is often present, but no sentimental tears are ever shed by the Indian over fate or tragedy. All these characteristics make it very difficult to reproduce Indian tales without leaving out their charm. The great majority of the tales published by ethnologists are very dull reading. This is not the case with the myths recorded by Dr. Merriam. It is easy to see that he knows, understands, and loves the California Indians. I have never met Dr. Merriam, but wherever I have worked in the field I have always heard the Indians speak of him with warm affection, a tribute they do not often give to ethnologists.

The work under review is a small book of some hundred and fifty pages, well printed in large type, and agreeable to read. Its subject-matter, as indicated in the subtitle, is the creation myth of the Mo-des-se. The Madesi[1] are one of the local

[1] I am sorry to have to confess that I do not particularly like Dr. Merriam's way of spelling Indian words. I thoroughly agree with his principle that a technical phonetic transcription should be avoided in works intended for the general public. But a closer approxi-

groups of what is known loosely as the Pit River Indians. These people's territory stretches along some hundred miles of the Pit river, from its sources in the high plateau of northeasternmost California nearly to the point where it joins the Sacramento river. The Madesi are situated at the lower end of the territory, and were in contact with the Yana and the Shasta. For the last fifty years they have also been in contact with the advancing Wintun. In other words, they are located in a strategic position from the point of view of the diffusion of culture. For the past few years I have been engaged in studying the extremely complex language of the Pit Rivers, and while doing so, I have accumulated a certain amount of ethnographic material, especially at the eastern end of the territory. I have come to think that there are a great many more points of difference between the cultures of the eastern and western portions than has been generally assumed by ethnologists. The present creation myth would seem to bear this out. Dr. Merriam himself points out that his tales differ considerably from those published either by Jeremiah Curtin or by Roland B. Dixon. I may add that they also differ considerably from those obtained by myself.

The classical personages of Pit River mythology are indeed all there: Silver Fox, Fisher, Eagle Girl, Weasel, Cocoon-Man, Spider-Woman, etc., not to mention the ubiquitous Coyote. Their characters are very much the same as in the eastern part of the territory. A good many even of the minor incidents are alike. But the general setting is totally different. Here I come to the most interesting feature of the collection presented by Dr. Merriam: it is a connected and organized whole from end to end. It is indeed, as the author says, a systematic account of the creation of the universe. That is precisely what I have always failed to obtain. I have heard several variants of "how the world was made" from the mouths of older Indians. The accounts differ considerably. Each old man claims his to be the true account. As one young Indian exclaimed to me once in despair: "I should myself like to know how the world was really made. But you can't find out. Every man tells it differently!" Not only are the accounts different, but most of them do not relate a true creation *ab orto*, only a re-creation *de novo;* i.e., the world has been destroyed (for one cause or another), and the story tells how and by whom it was rebuilt. Most of the Indians are aware that a primary world existed once before it was destroyed, but how this primary world came into existence appears to them an irrelevant question. Why should it not have been always? In Dr. Merriam's account, however, there is a very definite (and, incidentally, quite poetical) beginning. The origin is assigned ultimately to Tik'-a-do He-da'-che. I have never heard this person mentioned before, but I think I can understand what the words mean from his translation: "the World's Heart." I myself should have preferred to translate: "the World's Thinking,"[2] but the point is immaterial. The

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mation to it, such as the one used for example by Dr. Kroeber in his *Handbook of California Indians*, would, I think, serve even the general public better than Dr. Merriam's adherence to the vagaries of English spelling.

[2] té'qá'dé-û hày-dûtsl means literally "world-of think-ing."

conception is a grand one, and, let me add, one by no means too abstract for the Pit River type of mind. This Tik'-a-do He-da'-che, however, comes into action only a few times in the story. The bulk of the creation is referred to An-nik'-a-del, his grandson. Annikadel is back of everything. He superintends the whole creation. What he does not actually do himself he causes others to do by sending them the idea in a dream. Only on certain grave occasions does he return to his grandfather, World's Thinking, to get counsel and power. Annikadel lives in the air, always.

> His underparts were blue and white—the colour of the sky, so no one in looking up could see him. The most that anyone ever saw of him was a glint of light.

Annikadel recurs from one end of the book to the other. He has all the characteristics of a Transformer Hero. This Annikadel is an entirely new personage to me. I have never heard of him before, and I cannot think to what he corresponds in the Pit River mythology with which I am familiar. Dr. Merriam does not give any translation of his name. I have a suspicion (not more than a suspicion) that he is a phonetic corruption of Erikanner, the Transformer Hero of the Shasta.

An important part of the story concerns Moon-Man and Sun-Woman. The tale of how they are discovered beyond the limits of the world in the west, then transported back to far-away ice of the eastern end of the world, and finally shot up into the sky, is a beautiful one. It also is an entirely new one to me, as a Pit River myth. I have never seen any of my Indians show the least mythological interest in either sun or moon. On the other hand, some of the incidents of the story are familiar to me as forming part of the mythology of the north-central California tribes;[1] such are, for instance, Moon-Man's attempt to kill his son-in-law, or the occurrence in pairs of certain characters (the Mice Brothers, the Lightning Brothers, the Thunder Brothers, the Raven Brothers, etc). The work on Sun and Moon is performed at the risk of many dangers by Fisher and his younger brother Weasel. These are two well-known characters of Pit River mythology. Their exploits as recounted in this tale, however, are entirely different from what I have heard before. On the other hand, many incidents are identical with the Shasta story of Erikanner and Erihutiki recorded by Roland B. Dixon. Finally, the Dragon here called Kwillah is perhaps the famous Kilak of the Pomo. On the whole, I have a strong feeling that the present creation myth is a synthesis of the folklore of the Pit Rivers, of the Shasta, and of the north-central Californians.

It is evident that Dr. Merriam was very fortunate in discovering such a good informant as William Hulsey. Dr. Merriam speaks of him as a very remarkable man with a rare bent for speculation and philosophizing. I had already heard a good deal about Hulsey's knowledge from his friend, William Ralganal Benson, the Pomo chief whom so many of us have known. Benson's is another example of the speculating and philosophical type of mind among Indians. Men of this type are not satisfied with disparate chunks of information. They cannot help organizing their knowledge into a whole. Try as they may to preserve intact the traditional lore, they unconsciously inject into it the knowledge they have acquired from

[1] By Jaime de Angulo and L. Freeland, Miwok and Pomo Myths. Journ. Am. Folk-Lore, 232–252, 1928.

contact with other tribes, from contact also with the whites. It is possible that we have here an example of the product of one talented mind working under special circumstances of cultural diffusion on the raw material of primitive literature.

Be that as it may, we have to thank Dr. Merriam for having preserved, and presented in most readable form, a real work of primitive art. This little book can be recommended to any lay reader who wishes to acquire a real feeling for the unwritten literature of the California Indians.

JAIME DE ANGULO

AFRICA

Les Bas-Reliefs des Bâtiments royaux d'Abomey (Dahomey). EM. G. WATERLOT. (Université de Paris: Travaux et Memoires de l'Institut d'Ethnologie 1: vi, 1–10, 23 pls., 1926. 70 fr. outside of France.)

This small and interesting volume is the first of the series issued by the Institut d'Ethnologie of the University of Paris. It is of convenient size, well printed, and well bound.

This number is devoted to the reproduction and interpretation of thirty-six bas-reliefs which among others adorned the ancient palaces of the Dahomey kings. Models and photographs of the reliefs were obtained by M. Waterlot in 1911. Their meanings were explained to him by a son of Gbèhanzin, who reigned 1889–94, by a minister of the latter, and by an old palace guardian. The subject and author are introduced by Professor L. Lévy-Bruhl. The text is annotated by Messrs. Maurice Delafosse and Le Hérissé.

Following a brief account of the history and extent of the Dahomey kingdom, and a list of the Dahomey kings, the author describes the construction of the palaces. The "*grand palais d'Abomey*" consists of groups of dwellings, altars, and tombs, each group having been built by a reigning king next to that of his predecessor. In the walls of the buildings, which are of earth, oil, and kaolin construction, are imbedded the bas-reliefs (pls. 1, 3, 4*b*), raised modellings which represent important events relative to the various rulers. Those pictured in this volume are from the palaces of Agadja, 1708–1728 (pls. 3, 4*b*–8*a*); Ghèzô, 1818–1858 (pls. 8*b*–15); and Glèlé, 1858–1889 (pls. 16–22).

The subjects pictured are allegorical, historical, and personal in reference. Though the stylistic treatment may be characterized as primarily realistic it possesses a marked convention. There are but one or two figures in each picture; these are executed with a pleasing clumsiness and simplicity. Graphic essentials are emphasized, merely decorative details omitted. The Dahomey artists were not prey to the "fear of vacant space" of which primitive artists are so often accused; each relief stands as a well balanced but by no means symmetrical unit against an absolutely plain background. As to color, little may be said since its accuracy is uncertain. The bas-reliefs from the palace of Agadja are plain due to weathering, the others, restored, are in two to five pure colors. Red, blue, green, yellow, tan, grey, and black are variously employed. The walls and background appear in a neutral yellow-grey.

That the decorations of Agadja's palace actually antedate those of Ghèzô and Glèlé by one hundred years is uncertain. Whether this is so or not, there are no

stylistic differences between them other than would be attributable to the individuality of the executors. They all represent a traditional genre.

Plate 23 shows the heads of twelve *récades*, kings' batons of wrought metal. Each illustrates the owner's name in rebus symbols. Their meanings have been interpreted by M. Le Hérissé. The delicate workmanship of the *récades* is an interesting contrast to the naïveté of the bas-reliefs.

M. Waterlot's publication permanently preserves the appearance and history of these fast crumbling relics of Dahomey art. It is of interest not only to those concerned with the analysis and comparison of primitive art forms but to the layman as well, for whom it should hold a sprightly interest.

A. H. GAYTON

ASIA AND OCEANIA

Rossel Island; An Ethnological Study. W. E. ARMSTRONG. With an Introduction by A. C. HADDON. (Cambridge, At the University Press, 1928. 274 pp., 24 pls., 10 maps and diagrams.)

Mr. Armstrong's *Rossel Island* will be of chief interest to students of Oceania and to those who are interested in the strictly formal statement of the structure of society. The result of two months' field work, apparently of the special informant type and conducted in pidgin English, it is an interesting catalog of ethnographic facts about Rossel, bound together neither by vivid descriptions of the way the society operates nor by any illuminating statements as to the nature of the culture as a whole. Although there are some serious omissions in the information obtained in such matters, as the way in which the *Binda* relationship affects the customary kinship terminology, the most conspicuous defects in the book are due to the author's not having seen the culture in operation.

The most bizarre and arresting element in the culture is the monetary system, already familiar to us through earlier publications of Mr. Armstrong's. The characteristic Melanesian delight in complicated economic transactions has reached its apotheosis on Rossel in a system of two series of ranked coins, in which each coin in a series is conceived as equaling the value of the previous coin plus a certain increment of interest. The scarcity of one of these series and the arbitrary insistence upon the discharge of certain important economic obligations, such as the payment for a wife, in terms of certain coins, makes borrowing inevitable. Professional brokers handle these loans and use magic to influence their creditors towards quick payment and to prevent their debtors from pressing them too closely. Upon the two roots of an elaborate monetary system involving interest computed in fairly definite time units and the old barter concept in which certain objects alone can command certain other objects, the Rossel Islanders have elaborated a social ritual of financial transactions to which Mr. Armstrong devotes a chapter on Monetary Ceremonial. His strict interpretation of the values of the coins may or may not seem plausible to other students. It is difficult to reconcile statements such as, if Coin No. 1 be kept "a *rather longer* period of time" (the italics are my own), "No 3 would be required to cancel the debt" and his belief that "the relationship of any value to any other in this series may be expressed by the formula value of No. n—value No. $m(1+k)^{(n-m)}$ where m and n are the two integers representing the number of

the value in the above series and *k* is a constant. But whether or not the reader is willing to credit the Rossel system with the degree of mathematical finesse which Mr. Armstrong attributes to it, it remains a most curious and isolated example of complexity in the midst of the usual simplicity of Oceanic systems.

Probably the second point of greatest interest is the religious system, which while presenting no completely new conceptions yet possesses real individuality. Besides the typical paraphernalia of sorcery and spirits of the dead, Rossel has a large number of sacred places, *yaba*, with special attributes of influencing man and nature for good or for evil. These places have their peculiar tabus, they must be guarded and kept in order by priests and lack of care or sacrilege will produce evil consequences to mankind. As Mr. Armstrong summarizes it:

> The universe is like a machine, with a few exposed parts, which, so long as they are kept clean, insure the smooth running of the whole. That is the chief religious duty of man; but the machine requires oiling at times, and we find that this is the more positive duty of priests of certain of the more important of the *yaba* that give a beneficient reaction.

Thus the Rossel Islanders have made a positive interpretation of the tabu attitude, mere avoidance has been turned into a ritual of anxiety. It affords illuminating comment on the way in which pure tabu, a supernaturalistic attitude requiring neither priests nor rituals, can provide a groundplan for a religious system. The Maori development in which the inevitability of broken tabus furnishes the basis for a system of propitiatory and expiatory rituals with a priesthood, is another example of a religion elaborated from the tabu attitude.

Mr. Armstrong himself is very much interested in the formal aspects of social organization, particularly kinship systems. In Chapter II, on "Tribe, Clan and Family" and Appendix III, "General Theory of the Classificatory System of Relationship," he expounds at some length a number of theoretical considerations. He distinguishes between "groups" and "groupings," the former fixed social forms through which numbers of individuals pass, i.e. an age society, the latter aggregates of individuals such as blood kin, in which each individual takes a place peculiar to himself and stands in a serial relationship to other kinsmen. Although the point is logically sound it seems to contribute very little to an understanding of the dynamics of society to express mobile human relationships in ideal mathematical terms. The theoretical discussion usurps the scene and leaves the reader with no picture of the working of Rossel society. Similarly in his elaborate hypotheses concerning the logical possibilities inherent in the classificatory system, Mr. Armstrong neglects the Rossel kinship system rather sadly. In order to explain the fact that sisters' children outrank brothers' children, he invokes a top-heavy hypothesis, *à la* Rivers, of the coincidence of marriage with the mother's brother's wife and the breakdown of a class system. In reading either of these theoretical treatments, it is impossible not to feel that Mr. Armstrong has forgone the peculiar privilege of the field ethnographer of adding to our exact knowledge of the workings of new varieties of human culture. Instead of illuminating the working of Rossel Island culture, he has treated it rather cursorily and chosen to deal in elaborate generalities.

Students of Melanesia will be interested in the occurrence of the prostitute who is owned by a group of men who also benefit from payments received for her ser-

vices to others. The occurrence of similar institutions in Micronesia, Santa Cruz, the Southern New Hebrides and the Admiralty Islands presents an interesting distribution. In contrast to the Trobriand belief about childbirth which assigns such slight role to the father, the Rossel Islanders overestimate the rôle of the father, who is believed to deposit an egg in the female and to form it through subsequent intercourse. The spirit is also believed to be obtained from the father. Such comparisons of Rossel beliefs and practices with those of neighboring peoples are all too rare, and one could wish that Mr. Armstrong had drawn more extensively upon his longer experience among the Massim.

MARGARET MEAD

Peoples of Asiatic Russia. WALDEMAR JOCHELSON. (The American Museum of Natural History, 1928. 259 pp., 10 mps, 53 ills.)

This is an extremely useful summary of the racial and linguistic affiliations of the innumerable peoples indicated in the title. Mongoloids, Americanoids, undetermined Siberians, the Nations of Turkestan, the Asiatic Steppe Provinces, the Caucasus, and the Iranians all receive separate chapters, which are followed by sections on Somatology, Mode of Life, Migrations, and History. There is a certain unevenness of treatment, insofar as the ethnographic description is by no means uniformly given for all groups. It is rather strange that, ignoring Licent and Teilhard's researches, Dr. Jochelson should deny paleolithic remains to China; and still more so that he accepts Pumpelly's chronology for Turkestan (p. 232f.). But notwithstanding such details he has conferred on all ethnographers a priceless boon.

ROBERT H. LOWIE

Adoption among the Gunantuna. JOSEPH MEIER, M. S. C. (Washington, D. C.: Publications of the Catholic Anthropological Conference, 1: 1-98, 1929.)

The more technical series of the Catholic Anthropological Conference auspiciously begins with this paper by Father Meier. The Gunantuna occupy the northeastern section of the Gazelle peninsula and represent a typical Melanesian group. The author, who resided among them from 1899 until 1914, wisely sketches their general culture before going into details as to the adoption ritual. Except in one district this tribe is divided into exogamous matrilineal moieties, but, as usual, this rule of descent does not imply feminine ascendancy. The men do the most important part of the horticultural work and own virtually all the property held. Incidentally, we learn the interesting fact that simple barter does not occur, all business being transacted through a transfer of shell money (p. 13). There is patrilocal residence and nepotic inheritance (pp. 14, 17). On his main theme Father Meier contributes a wealth of concrete information, illuminated both by texts in the original and by specific biographical material. The psychological motives leading to adoption are fully discussed. In several respects the paper suggests intensive comparison with Dr. Rivers' and Professor Malinowski's researches on Melanesian peoples. Both Father Meier and the Conference may be congratulated on this eminently worthwhile contribution.

ROBERT H. LOWIE

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DISCUSSION AND CORRESPONDENCE

Prehistoric Man

To the Editor,

The American Anthropologist,

Sir:

Mr. N. C. Nelson has been so good as to send me a copy of his review of my book *The Antiquity of Man in East Anglia*, which appeared in the American Anthropologist, vol. 30, no. 4, October-December, 1928. Though it is somewhat unusual for an author to comment upon the opinions expressed by reviewers upon his books, yet, in view of the fact that Mr. Nelson has, I doubt not unintentionally, made certain misleading statements upon my discoveries and their interpretation, I feel it to be necessary to place on record the following remarks. Mr. Nelson states that I stand alone in my reading of the geology, "in particular to the commencement of the Ice Age," but though standing alone in matters which I have closely examined does not alarm me, in this case I am in the company of two very well known geologists, Penck and Bruckner, whose views upon when the Ice Age began coincide with mine. I conclude that Mr. Nelson imagines that I refer the flint implements found beneath the Red Crag to the base of the Pleistocene formations. If, however, he will again refer to my book he will find I make it abundantly clear that these artifacts and the deposit in which they occur are in my opinion to be relegated to Pliocene times. It is incorrect to describe the flint implements found beneath the Red Crag as "crude and shapeless," and as "unspecialized hammers, scrapers, and perforators." They are, taking into consideration their great antiquity, as clearly shaped, specialized, and obviously as useful as the stone artifacts of any later prehistoric period.

Further, it is solely the sub-Red Crag rostro-carinate specimens upon which I lay stress as being truly transitional between the Eolithic point and the earliest Chellean hand axe.

Two superposed floors were discovered by me in the Red Crag at Foxhall, near Ipswich. This is truly a "succession," as described by Mr. Nelson, but his readers might imagine that I had found a greater number of occupation levels at this place, which would be unfortunate.

Mr. Nelson states that from the Cromer Forest Bed

> up through the successive glacial deposits, the discoveries in East Anglia conform to the findings elsewhere in western Europe. Mr. Moir's contributions are therefore his discoveries beneath the Norwich and Red Crag formations, with the Red Crag itself and within the Forest Bed Series.

Mr. Nelson, however, in these matters has once more gone astray.

In the first place the discoveries, as is plainly set forth in my book, made below the Norwich Crag are to be referred to the late Mr. W. G. Clarke and not to me.

Secondly, though the correlation of the palaeolithic industries of East Anglia with the glacial deposits of that area, which I published in 1920, has had an ever increasing number of supporters, yet when it first appeared those who agreed with me were very few.

For instance, I place the Acheulean industry in the second Inter-glacial phase. It would be interesting to know if Mr. Nelson regards this as conforming with the findings elsewhere in western Europe?

My conclusions, also, were not exactly enthusiastically received in England, where most geologists and archaeologists looked upon even the earliest traces of man as post-glacial in date.

Further, for good or for ill, my "contributions" extend beyond the strata and periods mentioned by Mr. Nelson. I have shown that the glacial boulder clays and the gravels which separate them contain palaeolithic flint implements, and I have established the occurrence of Upper Palaeolithic "stations" in the eastern England, a fact disputed for many years by both English and Continental archaeologists. I fail to follow Mr. Nelson's reasoning by means of which he arrives at the conclusion that because two views differ in their opinions neither view is in consequence worth very much.

There are, so far as my knowledge extends, very few archaeological questions upon which markedly divergent opinions are not expressed, but it is remarkable that so large a proportion of those who have examined my specimens agree that they represent, without question, the work of man. An International Committee, of whom the late Dr. Capitan was a member, has definitely accepted this conclusion, and it is not fair to suggest, as does Mr. Nelson, that he (Dr. Capitan) had any doubts upon the human origin of the sub-Red Crag flints.

It is, in fact, only a small and irreconcilable minority, of which I regret to note Mr. Nelson is one, who refuse to believe in the reality of my discoveries.

Mr. Nelson dwells upon what he terms "professionals" and "amateurs" and seems to suggest that the opinion of the former possesses some inherent and mysterious value.

Personally I regard, as the only quality which can entitle anybody, either professional or amateur, to pronounce upon the human or material origin of flaked flints, to be *a thoroughgoing and practical knowledge of flint fracture*, and unless he possesses this he ought to be severely discouraged from making public his views upon this important matter in any serious scientific publication. Mr. Nelson is, I fear, somewhat behind the times in his views upon prehistoric archaeology. He would have us remain in the chaotic state regarding our knowledge of ancient man existing 40 years ago. This is not only impossible, but regrettable.

J. Reid Moir

A Chiriguano Canteen

The Chiriguano Indians (Tupi Stock) of Bolivia formerly had the custom of wearing on journeys a pottery canteen fitting over the wrist. The custom has been

obsolete about 50 years, and specimens of the canteen are now very rare. A specimen has been given the National Museum by Senor Ignacio Arana, of Pipi, Province of Santa Cruz, Bolivia, through Dr. Edwin Kirk, who has returned lately from Bolivia. The vessel is a hollow ring, 6 inches in diameter, with an opening large enough to allow slipping on the wrist or forearm, and has the mouth with neck on the upper side. The paste is dark brown and has been washed with buff on which is painted the design.

In drinking, the canteen is brought up to the mouth by flexing the arm. The specimen is not only an unique canteen but represents extreme skill in its manufacture. Vessels of this shape, but small, are sometimes found in the ancient Pueblo ruins.

WALTER HOUGH

MEETINGS

The Semi-Centennial of the Anthropological Society of Washington

The Anthropological Society of Washington was organized on February 10, 1879, and therefore it was decided to turn the regular meeting scheduled for Feb. 19, 1929, into a special gathering commemorative of the event. This took the form of a dinner at the Cosmos Club, at which about sixty members and friends sat down. There followed addresses by present and former members of the Society, and by invited speakers.

The President of the Society, Dr. Charles L. G. Anderson of the U. S. Veterans' Bureau, opened the formal part of the occasion by a few words of welcome to the distinguished guests, the members of the Society, and their friends. In the course of his remarks he said, "It has always seemed to me that the term anthropology is the most inclusive word in our language. In a large sense, anthropology embraces all history, all biography, all records of the reactions of human beings to their environment. Observation of man by man is the oldest of studies. When man began to note phenomena connected with men and races, compare them with data obtained by other investigators working in the same line, and only then venturing to draw deductions and conclusions, then was the true science of anthropology born. Anthropology, so defined, is of recent growth, and we believe that our Society has played a not inconspicuous part in it. In this connection allow me to read the following letter:

Dr. Charles L. G. Anderson,
President, Anthropological Society of Washington,
Washington, D. C.

"My dear Dr. Anderson:

"As President of the American Anthropological Association, I am sending the congratulations of this organization to its parent, the Anthropological Society of Washington. The whole history of Anthropology is written in these fifty years of its existence.

"In looking up the history of anthropology in America, I was surprised to find that Section H of the American Association for the Advancement of Science was not organized until twenty years after the founding of your Society, and the American Anthropological Association came along three years later. The Washington Society should feel proud of its record, and I wish its second half-century to be as successful as its first.

"With the respect due from a child to its parent, I sign myself,

Alfred M. Tozzer,
President, American Anthropological Association."

The President then introduced the Toastmaster of the evening, Dr. George A. Dorsey, for many years Curator of Anthropology in the Field Museum of Natura History, Chicago, a long-standing member of the Society, and intimately associated with many of the men prominent in its history.

Dr. Dorsey alluded briefly but feelingly to former members of the Society with whom he had been intimate.—Major John Wesley Powell, founder of the Bureau of American Ethnology; Prof. Otis T. Mason, for many years head curator of the Division of Anthropology in the U. S. National Museum; W. J. McGee, long associated both with the Geological Survey and the Bureau of Ethnology; Thomas Wilson also of the National Museum; Frank Hamilton Cushing, of the Bureau; Alice C. Fletcher, well-known for her work in the U. S. Indian Office and in Ethnology; Dr. Daniel S. Lamb of the Army Medical Museum; Capt. John Bourke, Dr. Washington Mathews, and James Mooney, all known for their Indian researches. He then introduced Mr. Felix Neumann, Assistant Librarian of the Army Medical Museum, who gave a brief sketch of the history of the Anthropological Society, the substance of which was as follows:

In the 27th year of its existence Dr. Daniel S. Lamb gave as his presidential address, on May 9, 1905, the history of the Anthropological Society of Washington from its foundation up to that period. Dr. Lamb's excellent paper is not only an indispensable source for the history of the Society itself but an outstanding contribution to the history of American anthropology, as will be evident when we take into consideration the fact that our Society is the oldest anthropological Society in the United States to have enjoyed uninterrupted activity.

Dr. Lamb would have been turned to as our natural historian for the period subsequent to 1905 but to our great regret his health has not permitted him to undertake the task. In thought, however, he will be with us tonight.[1]

In the scientific life of Washington our Society has played an important role. Although it is not the oldest in our city, it was preceded by only two, the Medical Society of the District of Columbia, founded in 1819, and the Philosophical Society, founded in 1871. Some years after our Society came into existence a number of others arose concerned with various branches of the exact and social sciences, and such of them as dealt with subjects allied to anthropology naturally affected our own somewhat adversely, as regards membership, though not in standing and importance.

The meeting for organization was held on February 10, 1879, while at the second meeting, February 17th, the constitution drafted by Dr. J. M. Toner, Dr. Wills de Has, and Col. Garrick Mallery, was in part adopted. From its name one would infer that its main concern was with physical anthropology, ethnology, and prehistoric archaeology, but among its founders there were men, not only known and admired for their scholarship in their chosen specialty, but so versatile and of such broad culture, at home, in so many other branches that, on their initiative, the scope of the Society was soon enlarged. Thus the following subjects were added: psychology, esthetology—which deals with the artistic and play activities of different tribes and races—technology, sociology, philology, and sophiology—the last mentioned, the material history of science and philosophy—and, still later, criminal anthropology.

[1] We have to report with regret that Dr. Lamb died on April 21, 1929, in his eighty-third year. He was born May 20, 1843. On May 18 a joint memorial meeting was held in his honor in the building of the District Medical Society at which were represented the Anthropological Society of Washington, the District Medical Society, the Medical Faculty of Howard University, and the U. S. Army Medical Museum. Dr. Aleš Hrdlicka spoke on that occasion on behalf of the Anthropological Society.

I cannot enumerate all of the founders and early members of our Society tonight, but will give brief mention of those who were not only outstanding figures in the history of our local body, but will always have places in the history of American anthropology and American science.

The man who deserves first mention, not only because he was our first President, an office he held nine times, is Major John Wesley Powell (1834–1902). Soldier, explorer, geologist, and anthropologist, his name is an outstanding one in the scientific history of our country. His exploration of the canyons of the Green and Colorado rivers, "an undertaking of phenomenal boldness" as Gilbert called it, carried a knowledge of him all over the world. In 1879 he became Director of the new Bureau of American Ethnology, and as long as he lived he was the leading spirit of our organization.

Professor Otis Tufton Mason (1838–1908), should be mentioned next. He was one of the Founders of the Society, and took the greatest interest in its development. He was a prominent member of the drafting committee of its constitution and served twice as President, in 1893 and 1894. In 1884 he was appointed Curator of the Department of Ethnology in the United States National Museum, to be promoted later to the position of Head Curator. To Professor Mason we are indebted for the name of our Society, for it was he who insisted upon adopting the title "The Anthropological Society of Washington" instead of "The Archaeological Society of Washington," as was proposed by some others.

Dr. Robert Fletcher, also a Founder, was born in 1823 in Bristol, England, and died in Washington in 1912. He studied medicine in the Bristol Medical School, came to the United States in 1847, and became engaged in the practice of medicine in Cincinnati. He entered the U. S. Army at the opening of the Civil War in 1861, and subsequently became connected with the Office of the Provost-Marshal General of the Army in Washington, where he specialized in medical and anthropological statistics. During this service he published *An Outline of the History of Anthropometry*. In 1876 he was appointed Assistant Librarian in the Surgeon General's Library. Among the many anthropological papers which he read before our Society, one entitled "The New School of Criminal Anthropology" opened up a wholly fresh field of observation. It was my good luck to work under Dr. Fletcher during the last years of his life, and I admired the wide scope of his learning. He was one of the best representatives of the old school of scientists.

Another librarian, and a very active member of our Society was Dr. Ainsworth Rand Spofford (1825–1908). He was Librarian of the Library of Congress from 1864 to 1899, and first Assistant Librarian from 1899 until his death. It was my good fortune to work under him also, and it was he who made the Anthropological Society of Washington known to me by inviting me to attend a meeting in which he read a paper on "Rare Books relating to the American Indian." He read altogether twelve papers before it, each one showing erudition and mental breadth.

Dr. Lester Frank Ward (1841–1913), another founder of the Society, was on the staff of the U. S. Geological Survey from 1881 to 1888. His early researches were in paleobotany, but he soon interested himself in the study of human society and in the field of sociology he acquired his greatest reputation. He read papers before the Society frequently and remained an active member until he was called to fill a professorial chair at Brown University.

I wish to name two other members who addressed our Society many times, and who have a distinguished record in the history of American anthropology. The first of these is Dr. Washington Matthews (1843–1905). He was born in Ireland, and entered the Union Army during the Civil War as a surgeon. Major Powell regarded him very highly and was instrumental in having him detailed, from 1884 to 1890, to the Army Medical School in

Washington. Most of his work was devoted to craniology and anthropometry. Albert Samuel Gatschet (1852–1907) was appointed by Major Powell in 1879, as Ethnologist in the Bureau of American Ethnology, where he served until 1903. His fundamental publications on the different Indian languages put him in the front rank of American linguists of his time.

Of our deceased Presidents, I wish to mention tonight three more: Dr. Frank Baker, Miss Alice Cunningham Fletcher, and James Mooney. Dr. Baker was born in 1841, and died in 1918. He was Professor of Anatomy in Georgetown University from 1883 until the time of his death, and Superintendent of the National Zoological Park from 1892 to 1916. Dr. Baker was one of the Founders of our Society and served as its President in 1897. Those who were honored by his friendship will always remain devoted to his memory.

Miss Alice Cunningham Fletcher, founder of the Women's Anthropological Society of Washington, which later became part of our Society, was born in 1845, and died in 1923. Miss Fletcher was the first of our ethnologists who made a special study of Indian music and she became a leading authority on this subject, now so successfully persued by Miss Frances Densmore, also one of our members.

Mr. James Mooney (1861–1921) early became interested in the American Indian and attracted the favorable attention of Major Powell, who in 1885 offered him a position in the Bureau of American Ethnology, which he held until his death. He was a prolific writer and his contributions to the ethnology of the Indians rank very high. He was our President in 1914 and 1915.

Amongst other prominent Founders I should like to mention Frank Hamilton Cushing, (1857–1900), and Col. Garrick Mallery (1831–1894). Both were members of the Bureau of American Ethnology and left an excellent impress on the history of our organization. Also as Founders, we have Dr. James E. Morgan (1822–1889) and Dr. Joseph Meredith Toner (1825–1896), two leading members of Washington's medical profession, who are not yet forgotten. Another member of the medical profession and a very active and prominent member of our Society, is Dr. Harry Crecy Yarrow, born in 1840, who is still with us. W. J. McGee,[1] (1853–1912) was one of the best known American scientists and was Assistant Director of the Bureau of American Ethnology from 1893 to 1903. He was three times elected President of this body, and added a great deal to its lustre.

Among living members who have done much for American anthropology and ethnology, and who have never faltered in their interest and love for it I will mention Prof. William Henry Holmes, Dr. Clinton Hart Merriam, Dr. George Martin Kober, Dr. Jesse Walter Fewkes, and Mr. Frederick Webb Hodge, three of them former heads of the Bureau of Ethnology, and all past Presidents.

Between the time when our Society was founded and 1888 its Transactions were published infour volumes. In 1888 was begun the publication of an anthropological journal entitled the AMERICAN ANTHROPOLOGIST, under the auspices of the Society and mainly supported by it. This continued until 1898 when the journal became the organ of all American anthropologists and ceased to have a purely local character. On the formation of the AMERICAN ANTHROPOLOGICAL ASSOCIATION it was adopted as the organ of that body, but it is at the same time the organ of the Anthropological Society of Washington and the American Ethnological Society of New York.

In its earlier years meetings of the Society were held twice a month. They now take place regularly on the third Tuesday of each month and at such other times as the President and Board of Managers may determine. In the years 1893, 1894, and 1896 series of Saturday

[1] Since this commemorative occasion the society has to lament the loss of Dr. Yarrow as well as Dr. Lamb. Dr. Yarrow passed away at Fort Monroe, Va., July 2, 1929.

afternoon lectures were held in which papers of general interest were read. These lectures were greatly appreciated by the public and were well attended.

Dr. George M. Kober, recently retired Dean of the Georgetown Medical School, whose subject was "Reminiscences of Early Members," stated that he had been a member of the Washington Society for over forty years and testified to the great benefit he had derived from attendance at its meetings. He also expressed indebtedness to it for its choice of him as presiding officer for several years and for various attentions members of the Society had bestowed upon him. He expressed the highest regard and esteem for the ability of many of those connected with it, especially mentioning Powell, Mason, Cushing, Hough, Fewkes, Miss Fletcher, and McGee. Of McGee he said:

I was very greatly pleased to listen to the beautiful tribute in memory of Professor McGee, delivered at the fiftieth anniversary of the Cosmos Club by Governor Pinchot, who, as we know, was the promotor of President Roosevelt's first congress of governors for the conservation of national resources held at the White House May 13–15, 1908. In his tribute he emphasized the fact that McGee showed his remarkable versatility more particularly in the selection of scientific experts for the presentation of addresses before that congress.

Dr. Kober also referred to the splendid work of the Society and its members in publishing, and in promoting the publication of anthropological papers, and he instanced the two following examples of humanitarian uses performed by some of the scientists belonging to it.

The investigations of James Mooney and Dr. Washington Matthews among the Cherokee Indians of North Carolina in 1888 revealed the sad fact that their birth-rate was lower than their death rate and that the tribe was practically dying out. Thanks to the publicity given by these men, and the application of preventive and remedial measures, these Indians are no longer a vanishing tribe. On May 31st, 1922, in response to my inquiry, Dr. McBrayer, in charge of the North Carolina Tuberculosis Sanatorium, forwarded to me tables relating to the vital statistics of the White, Colored, and Indian population in North Carolina from 1918 to 1921. In commenting on this table the doctor writes, "A birth rate of 43.2 against a death rate of 12.9 does not look very much like a vanishing race." These figures were confirmed on May 30, 1922, by the following Table received from Dr. W. S. Rankin, the secretary of the Board of Health of North Carolina based on the vital statistics for 1921:

Race	Birth rate per 1,000	Death rate per 1,000	Tuberculosis death rate per 100,000
White	32.9	9.6	67.7
Indian	43.3	12.7	67.0
Negro	34.5	14.3	186.6

The foregoing statement finds ample support in the records of the U. S. Census Bureau which show that the enumeration of Indians in 1920 reveals an increase of 7,241 in the Indian population since 1900. The only pronounced increase was reported for North Carolina from 7,851 to 11,824. The only other states which had in 1920, 1,000 or more Indian inhabitants and which reported increases in Indian population were Louisiana, Texas, Montana, Arizona and California.

I look upon this as a happy end-result of the investigations begun by two distinguished members of our Society. They have gone to their reward long since. I am sure it would have been a source of great gratification to them to have realized the fruit of their labor.

In this connection I also recall with great pleasure because of its practical results a joint meeting with the Women's Anthropological Society held in 1896. At that meeting Miss Clare de Graffenried presented an address on the housing conditions of our least resourceful people in Washington, based upon a survey of our alleys and slums. The survey had been financed by the Women's Anthropological Society and by the Housing Committee of the Civic Center, of which I was chairman.

The meeting, held at the Cosmos Club in the winter of 1896–1897, was largely attended, and among those present were the founders of the *Evening Star*, Mr. S. H. Kauffmann and Mr. Crosby P. Noyes, who were also members of the Washington Anthropological Society. These gentlemen were so much interested in the subject that they subsequently subscribed very liberally to the stock of the Washington Sanitary Improvement Company, which was founded for the purpose of erecting sanitary homes at a reasonable rental for the wage-earner in the District. Miss Fletcher and Dr. La Flesche, members of this Society, also became stockholders and directors in the company. It is a pleasing recollection to all of us to know that the Society rendered an important sociological service in being instrumental in the creation of a company which since its establishment in 1897 has erected homes for 808 deserving families.

Mr. Hewitt, senior member of the scientific staff of the Bureau of American Ethnology, gave some "Reminiscences of Early Meetings." He spoke feelingly of the kindness and encouragement extended to him by Major Powell when he came to the Bureau of American Ethnology in 1886. He characterized Frank Hamilton Cushing and Jeremiah Curtin as, in his opinion,

two of the greatest mythologists of this country. They seemed to define the thoughts back of the myths of the American Indian, and I found their conclusions correct and very helpful. Washington Matthews, in his various papers, brought out a great many thoughts and ideas which harmonized with those with which I became acquainted among the Eastern Indians. Frank Hamilton Cushing used to come into my room, and he would talk for hours like a prophet. It was simply astounding to hear him retrace the development of Indian ideas.

Dr. Walter Hough, Head Curator of Anthropology of the U. S. National Museum, spoke of the relations that had obtained between the Society and that branch of the Smithsonian Institution. He considered that the National Museum had acted as a "culture medium" for the establishment of the Anthropological Society. The National Museum came into existence in 1878 as a separate branch of the Smithsonian Institution and the first person to handle its archaeological collections was Charles Rau, under whom studied Cushing and, to a certain extent, Professor Mason. Besides mentioning these men appreciatively, Dr. Hough paid tribute to James Stevenson, Matilda Coxe Stevenson, and Dr. Washington Matthews. He affirmed that "the foundation of the Anthropological Society did very much to stabilize science. Its effect was felt immediately. It was felt all over the world."

At this point the toastmaster rose to remark that although the name of Professor William H. Holmes was not on the program he was present and all would be much gratified to have a few words from him, and to the great pleasure of the company Professor Holmes complied.

Mr. Matthew W. Stirling, the new Chief of the Bureau of American Ethnology, replying for "The Bureau of Ethnology and the Society," called attention to the

fact that 1929 marked not merely the fiftieth anniversary of the Anthropological Society but the fiftieth anniversary as well of the Bureau and of the Cosmos Club, so that it was a red-letter year in the history not only of anthropology but of science in general. He then traced the history of the Bureau, which has contributed so much to the strength of the Society, noting Major J. W. Powell's early explorations beyond the southwestern frontier in 1867, the foundation of the Geological Survey, largely through his efforts, in 1871, his later interest in the Indians and their institutions, and the foundation of the Bureau of Ethnology, with Powell as Director in 1879. His early interest had already taken tangible form in another way in the publication of the eight volumes of *Contributions to North American Ethnology* by the Survey, and these were now followed by the long series of reports and bulletins of the Bureau of Ethnology, "the two now comprising a very large proportion of the contributions to the ethnological literature of America."

The men whom Major Powell was required to recruit for his staff, said the speaker,

> were medical men, missionaries, army men, men of the Coast Survey and men of the Geological Survey, whose interest had grown up because of a natural enthusiasm for and desire to understand the Indian. This was a self-generated interest, and the fact that it appeared before the study of ethnology had really become crystallized in this country, speaks not only for their versatility but for their genuine love of and interest in the Indian. Thus, while Major Powell had no college-trained anthropologists to draw on,—this being before the day of departments of anthropology in our universities—he was especially fortunate in having available this type of man, men who had had personal contact with the Indians and first-hand knowledge of them, in a day before the old customs had been badly shattered. Thus the subject of ethnology in America was placed on a very substantial basis. . . . .
>
> Speaking for the younger ethnologists, not only of the Bureau, but of the country at large, I think I echo the sentiments of all when I say that if we are but able to follow the inspiration and the far-seeing policies of the exceedingly able and capable men who have inaugurated this study, we shall have done all that is possible to perfect our knowledge of the American Indian.

Dr. L. O. Howard, for many years chief of the Bureau of Entomology, was called upon to discuss the problem of "Entomology versus Anthropology." He said:

> I think that possibly, with the exception of Professor Holmes and myself, none of us here tonight was in Washington at the time of the founding of the Anthropological Society and the Cosmos Club, fifty years ago this month and last month. I knew practically all of the founders, and it is very difficult for me to speak to you without dropping into anecdotage—and I have not reached that age yet.

He then related some interesting and amusing experiences with certain early members of the Society, and, returning to the announced subject of his talk, continued:

> The subject of man versus insects is a different thing from entomology versus anthropology, and, just as hinted in the introduction, insects have had a tremendous influence on the progress of the human race and the rise and fall of civilizations.

One of the Kings of Persia when invading Greece was defeated by mosquitoes and nothing else, and the downfall of Greece itself—that marval of intellectual and artistic culture—was due to the introduction of malaria, and insect-borne diseases. The fine old Grecian type was destroyed, and the resistant Oriental mixture survived—all descendants of the slaves brought by the Grecian armies from India and Persia. The fleas that carried the bubonic plague have held Europe back for centuries. The migratory locusts have had an enormous influence. Many great disasters that have resulted in the deaths of hundreds of thousands of people from starvation and disease have been due to the invasion of cultivated regions by swarms of locusts.

It occurs to me .... that down in Central America the fall of at least three separate civilizations of high rank in rapid succession may have been due, in part at least, to locust plagues which wiped out agriculture, thus destroying the food supplies and bringing starvation and disease.

Dr. John C. Merriam, President of the Carnegie Institution of Washington, brought the program to a fitting conclusion with a ringing address on "The Practical Significance of Studies in Early Human History." He said:

Before referring to the title of my talk, may I say that it is a great privilege to me to be with you this evening to celebrate the accomplishments of the Anthropological Society in the past half-century. I lived long enough away from Washington, during the period when I was at least actively thinking, to realize in some measure the influence of this organization. It does not appear in the books, perhaps, as often as other agencies which show great accomplishments and carry through impressive expeditions, but I have always a feeling that in the background, the Anthropological Society has been through these many decades a place for the meeting of minds, where ideas are threshed out. What I have in mind more particularly relates to the influence of this organization and related bodies upon the development of the science of man in America.

Just because Washington has not been mainly a university city, there has perhaps been a feeling that the educational influence of scientific work in Washington has been less than that of many other cities. New Haven, with its great university; Cambridge, with its Harvard; Chicago, in the later days, with its unquestionably outstanding institution, we all recognize as having enormous influence upon the thought of the country. But in the same measure it has seemed to me that the great institutions here, including the Anthropological Society, have had their tremendous influence, not so much upon the student at the time he is studying, as upon the instructor who leads him, moulding the ideas which ultimately come to be imbedded in the structure of education.

I believe in education in all its phases; they are all necessary, all important. I am only making the point that the kind of thing done through a meeting of minds here is something that must not be forgotten.

This is such a great group of scientific men, that when I used to come across the continent twice a year to visit Washington, I always wondered why I never could see all of the people I planned to visit in Washington. I finally discovered that it was because there were so many leading people there that in the time I had available in my vacation I could not find opportunity to see them all.

As I stand off and look at the scheme of the sciences, I am more and more impressed with the tremendous significance of the field which you represent, that is, the broader study and interpretation of man. Today we are in what many would call a period of mechanism, an age of physics and chemistry. Perhaps this is true, and it may be that in other decades

we shall look back at this particular time as one of high development and relatively great importance. The subjects involved in physics are enormously important, more significant than we ever supposed them to be, but I do not for one moment think that they are more important than anthropology.

Biology is built out of the atoms and the molecules. It is a more complicated thing. Physics is relatively simple. Superimposed upon biology comes a great development arising out of the nervous system. We are then at the beginning of mentality or intelligence. Whatever road we follow leads us ultimately to a consideration of the problems that are basic in human studies, that is, human conduct and what it means. This is a thing so complicated, so different, so nearly infinite in all its ramifications, that it is well to take a prayerful attitude before beginning work and expressing an opinion regarding it. We are just now beginning to see that anthropology, or even biology, may be handled scientifically, with the expectation of results. We are just beginning to see that there are laws or modes of procedure which may be organized and tabulated. We hope that ultimately they will lead us to some interpretation of the meaning of human conduct, and human thought, and human interest and aspiration. There will be no end to this study. From age to age we will learn a little more, and a little more. This will not merely mean that we shall be able to put it all down in books or formulae. It will mean, that men will live a more comfortable and more effective and more interesting life, a life of greater accomplishment, and a life of greater enjoyment.

I have found only one fault with anthropologists in general. Sometimes I am afraid they do not take their responsibilities seriously enough. Perhaps it is wise not to take them too seriously until we reach the point at which we are able to accomplish something. There is just as great a danger in trying to turn the world upside down because we have discovered its importance as there is in not recognizing that the subject may ultimately become important.

I said I was a little bit disappointed because anthropologists do not recognize their responsibility. On the other hand, I am with you when I realize that you are moving slowly and trying to make the way safe. You will not save the world in one week or in one year, but you are paving the way, which is to be made wider and broader for the future generations.

You have a great mission. There is no greater work, than that which you have of attempting to understand man. It is a thing that may well challenge interest.

What I have to say regarding the study of early human history may be stated more briefly than what I have already presented. At this period we are beset by people who think everything is directed toward "the demnition bow-wows." Man is thought to be creating a great machine, which he will not be able to control. Many are writing books because they think they have a message—sometimes they have, sometimes not, and they believe their message is to show that the world is running away from us, the machine is too powerful and man is sliding rapidly to his own destruction. I have no sympathy with that view. We are creating a machine. Probably we shall always be doing this. When, as a geologist, a paleontologist, an anthropologist, I look back over what we see of the history of the world I find there have always been machines of some sort, in the clutches of which life seemed to be set, but nearly always life seems in some way to have developed just a little more rapidly than the physical forces around it. Out of the muck and slime, out of the shock of earthquakes and the smoke of the volcanoes, man has emerged increasingly intelligent through the ages.

We may know something about what is just behind us, and a little less of what is just ahead of us. Out of the past I see this something that has indicated the development of life to higher and higher levels. We do not know all about it, but I can see that much has taken

place. I can see marching down through time the something that looks like man of the present day. I do not think we have all the connecting links, nor have we any phase of history complete.

It seems to me that it means that this thing that we call life, and the kind of being that we call man, each in its place, has had opportunity to go on building and building. I have no sympathy with those who feel that we are just building something to overshadow us and then die in it. In every age, through all time, the organism of human life has developed faster than the environment that has been built about itself. I cannot conceive of any scheme which would bring man to this particular stage and then fail to leave him the right to improve himself so as to keep ahead of the thing which he constructs.

A few weeks ago I suddenly discovered that the motto of the Carnegie Institution of Washington contains the words "research, discovery, investigation, and the application of knowledge, not just to the betterment of mankind, but to the improvement of mankind." I wondered whether the person who wrote it had in mind that a part of our business in this world is to see not only that we build around us, but that man himself has an opportunity for improvement.

There is a word that is used commonly these days that is spelled "eugenics." It is in a general way the idea that we have the right to be well-born. I conceive of it also as meaning that people have the right to be better and better born through the ages. Not less important than that which has come to all generations preceding us, the subject of eugenics must be considered from many points of view. We know something of the new Institute for Human Relations which is now being established at Yale University, a very great thing, the interrelation of studies that have to do with anthropoids, with the intimate structure and physiology of man, the relation of it all to laws of human conduct. It will not be possible to solve all the problems at Yale, nor do they expect to. They will not solve them all with that one institute, or in this century, but we are making a beginning, one of many beginnings of a study that has as its object this greater thing—the understanding of our capacity and the means of improvement of mankind in future generations.

As to human history, from my point of view, the most illuminating, the most comforting, the most stimulating idea that we secure from science comes out of that part of history which we find in the study of early man, the idea that man has tended to keep moving, to keep improving, to keep on developing his understanding of other creatures about him, and of himself.

I feel that eugenics in the strictly scientific sense is a portion of anthropology, and in reality is one of the great coming subjects, one which will help us to make man so much better that nothing he builds will ever overpower him. But the great stimulus, and the great hope to the eugenicists, it seems to me, comes from the broad, clear vision of what the anthropologists, together with the historians, have discovered in this picture of development of man as we see him coming up through the vast aeons of his early history.

Evanston Meeting of the Central Section

The Eighth Annual Meeting of the Central Section of the American Anthropological Association convened on May 10, 1929, at Evanston for a two-day session. Northwestern University acted as host, and all meetings were held in Harris Hall on the University grounds.

The program provided for morning and afternoon sessions on both May 10 and 11, and for an evening session on the 10th. In opening the convention Dr. Guthe,

Section President, introduced President Walter Dill Scott of the Northwestern University, who welcomed the members, dwelling at some length on the fact that the University grounds were Indian and pre-Indian as indicated by surface and other finds. In response, President Carl Guthe, of the University Museum, Department of Anthropology, Ann Arbor, complimented the Northwestern University upon possession of a Department of Anthropology.

In the first paper Paul Nesbit (University of Chicago) described "A recently discovered Aurignacian Skeleton from the North Sahara," giving the physical measurements, contrasting it with other finds, and submitting the skull itself for examination. The find was made at El Arbe, Algeria and was assigned to the late Aurignacian or early Magdalenian. In the discussion, participated in by many members, it was brought out that the Mediterraneans were in Africa long before they were in Europe, while the Cro-magnons, assumed to be present, as they were at Gibraltar, were not.

Dr. George L. Collie (Beloit College, Beloit, Wis.) gave "A Comparison of the Upper Paleolithic of Algeria with that of France," stressing the dissimilarities and also the presence of engraved shells of ostrich eggs found in African sites.

The paper of Dr. Albert A. Reagan (Ouray, Utah) on "Plants used by the White Mountain Apache of Arizona," was read by title.

In "A New Stone Age Culture from Northern Labrador," Dr. William D. Strong (Field Museum, Chicago) gave the result of certain discoveries made in Labrador during a recent expedition into this region. The difficulties of discovering artifacts on likely sites due to the depth of moss growth prevented any great number of finds. He was inclined to place the culture as proto-Algonquin or possibly proto-Eskimoan.

Dr. Carl Guthe (University of Michigan) spoke on "Human History Museums." At some length he outlined methods and purposes, and described the effects produced by visits he had made during the past year to a great number of museums in the Middle West.

At the beginning of the afternoon session President Guthe announced committee appointments as follows:—Nominating Committee: Dr. Fay Cooper-Cole (Chairman), Dr. Charles R. Keyes, and Director E. K. Putnam; Resolutions Committee: Robert Redfield (Chairman), Dr. W. D. Strong, and Julian Steward; Auditing Committee: Henry Field, (Chairman), P. E. Cox, and H. C. Shetrone.

Seven papers were submitted, Henry Field (Field Museum) in an illustrated talk on "Paleolithic and Neolithic Man in the North Arabian Desert," gave the results of an extensive survey during the past year and summarized observations covering several years of work.

Wilton Marion Krogman (Western Reserve University, Cleveland) presented his own and his fellow-workers' observations on "The Problem of Growth Changes in the Skull and Face." With many diagrams he showed where the growth has been found to take place, and at what periods, as deduced from the study of many skulls of orangs, chimpanzees and gorillas.

F. E. Wood (Field Museum) spoke on "Some Effects of Deformation on the Cranial Measurements of Peruvian Skulls." Also, by the aid of diagrams, he pointed out the two types of skull produced by deformation, and concluded that deformation makes almost no changes in relative measurements.

George Neuman (University of Chicago) spoke on "Further Researches on Hair." Some new and interesting conclusions have been adduced since the report made at the Chicago meeting. Control groups now are being established and some odd facts brought to light, such as the presence on the head of a single person of five percent of Negroid hair, with the balance Caucasoid.

In "Mankala, a Study of Trait Distribution," Maurice Mook (Northwestern University) discussed the wide range of this game in Africa and other parts of the world. He also described the variants.

Dr. M. J. Herskovits (Northwestern University), in "Proverbs of the Kru People of Liberia, a Study in Method," quoted from a vast store of sayings he had collected and explained that often they mean something totally different from their literal significance.

Dr. S. A. Barrett, Director of the Milwaukee Public Museum, who had recently returned from nearly a year's collecting trip in Africa, spoke on "Notes on the Natives of Africa," illustrated by some excellent slides.

A dinner to visiting members and their friends was tendered by the Northwestern University at the North Shore Hotel.

At the evening session two illustrated papers were presented. Huron H. Smith, Curator of Botany at the Public Museum, Milwaukee, discussed the "Ethnobotany of the Winnebago Indians," treating not only the uses of plants, but also native customs; several Winnebago songs were sung.

Geo. A. West, President of the Board of Directors of the Public Museum, reported on "The Isle Royale Archeological Expedition." The difficulties encountered and results achieved were brought home by a series of slides, supplemented by motion pictures.

On Saturday morning the session was resumed at 9:30. H. C. Shetrone, Director of the State Museum of Columbus, Ohio, opened with "Some New Phases of the Hopewell Mound Culture," stressing the discoveries that are extending this cultural province to embrace nine, possibly ten, states. He gave the main characteristics of culture as including, among others: the building of mounds, rings, circles, walls, etc., some mounds having an earthen floor; the cremation of the dead, or enclosing and extending the body in a log tomb; use of copper for ear-spools, helmets, or head ornaments, breast plates, etc.; use of woven fabrics; pottery, marked by roulette and by cross-hatch, also with conventionalized birds; use of mica and quartz; platform pipes; bone and shell etched and engraved in repoussé work.

Frank M. Setzler of the Indiana Archeological Survey gave "A Preliminary Report on the Archeology of Indiana." He told of a survey in Frankfort County, where twelve stone mounds were investigated and fifty-seven earthen mounds found and definitely located.

In the "Algonquian in Iowa" Dr. Charles R. Keyes, Director of the Iowa State Archeological Survey, presented various evidences of this culture in his state. He reported the finding of many new linear mounds in the central part of Iowa.

"Report on Explorations of the Old Stone Fort at Manchester, Tennessee," by P. E. Cox, Tennessee State Archeologist, showed that notwithstanding a rather thorough survey of the walls, gates, and interior, the Fort remains largely a mystery.

"Cartographic Symbols for Archeological Survey Maps," was read by the Secretary in absence of the author, Chas. E. Brown, Chief of the Wisconsin Historical Society Museum, Madison, Wis. It was a plea for a more thorough and revised symbolization for use with state and other maps.

Dr. W. B. Hinsdale (Museum of Anthropology, Ann Arbor Michigan) in "Maps—New and Old—of the Great Lakes Region," showed portions of the new state archeological atlas now in course of preparation by Secretary Ed. J. Stevens, of the Michigan State Archeological Association. These maps will locate all the major archeological features now known to archeologists of Michigan.

The final and afternoon session was begun with the annual business meeting. It was moved by Dr. Cole and seconded by Dr. Herskovits that the reading of the minutes of the 1928 meeting be dispensed with. The motion prevailed.

The Secretary's Report showed that since the 1928 meeting at Beloit one member had died, two had resigned, one had exchanged, and nine (of whom two were Associate members) had been dropped for non-payment of dues, leaving 61 active and 19 associate members. Since the 1928 meeting 11 active and 10 associate members have been added, making the actives 72 and the associates 29, a total of 101.

The Secretary reported mailing 379 letters, etc., and presented a bill for postage, $7.66, and for telephone calls, $2.00, a total of $9.66. The report was accepted.

The Treasurer's Report showed:

Cash as per the 1928 report	$ 86.94		
Dues collected up to May 10, 1929	485.00		
3 1928 members at $6.00 and one at $1.00	19.00		
	$590.94		$590.94
Expenses. Printing		$ 16.75	
Dues sent A.A.A.		345.00	
Total		$361.75	361.75
Balance as shown and agreeing with cash in the E. K. Warren and Co. Bank at Three Oaks			$229.19
Checks drawn and not paid on May 10			
Programs		$ 11.65	
Postage and Telephone		9.66	
Due Ethnological Soc. 5 Members		5.00	
Due A.A.A. on 6 members		30.00	
Total		$ 56.31	56.31
Balance			$172.88

Due from A.A.A.	$ 1.00	
Due from Actives	18.00	
Due from Associates	18.00	
	$ 37.00	37.00
Resources, Central Section		$209.88

Submitted by
GEO. R. FOX, *Treasurer*

The Auditing Committee then reported that they had examined the accounts of the Treasurer and found that the books balanced. It was moved by chairman Field that the report be accepted; seconded by Dr. Cole; the motion was carried.

The Nominating Committee reported as follows:

For President, Ralph Linton, of Madison, Wis.;

For First Vice President, H. C. Shetrone of Columbus, Ohio;

For Second Vice President, Henry Field, of Chicago, Ill.;

For Secretary-Treasurer, Geo. R. Fox, of Three Oaks, Mich.;

For members of the Executive Committee, E. T. Olmstead, of Urbana, Ill., Robert Redfield, Chicago, Ill., E. K. Putnam, Davenport, Iowa, Kimball Young, Madison, Wis., J. E. Pearce, Austin Texas.

Dr. Cole moved that the report be accepted and the Secretary be instructed to cast a unanimous ballot for each of the nominees for the several offices. This was seconded by Dr. Hinsdale and the motion was carried. The Secretary cast such ballots, and the various officers were declared elected.

The Resolution Committee reported two resolutions both of which were adopted:

Be it resolved by the Central Section of the AMERICAN ANTHROPOLOGICAL ASSOCIATION that this body deeply regrets the death, on January 28, 1929, of John M. Wulfing of St. Louis. One of the organizing members of the Section, he remained always a loyal and helpful associate. His anthropological interests, never narrow, took in the period before his death the special form of an interest in the development of archeological research in Missouri.

We recommend that a copy of this resolution be sent to Mr. Wulfing's family.

Be it resolved by the Central Section of the AMERICAN ANTHROPOLOGICAL ASSOCIATION that, recognizing the effort expended in preparation for this meeting and experiencing the warm hospitality which has met the members in Evanston, the hearty thanks of the Section are extended to Northwestern University, to President Scott, and to Professor Herskovits and his associates, for the courteous provisions which have given to this scientific meeting the added character of a gathering of congenial guests in the house of a generous host.

In bringing up the place of the 1930 meeting P. E. Cox tendered so eloquent an invitation to meet at Nashville, Tennessee, that E. K. Putnam stated he had planned to invite the Section to Davenport but would defer it in view of Mr. Cox's invitation. An invitation from Mr. West and Dr. Barrett to meet in Milwaukee also was received.

It was moved by H. C. Shetrone and seconded by Dr. Cole that the selection of the 1930 meeting-place be left in the hands of the Executive Board. Motion carried.

Moved by W. D. Strong and seconded by Henry Field that the Business session be adjourned. The motion was carried.

Four papers were presented. Dr Ralph Linton described "Megalithic Monuments of Madagascar." Mr. Linton found these still being erected, and told of methods and means; he also described the giant tombs which seem to have been constructed only within the last few centuries.

Mrs. Janet Montgomery McGovern's "Among the Headhunting Tribes of Formosa," was illustrated by a fine set of slides and many samples of the work of these people. She described their characters and culture planes, and gave the classifications of the various tribal units.

Dr. William M. McGovern's talk likewise was illustrated with slides. He spoke on "The Ethnology of Thibet," and traced the paths Buddhism took in entering the land.

Henry Field reported on the latest finds by the "Field Museum-Oxford University Expedition; Excavations at Kish, Mesopotamia." He described the finding of the four-wheeled chariot, the oldest wheeled vehicle yet discovered. In the very lowest levels of the excavations, where water comes in faster than it can be baled out, a new culture, as yet little known, was found.

ANTHROPOLOGICAL NOTES AND NEWS

DR. WALTER LEHMANN, director of the Museum of Ethnology at Berlin, and Professor Konrad Theodor Preuss have been elected honorary members of the Anthropological Society of Washington.—*Science*. Dr. Lehmann recently gave a series of lectures on ancient Mexican religions at the University of Buenos Aires.

DR. MILO HELLMAN has resigned his position at the College of Dentistry, New York University, to devote his time to more intensive research on problems of odontology and the development of the human face.

PROFESSOR A. L. KROEBER spent nine weeks among the Walapai in northwestern Arizona, where he took part in the first anthropological summer school sponsored by the John D. Rockefeller, Jr.. anthropological field station soon to be established at Santa Fé, New Mexico. Under the same auspices linguistic work among the Navaho was superintended by Professor E. Sapir and archaeological research in New Mexico by Dr. A. V. Kidder. Mr. Rockefeller has set aside $200,000 for the erection of an anthropological field laboratory to serve the same purpose in ethnology, as do in zoology such laboratories as that at Woods Hole, Massachusetts, and the California Scripps Institution of Oceanography at La Jolla. It will be an open house for the use of ethnologists from all parts of the world. It is hoped that the station will sponsor summer courses for graduate students every year, as it did this season.

HURON H. SMITH, botanist at the Milwaukee Museum, spent three months on the Oneida Indian reservation near Green Bay, Wisconsin, studying the aboriginal uses of plants. This is the sixth and last study to be made of the six Wisconsin Indian tribes, Menominee, Chippewa, Fox, Pottawatomi, Winnebago, and Oneida.

THE AMERICAN SCHOOL of Prehistoric Research, of which Dr. George Grant MacCurdy of Yale University is Director, will coöperate with the British School of Archaeology at Jerusalem next April, May and June in excavating three caves at the foot of Mount Carmel, near Athlit, Palestine. Dr. MacCurdy returned to New Haven on October 1 after conducting the ninth summer term of the School in selected portions of England, France and Spain. About half the term was devoted to excavating a rock shelter in Dordogne. Students attending the tenth summer term beginning the first of July, 1930, will have an opportunity to excavate not only in the Dordogne, but also in Spain.

MISS CATON-THOMPSON'S excavations in Rhodesia on behalf of the British Association corroborate Randall-MacIver's interpretation of the Zimbabwe ruins as essentially of indigenous origin and not antedating the mediaeval period. Alien beads from India and Malaysia permit chronological determination and suggest such dates as A.D. 900 and A.D. 600–1100. *Nature* (Sept. 7, 1929).

PROFESSOR H. F. CLELAND, of Williams College, is spending the first semester of the college year in California.

THE HERBERT SPENCER lecture was delivered at the University of Oxford on May 15, 1929, by Dr. Charles S. Myers, under the title of "Psychological Conceptions in other Sciences."

HARLAN I. SMITH, archaeologist of the National Museum of Canada, has been making still and motion pictures of the Indian life and archaeological subjects in the Coast Salish, Nootka, and Kwakiutl areas. *Museum News.*

A LECTURE was recently delivered by Doctor Cipriani, Professor of Ethnology at the Royal University of Florence, on the characteristics of the Bantu, which he interpreted as strongly presumptive of Semitic and Bushman origin. Doctor Cipriani was the anthropologist of the Italian expedition formed to study the Bantu problem. The researches were carried out partly in Asia and partly in Africa. Doctor Cipriani, at the time of his lecture, was planning to go to the Kalahari Desert to study living Bushmen.

DR. WILHELM KOPPERS, the editor of *Anthropos*, has founded a special Institute of Ethnography in Vienna. It is located in a wing of the New Imperial Palace, the same building which is to house the new Museum of Ethnography.

DOCTOR MARGARET MEAD of the American Museum of Natural History and Mr. Reo Fortune returned to this country in September, 1929, after a year's field work in the Admiralty Islands. Doctor Mead, under the auspices of the Social Science Research Council, was investigating the development of young children while Mr. Fortune devoted himself to a general ethnographic study of these people.

DR. ALEŠ HRDLIČKA left Washington for the summer to conduct his second expedition to Alaska, taking with him as assistant Dr. Maly, of Prague.

AT THE MEETING of the British Association for the Advancement of Science, held in Cape Town, the South Africa Research medal, was presented to Dr. Robert Broom for his archaeological and anthropological researches.

DR. E. B. RENAUD, professor of Anthropology at the University of Denver, conducted a two months' expedition for the Colorado Museum of Natural History. Reconnaissance trips and a general archaeological survey covered the vast region between the Purgatoire River in Colorado to the Canadian River near Tucumcari in New Mexico; the Raton-Las Vegas road, and the Texas line. Intensive exploration was concentrated in the Dry Cimarron valley, the principal result being the discovery of cultural and human remains of a primitive form of Basket Maker culture in caves located near Kenton, Oklahoma, and Folsom, New Mexico. This extends greatly to the northeast the culture area of distribution of that prehistoric culture. After the Pecos Conference Dr. Renaud, in the company of Dr. H. S. Colton of Flagstaff, undertook another archaeological trip to study the extension and contacts of the Mesa Verde and Kayenta cultures. About thirty sites were visited, some of them not previously reported.

DOCTOR GUDMUND HATT, once a student at Columbia University and known as an investigator of Lapp culture and as the author of distributional inquiries, has been appointed professor extraordinarius of cultural geography at the University of Copenhagen.

THE TEXAS ARCHAEOLOGICAL and Paleontological Society of Abilene, Texas has published a bulletin containing an article by Doctor Cyrus N. Ray on "A Differentiation of the Prehistoric Cultures of the Abilene Section," a paper by Rupert Richardson on "The Culture of the Comanche Indians," and several other contributions.

Social Science Research Council

The Social Science Research Council announces its second annual list of Grants-in-Aid. Altogether, thirty-seven scholars received support. On the basis of major emphasis, their projects were distributed among the social sciences as follows: Anthropology 2, Economics 6, History 16, Political Science 2, Psychology 4, Sociology 5, Human Geography 2. Most of the projects, needless to say, straddle a number of these fields. In fact, while not insisting upon it, those administering Grants-in-Aid look with favor upon projects that represent a broader approach to a problem than is possible within the limits of any one discipline.

The Grants-in-Aid of special interest to our readers are:

Leslie A. White (University of Buffalo)

Project: "The Securing of All Ethnological Data Possible from Santa Domingo, San Filipe, Zia Sant-Ana, and Sandia Pueblos"

Benjamin Lee Whorf

Project: "Translation of Aztec Manuscripts Relating to History of Toltec Period, Preparation of Aztec Grammar and Root-vocabulary, and of Works Relating to the Structure of the Nahuatl Language and the Connection of Nahuatl with the Piman Languages, with Study of Modern Spoken Nahuatl in Mexico, Recording of Spoken Nahuatl, and the Study of the Relation of Nahuatlan Linguistics to the Antiquities, the Hieroglyphs and the Investigation of the Ancient Middle American Civilization and Related Problems"

The aid granted by the Council ranges from $200 to $2000, and in almost every case is conditional upon liberal cooperation from the institution with which the applicant is connected.

The administration of Grants-in-Aid is in the hands of a special Committee of the Council known as the Committee on Grants-in-Aid. The Committee plans to hold two meetings during the coming academic year: in mid-November and in mid-March. The closing date for receiving applications for consideration at the latter meeting is February 1, 1930. Any scholar who is a resident of the United States or Canada and who has evidenced real research ability is eligible. The Committee expects that the applicant's project will be well under way, that he can forecast the time and the money required to complete it, that it is not to be used in fulfillment of any higher academic degree, and that he has already canvassed carefully the possibility of aid from his own institution. Applications should be addressed to Walter R. Sharp, Secretary of the Committee on Grants-in-Aid of the Social Science Research Council, 230 Park Avenue, New York City.

A Statement dated Sept. 11, 1929 announces the appointement of Robert S. Lynd as permanent secretary of the Social Science Research Council.

The Social Science Research Council has elected the following members under the recently created classification of Members-at-Large: Professor Henry M. Bates, Dean of the Law School of the University of Michigan; Dr. Adolf Meyer, Professor of Psychiatry and Director, Henry Phipps Psychiatric Clinic, Johns Hopkins University; Dr. C. E. A. Winslow, Graduate School Chairman, Professor of Public Health, Yale University; and Professor Robert S. Woodworth, Department of Psychology, Columbia University.

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MORPHOLOGY AND FUNCTIONS OF THE AUSTRALIAN MURNGIN TYPE OF KINSHIP[1]

By WILLIAM LLOYD WARNER

THE Murngin tribe is situated on the western shore of the gulf of Carpentaria where this body of water joins the Arafura sea in North Australia. It is one of eight tribes within this general area having the type of kinship here described.

The Murngin are organized into local clan hordes, which are regrouped into the moieties called YIr-I-tja and Du-a. The clans and moieties possess multiple totems. A number of ceremonies connected with the various totems are celebrated by all the clans during certain periods of the year.

The Murngin system of kinship has the classificatory method of grouping in common with the other tribes of Australia whose method of reckoning has been studied. Ego's father and his brothers are all called by the same term as the father; ego's mother and her sisters are given one relational name. Ego's father's father and his brothers are given the same term. All the sons of father's father's brother would be called father; and all the sons of these "fathers" are brothers. As for ego's sons and the son's sons' generations, with this principle operative, a large number of relatives very distantly connected by actual blood ties are called brother, father, and so on. This method of grouping of course applies to all other lines of descent recognized in this kinship system.

All people are related to ego whether they be in his own or in neighboring tribes. This relationship may be actually consanguine or only tribal.

There is no reckoning of descent by affinity alone[2] among these people, who thus conform to the usual Australian grouping.

[1] This paper is based on field work done in 1927–1929 under the auspices of the Australian National Research Council and the Rockefeller Foundation and under the direction of Professor A. R. Radcliffe-Brown.

[2] The Tiwi of Melville Island, as well as certain other exceptional tribes, do use this un-Australian method of grouping.

TERMINOLOGY

The following are the Murngin terms with their descriptive English equivalents. (See the Murngin Kinship chart)

marikmo
f.'s f.
f.'s f.'s sis.

bapa
f.

mokul bapa
f.'s sis.

wawa
older br.

yukiyuko
younger br.

yeppa
sis.

gatu
son
dtr.

maraitcha
son's son
son's dtr.

momo
f.'s m.

nati
m.'s f.

arndi
m.
m.'s m.'s m.'s br.'s son's dtr.
m.'s br.'s son's dtr.
m.'s m.'s m.'s br.'s son's son's son's dtr.

gawel
m.'s br.'s son
m.'s m.'s m.'s br.'s son's son
m.'s br.'s son's son
m.'s m.'s m.'s br.'s son's son's son's son

galle
m.'s br.'s dtr. (wife)
m.'s br.'s son
m.'s br.'s son's son's dtr.
m.'s br.'s son's son's son

mari
m.'s m.
m.'s m.'s br.
m.'s m.'s br.'s son's dtr.
m.'s m.'s br.'s son's son
m.'s m.'s br.'s son's son's son's dtr.
m.'s m.'s br.'s son's son's son's son's son

mokul numeru
m.'s m.'s br. dtr.
m.'s m.'s br. son's son's dtr.

marelker
m.'s m.'s br. son
m.'s m.'s br. son's son's son

momelker
m.'s m.'s m.'s br.'s dtr.
m.'s m.'s m.'s br.'s son's son's dtr.
m.'s m.'s m.'s br.'s son's son's son's son's dtr.

natchiwalker
m.'s m.'s m.'s br.'s son
m.'s m.'s m.'s br.'s son's son's son
m.'s m.'s m.'s br.'s son's son's son's son's son

du-e
f.'s f.'s f.'s sis.'s son

f.'s f.'s f.'s sis.'s dtr.
f.'s sis.'s son
f.'s sis.'s dtr.

waku
f.'s f.'s sis.'s son
f.'s f.'s sis.'s dtr.
sis.'s dtr.
sis.'s son
f.'s f.'s f.'s f.'s sis.'s dtr.'s dtr.'s son
f.'s f.'s f.'s f.'s sis.'s dtr.'s dtr.'s dtr.
f.'s f.'s sis.'s dtr.'s dtr.'s dtr.
f.'s f.'s sis.'s dtr.'s dtr.'s son

kaminyer
dtr.'s son
dtr.'s dtr.

kutara
f.'s f.'s f.'s f.'s sis.'s dtr.'s son
f.'s f.'s f.'s f.'s sis.'s dtr.'s dtr.
f.'s f.'s sis.'s dtr.'s son
f.'s f.'s sis.'s dtr.'s dtr.
sis.'s dtr.'s son
sis.'s dtr.'s dtr.

dumungur
f.'s f.'s f.'s f.'s f.'s sis.'s dtr.'s dtr.'s son
f.'s f.'s f.'s f.'s f.'s sis.'s dtr.'s dtr.'s dtr.
f.'s f.'s f.'s sis.'s dtr.'s dtr.'s son
f.'s f.'s f.'s sis.'s dtr.'s dtr.'s dtr.
f.'s sis.'s dtr.'s dtr.'s son
f.'s sis.'s dtr.'s dtr.'s dtr.

A glance at the list shows many duplications of terms; few terms designate but one person; and frequently a man and woman are called by the same term.

In ego's line and generation, older and younger brother are differentiated on the basis of time and of birth. The son of an older brother of one's father or a younger brother of one's father is classed in the same way as older or younger brother according to the time of his birth. There is no term for older or younger sister. Only brothers, blood and tribal, are called wawa and yukiyuko, and only blood and tribal sisters are termed yeppa. Son and daughter, actual and tribal, are gatu, and no other relative is referred to by this name. One term is unique for, and applied to both tribal and blood son's son and son's daughter; and one for daughter's son and daughter's daughter; tribal and blood father's father and father's father's sister are the only marikmo. Bapa is used only for father, and mokul bapa (mokulmal) only for father's sister.

Mother's father (nati) and father's mother (momo) who are brothers and sisters have a different term applied to them. They describe only the people the English system would refer to as mother's father and father's mother, if we added tribal relatives to their system of kinship.

The rest of the nomenclature might refer to a number of people, e.g., not only does arndi designate ego's mother and her sisters, acutal and tribal, but also mother's brother's son's daughter.

Terms for a number of relatives both male and female are: mari, due, galle, kutara, waku, gurrong, and dumungur. Terms which apply to a number of relatives but use different terms for the male and female siblings are: (for the male) gawel, marelker, natchiwalker; and (for the female) momelker, mokul, and arndi.

There is no extraneous meaning in the terms themselves, they are purely kinship designations, though the endings have a modifying effect. The suffix "elker" (unker, alker), means little one, or smaller. Mother's father is called nati; mother's mother's mother's brother's son is named natchiwalker (little nati) and frequently referred to as little nati (nati u-tji-wal'-la). Nati's sister, momo, (father's mother) has been changed to momelker, the sister of natchiwalker. Mari (mother's mother's brother) has been changed to marelker (son of mari), but a new term has been made to describe the sister of Marelker. Due has been altered to dumunger (little due).

The Murngin recognize part of this linguistic modification. This is particularly true of natchiwalker; but dumungur, momelker, and marelker are not seen as modifications of the original term.

The data force the following questions: (1) Are all the uses of a term equal in importance? (2) Is only one prominent? (3) Have the others been patterned upon this fundamental one? The answer to the first two questions is, No; to the last, Yes. The proof will follow later.

The real due is sister's husband (also his sister), who is father's sister's son, and the reciprocal galle (mother's brother's son or wife's brother) is the true galle. "My true waku" is my sister's son or daughter's husband and sister's daughter. Arndi and gawel are mother and mother's brother. Momo and nati and kaminyer (reciprocals) only appear once in this system. The fundamental relationship of mari is that of mother's mother and mother's mother's brother. Mother's mother's brother's son and daughter are the proper mokul and marelker. The real momelker and natchiwalker are mother's mother's mother's brother's daughter and son, or the wife of mari and her brother. The true kutara are sister's daughter's son and sister's daughter's daughter; the fundamental gurrong, father's sister's daughter's son and father's sister's daughter's daughter; and the primary dumungur, father's sister's daughter's daughter's son and his sister, or the female kutara's husband and his sister. These terms, either completely or with slight modifications, have been repeated through alternating generations, and laterally through the patrilineal lines.

This asymmetrical cross-cousin marriage causes a male relative in the third patrilineal line to the left of ego and a female relative in the third patrilineal column to the right of ego to go unmated (in the kinship system)

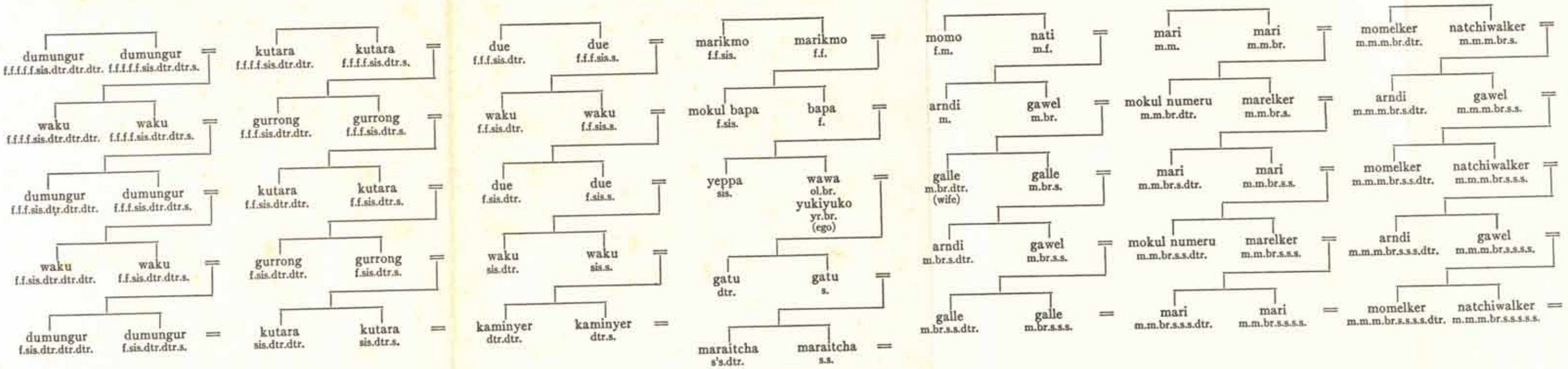


FIG. 1. Murngin Kinship System.

The = sign means marriage. The ⌐¬ sign means siblings. The ⌐┘ sign means descent.

(Ego is to be found in the fourth vertical line from the left and the third descending generation under the older and younger brother relatives.)

or a never ending addition to this system to bring about a symmetrical form, but as one line is added to each side of the system a new one is necessary, unless some device is created to throw this additional line back into the kinship. This has been done by the natives. Natchiwalker marries mari (not mari as mother's mother); gawel marries a distant mokul and to the left of ego dumunger marries another kutara, and waku another gurrong.

The second ascending generation is called the head (lia) of the kinship system (gurratu), the second descending is called the foot (dɛl-kĭf-γĭ) and the lines of descent are known as paths (badjiwar). This limitation is purely arbitrary, since marikmo's father and mother have to be recognized on the principle that all people are relatives, and maraitcha's son and daughter must also have a kinship term. A system must be devised to fit these needs. Among some people all such kin are lumped under the general heading of the terms used in the last ascending and descending generations. This is not done among the Murngin. Marikmo's father is old gatu and the latter's father is wawa. Nati's father is gawel and his sister arndi; their first ascending generation is gawel. The other lines continue alternating as they do in the five generations. The son of maraitcha is gatu.

With four waku, arndi and gawel, three dumungur, natchiwalker, kutara, mari and momelker, two gurrong, due, galle, marelker, and mokul in the system, it might be asked how the native indicates to which mari, waku, and so forth, he is referring. He could give the actual names of the persons, and with an individual under discusison this is done; but frequently the older men and women discuss the gurratu as an abstract system. They then use the following method: waku becomes (1) my own true waku, the son of my yeppa; (2) old waku, the son of marikmo, and husband of mokul bapa; (3) waku, son of kutara, and dumungur.

Father's sister and mother's mother's brother's daughter have the same name, mokul, with the suffixes bapa and rumeru always added to distinguish them, the first meaning father, and the second tabu. They are very different as social personalities, though the word mokul does indicate a feeling within the culture that they are alike.

The most interesting result of a study of Murngin kinship morphology is the "urge" for symmetry. One feels this in the native mind, too. There is always an unconscious and frequently a conscious desire to "keep the gurratu straight."

Social Personalities and Functions of the Murngin Kinship System

Every individual term represents a complex nexus of social behavior which creates a well-defined social personality. Each of these social personalities is but one element of the larger personality of each individual within the society since each individual male has all the male terms in the kinship system applied to him, and every woman all the female terms. *WAWA*⇄*YUKIYUKO*. (older brother⇄younger brother)

There are several varieties of the general type of this relationship. These differences are a part of the consciousness of the natives when they use the two general terms. The varieties are: (1) Two brothers from the same father and same mother; (2) two brothers from the same father and mothers who are sisters; (3) from the same mother and two fathers who are brothers; (4) from two fathers who are brothers, and two mothers who are sisters; (5) brothers belonging to the same clan but only tribal in relationship; (6) brothers from near-by clans; (7) brothers from more remote clans and tribes. The intensity of behavior decreases from the first to the last; indeed, the last two varieties may have little in common with the other five, yet given normal conditions, the Murngin and the other tribes with their type of kinship would consider it very wrong for certain, though not all of the rules regulating this relationship, to be broken. Hence it will be necessary to differentiate between the various kinds of brothers.[3]

The junior levirate is a prominent mechanism. When an older brother dies the next brother in age and consanguinity receives his wives and becomes the father to the children. This is not only a privilege, but also a duty: frequently wives thus acquired, being past the age of bearing children or gathering food, are really an economic liability to the heir, yet he must take them and look after them.

The junior levirate functions even before the death of the older brother. A gawel ("father-in-law") is supposed to give his waku all the female offspring from his wives, but there is a strong feeling that a man who has acquired two wives or all the issue of his gawel's first wife should allow his younger brother to have his share of the women from the gawel and mokul. Wawa, however, has the first right to them: before his gawel gives the third daughter to the younger man he always asks permission of his older waku (the yukiyuko's wawa). He will say: "It is better that your yuki-

[3] An aborigine, speaking fair English, described the first two varieties as "my proper wawa," the third and fourth as "my proper wawa, but little bit different," the fifth as "close up wawa," the sixth and seventh as "far-off wawas."

yuko have this woman, for you have two already, and he has none. It is better that I have more waku to help me." Unless the wawa (older waku to the speaker) is an extraordinarily selfish person, he immediately replies, "Yes, you tell him to feed her" (give her to him for a wife); and he helps his younger brother procure the presents he must give gawel and mokul for this new wife.

Mutual help prevails between wawa and yukiyuko in giving frequent presents to gawel and mokul. When wawa is making presents for his first wives, yukiyuko gives him spears, game from the hunt, and whatever wawa might like to present to his parents-in-law. When yukiyuko's turn comes, wawa is equally helpful. There is no obligation on yukiyuko to make presents to wawa for the latter's right to the galle that are to come to the former. Rather, wawa frequently asks gawel to give his other daughters to yukiyuko and makes presents to gawel for this purpose. Several motives guide him in this procedure. The first is brotherly affection and family pride. Own brothers through one father and one mother or father's brothers and mother's sisters are one's best friends, and most like one socially. Then there is frequently the fear that yukiyuko will fornicate with wawa's wives. This is no uncommon thing, and the jungle and Australian bush offer ample opportunities for secret meetings. An old man usually suffers this indignity from a younger brother in silence since he knows that his senility forces his wives to go to other men for sexual satisfaction and that his younger brothers who will inherit them are the proper ones for them to go to. If the older brother has this situation too forcibly thrust upon him by camp gossip, he must attempt to discipline the younger man by scolding him,—but "he doesn't talk very hard." Finally, an older brother always helps a younger brother to acquire a wife because it settles the younger man and tends to prevent his getting into trouble with more remote wawas, yukiyukos, and other kin, by copulating with their wives, thereby forcing the wawa to defend his brother from their vengeance.

Among younger men this would cause considerable trouble and would not happen very often except among tribal brothers, the whole pressure of society being against the younger man: all the relatives in his male line and those of the clan would defend the rights of the older man and condemn the younger.

Because all of the members of a group of brothers are all due to all galle and the women thereby are the potential wives of all yukiyuko of this group, there is a strong tribal rule that no yukiyuko can talk to or be near wawa's wives, but wawa can talk to and be near yukiyuko's. This would not be true of a woman beyond the age when she would be

sexually interested in yukiyuko; nor of boys below the age of puberty. This rule holds against all yukiyuko no matter of what category (actual or tribal) except for blood brothers who had a tremendous love and trust in each other. There are cases of this kind among blood brothers, but none were observed of tribal brothers breaking this rule.

There is still another method by which the junior levirate operates. A wawa often gives one or two of his younger wives to yukiyuko. These wives may merely be those promised by a gawel and for whom wawa has made presents (wawa would be forced to obtain permission from gawel in this case); or wawa may give yukiyuko wives he has already lived with, in which circumstances permission need not be asked.

If wawa has four or five wives, he may say to a single yukiyuko, "You see that one—you take her and feed her." Yukiyuko usually says, if wawa is an old man, "No, you are an old man. I'll wait until you die, then I'll have them all." "Wawa replies, "No, you take her now, yukiyuko. I have many wives and you have none." Yukiyuko then takes her, and she belongs to him permanently. Wawa loses all right to her sexually and economically, and she cannot be returned to him. If yukiyuko dies, his new wife would go to his younger brother, even though he were not consanguine but only tribal.

Ordinarily the older brother would present his younger brother with a wife if particularly pleased with yukiyuko's successful termination of a punitive expedition against common enemies, or for some other exploit the older brother admired.

One of Warlumbopo's older brothers (actual) had been ambushed and severely wounded by a tribal yukiyuko. He crawled away from the scene of the attack in an endeavor to get back to his own country and totem well. He was too weak. He said to his wives, "I'm dying; when I'm finished, you put me in my grave here and go straight to Warlumbopo and tell him."

Shortly after this Warlumbopo walked into the camp of the dying man. He cried and cried. The old man, now very near death, raised himself and performed his death dance—that of the Black Duck, his principal clan totem; and while he danced he cried out the call of a duck flying home. He was sending his spirit back to his clan well. He fell back dead.

Warlumbopo wailed for his dead brother. He refused to allow the wives of the dead man to bury him. "I'll cry no more for you. I'll not show my sorrow now. I'll buy you back first." He went down to the country where the brother had been mortally wounded; through cunning and skill he killed the slayer of his wawa and escaped. He returned to his dead brother and buried him.

Daurlung, an older brother to Warlumbopo and younger to the dead man, arrived. Warlumbopo sang to his brother the totem song and thereby told him of

their brother's death since the name of the dead is taboo. Daurlung said, "We'll get all our Retarngo people and go fight them." "No," said Warlumbopo. He had not told Daurlung of his killing their brother's slayer since the latter had been a good friend of Daurlung's. Daurlung said, "Yes, we must go kill our brother's slayer." "You can't kill him now." "Why?" "He's dead." "Who killed him?" "I did." "My own brother! Good! I'll give you two of my wives." Warlumbopo then received two of Daurlung's wives.

This episode is given to illustrate not only the operation of the junior levirate during the life of an older brother, but also some of the psychological and sociological relations between a group of brothers. It shows clearly the solidarity between them, and also its lack between "far-off" brothers since it was a tribal brother from another clan who had killed Warlumbopo's brother.

Wawa always is at the head of a family of brothers and has the strongest voice in their affairs if the father is very old or dead. However, if wawa is not of an assertive type while one of the younger brothers is, the latter could hold equal authority with him and frequently would have the final decision on any problem that confronted them.

The oldest brother, who has the rights of ceremonial leadership for certain of the clan and moiety ceremonies, usually has the next oldest help him, and they confer over ceremonial matters on an almost equal basis; but, given two personalities of equal strength, the older would be by virtue of his age the more powerful in family affairs.

Usually two brothers cooperate in making a canoe since of all economic labors this is the most difficult and extends over the greatest period of time. A canoe, too, has the greatest economic value of all the Murngin's technological articles. Wawa has the greatest control over the canoe, although yukiyuko, if a man of will, may have an equal say in its management. If it were traded to another group, all the brothers would feel they had an ownership in it, even if they had not helped make it.

The brothers usually have an equal right to the individual property of each, although it is definitely known that a spear, a club, a basket, or any other article belongs to one man and not to the group. A dog is known to belong to one man, yet the other brothers have a secondary ownership feeling, and he recognizes them as secondary masters, much as a boy with us may own a dog receiving primary obedience and loyalty from his pet, while the other brothers are secondary masters. These latter would look upon the dog as their brother's but as "ours" in relation to outsiders.

If a son of one of the brothers dies, the others always join in the mourning for him in the ceremonial dances. This includes all varieties of brothers

within the clan, the activity being really more a clan than a fraternal function.

Among brothers no further removed than the clan periphery fighting is not allowed, but among brothers who belong to adjoining clans warfare is quite common.

Although the Murngin and the other seven tribes who share their type of kinship have a very strong feeling against the younger brother's copulating with an older brother's wife under ordinary circumstances, there is a period among the peoples practising the Gunabibi ceremony when sexual "license" is recognized and even demanded between brothers and their wives. This is, however, very strictly regulated; only brothers from more distant clans would be invited and allowed to exchange wives for ceremonial copulation. The tribal ideal of this custom is that a few nights before the end of the ceremony older brothers call their consanguine younger brothers and ask the latter to go to the nearby camp of the distant brothers in attendance at this ceremony, taking the older men's wives with them. The older brothers in the visitors' camp do likewise. The men and women paint themselves and go into the bush in the nearby jungle for copulation. This last night one woman may stay with several men, as always a larger proportion of men than women attend. Wifeless brothers of the men exchanging their women usually enter into this ceremony. Although a woman may express dislike for her ceremonial partner, her husband forces her to accede to his wishes, telling her that otherwise she will be ill. If a young man is backward, as occasionally happens with extremely bashful young men, the woman sends word that Muit, the great subterranean snake, will make him and her ill. All concerned are eager to force the young man to accept her invitation. After a man has had intercourse with a tribal brother's wife at the Gunabibi ceremony the husband puts his sweat (the husband's) on both of his guest's legs "so that he won't be sick from it." The men meanwhile have been giving presents to the women for some time before this ceremony and the women turn the gifts over to their husbands although they frequently keep part for themselves. In reality, there is an exchange of presents, as well as of wives, among these more distant brothers.

The above is a tribal ideal. Actually, copulation starts early in the ceremony, and in the minds of the natives it is purely a pleasurable act, while the last night's indulgence is a purification rite supposed to cleanse a man and woman of any impurities and prevent them from being ill during the period between the present ceremony and the next. The men and women have clandestine meetings, but it is generally known which people are having

these assignations in the surrounding bush or jungle, and many broadly humorous remarks are passed by both sexes about their various lovers. However, some men and women would not enter into this earlier secret copulation, but would wait until the last night.

BAPA⇄GATU. (father⇄child)

There are five varieties of fathers and sons, in the following order of importance: (1) the blood father; (2) his brothers; (3) fathers more remote than the first two, but in the same clan; (4) fathers from nearby clans; and (5) fathers from remote clans.

A definite distinction is made between actual father and father's brothers, blood sons and brothers'sons; between father's own brothers and clan brothers of the father. Clan solidarity sharply divides fathers within and outside of the clan. There may or may not be a difference in emotional feeling between a father or son from a near and one from a more distant clan. The usual behavior between father and son may not hold, and generally does not, between a distant son and father; frequently, because of the opportunities of competition for women between these groups, there is actual animosity and warfare.

Since older and younger brothers are clearly differentiated by separate terms and a definitely regulated behavior between them, the relationship of bapa and gatu must be considered from this point of view, since gatu are wawa and yukiyuko to each other. Does a father distinguish between older and younger sons, even though there is no term to express these functional differences? The answer is decidedly in the affirmative, as will be seen below.

The normal relationship of a father to his son from the period before birth until the death of both will be presented in chronological order.

When a "married" man has no children, he must observe a number of food taboos until his wife or wives have borne him offspring, or rather until one of them announces pregnancy. Childless men cannot eat porcupine, emu eggs, snake eggs, iguana eggs, turkey eggs, crayfish, large barrimundi, or crabs. Even though a man kills or gathers any one of the above, he may not eat it if he is childless, unless he acquires the right by old age. When a child is born all these taboos are removed, but the child must be his own, not that of a brother.

The ideas surrounding birth give the father a prominent part in the procedure. It is believed that the spirit children live in the clan well, where the various spirits of the dead and the unborn stay with the clan totems. A father dreams that the child comes to him, asking where it can find its mother; the father points her out, and the spirit child enters

the mother's vagina. The next day the man informs the wife that she is going to have a child, or to test the value of his dream he may keep it a secret if it is his first child . The natives believe these dreams are always true since a few days later a wife usually tells her husband that she has felt the movements of a child within her. The husband knows then that it is true. Then he sharpens his spears, re-wraps his spear-thrower, and prepares to go hunting, for he knows that he will have good luck because his child has come from the totemic spirits within the water. He kills plenty of game and brings it home. A slight ceremony takes place, after which he may eat all food, for according to Murngin thought his wife has conceived and he is now a father. This removal of taboos on a man's diet is one of the reasons why a man is eager to have children.

A child comes from its father's well on the father's clan territory, for clan descent is patrilineal. Sometimes the father may be in another part of the country when he has this dream and may dream that the child came from the well of the clan with whom he has been living. Then it would not only inherit its own clan's totems, but also those of the clan from which it was supposed to have come, yet would be a member only of his father's clan. This new waterhole from which he has come must belong to the same moiety as his father's; for a father to be Yiritja while the son was Dua would be impossible. No man has ever dreamed such an unorthodox idea,—either because the moiety idea is such a complete part of Murngin thought that their dreams conform to it; or the men who have such dreams place no importance upon them and forget them. At all events, a child, male or female, inherits its father's clan and totems, ordinarily; and in addition occasionally inherits totems of another clan, even though it does not belong to this group. Further, the dream clearly demonstrates a sociological connection between father and child even before birth. I have recorded no case of a child without the father's dreaming of its arrival.

Sometimes a man steals another's wife while she is pregnant. The child when born would consider himself a member of the new man's clan until he was older, then he usually returns to his own father's clan and identifies himself with it, although he may have strong attachments to his second father's group. All this indicates patrilineal inheritance from the actual father and his group, not from someone of the same moiety but a different clan, also the importance of the actual father in Murngin thought.

When a man dreams of a child he goes hunting and fishing next day and has excellent luck, because the child came from the well water and brought luck with it. If a man has more than ordinary luck in the hunt, it is sometimes felt that his wife is going to have a child and that he will presently have a dream to announce it.

Several informants without being questioned declared that a man must abstain from the tabooed foods until he has had a child, because this made him quiet and settled, so he would stop running after other women and would stay in one place to take care of his galle, gatu, and parents-in-law. The social implications of this are very important. By becoming a father he has finally become a husband; he has extended his patrilineal line descendingly and thereby strengthened his own family; and, third, he has also through this child strengthened his relationship to his wife's brother, his gawel, mokul, and marelker. For, instead of but one direct reciprocal relation with them, he now has an indirect reciprocation with each, since his son or daughter calls his galle "gawel," and has a strong bond of mutual aid and obligation with them; his son calls mokul "mari" and has a strong untabooed attachment to her; and to morelker the son also has a strong emotional relationship because ego's morelker is mari to the son. From the discussion of these social personalities, will appear the enormous addition to one's kinship personality through the birth of a son, who strengthens the man's position, adding to his security within the clan, the tribe, and with other tribes.

On the other hand, the birth of a daughter is of equal importance. It gives the father added bonds with waku, because the latter becomes due to her; it strengthens his position with kaminyer, who is waku to ego's son. A man prefers a son, however, to a daughter because of his value in the constant tribal feuds, not only through his own assistance and the aid he brings to his relations (as, of course, the daughter does through her marriage), but also because almost the entire ceremonial life of the father's clan and tribe is centered around the males. A son inherits the right to perform certain dances through his father and never through his mother. By a son's initiation into the various ceremonies the father's social participation is further increased as it would not be if the child were a daughter.

Each clan has ceremonial leaders for one or all of the ceremonies it owns. The leadership is inherited by the oldest son if he is old enough to lead it. If not, the next brother of the deceased inherits the right until the son is old enough; or at the death or senility of the second brother the son becomes leader. The course taken largely depends upon the personalities of the two men, but in all events the son is looked upon as the heir to these rights. Such ceremonial leadership makes of a person a kind of clan headman.

When a boy is to be circumcised (at from six to nine years of age) it is the father who decides the type of initiation ceremony. The other old men of the tribe confer with him as to the time, place, and other arange-

ments. The father and the mother make presents to the man who paints the child's body in preparation for the initiation. The father is one of those who teach his son how to hunt, fight, and conduct himself in the best possible way in the practical affairs of life. If he is a ceremonial leader, he instructs his son in the routine of songs, dances, and words that make up the great ceremonies.

Before the actual circumcision the neophyte is sent on a journey through the country of the various clans to inform the people of the coming ceremony and to collect presents. The father may refuse to send his son if he wishes; or, if he wants the boy to go, he may order him to leave and to take a certain route. No one else could do this.

A father never corrects his children. This is left to other kin (see mari, nati etc.).

Fathers and sons often cooperate in making a canoe. A son must always acquiesce in a father's request for the use of a canoe, or of any of his property. A father occupies a place very much like an older brother's, and with his senility recognized, the oldest son assumes his place as head of the family; at least, he is looked to for guidance by the brothers and sisters.

Before circumcision, when a small boy finds a wild bees' nest, the honey of which is a greatly prized delicacy, he goes to tell his father (mari, gawel, and others, too), who will open the hollow tree for the boy, and allow him with the aid of his small brothers to eat all of it, but will not eat it himself nor allow anyone else to touch it. This rule is very important, for it rests upon a magical idea that the boy will have good luck in the hunt and in later finding large nests. Should a man eat any of the boy's first wild bee's honey, a father would consider this more than sufficient cause to fight him. It is the father who would take the initiative in protecting the small boy's interest.

When a child becomes ill, particularly a son, the father either treats him magically or uses native remedies. Should a mother neglect her child, or through misadventure allow it to be harmed, most fathers would be very angry and beat her, in some cases trying to kill her.

When a son dies, the actual father and his brothers lead in the mourning ceremonies; when a father dies, all the varieties of sons within the limits of the clan cooperate in leading these ceremonies. When the bones of a man are exhumed after burial, it is the father who opens the grave and, with the help of the son's due (the father's waku), cleans the putrid flesh off the bones.

The death of a son is a very great loss since there is no one to take his

place, but the death of a father is felt less severely by the children. If the children be small, they and their mother pass through the levirate to the father's younger brother. If the children are grown, the father usually has become very old and his death causes but little loss to his children. The death of a father in our own society is felt far more and creates a greater social maladjustment than in the native society. The Murngin children have been previously calling the father's brothers father and further their behavior towards this younger brother of their father has but slightly differed from that towards their own father. The mother continues in the same social group and does not go back to her own. Except for the loss of an individual to the family and society which would usually be keenly felt by the sons, as would the death of the sons by a father, there is no change in the social adjustment of the children or other members of the kinship system.

When a son dies a father beats his own head and attempts to wound himself to show his sorrow.

Thus far the whole relationship in one of solidarity, and little potentiality of conflict appears.

Murngin polygyny usually means that a man will acquire wives throughout his lifetime. Through the operation of tribal laws a very old man frequently gets young girls for wives. All these women are arndi to the sons, but often young men clandestinely cohabit with their father's younger wives. These have to be only tribal relatives of the sons' actual mothers, or such activities would not be indulged in. Even so the practice is considered wrong, but the feeling is not strong enough to prevent a sexually active son from cohabiting with a father's wife. Should the old man discover it, he would be very angry and reprove his son by calling him a dog etc., but it is generally agreed that an old man beyond the age where the sexual life interests him would not "growl very hard."

Sometimes when a son is too young to marry, a father may take his boy's galle as a wife (she is "small" arndi to the father) to keep someone else from getting her, because of the son's immaturity. The son would call this woman arndi until the father's death, then he inherits her and calls her galle. Frequently a son considers it his right to copulate with her (not openly), which causes the father much pain. The younger man would have abuse heaped on his head, but there would never be a fight over such a problem, or any other, between a father and son so long as they belonged to the same clan; however, a dispute by sons and fathers outside the clan often leads to fights and occasional killings.

If a daughter runs away from her husband (the father's waku), the

father with the aid of his sons brings the runaway back to his waku. She would receive a beating from him and be advised to remain faithful to her husband. Quarreling daughters who are the wives of one man are instructed by their father to live in peace, for he considers the welfare of his waku of the greatest importance. He also keeps his daughter's totemic name for her since she is not allowed to know it.

MARIKMO⇄MARAITCHA (*diramo* and *mielk*) (father's father's sister; father's father;⇄son's son; son's dtr; br's son's son; br's son's dtr.)

This relationship conforms to the father-children type, having the same five varieties as found in the bapa-gatu relationship.

The marikmo-maraitcha reciprocation is far less powerful than the wawa-yukiyuko, or bapa-gatu relationship. The female marikmo is seldom considered at all. A marikmo diramo is of more importance to a maraitcha diramo after death than before. It is largely because of this post-mortem relationship that the living tie is of importance.

A spirit child comes from the waterhole of the clan where the spirit of the dead marikmo is. This marikmo takes a special interest in the unborn child. A maraitcha receives some of his names from his marikmo diramo, and the rest from his mari diramo. A maraitcha receives all of his totemic names from his marikmo. A maraitcha mielk receives her names from her female marikmo and mari.

When a man dies, the spirit of his marikmo comes out of the well for him, and takes the dead man's good soul back to the well from where it had come as a spirit child. When a man lies dying, the spirit of marikmo (also mari) comes to his maraitcha and calls for the spirit to come out and join him. Sometimes the natives believe that just as the man dies, while the heart is still beating, the marikmo's spirit enters the heart, and that is why the heart continues beating. He then takes the soul of the dead man out of the heart and leaves for the other world through the dead man's mouth. Frequently, the spirit of a dead marikmo fights with the Mokoi (the evil ghosts who live in jungles) for the spirit of the dead man, for they claim it as theirs. It is for this reason that the father and others paint the body of the dead man or woman with the totemic waterhole's design and sing a totemic song to the clan, so that marikmo can hear and lead his maraitcha to the totemic well and save it from the attacks of the mokoi.

When the bones are exhumed the women for a time carry them. A marikmo mielk helps in this, but her participation is small and of little importance.

A marikmo diramo has a claim on a man's canoe. Both male and female marikmo seem to acquire what powers they have because they are in the patrilineal line and pale reflections of the father.

MOKUL BAPA⇄GATU (*father's sister⇄brother's child*)

There are the same varieties of mokul bapa as of bapa, except that the first variety cannot exist in this latter case. The mokul bapa, say the natives, is a kind of female father. No taboos surround her relations with gatu except the ordinary restrictions between men and women of the same moiety. Gatu diramo not only looks upon her as a sister to one's father, but also as a mother of his due, a most important person. Gatu mielk sees her as a possible mother of her husband, and, with marriage matters definitely settled, would make presents to her as such. Husband's mother and son's wife are usually together after the second year of marriage. Gatu diramo would always go to his mokul bapa among others for food if he were hungry.

When a man dies and his father is exhuming his bones, all the other women relatives are kept back of a windbreak and forbidden to have a full view of the proceedings, but mokul bapa is allowed to stand by the men and watch, occupying in a lesser degree the position her brother holds in this respect. Further, she, among others, is given the bones of her dead gatu to carry before they are finally put into a hollow log coffin.

She occupies as an individual (without children) the same position as the father's brothers, who also call their brother's children sons and daughters. She belongs to the same generation and patrilineal line as father's brothers and except for sex she is in every respect the same as they, and her brother's children treat her with the respect due to their fathers. A better understanding of her position can be gained by examining the relations of brother and sister.

DUE⇄GALLE (*diramo* and *mielk*) (father's sister's child⇄mother's brother's child)

So far we have only discussed the social personalities in ego's own patrilineal line. We now turn to two new lines of descent,—the alternating due-waku line which terminates in the term kaminyer; and the momo-nati and arndi-gawel line found, with galle added, in ego's own generation and the second descending generation.

This receiprocal has four social personalities: (1) due (man) and galle (woman); (2) due (man) and galle (man); (3) due (woman) and galle (woman); and (4) due (woman) and galle (man).

There are five varieties of the first relationship: (1) cohabiting galle and due who are actually father's sister's sons and mother's brothers's daughters; (2) cohabiting galle and due who are from more distant clans; (3) actual father's sister's son and mother's brother's daughters who are married to other due and galle; (4) galle and due from the same clan as the father's

sister's husband and mother's brother; and (5) galle and due from more remote clans.

The due diramo and galle mielk relationship regulates the greater part of sexual behavior. The basic idea that a man may have an indefinite number of wives but a woman only one husband at a time underlies this most fundamental lateral relationship. Given the correlated basic complex of the junior levirate, by which the next eldest brother inherits a dead man's wife, it would be impossible not to have polygyny; and it is rather difficult to see how any part of the entire system of kinship could exist without the levirate in some form.

A man always tries to obtain his actual mother's brother's daughter; if he cannot get her, he tries to marry someone as near to her in consanguinity as possible.

Usually an older male due and male galle have an understanding that their sons and daughters shall marry. Such a betrothal could occur before the birth of either child. Sometimes a gawel will promise his wife's next daughter to his waku. Thus, even before birth there is a recognized relationship between due and galle.

There are several degrees of marriage. As soon as a boy is circumcised and old enough to understand and remember what is told him, his galle is pointed out. At a similar age a galle mielk has her due diramo shown to her. This is done by the male parents of both children.

The young men and women older than the two usually tease the young couple with somewhat pornographic jokes about their relationship and its meaning in their physical behavior. The youngsters are usually shy and ashamed when confronted with such humor; however, as small children, when away from the elders, they play house together. They are fully aware of the sexual act and of sex differences.

About the time facial hair appears upon a boy and the breasts of a girl swell, that is, when sexual intercourse is in their power and of interest to both, they start making love trysts in the bush. They may not copulate at first, but they simulate the act in close contact.

When a girl's first menses are over, her father (gawel to her due) says to her mother (mokul to her due), "You go make a house for them and fix a camp for them. She is big enough now." It is also believed that menstruation is due to the sexual act, and that the blood is not dangerous to a woman since it comes from the abdomen and not the heart.

When a girl has her first menses, the mother and older women put her inside a house (no special one) and leave her. She is supposed to remain in one place, and move with digging-sticks as crutches. This represents the

myth of the two old women who made the present world walking with the aid of digging-sticks, the younger of the two was menstruating.

After this a young couple would start living together and were recognized as husband and wife. They would have been copulating before, frequently with the knowledge of the father and mother, but the latter pretend ignorance.

Usually an older man with a wife or two acquires a young woman in her adolescent period. A young girl often starts living in her husband's household before menstruation. The due usually takes her for fear of having her stolen from her parents by some other due. He has no intercourse with her during this period. This may continue for some time until a girl is old enough, then he may either without ceremony start actual intercourse, or he may take her out into the bush on a ruse that they are going fishing. He asks her to get some drinking water or some wood. While she is gone he ties a small piece of opossum fur string around his index finger, and when she comes back he asks her to lie down. He places the finger inside her vagina, then they return to camp, and sexual intercourse starts. This minor ceremony is not frequently practised.

When an older man takes a pre-adolescent girl he helps the mother perform the ceremony at her first menstruation. After this is over, the husband paints her with red ochre (this is always done for mourners after the death of a relative to avoid ceremonial uncleanliness, and it is used in ceremonies).

Ordinarily there is but little taboo on a menstruating woman. She sleeps in the same house or camp with her husband though the couple do not copulate. The only restriction in daily life is that no man would allow a wife or any other woman to go out in a canoe with him during this period, for otherwise the great mythical snake, Bapa Indi (Father, Big), would swallow them all. The story is told that not so long ago a man took his two wives in a canoe for a trip from one island to another. One of them was menstruating. When they had gone for a short time Urlunger (Bapa Indi) smelt the unclean odor, came out of the subterranean depths, and swallowed them all. This modern folk-tale, which is believed by all Murngin, fits into the tribe's most fundamental myth of the two old creator-sisters who came before the earth was as it is today. The younger was menstruating. Her blood fell into the totemic waterhole of the Liaalaomer clan. Urlunger (Bopa Indi) smelt it, came up, and swallowed them and their children. This forms the basis of the chief Murngin ceremony.

The above describes how a man ordinarily obtains a wife and what usually happens, but often a woman is not taken from her parents for some time because her future husband may be away in a more distant clan's country.

Various men may also dispute the right to her, owing to a gawel's exceeding his rights by promising her to several men, or because of a wrong marriage of the mokul or gawel, with the true gurrong of mukul demanding the daughter and the true waku of gawel claiming her. If the marriage had been according to tribal law, the waku of gawel and the gurrong of mokul would have been the same person, but with the wrong marriage in the first ascending generation this situation would be created, and sometimes considerable time elapses between a woman's being ordinarily taken in marriage and when she would be under these conditions. Tribal opinion usually favors the descent through the woman, and all other relatives of the girl would trace their relationship to her through her mother and not her father.

After marriage a young man usually lives for a short period of varying length with his parents-in-law. After this he may go to his own people and take his wife with him. There is often much protest by the wife when she leaves her parents, but they aid her husband. When a child is born, the parents, if not already with the wife's parents, return there so they can see the baby. This is only for the first child, although the parents of both the husband and wife are always pleased and anxious to see all the grandchildren.

When a girl leaves her parents for the first time, a younger brother accompanies her, a custom called "olokork". The brother is usually preadolescent, but sometimes he may be older. He is supposed to look out for his sister, seeing that she does not commit adultery, to prevent other men from seducing her, and by his presence to protect her from illtreatment by her husband. (The sister's husband is also due to her young brother, just as this younger brother is galle to her due). The husband looks out for the younger man and assumes the place of a father to him during his residence there.

When a child is born the new union is greatly solidified; it now has become a fully developed family, and except for the wife being stolen by another man there would be little chance of permanent rupture even if she ran away. Tribal sentiment would be against her and her paramour or anyone who might have stolen her. The children would seldom go with her in such a case, and the strong attachment a Murngin mother has for her offspring would force her to come back to them. The writer has recorded several cases of a woman's going through the most difficult privations and risking probable death to return to her children after she had been stolen by a man from another tribe.

If a camp has been ambushed and the men all killed in a general tribal war, the women and children are taken by the conquerors and given for wives to the men who are in the right relationship to them.

A man acquires wives all through his life. A man who has reached senility will give the women he normally gets from a gawel to his younger brothers or quietly acquiesce in their demands for the women.

A man wants as many wives as he can get and still keep his peace with the other males of his clan. The average number is about three for middle-aged men; but there is a recorded case of one native having seventeen wives, the majority being obtained by stealing them or killing their husbands. He also married "wrong." There is a close correlation of having many wives with fighting strength, or with being the son of a man powerful in war who had thereby acquired a large number of women whose brothers would be gawels to the son. A due likes many wives because he tires of cohabit'ng with one and because such multiplicity creates more sons and daughters, so that he will have more waku, due, and galle, with stronger bonds between him and them.

When in camp a woman sleeps with her back to her husband. If intercourse takes place, it is in this position so that no one could be aware of what they were doing.

A due and galle never copulate after a woman is pregnant, lest the child be born dead or die early in infancy, the mother's milk being soured by her husband's semen. If a child is born dead, the parents are blamed. If a baby dies, the mother's brother and father criticise their actions throughout the camp in a very loud voice for her and other members of the tribe to hear. Since sexual intercourse has usually occurred between the due and galle after what they feel should have been the regulated time, they say nothing and do not resent the criticism.

After a child is born, the woman and man wait several days before resuming sexual relations. The wife goes through a short ceremony that is both therapeutic and ritualistic. She goes into the bush with a female relative such as momo, mari, or mokul bapa, and places some stones on a fire. When these are hot, she squats over the fire, and the other woman throws water over the stones. The steam is supposed to heal, cleanse and close her uterus and make it small again.

A woman during this period sleeps facing her husband, who does not try to touch her but waits until she turns from him and starts making casual conversation. He realizes then that she wants him. After his first intercourse with his wife following the birth of a child the husband always rises early and bathes himself. If he didn't he would look like an animal to the other men and feel ashamed before them.

A woman gathers the small game, nuts, bulbs, yams, and other vegetable food, as well as all shell food for the family. A man always has first

right to the food brought by her. She and her daughters have eaten all they wish while gathering it. A wife usually cooks the food she has brought for her husband. A large part of a family's larder is contributed by the wife. Big game is supplied by the men, who also bring in fish and large sea animals such as turtle, porpoise, dugong, and shark.

Mutual fidelity is demanded by husband and wife. She is supposed to stay away from all other men, and according to tribal law he is not allowed to cohabit with any women except his wives. Nevertheless, adultery is very common. A woman, if she has not been married before, is supposed to come to her husband sexually untouched. The idea back of this is that she has always been his wife and could therefore not have had physical relations with another man. Frequently women have had intercourse with other due before starting to live openly with their own husbands. This causes much indignation and usually results in a beating for the girl and a heated quarrel between the husband and the lover, who usually allows the outraged husband to use more vituperation, since he and the tribe recognize that he is in the wrong, and it pleases the husband to believe that he has had the better of the argument.

The attitude of the male part of the tribe toward the infidelity of a galle may be seen in the following story believed by the natives. It concerns the father of Danitcha, Danitcha's father's young galle, and her lover. Danitcha is an old man still living and belongs to the people along the Murngin borders. It happened when Danitcha was still a fish (unborn), he says, and when his father was a young man. We will let Danitcha tell the tale:

Back in the bush my father came; he called to his young galle mielk; "Come on, we'll go look for wild honey." The woman went with him. Before this she had had no sexual relations with him. He saw the tracks of a bandicoot going inside a large hollow log. He crawled up to the tree. He said, "Come on, you come on up and look, too. I think we'll catch a bandicoot." She came up. He said, "You squat down with your hands on your knees ready to catch him if he comes out."

The man was lying down pretending to look into the hollow tree's hole, but he was casting his eye up at the girl's vagina. "Oh," he thought, "someone has copulated with her before, and she's my galle, and I haven't." He knew this because the opening was large. He got up. "I couldn't find anything in there," he said, "I think we'd better go." "Let's go drink some good water," he said. "Where?" "This way at a rock pool that I know about." They went to the rock. It rose straight into the air and was high like the clouds. The rock had a forked stick ladder. It was very long. He climbed up the pole. In the centre of the rock was a deep hole that ran through it far down into the earth. It had water in it far below, and it stank with the dead bodies of dead women who had been untrue to their husbands. He pretended to drink, then came down. "Has it good water?"

she asked. "Yes, it's full up. You go up and have a drink. I'll wait for you." She climbed higher and higher until she reached the top. She looked down and the man looked small. Then she found the rotting bones of the hundreds of women left there to die by their husbands since the time of Wongar because of their adulteries. She tried to hurry away. She looked down, the ladder was gone. She cried out. "Due! Due! Due! I'm a young woman and I am yours, you've never had me. Look at me! This vagina is yours! These breasts are yours! Look!" He looked at her and in sign language he told her that she'd had another man. He walked away.

She cried and cried and looked down from all sides of the rock, but there was no way to escape. She cried and cried, but it was no use. She could see the forked stick ladder far below, where her due had thrown it.

The due went to camp. The girl's mother sent word (she was mokul remaru to him and therefore could not talk to him) to ask where her daughter had gone. "I don't know," he lied, "I've been out by myself. She didn't come with me. All of you go look for her." They looked for five days, but no one found her. The man went away quietly. He went to the rock and stood off some distance to see if he could see her. "Ah, she's alive yet." He made a camp and stayed. At the large camp people still looked for her. He came back to the main camp. After six days he went again to the rock. The woman was very near death and in a state of coma. She was very weak and her eyes were closed. He went back to camp and stayed five or six days more and then came again to the rock. He couldn't see her. He raised the forked stick and crawled to the top of the rock. On top it was flat all over. In the middle was the deep hole. His galle, while kicking in her death struggle, had fallen into it. He took a spear, hooked it to his spear-thrower, and threw it straight into the air. The spear came down and went into the rock hole and fell into the body of the dead woman. When the spear hit her he could hear the drone of giant blowflies flying about in the depths of the rock cavern. He went back to camp. Everyone was still looking for the girl. The due joined in the hunt. "I think," he said, "that maybe someone has stolen her, or it may be someone has killed her magically."

He sent word to all her people to help him find her. They looked for days and days but she was never found. This happened in the country of the Nullikan and Rainbarngo tribes.

Sometimes the husbands only keep their wives there a few days to teach them a lesson, and then let them return to camp wiser and more discreet. At other times the husband takes the lover and wife to this rock and leaves them. When they arrive at the rock the husband says. "You two can go get some water." They both go up at the same time. When the woman and her lover arrive on the flat stone, he takes the ladder down. One lover cried out, "What about this woman of yours? Don't you want her?" "Oh you can have her now, I'll make her a present to you."

The above story shows not only the feeling of a husband toward a wife and some of the standards he applies to her behavior, but also the wife's

feeling toward her husband. It illustrates the attitude towards a woman's infidelity, and in places shows the sardonic humor of the Murngin. Of course it is pure folk-lore. It is told to the women and believed by them. It was recorded at a time when there was much serious talk among the men that two women caught by their husbands in adultery should be sent there. The disciplining effect of such a story can be easily seen.

If a wife continues to be unfaithful, she might be killed by her due and members of her own family. Usually the due would depend upon magic to accomplish this. In a description of one of his many magical killings Laindjura, one of the black magicians, said:

"I killed Bunlethank's galle because he asked me to, and gave me a magical killing-stick and his totemic emblem's string as presents for doing it. He wanted her killed because his son was having sexual intercourse with her. The husband was an old man and the wife was young."

Again in the testimony of Laindjura, the black magician, is found: "Milanginunga (an old man) asked me to kill his wife because a young man was sweethearting with her. He didn't want to fight that boy because the boy was young and strong while he was old."

A beating is the usual punishment for a wife's adultery. Garawerpa, an old man of the Daiuror clan put fire on his wives' vaginas, as did Bĭn-ĭn-d'á-ĭo when their galles copulated with Willidjungo, the medicine-man. With the beating goes a severe tongue-lashing. An outraged wife who has caught her husband in a sexual relation with another woman resorts to public abuse of her mate for his infidelities. Her obscenity and abuse is usually more proficiently and much more adequately expressed than a husband's.

At noon one day Bruk Bruk, the young and attractive wife of Lika, who had inherited her from an older brother, accused Djolli, a man from a more distant clan of trying to seduce her in the bush. A tremendous noise was made in the camp. All the relatives of the parties concerned talked at once, and the two men armed themselves with spears, spear-throwers, and clubs, and charged at each other, exchanging curses.

Djolli was angry because he claimed to be falsely accused; and so was Lika because he knew something was wrong, for either his wife had defended her virtue against Djolli, or she had succumbed and then accused him. In either case his self-esteem had been injured. Djolli's wife, an older woman, no longer attractive, stood by and instead of helping her husband, the usual thing for a wife to do, she screamed at him: "You belong to me. I am your sexual partner. You are like a dog. You are incestuous and sleep with your own mothers and sisters. 'Why don't you keep your penis where it belongs,—in me, not other women?"

The galle has another recourse. She can attack and abuse her hus-

band's mistress. A wife usually feels that it is the other woman's fault anyway.

Balliman, a young man noted for his fighting and dancing abilities, so camp gossip had it, was Mumulaiki's lover. Balliman's wife (he had inherited her), who was much older than he, took her digging-stick and, with the aid of much cursing, gave Mumulaiki a thorough thrashing. Both women were in a fainting condition when the fight was stopped by others. Their heads were cut open, and they were covered with bruises and cuts.

A further variation in the standards a husband and wife apply to each other may be seen in the following account. Here, too, it will be noticed, that when due is not very assertive, galle is on more or less equal terms with him.

> Dī-ma-la's wife was known about the various tribes as a woman who usually had an affair with some other woman's husband and was not always particular whether these lovers stood in the right relationship of due to her. Dī-ma-la, too, always had a number of affairs. One day his wife abused him for having such relationships. "Yes," he replied, "I've got one woman, and you can do nothing. You've got your lovers—I've got my sweethearts. My head can think two ways. When you stay quietly by me and have no lovers, I'll sit quietly by you and have no sweethearts."

Such an understanding between spouses is most unusual and considered somewhat asocial. Ordinarily a husband would feel it his duty to beat his wife when she conducted herself in an unlawful way with another man.

Dī′-mă-la, too, would have felt it necessary to beat his wife and condemn her for the act if she had been caught openly fornicating with someone. Tribal feeling would have driven him to it if his pride had not.

Five varieties of extra-legal sexual relations between men and women are recognized as possible, i.e. the tribe would not condemn them as unpardonable offences against customary law. They are: (1) a condition when either the man or woman or both live with a spouse who is carrying on an affair without his mate's full knowledge; (2) runaway matches when the man and woman go to a distant clan to live; this is usually a true love match, but not always; (3) a union when a man steals a woman from her husband and takes her to his own clan; (4) a union when warring clansmen kill off the husbands of the women and keep them for themselves; and (5) a union where a father gives his daughter to a relative in another tribe who did not have a legal claim to her.

Each of the above is considered illegal and condemned by all people, yet each is practised to a considerable degree among all the tribes in this region,

and each frequently leads to a permanent union that has full tribal recognition.

In the first type of liaison the man and woman usually meet in the bush for a lovers' assignation, which always means sexual intercourse. A man ordinarily would choose a galle for such affairs, and a woman a due; but they occur between momo and kaminyer, small arndi and waku, gawel and waku, and one case has been reported for momelker and dumungur. This last is very rare and has a very strong taboo against it. All relationships except the above are completely taboo, and no one would any more think of such an extra-legal union than a man in our society would consider a liaison with his own mother. All the above affairs would be with distant relatives and not the actual ones.

A liaison of gawel—waku usually causes much indignation if it is found out, though several cases were observed. This sentiment would not be that of the injured wife or husband alone, but also the tribe's generally. Men having such a relationship with waku or momelker would be called dogs and considered evildoers even by their own people, who might be defending them at the time from the attacks of the girls' husbands and relatives. The woman would most certainly receive a severe beating and occasionally be killed.

The regulation that a younger brother is not allowed near an older brother's wife while an older brother may be near a younger brother's of course applies here since except through a wrong marriage all men who call each other brothers would call the same women galle, and they in turn would call these men due. Even with such limitations the due-galle affair is a most common form of adultery because with this one taboo gone there is no restriction or tribal taboo to prevent them or to make the most orthodox Murngin feel he is doing anything wrong. The next relationship that causes the least feeling of social condemnation is that of momo and kaminyer. Of course, this would not be actual father's mother, and brother's son's son, but a younger woman and a man in this relationship.

The man's attitude toward sexual union is one of extreme interest. While some speak but little of it, others make sex, food, and war the three subjects in their conversation. The women, however, seem even more interested than the men. They, too, vary considerably in their attitude; some are continually in trouble because of attempting to satisfy their desires by seducing young men, while others remain quiet and faithful to one man. All the men testified that there were no cold women; or rather, they put it, all women were interested in the sexual relation. The evidence seems to verify their contentions, but caution must be exercised here since no man

would admit that women were not interested in him. A good part of the evidence on women's emotions is not of this kind, however, for many of the men were complaining that their wives and other female relatives had too great an interest in such behavior. The woman's attitude will be illustrated under the head of runaway unions.

If a man had a sweetheart in his early youth and the affair terminated after he had acquired his proper mates, he must always feed her if she comes to his camp, and vice versa. Wives, however, always complain and cause trouble for the man who tries to follow this custom because of their jealous fear that he may return to this affair. They are anything but hospitable to a husband's former sweetheart who visits their camps. An understanding husband will allow hospitality, particularly if he and his wife's former lover are good friends and if there has been no early trouble between the two. Otherwise, the husband, too, would forbid a wife to feed her former paramour.

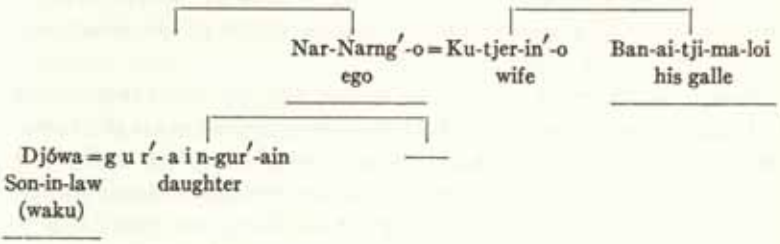
Lovers' unions often develop into permanent ones. If there is a dispute about a girl between two young men, one of whom has been living with her, it is likely that, all else being equal, the lover would get the girl, for, say the old men, "They were sweethearts." If the woman should be given to the other man, the lovers frequently run away, and the tribe later recognizes the union (see p. 235).

A number of customs are connected with sweethearting. A favorite time for the assignation of lovers is during the day, for at night the husband generally make their wives sit in their own camps. It is during the day that the women are accessible, for they are out in the bush and jungle, gathering bulbs and shellfish. The young man sneaks up near her and taps a stone on the ground. The woman is on the alert and knows what this means. The women work in groups for companionship and for fear of being stolen. She tells her companions that she is thirsty, or with some other excuse slips away to join her lover.

Another method is for a man to have a woman's friend,—always a woman, too,—drop a certain type of string in the loved one's basket. If the woman belongs to the Yaritja moiety and the man to the Dua he drops an opossum fur string into it; if he is Yaritja and she Dua, he uses a red parrot feather string. This, of course, occurs only after he feels fairly confident that his advances will have a favorable reception. She replies through her woman friend, and arrangements are made for a time and place.

The following incident illustrates the operation of this method, and its failure, likewise the feelings of the relatives involved and the general scene of a native camp during trouble over adultery. Such camp brawls are not

infrequent and play a prominent part in Murngin life. The following geneology is necessary to understand the happenings to be recounted:—



Djowa had been away from home hunting for kangaroo. He came home and while looking for tobacco discovered an opossum string in his wife's basket. Since his wife was dua and the string had no red parrot feathers on it, his suspicions were not aroused. He was living, however, with his father-in-law, an older man, by the name of Narnarngo. The latter's wife was Yiritja and her basket was hung beside that of the other woman. Narnarngo immediately jumped to the conclusion that it was his wife the lover's string was meant for, and that his wife's paramour had made a mistake and put the opossum string in the wrong basket. He was particularly sensitive to any such attempt, not only because of a volatile temperament that always had him in trouble, but also because recently one of his wives had been stolen from him. He accused his wife of it. "To whom does this belong?" "I don't know." After he had questioned her for some time with no results, he approached Ban-ai-tjī-mu-loi's wife, who was galle to his wife, and she informed him it was Bengaliwe's string but that she had not put it there, for she had been accused by the husband of placing it there since she was notorious for the number and frequency of her affairs.

Narnarngo began cursing Bengaliwe and accusing him of an affair with his wife, but not in his presence. A near relative of Bengaliwe heard Narnarngo's comments and rushed up to the men's camp where he told Bengaliwe what the old man had been saying about him. The accused did not take the charges seriously, and went unarmed to Narnarngo's camp. When he was shown the opossum string that had been placed in the woman's basket, he admitted it was his, but said that he had made it to wear around his head (this is usually done with such string where it serves only as an ornament). Narnarngo said that Bengaliwe was lying and that he had tried to fornicate with his wife.

Meanwhile another quarrel had developed in the camp because a father thought one of the black magicians was trying to kill his daughter. This second dispute developed into a general camp brawl, in which Balliman, a near relative of Bengaliwe's, took part. He loved a fight for the sheer joy of exercising proficiency in battle if for nothing else. When his own fight had more or less quieted down although all the participants were still excited, Balliman heard Narnarngo once again calling Bengaliwe various profane terms but not within the hearing of the latter. He went to the accused and told him. "Let us go back and fight him," he

said. The two took their spears and went back. "Why do you keep on saying I try to lie with your wife? I didn't." Narnarngo called Bengaliwe "deindumeiu" (big testicles). Bengaliwe replied by calling Naranarngo Golitchirtommeru (big-kidneyed). Both terms designate a man who would break all laws of sexual behavior.

When Banaitjimaloi heard the quarrel he came over with his four brothers and stood back of Narnarngo to help him. He is true galle to Narnarngo. Other near male relatives joined each side and a new camp brawl was in progress. No one was killed or very much hurt in the fight that followed. It was later ascertained that a small boy, unaware of the string's significance, had taken it out of Bengaliwe's basket and placed it in Djowa's wife's.

Sometimes a woman attempts to seduce a young man into joining her for a lovers' assignation. She usually starts by sending him food. After these presents have been given for a while and he is sure of their meaning, he usually tells the woman who brings them for her friend to tell the other woman where he will meet her. If they have an assignation, he usually makes resents to her. Sometimes young men are so very bashful that it takes much persuasion to force them into such a union.

A runaway marriage differs from a union caused by a man's stealing a woman in that the woman gives her consent and such an arrangement has the consent of neither her people nor his; whereas in the other case a man's own people frequently support him, particularly if there has been hard feeling between the two clans and a conscious rivalry for the women of certain groups where the two have obtained their women. The runaway case usually ends in his and her people attempting to send her back to her true due, because it would lead to armed trouble for the man's people with the members of the right due's clan, and also for the woman's people if they did not condemn the act by helping the true due regain his wife. However, no man's clan would desert him in such a situation to the point of allowing him to be killed or attacked by the injured man's group. Ordinarily, such a situation ends in a "growling" match, in which the two sides stand armed behind the two opponents, the lover allowing the injured husband to have the better of the cursing. Sometimes such a runaway marriage leads to permanent union.

After a couple have been lovers for some time, they may be so fond of each other as to risk everything and leave their own kin and go to a distant clan. Her people, the husband's gawel and galle, immediately help the injured spouse to regain his wife. The people generally frown upon the lovers' attempt. Further, her people consider it an affront to them by the

people of her lover's clan, and it is necessary for them to protest that they had nothing to do with the matter and show good faith by helping get her back. A woman or a man can take the initiative in a runaway marriage, but most of the cases recorded were due to the influence of the woman.

Monalli had been the lover of another's wife. He had had trouble and had decided to return to his own clan. When he left, the wife went with him. He protested, when apprehended, that he did not want her, and had asked her to remain with her own husband. The woman herself, although it meant a merciless beating, admitted she was the guilty one and still asked to be allowed to follow him.

Inyĭnyerri, a fine-looking young man, had run away with Raiola's mokul rumeru (sister to the actual one), because they had been having an affair and because her due's people had stolen his own father's wives, and he wished to even the mark. His own people protested that it would cause too much trouble and he sent her back by a neutral party to one of her gurrong. This was done by giving the neutral man an opossum string with a loop at one end. It was put over her head, and she was led to her gurrong who brought her to her husband. When he accepted the string, it was realized that he wanted her; had he cut the string, it would have meant that he did not want her. If she had been dua it would have been a parrot feather string.

Sometimes when a man is stealing, or running away with, a woman he uses the head circlet to take her. This would be unusual. If a galle mielk ran away and her father failed in forcing her back, it would be mandatory upon him to provide the due (his waku) with a new galle. If he could not, he would try to help him obtain another and make presents to him for the loss. The same proceedings would be gone through if a man's wife were childless.

If a husband runs away from his wife, she goes to his people, usually to her mokul (mother-in-law) bapa for protection, until his people brought him back or she was given to a younger brother who was nearest of kin, and she would remain with the man's parents. There are cases on record of a man freely giving up his wife after she had run away. Daoper, a youngster sixteen or eighteen years old, had a wife about thirty-five, who ran away with another. Her people brought her back to him. Her brother gave her a thorough beating because of her conduct, as did the husband, but the latter said, "He can have her, she causes me too much trouble. She's too old for me."

A custom half-way between a lovers' arrangement and a runaway union is that of two former lovers, when the man, to obtain tribal recognition of the union making the woman his wife, walks into the husband's camp and takes her away. The husband always shows fight, but his people on this

occasion stop him. There would be a considerable interval before the next step was taken, the new couple meanwhile going away to another country. When the three meet again, the former husband comes over to their camp, eats with them, and accepts presents of food, or the totemic emblem of the man. This would mean that they were friends, that he recognized the rights of the new due and had given up his own to the woman. This very seldom happens, for a man's importance in society rests largely on a large number of galle who bear him many children and gather large quantities of food during the great tribal ceremonies. It would only occur when he and the old men of his clan had become bored with the actions of the woman and did not wish to kill her.

Although many of the same customs such as the use of a string to bring back or take a runaway woman, apply to the stealing of women, this type of acquiring a woman nevertheless occupies a rather different place in the tribal life and the local organization of the people. If a woman is known to be really to blame, this frequently stops all further trouble, but if it is believed she has been stolen, difficulties are to be expected. Stealing a man's galle by a member of another clan is a recognized method of insulting all the members of the husband's clan. The clan into which she is taken consider it wrong but justifiable under such circumstances, and it pleases them that their enemies have lost the woman.

There is little difference between this method of obtaining a woman and the above, except that the husband would be killed before the women were taken. There are recorded cases of five or six women acquired by a group of clans through a successful ambush. Such capture is not the object of the fight, except as retaliation against the defeated clan for their stealing some of the victors' women.

The gift of a daughter to a far-off due has two varieties according to the recognition given by the tribe. If a gawel has no near waku, he is forced to find a man considerably removed from him in this relationship, and all people feel that he has done right; but if a gawel has a near waku and gives his daughter to a distant one, the near waku's people feel that they have been treated unfairly. If they are a strong clan, they force her return. In any case there is a feeling of uncertainty about the marriage, and her husband is apprehensive of her being taken away by her near due. Sometimes a man gains permission from his waku to give his daughter to a distant one, because of a complex of circumstances, such as: (1) the weakness of the

near waku and his clan; (2) the strength of the far-off waku's clan; (3) the near waku's having a number of wives and no younger brothers; and (4) the possibility that the waku may want to go without wives. There are two cases of this last on record. The old men usually try to get a man to marry and marry properly. Not only is their personal pressure felt by a man who does not wish to marry, but the whole impact of society is placed against him in hundreds of direct and indirect ways to force this relationship upon him. It would be a strong man with an intense dislike of women who could retain his bachelorhood against such odds.

The reader may assume from this account of illegal unions that marriage is a very unstable institution. Such is not the case. Although love affairs are common, a lifelong marriage either of a galle mielk to one due, or to him and his younger brothers through the levirate, is the normal thing. Murngin society could not exist were this not true, as will appear later.

From the cases of unfaithfulness and the mechanical manner of acquiring spouses through the relationship of the parents, conjugal love might appear impossible. Although rare, it does exist between a fair proportion of due and galle. The ideal wife and husband are those who remain faithful to their spouses; and on the other hand a promiscuous woman or man is disapproved even though not openly condemned.

To illustrate a man's affection for his wife: Nŭn-yĭn-'yin had had a magically powerful totemic string given him to keep preparatory to its being placed upon another's totemic emblem. No woman may see or even hear of such a thing. His galle was burning bush for bandicoots. The fire burnt and destroyed the string. All his clansmen and those of the man to whom the string belonged were extremely angry. Women had been killed before for such an offence. An old man said at the time it was to his clan as though she had killed a strong man. Her husband said nothing, but hurried her to a mission on a nearby island to shield her against possible attacks of his own people. He risked being injured himself for this, but he cared more for her. This was not merely because of her economic or child-bearing value. He had an older wife, who had borne him a daughter he loved even more than his younger wife; and the older woman was still a sexual mate and a very able food-gatherer. Yet he told the author he would have let them kill the old woman, for she was "rubbish," but that he liked the young galle "too much" and he could not let them kill her.

One further instance may be cited. One of Bungaitjimaloi's three wives, the oldest, was notorious for her promiscuity. She had been beaten not only by him, but at one time all the people of a camp had thrashed her for her misconduct. Bungaitjimaloi had acquired her by a runaway union. She

had been caught in a sexual relation with Bĭn-djer-pu-'ma. The husband fought the lover and then said to everybody he was tired of her continual affairs, was through with her, and that she could go where she pleased. Then he gave her a thorough beating. One of the older men in the tribe, and one of the most intelligent, said, "He won't give her away. I see inside his head. He beat her after he said he'd thrown her away; that shows that he likes that woman too much." He kept his wife.

Perhaps this seems an odd illustration, but it does indicate a point in Murngin psychology.

A man and all his wives live in the same camp. If he is going on a long journey he usually leaves some of them with their parents, taking only one with him. When a house is to be built, the women usually construct the ordinary windbreak type, but sometimes a man helps them. The husband brings in the heavy stringy bark for the small, dome-shaped, bark house used by most of the people during the rainy season. The women keep the house clean. It is felt that the house belongs to the man and the women.

The wives live in a fair degree of amiability, but there is sometimes jealousy over their husband.

Dorng, a man past middle age, but still very active, had three wives of whom Opossum was the youngest. He complained one day: "My wives growl at each other all the time. The two old ones are good friends, but they are jealous of Opossum. They say to her, 'Why don't you get another man? This man is our husband. He made our children come. He belongs to us. He doesn't belong to you.' Opossum says 'Where am I to go? My other due are too old, I'd be the same as dead if I lived with one of them.' The two old ones say, 'Your first man is dead already.'" (Dorng's brother died and he got her through the levirate.) His old wives were very pleasant and kind to him, but Opossum was a scold. "When I want to sleep with one of the old sisters at night," he said, "Opossum won't go to sleep as she should. I wait and wait; sometimes morning comes, and that woman watches and won't go to sleep. Allright, I wait no longer. I play with her. When I do, Opossum growls at me. The old sisters go to sleep, but sometimes they laugh at me when I play with Oposum."

When Makarolla's gawel and mokul gave him their second daughter, the first daughter, who was his wife, immediately quarreled with her younger sister and asked her what right she had to be sleeping with Makarolla, who only belonged to her. The first wife said nothing to the husband about her opposition to her sister. When her parents heard of this, they said to their older daughter, "She is just the same as you. You are our daughter, and she is our daughter. You have him for a husband, and we have given her to him, and now she has him for a husband. She is your young sister, you'll now have someone to look out for the wood

for you, and she can help you gather food." This stopped all criticism, and the two sisters lived together as wives to Makarolla with the utmost amiability and friendship.

This is the usual situation in Murngin marriage when two sisters from one family marry a man. The oldest sister has more power than the younger ones. Trouble between wives is only likely when he marries into two clans distant from each other.

A wife has considerable independence. She is not the badly treated woman of the older Australian ethnologists' theories. She usually asserts her rights. Women are more vocal than men in Murngin society. Frequently they discipline their husbands by refusing to give them food when the men have been away too long and the wife fears they have a secret affair.

Husbands and wives are very strongly united through their children, for both are very fond of their offspring and extremely demonstrative in their affection. To a European the children become almost intolerable in their demands on their parents and those around them.

As an indication of this solidarity, the following is presented. A small child had died and been buried. A day or two after this a camp fight developed but a short distance from the child's grave. The voices of the mother and father (galle and due) could be heard above the din, first pleading with the combatants to stop, and then angrily cursing the people engaged in the trouble because it is believed a spirit of the dead should not be disturbed by fights until after the last mourning ceremony. It was as father and mother that the two protested, but evidently through the child there was a greater bond of solidarity between the due and galle.

When a young due is circumcised, his near galle cut their hips "to show their sorrow." A galle always carries her due's bones after they have been exhumed.

DUE DIRAMO $\rightleftarrows$ *GALLE DIRAMO.* (father's sister's son $\rightleftarrows$ mother's brother's son)

There are as many variations in the due diramo and galle diramo relationship as in the due diramo and galle mielk type.

This is one of the strongest relationships between men. The actual brothers of ego's wife (who is the daughter of mother's brother) and the consanguine father's sister's son (who is the husband of ego's sister) have the strongest bond of any of the male due and galle. Each always comes to the other for assistance when he gets into trouble. When a man is giving presents to gawel for gawel's daughter, he also offers them to galle diramo because he is brother to the wife.

When Narnarngo got himself into trouble with Bengaliwe his due immediately came to his assistance (see p. 234). This is only one case of scores recorded by the writer.

Due and galle engage in many enterprises together, such as canoe building. The bond between them finds a full expression in all the everyday activities of life. When a man is in trouble and needs a good supply of weapons, it is always his brothers, due and galle who loan him extra spears and clubs and who come to his assistance.

A young galle always accompanies his sister when she goes to live with due, and the husband looks out for him as though he were his own child. The young galle sees that his sister does not conduct herself improperly. If a due's wife ran away, galle would be first to look for her and bring her back. Although there are strong taboos on the sister-brother relationship, if her conduct were provocative enough, the brother in his capacity of galle to his male due would beat her.

Male due and galle have added strength given to their relationship through indirect ties, because due's son and galle's daughter will later be husband and wife; and galle will later be, or is, gawel to due's son, just as due is waku to galle's father. This last relationship is one of the most binding in Murngin society, and by indirect relationship it occurs twice in the reciprocity that exists between galle and due: due's son is waku to galle, and due is waku to galle's father.

The full position of due diramo and galle diramo cannot be realized until one studies the behavior of yeppa and her brother and her position as the wife of due. The due's position therefore includes the following relationships: (1) to his wife; (2) to galle's father; and (3) his son's relationship of waku to due's galle. Everyone of these elements contributes appreciably to the solidarity of the two men. Many elements make for conflict if the marriage is normal, but this is overcome with great brilliance in social engineering by the Murngin.

Galle diramo and due mielk have little direct relationship. Their entire conduct is a pale reflection of the other galle diramo and due diramo reciprocity. Galle diramo marries mari mielk and his wife's relatives belong to a different line from that of due mielk; due mielk's husband is kutara in still another line.

GAWEL⇄WAKU (diramo and mielk) (mother's brother⇄sister's child)

There are two types of the waku-gawel relationship, since there are both a male and female waku, the male relationship being the important one and the female waku of little importance. There are six varieties of the gawel

and waku diramo type. They are, in descending order of significance: (1) the consanguine mother's brother (gawel) and sister's son, the latter having the fomer's daughter as a wife; (2) mother's brother whose daughters have been given to waku's brothers; (3) consanguine mother's brothers, but with no daughters given to the sister's son; (4) near mother's brothers and sister's sons; (5) distant mother's brothers and sister's sons, who have a trading reciprocation; and (6) distant mother's brothers and sister's sons.

The first three and the fifth are the important varieties in the eyes of the natives. The fifth will be treated by itself, since it includes other elements of the Murngin culture either latent or non-existent in the relationships so far studied. The fundamental facts are that mother's brother is the man to whom sister's son looks for a wife; and that accordingly waku is the man from whom gawel receives many presents and favors.

As soon as a boy is old enough to comprehend, his parents point gawel out to him, or a gawel may tell the boy that he is his potential father-in-law and as such must receive special attention. This means that throughout waku's life he is always giving presents to gawel. The latter at times returns them. All the articles of the daily diet and material culture are included in this gift-making. When a waku has been initiated into the tribal secrets to the point that he knows and has seen his Ranga (totemic emblem) he often gives the string off it to his gawel. This is the finest gift one man could make to another, unless it were the Ranga itself or a hair belt made from a dead clansman's hair. In a way any of these presents would give an important part of the social personality of the waku to his gawel. They are always more numerous from the younger man to the older, but when a gawel receives Ranga string, a Ranga, or the hair belt, he must reciprocate giving a return present to show his appreciation, or he would offend his waku.

When a gawel gives his daughter to his sister's son, this is not merely a gift, for the waku by tribal law has a right to her and would fight for her if the gawel tried to give her to someone else. He would also feel that he had the right to gawel's wife's second daughter and the privilege of declining the offer of a third daughter. There would be an obligation, too, on gawel to give his waku another wife if the first were barren or died before giving birth to a child. If a waku's wife runs away from him, his gawel would under almost all circumstances do everything possible to get her back for the husband. If he did not, he would feel obligated to give the waku another daughter in her place.

A gawel decides when the waku should receive his daughter, or in other

words, he really determines when the tribe shall give its complete recognition to the marriage.

A group of brothers who were gawel would be divided up according to seniority among a group of waku who were brothers. The oldest gawel would have the oldest waku, and the next oldest gawel would have the next oldest waku. This is the ideal but it is not always realized. The same is true of the first wife giving her first two daughters to the oldest waku and the next daughter to the next oldest waku.

When a gawel decides to give recognition to a marriage of his daughter to a waku he instructs his wife (mokul rumeru to the waku) to build a camp for the two; and for a time residence is matrilocal.

When it is decided that a waku is to get a gawel's daughter, the gawel shows his pleasure by giving presents to his due who is the boy's father, and also to his sister who is the boy's mother. The boy's mother would receive more than the father. A gawel is pleased, because a waku is like a second son to him, and he has strengthened his position in the tribe by this marriage tie to another clan, whereas a daughter is of little use in time of war. A waku would be of great help, both because of himself and his brothers, but also because of waku's other relatives.

Such a relationship would also prevent trouble. "If my bapa and my gawel tried to fight, I'd stop them," is a favorite remark among the Murngin men. "I wouldn't know which one to help. I wouldn't know which one to fight. I'd stop both of them." This demonstrates clearly the strong bond between these relatives. Sometimes a waku's gawel is not galle to the waku's father except distantly. Obviously, given the above feelings the gawel-waku relationship adds much to the strength of a clan and at the same time helps prevent trouble between the two groups.

If a fight developed, gawel would help waku with the loan of his spears and if necessary by fighting for him. His own sons would also aid his waku, their due. A waku is taught much of what he knows about fighting and hunting from gawel. If the older man is a magician, he also teaches this art to his waku.

Gawel uses waku's property or vice versa with the freedom of a brother or father. If gawel's wife is misbehaving, waku tries by indirect threats of death to make her conform to the tribal ideal of conduct.

Sometimes a gawel promises a waku his daughter, the boy makes presents to him for a long period of time, yet the gawel then refuses to give him the girl. This means trouble. Strong pressure would usually be put upon the older man to force him to give her to the boy. This might end in an interclan fight, or the waku would likely run away with her.

Another disappointing situation for waku that occasionally occurs is when a gawel says, "I'll give you the daughters from this wife." The waku makes presents over a period of time, meanwhile watching the woman to see if she is going to bear children. If she is barren or produces only sons, he stops making his father-in-law presents and turns his attention to some other gawel.

The Australian aborigine is a most industrious trader. Articles of trade are passed over well-known trade routes for hundreds of miles and through many tribes. The Murngin and their neighbors are no exceptions to this rule. The Ritarngo and the Djinba trade stone spear-heads to the sea coast for red ochre and pipe clay, or for wooden spears. Ranga string is exchanged between them, as well as many other articles. The waku-gawel reciprocal is utilized for this trading. All men try to have as many distant waku as they can. Presents are constantly being exchanged between the two, not to acquire material wealth so much as to extend a man's sphere of influence beyond the nearby clans. It pleases a Murngin to have a present sent from a distant people and adds greatly to his social prestige. It also gives him a greater feeling of safety when traveling to know that he has a waku or gawel with whom he has this trading relationship. Waku and gawel often visit each other and their behavior demonstrates real friendship when they meet.

The gawel and waku mielk relationship is not very strong. The man would not ordinarily copulate with her in a clandestine affair. If he were caught, he would be called a dog or other animal because of intimacy with too near a kinswoman.

ARNDI⇄WAKU (*diramo* and *mielk*) (mother⇄child)

There are two types of kinship in this reciprocal,—mother and son, and mother and daughter. Each has a number of varieties according to the closeness of relation and the consequently stronger bonds. They are: (1) actual mother and her sons and daughters; (2) the mother's sisters who are wives of the actual father and his brothers; (3) mothers and children from nearby clans. There is another type of arndi who is ego's son's mate. She is nearer or distant according to the blood or tribal connection.

The essential element in the relationship is that arndi is the mother of waku. Her sisters are considered near mothers, they may be one's father's wives or near father's wives.

There are no taboos between a mother and her children except sexual ones. Even here a waku often has an affair with a distant arndi. This is considered wrong but it is done. One's father's arndi would come from nati and mari while one's son's arndi would have to come from galle and

mari. Except under rare circumstances, there would be no possible chance of a son's marrying a possible mate for a father, just as the opposite union would not be allowed.

A mother suckles her own children, but her sisters often help if she happens to have two babies whose ages are close together. Sometimes a mother kills her newborn babe because it has followed too closely to her others and she has not enough milk to feed it. This would be done without the knowledge of the father, who would be most angry if he knew it. If a baby dies when born, the father is suspicious of a wife in the belief that she might have smothered it in the bush.

Abortion, practised for the same reason as infanticide, is not infrequent. The pregnant woman's sisters exert pressure with knees and hands on her abdomen.

When twins are born, one is always killed, sometimes the second. But usually, if they are boy and girl, the latter is put to death. In such a case Walchimi's wife killed the boy and allowed the girl to live. There was much indignation in the camp, for it was said that a boy made a people strong, while a girl only caused trouble. A woman kills a twin because it makes her feel like a dog to have a litter instead of one baby.

For a few days a mother carries her new-born child under her arm in a strip of paper bark. At this time she covers it with charcoal to make it turn black, since it is very light when born and would stay that color unless so painted. In a short time she holds her infant on her shoulder, with its legs straddling her neck and its arms clinging to her head. She carries her children out into the bush with her while she gathers the plant life, or shell food, for the family larder. When the little boy is about four years old he stays in camp with the other little ones. But the young girls continue going with their mothers, who during this early period start teaching them the countless things they must know about the fauna and flora, the land and the sea, in order to become good food gatherers. When a boy is to be circumcised, the mother always makes presents to the man who paints his body for the ceremony. When the son kills his first kangaroo or emu, the bones are painted and she carries them as she does when a man or woman dies. This is to bring the son good luck in the hunt.

If the son's fathers are dead, the mother is sometimes consulted as to the proper time to circumcise him. When the boy returns from his journey to all the local clans, inviting them to come to his circumcision ceremony, it is she who brags about the number of presents given him. She always exaggerates because it is felt that this will also be helpful for the son in acquiring the good things in later life. While he is being circumcised, she

cries and beats herself. The actions are customary, but they are more than that to the mother, who is deeply affected when she hears her son's cries. The sisters to the mother are also mourners during this ceremony. A mother seldom corrects her child. This is left for mari and nati to do.

When a child is dead or hurt a mother always cuts and beats her head to show her grief. After the child is buried, she paints herself with red ochre to cleanse herself of ceremonial impurity so that she can go out for wood and food with the other women. She waits until after burial to paint herself, because the body would not decompose if she did it before. After the bones have been prepared for dispersal among the women, she is one of the carriers and is usually the first to get them.

The child sees the mother's sisters as arndi not only because they are her sisters, but because the father may die and the mother will be transferred to a younger brother of the father, or an older brother may die and his wives will be given to the child's father. In both cases the women would be arndi as wives to the child's father.

When a mother goes away with the father for a trip to distant kinspeople, the older children are left with the mother's sisters, the mother's mother, or the mother's brother. The children turn to the near mothers for food and care with the same feeling as to their own mother.

A mother is deeply fond of her children. Maritcha saved the life of a young man about 15 years old when some of the former clansmen plotted the boy's death. The mother heard of this. Maritcha's clan and her own had had a feud for many years, yet from gratitude she attempted to help Maritcha and stop her own people from fighting him at a later time.

When a girl has her first menses the mother helps paint her and take care of her.

There is a constant tribal pressure on a mother to be good to her children. No Murngin mother would dare correct her children in the manner of a European woman, or she would be considered cruel and inhuman. Camp gossip and opinion would uniformly condemn her and liken her to an animal. On the other hand, there is less restraint on a son and daughter concerning their mother than in our own society. They frequently curse her, and there is no taboo on the conversation used before her.

Small arndi (son's wife) occupies a different place in the kinship system, although the general behavior toward her would be the same as toward the true mother. Waku in this case would also be a different person. He would be father's sister's husband or husband's father to small arndi.

Sometimes when a man's son is too small to take the woman who

belongs to him the father takes her for himself. The son then calls her arndi instead of galle, and the father calls her galle instead of small arndi. She stays with the father until he dies, then goes to the son. Any children to her by the father would be called yukiyuko and not gatu by the son.

If a small arndi's husband runs away, she goes back to her mokul bapa (husband's mother) until he returns or until she has been given to a younger brother of the husband.

NATI⇄KAMINYER. (*diramo* and *mielk*) (mother's father⇄daughter's child)

There are two types of this relationship due to there being a female and male kaminyer and only a male nati. There are five varieties of nati: (1) gawel's and arndi's true father; (2) brothers of this nati; (3) brothers of momo married to marikmo; (4) near nati; and (5) distant nati.

Nati always feeds his male kaminyer, but not the female because he and she would be afraid people might think he was trying to seduce her. He would also be afraid that she might think so herself. The reason for this suspicion is that nati and kaminyer mielk are frequently lovers just as momo and kaminyer diramo are. It must be emphasized that they are not near relatives.

Nati takes a special interest in kaminyer as a child; he and mari correct his manners and regulate his conduct more than any other relative.

Nati is important not so much in direct relationship as indirectly. His marriage to mari mielk makes them much more important because she assumes a prominent place in a man's or woman's life. His being the father of gawel and arndi also increases his importance. The same is true of his sister (momo).

MOMO⇄KAMINYER (*diramo* and *mielk*) (father's mother⇄daughter's child)

Momo is of little direct influence in the life of kaminyer. She is frequently a sweetheart of his. This is of course not his father's mother, or any of her sisters or clan members but a woman who stands in this tribal relation to him.

She carries the bones of a dead man, but it does not matter to his relatives or herself whether she does so, for the emotional and social bond is of too little consequence. She sometimes helps build kaminyer's first house when gawel gives him his daughter.

MARI⇄KUTARA (*diramo* and *mielk*) (mother's mother; mother's mother's brother ⇄ daughter's child, sister's daughter's child)

There are four types of reciprocals in this group of mari and kutara,

both terms being used for both sexes. We shall first consider mari diramo and kutara diramo.

Mari is ego's mother's mother's brother, and kutara is sister's daughter's son. There are other mari and kutara, but they have been built out of this fundamental relationship. The mari-kutara behavior is one of the most interesting reciprocals in the whole of this kinship system. The relationship is very close and has a considerable emotional quality to it.

Personal names are greatly treasured by the Murngin, and both men and women receive them from their mari, such names being more important in daily life than those obtained from a marikmo. Besides the ordinary personal names given by a mari, one also obtains any nickname that might have been given to mari through some peculiar circumstance in the latter's life. The boy's father decides what names shall be given, which means that the father chooses the names from his marelker.

Kutara and mari always come to each other's assistance in times of danger. When a camp quarrel is being aired, kutara invariably stands at mari's side. If one of them is killed, the other would aid the avenging party. A black magician's tales of his killings speak of a mari who had lost his kutara in a spear-fight and had come to the magician for aid to buy back his kutara's life. The sorcerer by magic slew the kutara's killer, and the mari paid for it with many handsome gifts.

Presents are always being exchanged between kutara and mari. When Ranga string is being given away after some of the big ceremonies, mari and kutara are always prominent in the exchanges.

When kutara dies, mari's spirit always comes for him along with marikmo's. If the deceased was a young man, the dead mari's spirit condemns his relatives for not giving the child better treatment and for not preventing his death. When a young man dies, the surviving relatives always explain to his mari's spirit that they had done all they could to keep him alive. Mari helps marikmo's spirit take the dead soul back to its totemic waterhole and helps protect it against the evil ghosts who try to steal kutara's soul. So, in death as in life, mari is kutara's protector and guide. In the Djungguan circumcision ceremony, mari's totemic name is always called out by his kutara, as is marikmo's, and it is believed that the spirit of mari appears at that time, although it is not seen.

Mari is usually the person who really teaches kutara his manners.

Mari is powerful not only because of his direct relationship with kutara, but also indirectly, for he is father of mokul (mother-in-law) and marelker (mokul's brother); he is marelker to kutara's bapa wawa and yukiyuko to mari mielk, who is mother to kutara's gawel.

Mari being father to kutara's mokul, the woman with the strongest taboos around her is very important to kutara and gives him a strength he would not otherwise possess. It means he can force mokul to give her daughter to him if the mokul is unfair about it, since mari can put pressure not only on her, but on her husband, who is gawel to his kutara. Mari occupies, because of this relationship with kutara's gawel and mokul, one of the most powerful positions. A man's whole position, security, and well-being demand that he have a number of wives and children; he must look to gawel and mokul for the fruition of his wishes; if his mari and he are on good terms, which nearly always holds true, his mari will force these two to help him. In other words, the relatives with whom ego is weakest are those with whom his mari is strongest, and his position both in power and relationship are exactly the opposite of his kutara's.

Mari mielk also occupies a position of considerable importance. She looks out for kutara when he is small. Instances of a man's having a greater affection for his mari mielk than his own arndi were recorded several times. Mari mielk corrects the children when they are mischievous or bad-mannered. Chastisement is hardly ever practised, but ridicule is effectively used. Her name is also called out in the sacred Djungguan ceremony when a boy is being initiated. She sometimes helps build the house for a man to live in after gawel has given him a wife. She can always be depended on for food. Kutara would also remember her, as he would her brother, if he had killed any game. When kutara kills his first emu or kangaroo, she helps carry the bones when they have been painted with red ochre, just as she carries kutara's bones after his death. She is important by indirect relationship, because she is mother of ego's mother and gawel, mokul bapa to ego's mokul rumeru and mokul rumeru to his bapa.

To sum up, the relationships of mari diramo to kutara diramo and of mari mielk to both the female and male kutaras are the most important in the second ascending and descending generation, while the relationship of mari diramo and kutara mielk is of little importance.

MOKUL⇄GURRONG (*diramo* and *mielk*) (mother's mother's brother's daughter⇄father's sister's daughter's children)

There are two types of this relationship, built on the fact that there is a male and female gurrong. The relationship between mokul and gurrong diramo is very important, but that of the two women is of no significance. We will only consider the former. The fundamental fact is that mokul is the mother of gurrong's wife, and to her he is the man to whom she gives her daughter in marriage.

There are five varieties of mokul: (1) the actual daughter of ego's mother's mother's brother and mother of ego's wife; (2) the mothers of ego's wives who come from distant clans; (3) the daughters of actual mari, but not the mothers of ego's wives; (4) the daughters of near mari; and (5) daughters of mari from distant clans. The two most important are the first and second, with the third having a very strong emotional content, but the behavior toward all of them is more or less the same as regards taboos.

The whole relationship of mokul and gurrong is one of complete mutual avoidance. He cannot speak to her; she cannot speak to him. He does not look at her; she does not look at him. They do not hand any article to each other nor use each other's names. Should they meet on a path, they each turn aside and walk past with their eyes averted. There is no direct contact between the two, except in very unusual cases or in times of great emotion, such as during a fight, when a man or a woman is not aware of what he is doing. Their whole relationship is an indirect one.

A child before circumcision is exempt from these rules because he is considered too young to understand them. After this he is told to observe all these taboos in his relationship with all his mokul. A young mokul is also told at a very early age that she must observe all the taboos surrounding the gurrong. If a mokul has become very old it is possible to talk to her, receive food, and be near her, but the relationship is always most formal and reserved.

Should a mokul or gurrong unwittingly disobey any of the taboos (it would happen in no other way), a sore or large swelling would appear in the groin of the offender. Several persons were so afflicted, and all their tribesmen believed them to have broken this taboo and to be suffering the penalty.

Mokul and gurrong may be near each other around the same fire. An observer would not notice their avoidance unless aware of the custom and the relationship of the individuals; it then becomes quite marked.

This taboo does not imply any animosity between the two, their indirect relationship usually being most pleasant. A man is proud of his mokul, and boasts of her kindness to him. She always sends him food and her most prized possessions through her daughter, and he returns them through his wife. She, too, is equally proud of her gurrong, and tells of his many kindnesses to her.

If a man's galle misbehaves, mokul would always help him discipline her. Only in cases of extreme cruelty would the wife's mother take her part against the husband. If a gurrong is neglectful of his duty in giving

presents to his parents-in-law, there is always a chance during the early part of a marriage, before there are any children, that the daughter will be taken away from him. The mokul takes a prominent part in this action, for she feels that he must look out for her.

A mokul who misbehaved herself as a wife to gawel would her find gurrong against her and he would help gawel punish her.

For a full appreciation of her relationship to gurrong it is necessary to read the account of the gawel-waku reciprocal, keeping in mind that this waku is her gurrong, when she is wife of the gawel.

Mokul and gurrong mielk are not taboo to each other. This relationship has no restrictions upon it.

MARELKER⇄GURRONG (*diramo* and *mielk*) (mother's mother's brother's son⇄father's sister's daughter's children)

The same varieties of the marelker-gurrong relationship are found among the Murngin as the mokul-gurrong, since he is the brother of mokul, but the marelker and gurrong mielk relationship is quite different, as is that of marelker and gurrong diramo. Avoidance and restraint are lacking: the two men are frequently together, particularly if ego has a son, because marelker is mari to the boy. Marelker is as fond of the child as its father and shows it as much attention. Gurrong makes presents to marelker whenever he gives anything to mokul, for as marelker is mokul's brother he has considerable control over her. The only taboo between the two men is that neither uses the other's personal names.

Marelker diramo and gurrong mielk are partly taboo to each other. They do not speak each other's names, and because of the moiety are sexually taboo. One of the most amusing stories in Murngin literature is an account of marelker seducing his female gurrong, the whole point of the story being that marelker is made to do the very things he is supposed to avoid in his daily behavior with gurrong.

NATCHIWALKER⇄DUMUNGER (*diramo* and *mielk*) (mother's mother's mother's brother's son⇄father's sister's daughter's daughter's child)

This relationship is built on the pattern of the nati-kaminyer reciprocity. Natchiwalker is important largely as a brother of momelker. His name is taboo to dumunger and dumunger's is taboo to him.

MOMELKER⇄DUMUNGER (*diramo* and *mielk*) (mother's mother's mother's brother's daughter⇄father's sister's daughter's daughter's child)

Momelker is taboo to dumunger diramo just as fully as mokul is to gurrong. She is the mother of mokul and she is also mokul to ego's gawel. Ego therefore uses the same behavior to her as does his gawel. There are

no taboos between momelker and dumunger mielk. This relationship is unimportant.

There are the following varieties of momelker: (1) blood mother of mokul, (2) sisters of the first; (3) those from nearby clans; and (4) those from distant clans. There are the same varieties of natchiwalker, except that in the case of the first, he is the brother of the actual mother.

YEPPA⇄WAWA and YUKIYUKO (sister⇄older and younger brother)

There are the same varieties of yeppa as of wawa and yukiyuko. There is little difference in the behavior of yukiyuko-yeppa and a wawa-yeppa relationship, except that if yukiyuko is an adolescent or child he will not have an older brother's control over his sisters; but if he is an adult, he has as much influence in directing their affairs as an older brother. Yeppa calls any brother born before her "wawa" and any brother born after her "yukiyuko," exactly as a man would. With only the above reservation we can treat the yukiyuko-yeppa and the wawa-yeppa relationships as one, remembering of course the kind of relationship between wawa and yukiyuko, and realizing the effect on the relationship we are now considering.

The sister and brother relationship is surrounded with taboos. If a brother speaks in the hearing of his sister, tribal or blood, he utters his words in a low voice so that she is not supposed to hear him. She speaks in the same manner before him. He never talks to her directly nor she to him. He does not use obscenities in front of her as he would before most women (including his mother, daughter's daughter, and father's sister), nor will he allow anyone else to indulge in such language before her in his presence. They never sleep in the same camp or hut. At a very early age they are separated. Yeppa always helps her brothers if they are involved in a fight. She would not only ask the assistance of her relatives but also aid them herself unless it involved a relationship where she felt a divided loyalty. Then, with the aid of other women, she would try to prevent a fight.

A brother is like a second father to a sister. If she is caught in adultery he gives her a beating, and, if not stopped, tries to kill her. Even if he saw her own husband copulating with her, he would become angry and try to beat her. However, he is careful not to see them. When Daoper's wife ran off with Bengaliwe, her near brothers gave her an unmerciful beating, and might have killed her had not other relatives interfered.

A yukiyuko always goes with yeppa when she first goes to her due's own clan to live after their marriage.

Brothers look to their sisters to supply them with waku for their daughters to marry. Waku's importance to a man is no less than that of

a son. A brother always makes presents to his sister for her son as well as to her husband.

No sister may eat a brother's kill of kangaroo, emu, etc. until the brother's wife has had a child. A sister helps carry the ruddled bones of the first kangaroo or emu killed by her brother, just as she helps carry her dead brother's bones.

A brother and father always know and keep the tabooed names of a girl. No woman knows her ceremonial name.

There are two sets of behavior in the relationship of a brother and sister that must be treated together. First, she is called wakinu by all her brothers. Wakinu means a person without kin in its primary meaning, and secondarily it means "worthless" or, more expressively, "rubbish." Bamapama, the trickster hero, a much loved scoundrel who lived in the olden days and broke all laws, is always called wakinu after some particularly fantastic escapade of his has been retold. Wakinu is used during a fight as an appropriate term against one's enemies. Secondly no brother can hear his sister sworn at or hear before her obscenity, such as is very common otherwise. When a man's anger rises he immediately bursts into an almost pyrotechnical display of abuse, most of it centering around sex, breaking of incest taboos, peculiarities of the genitalia, irregularities in the sexual act between men and women, etc. This aversion to hearing or using profanity in front of a sister is called "mirriri" (ear-thing). It really means "My ear can't hear obscenity in front of my sister."

The person who swears most frequently at a man's sister is her husband, especially in a connubial quarrel. The husband is ego's due, with whom he has one of the strongest relationships.

A few illustrations follow.

Ma-lam-bu'-nu had come home and found his food unprepared by his wife, Dangra. A quarrel resulted in which he called her matamakmi (incestuous). She did not swear at him. A near clan brother, Badunga, heard the swearing and became very angry. He gathered a bundle of spears, hooked them one by one to his spear-thrower, and threw them at a large number of the women in the native camp, including Dangra. An investigation showed that everyone of the women at whom he threw were called yeppa by him.

Balli, an adolescent girl, called her own mother dalardumaru (big vagina). Natjurili, a near-clan brother of the mother, heard the girl use this term. He, too, threw spears at all his sisters, whether they were tribal or blood in their relationship to him.

A general camp fight was on; Di-ma-la, who wanted the combatants to stop, cried, "Stop swearing at each other. If you don't stop calling each other those names, I'll have to go throw spears at all my sisters."

There are several recorded instances of a brother throwing spears at yeppa, because someone had sworn at her. In a great majority of the cases it was the due who was swearing at her. An older man said "It is just the same as if I had been hit on the head with a club when I hear that." Another said, "My heart jumps and stops, jumps and stops, when I hear that mirriri.

If Malambunu had sworn at Badunga's near brother as he had done to Badunga's sister, there would have been a quarrel and possible fight, such swearing between men, however, only happens when there is already a fight on. If Balli had sworn at Natjurli's mother or daughter, he would have done nothing.

YEPPA⇄*YEPPA* (sister⇄sister)

There are the following varieties of this relationship: (1) sisters from the same father and mother and having the same husband; (2) sisters from the same father and mother but different husbands; (3) sisters having the same husband but different fathers and mothers; (4) wives of brothers of one clan; (5) near clan sisters; and (6) distant clan sisters.

There are no taboos between sisters. Younger sisters are disciplined and protected by the older ones. The older ones also teach the younger ones how to make baskets, earn their living, and do the things they should as members of Murngin culture.

Kinship Personality of Ego

Ego's kinship personality is best summarized in figure 2. Here all the relations described in this paper are found as a complete total of ego's kinship personality (except those between two women if ego is a man); not only is ego wawa to yukiyuko, but he is yukiyuko to an older man he calls wawa; not only is he dumunger to natchiwalker, but he is natchiwalker to another man who is dumunger to him.

The small letters are for women, the larger type designates men. The figure shows that (1) ego is all the male terms; (2) that he is in direct relation to every female term; and (3) that he is only indirectly concerned with the reciprocal relations of women. The reverse of these statements is true if ego is a woman.

Ego, as an expression of only one part—the kinship organization—of Murngin culture, is an extremely complex social personality. We must remember that he is a member of a tribe, a clan, and moiety; of a totemic system; an economic group; a system of mythology, ceremony and belief; and of many other mechanisms.

Each individual feels it is his right rather than his duty to keep his part of the system working, hence the proper functioning of the whole. A proper marriage is preferred, because a Murngin man and woman usually feel that they have a right to each other, since their relationship has destined them to marriage. This is true of all the behavior of all the personalities in the system.

Nevertheless, wrong marriages occur. The Murngin have arranged a rather simple scheme to make the new marriage fit into the general kinship system, and adjust the relationships of the offspring to other members of the society.

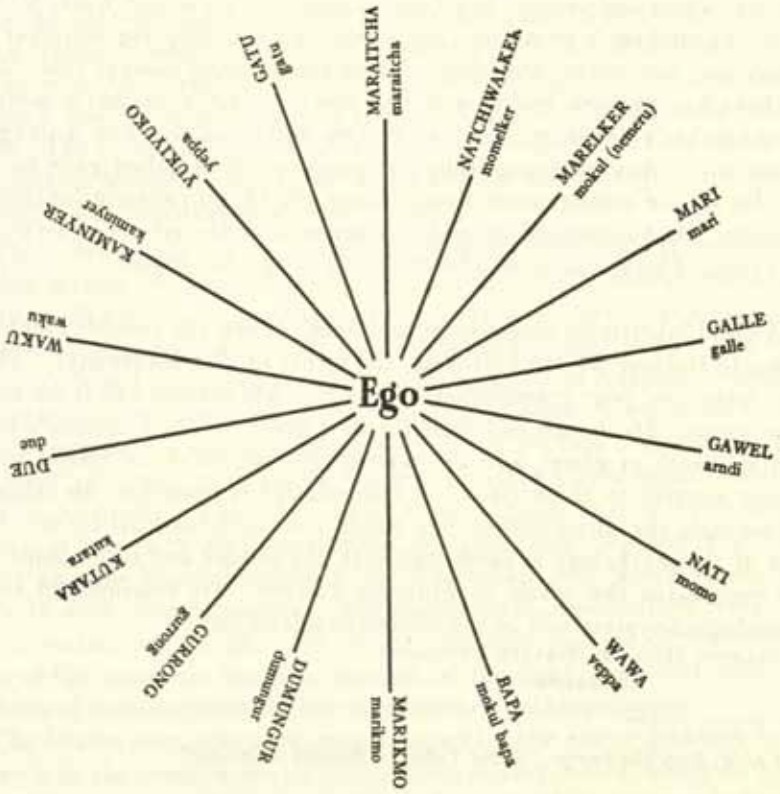


FIG. 2. EGO'S KINSHIP PERSONALITY
Capital letters = males.
Small letters = females.

If one of ego's own family marries wrong, the relationship term of the woman this person married is changed so that it fits what she would be

called were she the proper galle of ego's relative. Thus, when ego's own galle is taken by bapa, the former no longer calls her galle, but arndi. This is true throughout. When natchiwalker marries mokul instead of momelker, ego no longer calls a woman mokul, but momelker; yet the correct term for the woman is known, as will be seen presently.

When children are born from a wrong marriage, the father calls them by the terms all other parents give their children (gatu). But everyone else calls the children by the term used if the mother had married normally. To use the native expression, "the father is thrown away."[4] There is only one exception: if a father marries ego's galle, ego would not call the children gatu but wawa and yeppa. In all other cases the rule would hold; if ego's father married ego's momelker, ego would call the offspring marelker and mokul, and not brother and sister. There are recorded cases of this. When natchiwalker marries mokul and the mokul is ego's mother's mother's blood-brother's daughter, he looks to this mokul to give him a daughter for his wife. Any offspring from the union would be called galle by ego.

This simple arrangement always keeps the kinship system functioning smoothly. It has created an odd arrangement of the relatives within the local clan. This situation will be discussed in another paper.

A child inherits its totem from its father. When the totemic emblem is shown to the boy for the first time, the father or clan leader says, "This is your father, or your grandfather." The boy will always call it by one of these terms. Most men call their totem "father." Their mother's totem is called arndi or gawel, and the totems of other clans are traced by the nearest relative in these clans. If this relative is marelker, for instance, and he calls the totem father, ego would use the term mari for it. Since most of the mythology is connected with the totems and ceremonies, kinship permeates the whole of Murngin culture. Its relationship to the mythological system will be considered in a later paper.

PEABODY MUSEUM, HARVARD UNIVERSITY,
CAMBRIDGE

[4] A. R. Radcliffe-Brown, "Three Tribes of Western Australia."

SELECTIONS FROM THE LETTERS OF LORIMER FISON AND A. W. HOWITT TO LEWIS HENRY MORGAN

EDITED BY BERNHARD J. STERN

INTRODUCTORY NOTE

ANTHROPOLOGISTS are generally cognizant of the fact that the work of the pioneer Australian anthropologists, Lorimer Fison and A. W. Howitt was initiated by Lewis Henry Morgan. *Kamilaroi and Kurnai* which Fison and Howitt dedicated to Morgan and to which Morgan wrote an introduction, not only applies Morgan's evolutionary scheme to Australian conditions but supports him with no little heat in the acrimonious controversy in which he was engaged with McLennan, Lubbock, and Andrew Lang over the meaning and significance of kinship terms. The book and its authors therefore provoked the abuse of the antagonists of Morgan; only Tylor of the English anthroplogists recognized the merit and importance of their attempt.

The correspondence of Fison and Howitt with Morgan presents a graphic setting to the anthropology of this period. It reveals the extent of Morgan's influence upon them and their personal devotion and loyalty to the man who provoked their interest in ethnological work. But more than that, it indicates that the disciples were not mere epigones reiterating the theoretical suppositions of their master. It shows them to be men of no little originality, who with much assiduity in the face of distressing apathy were primarily responsible for inaugurating ethnological investigations in Australia. That they fitted their findings into an evolutionary pattern is not surprising considering the prevailing philosophy of their period and the characteristics of the Australian data which lends itself easily to such schematization. The ethnological observations which the letters contain are fraught with interest not only because of the intrinsic value of the materials but also because of the light they cast upon the methods of interpretation of the evolutionary anthropologists.

The letters here presented were selected by the editor incident to his research in the preparation of a biographical and critical study of Lewis Henry Morgan, from hitherto unpublished papers which Morgan bequeathed to the University of Rochester.[1] Morgan rarely made copies of his own letters and therefore only one aspect of the correspondence is presented.

[1] Grateful acknowledgment is made to Donald B. Gilchrist, librarian of the University of Rochester for his cooperation in making these letters accessible. B. J. S.

But from other sources we learn that Morgan cherished this epistolary friendship with Fison and Howitt among the most gratifying experiences of his life.

Fison first communicated with Morgan in December 1869, in response to a schedule which Morgan had circulated to all missionaries while seeking data for his comparative study of systems of consanguinity. The letter which contained data on the Fijian and the Tongan systems, came too late for incorporation in the main body of *systems of consanguinity and affinity* and was added as an appendix. Again in August 1871, Fison sent Morgan some Australian kinship terms which served as the basis of a paper on that subject by Morgan before the American Academy of Arts and Sciences. The correspondence of Fison consisted of conventional expressions of eagerness to cooperate with Morgan, until A. W. Howitt became interested in the inquiry through Fison's solicitation. We begin our letters at this point and present them in chronological order.

LETTERS

A. W. Howitt Buckworth, July 20, 1874

Although personally a stranger to you, I believe that you are not quite unacquainted with my name through the letter of our mutual correspondent Rev. Fison of Melbourne.

In a letter received from him lately he communicated to me the outline of the most interesting and important work in which I believe you are now engaged.

I feel that I might possibly be of some small service to you in gathering information in respect to the Gippsland Aboriginal Natives—hence this letter. If you can make any use of me I shall feel highly honored. At present I am temporarily in charge of the district from whence I date this, but I expect within two months to return to my own district; when I shall with great pleasure undertake such line of inquiry as you shall point out. My address Bairnsdale, Gippsland, Victoria.

Lorimer Fison Hawthorne, Melbourne, March 10, 1875

. . . . I made acquaintance with a gentleman holding a high position under our government here and through his interest got a number of circulars printed by our government printer asking for information as to the terms of kinship etc. prevailing among the Australian Aborigines. Both Mr. A. W. Howitt and myself went to considerable trouble and expense in forwarding them to settlers in outlying districts, police magistrates etc. in all the Australian colonies. The result is most disheartening. Mr. Howitt tells me that he had only one response worth anything and

I find that it came from one of my own correspondents. I had about four replies of which two were worthless and the other two imperfect. Mr. H. says, "The density and stupidity of people in general with regard to the object of our inquiry is perfectly inconceivable." Your own experience I am sure confirms this remark. But he is a valuable ally. . . . . I must return to Fiji. I doubt whether I shall find any field as promising as the Australian. The worst of it is that no field can be more difficult; and I am driven to the conviction that the terms of kinship help us far less than they help us elsewhere. The explanation of this lies in the fact that the same person is addressed by different terms at different stages in his life. Thus a man calls his son by a certain term before he has had his front teeth knocked out and by another term after the operation has been performed. This is only one instance out of many. The class names and totems seem to offer most promising results, but it is extremely difficult to get trustworthy information. . . . .

A. W. Howitt Bairnsdale, Gippsland, Victoria, Feb. 28, 1876

Your letter of 7 December 1874 is before me and strongly reminds me how apparently remiss I must seem in not having before replied to it. The fact is that I have from day to day been waiting in hopes of receiving some fruits from the circular which I have since broadcast over Australia. Unfortunately the results have been almost nil. Utter apathy seems to be the normal condition of our population generally on such questions as I have been trying to work out. Without waiting an indefinite time for information which may never arrive, I send you the four systems of kinship which I have procured; they are tabulated in a shape which I have adopted as presenting in condensed form the mass of replies which are or ought to be given with each Genealogical Table. I find that by this method it is possible in many cases to eliminate errors by the informant as well as to test his accuracy generally. These diagrams also I think facilitate comparisons between the systems of the Australian aborigines and the classificatory system you have drawn out. I shall not attempt to point out the Malayan and Turanian resemblance as you will at once, and more clearly perceive them than I could indicate. But it may be as well to note some things which might be more evident to me who have compiled the information and as having some special knowledge of the aborigines and their habits and customs. . . . .

In the last page I have given diagrams of replies sent me from far to the northward on the Transcontinental Telegraph line. The diagrams are so fragmentary and present so many striking differences to those tabulated

from the southern tribes that I must wait more light. I hope that this may come from a few correspondents in that part of Australia. I have not sent diagrams of the Nanniyen, the Mararua (Darling River) Meru (Darling River) which were supplied by the Rev. Mr. Taplin of the Point Malley Mission, So. Australia, as unfortunately they proved on my attempting to distribute them to be almost worthless. I sent the reverend gentleman a long list of queries but I fear I frightened him, as I have not since had any communication. Acting in the spirit which you gave me as to the Aboriginal Australian being in the Pairing Family system, I made enquiry from the most intelligent of our Gippsland Blacks and I now condense the information thus obtained without however altering their modes of expression where it was possible:

(1) Brothers cannot have the same wife. When the brother dies the remaining brother takes the widow.
(2) A man may have two or more sisters for his wives.
(3) A woman may not go with any other man than her husband. The husband may go with any other woman—men can do what they like.
(4) If the woman runs off into the bush with some man, her husband, when she is caught and brought back to the camp will give her up to the whole camp.
(5) If a young (unmarried) girl runs off into the bush with some man, all the men of the tribe will go out and look for her. When they find her she becomes common property, and she would remain such till some of her male relatives—father, brother, etc., interfered and put an end to it. During the time she remains common property she is kept away from the camp by the men.
(6) The relations of a woman in such a case fight with the man for an hour or so. As soon as he receives a cut on the head or a wound somewhere (i.e. whenever blood is drawn) they are satisfied.
(7) In other cases, if a married woman runs away with a man, her husband goes out and searches till he finds her. He may then most likely thrash or wound her and she becomes common property for a time, but the husband could prevent it if he liked.

The following is an instance told me. The woman is now living at Bairnsdale. "Neau-ung" was first married to a Brajerack (i.e. Maneroo Blackfellow—Maneroo is a district of New South Wales). She ran away with a man called Charly. By and by Charly took her back to her husband. The latter took his "Ierrumbuddy", which is the large wooden spear—not the Reedspear which is "naal", and thrust it through her back so that it came out near the side. Her husband then said, "I have done with her—you can keep her." All the men had her in common for some days and her

inside kept coming out of the wound in her side for weeks. I have preserved as nearly as possible the anecdote as told me.

I think we have clearly here the Pairing System: (1) The cohabitation during pleasure of the husband. (2) The husband claims fidelity under penalties but does not admit reciprocal obligations. But: (3) polygamy is the right of the male.

From the Systems which I have tabulated and from such information as that just recorded I think we are justified in the following conclusions:

(1) The Australian aborigine is in the pairing family—but not of quite a typical character.
(2) The tabulated forms show him to be theoretically in the Turanian System.
(3) But there are clear evidences from the diagrams of a previously existing condition under the Malayan System.
(4) That most probably the present system has been evolved from the preceding one.

Our Friend Mr. Fison has sent me your letter dated 3rd June last. I feel highly honored by the suggestion that you make [that they prepare a book together. B.J.S.] and shall write to him saying how pleased I shall be to cooperate. When however the performance may succeed the interest is more than I can well see at present. No one can be better acquainted than yourself with the frightfully uphill nature of this work. But I shall persevere and hope for results. I am sorry that I have not more time to devote to the careful study of the subject but fully half my year collectively is taken up with the journeys which my official position as Warden of the Goldfields necessitate, and the examination of the geology and petrology of the district in which I have been engaged for many years demands more than the remainder. I may mention this in order that you may be aware that want of time and not lack of will causes an apparent paucity of results on my part. . . .

A. W. Howitt Bairnsdale, Victoria, Australia, July 27, 1877

I have to thank you for kindly remembering me by sending me your *Ancient Society* and for writing to me of May 17th date. In the first place let me express how very much delighted and interested I have been in perusing your book. It seems to me that you have proved your case completely and I have felt astonished at the enormous amount of labour it implies. I who have tried my experiments and in the same field can fully appreciate the difficulties you must have had to contend with and which you have so successfully overcome. I quite agree with you as to your view of the growth of the idea of the family and in fact I have been surprised to see and it has been a matter of no little gratification to do so, how entirely

the views I have formed myself are in "all fours" with those which you have so fully worked out. I am now going to carefully reread your book and note everything that requires investigation here. Several new directions for enquiry have suggested themselves. I have already commenced upon the food question, and I find that in our tribe the distribution of food among the family group is regulated by strict laws, as are also the positions of the camps and of the individuals living in the camp. A wide vista has opened itself to me. As an instance take this:

A man catches seven river eels; they are distributed thus. (It is supposed that his family group consists only of these named).

1. Front half, himself; hind half, his wife.
2. Front half, his wife's brother; hind half, his sister.
3. Front half, his elder sons; hind half, his younger sons.
4. Front half, his elder daughter; hind half, his younger daughter.
5. Front half, his brother's sons; hind half, brother's daughters.
6. One whole eel to his married daughter's husband.
7. One whole eel to his married daughter.

A second instance: A native stork is caught. Right side to father and mother, who keep right leg and give right arm away. Left arm and leg to wife's father and mother. do. do. Left foot is given to brother. Head, backbone and liver belong to self and wife, who first eat liver, then head. Ears go to wife, who gives right ear to sister. Husband has neck. Both eat the back.

I have, as it were, only turned the first furrow and may find the two instances not quite correct when I begin to check my information. But it shows what there is to learn. I have proposed to myself to try and fully work out the social life of the tribe. As to the work generally it goes on slowly. I keep hammering away at it. Fortunately, I am, I think, one of the people who "persist." But it is very discouraging to get no replies at all to 95 p. c. of my circulars. Of the remainder perhaps to get one good reply. To write again for some more particulars and perhaps get them and perhaps not. To write again possibly—upon which ensues silence. I shall see what I can do with the Kamilaroi and try and work out what you suggest. The conjugal privilege does not seem to exist in the class here. The family is seeming much further advanced in the Syndyasmian direction. It is also remarkable that the divisions of the tribe into (the equivalent native terms for) Eaglehawk and Crow, does not obtain here. I may illustrate by examples: at Cooper's creek (the Barcov) the tribe (Yantruwunter) is divided into the classes Moquarra (Eaglehawk) and Kilpana (Crow). On the Darling river it is the same, the totems being:

	Moquana			Kilpana
	Eaglehawk			Crow
Karnee	Bilgarra	Bookinga	Tooayree	Numbaree
Lizard	Hawk	Bandicoot	Whipsnake	Bone fish
Taltaree	Youlary		Koonwoora	Boalberry
Kangaroo	Duck	etc.	Swan	Wallaby

Example: Karnee man marries a Tooayree woman. The children are all Tooayree, etc.

Carraway tribe, on Maneroo N.S.W. about 130 miles from here.

Merung		Yackembruck
Eaglehawk		Crow
Bullet Bullet	Nadjinajan	Brargurgur
Lyrebird	Bat	Small hawk
Bulloniba	Nundarung	But the work
Flying Squirrel	Little gray tisan (?)	More pork (night jar)
Moollan		Berribang
Murray cod		Emu
		Burroo
		Kangaroo

Example: Merungs must marry Merungs; the children are Yackembruck. These children must marry Yackembruck, the children are Merung.

Here among the Brabrolong
There are only two classes:

Yeerung	Djeetgun
Emu wren (stipiturus malachurus)	Lapert warbler (malurus cyaneus)

All the men are Yeerung, all the women are Djeetgun. All male children are Yeerung, all female children are Djeetgun.

The first example is the ordinary type of Australia, the third example is peculiar so far as I know to Gippsland. The second example is intermediate between the two systems as the Carraway tribe is the border tribe between the Gippsland blackfellows and those of New South Wales.

There was once a small and very wild tribe stuck in the dense jungles of the seaward and as it were partly between the Barbrolong and the Carraways. These are now nearly extinct—one of the last of them who was "wild" only twelve years ago gave me the following:

MEROONG		YUCKEMBROOK
Eaglehawk		Crow
Billingang	Beewing	
Some kind of bird	a Hawk	
Bellet Bellet		
Lyre Bird		
Burwo		
Kangaroo		

My informant was Billingang and could not remember any of the Crow totems. He stated that all boys were Meroongs and all girls were Yuckembrooks. This system seems to stand again between the Carraways and Brabrolongs as the tribe itself was.

The question will arise how is it that the Gippsland tribes have such a peculiar system. Is it a gradual decay of the class system and the totem synchronous with the decay of the punaluan system and the beginning of the syndyasmian family? I am inclined to think so, although at first I was inclined to regard the Gippsland system as evidencing the archaic type. On the former view the Gippsland tribe being further advanced in the Pairing family should also show other commensurate advances. I want more light upon this question. The Gippsland tribe have been cut off by physical conditions of the country from the rest of Australia, as Australia has been from the rest of the world and hence these black fellows should present many peculiarities. The sea on the south, dense almost impenetrable jungles in the East and West, on the North the Great Dividing Range, covered with snow for months each year, have all hemmed them in. Admitting the principle of Evolution as coming into play one might expect either that the Brabrolongs should exhibit an aberrant—an advanced or an archaic—type. The question is which is it? . . . .

If we only had time what an immense deal could be worked out. The lack of interest I meet with, leaving enthusiasm altogether out of the question, would make me almost despair of human progress in the future, were it not that one can look backwards and take comfort. But indeed when I think of the vast amount of information here daily going into annihilation through the dying out of the aboriginal race and with them the knowledge of their customs, I feel doubly, trebly urged into renewed efforts. The absence of our friend Mr. Fison is a very great loss and I have not one soul in all Australia who can supply in the least degree his place in this enquiry. Besides this the duties of my office as Police Magistrate and handling of the gold fields in a very large district leave me but little leisure; deduct from this the time occupied by my geological work in

which I must labour singlehanded, in the field, as well as at home, and you will see that not much remains for Ethnology. However, you may rest assured that although I may never succeed in completing any Ethnological work worth anything I shall not stay my hand but shall add all I can to my stock, grain by grain, and perhaps some day may be so fortunate as to meet with other persons who may also feel the interest and importance of this work. . . . .

P. S. Your remarks p. 52 on the four classes males and the 4 classes females somewhat bears upon the Gippsland 1 class male and 1 class females. But the Brabrolary tribe, besides that, is divided into three gentes which have no special name, being only distinguished by locality with respect.

Lorimer Fison Navuloa, Fiji, Aug. 28, 1877

Your letter of May 15 has reached me, so also has your *Ancient Society* which I am reading carefully and slowly, but with the greatest delight. I do not allow myself more than a chapter a day, and that only on my days of comparative leisure, in order that I might think over, and digest your remarks. It seems to me that your work now opens a way for drawing up of a paper by Mr. Howitt and myself on the evidence afforded by the Australians and other tribes as to the "segmentation of the gens," and on the influence of the "patriarchial family," by which term I mean polygamy without polyandria and descent through the father. In fact the latter was existing (i.e. actually prevailing—not that more archaic form revealed by the forms of kinship) in Fiji when I first came down to the islands. I venture to think that this rule has done a very important work, facilitating separation, and the breaking up of the old communities. This however must be deferred for a time until I can draw up my share of the paper. I have already written to Mr. Howitt asking him to gather his materials. My own sketch, I will send to him for incorporation with his own; the combination will then be forwarded to you. In the meantime I will go on reading your book, and when I have finished I will write again.

. . . . But indeed I have been doing very little, partly because I have had no spare time, and partly because my health has not been good. The old energy is gone, and that which used to do itself with a spring has to be done with a heavy drag. I have moreover been kept busy writing for two newspaper editors, whose offers I could not refuse in justice to my family: so that on the whole I have less time than ever before for our work. But I shall not cease to go on with it as I may be able, and am collecting materials such as you suggest in your letter. In our Training Institutions at this place, of which I am now President, having been removed from the

Island of Lakeba in April last, I have between 60 and 70 of our most intelligent mission candidates from all parts of the group. This gives me a fine opportunity of comparing the native customs prevailing among the various tribes, and much interesting matter presents itself. Already I have discovered several valuable facts with regard to kinship which I did not know of before, though I thought I had exhausted the Fijian field. But I will send you particulars when I have more to send. Burial, human sacrifice, chieftainship, political constitution etc., all require further investigation here and I am trying to gather materials for a few pages on these subjects. If you will take charge of them I will gladly send them to you. Perhaps under your auspices, the Smithsonian would regard them with a favorable eye. . . . .

I have to thank you also for your kind mention of my name in your book though, by the way, I misunderstood your query as to "woven fabrics" among the Australians, taking it to refer solely to "clothing" fabrics. I fancy that either your question did not put itself into a clear form or I misunderstood one of your words. There is at least a possibility of the latter alternative. The Australians, some of them at least, weave bags, and baskets too I think, with considerable skill out of grass, etc. They have not, however, the bow and arrow, so that part of my information is all right. By the way, you say that none of the Polynesians, excepting the Tongans and the Fijians had a knowledge of pottery. In the first place I am by no means sure that we have sufficient authority for this statement. One or two of our vagabond beachcombers, who drift to and fro about the S. Seas, have told me of potters among the islanders, though the statement of these gentry are not to be relied on, yet there is always a possibility of some little truth in them. And secondly, the Tongans had not pottery until they got it from the Fiji. They were also ignorant of the bow and arrow and of salt. But they are exceptional Polynesians. They are really progressive. They adopted all three, together with an improved model of the war canoe, from the Fijians and soon surpassed their teachers. But even at the present day a great deal of their cooking is done in the stove oven which would be better and more profitably done in the pot.

I have sent several times to Melbourne for McLennan's *Primitive Marriage* and tried to get it there before my return to Fiji, but without success. It was not to be had. Our bookseller told me he had had in his possession a number of copies which his agent had picked up in England at a booksale. He looked into them and seeing that there was in them "only a lot of stuff about Marriage by Capture"—so he phrased it— he put them up for sale in an auction lot,and they were knocked down at 1/6 per volume.

What a vast hindrance to the cause of science arises out of envy among scientific men. And how utterly absurd a man becomes when he sets himself against a truth because it is unpalatable to him! Neither McLennan nor Lubbock have taken the trouble to study the Classificatory System with care sufficient to enable them to understand it. As far as the latter is concerned, I could show this from several passages in his *Origins of Civilization*. And as for McLennan's ridiculous theory about the "Modes of Address," a complete refutation of it is afforded by the fact that tribes which do not use the terms of kinship in addressing (e. g. the Tongans) have all the terms belonging to the system. This theory, however, is so utterly absurd as to be its own most effective refutation. It only shows how tenaciously a man will stick to his own theory, and try to explain away opposing facts.

I must think over what you have to say about the Kamilaroi classes. It seems to me that they arose in the ordinary way from the subdivision of two original gentes, but you seem to make a distinction. It does not appear to me that the female names indicate classes of females as distinct from the males. They seem to me to be simply feminine forms of the masculine, e.g. Ippatha—a woman of the Ippai class. The class names and arrangements founded thereon are found in many other localities. I have recently received a communication which proves their use, far in the hitherto unexplored interior—but nowhere, excepting among the Kamilaroi have I found the female names and yet the laws of marriage and descent are in nowise different.

Although the Fijians were when our mission was first established among them organised politically in advance of the aggregation of gentes, yet the gens, phratry and tribe were, and still are, in active existence; only the family being patriarchial in form with the descent through the father, there was some difference between their gentes and those of the N. A. Indians. I did not understand this organization when I made outhe Fijian tables, but it is clear enough to me now. There is (1) The Vivàlet gens (2) The Yavùsa-Phratry (3) The Matanggali-Tribe. The Matanggali is (may be) endogamous, but the Yavùsa and the Vivàle are endogamous. It is the lack of knowledge as to this distinction which throws Lubbock and McLennan into such confusion on this point. But I must defer this subject until I have finished your book. . . . .

Lorimer Fison Navuloa, Fiji, Aug. 10, 1878

. . . . (I must express my) indignation at McLennan's contemptuous words in his impertinent disposal of your hypothesis, as to the Origin of the Classificatory System. . . . .

The specific object of my paper is to show, what can, I think, be satisfactorily shown by the Australian Classes, that the characteristics of the Turanian System logically flow from the laws by which these classes are regulated (see Anct. Soc. pp 422 *et seq.*). These I propose to take as many distinct theorems and to prove them from diagrams like propositions from Euclid. One diagram of descents to the third generation will suffice for all and can be set up by means of the ordinary type and brass rule found in every printing office. The whole thing can be done so as to be as conclusive as any one of Euclid's demonstrations, if we can only establish three preliminary propositions.

These are:

1. That Australian marriage was communal, in other words the marriage of a group of individuals to another group.
2. That relationship was that of a group to a group.
3. That each group was exogamous. In other words that each class must marry outside its own limits.

Of these the last can be proved incontrovertibly by sufficient evidence in my possession drawn from present usage. The first (group marriage) can be reasonably inferred from present usage which is the loosest form of polygamy I ever met with, and strong argument can be drawn from facts in my possession strong enough to convince anybody who has not, like McLennan, a preconceived theory to be upset by them. The second—group relationship—is more difficult of proof with regard to the Australians because their terms of kinship do not throughout the list follow the beautiful logical sequence of the Tamil, N. A. Indian, Fijian, etc. This I can easily account for. The class divisions give the Turanian relationships, whereas the Australians retain some of the terms belonging to the Malayan system. On this point more by and by. Our chief difficulty, however, with regard to the Australian is that in thinking of the relation in which they stand in relation to particular persons, they take matters into consideration other than kinship and so give words which are not specific kinship terms. Again, they alter the word when the person dies, and when some one of their kinsfolk whose name has even one syllable it in like the formerly used term of kinship, or for some equally exasperating reason. The consequence is that every schedule gives a great number of terms to which no mortal man who has not a very thorough knowledge of the language can assign a meaning. Nevertheless sufficient can be made out from them to establish a strong case.

. . . . As for the evidence of communal or group marriage, the Australian may be called "communal marriage with a vengeance." Not only have

the four class names been found from West to East across the continent but we have ascertained that their marital rights extend over all the tribes who have them-e.g.—that an Ipai's claim to the class of women who are free to him in his own tribe would be recognised in a tribe 1000 miles distant from his own if he were to visit them even though the languages are as widely apart as is French from English. It is the most astounding system of communism the world has ever known.

There is one point on which I have to diverge from the line you have taken, though the divergence is more apparent than real. I am forced to the conclusion that the termination "tha" in Ipatha etc. is nothing more than the feminine form of Ipai and that Ipatha is not a class by herself but a woman of the Ipai class. Mr. Ridley's ear is singularly inaccurate. This does not affect your conclusion. . . . .

I propose to show:

1. That two classes each descended from a female ancestor with marriage outside the class. Under this head must also be stated the Mering and Yukemeruk classes. Woe is me that I cannot trace the steps which connect them with the exogamous classes. I can do this theoretically but what is theory unsupported by evidence?

2. The four classes which will be shown to be subdivisions of the two primary classes.

3. The sub-divisions of the four classes by means of totems. This is another important question which I must perforce leave undetermined. From facts given me by some of my correspondents I am led to believe that in some districts the totemic sub-divisions do not affect the intersexual arrangements e.g. that though the class corresponding to the Ipai is subdivided by totems, the male of that class cannot marry any woman corresponding to Ipatha. This is most positively affirmed by several trustworthy informants. And it is certain that in some tribes the totems do not form inter-marrying clans. But my materials are insufficient for a settlement of the question. . . . . The more we learn the more clearly we shall see that we are only learners, that the end of the whole matter lies far ahead of us.

There is much to be said about the absence of hereditary chieftainship among the Australians and kindred races, and much light is thrown upon the subject by what we find among these Islanders. Travellers have reported kings and chiefs among tribes in the S. Seas who have not even a word meaning king or chief, and there are at the present day within my knowledge many tribes who have no chiefs at all. And yet they have influential men among them whose word is law. This apparent paradox may be thus explained. There is a most extraordinary system of secret societies with regular grades, secret passwords, and insignia for special occasions. The influence of these societies is immense and men who have risen to

the highest grades have great power in their hands. The powerful person is the mouthpiece of the association. This is widespread. It is a singular fact that the grades are gained by purchase and that the Islanders have a currency whose value is well known. They moreover lend on interest, the rate being a modest one of cent per cent. These men are mistaken for kings by missionaries. The name is man's grade in the secret society. . . . .

When descent is through the mother there is a tendency to democracy, which democracy breaks up when the gentile organization takes its place. . . . .

A. W. Howitt Sale, Dec. 21, 1878

. . . . As to the whole field of inquiry in Australia—I am quite disheartened. There is no chance of getting it done unless individuals who like myself are on good terms with some tribe will take it in hand. That which I have tried to do for the "Kurni" I could not do for any other tribe until I became fully acquainted with its members, with their language, and gained their confidence—one man's life would not suffice and by that time it would be too late. . . . .

Lorimer Fison Navuloa, Fiji, Dec. 26, 1878

. . . . The gens (among the Greeks) was the body in whose veins flowed the common blood. They who were of intermarrying gentes were not of the same clan but they were relatives for all of that. The mistake lies in taking it for granted that there is no relationship beyond clanship. The members of a gens are relatives but there is also relationship between the intermarrying gentes.

. . . . You will observe among my addenda a note giving information supplied by Mr. P. S. Friend. This I think is very important. Codrington asserts that, though the Banks people are divided into intermarrying gentes, there is no approach to communism. But Mr. Friend's note shows a clear case of communism in the neighboring group of New Hebrides, and I have little doubt that Mr. Codrington could find traces of it in the Banks also if he were to look for them.

P. S. Smyth's work on the Australian aborigines is out at last. I am disappointed in it. It is a miserable failure.

Lorimer Fison Navuloa, Fiji, Jan. 6, 1879

. . . . Lungs irreparably injured . . . . at 46 years of age I am a thoroughly broken man . . . . I have a strong conviction that our intercourse will not be finally broken off by the removal of either of us from earth. About work:

I. Tables. I have made no use of Tables of Kinship terms in my essay. This because I have not one single complete table of any Australian Tribe

(I have indeed one filled up by Rev. E. Fuller; but it is so inaccurate as to be nearly useless). Nor can I get at the meaning of many terms in the miserably incomplete tables that I have. My present work is devoted to one object and I do not go beyond it. But, if I live long enough I shall most certainly prepare a set of Tables such as you wish for: and I am convinced that they will be of great value, not because of anything that I do with them but because they are what they are. It is *certain* that we can find in the Fiji itself, together with the New Hebrides and the Solomon Groups, the links of a chain which connect the Australian with the Aryan—I do not mean the races, but the intersexual relations. I say it is "certain"and I am sure that I do not speak at random. But this work has yet to be done. We can now deal with a part of the Australian systems with something like completeness. This is, I believe, the basis on which the whole superstructure of subsequent organizations was built. To use your own words, in the Australian field we are "working at the very foundations of that great Science of Anthropology which is sure to come." If I were to present my tables now I could do next to nothing with them. To one acquainted with the subject they point to what is to be found, but I have yet to find it. Think of your own 30 years of work and of how few men you found to second your efforts though they were urged by a great institution and by the Government of a great country. And although my field here is as nothing compared with the vast area covered by your researches, yet I am alone in it. I have not found a Howitt for the S. Sea Islands..... If I die, I will leave my papers to Howitt..... I am not surprised at Tylor's remarks concerning your use of "gens" etc. He and others are so full of the idea of gens as it was when it had become a political institution and to a great extent non-genealogical, that they do not recognise it when it presents itself in its earlier forms. But the study of savage life at the present day will most assuredly sooner or later show the truth of your view. Men who begin with the Household, the Housefather, with *patria potestas* and inheritance through males, cannot see what presents itself clearly to those who have been able to take savage life as it is, and to observe in its organization that from which those were evolved. My friend Howitt himself, who is full of the Kurni with their partial descent through the father etc., writes me thus "We must begin with the unit." I replied that I did so; only that the unit with which I begin is the unit at this end of the line—the unit which I find in myself. Follow that unit back. It is swallowed up by the gens, the gens by the phratria, the phratria by the old commune. And there I stop, for there the evidence stops. What there may have been behind it I do not care to inquire, because inquiry

is vain when there is none to answer. Howitt's unit is the "real original" unit. I cannot see it. The jaws of darkness have devoured it up. Your nomenclature is thoroughly correct and convenient. To say that "gens" is improperly applied to the Iroquois subdivisions because they are not precisely what the Roman gentes came to be, is to say that our "family" is incorrect because it is not exactly what the Roman *familia* was.

As to any, or all, of the facts ascertained being "detrimental to true religion," I have only to say that the religion to which any fact whatever can be detrimental cannot be true. I have found nothing yet in these researches, or in the facts disclosed by any other researches to shake my faith in the truth which I learned at my mother's knee when she taught me to fold my hands and say "Our Father which art in Heaven." I have found much to correct my view as to side issues in abundance, and for all such correction I am thankful: but there has been nothing, positively nothing—to touch the main question.

Smyth's book. It is bitterly disappointing. To think that a man could have such opportunities, materials and tools and yet make so little out of them is disheartening. He has not used what he got from me, except a few scattered facts given by my correspondents. He has not even published what I know from the evidence of my own eyes that he had written on *Kinship*. I suppose that he could not complete it unless he had been inclined to finish up with my valuable disquisitions on theological questions. Hearne's book on the "Aryan Household" is very good. But he too starts with the Unit and the Household. From that point forward he clears his way, as it seems to me with great ability, throwing much light on the development of law etc. You would be pleased with the book I am sure.

. . . . I strove with all my might to make clear the proposition which you enunciate. Everything depends upon that one proposition— "the reformatory movement." If this be established we can go on. Until it be established all succeeding steps will be questioned. That it is true, I am perfectly sure. That it is disputed, derided, insultingly thrown aside I know. That it will ultimately make its way, I look upon as certain: but in the meantime its chief obstacle is that it is misunderstood or rather that it is not understood. . . . . You may depend upon my searching out of kinship terms. I do not even hope to do much with the Australian; but from the Australian up to the Reva, sent to you and published in your work, I think I shall be able to gather a complete series. Fiji gives us several intermediate steps. One important tribe—if its system be logical throughout will give us the pure Malayan. Its *veivungoni* are *veitamani* i.e. My

father's sister is my mother and calls me her son: my mother's brother is my father, and calls me his son. And in that tribe the chief's sister's son succeeds to the exclusion of the chief's own son. . . . .

Lorimer Fison Fiji, Jan 17, 1879

. . . . I have a great—the greatest possible respect for Tylor as an authority on almost everything connected with savage life. He is so full of accurate knowledge, so shrewd an observer, and so cautious in theorising, that his not having perceived the archaic gens to have been the same institution with the more modern Greek and Roman gentes only confirms me in my opinion that the very foundation of your important discovery is imperfectly understood. When its fundamental idea is grasped it will assuredly make its way.

. . . . I trust you will understand that this (the manuscript of *Kamilaroi and Kurnai*) is only a preface as it were to the other work which is to contain Kinship Tables from the more advanced Fijian, through the other less advanced tribes of this group, down to the Florida with its *Kemas* or intermarrying divisions with descent through the mother. These will form a chain touching the Aryan on the one hand and the Australian on the other.

. . . . I have no hope of the Australian as far as the Tables of terms are concerned unless the Australian government would send either Howitt or myself, or both of us at public expense to make personal inquiry among the tribes. It is simply impossible to get intelligent helpers who have a thorough knowledge of the dialect spoken by a tribe which is sufficiently numerous to be trusted as to its information. There are men who have the requisite intelligence, but they won't work. And there are uneducated men who would serve admirably as interpreters but who are incapable of conducting the inquiry independently. In the meantime the tribes are melting away. Of them it may be said literally that "they are carried away as with a *flood*." But the island can be managed.

P. S. Since I finished my letter, a copy of Taylor's *Te Ika Maui* (lit. The Fish of the Maui—Maui was the god who fished up New Zealand from the bottom of the sea. The Tongans say it was Tonga that he fished up)—or *New Zealand and Its Inhabitants*, has come into my hands. My copy is the second edition published by Mr. Macintosh, London, and H. J. Jones, New Zealand 1870. There is not very much in it bearing upon Kinship, but what little there is, is important. The Maori word Puna means a spring of water, but punarua means the practice of having two wives, generally sisters. It is also applied to two youths who settle the question

as to who shall have a girl by hauling her in opposite directions. The stronger takes her, if she be not dragged in two by the haulers. The Maori word punarua is identical with the Hawaiian punalua (Rua-lua-two). The Maori marriage customs are very significant. Before marriage a girl may have as many marriages as she pleases, and she may admit them to full marital privileges without impropriety. But when she is given in marriage, she is *tapu* to her husband and is liable to be put to death if she be found unfaithful. Generally there is a big fight for her, all those having the old communal right struggling fiercely for and pulling her hither and thither regardless of her cries of agony. Sometimes a man seeing that he has no chance of getting her, plunges his spear into her heart that no other may have the prize he has failed to gain. Marriage by capture presents phase after phase opposed to McLennan's view. It seems to arise directly out of the old communism. Among the Maories as among the Australians it is the violent assertion of the old communal right. The woman is exclusively her husband's when he has gained her, but that is solely because of the *tapu*. If the *tapu* be taken off, the woman becomes *noa* or common again. Howitt tells me that when a Kurni takes a female war captive, she must be common to his Brogau before he can claim her as his own. . . . .

Lorimer Fison Navuloa, Fiji, Jan. 27, 1879

. . . . He (Howitt) has an appendix giving a list of the kinship terms of the Kurni, Kamilaroi and others; and also another detailing the regulations as to food partition. This is valuable as showing that the hunter had to give up the produce of the chase to his father and his father-in-law. The share of each is accurately defined. You will bear in mind the fact that Kurni had descent through the males as far as the males were concerned and therefore they were on the road to ancestral worship. It is quite natural that men who gave all their food to their fathers during the lifetime of those elders should make offerings of food to them after their death. Ancestral worship is an important item in the study of our subject if it is to be kept in its proper place; but unless men worshipped female ancestors it was subsequent to the change of descent from the female line to the male.

Hearn speaks of polyandry as the cause of uterine descent. For my own part I do not believe in polyandry at all i.e. in polyandry as distinguished from communal marriage—save under very exceptional circumstances. It occurs nowadays whenever there is what may be called an *unnatural* scarcity of women; but it is even there governed by the class regulations.

It is found among the Indian coolies in the Mauritins, and the "imported labourers" in Fiji. In both cases the number of male "immigrants" is largely in excess of the female and an abnormal state of society is created. But even under these exceptional circumstances the case of the Tana murderer given in one of my additional notes, shows that the so-called polyandry is but communal marriage. The woman grants access to a number of men, but they must be members of the class which intermarries with hers. She is the only available female representative of her class and so she has to do duty for herself and all her "tribal" sisters. I do not believe that there has been a case of polyandry other than such as these. Two brothers may have the same woman in common but this would be the case where there was not a second woman forthcoming. It is communism, not polyandry, i.e. not polyandry as a positive rule..... For five years I have been trying in vain to get McLennan's book. I feel toward him as a Fijian feels toward a man who has *insulted his chief* and I know from extracts I have seen that he has laid himself open to castigation beyond that which you have cared to administer to him.

Bandelier's careful and scholarly papers are especially interesting to me. I have little doubt that the four quarters of Mexico were the residences of four gentes or phratria, as you suggest. .... I have sent them to Howitt. The mound excavations also are very interesting to him and to me. We have corresponded on Dawkin's *Cave Hunting*. There are caves in Fiji whose floors I should like to explore. Cave burial is of frequent occurrence in various parts of the group, and some tribes dig out what may be called artificial caves for their dead, showing that they also had the custom of cave burial.

Recurring to the subject of the gens. The gens of the Roman is doubtless the Iroquois gens further advanced, but I think we may usefully distinguish between the two. The agnatic gens has a formation which the *uterine* gens cannot have. It is made up of the Households, and its tendency is to segmentation, whereas the *uterine* gens is held together by the strongest ties..... A view of the gentes among the N. A. Indian tribes who have descent through the father would be very valuable now, if those tribes were sufficiently removed from the influence of the neighboring civilization. I mean an examination of them in search of traces of advance.

P. S. Feb. 3rd. I have received your criticisms .... As to *totem*. I have given animal names as its explanation, simply because many of my correspondents did not know what it was, and I concluded thence that very many others had not that knowledge. Strictly speaking the definition is not

correct, because as you point out, the totem is not always an animal. But I think you will see that it has a connection with the gens more intimate than that of a mere symbol. I await your comment on chapter VI before saying anything more on this point.

Gens and Class. . . . .I am not altogether satisfied with that part of my "memoir" (many thanks for the suggestion which I gladly adopt) which seems to give the totems as subdivisions of the four classes. Each class is practically subdivided by them to a certain extent; but as I say in one part of my memoir, "there is reason to believe that the totems *came in upon* the four classes rather than that they grew out of them" or words to that effect. The Kamilaroi totems are subdivisions of the two original classes as I see them, though I cannot tell whether they are prior or subsequent to the four classes, at least I cannot prove priority for either. I used the word *class* simply for distinction's sake for the purposes of the memoir because it seemed needful to distinguish between the classes and the gentes distinguished by totems, but I think we shall find that the designations of the classes themselves are nothing but totems, and I think it probable that subsequent investigation will show Ipai etc. to be nothing else.

My theory is then as follows: The old commune was divided originally into two gentes (what I have called the two primary classes). These gentes had descent through the mother. They subdivided and so became phratriae. Each subdivision was a gens belonging to a phratria. Here there seems to be a difference between your theory and mine. You seem to look upon the gentes (as distinguished from the phratria) as the original divisions which were subsequently united into a phratriac bond. I find among the Australians the two classes evidently (as it seems to me) of earlier date than the subdivisions and therefore I am forced to the conclusion that the gentes came out of a pre-existent phratria and that the phratria was not formed in the first instance by the aggregation of independent gentes.

Supposing then two Kamilaroi phratriae A and B, A being subdivided into Ipai and Kulea (?) B into Muri and Kubi. The children of A are B: the children of B are A. This interchange is repeated in the gentes Ipai etc. resulting in the descents shown in Table B. Say that another tribe of the same family instead of subdividing into four classes, divides each of its two phratriae into 3 "totem gentes" (to use my ugly term) and that the two tribes subsequently amalgamate, or by intermarriage become so mingled that the two systems are mixed up as itwere into one and we have precisely the Kamilaroi arrangement. I find I must defer the subject until I return home. You will I trust understand that I state my views with great

deference to your own. I will look through my ms. and make alterations in those parts to which you refer.

There is, however, one point on which I can touch without referring to my papers etc. The *gentes* found in Asia etc., I said were "similar" not that they were *identical*. They are divisions into four intermarrying *gentes* with descent through the mother. So far they are identical with the Australian, but I do not know whether they follow the Australian rule as to the alternation of children between the "brother" gentes. I will add a note to that part, and I am very much obliged to you for your suggestions. I trust you will put in footnotes with initials whenever you see an opening. They would greatly add to the value of the work. I will leave out of my preface "It seems to me to be a big trumpet blast for a very small following."

I have only time in conclusion to thank you most heartily for your kind words, some of which are so very kind that I really feel abashed in the midst of my overflowing delight when I read them. It is a deep and abiding gratification to me that I have been enabled to secure your approbation. .... You owe me no thanks for standing up against McLennan. I am proud to look upon myself as a member of your *gens* as far as this inquiry goes..... Strike the gens anywhere and every member of it starts up in arms against the striker.

A. W. Howitt Sale, Feb. 11, 1879

I enclose at the request of our friend Mr. Fison a rough chart of Australia upon which I have marked for him the localities he desired to indicate. You will see that they indicate the existence of the clan division with descent through the mother over the whole of Australia. Such exceptions as that of Gippsland now require to be worked out. I hope before long to conceive a plan of action without fail and to get to work in earnest. I hope to hear before long that my manuscript has reached you and has met with your approval. In preparing it I followed your advice. I put aside all my geological work until it was completed.

If I could only find time I should like nothing better than to take a holiday and visit two tribes whose investigation would be of extreme interest—one in western Vaolori which I think will prove to be another exception such as our Kurnai here and another tribe at Cooper (Central Australia) which are I think an extreme form of that of which Fison has taken the Kamilaroi to be the type. Whether I shall ever carry out both these plans is now doubtful. The Vaolori tribe I think I can manage but the other presents difficulties—it would require a three months holiday and yet the chance of doing it presents itself to me. With the Cooper natives I have a

strong influence dating from the times when I was an Explorer in Central Australia and could easily renew the influence I then had over them. This is one of those ideas which I have often in my life found to become realised through the persistence with which they present themselves.

Lorimer Fison At Sea, Feb. 14, 1879

. . . . You seem to consider the gens to be the original division and the phratry to have been subsequently formed by the aggregation of previously existing gentes. As I see the Australian divisions, the gens appears to me to be the first division of the tribe i.e. the reformatory movement of your hypothesis. Breaking up the marriage of tribal brothers and sisters gives two gentes such as Kennite and Kroki. These subdivide. The subdivisions are then the gentes and the two original become phratriae. I used the term *class* solely as a temporary convenience, to distinguish these divisions from the gentes marked by totems. This theory seems to me to give an unbroken sequence with your hypothesis as a starting point. I propose to say: "subdivisions of the two classes into gentes distinguished by totems" instead of "subdivisions of the four classes by means of totems." Traces of the same process are observable elsewhere i.e. the Sun and Moon divisions of India, the two original divisions of Mexico whence came the four etc. This seems to me to be the natural course rather than a gathering of already existing gentes into greater bodies or phratries. This course is from the old commune, i.e. from the whole tribe to the phratry and from the phratry to the gens. This appears to be the natural line of growth. When the gentes came to be made artificially so to speak, as in Athens, the case was different: but the old divisions were, I believe, a natural growth and never a manufacture. All the Australians having the Kamilaroi system (by this I do not mean the K. tribes alone but all the tribes who have the system) came, I think, from one original tribe and spread over the continent, each segmentation taking the system with it so that each class virtually covered all the the area covered by that part of every tribe which belonged to it. . . . . The segments of the original tribe diverted widely as to language but they retained their gentes and phratriae. . . . .

If on coming to a clear understanding I find that my view will not precisely coincide with yours, it will be with the greatest diffidence that I shall venture to hold such a view. I trust you will not hesitate to point out in an introduction or summary where I am mistaken.

Lorimer Fison Navuloa, Fiji, March 15, 1879

. . . .In former letters I explained why I made so little use of k nship terms in my memoir. Finding I could not get anybody to fill up printed

schedules I constructed a diagram with a selection of more than 100 of the most important terms, and had it printed. I send you by this post a copy, together with a list of terms ascertained thereby. These I think suffice to establish the system of my tribe now that your own researches have shown the significance of the terms. Those now sent I have ascertained by personal inquiry since January. I send them simply as showing how the Fijian systems show traces of advance from the Malayan to the Turanian, and as examples of the schedules I am collecting. . . . .

I find that the Kamilaroi country extends farther north than is shown in my sketch. It crosses the border into Queensland. But it is of no very great importance. I do not even attempt to fix accurately the positions of the various tribes, but simply to give a birds-eye view of the *stretch* of the system as already ascertained.

. . . .Are you interested in burial customs? I have found several tribes here who make what may be called artificial caves for graves. They are probably cave buriers who formerly lived in the hills and are now occupying alluvial sites. Cave burial was largely practised in Fiji. The heads of 5 or 6 women laid crosswise ought to appear from under the corpse who lies upon them, they having been strangled for the purpose. I have quite a collection of facts as to burial and very queer facts some of them are.

(To be continued)

THE NEW RIVER INDIANS
TLŌ-HŌM-TAH'-HOI[1]

By C. HART MERRIAM

THAT a strange tribe of Indians once dwelt on New River, a northern tributary of Trinity river in the rugged mountains of northwestern California, has been known for more than half a century, and yet only seven words of their language have been published and neither the name of the tribe nor anything definite about them has been recorded.

Some years ago remnants of the *Chemaſeko* tribe on the lower part of New River and in the Burnt Ranch region of Trinity river, told me that the Chemafeko name for their neighbors, the New River Indians, *is Chal'-tah-soom*; that the language of this tribe is wholly different from Chemafeko and that all the people belonging to it are dead.

Later, however, I learned from old men of the Hoopa tribe that an Indian known as 'Saxy Kid,' whom I had already met, was born on upper New River and was a fullblood member of the New River tribe. The Hoopa call this tribe *E-tah'-chin* (Easterners) or *E-tach-nā-lin'-nuk-ka kewn-yahn-ne-ahn* (East River People), adding that the *Etah'chin* call themselves *Tlō-mah-tah'-hoi*—which proves a close imitation of the correct name, *Tlō-hōm-tah'-hoi*.

Acting on this information, I visited Saxy Kid at his home in the mountains. He told me that when he was a little boy his parents had been killed and his tribe wiped out by the gold seekers who during the fifties and sixties had invaded the mountains and canyons of his country. He had been taken to live with the Hoopa, whose language he had learned and spoke fluently; and he had lived also with the Chemafeko and spoke their language. He said he had forgotten his own language; nevertheless during this visit I succeeded in obtaining the correct name of his tribe and ten words of the language. These differ radically from corresponding words in any language known to me. Therefore, during the past season I revisited him and succeeded in obtaining thirty-five words, and in addition his names for several adjacent tribes.[2]

The name of his tribe he gave very distinctly as *Tlō-hōm-tah'-hoi*, re-

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[1] All Indian words are written in phonetic English.

[2] Saxy Kid speaks English and is not averse to talking, but when interviewed soon becomes nervous and possessed of the idea that he cannot remember any more words of his language. In spite of this drawback I obtained more than double the number of words previously secured, and have no doubt that on the next visit still others may be obtained.

Saxy Kid, only survivor of the Tlo-hōm-tah′-hoi.

peating it a number of times, but when mentioning it in ordinary conversation he slurred it to *Tlo-hōm-toi* and *Tlōm-toi*.

The sad thing about it is that not all of the words he gave me are *Tlō-hōm-tah'-hoi*. When asked for a word in his language, he remarked that the one that came first to his mouth was the Hoopa, after that the Chemafeko, and then, if he remembered it, his own, the *Tlō-hōm-tah'-hoi*. He said that the Hoopa word didn't bother him [it being Athapaskan and so fundamentally different] but that the Chemafeko word did—and in proof of this I find twelve Chemafeko words among the thirty-five he gave me when asked for those of his own language. [In the accompanying fragment of vocabulary the Chemafeko words are indicated by the letter C placed before each].

Fragment of Tlo-hōm-tah-hoi Vocabulary as given me by Saxy Kid, of which 12 Words are unmistakably Chemareko

(Words obviously Chemareko are preceded by the letter C and followed in brackets by the word as spoken by the Chemareko. All words are here spelled phonetically according to the English sounds of the letters and syllables.)

Man	Ke'-hish(also given as Kā'-hāsh)
Woman	Kit'-te-shahp'-ho and Chip-pah'-pi- nup'-how
Baby	O-lā chit'-tah (=little one)
Head	C Hā'-muk [He'-mah]
Eye	C He'-suk [Hoo'-sut]
Heart	Ke-wah'-sho
Good	His'-sik kin'-tah
Fire	C Ah'-po [Ah'-poo]
Rock	C Kah' [Kah'-ah']
Wood	C Pă-sho'-ah [Poo-soo'-ah]
Knife	Kā'-mutch-kah'-ni
Pipe	C Ah'-nah-pah [O'-ne-pah']
Tobacco	Koo'-mah-tsā'-hwah
Basket	Pow'-wah
Burden basket	Han'-nah-me-shah'-tin
Dipper basket	Kā'-in
Acorns	Kāp'-ne
Salt	C I'-ke [Ah'-ke]
Hot weather	El-hun'-tah
It is hot	C El-lŏ [El-lah'-tah]
Big	C Chā'-wah [Chā'-woo]
Little or little one	C O-lā chit'-tah [Oo-lā'-tah]
Black	Pan'-nal-lah (also given as Pan'-no-lah)
Yes	C Hā'-mo [He'-mo]

No	Kah-to′-mah
Grizzly bear	C Se-sam′-lah [Ches-am′-lah]
Black bear	Pan′-no-lah se-sam′-lah
Elk	Kah′-pe-tin
Deer	Ah′-no
Dog	Ke-sho′-ki
Great horned owl	Ho-rah-ruk′-kum
Blue grouse	Mum′-lah-trā
Bluejay (crested)	So-ko′-chā
Flicker (Colaptes)	Chā-am-men or Che′-am-min
Grasshopper	Sāt′-too
Our name for our tribe	Tlo′-hōm-tah′-hoi
Our name for Che-mar-re-ko	Che-mil′-i-ko
Our name for Hoopa tribe	Che-pah′-pe-nup-how
Our name for Cecilville tribe (on South Fork Salmon River)	Kah-hoo′-tin-e′-ruk

In addition to the twelve Chemareko words above mentioned, Saxy Kid gave me *Kow′-wŏ* for rattlesnake but at once corrected himself, saying it was Chemareko.

Comparison of the thirty-five words given me by the *Tlô-hŏm-tah′-hoi* informant (Saxy Kid) with corresponding words in the languages of neighboring tribes shows no resemblance whatever to either Hoopa, Karok, or Wintoon, but discloses the fact that two or three agree closely with *Kônomêho* and that, as above stated, *twelve are Chemaſeko*. This is not surprising in view of the circumstance that on the east and south the territory of the New River tribe was in actual contact with that of the Chemaſeko, that Saxy Kid spoke Chemaſeko as well as Hoopa, and that he warned me that the Chemaſeko word came to his mouth before that of his own language (which in most cases he had forgotten). That the Chemaſeko words were spoken inadvertently seems clear also from the fact that not only Saxy Kid, but also the several Chemaſeko and Hoopa informants had insisted that the languages of the two tribes were "*wholly different*." It seems fair to infer therefore that the twelve words above listed are *unmistakably Chemaſeko*.

In addition to these, it should be mentioned that the *Tlô-hŏm-tah′-hoi* word for good is *hiś-sik kın′-tah*, suggesting the Chemaſeko word *e-sé-tah*; and the word for Bluejay is *so-kô-chā*, strongly savoring of the Chemaſeko *chô-go-gô-chā*. In the case of the jay, however, the word comes from its voice and therefore may not be borrowed.

Omitting the jay, there remain twenty-two words to be accounted for.

It has been assumed by anthropologists that the New River Indians

were Shastan. However, comparison of the twenty-two (or at least twenty-one) non-Chemafeko words with corresponding words in my very full vocabularies of the several Shastan tribes reveals only two resemblances: In *Tlô-hōm-tah'-hoi* the word for deer is *an'-no*. In the three geographically nearest Shastan tribes—*Kónomého*, *Hah'to-ké-he-wuk*, and *Shaśte*—it is *ah'-row* (or *ah'-do*). In *Tlô-hōm-tah'-hoi* the openwork packbasket is *han'-nah-me-shah'-tin*. In Kónomého and Shaste it is *kah-noo* and *'hah-no* respectively.

One other word is troublesome. It is *kê-hish* [also given as *kā-hāsh*], the *Tlô-hōm-tah'-hoi* word for man. Man in the series of Shastan tribes is *ah-wah-tê-kwa*, but—and this may be significant—the word for *tribe* in *Kónomého*, *Hahtokéhewuk*, and even *Okwah'nootsoo*, is *hish*.

When it is remembered that on the north and northeast the New River *Tlô-hōm-tah'-hoi* were in direct contact with the Kónomého and Hahtokéhewuk, it may be assumed that these two (possibly three) words are either borrowed or indicate Shastan relationship.

After eliminating all words of Chemafeko and Shastan flavor there still remain twenty that appear to be quite unlike those of any known tribe—in other words they seem to represent a distinct language—the *Tlô-hōm-tah'-hoi*—previously unknown save for the seven words of 'New River' published by Dixon in 1905.

Examination of the fragment of Dixon's supposed "*Konomihu*" vocabulary obtained in 1903[3] published in 1905 and 1907) shows that it is *not* Kónomého—as I wrote him several years ago.

It is exasperating to find that with a single exception the subject-words of *Tlô-hōm-tah'-hoi* obtained by me are not the same as those obtained by Dixon. The exception is the word for *man*, which Saxy Kid gave as *kê-hish*, and Dixon (in his New River list) as *gê'ic*—the anthropologic way of writing the same word.[4]

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[3] Dixon in 1905 wrote: "The two women who were my informants were able, with much difficulty, in the course of several days, to recollect some 75 words and short phrases, which they remembered to have heard their father (a mixed blood of the Shasta and the local tribe) use many years before." (AM. ANTHROPOLOGIST, Vol. 7, No. 2, p. 214, April-June 1905). Two years later he published 43 words and 18 phrases, stating that they were "secured with some difficulty" from a woman whose grandfather used the language "some thirty years before." (Bull. Am. Mus. Nat. Hist., Vol. 17, pp. 495–498, July 1907).

[4] The word for Indian given as 'Konomihu' by Dixon is *kišapukiyu*—possibly a slurred hybrid of *kis* and *ah-wah-te-kwah* (the latter part being the *Shastan* word for man).

The seven New River words published by Dixon in 1905 (without information as to source) are: Man *ge'ic*; head *kin nux*; eye *ki'oi*; teeth *ki'tsau*; water *ga'ats*; salmon *kit tun*; wood *ga'aú*.

Of Dixon's subject-words, ten were not obtained by me.[5] Of the thirty-three remaining, five may be regarded as more or less akin to Kónomého,[6] leaving twenty-eight to which I see no resemblance whatever. Dixon's phrases or short sentences are not the same as those in my vocabularies, so I have nothing to compare them with.

Dixon's 'Konomihu' seems to be New River Tlo-hōm-tah-hoi

Comparison of Dixon's supposed Konomeho with my excellent and doubly checked *Kónomého* vocabularies proves that it has little in common with that language; nor does it fit into any of the languages of which I then had vocabularies—and I had them of all the known tribes of northwestern California except two—the New River tribe and the tribe formerly living on the upper branches of Salmon River, both of which were said to have been long extinct. It seemed obvious therefore that it must be one of these. And since the New River tribe lived on the far (south) side of the high Salmon Mountains I then assumed that the language in question was more likely to be that of the more accessible tribe—the one on the upper branches of Salmon River. But on finally obtaining a vocabulary of this tribe, the name of which proves to be *Hah-to-kê-he-wuk*, comparison shows that I had been mistaken.

The conclusion seems inevitable, namely: that Dixon's Konomihu and the real Kónomého are very distinct languages. And since my vocabularies were obtained from different members of the Kónomého tribe, of both sexes, and in different years, and are identical in almost every particular, they must be accepted as true Kónomého. His words therefore must belong to the language of some other tribe. And since the New River tribe is the only remaining unknown tribe in the region, it would seem to follow that these words must belong to it.

Hence in tabulating the seven words given by Dixon as New River in 1905 I am taking the liberty to add those he published two years later as

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[5] Namely, wild Indian, rock pinnacle, saddle of mountain, a ford, stingy, ugly, eat, newt, wild onion, and another kind of wild onion.

[6] These are:

	given by Dixon as Kónomého	Kónomého obtained by me
White fir [*Abies*]	sámaka	E-sah-kwĭ-ah-'he-ho
Incense cedar [*Libocedrus*]	kináxo, qoā'	Iñ-nāᵉʰ-hah'-ho
Hazel [*Corylus*]	xaśkipāma	Hah'-soo-kó-ho
Lake	tliñapzau	Ip-hah'-nah
Obsidian	klétspai	Ep'-ho'hah'-kwĭ

"Konomihu,"[7] along with the twenty-three New River words obtained by me (including the bluejay and the Shastan-like words for deer and pack-basket).

FRAGMENT OF ASSUMED TLO-HŌM-TAH-HOI VOCABULARY

Words given by Dixon as New River are preceded by the letter N. All others, including those in brackets, are his 'Konomihu,' believed by me to be Tlo-hom-tah'-hoi.

English word	As obtained by me		As written by Dixon	Transliterated into phonetic English
Man	Ke'-hish; Kā-hāsh	N	ge'ic [kīs'apūhiyū][8]	ga'esh
Woman	Kit-te-shahp-ho and Chip-pah'-pī-nup'-how			
Baby	O-ļā chit'-tah (=little one)			
Indian			kis'apuhī'yu[8]	kes'ah pŭ hē'yoo
Head		N	kīn'nux [kī'na]	kēn'nuh[ch] [kē'nah]
Heart	Ke-wah'-sho			
Eye		N	ki''oi [same in both]	ke'oi
Teeth		N	ki''tsau	ke''tsau
Back			kī'kīwatitxop	kē'kē wah tet'hop
Hand			ki'poman	ke'po mahn
Legs			kahā'masā-kanā'tsxsu	kah hā'mah sā kah nāts''hsoo
Hair			t!ā'wai	t!ā'wi
Good	His'-sik kin'-tah			
Stingy			kŭxiwī'wi	kŭ'he wē'we
House			in'nnokwayig	en'nok wah yeg
Wood		N	ga'au'	gah'au'
Knife	Kā-mutch-kah'-ni			
Tobacco	Koo'-mah-tsā-wah			
Acorns	Kāp'-ne			
Water		N	ga'ats' [kum'ma]	gah'ahts' [kum'mah]
Lake			t!in'apxau	t!en'ahp'hau
Creek			kinapxig	ken ahp'heg
Mountain			kip	kep

[7] Only five were in both his lists. These are: head, *kiń nux* in his New River; *kī na* in his 'Konomihu;' eye, *ki' oi* in both; man, *gē ic* in New River; *kis' apūhiyū* in Konomihu; water, *ga'atś* in New River, *kum' ma* in 'Konomihu'; salmon, *kit' tun* in New River, *yā'nni* in 'Konomihu.'

[8] Given as '*man*' in his first 'Konomihu' list [1905]; as '*Indian*' in his second list [1907].

English word	As obtained by me		As written by Dixon	Transliterated into phonetic English
A flat			pā′wi	pā′we
A ford			hau′na	hau′nah
A trail			k!enōm′	k!an ōm′
Rock (stone)			quā′sunip	kwā′sun nep
Obsidian			k!e′tspai	k!at′spī
Sand			kit′!uts	ket′!uts
Night			qummā′t′t!au	kwum māt′t!au
Hot weather	El-hun′-tah			
High			pāk′wai	pāk′wī
Straight			is′abunnatut-sukum	es′ah bun nah tūt-sū′kum
Ugly, bad-looking			atanè′wig kip′-xawi	ah tah nā′ weg kep′′hah we
Black	Pan′-nal-lah			
No	Kah-to-mah			
Grizzly bear			kāmkā′tsinèau	kām kāt′sen ā au
Black bear	Pan-no-lah se-sam-lah			
Coyote			qōmū′tsau	kwō moot′sau
Dog	Ke-sho-ki			
Fox			ki′putska	kē′put skah
Elk	Kah-pe-tin			
Deer	Ah-no			
Ground squirrel			kī′pnikawats	kēp′nek ah wahts
Bat			kitcūm′uni	kech um′oo ne
Great horned owl	Ho-rah-ruk-kum			
Blue grouse	Mum-lah-trā			
Bluejay (crested)	So-ko-chā′			
Flicker (Colaptes)	Chā -am-men or Che-am-min			
Frog			k!uts′watin	k!uts′wah ten
Newt			tapā′kan	tah pā′kahn
Salmon		N	kit′tun [yā′nni]	ket′tun [yān′ne]
Trout			sa′hawai	sah′hah wī
Grasshopper	Săt′too			
Basket	Pow′-wah			
Burden basket	Han′-nah-me-shah′-tin			
Dipper basket	Kā′-in			
White fir			sa′maka	sah′mah kah
Cedar			kin′axo, qoā′	ken′ah′ho, kwoā′

Spruce	qohī'ma	kwo hē'mah
Hazel	xas'kipāma	'has'ke pā mah
Brush, bushes	ki'tsa	ket'sah
Eat	tammā'hawe	tammā'hah wĕ
Where do you come from?	tcā'ma hāyi	chā'mah hā ye
Who is that?	kīpa'ha'po	kē pah'hah po
I'm afraid of him	kip'isinikwai	kep'es en e kwi
Come here!	ma'tikina	mah'te ke nah
Go away!	kī'tsḷiyatsau	kēts'!e yah tsau
Go away! I'm just going to hit you	yīs'anamnās yās'amati tcapātitakya	yēs'ah nahm nās yās' ahm ah te chah pā tet ak yah
Get down!	kḷihī'tsin-nihauwĕ	k!eh ēt'sen ne hau wĕ

Geographic Location

The territory of the *Tlō-hōm-tah'-hoi* was the drainage basin of New River extending southward from the lofty Salmon Mountains on the divide between the waters of New River and those tributary to the Salmon (now the boundary between Siskiyou and Trinity Counties). The western boundary was Trinity Summit Divide—the high mountain ridge separating the waters of Redcap, Horse-Linto, Cedar, and Hawkins creeks on the west, from those of Virgin Creek and other tributaries of New River on the east, thus forming the boundary between the *Tlō-hōm-tah'-hoi* on the east, and the Karok and Hoopa on the west. The eastern boundary was the lofty pinnacled crest known as Green Mountain and Limestone Ridge, separating the waters of French Creek from those of North Fork Trinity.

The southern boundary is in doubt, having been differently located by the different informants. Saxy Kid says he does not know, and the Chemaŕeko informants do not agree—one placing it at Deep Creek, another at the main Trinity River. The fact that the dark imposing mass of Ironside Mountain—the sacred shrine of the Chemaŕeko—rises abruptly for 4500 feet between the profound canyons of these rivers would seem to prove that it lies in Chemaŕeko territory, making Deep Creek the southern boundary of the New River tribe.

However this may be, it is doubtful if any other tribe in North America was protected in all directions by such formidable barriers. And it is doubtful also if any other tribe speaking a distinct language was confined to such a small area.

The *Tlō-hōm-tah'-hoi* were a mountain people, surrounded save on the south by lofty peaks and sharp ridges. There are no open valleys in

their territory, and no flat lands of any extent, the entire country being mountainous and, except on the summits, continuously forested, while the watercourses are swift-flowing streams far down in the bottoms of deep gorges. New River itself for the greater part of its course, even to its junction with the Trinity, is hidden in a narrow defile along whose precipitous cliffs the tortuous trail mounts in places to a height of 2,000 feet above the foaming waters.

There are other tribes whose hunting-grounds lie high in the mountains, but no other dwelt the year round in a domain consisting wholly of such lofty rugged ridges rent by such deep and precipitous canyons. It is obvious that a habitat so restricted could support only a scant population and must have resulted from persecution by more powerful tribes—and a glance at the map shows that the *Tlô-hōm-tah'-hoi* were sandwiched between the aggressive *Hoopa* on the west and the *Che-maŕ-re-ko* on the east. The distinctness of the *Tlô-hōm-tah'-hoi* language would seem to imply a larger territory and greater independence at some period in the past.

They were a nation of hunters. Game animals were common—elk, deer, black and grizzly bears, raccoons, grouse, and quail—and excepting the elk and grizzly are still plentiful; but the Indians who formerly hunted them are practically extinct.

VILLAGES

(Names here given are in the Hoopa language. The *Tlô-hōm-tah'-hoi* names are unknown.)

'Kek-kah'-nā-tung . . . . Former village on lower part of New River, at Martha Ziegler's place. Probably a Chemareko rancheria.

Ki-oo^{ch}-wet-tung . . . . Former village on New River at Sally Noble's place, about a quarter of a mile below the mouth of Panther Creek.

Klo-neś-tung . . . . Former village on New River at present site of Quinby.

Me-yemma . . . . George Gibbs, in his precious *Journal of the Expedition of Colonel Redick M'Kee through North-western California in 1851*, mentions a village called *Mê-yemma* (then recently burnt). It was on Trinity River just below the mouth of "New" or "Arkansas river."[9] If the New River tribe reached south to Trinity River, *Mê-yemma* must have been one of their villages; but if—as vastly more probable—the strip on the north side of this part of the Trinity was Chemareko territory, *Mê-yemma* was of course a Chemareko village.

Tsa-nah'-ning-ah'-tung . . . . Former village on the bar or flat at New River Forks, at junction of East Fork with main New River. Must have been very near *Klo-neś-tung*.

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[9] Gibbs in Schoolcraft's *Indian Tribes*, Vol. 3, p. 139, 1853. The term "Arkansas" early applied to a miner's dam and diggings came from the operations of a party from Arkansas.

Adjoining Tribes

The *Tlô-hōm-tah'-hoi* were in contact with five—possibly six—different tribes, four of which speak widely different languages. These are: The Athapaskan *Hoopa* on the west; the *Ka'rok* of Redcap Creek on the northwest; the Shastan *Kô-no-mé-ho* of lower Salmon River on the north; the *Hah-to-kê-he-wuk'* of the Upper Forks of Salmon on the northeast; the *Chemaŕeko* on the east and south; and possibly also the Athapaskan *Tsă'-nung-whă* for a short distance on the southwest.

Culture

Saxy Kid was emphatic in explaining that owing to his youth when taken by the Hoopa, he remembers very little about his own tribe. He says his people had no ceremonial or dance houses; that their dwellings were of bark with the smoke hole left as an opening between two sticks on top; that they raised tobacco by planting the seeds under burnt logs;[10] that their pipes were straight.

They buried their dead,and he remarked "it is bad to burn dead persons". Salt was not found in their country but "was brought from the far north by geese on their way south in the fall."

Names that have been used for the Tlo-hōm-tah-hoi

Amutakhwe . . . . Given by Kroeber as Hoopa name for New River Indians. —Kroeber information (1903), Hdbk. Pt. 2, 65, 1910, and later written *Amutahwe*, Kroeber, Hdbk. Inds. Calif., 283, 1925. [Apparently slurred pronunciation of *Tlô-mah-tah'-hoi'* the Hoopa for *Tlo-nōm-tah'-hoi*.]

Chal'-tah-soom (also pronounced *Sal'-daś-sōm*) . . . . Chemareko name for New River; used by them also for the tribe. Given me by two members of Chemareko tribe—Mrs. Sally Noble and Mrs. Montgomery.

Written by Dixon "*tcolĭdasum* [*djalintasun, djalitasom*]".—The Chimariko Indians and Language, p, 379, 1910. Written by Kroeber *Djalitason* (Hdbk. Am. Inds. Pt. 2, p. 65, 1910); *Djalitasum* (Hdbk. Inds Calif. 110, 283, 1925). Also written *Jelitason*.

Chimalaquays . . . . Powers, The Northern California Indians.—Overland Monthly, Vol. 9, p. 156, 1872.

Chimalaque and *Chi-mal'-a-kwe* . . . . Powers.—Tribes of Calif., 72, 91-93. 1877.

Chimalakwe . . . . Goddard (after Powers).—Life & Culture of the Hupa, p. 8, 1903.

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[10] This also was the practice of some of the Klamath and Pit River tribes.

Djalitason . . . . Djalitasum, Djalitasun, djalitasom, djalintasun. . . . See *Chal'-tah-soom.*

E-tah'-chin . . . . Usual Hoopa name for New River Tribe (meaning 'Easterners').

E'-tahk-nă-lin'-nuk-kah kewn-yahn'-ne-ahn . . . . Another descriptive Hoopa name, meaning 'East River people.'

Jalitason . . . . See Chal'-tah-soom.

Klo'-mĕ-tah'-hwa and *Tlo'-mah-tah'-hoi* . . . . Hoopa pronunciations for *Tlo-hōm-tah'-hoi.*

Mah'-soo-aŕrah . . . . Name applied by *Karok* to both *Konomeho* and *Tlo'-hōm-tah'-hoi.*—Written *Mashu-arara* by Kroeber.—Hdbk. Inds. Calif., 283, 1925.

New River Indians . . . . Name commonly applied to *Tlo'-hōm-tah'-hoi* of New River, Trinity Co. and sometimes erroneously stretched to include the *Che-maŕ-re-ko.* Twenty years ago Dixon wrote of the New River Indains: "They have no name for themselves."—Hdbk. Am. Inds., pt. 2, 65, 1910.

Note:—Not to be confused with *Yuman* tribe of same name on Colorado Desert (south of Salton Sea and about 60 miles west of Colorado River) mentioned by Col. Rogers Jones in Rept. Commr. Indian Affrs. for 1869, 216, 1870; also referred to by Bancroft in Native Races, V. 1:458, 1874.

New River Shasta . . . . Dixon, Bull. Am. Museum Nat. Hist., 17: 385, July 1907; Kroeber, Hdbk. Inds. Calif., 109, map p. 110, 281, 282. 1925.

Tlo'-hōm-tah'-hoi (slurred *Tlō'hōm'-toi* and *Tlōm'-toi*) . . . . Proper name of New River tribe as spoken by themselves (given me repeatedly by old man Saxy Kid, full blood member of tribe. Pronounced *Tlo-mah-tah'-hoi* by the Hoopa; and written *Tl'omitta-hoi'* by Kroeber who erroneously supposed it to be the Hoopa name for the *Chemareko.*—Handbk. Inds. Calif., 110, 130, 1925.

Historical Fragments

The New River tribe, though surprisingly distinct from all its neighbors—or for that matter from all other known tribes—seems almost to have escaped the inquiring eye of anthropologists.

The earliest references I have seen are the United States Army records of the activities of troops sent in pursuit of Indians who on their own lands were attempting to resist the encroachments and dastardly acts of the unscrupulous gold seekers. But the Army records contain no material of anthropological value.

Anthropological Contributions

Stephen Powers, nearly sixty years ago, in the *Overland Monthly*[11] called the New Riber tribe '*Chimalaquays*' (later changing the spelling to *Chi-mal-a-kwe*) and indicated that the tribe was either extinct or had been absorbed by the Hoopa.[12]

Later, in his large volume on The Tribes of California, he says:

"The Chi-mal'-a-kwe lived on New River, a tributary of the Trinity, but they are now extinct. When the Americans arrived there were only two families, or about twenty-five persons, on that stream who still spoke Chimalakwe; all the rest of them used Hupa."

He then goes on to say:

"On the Trinity itself, from Burnt Ranch up to the mouth of North Fork, there lived a tribe called the Chim-a-ri'-ko (evidently the same word as the above), who spoke the same language as the Chimalakwe, and there are perhaps a half dozen of them yet living."[13]

Powers failed to obtain the name of the New River tribe and erred in saying they spoke the same language as the Chemaſeko. He learned however that they were exterminated by the onrush of miners, suffering the same fate as other Indians on Trinity River, of whom he writes:

"They were hunted to the death, shot down one by one, massacred in groups, driven over precipices; but in the bloody business of their taking-off they also dragged down to death with them a great share of the original settlers, who alone could have given some information touching their customs. In the summer of 1871 it was commonly said that there was not an Indian left."[14]

Powers had much to say of the dominance of the Hoopa and their assumed authority over neighboring tribes. He was told by a "Mr. White, a man well acquainted with the Chimalaquays" [New River Indians] that this tribe "once had an entirely distinct tongue," but that "before they became extinct they scarcely employed a verb that was not Hoopa.[15]" In his later publication he states:

"The New River Branch were interesting as affording indubitable proof that the Hupa exacted tribute from certain surrounding tribes, for at the time when the whites arrived the Chimalakwe were paying them yearly a tax of about seventy-five cents per capita—that is, an average deer-skin."[16]

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[11] Overland Monthly, Vol. 9, p. 156, August 1872.
[12] Powers, Tribes of California, 72, 91–93, 1877.
[13] *Ibid*, pp. 91-92.
[14] Tribes of California, 94, 1877.
[15] Overland Monthly, Vol. 9, 156, 1872.
[16] Tribes of California, 92, 1877.

The next writer to contribute anything from personal investigation was the late Pliny Goddard who, after spending several years with the Hoopa, wrote:

"New River, a tributary of the Trinity southeast from Hupa, was occupied by a people now extinct, with the exception of one old woman .... The people just mentioned as occupying New River, the Chimalakwe of Powers, have been thought to be identical with or closely related to the Chimariko. From the testimony of survivors it is probable that they were distinct."[17]

Following Goddard came Roland Dixon. Dixon mentioned the New River tribe in three of his publications—in 1905, 1907, and 1910. In 1905, when writing of the *Ko-no-mê-ho* of the Forks of Salmon River, he said:

"It seems certain that the upper courses of the two forks of Salmon river above the Konomî'hû were controlled by a small branch of the stock, speaking a language markedly divergent from the Shasta proper, and that this portion of the stock extended even over the divide, onto the head of New River."[18]

He was right in stating that Salmon River above the Konomeho was controlled by a small branch of the [Shastan] stock, but wrong in thinking that their language is "markedly divergent from the Shasta proper," and also wrong in assuming it to be the same as that of the New River tribe.

Again, in his map published two years later,[19] he spreads the territory of the New River tribe not only over the upper part of the drainage basin of New River but carries it northward across the Salmon Alps and expands it broadly over the middle and upper parts of the drainage areas of the upper two-thirds of both branches of Salmon River—thus embracing not only the New River country and both sides of the high Salmon Alps but in addition covering at least the whole of the territory of the *Hah-to-kê-he wuk*—a tribe speaking a widely different language.

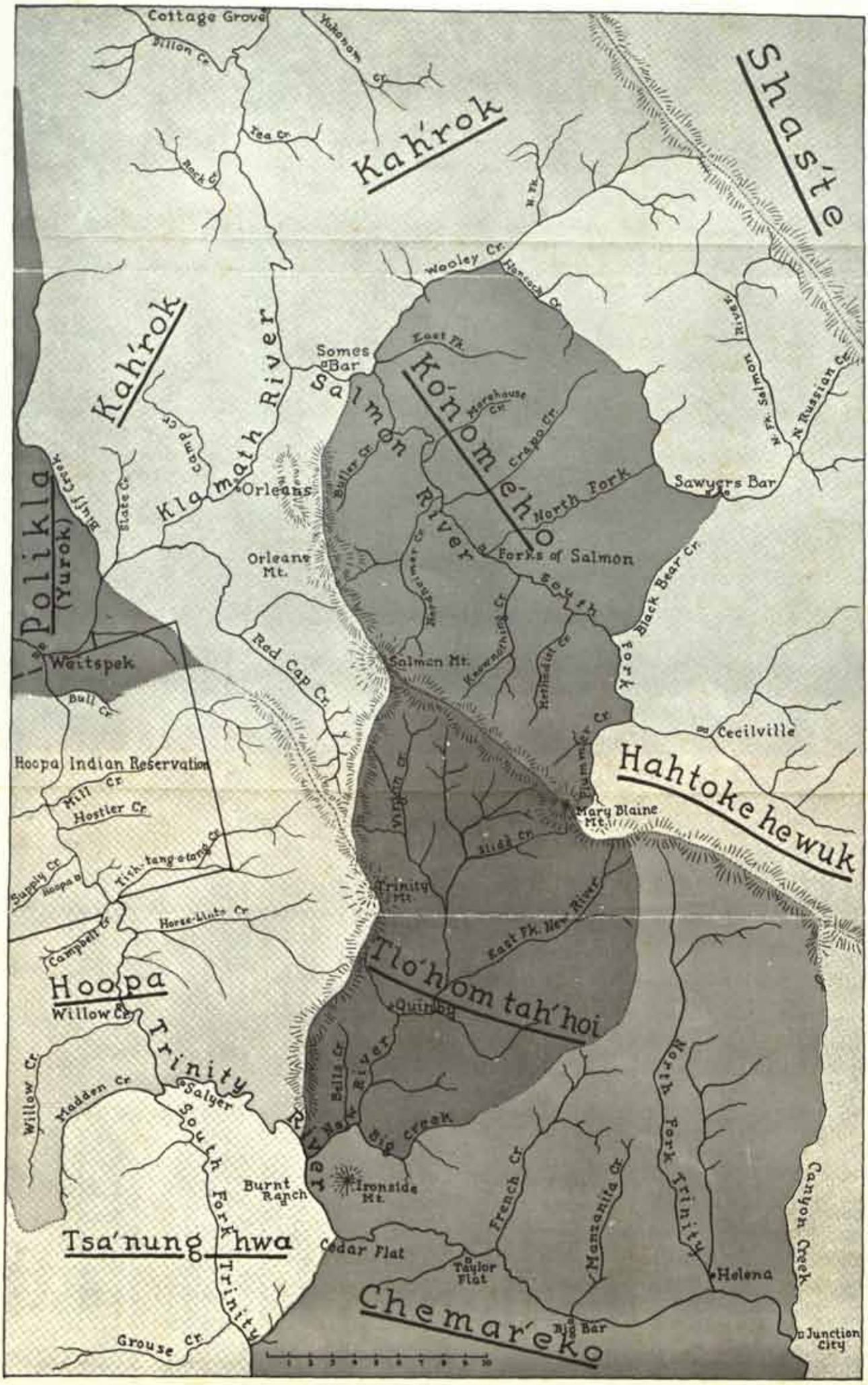
And still later (1910) in his important paper on The *Chimariko Indians and Language* he says of the New River tribe:

"Whether or not the so-called Chimalakwe of New River formed a portion of the Chimariko, or were identical with them, is a matter which must apparently remain unsettled .... The upper portion of New River, about New River City and perhaps below, was occupied according to Shasta accounts by a small branch of the Shastan family, speaking a distinct dialect. Satisfactory statements in regard to the occupants of lower New River cannot now be secured. The survi-

[17] Goddard, Life and Culture of the Hupa, p. 8, 1903. That Goddard omitted to give a vocabulary—or even a few words—of the language of this old woman, is a matter of immeasurable regret.

[18] AMERICAN ANTHROPOLOGIST, Vol. 7, No. 2, p. 215, April-June, 1905.

[19] Bull. Am. Museum Nat. Hist., Vol. 17, No. 5, July 1907.



Area in Northwestern California showing territory of Tlo-hŏm-tah'-hoi, Ko-no-me'-ho and Hah-to-ke'he-wŭk tribes with parts of the adjoining tribes. By C. Hart Merriam, 1930.

vors of the Chimariko most emphatically deny that they ever permanently occupied any part of New River, stating that they merely visited and ascended it a short distance, and only for the purpose of hunting. The people living on New River are declared to have been very few, and to have spoken a Hupa dialect . . . . Inasmuch as these New River people are entirely extinct, and the Chimariko virtually so, it seems doubtful if the question of their relationship can now be definitely settled."[20]

Kroeber, referring to the New River tribe in 1907 said:

"This Shastan group, the proper name of which is unknown, has been described by Dixon under the name of New River Shasta. In 1902 two aged women appeared to be the only survivors."[21]

As late as 1925 he spoke of the tribe as "the little nation which in default of a known native name has come to be called the New River Shasta."[22] And on his map on page 110 of the same volume he follows Dixon in carrying them over the Salmon Mountains and spreading them broadly over both branches of Salmon River and almost to the very heads of Scott Creek! For even then the true status of the Salmon and New River tribes was unknown. Dixon's assumptions were accepted as facts, with the result that the *Tlō-hōm-tah'-hoi* of New River were confused with the widely different and then unknown *Hah-to-kĕ-he-wuk* of the upper forks of Salmon River.

As it turns out in the light of the facts here presented, the assumption that the New River tribe was the same as one or more of the Shastan tribes on the north side of the Salmon Mountains, was an unlucky guess.

Inevitably, the statements here referred to, with others equally grievous, were accepted and perpetuated in the Handbook of American Indians, where it is said, not only that the tribe had "no name for themselves," but also that "Their language is much closer to that of the Shasta proper than is that of the Konomihu."[23] Such inferences from insufficient evidence should sound a warning against the all too prevalent offence of guessing.

THE MAP

The boundary between the Konomeho and Hahtokehewuk is definitely known only in the southeastern part where, according to the tribes on both sides, it is positively fixed at Plummer Creek. North of South Fork Salmon River its course is less surely known. The areas of the several other tribes are believed to be as correct as the known topography of the region admits.

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[20] The Chimariko Indians and Language. p. 296–297, 1910.

[21] Kroeber, Hdbk. Am. Inds., 270, 1907.

[22] Kroeber, Hdbk. Indians Calif., 280, 1925. Other References on pp. 109, 282-283, and map p. 1100

[23] Hdbk. Am. Inds., Pt. 2, p. 65, 1910.

THE KINSHIP TERMINOLOGY OF THE BANNOCK INDIANS

By ROBERT H. LOWIE

THE Bannock (pana'kwat)[1] have long been known to belong to the Shoshonean family, but their precise position within the stock was not cleared up before 1909. Powell and Mooney, indeed, had suggested their affiliation with the Mono-Paviotso group; but a brief vocabulary secured by Kroeber at Fort Hall, Idaho, led him to throw them rather into the Ute-Chemehuevi group, though he inclined to the opinion that the term "Bannock" had been loosely applied to two linguistically distinct bodies of Shoshoneans.[2] Fuller data from a Fort Hall Indian led to the rejection of this view, and Kroeber came to group Mono, Paviotso, and Bannock together as Mono-Bannock, a caption retained since then.[3] This classification was subsequently adopted by Waterman and Sapir.[4]

Even in this later paper, however, Kroeber did not feel certain that "the material secured represented the only Bannock dialect on Fort Hall reservation, though this seems to be the case." In December 1928 and January 1929 I made a brief trip to Fort Hall and Blackfoot, Idaho, in order to obtain additional information. This bears out the conclusions arrived at by Kroeber in 1909.

The Fort Hall Indians at present include the former occupants of the Lemhi reservation, Idaho, some distance north, whom I visited in 1906 and who were removed to their present location in the following year. There is complete agreement that these "Northern" Shoshoni speak exactly the same language as the Fort Hall Shoshoni proper. The same applies to the so-called "Sheep-eaters" formerly at Lemhi. I secured no evidence that the Fort Hall people recognize more than one form of Bannock speech. Thus the investigator has to deal with two distinct languages, Shoshoni and Bannock. Of these, the former is numerically preponderant. The U. S. Census for 1910 gives the Shoshoni and Bannock population in Idaho as 1259 and

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[1] The term "Panai'tI" given in the Handbook of American Indians, 1: 129, 1907, is evidently the *Shoshoni* word pa'n'aite for the Bannock tribe.

[2] Univ. Calif. Publ. 4: 105, 115, 1907.

[3] Kroeber, The Bannock and Shoshoni Languages. Am. Anthr., n.s., 11: 266, 1909.

[4] T. T. Waterman, The Phonetic Elements of the Northern Paiute Language. Univ. Calif. Publ. 10; 13, 1911. E. Sapir, Southern Paiute and Nahuatl, a Study in Uto-Aztecan. Journ. de la Soc. des Américanistes de Paris, 10: 381, 1913.

363 respectively, the total number of Bannock being then 413 (23 in Montana, 9 in Wyoming).[5]

Owing to the close affiliations of the two tribes during the last century and also because of the indefiniteness of early references to Shoshonean tribes, I regard it as unlikely that the precise geographic limits of the Bannock as a separate political entity, say in 1800, can now be ascertained. My informants spoke vaguely of the area between Boisé and Pocatello as the home of the Bannock.

Bilingualism is common, at least so far as *understanding* both languages is concerned; and my impression is that the Bannock can generally speak Shoshoni. Indians, as well as white residents, seem to favor the view that Bannock is much the harder of the two tongues. George Stone, a Shoshoni who dictated words in both, amusingly pointed out that the Shoshoni words were "straight" as contrasted with their Bannock equivalents.

As check-data for the assignment of Bannock to its place within the Shoshonean family, kinship terms are most serviceable because through the previous researches of Kroeber, Gifford, Sapir, and the present writer, virtually all principal members of the stock have had their relationship nomenclatures recorded.[6] Hence this paper will be devoted exclusively to this set of vocables.

My Bannock data were first secured from John Racehorse, a Bannock youth, and a collaborating young man, Charlie Coby, who may have some Bannock blood but is predominantly Shoshoni. Some of the information they supplied (such as the failure to distinguish maternal and paternal uncle) aroused my suspicions and I obtained an independent list from a middle-aged Bannock woman, Sarah Pokibro, whose data are given below.

The point at issue being the closeness of Bannock to Paviotso and Ute, respectively, I will collate Bannock, Mono, Paviotso, Ute, and Paiute terms. Shoshoni data are added in order to have each main group of the Plateau branch represented. Since the English renderings for the Bannock terms

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[5] Indian Population in the United States and Alaska, 17, 96, 1915.

[6] Kroeber, California Kinship Systems. Univ. Calif. Publ. Am. Arch. Ethn., 12: 358 sq., 1917. E. W. Gifford, Californian Kinship Terminologies, ibid., 49 sq., 1922; id., Tübatulabal and Kawaiisu Kinship Terms, 12: 221, 229, 1917 (Sapir's Kaibab Paiute and Uintah Ute data are included in this paper). Lowie, Notes on Shoshonean Ethnography, Anthr. Papers, Am. Mus. Nat. Hist., 20: 287, 1924. I have published the Hopi system in the same series, 30: 365, 1929. Dr. A. H. Gayton kindly permitted me the use of unpublished Western Mono data.

do not always wholly coincide with those for the nearest equivalents in other Shoshonean tongues, I premise the Bannock terms with the translations recorded at Fort Hall.

Bannock Terms

ina′	my	father, father's brother
ivi′a	"	mother, mother's sister
itu′a	"	son; brother's son (m.sp.); sister's son (w.sp.)
ivádö	"	daughter; brother's daughter (m.sp.); sister's daughter (w.sp.)
ivávi	"	elder brother, elder male cousin
ivaña′, ivañga″a	"	younger brother, younger male cousin
i′a′m·a, i′am·a′	"	elder sister, elder female cousin
ivöni′^{i}	"	younger sister, younger female cousin
iva′wa′	"	father's sister
i.ā′ts	"	mother's brother
imido″	"	brother's child (w.sp.)
inanák′^{wa}	"	sister's child (m.sp.)
igönu′	"	father's father; son's child (m.sp.)
'utsi′	"	father's mother; son's child (w.sp.)
idoγo′	"	mother's father; daughter's child (m.sp.)
imū′a	"	mother's mother; daughter's child (w.sp.)
igûma′, igū′ma	"	husband; husband's brother (non-vocative);[7] sister's husband (w.sp.)
inöri′k′^{wa}	"	wife; wife's sister
itca″i	"	spouse's parent
itoγóna	"	son-in-law
gönū′pia	"	daughter-in-law
imaci′	"	sister's husband (m.sp.); wife's brother; husband's sister.

A few kinship usages may be noted. Repeated inquiry failed to find any trace of a parent-in-law taboo, which seemed a novel idea to my informants. According to Sarah, a man might fool with his sisters-in-law while they were young. Marriage is forbidden with all cousins, in consonance with their classification as siblings.

I will now present these Bannock terms with their nearest equivalents in Paviotso, Mono, Ute, Paiute, Shoshoni, as well as the presumably primary meaning in English.

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[7] Sarah Pokibro said that in direct address a woman would use her brother-in-law's name or descriptively call him "my husband's brother."

English	*Bannock*	*Paviotso*	*Mono*	*Ute*	*Paiute*	*Shoshoni*
father	ina′	ina″ᵃ	naᵃ	môan·ⁱ	moan·ⁱ	ā′pö
mother	ivi′a	pi′a	ibi′ya	pien·ⁱ	pi‹′nnⁱ	pi′ə
son	itúa	dū′a	duᵃ	towa′tsin	tuwatsin·ⁱ	nö-ru′ə
daughter	iva′dö	ba′do, pā′rö	väde	pā′tcin·ⁱ	pā′tcin·ⁱ	nö-pā′di
e. brother	ivavi′	bāvi″ⁱ	bāvi	bavi′tsi	pavi(tsi)n·ⁱ	nö-bā′bi
y. brother	ivafiga″ᵃ	baña″ᵃ	waña	tcˈʷˣqai′tcin	tcˈʷˣqa.itcin·ⁱ	nö-ta′mi
e. sister	i′a′m·a	ama″	iha′ma	badzi′dzin	pātsitsin·ⁱ	nö-ba′dzi
y. sister	ivöni″ⁱ	böni″ⁱ	ibuni	nami′dzin	namintsin·ⁱ	nö-na′mi
pat. aunt	iva′wa′	pa′wa′	bahwa	pān·ⁱ	pāan·ⁱ	ba′ha
mat. uncle	i.ā′ts	a′ts′ⁱ	atsi; ibu	sina′tsin	cinan·ⁱ	ā′ra
br's. child (w. sp.)	imido″	imido″	midoᵉ; adaᵃ	pātcin·ⁱ	pāatsin·ⁱ; pahā′ts	.....
sis's. child (m. sp.)	inana′kʷᵃ	Inana′kʷᵃ	inaha′kʷᵉ	sina′tsin	cinatsin·ⁱ; qo′qo′itsin	ā′ra
fa's. father and recipr.	igönu′	qönu′ᵘ	gunu′	könū′tsin	toxon·ⁱ; qönu′nⁱ	kö′nu
fa's. mother and recipr.	hutsi″	hutsi″ⁱ	hutsi	ᵉʷⁱtsi′tsin	qāxun·ⁱ; u′tsi′n	hútsi
mo's. father and recipr.	idoγo′	iroγo′	ido′k	toγo′tsin	toγo′n	dōko
mo's. mother and recipr.	imū′a	Imu′a	muᵃ	qaγun·ⁱ	qaxun·ⁱ; u′tsi′-tsin (?)	gā′gu
husband	iguma′	igū′ma		piwan·ⁱ	quma′nⁿⁱ	gwa′hapö, gwū′apō
wife	inörikʷᵃ	inori′gʷᵃ	nodükwe	piwan·ⁱ	pĭwánⁿⁱ	gwö′, gwū′ahö
spouse's parent	itca′hi	iyahi′	yahi	yaitcin·ⁱ	ya.i′tsin	nö-möndō′gotsi; nö-mögā′gutsi
s-in-law	itoγo′na	iroγo′na	tokona	tata′wavin; muna′tcin·ⁱ	monatsin·ⁱ	mū′napö
d-in-law	gönū′pia	gönū′bia	kunupbiye	yai′tcin·ⁱ	u′tsimbianⁱ	hu′tsömbi′ə
sibling-in-law	imaci′	ara′toi	waicⁱ; yadatohi	tata′wavin	naiñquman·ⁱ; anta′muan	nö-re′dz; baha′mbi′ə

A comparison of the Bannock and Paviotso lists at once establishes their virtual identity from a linguistic point of view, whether Kroeber's or my Paviotso terms are examined for the purpose. Of my 22 Bannock terms, 21 have obivously the closest phonetic affinity with their Paviotso equivalents. The phonetic *closeness* with Mono is naturally less, yet the number of unchallengeable equivalents is 19. Against this there are at best only 9 clear-cut Ute-Paiute homologies—the words for mother, son, daughter, elder brother, father's sister, paternal grandfather (only Ute and Moapa), paternal grandmother (Ute and Moapa), maternal grandfather, husband (only Kaibab and Moapa).

The differences between Bannock and Paviotso are interesting. The Paviotso have a separate term for father's brother, hai', and for mother's sister, piru'^{u}, though the latter is derived from that for mother. Correlatively, there is a specific word, hū'sa for a man's brother's child. In other words,the Paviotso tend to separate lineal from collateral relatives,while the Bannock tend to merge them, in that respect showing some resemblance to the Wind River Shoshoni. These three Paviotso words lacking in Bannock occur in Northeastern Mono, but the Southeastern Mono rarely use haiyi and substitute child terms or datsaana for huza. The Western Mono, according to Gifford, rarely use haiyi, for which the father term is usually substituted, and call the mother's sister "mother;" husa is rare and generally replaced by the son term. Dr. Gayton, however, gives a special paternal uncle term, inadzago (derived from the father term?); and bidu for the maternal aunt.

Another Paviotso word without Bannock cognate is aratoi, arádoi, brother-in-law (m, sp.). It corresponds to Mono arädohi and yadatohi. On the other hand, Bannock imaci', unrepresented in the Paviotso terminology, probably corresponds to Mono waisi, waic^{i}, which still further corroborates Bannock membership in the Mono-Paviotso group.

Considering the intimate contacts of the Bannock and Shoshoni during the last century, the paucity of plain cognates is striking. Only the words for mother, son, daughter, elder brother, father's sister, father's father, mother's father, father's mother—8 in all—are obviously related, but cognates also appear in the Ute-Paiute group. Of the remaining Shoshoni terms, those for elder sister, younger sister, mother's mother, are closely related to the Ute-Paiute equivalents.

It has sometimes been supposed that kinship terms represent a singularly conservative department of speech, but the American data do not seem to give much support to that view. It certainly does not hold for the Siouan family, for even such closely related languages as Crow and Hi-

datsa exhibit far more differences than might be expected. The Uto-Aztecan phenomena have a similar bearing. It should be remembered that the table here presented summarizes the facts only for one branch—the Plateau division—of the old Shoshonean stock, and not for all the several tribes of that branch. Yet there are manifestly 3 distinct stems for father; 3 for younger brother; 2 for elder sister; 2 for younger sister; 2 for maternal uncle; 3 for brother's child (w. sp.); 3 for sister's child (m. sp.); 2 for mother's mother; 2 for husband; 2 for wife; 3 for son-in-law; 3 for daughter-in-law; and at least 5 for sibling-in-law. The stems shared by the Mono-Bannock, Ute-Chemehuevi, and Shoshoni-Comanche groups are those for mother, son, daughter, elder brother, paternal aunt, father's father, father's mother, mother's father. Of these the stem for mother is evidently very old, for in the sense of elder sister we encounter it even in Nahuatl pi-.[9] Kern River "tumu," child, seems to correspond with the son term so widespread in the Plateau branch. Kern River "patci," elder brother, and "pauwan," father's sister, seem cognate with the Plateau stems, while "utsu," mother's mother, represents a change in meaning from the usual Plateau stem for *father's* mother. It is strange that the universal Plateau stem for maternal grandfather does not appear in Kern River speech.

So far as can be judged, the reasons for persistence are quite capricious. Why should "mother" be retained in virtually identical form and "father" change? Or why is there preferential conservatism on behalf of the elder brother rather than the other sibling terms? Why, within the Mono-Bannock group proper, does the northern division of the Eastern Mono cling to "atsi" for maternal uncle, while the Western Mono and the southerly Eastern Mono prefer the stem "bu?" Such whimsical divergencies lend all the more cogency to the overwhelming number of Paviotso-Bannock correspondences. The linguistic affiliation must be reckoned of the closest possible order to account for the similarity between the kinship terminologies when we consider the centrifugal tendencies of these stems among Shoshoneans as a whole.

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[9] Sapir, 39 sq.

BOOK REVIEWS

METHODS AND PRINCIPLES

Reallexikon der Vorgeschichte. Herausgegeben von MAX EBERT. Berlin: Walter de Gruyter & Co., 1928, 1929. XIII. Band: 519 pp., 103 pls. XIV. Band: 571 pp., 70 pls.

These are the concluding volumes of the *Reallexikon*, closing with a list of errata, the editor's postscript, and a roster of contributors. The index is to appear in 1930 as volume XV.

There are once more a number of general articles summarizing the prehistory of certain regions, e.g. "Südostbaltikum" (13:1–32; Sturm, Friedenthal, Jakobson); "Südrussland" (32–114; Obermaier, E. von Stern, Tallgren, Ebert); "Troja" (443–338; Karo); "Tunis" (456–482; Baumgärtel); "Ungarn" (14:5–30; Obermaier, Wilke); "Westfalen" (275–304; Andree, Stieren, Krek). Of these, the article on Tunis is confined to the Neolithic, earlier periods having been dealt with under the head of "Nördliches Afrika." Only a few points can be indicated here. Obermaier (13:33) characterizes the South Russian Paleolithic as preponderantly Upper Paleolithic in character, being related to the Central European Aurignacian and the Capsian of the Mediterranean area. However, he refers to a Crimean find made by Bonč-Osmolovskij in 1924, the tools being apparently Mousterian, the two skeletons definitely Neandertaloid. In the discussion of the Tripolje culture, which he dates about 2,500 B. C., E. von Stern (13:34 sq.) contrasts the primitiveness of the stone tools—absence of ground implements—with the development of the (painted) pottery. He is skeptical as to connections with Turkestan and the Danubian region. In the article on Hungary, Obermaier points out the sparseness of Lower Paleolithic finds and the poverty of the Magdalenian, which exhibits little bone work and still less in the way of art. The theory of Hungary as the centre of the Solutrean technique is once more advanced, clearly but unobtrusively (14:6 f.).

The sociological articles, as in former volumes, have been largely entrusted to Dr. Thurnwald. Among the more substantial ones are Totemismus (13:348–362), Totenkultus (363–409) Vaterrecht (14:95–102), Verwandtschaft (143–154), Wirtschaft (14:370–434), Zählen (459–479), Zauber (483–514). Readers of this journal will once more note with satisfaction that the author has drawn appreciably on Americanist data.

As might be expected, his treatment of "Wirtschaft" stresses correlations of economic with sociological and religious factors. He also does justice to such relevant phenomena as the psychology of diffusion, which has been repeatedly stressed in Thurnwald's earlier publications, and the mingling of rational and irrational elements in primitive practice. Points of specifically distributional and culture-historical interest are not neglected; e.g. there is brief mention of the lack of dairying in Eastern Asia and of wool-utilization in ancient Egypt in contrast to Babylonia, (p. 388f.), while the paragraphs devoted to Sumer bring out the large-scale produc-

tion of butter and cheese in ancient Babylonia, as well as the relative negligibility of beef as food for the common people (p. 400). Along these lines Thurnwald's discussion is supplemented by Roeder's brief statement as to "Wirtschaft" in Egypt (p. 369–370); the most significant point is the uniformly masculine character of tillage there, whether with the plow or the hoe. Relevant data are also recorded in the article on "Viehzucht" (14:166), where Ranke points out important deficiencies in Egyptian animal husbandry,—complete absence of wool industry, butter and cheese preparation.

The substantial article by E. Wahle on "Wirtschaft; Europa und Allgemein" (14:323–369) supplements Thurnwald's treatise from the prehistoric angle, also as to origins. It is shot through with Eduard Hahn's ideas, some of which have of course become the common property of all writers on economic development. There are many interesting details, such as the Central European use of acorn flour in the sixteenth century and of acorn bread as late as the eighteenth century in times of famine (p. 328). Some suggestions are hardly acceptable, such as the idea that cultivated plants originated whenever nature furnished suitable wild forms and favorable conditions (p. 343). Specialists will have to judge the assertion that domestic horse remains date back to the Neolithic period (p. 349). In contrast to Hahn, Wahle insists that prehistoric European tillers used the plow synchronously with the hoe and refers both to the Neolithic (p. 357). On the other hand, he shows himself a disciple of Hahn in the article "Wagen" (14:231–237), where the wheeled cart is—not convincingly—derived from a double-whorled spindle.

Several technological articles, such as "Textiltechnik" (13:267–271) and "Töpferei" (ib., 328–334), are by Alfred Götze. In both the editorial limitation to Europe seems regrettable. According to this author, hemp was originally used only among such southeast Europeans as the Thracians and Scythians, and only penetrated westward in the fifth century B. C. (p. 268).

Professor Ebert's valedictory (14:565–568) gives interesting details as to the difficulties surmounted. Every one who has drawn instruction from the *Reallexikon* will sympathize with his struggles and feel grateful for the completion of so worthy and gigantic an enterprise.

ROBERT H. LOWIE

Collected Essays in Ornamental Art. HJALMAR STOLPE. Foreword by HENRY BALFOUR. Stockholm; Aftonbladets Tryckeri, 1927. VIII, 128 pp., 137 figs. Folio Atlas: South America. 20 pls.

This volume incorporates the late Professor Stolpe's paper "On Evolution in the Ornamental Art of Savage Peoples," originally published in Swedish in *Ymer* (193–250, 1890; 198–229, 1891) and later in an English translation by Mrs. H. C. March (*Transactions of the Rochdale Literary and Scientific Society*, vol. III, 1891–1892); also the "Studies in American Ornamentation—a Contribution to the Biology of Ornament" (Stockholm, 1896), for which the author received a Loubat prize.

Needless to say, the entire work is of great historical interest. We know much more about the Eskimo, the Northwest Coast Indians, and the Pueblo art style than Stolpe was able to glean from museum collections in the 'eighties and early 'nineties of the last century, and this dearth of available material inevitably renders the treatment sketchy. But the basic problems were then what they are now and Stolpe is not afraid to grapple with them. Several times, and with special reference to outside influences on American aborigines, he pronounces judgment in favor of independent origin, while at the same time fairly pointing out puzzling coincidences (e.g. pp. 29, 70 f., 117 f., 123). He calls attention to the possibility of degeneration (p. 121) and notes the tendency of closely related motifs to act upon each other so as to yield hybrid designs (p. 125). He kept abreast of contemporary theory, while exercising the right of independent judgment, as in his passing comment on the effect of textile technique (p. 121): without denying its reality or even its creative potentialities, Stolpe was inclined to stress rather its ability to transform established forms than its power to produce altogether new ones. Throughout these essays Stolpe adheres to the view that all ornamentation must have a deeper significance than its ostensible aesthetic one (pp. 7, 92). This position I personally regard as untenable, but it still has many adherents, especially among prehistorians.

To me Stolpe's Polynesian investigations as embodied in the earlier of these two essays seem of a higher order than his Americanist studies,—not because I am less familiar with the Oceanian data but because here the author definitely anticipates what is most promising in recent ethnographic work. Quite apart from controversial points of interpretation, he here sets forth the method of intensive analysis of ornamentation, and, what is more, proceeds on this basis to define tribal styles.

The *Atlas* presents carefully executed illustrations mainly of the decorative designs on South American clubs, with the last four plates devoted to motifs on miscellaneous objects, such as flutes and skirts. The data were collected in various institutions, such as the British Museum, the Trocadero, the Stockholm Riksmuseum, and Berlin Museum für Völkerkunde. While Stolpe is interested in tracing the conventionalization of realistic forms, the plates record invaluable raw material irrespective of any speculations as to ultimate meaning.

All ethnographers and students of comparative art will feel profoundly grateful to the publishers, the Aktiebolaget Familjeboken, for so worthily preserving Stolpe's otherwise relatively inaccessible investigations, which, as indicated above, represent matters of more than purely historical interest.

ROBERT H. LOWIE

PREHISTORY

Probable succession of the pleistocene industries of Europe and Africa. UGO RELLINI. (Rivista di Anthropologia, vol. 27, 1926–27.)

The author attempts to establish a phylogenesis of industrial types, stressing the ethnological method.

". . . . the evolution of industrial types must be studied in conjunction with the

culture complexes to which they belong. It is only after we have examined a vast complex and have formed an idea of the average types which compose the fundamental elements of the industry that it is possible to pass to the study of their evolution in situ."

He recognizes three industrial cycles differentiated in technique. (1) The Amygdaloid; (2) The Retouched Flake; (3) The "Narrow and Sharp Blade (Klingenkultur). We know nothing as to their chronology other than that the last is younger than the other two. The author claims that this method does not lead to the loss of systematic chronology,—in fact it keeps to it rigorously, for the analogical study of the forms leads to establishing that, in the past as among living peoples, there were phenomena of convergence, parallel development, of interference,—phenomena entirely overlooked up to recent times; that this method leads also, by a comparison of complexes distant in time and space, to an understanding of the true course of the evolutionary process. Emphasis must be placed on the geographical distribution of the various cultures.

The Amygdaloid and Retouched Flake (Mousterien) industries, which had their origin in the Protolithic (industries belonging to ancient quaternary deposits containing traces of human industry, preceding the true Palaeolithic, which the author places in the middle quaternary—the interglacial Riss-Würmian) begin their progressive development in the interglacial Riss-Würmian. Both industries are derived from cruder industries, not one from the other; the two techniques being different both in conception and in execution—in the first a retouched core, in the second a retouched flake taken from the core. In Africa the Esbakienses belongs to the former and the Aterienses belongs to the latter.

The Miolithic designates the period which is post-glacial. Some of the Miolithic industries are successive, like the rings of a chain—the French series from the Aurignacian to the Campignian. Some, like the Magdalenian, are not succeeded by any; some interfere with each other, or pass parallel to others in distant localities. Some of them are bound with those in the Palaeolithic.

In this period appears the Klingenkultur cycle, of which the Grimaldian is a special facies. This industry is not derivable from the Mousterian, the author thinks. The Aurignacian belongs to it, as well as the Capsian and the Egyptian Heluanses.

It can be seen that in conception the above system bears a close resemblance to that of Oswald Menghin, though it appears that each has developed his system independently of the other, writing almost at the same time. There appears to be a suggestion of the influence of the *Kulturkreis* school also. The article is accompanied by a chart showing the classification and position of the industries as well as their interrelationship.

V. M. PETRULLO

The Oldest Swiss Lake Dwellings. PAUL VOUGA. (Antiquity, 2: 387–417, 12 figs. and map, 1928.)

This paper is the first account in English of one of the most important archae-

ological investigations being undertaken in Europe. The Neuchatel committee for archaeological research has been working for several years on a systematic study of the stratigraphy of the Lake Dwellings on the shores of this lake in Western Switzerland. M. Vouga's previously published results (Essai de classification du Néolithique lacustre d'après la stratification., *Anzeiger für Schweizerische Alertumskunde*, 22, 4, 1920 p. 228f and 23, 2, 1921 p. 89f) are summarized and extended with a series of excellent diagrams and sketches in this translation by Mr. O. G. S. Crawford, who has recently visited the excavations now in progress at Neuchatel.

The value of this work lies in the establishment of an impeccable sequence for a period in which, in the absence of stratigraphic data, *a priori* theories of typological evolution have run riot. In fact the earliest and in many ways the most brilliant phase was practically unknown until these excavations were undertaken. M. Vouga's strata have indeed

> dealt a very serious blow to the purely typological system of classification, based on progres, sive improvement (389).

His excavations establish four main periods in the pre-Bronze Age Lake Dwellings which he names Lower (Early), Middle, and Upper (Late) Neolithic and Eneolithic (Copper Age). Although sterile beds frequently separate one layer from the next these merely indicate change of habitation, for there is complete continuity between the periods. M. Vouga is still a little surprised at his own results—

> Contrary to all expectations the objects found in this ancient layer (Lower Neolithic) are, for the most part, of a much more advanced technique than those found in the upper layers. This is particularly true of the pottery (389). . . . . The shapes, texture, and firing are all remarkable and reveal a profound knowledge of an art which was certainly not in its infancy (390) . . . . the firing . . . . is really perfect. Whereas the potsherds from the middle layer and even those of the Late Neolithic crumble for the most part the moment they are removed from the habitually damp soil, those from the lower layer are free from all trace of decay and ring, when struck, like modern crockery (392).

The later Neolithic pottery is ornamented with rough plastic ornament, bands and buttons, but it is poor stuff. In the Middle Neolithic, for example,

> One gets the impression of an art in its infancy. To the variety of types of the preceding periop succeeds a deplorable uniformity.

In the Upper Neolithic there is slight improvement in quality. Incised decoration and lugs with serrated ornament have been introduced. Celts of beautiful but resistant materials such as nephrite and jadeite also become more rare above the Lower Neolithic although their numbers increase again in the Copper Age.

The Copper Age is continuous with the Upper Neolithic and is truly distinguished only by the appearance of metal objects; beads, awls, axes resembling stone forms and perhaps triangular daggers in an "inherited neolithic milieu."

M. Vouga traces the history of the horn axe-holders, bored axes, and arrow points, whose variations serve to characterize the different periods and indicate in some instances the introduction of new materials and techniques. He is particularly impressed by the consistent association of copper objects and tools of Grand Pressigny flint, often worked with the characteristic parallel ripple pressure flaking, indicating a western center in France as the proximate source of the first copper objects imported into the region of the western Swiss Lake Dwellings. Of earlier relations M. Vouga does not write here. That these plateau cultures were essentially blends by slow accretion from both the Danubian and Atlantic provinces is now fairly clear. The fine early pottery is probably of eastern heritage but the axe forms are western throughout, although northern models were perhaps responsible for the later perforated axe-hammers.

M. Vouga scotches the picturesque idea, surviving in the textbooks, that the Lake Dwellings were man-made islands built far out into the lakes. This theory is made ridiculous by the very nature of the deposits. The middens beneath these pile dwellings, in which weighty stone querns are frequently found on the *top* of the débris, could not have survived in their present compact and undisturbed form in the fluid conditions of a lake bottom. The mere passage of time required for the formation of the sterile layers as sedimentary deposits is fantastic, since practically nothing has accumulated above the most recent (Bronze Age) débris in two thousand years. These pile structures were built along the shores and were raised to give stability on marshy ground and as a protection against floods. The shifting position of sites, more or less far out in the present lake, indicates successive changes of level to be correlated with climatic variations.

In fact, [as M. Vouga concludes,] if these [Bronze Age] habitations are today covered by six feet of water it does not mean that they were built by architectural geniuses, it means simply that, as a result of the long drought [of the Sub-Boreal period] the level of the lake had been lowered by several metres.

C. DARYLL FORDE

Our Prehistoric Ancestors. HERDMAN FITZGERALD CLELAND. (New York: Coward-McCann, pp. xiv, 379, 154 figs., 5 color pls., 1928).

Written by a geologist, this book has much the character and quality of biologist Tyler's *New Stone Age*. The emphasis is also on later prehistory. The Palaeolithic receives 68 pages, the Neolithic 100, Bronze, 66, Iron 68. Northern and western Europe are most fully treated, but the whole continent gets consideration. The text is readable, most of the numerous illustrations satisfactory, and the book is in many ways a useful compendium. It is somewhat rambling for a text-book, and its compilatory nature prevents it from seriously attempting to shed new light on the tangled problems of the Neolithic. It should appeal to intelligent laymen and men in other disciplines who want an acquaintance with the subject.

A. L. KROEBER

NORTH AMERICA

Coiled Basketry in British Columbia and Surrounding Region. H. K. HAEBERLIN, JAMES A. TEIT, and HELEN H. ROBERTS, under the direction of FRANZ BOAS. (Forty-first Annual Report, Bureau of Ethnology, Washington, 1919–1924. 484 pp., 1 map, 94 pls., 122 text figs.)

Detailed accounts of textile processes are rarely found outside of ethnographic reports. Even within this range material is scattered. Otis T. Mason's *Aboriginal American Basketry* and other intensive studies of regionally characteristic designs or techniques comprise the most available sources for this branch of the subject. The latest paper on basketry is limited to observations on a few tribes. More specifically, Dr. Boas and his collaborators have focused attention on an aspect of the craft entirely omitted so far from technical descriptions. Analysis of materials, preparation, and design fields are conventional enough. It is only when these are viewed from the standpoint of an avowed intention to investigate "the attitude of the individual artist toward his work" that a new approach becomes definitive. Thus we learn that "most women prefer to leave a basket unfinished for a time rather than substitute material which they regard as inferior;" that a cup "might have considerable flare and still be used, but that it would be recognised as being wrongly proportioned" (p. 148, 202).

The determination of what constitutes good form receives extended treatment. Basket makers gave personal opinions regarding shapes and details of structure. Individual conclusions, while varying, as might be expected, on the whole were found to correlate with the striking resemblances within a given type. The correspondence between burden basket proportions approved by recognised native experts and the proportions actually attained in a majority of museum pieces is tabulated for the Thompson and Lillooet bands (p. 416 f.). The appendix includes a brief characterisation of each of thirty-five informants, all workers, from whom evaluations of different phases of the craft were sought in addition to more familiar technical details (p. 431–454). Primarily Mr. Teit, whose notes furnished the information, gathered data as to proficiency, variety of patterns used, so-called personal designs and devices.

In a section devoted to the technical and artistic difficulties involved in the application of pattern to a trapezoidal field consideration is directed toward the artist who must solve several problems arising simultaneously, all interdependent (p. 261). Dr. Haeberlin's placement analyses are made unusually clear by schematic drawings. Even a casual perusal does much to disarm the unthinking criticism occasioned by "fillers" and extra motives for which the inexperienced observer is likely to see no logical reason. Choice of design is not restricted among the Thompson (p. 300). Any design may be used on any kind of basket (p. 228). There is, however, a "tribally prescribed arrangement" of "real" patterns which are those with geometric, highly conventionalised figures (p. 255). In contradistinction, the realistic representations are "not to their minds real designs" (p. 254). Some informants place in the "not real" class all patterns

which have been copied from white sources, or invented by women, which have not yet been applied in regular basketry arrangement but merely in simple figures or on small baskets. . . . . Generally these patterns become real designs as soon as they are reduced to a specified arrangement, or one that becomes commonly adopted (p. 255, 256).

So-called invention may be a constant endeavor as among the Utamqt and Lytton bands (Thompson) "to effect new combinations . . . . mostly based on the old strata of designs" (p. 378). A Spuzzum (Thompson) woman, famous for her designs, attempted only such variations as came to her in dreams (p. 301). Dream patterns are thought to come from supernatural powers and are not usually copied. Sometimes old women teach their dream designs to their daughters or grandchildren and

neighbors who know their origin and have hitherto refrained will then more readily copy them. . . . . It was explained that this was because between the dreamer and her basket design an intimate supernatural relation existed which became weaker if members of the family formed connecting links (p. 302).

Dr. Boas places dream designs with invented designs in the class of slight modifications of current forms (p. 387). Inventive genius and imitative faculty prompted forms obviously taken over from white men, motives copied from printed oilcloths and cottons (p. 210, 378). It would be interesting to know how these are valued in comparison with traditional patterns.

In the summary, Miss Roberts builds upon similarities between Thompson basketry patterns, Tlingit porcupine-quill embroidery, and Koryak skin work to offer a theory for the possible origin of imbrication (p. 346 f.). Other connections implied by related shapes, design elements, or techniques are those between Thompson, coast, and Plains Indians, and between Klikitat and the Californian tribes (p. 375, 385). Dr. Boas sees in the conventional placement of the design area toward the upper portion of the basket "an encroachment of a rim design upon the body of the basket." Previously Mr. Teit and Miss Roberts have suggested that the development of the tendency may have been helped by the custom of covering the upper part of birch bark baskets with decorated skin (p. 385). The angular form is incongruous both in connection with the coiling technique and with some pattern arrangements. The foreign stimuli needed in its production came from Coast Indian storage boxes and from Plains Indian parfleches. This conclusion according to Dr. Boas is strengthened by a type of decoration occasionally found. Diagonal patterns are adjusted to angular baskets which allows the assumption that the design motive has been transferred from an originally round coiled basket to an intrusive form(p. 286).

In spite of exceptional difficulties and the obstacles natural to working with others' notes, Miss Roberts has reduced a vast amount of detail to accessible form. Students of textile technology have reason to be grateful for authentic material made available. One does wish, however, that Dr. Boas, who owns to having had this type of inquiry in mind for many years, had written more at length of his reaction to the results of an investigation so unique in aim, and of its significance as

a method of procedure. Two of the most clear-cut of the conclusions to be drawn from his analysis of the attitude of the individual artist toward his work seem to be those which relate to form and design:

> the scope of forms . . . . shows that the range of individual invention is strictly limited by the traditional style;

with regard to designs,

> the power of invention of the artist is obviously under the control of tradition (p. 386, 387).

LILA M. O'NEALE

The Relationship Systems of the Tlingit, Haida, and Tsimshian. THERESE MAYER DURLACH. (Publications of the American Ethnological Society, vol. 11. New York: G. E. Stechert & Co., 1928. 177 pp.)

Dr. Durlach's treatise embodies the most ambitious attempt known to the reviewer to check the kinship terminologies as obtained in the customary way by a close study of the mythological texts in the original languages. As the author explains, the information thus gained has the advantage of not being yielded in response to direct queries; moreover, archaic expressions and stylistic variations may crop up (p. 15). She does not fail to recognize that this method alone would not provide a complete system and accordingly combines it with the traditional technique, giving the Tlingit, Haida, and Tsimshian systems collected by herself, as well as the data previously published by Boas, Swanton, and Sapir. The painstaking examination of texts is worthy of the highest admiration, and henceforth a combination of the genealogical with the text method will certainly be the ideal of all workers in this difficult field.

Dr. Durlach has gone beyond mere description and suggested an historical sequence, and here, naturally, complete acquiescence in her scheme is hardly to be expected. Personally, I should accept the priority of the family organization, the levirate and the sororate, as compared with the clan (p. 115, 157). But it seems to me that the author fails to recognize that the levirate and sororate are frequently found in very primitive clanless tribes; and her assertion that "family systems are apt to be very much alike" (p. 159) is misleading. There are at least two types of "family" terminology according to whether collateral uncles (or aunts) are all lumped together, or whether the father's sibling is distinguished from the mother's sibling of the same sex without being identified with the parent. I see no sufficient reason for assuming that Haida *ga* ever included the paternal as well as the maternal uncle (p. 99) and was only narrowed in scope with the development of a moiety organization. Clanless tribes may very well distinguish the father's from the mother's family and not infrequently do.

Attention may well be called to a number of features brought out in Dr. Durlach's volume. So far as I know, she is the first to describe certain matrimonial rules, such as the Tlingit practises of marriage with an elder brother's daughter and with a father's sister (p. 64 f.).

In his discussion of marriage, Mr. Shotridge pointed out that the proper marriage for a man was with his father's sister; he might, of course, marry her daughter, if no members of the older generation were available, but marriage with the father's sister was always to be preferred (p. 65).

For the Haida, cross-cousin marriage and the inheritance of a maternal uncle's widow are noted as customs of long standing (p. 103). Teknonymy is obviously prevalent among the Tlingit and Haida (pp. 27, 70, 108). The author points out the Tsimshian failure to discriminate between elder and younger siblings (p. 122), —in contrast not only to the two neighboring tribes but also to most other North American peoples. It is amazing to find that parallel cousins, if the children of brothers, are not reckoned as relatives by the Tlingit (p. 31); that these people so largely employ descriptive terms (p. 160); and that they exhibit so definite an aversion to the kinship terms in ordinary speech (p. 58). The intrusion of aristocratic bias into the realm of kinship systems is likewise of great interest.

By acknowledging a man as your brother, you admit not so much his blood relationship, but the fact that he is your social equal (p. 59).

The sociological importance of Dr. Durlach's work has been sufficiently indicated. It is to be hoped that the specialists on the three tribes in question will be heard from on matters of ethnographic and linguistic detail.

ROBERT H. LOWIE

OCEANIA

Pacific Island Records: Fish Hooks. HARRY F. BEASLEY. London: Seeley Service, 1929. 24: 126 pp. 207 pls., 47 fig. (£5:5:0).

The first notable large-scale treatment of material culture in the Pacific dates from the appearance of the three volumes of Edge-Partington's *Ethnographic Album*. The *Album* marked, at any rate from the museum man's point of view, an immense advance on any thing which had been published before; it still remains the basic work in all museums which include Pacific ethnography. In its own department it is, and will probably ramain, unique for the present tendency is strongly in the direction of monographs, dealing either with the whole material culture of some small area or group, or else, as in the case of Mr. Beasley's book, with some single culture element as it occurs throughout the Pacific area.

It happens that Edge-Partington's treatment of fish hooks was less satisfactory than other features of his work. Beasley's book marks a further great advance in our knowledge and will be indispensable in museums which collect Pacific material. The edition is limited to 250 copies, and the great majority of these must already be at rest in museums or reference libraries. The general public and the private collector will in most cases be barred from purchasing by the price asked. The work deals, from the museum and library point of view, with the hooks of Polynesia, Melanesia, New Guinea, and Micronesia, and from this point of view is excellently done. It provides a fully illustrated conspectus of what has been

written on the subject until recent years, the only conspicuous omissions being the Bishop Museum publications on the Marquesas, Niue, and the Chatham islands and Gudger's book on Ruvettus hooks. It provides a basis on which the monographs of the future, dealing exhaustively with fishing tackle in each of the groups, can be built up. It has, however, one very serious disadvantage in that not a single authority quoted, and these include Louis Becke, was an expert fisherman with Polynesian hooks. Fortunately there will soon be available two monographs by expert fishermen, those of D. G. Kennedy on Ellice islands fishing and of Charles Nordhoff on the same feature of Society islands culture.

The work begins with a finding list and barb chart. By the term 'barb' the point is meant, a feature which in Polynesia is usually unbarbed. In the finding list, hooks in general are divided into two classes—simple hooks, made in one piece, and composite, made in more pieces that one. In the list of materials used for simple hooks in the various groups New Zealand is erroneously included under 'pearl shell' and omitted under 'human bone'. Iron is included among materials used, but copper omitted; it would probably be better to omit metal altogether. Under composite hooks New Zealand is erroneously included in the two pearl shell lists, while Ocean Island and Tikopia are missing from the list of places in which stone shanks are used. The barb chart is a new and excellent feature, and will be essential in all future work of this kind. However, the term "barb" will have to be changed—"point" is more suitable. It is to be noted that of the 15 Tahitian points figured (p. XII) only one is barbed. The central one on this page, with two perforations, is shown by the New Zealand evidence to be an ancient form, and it may be suggested that the other variety, represented by 14 of the 15 remaining points, became the dominant one in the group in more recent times. This latter form is present in the Marquesas where, as indicated by the chart, it is always barbed, two perforations in the base replacing the single one of Tahiti. The chart shows the shape of the point in bonito hooks to be remarkably uniform in Penrhyn, Manahiki, Samoa, and the Ellice group; it is unbarbed and generally has two perforations though there may be three. Unfortunately, Tongan points are not included in the chart; the well-known form is barbed, but there was apparently another variety common in Cook's time, the point of which lacked the barb. The Tokilaus also fail to make an appearance in so far as bonito hooks are concerned, but for this there is a good reason, discussed later.

The body of the work is divided into sections in which the island groups of the Pacific are treated in order. The Chatham islands come first, one-piece hooks being adequately represented, though no mention is made of the composite hooks, the large wooden ones, nor of the bipointed objects which are possibly fish gorges. New Zealand, which follows, has thus far produced no adequate monograph on line fishing and Beasley is therefore heavily handicapped. The section is well balanced, and a series of good illustrations make available a number of fine pieces, many of which were previously unknown to students in New Zealand. A protest must be entered against Plate 34, an object tentatively allotted to New Zealand, which is

certainly not Maori and may probably be assigned to the American Northwest coast. Tonga, Samoa, and Tikopia follow. The Ellice islands section is of more than average interest. It is a pity that drawings of the lure have not been included, at least in the case of bonito hooks. It will, I think, be found that in all authentic Ellice bonito hooks the lure has no notches at the distal end, and is often expanded there in the form of a fish tail, as shown in Hedley's drawing. For this reason it is probable the two lower hooks of Plate 41 are not Ellice hooks at all. They are not expanded at the distal end, and they have two pairs of deep notches to hold the binding of the point. The hackles of both are of teased out cotton, though white feathers are still universally used in the Ellice group. It may be suggested that they come from the Tokilaus, a group that has produced numbers of the Ruvettus hooks and one piece hooks, in museums but is represented, so far as is known, by no bonito hooks in any museum. It seems that these last, where present, have all been erroneously attributed to the Ellice islands.

In the section devoted to the Tokilaus (Union group) Beasley has established the provenance of a group of one-piece hooks of characteristic shape, usually made of coconut shell. His suggestion that crudity of form and workmanship indicates antiquity, a suggestion made in the New Zealand section also, will be vigorously combated by most students in Polynesia. Crudity, if it means anything, means modernity. In New Zealand, articles from the lowest archaeological levels, where comparable, are in general more skillfully made than those near the surface. There is at present no evidence that this degeneration in craftsmanship is universal in Polynesia, but such a decline is by no means improbable. What is universal is the damning effect of European culture contact. Gudger had apparently established a distinct variety of Ruvettus hook for the Tokilau group, but his case is somewhat weakened by the Ruvettus hooks published by Beasley, which by no means confirm the characters indicated by him. Niue is dealt with next. Pukapuka (Danger Island) is wrongly described as one of the Paumotus. This latter name has been replaced in ethnographic usage by Tuamotu. Rotuma, Manahiki, Wallis, and Fotuna are not dealt with. 'The Cook and Hervey Groups' are more correctly described as the Cook group. There is no pearl shell in these islands and the pearl shell hooks of Plate 53A probably come from Pukapuka or Manahiki. The two splendid shark hooks of Plates 52 and 53 are almost certainly Tahitian. The one undoubted native hook, the *toko* established by Buck, is not figured, nor have I ever seen a specimen. The section devoted to the Society islands is of very great interest, for Tahitian culture is the mother culture of Marginal Polynesia, the key which alone can unlock the problems of Hawaiian, Marquesan, Tuamotuan, Easter island, Austral, New Zealand, and Chatham cultures. The careful excavation of Tahitian sites is therefore cardinal. Though we have as yet no excavational material, the hooks already available exhibit greater variety than those of any other Oceanic area except New Zealand. The six hooks of Plates 62 and 63, representing two distinct types, must be rejected, in spite of the fact that the barbed points of five of them are extraordinarily like one type of New Zealand point. The American Northwest coast may be suggested as the locality of these hooks. The Tuamotus, Gambiers, Rapa, the Marque-

sas, and the Hawaiian islands follow, the only point of criticism in these sections being the omission of the large Marquesan one-piece hooks of whale's bone, closely resembling Moriori hooks of the same material. One would have liked to hear something of the Austral islands; however, they are probably in the same case as the Cooks. The Polynesian section closes with a good account of the hooks of Easter Island, though wooden hooks are not mentioned.

Line fishing does not seem to have been an original feature of Melanesian or Papuan culture, and the greater part of hook types from this area are Polynesian or Micronesian derivatives. The sole exception seems to be the type represented by Plate 121, a Papuan form which the author might, however, quote in support of one of his doubtful Tahitian forms. A study of the Micronesian section suggests that the hooks of the Solomons owe more to that source than to Polynesia.

The book closes with a separate part devoted to what may be called "ceremonial hooks." The Maori constitute the most interesting section and are fully and excellently treated. The section dealing with pendants based on the pearl shell lure of the bonito hook is not so good, the fine Caroline form and the Ellice *pa kosa* finding no place. Two forms figured (Fig. 46) as from the Solomons must be challenged. They are certainly Polynesian and are probably to be attributed to the Ellice group and Tikopia respectively. The fine hook of Plate 176 is certainly not Rarotongan; it must come from the Bismarcks or that general region.

Speculation as to the extra-Oceanic relationships of these hook forms does not fall within the scope of Beasley's work, but an American student could hardly avoid conjecture on the point. What are we to think of the hooks of the Santa Barbara islands, or of those attributed to the Peruvian coast? Is Gudger's suggestion of relationship between the Ruvettus hook of Polynesia and the halibut hook of the Northwest coast justified by other known cultural features? We are now in a position to attack these and other allied problems.

H. D. SKINNER

Melanesian Shell Money. ALBERT B. LEWIS. (Field Museum of Natural History, Pub. 268, Anthropological Series, 19:1–36 pp., 25 pls., 1929.)

In this monograph Dr. Lewis describes the types of Melanesian shell money in Field Museum, part of the material having been collected by the author himself. As he states in the introductory paragraphs, the gaps in the collections are indicated in the text, so that the paper is not merely a museum guide but forms a most useful summary of the whole subject. With painstaking fidelity Dr. Lewis describes the forms of shell money found in every portion of the area, which is naturally made to include New Guinea. There are details as to processes of manufacture and even bits of sociological significance. It is interesting to learn that the small islands off the mainland of New Zealand or large islands with little arable land

where consequently the women not only have plenty of time for this work, but also need some article of trade in order to buy vegetable food

represent chief centres of manufacture. Similar facts are noted for Auki, off the coast of Malaita.

> The village covers almost the whole of the island, and the inhabitants must obtain their vegetable food from the mainland people. Although constantly at war, there are regular market days when a truce is declared, and the people meet in some neutral spot on the mainland shore where the women carry on a brisk trade, while the armed men of both sides stand around and carefully watch the proceeding. There is seldom any infringement of the truce at these markets, though at other times they would attack each other on sight. (p. 15)

The illustrations are excellent, and the annotated terminal bibliography, which was evidently thoroughly used in the preparation of the paper, greatly adds to the serviceability of this contribution.

ROBERT H. LOWIE

Das Zweigeschlechterwesen bei den Zentralaustraliern und andern Völkern. Lösungsversuch der ethnologischen Hauptprobleme auf Grund primitiven Denkens. J. WINTHUIS. (Vol. V of *Forschungen zur Völkerpsychologie und Soziologie*, edited by Dr. RICHARD THURNWALD.) (Leipzig: C. L. Hirschfeld, 1928. 297 pp., 19 illustrations.)

This is a study of the psychology of sex among Australian aborigines, with some analogies from Oceanic peoples, particularly of the concepts or associations of ideas reflected in language, song, tradition, and ceremonial practices, notably in totemism. The author points out that many words referring commonly to familiar objects or actions have a double significance and refer to the sex organs, parts of them, or to phases of sex intercourse. These observations apply likewise to the realms of decorative art and magic. The author finds primitive thought marked off from European thought in the following respects: (a) in the exaltation of matters referring to sex; (b) in the tendency to identify things kept distinct in European thought; (c) in the attribution of animism to natural phenomena; (d) in the view that things which for us are distinct interpenetrate or "participate;" (e) in the collective character of concepts.

WILSON D. WALLIS

MISCELLANEOUS

The Great Apes. ROBERT M. YERKES and ADA W. YERKES. New Haven: Yale University Press, 1929. Pp. XIX 652. ($10.00).

This book will become a classic. As a handbook and critical evaluation of the literature to date on the behavior and capacities of the great apes—the gibbon, the orang-outan, the chimpanzees, and the gorilla—it is superb. It contains 172 amusing and informative illustrations, ranging from such curiosities as a drawing of a "manlike creature" which first appeared in Briedenbach's Travels in 1486 to many recent photographs of the four types of great ape in various experimental or semi-experimental situations. It has a complete bibliography of some

670 titles covering the natural history and psychobiology of the anthropoids. It also contains a supplementary bibliography of 42 titles on the experimental studies on the behavior of the lower forms of primate—the lemur, the tarsius and the monkey. The book, considered as a whole, is a tremendous storehouse of critical information. On all important points the original authorities are quoted at length and verbatim.

The book is subdivided into six sections:

Part I. Historical (pp. 1–46). This section presents a summary of the quaint notions of the ancients and early moderns concerning the manlike apes. It closes with a presentation of the various notions of more and less recent systematic zoologists as to the proper classifications of the primates (i.e., man, monkeys and lemurs, as well as the great apes) into sub-orders, families, genera, and species.

Part II. Gibbon (pp. 47–102). The authors include both the "true gibbon" and the siamang under this head. The section presents what is known concerning such topics as: the structural characters; the distribution and habitat; the habits of locomotion; the diet and drinking and eating habits; the life history; the emotional life and its expressions; the sensory capacities; and the intelligence of this least manlike group of great apes.

The habitat of the gibbon is Southern China, the Malay Peninsula, the Malay Archipelago, and the Island of Hainan. That of the siamang is Sumatra and possibly the Malay Peninsula.

But one *pioneer* set of controlled observations upon the intelligence (i.e., the problem-solving capacities) of a single individual, a white-cheeked female gibbon, is at hand. Boutan reported in 1913 and 1914 records of five years of observation upon such an individual. He found a complete absence of any true language activity. He reported also a series of experiments of the "problem-box"variety. Sudden "ideational" solutions were obtained.

Part III. Orang-outan (pp. 103–196). There is but one species of orang-outan. It is limited in distribution to Borneo and Sumatra. The observations concerning the natural history and life-habits of the orang-outan are far more extensive than those for the gibbon. Information on such sub-topics as the following are reported: Method of locomotion; nest-building and sleeping; foods and feeding behavior; social relations; life history; temperament; emotional patterns; vocalization and speech; instinct and acquisition; imitation.

The list of experimental or pseudo-experimental studies upon the intelligence of the orang-outan are, in chronological order, those of Haggerty (1913); Furness (1916), Shepherd (1923); Yerkes, R. M. (1916); Descher and Trendelenburg (1927). Of these, that of Yerkes upon a single young male is by far the most extensive and important. It constitutes the pioneer investigation with the orang-outan analogous in importance to that of Boutan with the gibbon. Yerkes tried the following experiments: his own well-known Multiple Choice test; a box stacking test; the use of sticks; the box and pole experiment; and a lock and key experiment. The Multiple Choice experiment resulted in an "ideational" drop in the learning curve quite different from the learning curves obtained with the multiple choice test with any other type of animal (including monkeys).

Part IV. Chimpanzee (pp. 197–380). Many more field and experimental observations have been made upon the chimpanzee than upon any one of the other three forms. In order of frequency of titles the four forms rank: gibbon, gorilla, orang-outan, chimpanzee. The chimpanzee is also the most widely distributed of the four. It is found over an extensive area in both West and Central Equatorial Africa. There are some eight species.

Field observations upon the chimpanzee are relatively copious; and numerous specimens have been successfully kept in captivity, both by individual collectors and by zoos, circuses and scientific institutes. It is quite impossible to summarize here the variety and fascination of the details collected by the authors on such sub-topics as: sexual behavior; birth and infancy (the births of three individuals born in captivity have been observed and reported); varieties of the emotions and their facial expressions; varieties of social behavior; speech (this seems to be lacking in any true sense, in spite of a wide range of vocalizations); and other methods of inter-communication, such as gesture and direct bodily contact.

In their accounts of the more strictly intellectual activities of the chimpanzee (i.e., their sensorial, perceptual and problem-solving capacities) the authors have to rely in the main on the four outstanding sets of scientifically motivated and experimentally controlled observations. These are the observations of Kohts upon a young chimpanzee in the zoological laboratory of the Darwinian Museum in Moscow, of Köhler upon the experimental ape colony of some dozen animals maintained by the Prussian Academy of Sciences from 1912 to 1920 in Tenerife (Canary Islands); of Yerkes and Learned upon two young chimpanzees maintained by Yerkes for several years; and of Yerkes and Bingham and others upon the four chimpanzees which have been maintained in New Haven by the Yale Institute of Psychology since 1924.

No summary of this extensive and fascinating material is here possible. But, in general, the ability of the chimpanzee to master both perceptually and ideationally a variety of simple spatial and physical problems including the use of a great variety of strings, sticks, boxes, ladders, jumping-poles and the like), and also his possession of a surprisingly good memory for the previous hiding of food or even tools in specific locations, have been profusely demonstrated.

Part V. Gorilla (pp. 381–529). The gorilla is the largest, most powerful and probably also the rarest of the four great apes. There appear to be two types (or possibly two true species): the lowland gorilla and the mountain gorilla. The former are found along the coast of West Equatorial Africa, the latter in the mountains of the Eastern Congo. The animals seem to live usually in small bands. As yet relatively few specimens of the gorilla have been kept in captivity and most of these have lived only a short time.

The one comprehensive and scientifically controlled study of a captive gorilla is that of Yerkes on an adolescent female of the mountain variety. This animal owned in Florida first by a private individual and afterwards by a circus was investigated by Yerkes two months at a time for three successive winters. No adequate summary of his experiments or his findings is here possible. Suffice it to say

that while eventually learning to do many of the problems—the use of the stick, box stacking, unwinding ropes, etc., etc.—which are solved with such readiness by chimpanzees, these were accomplished only after longer tuition and with less evidence of insight. In strictly memory experiments, on the other hand, this gorilla compared favorably with chimpanzees. In general methods of attack she was far less lively and alert than the typical chimpanzee. Emotionally she was more inert.

Part VI. Comparisons and Conclusions (pp. 429–592). This section consists of but three chapters. The first contains a summary with a splendid table with five headings: gibbon, siamang, orang-outan, chimpanzee and gorilla, with brief notations under each, with respect to some 100 characters, grouped under the main heads of bodily configuration, physiology, species and habitat, mode of life, captivity, social relations, life history, affective traits, senses and intelligence.

The second contains a brief comparison of lemur, monkey, ape (leaving out the gibbon and siamang) and man.

The third is a discussion of "Anthropoid Research in Retrospect and Prospect." To date there seem to have been but six scientifically motivated colonies for anthropoid research: G. V. Hamilton's small colony of monkeys including one orang-outan at Santa Barbara; Madame Kohts' single chimpanzee, which was for some years in the Darwinian Museum in Moscow; the German colony which was at Tenerife; the two young chimpanzees privately owned by Yerkes; a colony of chimpanzees established since the War by the Pasteur Institute at Kindia, French Guinea; and the colony of four chimpanzees at the Yale Institute of Psychology, New Haven, Connecticut. The latter, the reviewer understands, is now being expanded to include stations for observation in the African habitat of chimpanzee and gorilla and a sub-tropical breeding station in Florida.

The benefits to be obtained, for all the biological and social sciences, of further anthropoid research are but too obvious. The present volume should play a tremendous part in stimulating and making easy the role of such further research.

EDWARD C. TOLMAN

Biblical Anthropology compared with and illustrated by the Folklore and the Customs of Primitive Peoples. H. J. D. ASTLEY. (Oxford University Press, American Branch, 1929, $4.50)

The obvious purpose of the book is not to present to anthropologists the material found in the Bible but to acquaint readers of the Bible with the anthropological meaning of so much of what they read. I suppose there still are persons to whom it will come as a surprise that the life depicted in documents ranging from 1200 B. C. to 200 A. D., contains many institutions, customs and fashions which can be paralleled among living primitive peoples. Such persons will probably read Mr. Astley's book with resentment but they certainly will read it with profit.

I am afraid, however, they will get only an inadequate idea of how scientifically trained anthropologists handle their material or draw their inferences. I do not mean

merely such sentimental rhapsodies as Chapters XI and XII on the Swastika, but almost any other part of the book. It is clear that with abundant good will and a great deal of learning, Mr. Astley's method is not severe or rigorous. He sees proofs where at best there are merely possibilities and he does not clarify the objects of his comparison before he pronounces them as like as two peas.

Chapter IV on Totemism in the Old Testament may serve as an example. It is a difficult and intricate topic and has been much discussed. Mr. Astley presents the problem to himself as follows, (P. 35).

> To show that the ancestors of Israel passed through this stage in the evolution of their culture we should be able to point to three things which are the sure marks of Totemism wherever it exists: (1) names derived from plants and animals; (2) a system of tabu and (3) traces of group-marriage. With this we should also expect to find traces of a time when kinship was reckoned in the female line and not in the male; for among primitive races *Mutterrecht* must be allowed in almost every case to have preceded *Vaterrecht*.

Perhaps it is too much to ask Mr. Astley to explain what Totemism is before he finds these sure marks of its existence. We can only say that if his reasoning is sound, Totemism is the present constitution of English society where names like "Fox" and "Wolfe" are common, where numerous tabus exist, and where the passing of the Deceased Wife's Sister Bill and Brother's Widow Bill has apparently removed the last impediment to group marriage.

This, one must regretfully state, is not science and therefore not anthropology as far as it is scientific. It is pleasantly redolent of Jonathan Oldbuck antiquarianism in its processes and has its uses principally in those circles in which dogmatic literalism is still the only permissible attitude toward the Bible. Mr. Astley's arguments will not convince theological die-hards but he might spare himself the pains of trying, since mathematical proof is impossible on most of these matters and stout conservatives will take nothing less. And equally he need have put himself to no trouble to convince anthropologists that the Bible is a profitable field for study. They have been freely utilizing it for a very long while.

A book like this one, which is compounded of scattered reviews and papers, some of which—Chapters XVI, XVII and XXI for example—have almost no reference to the Bible—makes no pretension to being exhaustive and systematic. We must therefore not object to the fact that many of the most important topics are either ignored or barely alluded to. We may instance oaths, ordeals, the marriage of the Timnath type (Judges XIV), the healing miracles of Jesus, and the theory of possession. Even *Sheol* which would allow so much fruitful comparison is no more than briefly hinted at. But above all, we might wonder why the particular character of the Biblical food-tabus was not specially singled out—the extraordinary variety and extensiveness of the abstentions prescribed and the fact that the animals to be avoided seem to have no connection with the ritual or mythology of the people.

MAX RADIN

Anthropology of the Syrian Christians. RAO BAHADUR L. K. ANANTAKRISHNA AYYAR. (Ernakulam: Cochin Government Press, 1926. Pp. XVII, 338.)

The appearance of this book from the pen of an Indian lecturer on Anthropology, Ancient History and Culture, Calcutta University, is one more evidence of the interest which Indian scholars are taking in the history and antiquities of their own country. The author is already well known from his two volumes on the *Cochin Tribes and Castes.*

The Syrian community in South India is the oldest Christian community in India, going back certainly to a date as early as A.D., 547, when Cosmas Indicopleustes wrote, and probably much earlier. In fact, it is now fully known that there was a large commercial intercourse during the first and second centuries A.D between the Roman Empire and India, or more exactly between Alexandria and the western coast of India next to Ceylon. The Periplus (A.D., 75) bears ample testimony for the first Christian century. Hence, as the Apostle Paul journeyed westward to Rome, so it is quite possible that the Apostle Thomas, as tradition asserts, journeyed eastward to India, first to the capital of King Gondophares (at Taxila?) who reigned circa A.D., 20–48, and later to South India. This view is admitted as possible by S. M. Edwardes, editor of the 4th edition of Vincent Smith's *Early History of India* (p. 249). Dr. J. N. Farquhar in his exhaustive monograph on *The Apostle Thomas in India* (1916) has turned this possibility into a probability and (in the opinion of the reviewer) almost into a certainty.

The existence of Christians in South India, at least by A.D., 547, raises the interesting question whether the Bhakti-cult in Hinduism was influenced in any way by Christianity. Chronologically, of course, such an influence was quite possible. Bhakti, "loving devotion," however, has its roots in the ancient literature of India, the Bhagavadgita and the Varuna hymns of the Rigveda. Hence, if there was any Christian influence, it consisted probably only in strengthening a movement already under way long before the time of Rāmānuja (11th century, A.D.). The case of the Madonna and Child in Christianity is somewhat similar. There was ample legendary material for a parallel Hindu development, without borrowing anything from Christianity. The presence, however, of the Christian cult of the infant Christ may have stimulated the development in the 6th century A.D. of the corresponding Hindu cult of the infant Krishna.

The Syrian Christians of South India have had a long and involved history. The immemorial connection between the coast of southwestern India and the Euphrates valley continued and Nestorian migrations to South India took place in the 9th century. The arrival of the Portuguese in the 16th century resulted in the winning over to Rome of a large number of Syrians and the annihilation of most of the old Nestorian influence. The division into Chaldean, Jacobite, Roman, and Reformed Syrians has been a fruitful cause of controversy. The religious practices of each group are carefully described by the author.

We come now to the more strictly anthropological material contained in the book. William Crooke, the great authority on Indian folklore, has furnished a

valuable introduction, stressing points of special anthropological interest. The Syrian community has sprung almost entirely from converts recruited from the lower and middle classes, and according to the census of 1921 (as interpreted by the author) numbers about 262,000. The Hindu origin and environment of the Syrian community shows itself in the existence of many Hindu customs, especially those connected with domestic rites. The tendency of most of the different sections into which the old Syrian community has been broken up has been to crystallize into what practically may be called "castes," intermarriage being forbidden, though interdining is allowed. Caste prejudices still persist, including a strong feeling against low caste people, even though they may be Christians. Marriage arrangements are made by parents, and child marriage in the past and to some extent in the present is not uncommon. Widow remarriage, however, is allowed among all sects of Syrian Christians. Child-birth takes place, as a rule, at the home of the wife's parents. Children receive the names of maternal grandparents rather than those of the paternal line, possibly a survival of the matriarchal system which has long been in evidence on the Malabar coast.

In earlier days the Syrian Christians were not free from the practice of magic and witchcraft. Hindu astrologers were called in to fix auspicious times for domestic ceremonies. Magic circles were made on wedding days and books containing charms were used. Many of these practices were banned by the Synod of Diamper (A.D., 1599).

Appendix E contains a brief statement on the physical anthropology of the Syrian Christians, which will be supplemented shortly by volume 3 of the author's *Cochin Tribes and Castes.*

H. D. GRISWOLD

Middletown. ROBERT S. and HELEN LYND. New York: Harcourt, Brace and Co., 1929. 550 pp.

Middletown, A Study in Contemporary American Culture, bears superficially but little semblance of being anthropological literature. The data are sociological; it is a very complete record of the life of a supposedly typical American community. The novel feature of this study is the use of a new method in dealing with this type of material. Heretofore, sociologists have recorded and analyzed single phases of life or dealt with specific problems. In this study an attempt is made to show the interrelation of the various activities indulged in by this community. Stress is laid upon the fact that this study is made from the anthropological point of view, the principal virtues of this method being that it gives the investigator an objective approach and a proper perspective. While it is true that the ethnologist is generally an outsider to the culture he is studying and is not emotionally concerned, the present day ethnographer is seeking more and more to participate at least in some phases of his problem culture, and to study them from the subjective or native point of view. Two outstanding examples of this are the study of Pueblo pottery by Ruth Bunzel and the initiation of another ethnologist into the woodcarvers' guild of the Polyne-

sian culture he was studying. It is highly commendable that a sociologist should wish to study our own culture objectively, my only criticism is that this should not be considered as a criterion of the anthropological method.

The details of method in this study vary but slightly from those generally employed in any sociological analysis. Life is divided into six major activities, which serve very well to carry the mass of detail accumulated. Along with the present day description is a comparison of the situation with that of 1890 in the same community. In this way the changes in material culture and social attitudes can be traced. It comes out clearly that the rate of change in all cultural traits is not equal. Features of material culture change sooner than social attitudes, in other words, cultural lag is greater in those traits that are of emotional concern. Another statement of the same trend in social adjustments is that a new situation is met by an extension of an old institution, rather than a searching study of the adequacy of this institution in dealing with the problem at all.

These conclusions are an important contribution to the analysis of community life; the question is whether it was necessary to gather this vast amount of data to formulate them. Without doubt *Middletown* will furnish much material for future studies of more specific problems. To return to the question of method. The method and field of anthropology should not be confined to the analysis of primitive cultures alone, and any attempt to extend its sphere of application should be fostered, but would not a more fertile field for such effort be, for instance, the study of the acculturation of the immigrant to American society, or any other exchange of traits between modern cultures?

ERNA GUNTHER

The Original Home and Mode of Dispersal of the Coconut. ARTHUR W. HILL. (*Nature*, 124:507, Oct. 5, 1929.)

Dr. Hill here summarizes the data in Dr. John K. Small's article on "The Early History of the Coconut Palm" (*Journ. N. Y. Botanical Garden*, 30:153, 1929), which is partly based on a letter from the late Dr. William E. Safford.

Dr. Hill cites Beccari's proof (*Philippine Journal of Science*, 12-27-43, 1917) that the American species of *Cocos* "are not nearly related to *Cocos nucifera* and that it is more closely allied to *Jubæsopsis Coffra* of South Africa than to any of the so-called *Cocos* of South America." Dr. Hill feels that Beccari "brings forward very conclusive facts against the suggested American origin of the coconut. Beccari also, from the evidence afforded by the Palmyra Islands, Cocos-Keeling, and Krakatau produces convincing proofs that the coconut can germinate when washed ashore on coral atolls or sea beaches without human aid." From Safford's letter it appears that the "Cocos" observed by Cieza de Léon in northern South America must have been a genus of palms closely related to *Attalia*. No early writer regarded the coconut as indigenous in America. Dr. Hill concurs in Safford's view that coconuts were probably carried to America in the Spanish galleons which made regular voyages to Acapulco, also in Merrill's suggestion (*Philippine Journ. Sci.*, 7:198, 1912) that

these galleons are responsible for the introduction of many economically important plants both to America from the Philippines and in the reverse direction.

ROBERT H. LOWIE

Materials for the Study of Inheritance in Man. FRANZ BOAS. (New York, Columbia University Press: Columbia University Contributions to Anthropology,) 1928, 540 pp., cloth, ($10.00).

This volume places on record the huge mass of data collected by Dr. Boas for his study of *Changes in Bodily Form of Descendants of Immigrants* (1911) with some additional material on Hebrew families measured later.

Lively criticism has been directed at both the results and methods of the immigrant study: the original records are now available for the critic who wants to check them. Dr. Boas promises a further study of these data from the point of view of growth and heredity.

Incidentally, the pleasing appearance of these handwritten and typed sheets reproduced by a photographic process should encourage others who have bulky manuscripts on hand to follow this example.

LESLIE SPIER

The Polish Peasant in Europe and America. WILLIAM I. THOMAS *and* FLORIAN ZNANIECKI. (New York, Knopf, 2 vols., 1927).

It is not often that so heavily documented a work as this is reissued. But there are few social studies which extract from their documentation so much illumination and so vivid a picture both of a culture and of the lives of the individuals born into it. Almost every page of the 2200 is fascinatingly interesting, whether it contain letters of peasants at home, in America, or the author's interpretations and comments. The 300-page general introduction is a masterly description and analysis of a culture segment—the compactness of its ethnography surpassed only by the brilliance of its psychology. It does for the Polish peasant much what Mead had done for the Samoan girl; but then follows the mass of primary data that constitute the bulk of the book. Every ethnologist can profit by taking this introduction as a model.

The work is unchanged from the original five-volume University of Chicago edition, except for one transposition.

A. L. KROEBER

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AMERICAN ANTHROPOLOGICAL ASSOCIATION

Proceedings of the American Anthropological Association For the Year Ending December, 1929

The American Anthropological Association held its twenty-eighth annual meeting at Alumnae House (Vassar College) Poughkeepsie, New York, on December 28–30, 1929, in conjunction with the American Folk-Lore Society.

Council Meeting, December 28th, 10.00 p.m.

President Tozzer in the chair.

The minutes of the New York meeting were not read but voted approved as printed in the American Anthropologist, 31: 313–327.

The Treasurer's Report, in the absence of Mr. Gifford, was presented by Dr. Lowie.

Report of the Treasurer

REGULAR FUND

Receipts

Balance on hand, December 9, 1928 (corrected)			$3,411.92
American Ethnological Society		$522.00	
Anthropological Society of Washington		281.00	
Central States Branch		363.00	
Annual membership dues of A. A. A.			
1926	$ 6.00		
1927	9.00		
1928	65.46		
1929	3,694.26		
1930	216.10		
1931	9.40		
		4,000.22	
Sale of publications		533.15	
Reimbursements (including $70. from S. Y. Liang)		207.87	
Interest		120.00	
Royalty Memoirs Fund		28.50	
			$6,055.74
			$9,467.66

Disbursements

George Banta Publishing Company & Oakland National Engraving Co.			
Printing	$3,603.29		
Distribution	114.33		
Storage	45.00		
Reprints	434.40		
		$4,197.02	
Editor's expenses		567.77	
Treasurer's expenses		606.63	
Secretary's expenses		12.67	
Purchase of back numbers		79.90	
Transferred to Permanent Fund		1,000.00	
Interest transferred to Permanent Fund		21.34	
			$6,484.23
Cash on hand, December 8, 1929			2,982.43
			$9,467.66

Resources

Cash on hand, December 8, 1929			$2,982.43
Due from sales:			
1928	$ 1.50		
1929	67.95		
		$ 69.45	
Due from dues:			
1928			
American Anthropological Association	$ 174.00		
Central States Branch	40.00		
American Ethnological Society	45.00		
1929			
American Anthropological Association	420.00		
Central States Branch	70.00		
American Ethnological Society	229.00		
		$ 978.00	
			$1,047.45
			$4,029.88

Liabilities

Membership dues for 1930 already paid	$ 216.10		
Membership dues for 1931 already paid	9.40		
		$ 225.50	
Balance due George Banta Publishing Company		621.19	
			$ 846.69
Net excess resources over liabilities			$3,183.19
			$4,029.88

PERMANENT FUND

Receipts

Balance, December 8, 1929		$1,804.51	
Less original value of 3 Treasury Savings certificates		60.00	
			$1,744.51
Interest on Savings Account, Jan. 1, 1929	$ 28.78		
Transfer from Regular Fund	1,000.00		
Redemption of 3 Treasury Savings certificates	75.00		
Interest on 3 Liberty Bonds, April, 1929	6.36		
Interest on Savings Account, July 31, 1929	47.07		
Interest on Liberty Bonds, Oct. 22, 1929	6.39		
Interest on Liberty Bonds for 1927, omitted from earlier account	8.49		
			$1,172.09
			$2,916.60

Investments

Liberty Bonds (three)	$ 291.09		
Cash in Savings Account	2,625.51		
			$2,916.60

EXPENDITURES AGAINST 1929 BUDGET

		Allowance	*Spent*	*Balance*
Secretary's expenses		$ 100.00	$ 12.67	$ 87.33
Editor's expenses				
Editor's assistant	$ 480.00		508.00	
Office expenses	100.00		59.77	
		580.00	567.77	12.23

Treasurer's expenses				
Treasurer's assistant	$ 480.00		444.00	
Office expenses	240.00		162.63	
		720.00	606.63	113.37
AMERICAN ANTHROPOLOGIST				
Printing	$2,950.00		2,918.20	
Illustrations	500.00		685.09	
Reprints	350.00		297.38	
Storage	60.00		45.00	
Distribution	200.00		114.33	
		$4,060.00	$4,060.00	
Out-of-print publications				
Purchase	100.00		79.90	
Photostat negatives	100.00			
		200.00	79.90	120.10
Memoirs		441.62		441.62
TOTALS		$6,101.62	$5,326.97	$ 774.65

As authorized by the Council at its 1928 meeting, $1000 was transferred from the Regular Fund to the Permanent Fund, reducing the former from $3428.12 to $2428.12 and increasing the latter from $1804.51 to $2804.51. The balance in that Regular Fund at the close of the present fiscal year (December 8, 1929) is $2982.43 The Permanent Fund has increased during the fiscal year from $2804.51 to $2916.60.

As a step toward a more satisfactory financial situation it is recommended that the collection of dues for the American Ethnological Society, the Anthropological Society of Washington, and the Central States Branch of the American Anthropological Association be placed in the hands of the Treasurer of the American Anthropological Association. Five-sixths of the dues now paid to Treasurers of these affiliated societies are turned over to the Treasurer of the American Anthropological Association and utilized for the publication of the AMERICAN ANTHROPOLOGIST and the Memoirs. Under such a proposed arrangement dues could be more promptly collected, delinquent members could be earlier eliminated from the mailing list, and the share of dues going to affiliated societies could be promptly transmitted to their Treasurers, who would be relieved of the expense of postage and billing. Appropriate bill forms bearing the names of the affiliated societies and the American Anthropological Associations would be employed in the event that the proposal is accepted by the Association and the affiliated societies.

If the Council approves this proposed plan, it should then be transmitted to the affiliated societies.

When the present treasurer took office it was desired that a campaign for new members be undertaken. This was conducted from January 1, 1926 to August 31, 1929, the Treasurer's assistant devoting half of her time to the campaign. The result has been the addition of 173 new members who have paid $2088 in dues. The cost of the campaign has been $1120.47, which leaves a profit of $967.53. As time passes this profit will be increased. The expectancy of membership of the new members is six years, judging from the record to date. If this proves to be the case the sum total of dues ultimately to be paid by these campaign members should be $6000.

Four years have passed since the campaign for new members was begun. The Council should indicate if it authorizes continuation of this campaign in 1930.

Respectfully submitted,
E. W. GIFFORD,
Treasurer

The above Report was accepted and an auditing committee (Kroeber, Loeb) appointed.

Examined and found correct. March 20, 1930.
EDWIN M. LOEB
(for Auditing Committee)

There was considerable discussion as to the desirability of continuing the campaign for members on the present basis. It was decided to refer this question to the Budget Committee. In respect to the Treasurer's suggestion in regard to a plan for centralization in the collection of dues of members of affiliated societies, see action upon the communication received from the American Ethnological Society below.

REPORT OF THE PHOTOSTAT COMMITTEE

At the suggestion of Professor Boas, negotiations were opened with Breitkopf and Hartel, a German firm, for the reproduction of out-of-print numbers of the AMERICAN ANTHROPOLOGIST and Memoirs by the Beha process. It was decided to reproduce 100 copies of volume 16, number 3, the cost of which fell within the budget allowance. In spite of appeals to members for the loan of a copy, the committee failed to obtain one for reproduction. It is suggested that for 1930 the budget allowance for this purpose be increased to $200.

Various out-of-print numbers of the AMERICAN ANTHROPOLOGIST, costing $79.90, were purchased.

Respectfully submitted,
R. H. LOWIE
E. W. GIFFORD

After some discussion it was voted that the Publication Committee (the Editor acting as Chairman) make inquiries into the possibility of securing an agent who would be responsible for the promotion of the distribution of back numbers of the ANTHROPOLOGIST and the *Memoirs*. Since it is possible that such an agent might

take over the matter of photostating as well, the report of the Photostat Committee was referred to the Publication Committee. It was voted that for the year 1930 and all subsequent years to have the Treasurer's Report and Budget in the hands of the Publication Committee a month before the annual meeting. It is understood that this Committee passes on the Budget.

Report of the Editor

Volume 31, New Series, of the American Anthropologist, with 836 pages, considerably exceeded last year's volume. The reason lies in the necessity of using up all matter in type because of certain modifications in make-up to be explained below.

The last issue of Volume 31 was distributed by the beginning of December and galley proofs have been sent to authors of contributions to Volume 32, number 1.

Owing to various causes, there has been undue delay in the issuance of Memoir 36 on *The Social Organization of the Tewa of New Mexico* by Dr. Parsons, but it is hoped that by the time of the meeting copies will have been distributed.

Last year's Memoir appropriation by the Association, eked out by the generous offer of a member to pay for expenses in excess of the allocated sum, made it possible to proceed with the setting up of a paper by Mr. Liang dealing with the Archaeology of China. It is now in page proof. The Editor is obliged to repeat his previous statements about memoirs. With fair frequency papers too long for articles continue to be submitted. They either have to be declined or split into instalments, unless outside assistance is forthcoming. A permanent Memoir fund is one of the greatest editorial desiderata.

In the course of the year Mr. Peerenboom, the manager of the George Banta Publishing Company, called on the Treasurer and Editor and submitted plans for an alteration in the technical make-up of the Anthropologist in the interests of diminishing the cost of production. After the submittal of sample pages an agreement was reached. The President of the Association was of opinion that the matter lay within the scope of editorial discretion, but in order to simplify proceedings gave his formal consent. Accordingly, all material already in type was utilized for Number 4 of Volume 31, and new contributions have been set up in accordance with the new scheme, which the Editors hope will meet with general approval. It will undoubtedly insure a larger amount of printed material for the same expenditure.

Some months ago Dr. Kidder transmitted to the Editor the material for an Index to the Anthropologist covering all the volumes from the beginning until the close of Volume 30. This Index, the preparation of which was sponsored by Dr. Kidder with the aid of Phillips Academy, Andover, would doubtless be of very great utility to all anthropologists. The Editor is ready to proceed with the final preparations for printing as soon as Dr. Kidder's negotiations for the financing of the project are completed.

Respectfully submitted,
Robert H. Lowie, *Editor*

It was voted that the Editor's Report be accepted.

REPORT OF THE BUDGET COMMITTEE

1. Secretary's expenses		$ 100.00
2. Editor's expenses		580.00
Editor's assistant	$ 480.00	
Office expenses	100.00	
3. Treasurer's expenses		720.00
Treasurer's assistant	480.00	
Office expenses	240.00	
4. AMERICAN ANTHROPOLOGIST		4,741.19
Balance due on number 4 of 1929	621.19	
Printing	2,950.00	
Illustrations	500.00	
Reprints	400.00	
Distribution	200.00	
Storage of back numbers	60.00	
Insurance on stored publications	10.00	
5. Out-of-print publications		300.00
Purchase	100.00	
Photostat reproductions	200.00	
6. Memoirs		540.12
TOTAL		$6,981.81

The Committee recommends the continuance of the campaign for members during 1930, the cost of which is included under Item 3, but suggests that a more detailed consideration be given this topic by the Executive and Publication Committees before continuing it further. Since the Publication Committee is charged with an inquiry into the most economical means of distributing back numbers of the ANTHROPOLOGIST and the *Memoirs*, the expenditures under Item 5 are subject to the findings of this Committee. The Treasurer points out that the large balance due the printer on the fourth number of the ANTHROPOLOGIST for 1929 renders it inadvisable to make any additional appropriations for the publication of the *Memoirs* beyond a balance of $441.62 from 1929, $28.50 from the Royalty Memoir Fund and a donation by Mr. S. Y. Liang of $70.00. These sums should cover the Memoir of Mr. Liang now in page proof.

Respectfully submitted,
E. SAPIR
H. J. SPINDEN
A. I. HALLOWELL

A letter from the American Ethnological Society submitting the following proposal, was read:

"The American Ethnological Society proposes for the consideration of the Council of the A.A.A. a new arrangement by which the A.E.S. shall be permitted

to receive the American Anthropologist for its 170 subscribing members at the rate of $3.00 per member for the year 1930."

It was voted that this proposal be tabled but, since it was clearly brought out in discussion that the A.E.S., as a result of its recent output of publications, is seriously in debt and that the proposal, as submitted, would only partially aid in resolving the financial difficulties of this Society, the Executive Committee of the A.A.A. was instructed to consider a loan or grant to the A.E.S. and was given power to act.

A communication from the Editor of the *Encyclopaedia of the Social Sciences*, suggesting that the Association subscribe for 2 copies of the Encyclopaedia, the same to be presented to our representatives on the Joint Committee, was laid on the table.

An invitation to meet with the Pacific Division of the A.A.A.S. at the University of Oregon, June 18–21, 1930 was read. Prof. A. L. Kroeber was appointed an official delegate.

The following request for the establishment of a Pacific Section of the A.A.A. was read:

November 29, 1929

TO THE COUNCIL OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION:

The undersigned request authorization for the establishment of a Pacific Section of the American Anthropological Association for the purpose of holding regional meetings as occasion offers. The following organization is suggested.

1. Membership of the Pacific section to consist of members of the Association in Pacific Coast and adjoining states.

2. Management of the section to be in the hands of an executive committee of from four to seven members. These to be appointed by the Council of the Association and thereafter to have the power to fill vacancies or to add to their number. The council however to have the power to reconstitute the entire committee at any time. Members of the executive committee to serve until their terms are fixed. The section is to have no other officers.

3. The entire dues of members of the section to be collected and retained by the Treasurer of the Association. The Council to make an appropriation of say $25 for secretarial expenses of the executive committee of the section; the committee to be without authority to incur other expenditures.

4. Meetings of the section to be held according to favorable opportunity, along or in conjunction with other societies, at the discretion of the executive committee. Notices and reports of meetings are to be given to the secretary of the association. No attempt to be made to hold annual or stated meetings of the section.

Respectfully,
Byron Cummings, University of Arizona
M. R. Harrington, Southwest Museum
A. L. Kroeber, University of California
Leslie Spier, University of Washington.

The Council voted favorably upon the establishment of such a section but recommended that it be organized upon the same financial basis as the Mid-Western Section.

A communication from the Social Science Research Council embodied the suggestion that it would be extremely desirable if there could be occasional joint meetings, during the Christmas holidays, of the seven constituent organizations making up the Council. This project is being considered for 1931. The matter was referred to the Executive Committee.

The following Resolution, presented by Miss H. N. Wardle, was passed:

Resolved, that, in view of the recent awakened interest in anthropology, the American Anthropological Association expresses a deep regret that the oldest natural history institution in America, the Academy of Natural Sciences of Philadelphia, should have ceased its interest and activities in anthropology, and disposed of the greater part of its collections in that field.

Resolved further, that the secretary send a copy of this resolution to the management of the Academy of Natural Sciences of Philadelphia.

The Association has been invited to join the American Council of Learned Societies and to appoint two representatives to this body. The Council accepted the invitation.

Annual Business Meeting

Monday, Dec. 30th, 9.30 A.M.

The following officers, new Council Members, Representatives to various Associations and new members of the Association[1] submitted by the Nominating Committee (J. A. Mason, E. Sapir, N. C. Nelson), were elected.

President:	A. M. Tozzer
1st Vice-president:	H. J. Spinden
2nd Vice-president:	Ralph Linton
Secretary:	A. Irving Hallowell
Treasurer:	E. W. Gifford
Editor:	R. H. Lowie
Associate Editors:	E. W. Gifford, F. J. Speck
Executive Committee:	Ruth F. Benedict, F. W. Hodge, E. A. Hooton.

Council:

New Members: A. Kelly, George Williams, Ellen Spinden, M. G. Smith, Fay-Cooper Cole, Frances Densmore, R. Redfield, E. B. Renaud, J. R. Swanton, Ruth O. Sawtell, W. B. Hinsdale, Agnes C. L. Donohugh, W. M. Krogman, W. C. McKern, Zelia Nuttall, Ruth C. MacDuffie, R. L. Olson, (1933).

Members: C. M. Barbeau, R. B. Bean, S. B. Collins, B. Cummings, S. Hagar, G. G. Heye, E. A. Hooton, A. B. Lewis, S. K. Lothrop, G. A. Dorsey, S. G. Morley, J. E. Pearce, F. G. Speck, L. Spier, H. J. Spinden, F. Starr, W. D. Wallis, H. N. Wardle, H. Shapiro, H. W. Krieger, O. Ricketson, S. J. Morton (1933).

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[1] The names of whom will be published in the complete membership list of the association.

C. W. Bishop, Fannie Bandelier, Margaret Ashley, Carl Coon, V. J. Fewkes, E. F. Greenman, F. W. Hodge, Vincent Petrullo, Paul Radin, Helen H. Roberts, M. W. Sterling, J. G. Steward, S. A. Barrett, M. V. Beckwith, R. Benedict, F. Blom, D. Cadzow, C. B. Davenport, E. S. Goldfrank, G. B. Grinnell, E. Gunther, A. I. Hallowell, M. J. Herskovits, A. E. Jenks, N. M. Judd, F. La Flesche, R. Linton, J. H. MacGregor, B. Oetteking, A. C. Parker, G. Reichard, R. J. Terry (1932).

L. Bloomfield, R. L. Bunzel, B. Cosgrove, T. Adamson, H. Bingham, D. S. Davidson, H. Field, E. W. Gifford, C. H. Hawes, M. Jacobs, D. Jenness, W. Jochelson, R. W. Lothrop, T. F. McIlwraith, G. G. MacCurdy, J. A. Mason, M. Mead, C. B. Moore, W. K. Moorehead, N. C. Nelson, E. C. Parsons, C. Peabody E. K. Putnam, Mrs. O. Ricketson, E. Sapir, F. H. Saville, M. H. Saville, H. I. Smith, G. Vaillant, A. E. White, H. Webster, L. A. White, C. C. Willoughby (1931).

G. Engerrand, W. Gates, S. J. Guernsey, C. E. Guthe, H. U. Hall, E. S. Handy, C. L. Hay, J. P. Harrington, M. R. Harrington, L. W. Jenkins, A. V. Kidder, T. Michelson, W. F. Ogburn, B. F. Chapelle, J. B. Stetson, A. M. Tozzer, S. Trotter, E. P. Wilkins, W. Bradfield, E. H. Morris, T. W. Todd, F. H. H. Roberts, Jr., J. M. Cooper, W. K. Gregory, H. C. Shetrone (1930).

Past Presidents (ipso facto members of the Council): F. Boas, W. H. Holmes, J. W. Fewkes, R. B. Dixon, F. W. Hodge, A. L. Kroeber, C. Wissler, W. Hough, A. Hrdlicka, M. H. Saville.

Representative to Social Science Research Council: A. M. Tozzer (April 1, 1930–April 1, 1933).

Representatives to National Research Council: C. E. Guthe, H. L. Shapiro (July 1, 1930–July 1, 1933).

Representatives to Section H. A.A.A.S.: E. A. Hooton, A. Hrdlicka.

Representatives to the American Council of Learned Societies: F. Boas, (January 1, 1930–December 31, 1933). A. V. Kidder, (January 1, 1930–December 31, 1931).

The Report of the Budget Committee was approved.

A Resolution of thanks to the Board of Trustees of Vassar College and to the Directors of the Alumnae House was passed, expressing the appreciation of the Association for the hospitality extended during the course of the meetings.

The President appointed the following members of the Publication Committee R. H. Lowie, Edward Sapir, and Ruth F. Benedict.

It was voted to carry out the practice of limiting all papers to fifteen minutes except those for which special arrangements are made.

PROGRAMME

Saturday Morning, December 28th

Symposium on Teaching Methods in Anthropology

The general course, A. M. Tozzer.

Cultural courses, Edward Sapir.

Ethnographic courses, Robert H. Lowie.
Physical courses and laboratory equipment, E. A. Hooton.
The Seminar, Franz Boas.

Saturday Afternoon

N. C. Nelson, Classification of Mongolian archaeological collections.
H. J. Boekelman, Shell-mounds and their world-wide distribution.
M. C. Kahn, Art of the Dutch Guiana Bush Negroes.
H. Newell Wardle, Two jade figurines in the Poinsett Collection.
Gregory Mason, The Sarstoon River as an old trade route.
V. Stefansson, The principles of Eskimo snow-house architecture.
Gene Weltfish, Problems in the study of ancient and modern Basket-Makers.
V. Stefansson, A working hypothesis as to the nature of human diet.

Saturday Evening

Reports of the activities of various Foundations, Institutions, and Committees

National Research Council, A. V. Kidder.*
Social Science Research Council, Edward Sapir.*
State Archaeological Surveys, N.R.C., M. W. Stirling.*
Pennsylvania Archaeological Survey, Frances Dorrance.
American Council of Learned Societies, The present and future of linguistic work in America, Franz Boas.
Institute of Human Relations, Yale University, Clark Wissler.
Anthropological Laboratory at Santa Fé, A. V. Kidder.
The work of the Carnegie Institution in Central America, A. V. Kidder.
Anthropology at the Chicago World's Fair, 1933, A. M. Tozzer.
School of Archaeology, University Museum, Philadelphia, H. H. F. Jayne and F. R. Wulsin.
American School of Prehistoric Research, G. G. MacCurdy.

Sunday Morning, December 29th

Margaret Mead, Father and child in Manus.
R. F. Fortune, Economic background of the Kula.
W. L. Warner, The Australian National Research Council and its work.
A. I. Hallowell, Araucanian parallels to the Omaha kinship systems.
M. G. Smith, The Peyote Church among the Indians of Oklahoma.
Alexander Lesser, Caddoan kinship.
Walter Hough, The bison as a factor in ancient American culture.
L. A. White, San Felipe, Pueblo.

Sunday Evening

A. E. Douglass, Tree-rings as an age-criterion in the Southwest.
A. V. Kidder, Exploration by aeroplane.
H. M. Allyn, Excavations in Palestine, 1929. Work of the British School of Archaeology and the American School of Prehistoric Research.

*Summarized below.

V. J. Fewkes, Work of the Harvard-Pennsylvania archaeological expedition in Czechoslovakia.

Monday Morning, December 30th

H. J. Spinden, The anthropological view of art in public school instruction.

Bruno Oetteking, Prognathy in the American Indian.

L. D. Redway, Pigmentation of the eye.

G. T. Bowles, Growth-increase by generations among old Americans.

Lawrence Foster, Negro-Indian relationships in the Southeast.

A. C. L. Donohugh, Brief notes on a Luba-speaking group at Kabongo, Belgian Congo.

Truman Michelson, Some Arapaho and Cheyenne linguistic notes.

Report on Current Work of the National Research Council in Relation to Anthropology

Anthropology had four fellows this year—Dr. Clements working with Dr. Wissler at Yale; Dr. Coon from Harvard working in Albania, and Dr. Gayton working with Dr. Kroeber in California. Dr. Kelly was working with the Cherokee, and since his resignation has been given a grant-in-aid to complete the study.

Dr. Herskovits has just received a grant-in-aid to assist in his investigations of the American negro.

The Committee on State Archaeological Surveys has received continued support and in May held a conference on Midwestern Archaeology at St. Louis, at which more than 60 delegates were gathered. It is safe to say that this was the largest and most important meeting of this kind ever held in the Middle West. Dr. Guthe is making a separate report to the Association, but I wish to make mention of the fine work he is doing. He is in close touch with individuals and institutions, and by his enthusiasm keeps the interest high. We should also mention the fine cooperation of Knight Dunlap, for it indicates that the joint division can function efficiently.

Under the Chairmanship of Neil Judd the Committee on Accurate Publicity for Anthropology has been organized, and more than fifty "minute men" have been selected to secure prompt and accurate information relating to reported discoveries in their localities. Funds for such investigations are provided through the Division by Science Service.

The Committee on Child Development, while primarily of interest to Psychologists, is closely related to Physical Anthropology, and the Child Development Abstracts bring anthropological investigations to the attention of a wide circle.

During the chairmanship of Dr. A. V. Kidder, a complete index of the first forty volumes of the American Anthropologist was prepared. Permission has just been given for the National Research Council to seek funds for publishing this material, and there is good reason to expect that such funds will be granted. This will be of great value to all workers in our field.

At the last meeting of the Council's committee on grants-in-aid, funds were voted to match similar funds from the Social Science Research Council for two

projects of interest to Anthropology. The first is for a conference on Culture Areas, in which it is hoped to have a full discussion of the topic by representatives of several disciplines. The second project is a preliminary investigation of the effects of environment on Children of Different Races. The Division of Anthropology and Psychology will represent the National Research Council in both these investigations.

Probably the most important service which the Division is giving at present is in connection with the proposed World's Fair, to be held in Chicago in 1933. In my recent talks with the Fair officials they made it clear that they intend to see our plan carried out in full. If this is done, it will be one of the greatest events in American Anthropology.

FAY-COOPER COLE,
Chairman, Division of
Anthropology and Psychology.

ANTHROPOLOGY AND THE SOCIAL SCIENCE RESEARCH COUNCIL

The participation of representatives of the American Anthropological Association in the deliberations of the Social Science Research Council has assisted greatly in "selling" Anthropology to the closely related disciplines. There is no doubt but that the present interest and support is in a considerable measure due to such contacts. The Sante Fé laboratory and especially the Fellowships were first discussed and promoted in the Social Science Research Council as well as the National Research Council. A number of projects carried on by anthropologists have in the past and are at present receiving support through the Social Science Research Council. Among these are the following: (1) the preparation of a series of maps showing the distribution of the culture traits of the Indians of Eastern North America; (2) the study of the mental ability of Rural Negroes, Mountain Whites, Dakota and Pueblo Indians by means of mental tests based upon materials indigenous to the cultures of these respective groups (in co-operation with the Columbia University Council for Research in the Social Sciences); (3) The Anthropometric, Psychiatric and Social Study of Criminals in Massachusetts and other States. The 1929-30 Fellowship awards included the reappointment of Dr. Charlotte Gower, who continues her study of the Sicilian village community, and the appointment of Alexander Lesser whose project is "An Inquiry into the Possibility of Law in Social Phenomena, with special reference to the social organization of primitive peoples". Grants-in-aid were made to Leslie A. White, B. L. Whorf (see AMERICAN ANTHROPOLOGIST, 32:206) and to Herman Beyer, who is completing a study of the Maya codex in Dresden, Germany. Recently the Social Science Research Council joined with the National Research Council to provide funds for two conferences and preliminary investigations of interest to Anthropology. The first is the Conference on Culture Areas, the second on the Effect of Environment on Children of Different Races.

At the Dartmouth meeting the time was largely given over to a critical survey of our policy up to date, and careful consideration was given to problems such as:

(1) Improvement of research organization; (2) Development of personnel; (3) Enlargement, improvement and preservation of materials; (4) Improvement of research methods; (5) Dissemination of methods and results; (6) Facilitation of research projects; and (8) Enhancement of general appreciation of the significance of the Social Sciences.

In other words, it was a time of appraisal and planning for the future, rather than of specific projects and granting of funds.

FAY-COOPER COLE.

THE COMMITTEE ON STATE ARCHAEOLOGICAL SURVEYS

Since its creation in 1921, the Committee on State Archaeological Surveys of the Division of Anthropology and Psychology of the National Research Council has accomplished the following:

1. It has established the custom of summarizing in the ANTHROPOLOGIST the archaeological field work in North America during each calendar year.

2. It has collected pertinent information on the methods and experiences of those organizations willing to aid the Committee, and uses this to answer such requests as come to the chairman.

3. During Dr. Wissler's chairmanship several years ago, a short pamphlet was prepared, presenting the salient points of archaeological research and the best methods for securing information. This was published through the cooperation of the Iowa State Historical Society.

4. A circular series has been inaugurated, by means of which individual workers may present questions or problems to the entire personnel in contact with the Committee.

5. During the past year, three projects were initiated. (a) Work was begun on a simplified blank for recording rapidly and accurately an inventory of an archaeological collection. (b) The preliminary steps have been taken to develop an elaborate field manual dealing primarily with the archaeology of the Eastern United States. Fifty individuals are cooperating in this work. (c) Information is being gathered preparatory to circularizing archaeologists on the question of greater uniformity of archaeological symbols upon charts and maps.

6. The Committee has held conferences in the past at Chicago, Cincinnati, and Kansas City with a view to encouraging archaeological interest. In May, 1929, a conference on midwestern archaeology was held in St. Louis, Missouri, and was attended by some eighty individuals from twenty-two states. The report of this conference has been published as Bulletin 74 of the National Research Council.

7. The Committee endeavors, through correspondence, to bring together individuals interested in similar problems; act as a clearing-house for letters forwarded from other organizations which deal with specific local problems; and to encourage and advise individuals throughout the country who are not in immediate contact with others interested in archaeology.

The chief policies of the Committee are:

1. It can act only as an advisory body, since its organization will not permit it to undertake any separate archaeological activities or render financial assistance. It cannot *demand* cooperation or assistance from any organization or individual.

2. It attempts to encourage and guide non-professional archaeologists, who, through training and experience, are equipped to render valuable service to archaeology.

3. The Committee advocates the creation of a focus for archaeological interest in each state. It encourages a preliminary survey of the archaeological assets of a state, preferably without excavation. When excavation is necessary, and trained archaeologists not available, the Committee strives to impress the best methods of excavation upon the serious amateurs of the region. It recommends that recreation centers and state parks be chosen with a view to incorporating and preserving suitable archaeological sites. By encouraging local archaeological interest, the Committee hopes to arouse a greater appreciation of anthropology in educational institutions, whereby new centers of training may be created.

4. It seeks to discourage the unscientific collecting of archaeological specimens without data, and to bring about a greater uniformity in methods and records.

5. It favors cooperation between organizations interested in the archaeological problems of the continent, and those local organizations whose facilities meet the requirements of modern museum and field techniques.

CARL E. GUTHE

(A full report is printed on pp. 342-374 of this issue. EDITOR).

H. IRVING HALLOWELL, *Secretary,*
American Anthropological Association

ARCHAEOLOGICAL FIELD WORK IN NORTH AMERICA DURING 1929

At the close of each calendar year, the Committee on State Archaeological Surveys of the Division of Anthropology and Psychology of the National Research Council sends a request for a brief review of the year's archaeological field work in North America to all organizations which it believes to have done such work. This summary for 1929 is the eighth of the series to be published in the AMERICAN ANTHROPOLOGIST.

This year the response of the several groups has been very encouraging. Of the seventy-nine organizations consulted, all but six responded, and fifty-two sent reports. Many of these were quite detailed, in some cases carbon copies of statements prepared for other uses. All of the information will be of real value to the Committee in its attempt to act as a clearing-house for North American archaeology. Unfortunately space limitations make condensation absolutely necessary. In spite of drastic editing, the summary has grown because of the increased activities of many groups and the reports from others which had not contributed in former years.

The Committee wishes to express its grateful appreciation of the whole-hearted response to its call; its regret that many of the reports could not be given more space; and its desire for information regarding any organization which has been overlooked

Canada. Dr. Harlan I. Smith, who spent the summer in British Columbia on special work for the National Museum of Canada, carried on some incidental archaeological research. He examined a few shell-heaps along the east coast of Vancouver Island, and also photographed archaeological specimens in private collections. Petroglyphs were photographed at several places, such sculptures being discovered by Dr. Smith at seven separate sites on Hornby Island. These are on sandstone below the driftwood of the seashore, where storms hurl logs and boulders across them, while twice each day the waves wear away the soft sandstone. Fires have been built on several of them.

Mr. W. J. Wintemberg spent the field season of 1929 in making an archaeological reconnaissance on the west coast of Newfoundland. He discovered traces of Eskimo occupation in ten localities, the most southerly being at Bonne Bay. The harpoon points found at two of the sites resemble those of the Cape Dorset Eskimo culture in having rectangular socket holes. Holes in a few other artifacts, like those in specimens from Cape Dorset, were not formed by drilling, but by gouging or grooving. The projectile points are mainly small and triangular, with convex edges and concave base; a few are notched. One of the adze blades is of jade or jadeite. Fragments of steatite pots were found at several of the sites, and a fragment of a lamp at another.

Diamond Jenness,
National Museum of Canada

Alabama. The field workers of the Alabama Anthropological Society have conducted work in fifteen counties during the year. In March a large group of burial urns was excavated in Lowndes county. The central one of the group is the largest earthenware vessel ever found in the state, being about two feet in diameter at the rim, and a little more than that in depth. Parts of eight skeletons were associated with these urns. Burials in urns have been discovered during the year on the Tallapoosa River at Ullibahali, visited by De Soto about September 1st, 1540. Objects of European manufacture are being discovered associated with articles of native manufacture. The unprecedented flood conditions of March, 1929, in the Gulf states exposed, through erosion, many archaeological sites not previously known and laid bare older deposits at some of the known sites.

Peter A. Brannon,
Alabama Anthropological Society

Alaska. Grants by the Smithsonian Institution and the Bureau of American Ethnology, supplemented by a grant from the Joseph Henry Fund of the National Academy of Sciences and a contribution from Phillips Academy, Andover, enabled Dr. Ales Hrdlicka, of the U. S. National Museum, to accomplish a full season's work along the Yukon River from practically its inception to its two northern mouths, extending the work done in 1926. Along the upper third of the river, from White Horse to Fort Yukon, observations only were taken; but from Fort Yukon down, intensive research was carried out both on the living Indians and Eskimo, and on old sites and burials. Interesting and important data on the physical anthropology of the region were secured. The archaeological results are summarized below. Ancient sites and remains along the river have not yet been discovered, and there appears to be no chance of this except through accident. What may have existed some thousands, or even hundreds, of years ago has either been completely destroyed by erosion, or lies deeply buried in the old flats or foot-hills far away from present stream channels. Everything so far recovered is relatively recent, never going back more than a century or two before the period of Russian discovery. The oldest known specimens date from the upper Neolithic only. The Indians of the Yukon were apparently true Indians, with occasionally strongly-marked late Asiatic affinities. There is no clear line of separation, either culturally or physically, between the Eskimo of the lower and the Indians of the middle Yukon. The lower river culture was richer and was marked by a relative profusion of stone implements, the presence of the stone adze, absence of the bilateral stone axe, and more or less numerous artifacts of ivory, bone, and antlers. The culture of the middle Yukon was less rich in forms and characterized by the bilateral stone axe and tomahawk. Yet painted burial boxes, probably an Indian trait, occurred as far down as the vicinity of Holy Cross. Pottery was of the same poor quality along the whole river. The site at Bonasila has yielded many specimens similar to those farther down the river, hence of an Eskimoid rather than Indian culture. A new site on the Kaiuh Slough, the "dogfish village" site, that at Tuckers, and the old parts of Holokochakat on the Shageluk Slough, are also assuming much interest and would repay careful exploration.

Henry B. Collins, Jr. engaged in a third season's field work in Alaska. The region explored was between Cape Denbeigh in Norton Sound and Point Hope on the Arctic Coast. Measurements were taken of over seventy Eskimo, and large collections of skeletal material were made. The principal work, however, was the excavation of several old sites, in particular two at Cape Kialegak, St. Lawrence Island. Several thousand specimens, all identified as to depth and location, were taken from the middens, one of which was eighteen feet deep. In the light of discoveries of the past four years the following interpretation may be made of the main trends in Eskimo prehistory. The ancient and highly developed Bering Sea culture, discovered by Hrdlicka and Jenness in 1926, represents the oldest known stage of Eskimo culture. It is ancestral to the most ancient known culture in the eastern regions, the Thule, although it may have been influenced in late prehistoric times by a return migration or spread of Thule traits. The elaborate art of the old Bering Sea culture entered upon a period of transition and decline, the designs approaching rather closely those of the modern Alaskan Eskimo. This was probably due to the introduction of small quantities of metal, possibly from some Oriental source prior to the arrival of the Russians in northeastern Siberia in the seventeenth century. Indications are that the old Bering Sea culture, which appears not to have developed in Alaska, had its origin in northeastern Siberia, somewhere between the Anadyr and Kolyma Rivers.

Walter Hough,
U. S. National Museum

This summer Mr. Alfred H. Hopson, of Barrow, Alaska, working for the Museum of the University of Pennsylvania, continued the excavations in the mounds of ancient Thule culture sites near Point Barrow which had been begun in 1919 by Mr. W. B. Van Valin. It was determined to a reasonable certainty that the structures beneath these mounds are charnel and not dwelling houses. Eight skeletons were found, but only two of them in the same grave-house. It is of interest that one of the grave-houses was lined with whale jawbones instead of the usual driftwood, since the typical house of the Eastern Thule culture was made of whale's bones. These grave-houses were rectangular, averaging three feet in width and five to seven feet in length. The associated objects, which were few but typical of this culture, had all apparently been broken at the time of interment. Three larger structures, probably dwelling houses since they contained no burials, were also excavated. These were likewise rectangular, twelve feet in average length, seven in width, and five in height. They were generally built on knolls, so that the tunnel ten to twelve feet long, leading from one side of the room opened at the side of the mound. The walls were made of whale jawbones and driftwood logs, the roofs of driftwood logs covered with sod.

J. A. Mason,
The Museum of the University of Pennsylvania

Arizona. Dr. F. H. H. Roberts, Jr. devoted the past season to excavations on the Long H Ranch in eastern Arizona, forty-five miles from the Pueblo of Zuñi. The site yielded evidences of occupation by peoples of both Basket Maker III and Pueblo I periods, and also showed the transition from one period to the other. Valuable information was secured on a little-known phase of the prehistoric sedentary cultures of the Southwest. Dr. Roberts also investigated a forty-five room ruin of the Pueblo III period, which showed many typical San Juan features, including circular kivas with the characteristic recess above the ventilator. The work in the pueblo ruin furnished stratigraphic evidence of the greater antiquity of the earlier house forms, through the discovery of a complete pit-house entirely underlying one end of the ruin. Representative specimens of pottery, bone and stone implements, and several kinds of ornaments were obtained from each group of remains investigated, and supplement the data on the several culture phases.

M. W. Stirling,
Bureau of American Ethnology

Neil M. Judd, curator of archaeology, directed explorations for the National Geographic Society in New Mexico and Arizona. He also made a reconnaissance of ancient irrigation canals in southern Arizona, especially those about to be obliterated by reclamation projects now almost completed.

Walter Hough,
U. S. National Museum

Excavations were started in October this year five miles east of Phoenix, at the "Pueblo Grande" ruins owned by the city of Phoenix, which consist of a large mound about 150 by 300 feet, standing some 20 feet above the present surrounding fields, in which are located ruins of the smaller houses which made up the community proper. Eight acres of this large site, which once covered about 100 acres, are still more or less undisturbed and will afford ample opportunity for exploratory work. Work has been started on the large mound, and the test trenches have already revealed plastered adobe floors 12 feet below the present talus, with the possibility of still lower floors. The walls are of stone laid in adobe, and those so far exposed average 5 feet in thickness. The city government has set aside an annual appropriation for the proper preservation and exploration of the ruins upon which the city is built, and appointed a committee of three citizens to take full charge of developmental projects. The Committee, known as "The Archaeological Commission of the City of Phoenix," consists of Col. James H. McClintock, Postmaster and former State Historian, chairman; Mr. Louis H. Chalmers, president of the Phoenix National Bank, treasurer; and Mr. William G. Hartranft, chairman of the City Planning Commission, secretary. Mr. Halseth is archaeologist in charge of the projects.

Odd S. Halseth,
Archaeological Commission of the City of Phoenix

Investigations were conducted from time to time at two pit-house pueblos near San Carlos, on the Gila River, and at a pit-house village near Tucson, in the Santa Cruz valley. Mr. Hands spent several weeks during the spring trenching and tracing the walls of the larger ruin near San Carlos. In the summer the excavation of Turkey Hill ruin, 9 miles east of Flagstaff, was completed. In this work Dr. Cummings was assisted by E. John Hands and a staff of students from Harvard, Yale, and the University of Arizona. Mr. Emil W. Haury accompanied Mr. Judd and Dr. Douglass during the summer, collecting data on tree-ring cycles to determine the ages of the prehistoric pueblos, upon which he is still working. Miss Florence Hawley spent part of the summer at the University of New Mexico and School of American Research camp in Chaco Canyon, working on the pottery of that area.

Byron Cummings,
University of Arizona

The survey by the staff of the Medallion has been extended west to the Colorado River, north to Flagstaff, into the Roosevelt district, and southeast towards Lordsburg, with Gila Pueblo as the base of operations. In June sherd collections were made in Tsegie Canyon and stratigraphic work was done in one of the caves there. During the year about 1500 pieces of pottery from known sites have been added to the collections. These are backed up by mounted sherd collections from about 2500 ruins.

Harold S. Gladwin,
The Medallion

From June through August Mr. Hargrave was loaned to the National Geographic Society's Third Beam Expedition. After a reconnaissance of the western pueblo area with Drs. Judd, Douglass and Colton, Mr. Hargrave undertook preliminary digging at Showlow and Pinedale. Later he uncovered two interesting kivas at Wide Ruins and superintended the excavation of three other kivas at Kokopnyama. In October he worked at Medicine Cave. Dr. Colton has added several hundred sites to those previously located in the archaeological survey.

Harold S. Colton,
Museum of Northern Arizona

In cooperation with the Carnegie Institution of Washington and under the direction of Mr. Earl H. Morris the American Museum of Natural History continued excavations in Canyon del Muerto. The work centered mainly at Antelope Cave, where a fine series of Basket Maker specimens were uncovered, including a unique and perfectly preserved burial. Mr. Edward M. Weyer, Jr., special field assistant in the Department of Anthropology, made a detailed geographical study of the canyon. In addition Mrs. Ann Axtell Morris began the study of the pictographs on the walls of Canyon del Muerto, making careful copies of them in color.

Clark Wissler,
American Museum of Natural History

During the spring the Los Angeles Museum examined one of the five to seven small compound sites known to exist on the ranch of Mr. A. J. Christensen, two miles east of Casa Grande National Monument in Arizona. Since farming activities had obliterated the mounds and superstructures, exploration was done by a close examination of the surface and by the use of test pits. The compound site selected was surrounded by an outer guard wall of packed caliche, constructed in the same manner as the walls of Casa Grande proper, roughly 110 feet long north and south, and 63 feet east and west. Both flooring and cross walls of the later period had been practically all destroyed. Testing revealed flooring both inside and outside the compound walls. At the end of the work, four rooms had been totally cleared, and two more partly examined, none of which apparently pertained to the caliche wall constructions showing on the surface. They were of three distinct types. The earliest were the "pit houses"—long, bath-tub shaped, semi-subterranean rooms with a single, simple fire pit, and no signs of supporting roof posts. The walls and floors were well plastered with caliche. Two pit houses were superimposed. The later pit-dwellers had placed a floor some eleven inches above that of the older house on top of the burned debris and wind-swept fill. This second house had likewise been burned. In it were found two infant burials with unpainted bowls with smoke-blackened interiors and small, unpainted pottery ladles. Nearby was another room having a floor level considerably higher and walls of wattle and daub construction. It had apparently been built on the site of two pit houses, traces of which remained in small portions of the walls and flooring which had been incorporated in the wattle and daub room. This room extended under the northern wall of the compound. Two infant burials were encountered here, one of them with three unpainted bowls. The third type of construction was encountered in a room barely hidden under the surface and abutting on the north wall of the compound a few feet east of the wattled room. The walls appeared to have been laid in irregularly-shaped mud bricks, sun-dried without any binder. The room had been excavated from the debris left by previous occupants of the area. No signs of supporting roof or wall posts were visible. It contained a unique fire pit construction, a cache of nine perfect, apparently unused, polished axes, one of the double-grooved type, not far from some chert spalls, a single perfect arrowhead, and hammerstones. A crematory area was also located, but it is doubtful whether the forty-odd burial urns encountered pertained to the compound examined. In both the compound, from the pit rooms to the surface, and the crematory area, the pottery was either plain unpainted ware, onion skin finish, smoke-blackened interiors, or characteristic red-on-buff. No late intrusive wares were encountered.

Arthur Woodward,
Los Angeles Museum

J. A. Mason, of the Museum of the University of Pennsylvania, spent two weeks in the neighborhood of Navaho Mountain on the Utah border. En route an interesting site nine miles north of Duncan was examined and a surface collection made. On an isolated mesa to the east of Navaho Mountain, a large number of walls of

possibly unrecorded stone structures were found. Some of the rooms on the edge of the mesa are small, with high walls, doors, and windows, but most of the ruins consist of one long wall with low transverse walls, and generally no wall on the fourth side. Black-on-white and corrugated sherds predominated, associated with the usual other artifacts. Three kivas were noted, one of which was completely, and another partially, excavated. At the southern foot of Navaho Mountain, notes, photographs, and surface collections were made at Red House, which had been rather thoroughly excavated, according to report, by Dr. Cummings; and at Balanced Rock House, which had been partly excavated. Six cliff houses were visited, two on the south side of Navaho Mountain, two in Tsebanahatci Canyon, one in another small side canyon from Navaho Canyon, and one in a side canyon from Forbidden Canyon. All had been visited before, almost all bearing the names of the Wetherills and their companions. The two in Tsebanahatci Canyon had also been studied by the 1927 expedition of the Peabody Museum. Collections of potsherds were made in all sites, and from several were secured sections of beams for tree-ring chronological studies. In some of the houses small collections of perishable objects were secured. Time did not permit much excavation, but in several of the houses a kiva was cleaned.

J. A. Mason,
The Museum of the University of Pennsylvania

Arkansas. The archaeological field work of the University of Arkansas Museum has consisted, in large degree, of the examination of cemeteries along the upper region of the Ouachita River and its tributaries. The skeletal material has completely disintegrated, except in two or three instances when the crowns of molar teeth have been found. The graves are placed in rows, each containing at least two pottery vessels. The burial furniture consists almost entirely of ceremonial pottery, for only one example of a definite cooking-vessel has been found, and all other artifacts are represented by occasional ear plugs and flint knives. The pottery is of a high type, slipped in black or red, and frequently bearing incised designs. Many vessels are in the form of effigies. An unusual type of oval water bottle with lugs is common. In general the culture appears to resemble that found by Clarence B. Moore in the deep graves on the Red River.

S. C. Dellinger,
University of Arkansas

California. In June, through the generosity of Dr. Charles Van Bergen, a retired physician of New York City, the Los Angeles Museum was able to begin a series of investigations on Chumash village sites at different points north and northwest of Los Angeles. The largest village studied was Muwu, located on a coastal lagoon some 50 miles northwest of Los Angeles. It yielded literally thousands of specimens of stone, bone, shell and wood. Several house floors were laid bare; one, a fine example of what is believed to be a temescal or sweat-house floor, with well-developed side walls, thick flooring, fire pit, upright stone slab and rotting

remains of supporting central post, was particularly worthwhile. The bone implements alone will total nearly 2,000 all in first-class condition. Even the fragments of a netted bag of sea grass were uncovered.

Arthur Woodward,
Los Angeles Museum

During April the San Diego Museum continued the reconnaissance work in the Mohave Desert region begun in 1928. The survey, under Mr. Malcolm J. Rogers, explored the region between the Mohave Sink and the Colorado River. The work consisted of recording sites and petroglyphs, and collecting sherds. This region is remarkable for its thousands of petroglyphs. The area over which the Puebloan sherds occur has been enlarged to include most of San Bernardino county. No stratigraphical evidence for the cultural sequence of this region has yet been found, although it is thought that two, and possibly three, ceramic cultures are represented. In June, July, and August Mr. Rogers conducted excavations in the numerous shell middens of the coastal region of San Diego county. A strip of the local coast 4 miles wide and 30 miles long was thoroughly surveyed for any possible indication of prehistoric man. Evidence for four distinct cultures in this area was obtained, but stratigraphical proof for only three of them. The first three appear to be successive developmental stages of indigenous chipped stone techniques which pass from the eolithic to the paleolithic types. Several different stone implements new to California, and perhaps to the United States, were found in this region. The metate was known and used here in the earliest culture, its only stone associates being those of eolithic type. It was also discovered that the Pacific coast in this region had subsided since the advent of man. The fourth and last culture, that of the Mission Indians, came into this region from arid eastern California at a relatively recent date. A brief reconnaissance is being made of the Lower California coast in order to determine the southern extension of the local cultures. It is also desirable to learn whether any early cultural influence came from the south, since the late influences were all from the north and east.

Malcolm J. Rogers,
The San Diego Museum

Colorado. The archaeological field season for 1929 of the State Historical Society of Colorado, jointly with the Smithsonian Institution, was divided equally between two projects. It was felt, in view of the discoveries of 1928, that further excavations should be carried out in unit-type sites in Montezuma county, Colorado; also that some work might profitably be done in the other type of ruin found in the Cortez region, namely, rim-rock houses. Accordingly, operations were carried on first in the last-named sites. They showed that these houses had probably been three stories high. Two kivas were cleaned out, one of which conformed roughly to the Mesa Verde type, while the other presented many variations. Extensive explorations in, outside of, and around these ruins failed to bring to light any burial grounds. The latter part of the season was devoted to digging in what appeared to be ortho-

dox unit-type sites, but which afterwards proved to be merely remnants of the last houses that had been built in and on that particular spot. Underneath these later houses were evidences of two earlier occupancies and perhaps one earlier culture horizon, distinctions easily made because of the stratigraphic nature of the site. Near this site a series of completely subterranean rooms was chanced on; they had probably served both as living quarters and ceremonial rooms, for which reason they were called house-kivas. In order to check up the discoveries of last year and obtain more information about towers, kivas, and their connecting underground passages, four round towers were carefully dug. In every one of them was found an underground passage which proceeded to an adjacent kiva. This fulfilled expectations and corroborated last year's digging. Ten refuse heaps were thoroughly excavated and many excellent specimens were found. While working in these dump-mounds, we discovered what may properly be termed stone-lined burial rooms. The work was done under the direction of the writer.

Paul S. Martin,
Formerly archaeologist of Colorado State Historical Society

A field party for the University of Colorado, under Earl H. Morris, who was loaned by the Carnegie Institution of Washington, worked during September and October in the region between the La Plata and Mancos Rivers in southwestern Colorado, confining itself to an area about one half mile square on the crest of the divide between Johnson and Grass Canyons, two eastern tributaries of the Mancos. Of the four ruins studied, that known as Site 33 was by far the largest and most interesting. The presence of semi-subterranean houses, frequently with a wainscoting of stone slabs at the base of the walls, and the existence of proto-kivas, one of spectacular size, together with the types of artifacts found, shows that the site was first occupied in Post-Basket Maker times, but witnessed its maximum occupation early in pre-Pueblo times. Upon the remains of parts of two of these earlier buildings were found the ruins of a handsomely constructed D-shaped masonry edifice, beneath the court of which is a six-pilastered kiva, clearly of Pueblo III times. These findings confirm the general conditions which held for the mesa country between the La Plata and Mancos Rivers. The region was densely occupied during the Post-Basket Maker and pre-Pueblo periods, but during Pueblo II and III, settlements in it were relatively small and few in numbers.

Earl H. Morris,
University of Colorado

In April, 1929, Mr. Harold J. Cook, Curator of Palaeontology at the Colorado Museum of Natural History, assisted by Mr. H. J. Vaughan of the Museum staff, visited an interesting locality in Yuma county, eastern Colorado, where Folsom type artifacts and fossil bones had previously been found, apparently associated. Mr. Cook found a perfect lance point in position in the old matrix, in which fossil bones of *Bison* and *Elephas*, and fresh water mollusks were also found a few yards away. The bed in which these occur was evidently the final phase of an old flood-

plain deposit, apparently representing the last of the Pleistocene deposits in this area. Dr. Junius Henderson, of Colorado University, has identified the shells as of Pleistocene age. The bones, shells and artifacts are associated and contemporaneous not only in the site mentioned but in at least ten other places within a few miles radius. A few months later the Colorado Museum of Natural History sent out an expedition under Dr. E. B. Renaud, as field director, a report of which appears over his name in this summary.

Harold J. Cook,
Colorado Museum of Natural History

Mr. Richard M. Snodgrasse, a special field assistant in the American Museum of Natural History, spent the summer in an archaeological reconnaissance in the region around Yuma, looking for possible extensions of the Folsom culture.

Clark Wissler,
American Museum of Natural History

The staff of the Medallion spent a large part of the summer on a survey of small house sites at Mesa Verde, with extensions west as far as the Yellow Jacket, east to the Animas River, and south to the San Juan.

Harold S. Gladwin,
The Medallion

Florida. Mr. M. W. Stirling, Chief of the Bureau, spent several months in Florida, where a survey was made of the mounds in the vicinity of Tampa Bay. Preliminary excavations were made at Cockroach Point, Palma Sola, and Safety Harbor. This survey is to be the basis for intensive excavation during the coming season.

M. W. Stirling,
Bureau of American Ethnology

In the fall of 1928 the Florida Archaeological Society began excavation of a sand mound near Tampa. The work was continued through six months of 1929. Burials were found in the mound at three levels. The oldest, at a depth of 6 to 7 feet below the surface, had associated with them a simple type of pottery and stone implements. The skeletal material was in very bad condition. The second group of burials was about 3 feet above the first. The evidence found indicates that the bodies were buried in a circular formation. The pottery associated with this group was of a technically more perfect type than the earlier material. In both groups the skeletons were found in a semi-flexed or completely flexed posture. One of the skulls obtained has been declared by officials of the British Museum to have the thickest known occipital bone. The third group of burials was directly over the second and consisted of secondary and bundle burials associated with artifacts indicating European contact.

Joseph J. Hall,
Florida Archaeological Society

Georgia. Mr. and Mrs. Cosgrove went on an expedition during January and February to Stalling's Island in the Savannah River, 9 miles above Augusta, Georgia. The site proved to be unique, being associated in pottery with only six other villages in the immediate vicinity. This pottery is distinctive and readily recognized when placed with sherds from other mounds in the surrounding country.

Edward Reynolds,
Peabody Museum, Cambridge

Idaho. Mr. Louis Schellbach spent the greater part of the summer on an archaeological reconnaissance in southern Idaho, in the hope of extending the known non-agricultural and Basket Maker area of Nevada and Utah northward; but in this respect the results were negative. With headquarters in Boisé Mr. Schellbach worked southward into Owyhee county and the Snake River Canyon, and southwestward to Succor Creek and across the Oregon line. Six camp sites, extending in an almost unbroken line along Snake River in Canyon, Ada, and Owyhee counties, were located and examined. Eight caves were also visited and tested, all but two of which had been so vandalized that it was not possible to determine what stratification, if any, existed. Although one of the caves, which overlooks Snake River in Owyhee county, had been somewhat tampered with by relic-hunters, it was thoroughly explored by Mr. Schellbach during the ensuing five weeks. Seven occupational layers were observed, but all evidently pertained to the same culture phase. The objects recovered indicate that the cave had been successively occupied by fishing parties rather than as a permanent domicile. The artifacts include a type of pottery hitherto unrecorded in this region, which differs in form from the pointed-base vessels of the Paiute to the south.

G. G. Heye,
Museum of the American Indian,
Heye Foundation

Illinois. During the past season Mr. Percy Hodges, a graduate student at Harvard, was in charge of the archaeological field work for the University of Illinois and explored a village site of the Illinois Indians, now partially occupied by the town of Utica. He secured a number of burials and representative pottery. The remains of a snake originally some five feet in length were found at the head and forehead in a burial containing two skeletons. Although badly decayed, portions of the vertebrae and skin were preserved for analysis. Another burial was also accompanied by a snake, but it was almost impossible to recover fragments for identification in this second instance.

Warren K. Moorehead,
University of Illinois

The 1929 field season of the Archaeological Survey of Illinois, under the joint auspices of the University of Chicago and the Smithsonian Institution, was spent in and around Quincy, excavating a large mound and making a survey of the county. Through the courtesy of the Park and Boulevard Association of that city, a large

conical burial mound in Parker Heights Park, 80 feet in diameter and 18 to 20 feet high, was excavated. This mound is the largest of a group of twelve, and has been recorded as the Parker Heights Mound. At the conclusion of the season the mound was completely restored. In it were found the skeletal remains of 54 adults and 16 infants and children. All were lying in flexed positions around the margins of the mound on the ground level. The center of the mound was occupied by a fire-place 20 feet in diameter, built upon a platform of limestones, logs, and earth. It was probably of a ceremonial nature. The flint implements, pipes, pottery, ornaments, and woven fiber materials found with several of the bodies seem to indicate an early culture. Thorne Deuell and George Neumann made the preliminary archaeological survey of Adams county. The work consisted of collecting both verbal and documented Indian history, and mapping, recording, and classifying all known Indian sites and archaeological collections. The results were records of 75 sites and 15 collections. The last three weeks were spent in excavating a mound near Ursa, which was being destroyed through cultivation of the land. It yielded little in the way of artifacts, and the 22 burials, many of which were covered by limestone slabs, were in an advanced state of decomposition.

In August Mr. W. C. Bennett had charge of excavations in a camp site discovered during building operations near Blue Island, Cook county. Evidence of fire beds and the floor of the excavation, several extended burials in bad condition, and numerous sherds had been found before Mr. Bennett's visit. Further excavation by him revealed three burials, a rare musical rasp of bone, many sherds, a large number of animal bones, and artifacts of stone, bone, and shell.

Excavations were made by Mr. George Langford, Research Associate in Anthropology at the University of Chicago, in Adler Mound No. 5, near Joliet. An exploratory trench through the apparent center of the mound revealed six intrusive burials, associated with broken pots, a beaver tooth, and a clam shell spoon. It was found that the central burial chamber had been excavated to hard pan, about 6 feet below the ground level. In it had been placed six adults and a very young child. All except one, a bundled burial, were extended with heads to the east. Two caches of bone awls, a platform pipe of soapstone, and a few other artifacts were associated with these burials. The fill of the chamber was almost solely black loam, in contrast to the mixture of loam, sand, clay, and gravel which formed the rest of the low mound.

W. M. Krogman,
University of Chicago

Indiana. During 1929 the archaeological survey of the Whitewater river valley, begun in 1928, was completed. The early part of the season was devoted to an examination of two more of the unusual stone mounds found last year in Franklin county. One of these, a circular mound, was built upon undisturbed lower Silurian strata. The trenches disclosed a child's bundle burial in a grave scooped out of the solid stratum, and later a bone deposit containing ten skulls tightly packed together with the rest of the bones in a crevice of the rock about a foot beneath

the surface. With this deposit were found a number of artifacts of stone, bone, and pottery. A second, rectangular, stone mound disclosed upon excavation no distinct burial, but only evidence of broken bones in the roots of the sod line which had formed above the flat layers of stone. No artifacts were found here. The results served merely to complicate cultural position of these stone mounds. The survey of the valley was carried northward from last year's work through Union and Wayne counties and into Randolph county, where the headwaters of the Whitewater River are located. It was necessary to conduct a house-to-house canvass in these counties. The results consisted in the location of a large number of mounds, some village sites, and several collections. In Wayne county the first records of ceremonial earthworks in this state were obtained. In Randolph county, the highest point in the state, where the headwaters of four large rivers are situated, the Survey found evidence of a new culture in the form of mounds noticeably larger than those to the south. The survey of this county was abandoned temporarily and the remainder of the season devoted to the complete excavation of one of these large mounds, which was surrounded by a rectangular embankment. Just south of the center a votive offering of two spear points, a sandstone tablet, a slate gorget, and animal bones was found below a stratum of red ochre spread over a thin layer of bark, which covered a large rectangular pit dug three feet below the original sod line in the center of the mound. The pit was the grave of a single individual, with whose skeleton was found a ceremonial skull. Large post holes indicated that there had been a wooden structure over the body. West of this pit another votive offering was found on the level of the original sod line, consisting of two leather pouches containing eight copper bracelets around which were preserved three layers of woven fabric. Beneath one of the pouches was a boat-shaped gorget. On the north side of the pit were found parallel rows of stake holes forming two rectangles which probably extended entirely around the pit, possibly indicating a superstructure over the entire burial chamber. The finding of the copper and the woven fabric is the first evidence so far discovered of this high culture which may be similar to the culture known in Ohio as Adena, or possibly early Hopewell.

Frank Setzler,
Indiana Historical Society

The members of our survey party visited two small mounds in Sullivan county, but did not find any remains of importance. A few arrow points were collected. Mr. Simpson and Mr. Patty visited a small stone mound near St. Paul, and part of the material obtained was promised to the State Museum.

W. N. Logan,
State Geologist

Iowa. Calls for visits to the field were numerous, and greatly reduced the amount of time tentatively assigned to manuscript preparation. Several collectors desired to turn over their materials to the state, and several others made discoveries that called for early and personal examination. Probably the most important develop-

ment was the discovery of a series of village sites on the tops of the Mississippi bluffs in southeastern Iowa directly overlooking the Mississippi flood plain. These produced for the most part Algonkian criteria, but one site at least was of a different culture. In general there seems to be increasing confidence in the survey, now in its eighth year, the number of contributions both of materials and of information having been greater than in any previous year. The desirability of return trips to regions previously visited is firmly established.

Charles R. Keyes,
State Historical Society of Iowa

In response to reports that a great number of effigies and effigy-artifacts had been found in the vicinity of Ottumwa, Dr. Ronald L. Olson, of the American Museum of Natural History, visited the region and discovered the reports to be without foundation. The deposit at Boneyard Hollow, near Lehigh, was visited and, although some 12 feet below the surface, it seems to be fairly recent. The artifacts recovered, as well as the geological structure, argue against any great antiquity.

Clark Wissler,
American Museum of Natural History

Kentucky. During the first part of the field season of 1929 the Department of Anthropology and Archaeology of the University of Kentucky conducted explorations in Lee county. In the valley of Big Sinking Creek and its tributaries in the north central portion of the county some rock shelters were excavated, while others were carefully examined. A number of these were filled with rubbish to depths varying from 4 to 8 feet. Several yielded a great variety of artifacts, including textiles, matting, bags, and moccasins. The preservation of the materials was remarkable. Beds made of leaves and grass were found in an almost perfect state, the leaves still retaining their red and gold colors. The latter half of the season was devoted to an ancient village site on the banks of Mud River in Logan county. This area contained 67 mounds, varying in size from 20 to 150 feet in diameter, and 4 to 12 feet in height. One large mound and several smaller ones were completely excavated. Presumably these mounds, which were used for burials, can hardly be ascribed to a single culture, since four apparently different burial customs were used on this site at different times. Several mounds showed a definite order of stratification of these customs, one of which consisted in cremating the bones of many individuals in an earthern pit walled with limestone. The temperatures had sometimes been so high that the rock was reduced to lime. Another custom was the placing of mingled bone burials in large ossuaries, also walled with stone. Artifacts were few, the most numerous being pipes of the type usually associated with the stone grave peoples of the Cumberland River Valley.

William S. Webb,
University of Kentucky

Maine. During the summer the Department of Archaeology at Phillips Academy, Andover, in cooperation with Henry Parsons, Esq., inaugurated exploration of several sites on the Georges River above Thomaston, Maine. These appear to be very old, and each one contains evidence of both habitations and burials, or at least deposits of objects. Two implements unlike anything previously known were secured. The ochre in the deposits or graves is very faint. Mr. Gerald Towle had charge of the field operations; Miss Margaret Ashley made the maps.

W. K. Moorehead,
Phillips Academy, Andover

Michigan. The Smithsonian Institution cooperated with the Museum of Anthropology of the University in conducting an archaeological reconnaissance of Oceania, Mecosta, and Newaygo counties in the western part of the state. Mr. W. V. Kinietz, who did the field work, made several worthwhile local contacts and recorded a number of new sites. In connection with the preparation of the state archaeological atlas, Dr. Hinsdale recorded two sites in St. Joseph county which are unique in Michigan. One was a circular enclosure with two concentric embankments. The four gateways of the inner one bisect the angles between the four gateways of the outer one. The other site is a hill top "fort."

At the request of the State Legislature, the University Museums made an investigation of Isle Royal in Lake Superior. Mr. Fred Dustin, of Saginaw, did the archaeological reconnaissance for the Museum of Anthropology. A number of Indian copper mines were visited, and several village sites located on the eastern half of the island. Surface collections were made, but no excavations were undertaken.

Carl E. Guthe,
University of Michigan

Mississippi. During June, July, and August the Mississippi Department of Archives and History continued its investigations of mounds and village sites in the region between the Pearl River on the east and the Yazoo River on the northwest. The pottery found contains elements linking it with both the Choctaw and Yazoo cultures. Burials from the excavated mounds are three types—bundle, flexed, and extended. Yazoo, the east half of Madison, Leake, Copiah, Claiborne, and Warren counties were given a preliminary survey, while Hinds and the western part of Madison counties have been more completely explored. At the beginning of the season, Moreau B. Chambers and James A. Ford completed the excavation of a mound typical of this region in Madison county, near the Big Black River. Another mound, near Bentonia, Yazoo county, contained more than forty burials, one of which, that of a child, was clothed from the waist up in a cloak of univalve shells fastened by a band of smaller shells from the left shoulder to the right side. A votive offering containing stone implements, a worked rock crystal ornament, and a bullet-shaped object of iron ore was also encountered in this mound. In a similar mound across the Big Black River, two extended burials were found beside a deep oval firepit at the center of a hard-packed floor. In Warren county not far from

Glass, a cemetery was excavated, from which more than 35 vessels were recovered, representing a culture slightly different from that in the valley of the Big Black. More than 25 mounds were excavated and representative collections of pottery and other artifacts as well as notes and other records, were secured for the State Museum.

Dunbar Rowland,
Mississippi Department of
Archives and History

Nebraska. Early in the season of 1928 Mr. E. E. Blackman visited sites near Franklin. Sites in the Republican River valley are buried ten inches to two feet under a soil apparently different from the original surface, owing possibly to wind storms. The pottery and artifacts closely resemble Pawnee material. The Nebraska State Historical Society confined its field work during 1929 to the Missouri River valley, from near Rulo to the mouth of the Platte River. A cave containing pictographs was located on a bluff overlooking the Missouri River, east of Shubert.

E. E. Blackman,
Nebraska State Historical Society

Plans for an archaeological survey of the state were launched this year by the University of Nebraska in cooperation with the Smithsonian Institution. The work will be under the direction of Dr. William Duncan Strong, Professor of Anthropology at the University, and is to be carried out in considerable part by graduate students. The Nebraska State Historical Society and the State Museum are also assisting in the undertaking, and specimens secured in excavation work will be housed in the latter institution. A preliminary survey made in November, 1929 by Dr. Strong, as well as information from local people and the surveys of the Nebraska State Historical Society, indicate many and varied sites in the state. Intensive excavation will be begun during the summer of 1930.

W. D. Strong,
University of Nebraska

Nevada. The three months' field work of the Southwest Museum, beginning in January, 1929, was confined to the Moapa Valley in southern Nevada and the surrounding region. Our major project was reconnaissance, but we also completely explored one ruin and one cave. The survey of the lower part of the Moapa Valley, an area about 16 miles in length and not over 2 miles in greatest width, furnished records of 77 distinct aboriginal sites, ranging in period from Post-Basket Maker through Early Pueblo to the dawn of the great period of Pueblo civilization. There were also many sites of a later character for which the Southern Paiute now living in the valley were doubtless responsible. In addition there were traces of a people making pottery of Colorado River type, but we were unable to determine their place in our time scale. A small cave, known as the "Paiute Cave," near Overton, Nevada, was explored. It contained numerous traces of the Paiute, who were the last to occupy it; but there were also many indications of their predecessors,

the Early Pueblo peoples of the Moapa, who seem to have been the first there. Our largest single excavation project was a ruin known as "Mesa House," situated on a table-land near the Tokio siding not far from Overton. This represented the final Pueblo occupation of the valley, which seems to have occurred about the beginning of the Great Pueblo period, for although the sherds found were mainly corrugated, a very small proportion of Late Pueblo II and Early Pueblo III painted and plain wares were represented. Probably the settlement had been built on the mesa top for defense at the time when the Pueblo population of the valley was dwindling. Indeed, the arrangement of the storage rooms, constructed of adobe and stone, and arranged in a continuous row about a courtyard roughly oval in form, suggests a fortress in itself. There were three narrow gateways. Most of the living rooms were outside the circle and of pit-dwelling type. Outside of the Moapa Valley we visited an interesting ancient turquoise mine near Black Canyon, and a number of sites on the Colorado River, in the Upper Moapa Valley, and in the Mormon Mountains. The most important of the reconnaissance work done outside the valley was a preliminary examination of a very promising cavern known as "Gypsum Cave", which we expect to explore before long.

M. R. Harrington,
The Southwest Museum

New Jersey. In the fall of 1929 the New Jersey State Museum, completely reorganized and enlarged, opened its new quarters on the first floor of the State House Annex in Trenton, N. J. In connection with the classification of the material already in the museum collections, Vladimir J. Fewkes and Dorothy Cross, of the Department of Anthropology, University of Pennsylvania, made several field excursions to various parts of New Jersey to acquaint themselves with some of the more important archaeological sites and to carry on reconnaissance work. A preliminary investigation on the Abbott Farm was made, with promising results. Realizing the importance of New Jersey archaeology, the Museum has made plans for the organization of a systematic archaeological survey of the entire state as soon as circumstances permit.

Kathryn B. Greywacz,
New Jersey State Museum

New Mexico. Three major excavations were conducted by the School of American Research during the year 1929. The first was a continuation of research inaugurated several years ago in Chaco Canyon. This work is now planned to extend indefinitely and in cooperation with the University of New Mexico. The great community house known as Chettro Ketl affords many interesting problems. Work on the great sanctuary (identified by Dr. Fewkes of the Smithsonian Institution as a "sun temple") seemed nearly completed when operations in Chaco Canyon were suspended in 1922. The present excavations have disclosed important structural remains beneath the floors. The principal work this season was on the East Tower of the main community house. A group of graduate and advanced undergraduate

field school students spent the first six weeks of the summer season in the Chaco Canyon, studying the excavations and working with the Indian tribes of northwestern New Mexico. A new feature of the work in Chaco Canyon last summer was the aerial survey of ten miles of the canyon by O. A. Emblem, pilot, and Carlos Vierra, photographer.

The excavations by the School and the University of New Mexico begun in 1928 in Jemez Canyon were resumed in July by work upon the community house known to the Indians as Unshagi. Although one of the smallest towns of the ancient Jemez province, it illustrates the cultural features common to the Rio Grande drainage.

Excavations were begun in a new field during the past season—that of the Sacramento District in southern New Mexico, near the town of Alamogordo. This work is in cooperation with the University of Kansas, and was conducted by the late Mr. Wesley Bradfield, Curator of the Museum of New Mexico, and it is hoped will be continued for at least three years.

In the fall of 1928 the School of American Research and the University of New Mexico united to inaugurate an archaeological survey of New Mexico, on a plan that can be expanded to embrace the entire Pueblo Plateau if other states of the Southwest participate. Mr. Reginald Fisher, of the Department of Archaeology in the State University, is in charge of this important project. The preliminary work is well advanced and the general plan will be published early in the coming year.

Edgar L. Hewett,
School of American Research and
University of New Mexico

During the past year, Dr. H. P. Mera, of the Indian Arts Fund, continued his field survey in archaeology, making sherd collections and recording by notes and sketch maps 92 archaeological sites, both large and small, mainly within the Rio Grande drainage area of New Mexico. Of these, it is estimated that over 70 per cent are hitherto unrecorded. Many groups throw new light upon the wide distribution of small house sites of a very early period in Pueblo culture.

H. P. Mera,
Indian Arts Fund, Santa Fe

Owing to the lack of facilities for storage and research until the completion in 1930 of the proposed new buildings of this institution, no archaeological field work was undertaken by the Laboratory of Anthropology other than that incidental to the first annual field training course offered by the Laboratory. A group of six graduate students, under Dr. A. V. Kidder, carried on excavations at Pecos and Tecolote in the Pecos River drainage area, and at Prado Verde Ranch in the Chama River area. It is expected that a detailed report of these excavations will be published. At the close of the field season the group held a conference with two other field training groups of the Laboratory, in ethnology and linguistics, at the base camp at Pecos.

Kenneth M. Chapman,
Laboratory of Anthropology

Dr. Ronald L. Olson, of the American Museum of Natural History, spent several days in the summer examining a number of Pueblo type sites near Alamogordo and excavating two of them. The report of distinct cultures in the several strata is disproved by the data secured. A visit was also made to the bone cavern at Bishop's Cap.

Clark Wissler,
American Museum of Natural History

During the summer of 1929, the Colorado Museum of Natural History sent out a field expedition under Dr. E. B. Renaud, of the University of Denver, to search for physical and cultural remains of Folsom man. Except for a fragment of a typical Folsom point encountered in Cave 6, on the T. O. Ranch, New Mexico, nothing was discovered. The findings in Texas, Oklahoma, New Mexico, and Colorado suggest the vast hunting range of a relatively scarce population of hunting nomads whose belongings were few and probably perishable, thus rendering discoveries a matter of chance. From June to August attention was concentrated on the caves in northeastern New Mexico and western Oklahoma, with most satisfactory results. A fairly complete archaeological survey was made by Dr. Renaud and members of his staff of the territory extending north to the valleys of the Trinchera and Purgatoire Rivers and the Mesa de Maya in Colorado; south to the Canadian River near Logan and Tucumcari, New Mexico; west to the Raton-Las Vegas road; and east to the Texas line and the Panhandle of Oklahoma. Many caves and sites were visited, pictures and notes taken, some excavation done, and stone artifacts collected for comparative purposes. As a result of an earlier reconnaissance trip through the Dry Cimarron Valley, four fumaroles in that district east of Raton were explored for traces of previously undiscovered rock shelters, two of which were excavated in one fumarole. Fumaroles in Peacock Canyon were also visited, where surface collections were made and rock shelters containing stone implements were examined. Primitive stone implements, a few bone beads, and partial fossilization of the bones indicated a relatively great age for the Fumarole culture, which probably antedated the Basket Makers. Exploratory trenches in three dry sandstone cave a few miles east of Kenton, Oklahoma, first visited by Mr. N. J. Vaughans in 1928, rsevealed finds of a very primitive Basket Maker culture. Fragment of yucca strings, ropes, and baskets, square-toed sandals of two types, bags of grass and prairie dog skin containing shelled corn; a selenite pendant, some bone beads, a few wood and bone implements, many stone tools and metates, and red wall-paintings were encountered. This discovery extends the distribution of the Basket Maker culture many miles to the northeast. After a fruitless visit to an area 54 miles east of Raton; on Oak Creek, three lava caves on the T. O. Ranch, near Raton, were thoroughly excavated, in which additional evidence of Basket Maker culture was encountered. A nearly complete skeleton of a middle-aged woman, with a Proto-Negroid type of skull, was recovered from one of the caves. Associated with the skeleton was a necklace of 124 bone beads, probably the largest one ever

found in the Southwest. Pictographs were noted and photographed near the same cave.

E. B. Renaud, (University of Denver)
Colorado Museum of Natural History

In July 1929, the Logan Museum of Beloit College sent a six months' expedition under Paul H. Nesbitt into the Mimbres area. The excavations carried on at the Mattocks ruins in Grant county, New Mexico, indicate a pueblo of 50 or more rooms built in Pueblo II and probably abandoned in Pueblo III. The pottery was predominantly black-on-white and corrugated wares, but red-on-white, polychrome, polished black, and plain wares are not uncommon. Black-on-red ware was found only in the fill of the rooms. Three pit-houses were found which proved to be rectangular and about eight feet deep, containing black-on-white and corrugated pottery—the latter of a sort quite different from the later Mimbres ware. The dwellings are composed of closely-set rectangular single-storied rooms grouped about courts built of masonry which is, in general, poor. Two burial customs have been found; inhumation with the body closely flexed and a "killed" bowl over the head, and cremation. About 10 per cent of the 180 burials excavated to date are cremations, a greater percentage than that found at any other site in the valley. The majority of the latter occurred in the pit-houses, possibly indicating that this method of disposal of the dead was more common in early times than during the waning of the Mimbres culture.

George L. Collie,
Logan Museum, Beloit

Under the joint auspices of Cambridge University Museum in England, and the Museum of the American Indian, Heye Foundation, Mr. Edwin F. Coffin conducted archaeological investigations in January and February on the New Mexico-Texas border, northeast of El Paso. After visiting several disturbed caves in the Hueco Mountains, he examined a Pueblo site of large area in the vicinity of Newman. The surface is strewn with potsherds, stone points and chips, burnt stones, beads and ornaments. The sherds indicate the presence of black-on-white, black-on-red, red-on-white, and red and black on yellow wares, as well as corrugated and incised wares. No evidence of glazed decoration was obtained.

G. G. Heye,
Museum of the American Indian,
Heye Foundation

An expedition from the Museum of the University of Pennsylvania spent about a month in northeastern New Mexico, searching for traces of connections between the culture of the Pueblos and that of the people of the Canadian River of the Texas Panhandle. Little or no light was shed upon these relationships. Ruins were visited, and sherd collections made at Tecolote and Loma Parda. At Watrous, incised and painted petroglyphs were examined, and a pre-Pueblo site having adobe walls was

partially excavated. The sherds encountered were mainly corrugated, with some black-on-white and a few black-on-red. Visits to the towns of Mora and Sabinoso yielded no return. At Tucumcari a vain attempt was made to locate architectural remains said to exist in the vicinity. A large camp site was visited, on which were found metates and manos, flint artifacts, and sherds. Circular and oval mortar holes in bedrock occur at another site nearby.

J. A. Mason,
The Museum of the University of
Pennsylvania

From 1921 to 1927, under the leadership of the undersigned, the National Geographic Society explored Pueblo Bonito, largest of the 17 major prehistoric ruins within Chaco Canyon National Monument. One of our early and quite natural desires was to determine, absolutely, the age of Pueblo Bonito. Unexpected inspiration came from a conference on cyclic phenomena, held in December, 1922, at the Carnegie Institution of Washington, at which Dr. A. E. Douglass, Director of Steward Observatory, University of Arizona, presented certain conclusions from his study of tree rings. What most impressed me at the moment was his statement that cross identification of annual growth rings in timbers from Pueblo Bonito and Aztec ruins showed the latter to be twenty years younger than the former. That was my stimulus. If the relative ages of these two prehistoric ruins could be determined from a few ceiling beams, then their actual ages should be ascertainable, provided an unbroken, year-to-year ring sequence could be established extending from living trees back to, and connecting with, the annual growth rings in ceiling timbers from either ruin. It meant wood samples from a succession of Pueblo villages, each slightly older than the other, until Pueblo Bonito itself was reached. Assured of Dr. Douglass' cooperation, the Research Committee of the National Geographic Society in 1923 sent into the field a beam-collecting expedition. There followed prolonged laboratory investigations and the tedious examination of several hundred specimens. At first, each site visited gave an independent ring sequence, but these gradually merged into two major series,—one prehistoric; the other, modern. Then came the expeditions of 1928 and 1929. In these Dr. Douglass was assisted by L. L. Hargrave, whose services in 1929 were generously loaned by Dr. Harold S. Colton, Director of the Museum of Northern Arizona, at Flagstaff. Mr. Emil W. Haury not only supervised the important 1929 excavations at Showlow and Pinedale, Arizona, but continues, at this writing, as laboratory assistant to Dr. Douglass. For myself, I merely continued to serve in an advisory capacity.

By the time these paragraphs are published, members of the American Anthropological Association will have discovered, in the December, 1929, number of the National Geographic Magazine, Dr. Douglass' brief narrative of the three Beam Expeditions and their results. Naturally the story is there but partially told. Most Pueblo III villages are younger, their period of occupancy less than we had supposed. For example, the earliest Pueblo Bonito beam in our collection was cut in A. D. 919; the latest, in A. D. 1130. The half century following 1033 marks the period of exten-

sive reconstruction noted in my several papers relating to architectural development at Pueblo Bonito. The single datable beam recovered from Cliff Palace, Mesa Verde National Park, was cut in 1073; Oak Tree House, Balcony House, and Spruce Tree House follow in turn. Six specimens from White House pueblo, in Canyon de Chelly, date between 1060 and 1096, while two others from the same ruin were cut two centuries later, perhaps coincident with the infiltration of Mesa Verde clans. According to tradition the Hopi moved to their present elevated locations after the rebellion of 1680; according to the Douglass tree-ring chronology, the Hopi towns abandoned in 1680 were constructed about 1400. Like their precursors in Pueblo Bonito and Casa Blanca, the frugal Hopi salvaged serviceable timbers from deserted dwellings and used them in newly-erected homes. One beam recovered from Oraibi had been used over five hundred years.

Not only does Dr. Douglass' tree-ring sequence actually date various Southwestern ruins hitherto regarded as prehistoric, but it also gives a record of climate for 1200 years. Variations in rainfall leave their mark on growing trees and affect the daily life of primitive peoples. The great drought of 1276 to 1299 may well have forced abandonment of Betatakin and Keet Seel, last major cliff-dwellings of the Rio San Juan drainage, and prompted southward migrations. But all of this and many additional data disclosed through Dr. Douglass' findings will appear in my report on the National Geographic Society's explorations at Pueblo Bonito.

Neil M. Judd, Director
Pueblo Bonito Expeditions,
National Geographic Society

Under Dr. A. V Kidder, Curator of Southwestern Archaeology, Mr. C. B. Cosgrove, Associate in Anthropology, and Mrs. Cosgrove devoted the summer to reconnaissance and excavation in the mountainous country north and west of Silver City, New Mexico, and on the Rio San Francisco with a view to determining the extension of the Mimbres culture in those directions, and in the hope of recovering from certain caves specimens of perishable material which cannot be found in open Pueblo sites. Seventeen ruins were mapped, collections of surface sherds were made and, in five ruins excavations brought to light the precedence in this territory of the Mimbres people. Pure Mimbres sites were found, and many other types of pottery occur in varying quantities at other places. This interesting mixture necessitates continued investigation, and although at present the Middle Gila Indians from Arizona seem to have later controlled the territory, yet intrusive sherds from the north, east, and as far south as Chihuahua, Mexico, may indicate occupation by other tribes. Seven caves were found, six being camp sites on the Gila River above Cliff, New Mexico, which produced few specimens. The seventh, situated in a canyon tributary to the Rio San Francisco, proved to be a large and much vandalized ceremonial cave. From this came mostly cliff dweller material, with some evidence of earlier occupation, whether Basket Maker or early Pueblo is yet to be determined.

Edward Reynolds,
Peabody Museum, Cambridge

For the field season of 1929 the Department of Archaeology of Phillips Academy joined forces with the Laboratory of Anthropology at Santa Fe, and the Southwest Museum. The Field Training Fellowship Holders of the Laboratory of Anthropology were assigned to the Department at Pecos and other sites in the Rio Grande drainage. Mr. Charles Amsden, Curator of the Southwest Museum, was loaned by that institution to administer the project. Four weeks were devoted to excavation at Pecos. A trench was driven into that part of the great rubbish heap lying between the north and south buildings, in which was uncovered an unusually large number of burials of Glaze II and III periods. On the East Terrace a kiva of Early Historic date was cleared; and a series of rooms was excavated on the east side of the North Quadrangle. Careful stratigraphic tests were made in deep refuse deposits lying in the Plaza. At the close of the work at Pecos, three students undertook preliminary excavations at the Black-on-White ruin at Tecolote, N. M., 35 miles east of Pecos. A second party devoted four weeks to the Tsama ruin on the Greenlee Ranch in the Chama Valley near Abiquiu, N. M., the digging being done in rooms and kivas of Black-on-White date, and in rooms of Pueblo III period. Certain stratigraphic tests were also carried out at the Forked Lightning ruin, a Black-on-White site near Pecos. During the summer, special attention was paid to the obscure period of transition between the Black-on-White and the early glazes.

By arrangement with the Carnegie Institution of Washington, Colonel Charles A. Lindbergh used Pecos for some days as a base for reconnaissance and air photography in Canyon de Chelley, Canyon del Muerto, Chaco Canyon, the Pajarito Plateau, the Chama Drainage, and the Pecos Valley.

A. V. Kidder,
Phillips Academy, Andover, and
Carnegie Institution of Washington

An expedition from the University of Minnesota and the Minneapolis Institute of Fine Arts, directed by Dr. A. E. Jenks, excavated a Mimbres site on the Galaz Ranch, about nine miles east of Santa Rita, New Mexico, from June 26th to September 7th. The 52 rooms excavated were of three distinct types: those near the surface had walls of stone slabs set on end, with adobe floors and sometimes with stone fireplaces; the intermediate rooms below the surface, showing several levels of occupation, had walls of adobe and uncoursed stones; and the pit rooms of a still earlier occupation were either round or square, the floor of the deepest one being 10 feet below the ground level. Two hundred and eighty-seven specimens were recovered, including implements and ornaments of bone, shell, and stone, as well as unnumbered metates, mortars, and palettes. The shell ornaments showing remnants of overlaid turquoise mosaic, and the beads of stone, bone, shell, and turquoise are particularly noteworthy. In the course of the excavations, 363 skeletons were recovered from under the floors of the dwellings and nearby, the larger part being in poor condition. The most prized material is the collection of 332 bowls and pots, of which many are whole, and all complete enough for good restoration. The majority

of these vessels are the hemispherical food bowls, but there are also others of various sizes and shapes including many of corrugated ware.

A. E. Jenks,
University of Minnesota

New York. The Long Island Chapter of the New York State Archeological Association has continued the excavation of an extensive village site on Noyac Bay, Southamptom. Cupped boulders of the usual mortar type were apparently used as griddles, for masses of fish bones at times surround and cover them. Over twenty of these stones have thus far been uncovered in fire pits. The site is also yielding pottery of a severely Algonquian type, and a high percentage of bone and antler implements. The examination of a site at the head of Wickham Creek, Cutchogue, also has been well advanced. Iroquoian influence appears in some of the pottery. An informing specimen from this site is a complete tortoise shell ladle, one end fashioned into a handle. The type is confirmed by two others found during the season on other sites. One of these, from Shelter Island, was under the femur of a skeleton, precisely as in the case of the "bowl"—the handle end missing—reported from Sebonac Creek by Harrington. The Cutchogue site contained many round quartz plane scrapers, ordinarily rather scarce in this area. The Chapter has secured a cache of 52 perfect, large blades accidentally found in Southold. They appear to be of Delaware River argillite and have types of blades similar to the specimens from the lower deposits of the Abbott farm at Trenton.

Charles F. Goddard,
Long Island Chapter,
New York State Archeological Association

In 1929 the Rochester Museum of Arts and Sciences investigated characteristic sites of the several cultures in the New York area. Mr. William A. Ritchie examined an unusual site west of Rochester, which contained large caches of corn, acorns, and beans in bark containers which had been carbonized. These storage receptacles had evidently been made of elm bark and were not sufficiently preserved to permit measurements. The culture is rather uncertain, although fragments of early Iroquoian pottery were found in the neighborhood. Later Mr. Ritchie examined a Wenroe or Neutral site at Orchard Park, near Buffalo. Representative early Iroquoian implements, several pipes, and pottery vessels, which have been restored, were secured. These vessels are saucer-bottomed, unlike the deeply rounded bases of the more characteristic western New York pottery. For comparative purposes sites on the west branch of the Susquehanna in Pennsylvania were studied in cooperation with the University of Pennsylvania and the Pennsylvania Archaeological Survey.

Mr. H. C. Follett secured a fine representative series of Mohawk potsherds and bone implements from certain sites in the foothills of the Adirondacks. He also examined with considerable care a late historic Cayuga site in Cayuga county, the special purpose being to determine how much of the aboriginal culture remained as late as 1779, when this Indian settlement was destroyed. Excellent pottery pipes

and antler implements, including spoons and combs, were recovered. A study was also made of a burial site along the lake shore, of presumably late Algonkian of the pre-Iroquoian horizon. Much skeletal material was found; one grave was completely solidified and brought back to the museum for examination. By this method the whole cross-section is visible, and the various layers susceptible to differentiation.

Arthur C. Parker,
Rochester Museum of Arts and Sciences

North Dakota. During the past year the Curator and Mr. George Will, of the Museum Committee, visited many of the village sites along the Missouri in North Dakota, a region especially rich in old sites that ought to be identified and worked for archaeological material as soon as possible. Small collections of potsherds and flint and bone work were made, with notes on the condition and locations of the sites. Mr. L. F. Crawford, of the Historical Society, was able to locate two Indian flint quarries on the Knife River near Dodge and Golden Valley, North Dakota. Steps have been taken for an archaeological survey of the state, requests for information being sent out on printed forms, through the cooperation of the State Department of Education.

Russell Reid,
State Historical Society of North Dakota

In June 1929 the Logan Museum of Beloit College organized a two-year program for study of the culture and archaeology of the Mandan Indians of North and South Dakota. A. W. Bowers was placed in charge of the work. The first season's work was restricted to the archaeology of the Missouri Valley region occupied by the Mandan. A week was devoted to a superficial survey of 61 villages, many of which were previously unrecorded. Excavations were carried on in the six apparently most representative of the Mandan culture. Four major differences between the early Mandan and those of the opening of the Trader period were noted. The former were primarily hunters of buffalo and other wild game. The more modern villages indicated a people depending on maize, beans, squash, pumpkins, and sunflowers, with wild animals contributing a lesser share in their livelihood. These changes were suggested by variations in the pottery, by differences in the proportions and types of stone implements, and by the development of fortified villages. Both longitudinal and burial mounds, as well as boulder effigies, were recorded, and flint and chert quarries were discovered some 75 to 100 miles west of the villages studied. The expedition found that three types of burial customs existed; on scaffolds, in abandoned corn pits, and under stones on hill tops, associated with boulder effigies.

George L. Collie,
Logan Museum, Beloit

Ohio. During the first two months of the summer of 1929 E. F. Greenman, Curator of Archaeology, conducted excavations in northern Ohio in an attempt to learn something of the Iroquois occupation of that long-neglected region. Thirteen

sites were examined with pick, shovel, and trowel, and six others were identified as Iroquoian by surface material. The most fertile site was near the mouth of Chagrin River in Lake county, an uninclosed village about two acres in extent. The latter part of the summer was spent in southern Ohio, upon a Fort Ancient village site near Middletown; preliminary examination of sites along the Ohio River; and upon two small mounds four miles west of the Seip Mound in Ross county. The two latter were Hopewell and contained some very interesting copper pieces.

H. C. Shetrone,
Ohio Archaeological and Historical Society

Oklahoma. Dr. Ronald L. Olson, of the American Museum of Natural History, visited the Frederick gravel pit, but no artifacts were found.

Clark Wissler,
American Museum of Natural History

Pennsylvania. The work of the Pennsylvania Archaeological Survey, under a joint committee of the State Historical Commission and the Pennsylvania Federation of Historical Societies, has progressed greatly during 1929. Dr. Frank G. Speck and Mrs. Alanson Skinner have continued their ethnological investigations. The latter has also indicated on the map of Pennsylvania the 2500 sites located by the state-wide paper survey. A short reconnaissance was made in southwestern Pennsylvania, but no excavation was done. Mr. Max Schrabisch investigated rock shelters in the headwaters region of the Delaware River.

Three expeditions were sent out. The first was for the Historical Commission under the direction of Robert R. Jones, a graduate student at the University of Chicago, and Junius Bird of Columbia, assisted by members of the State Museum staff. In June this group excavated a mound at Clemsons Island, on the Susquehanna River near Halifax. The site had been disturbed, but nineteen burials were uncovered, also a large number of sherds. July was spent in survey work, mainly in the vicinity of Halifax, Duncannon, Newport, and Millerstown. Several rock shelters and possible village or camp sites were located. A considerable number of collections were examined and photographed. The Books Mound, near Academia, was excavated during August, September, and October. It was located on ground subject to flooding by Tuscarora Creek during high water, and had also been disturbed by plowing. Twenty-two burials, a number of potsherds, and a few artifacts were found. Wide slabs of charred wood were found which supply a fairly good tree-ring series, from which it is hoped the approximate date of the mound may be ascertained. Another mound was test-pitted, and may prove worth later excavation. The pottery in the Clemson and Books mounds closely resembles "archaic Algonkian" material.

The second expedition, by the Westmoreland-Fayette branch of the Historical Society of Western Pennsylvania, had its headquarters at West Overton. This work was directed by Robert Engberg, another student from the University of Chicago, assisted by local investigators.

The third expedition was conducted jointly at Lock Haven by the Rochester Museum of Arts and Sciences and the Museum of the University of Pennsylvania, under J. A. Mason and William A. Ritchie, until the middle of July, when the Rochester group withdrew. The work continued until August under Dr. D. S. Davidson. A camp site on the Susquehanna was investigated, and several refuse pits excavated. Objects of apparent Algonkian, Andaste, and Iroquoian types were found. Large quantities of animal bones and potsherds were encountered, but only one complete polished stone object.

Frances Dorrance,
Pennsylvania Archaeological Survey

Texas. Dr. Walter Hough visited sites in the Panhandle at Amarillo and Abilene. Much interest has been attracted by the finding of skeletal remains under heavy alluvial deposits near Abilene by Dr. C. N. Ray, and worked flints *in situ* in gravel beds of the locality. Dr. Hough secured a representative collection of stone artifacts from surface sites near Abilene and a number from the gravel beds. At Amarillo, Dr. Hough examined several Pueblоid sites in the breaks of the Canadian. These pueblos have been reconnoitered by a number of observers in the past twenty years. It is considered essential that this important field be studied, especially for its bearing on an early Pueblo-Plains connection.

Walter Hough,
U. S. National Museum

I am continuing to gather and file all the information I can concerning sites in Texas through inquiries among my students and persons with whom I come in contact while doing archaeological research in the state. Data are coming in slowly from all parts, so that within the next ten years we may have a fairly adequate survey of the state. I am extending the territory of intensive research and am working at present approximately 100 miles from Austin. I feel that I now understand the archaeology of the region about Austin, within a 100 mile radius, sufficiently to be able to direct anyone who may wish to do research within that area.

J. E. Pearce,
University of Texas

Since August, 1927, more than two hundred camp and village sites, and a red paint quarry have been charted in Kent, Howard, San Saba, Comanche, Tarrant, and Parker counties as the result of a joint survey made during week-ends by Dr. Cyrus N. Ray and Mr. E. B. Sayles, officers of the Texas Archaeological and Paleontological Society, of Abilene. Thousands of flint artifacts have been collected from these sites, apparently representing several distinct cultures. A few trips were also taken to more distant points in Texas. In Howard County, a camp site and 84 boat-shaped pot holes in a sandstone ledge were examined. Some of the holes had been partially worn away by rain erosion, while others had been preserved by sod. Mr. Sayles excavated a rock shelter in Coke county containing a series of superimposed hearths, the lowest 3½ feet below the surface; he also photographed num-

erous petroglyphs at this site. Mr. George C. Martin of Rockport has undertaken a survey of the Texas coast cultures. Mr. Floyd V. Studer of Amarillo is surveying the Slab House remains near that city. Dr. W. C. Holden of Lubbock visited that region, and also Kent county, in both of which he did some excavation. Mr. Victor J. Smith of Alpine is continuing his work on rock shelters of the Big Bend region. Col. M. L. Crimmins of Fort Sam Houston has been making an extensive record of petroglyphs and pictographs. Particular attention has been paid to the steep stratified clay banks along stream courses. This has resulted in the finding of occupational debris at four places within 75 miles of Abilene, at depths of from 6 to nearly 9 feet, and the discovery of three mineralized skeletons with several unusual features at depths of 6 and 7 feet. Flint implements have also been found in first terrace gravel pits.

Cyrus N. Ray,
Texas Archaeological and Paleontological Society

During 1929 the West Texas Historical and Scientific Society continued the archaeological survey of the Big Bend territory. Further investigations were made at several locations previously studied; and 11 new sites were discovered, bringing a total of recorded sites to 156. Three of the new sites were open camps; four were shelters or caves; and four were combinations of the two. Through the courtesy of Mr. and Mrs. R. B. Alves, a number of "dry lake" camps and caves near El Paso were examined. The finds in these caves are strikingly similar to those 200 miles east of El Paso. Accumulating evidence points to a culture closely resembling Basket Maker, which possibly extended as far east as the Devil's River. The most valuable unit of the Museum, the Janes Collection, contains the remaining arrowheads and flints from what is known as the "Mt. Livermore find," which was a cache of several thousand specimens found on top of Mt. Livermore, one of the highest peaks in Texas, and in the heart of the Davis Mountains.

Victor J. Smith,
West Texas Historical and Scientific Society

Dr. Ronald L. Olson, of the American Museum of Natural History, spent two weeks near Brackettville. Excavations were made in four caves and two mounds, which proved to be the same type as those in the vicinity of Austin. The skeletal material and artifacts recovered may determine a possible affinity with the Basket Maker horizon. At Waco, Abilene, and Colorado City, numerous sites were examined with rather inconclusive results. Near Amarillo some trial excavations were made at sites which showed a distinct kinship with the Southwest, as evidenced by rude stone houses, pottery, and agriculture.

Clark Wissler,
American Museum of Natural History

About the middle of February, Mr. Edwin F. Coffin, under the joint auspices of Cambridge University Museum in England and the Museum of the American Indian, Heye Foundation, went to Brewster county, Texas, to continue the excava-

tions begun by Mr. M. R. Harrington in 1928, in a rock shelter near the mouth of Bee Cave (or Eagle) Canyon. The occupational strata were separated by layers of grass. The perishable material found, such as sandals, strings, nets, matting, wooden implements and food products, as well as articles of bone, antler, and stone, indicated that there was no cultural difference in the layers, regardless of their depth. The occurrence of the atlatl and the arrow in deposits indicating no great range of time seems to suggest that the cave had been inhabited during a transition period in prehistoric times. Other caves and rock shelters in the vicinity were examined by Mr. Coffin, most of which revealed signs of former occupancy. In the middle of June, Mr. Coffin investigated a rock shelter in Satan Canyon, 25 to 30 miles northwest of Del Rio, in Valverde county. Several disturbed burials were found, as well as basketry, shell, stone and bone objects, similar in the main to those of Bee Cave Canyon.

G. G. Heye,
Museum of the American Indian, Heye Foundation

The expedition from the Museum of the University of Pennsylvania conducted field work in three parts of Texas—on the Canadian River in the Panhandle section; in central Texas, and on the Gulf Coast—for the purpose of investigating the interrelations of the Pueblo, Plains, Mexican, and Southeastern culture areas. Two weeks were devoted to sites on the Canadian River near Amarillo. Potsherds of Pecos types were found in Palo Duro Canyon. On Grape Vine Creek, north of Adrian, caves and cliffs containing incised and painted pictographs were studied. On top of a mesa north of Vega, artifacts were encountered near stone-enclosed low circular and rectangular sites. At the base of the mesa quantities of non-Puebloan sherds were found. Several sites of the same Canadian River Valley culture were more carefully examined and excavated north of Amarillo on Alibates Creek. Two rectangular semi-subterranean houses were examined. One contained several superimposed floors, charred roof-beams and thatch supported by four posts, a few artifacts, and sherds of a non-Puebloan type. A depressed fireplace was in the center of the floor. The blend of Puebloan and Plains cultural elements is evident. Many sites of ruder cultural origin, presumably Plains, were located in central Texas. Around Floydada, such remains were rare, and none could be located near Lubbock. Near Abilene, local archaeologists have encountered many sites, somewhat differentiated as to artifacts and nature of location. Chipped stone artifacts predominate; pottery, which is non-Puebloan, is scarce; and smooth stone objects very rare. A fragment of bone, presumably from a human cranium, was excavated under eight feet of stratified deposit on the bank of the Clear Fork of the Brazos, beside the place where Dr. C. N. Ray excavated two burials under similar stratified deposit. A burial of Plains type, unaccompanied by artifacts, was excavated near Rotan, Kent county. Cave shelters containing burials and indications of early occupation were excavated near Brackettville in southern Texas. Small, smoke-blackened stones were encountered under the debris on the bottom of the cave, but artifacts were few in number. The typical central Texas burnt-rock mounds

found in the vicinity were probably occupied by the same people who buried in the caves. In the region of the Devil's River west of Del Rio, similar cave shelters were located. These were used for both occupational and mortuary purposes. A fragment of twilled matting accompanied one burial. The identity of the two peoples was indicated from a talus of detritus of typical burnt-rock mound nature from one of the caves. Painted pictographs in sepia, black, and some yellow, were found in some of the larger shelters. A few days were spent around Austin with Dr. Pearce observing several large burnt-rock mounds. Observations and surface collections were made in the region of the Gulf Coast, but no excavation was attempted. Several days were spent around Rockport, Corpus Christi, and Brownsville. No burnt-rock mounds were located in this region, but shell-mounds were frequent. Quantities of disarticulated human bones were encountered near Corpus Christi. Polished stone work is rare, the flint artifacts are small and well-made, and potsherds are numerous, usually of thin, buff-colored ware. Many of them were coated inside with asphalt. There are indications of a cultural relationship with the Huaxtec of the region of Tampico, Mexico. Near Brownsville, shell work was quite highly developed—arrowheads, incised gorgets, and other ornaments of that material being frequently encountered. Sherds were not numerous, but several entire vessels were found which, in form and ornamentation, showed a clear cultural relationship with Huaxtec.

J. A. Mason,
The Museum of the University of Pennsylvania

Utah. The University of Utah obtained a collection from the Southwest through the cooperation of one of the residents, who had made it under Dr. Kerr's supervision. The material was very fine in quality, and similar to that secured in the past.

George Thomas,
University of Utah

Mr. Charles L. Bernheimer, accompanied by Mr. Barnum Brown and Mr. Earl H. Morris, visited the district at the junction of the San Juan and Colorado Rivers, locating Basket Maker and Cliff Dweller remains.

Clark Wissler,
American Museum of Natural History

In July and August of 1929, Mr. Noel Morss continued his studies of the Fremont culture in southern Utah, principally in the district around Fruita. He excavated sites in this region and conducted various reconnaissance trips in an effort to determine the extent of this culture.

As part of the Museum's work in Utah, an archaeological survey of the territory west of the Colorado River was begun during the summer in continuation of the reconnaissance by Mr. Wm. H. Claflin, Jr. and Mr. Raymond Emerson in 1927, and by Dr. Donald Scott in the spring of 1928. This work was in charge of Mr. Henry B. Roberts, the expedition being in the field from the middle of June until the

middle of September. The region covered by the party of this season roughly includes the territory bordered by the Muddy and Fremont Rivers on the west and southwest, the Colorado and the Green on the east, and the San Rafael River on the north. This survey disclosed a hitherto unknown archaeological field and revealed much valuable information on the nature of the northern peripheral district of the Pueblo area.

Edward Reynolds,
Peabody Museum, Cambridge

Wisconsin. The State Historical Museum has conducted surveys and investigations in Dane and surrounding counties. Mr. Theodore T. Brown has prepared an archaeological atlas of the state for the Museum and State Historical Society. Collections of potsherds and other materials have been made from many types of sites. An archaeological plaster map of the Four Lakes Region at Madison has been prepared for the Museum by Mr. Fred Wilhelm.

Charles E. Brown,
State Historical Museum

Members of the Wisconsin Archeological Society conducted surveys and explorations in different parts of the state during the summer months, and thereby recorded a large number of camp and village sites, planting grounds, graves and cemeteries, mounds, a quartzite workshop, and lead diggings. Several effigy mounds were excavated. A group of mounds in the new addition to Forest Hill cemetery at Madison has been restored and marked with a tablet. Another mound group at Lake Ripley has been preserved and will be marked. A tablet has been erected on the site of an early Potawatomi village at Milwaukee.

Charles E. Brown,
Wisconsin Archeological Society

During the 1929 field season, a Milwaukee Public Museum expedition, led by W. C. McKern, engaged in research in three western counties along the Mississippi. A specific search for new sites containing evidence of a Hopewell type of culture resulted in a failure to produce convincing evidence. However, valuable data bearing upon important local problems were obtained. A low, earthen enclosure in La Crosse county produced post-hole impressions, indicating that a stockade formerly surmounted the crest of the surrounding embankment, with gateways to the north and south. The enclosed area showed no evidence of occupation. If intended for a fortified refuge in time of war, it had apparently never been used as such. Burials and refuse pits in a La Crosse county camp site and cemetery contained a large quantity of materials indicating a Woodland Siouan type of culture. A Vernon county camp site showed culture stratification; materials representing a Woodland Siouan type of culture were superposed upon a deposit marked by Algonkian-like pottery. It is hoped that a detailed examination of the materials collected here will disclose sub-culture stratification. An adjacent group of mounds, including conical, linear and effigy shapes, produced burials and pottery of the same type which char-

acterized the lower strata of the camp site. Two groups of conical and linear mounds in Crawford county, one of them the Polander Group previously excavated by Cyrus Thomas, were carefully examined as a check on Thomas' extraordinary finds there. Eight previously unexcavated mounds of this group were entered. The stone-walled burials which Thomas describes were not encountered, but in every instance, a stone structure of a type which he does not describe was the outstanding interior feature of the mound. This consists of a horizontal plat of stones, from 6 to 25 feet in diameter and from 1 to 2 feet thick, artificially placed directly covering a burial. The burials included all types known to the Wisconsin mound builders—flexed in the flesh; extended in the flesh; cremated; and bundled bone reburials. One large conical mound held 34 individuals, of which 31 were buried in the flesh in a single, centrally placed, sub-floor pit. The type burials were encountered in both conical and linear mounds. The culture of these mounds was of an Upper, rather than a Middle, Mississippi type.

W. C. McKern,
Milwaukee Public Museum

Alabama Anthropological Society	Alabama
American Museum of Natural History	Arizona, Colorado, Iowa, New Mexico, Oklahoma, Texas, Utah
Archaeological Commission of the City of Phoenix	Arizona
Bureau of American Ethnology	Arizona, Florida
Carnegie Institution of Washington	New Mexico
Colorado Museum of Natural History	Colorado, New Mexico
Florida Archaeological Society	Florida
Indian Arts Fund, Santa Fe	New Mexico
Indiana Department of Conservation	Indiana
Indiana Historical Society	Indiana
Laboratory of Anthropology, Santa Fe	New Mexico
Logan Museum, Beloit College	New Mexico, North Dakota
Los Angeles Museum	Arizona, California
Medallion, Gila Pueblo	Arizona, Colorado
Milwaukee Public Museum	Wisconsin
Mississippi Department of Archives and History	Mississippi
Museum of the American Indian, Heye Foundation	Idaho, New Mexico, Texas
Museum of the University of Pennsylvania	Alaska, Arizona, New Mexico, Texas
National Geographic Society	New Mexico
National Museum of Canada	Canada
Nebraska State Historical Society	Nebraska
New Jersey State Museum	New Jersey
New York State Archeological Association	New York
Northern Arizona Society of Science and Art	Arizona
Ohio State Archaeological and Historical Society	Ohio
Peabody Museum, Cambridge	Georgia, New Mexico, Utah
Pennsylvania Indian Survey	Pennsylvania
Phillips Academy, Andover	Maine, New Mexico

Rochester Museum of Arts and Sciences	New York
San Diego Museum	California
School of American Research, A. I. A.	New Mexico
Southwest Museum	Nevada
State Historical Society of Colorado	Colorado
State Historical Society of Iowa	Iowa
State Historical Society of North Dakota	North Dakota
State Historical Society of Wisconsin	Wisconsin
Texas Archeological and Paleontological Society	Texas
U. S. National Museum	Alaska, Arizona, Texas
University of Arizona	Arizona
University of Arkansas	Arkansas
University of Chicago	Illinois
University of Colorado	Colorado
University of Illinois	Illinois
University of Kentucky	Kentucky
University of Michigan	Michigan
University of Minnesota	New Mexico
University of Nebraska	Nebraska
University of New Mexico	New Mexico
University of Texas	Texas
University of Utah	Utah
West Texas Historical and Scientific Society	Texas
Wisconsin Archeological Society	Wisconsin

CARL E. GUTHE *Chairman*

ANTHROPOLOGICAL NOTES AND NEWS

Canada Department of Mines National Museum of Canada

The Annual Report of the National Museum of Canada for 1927, published recently, contains several reports of anthropological interest.

D. Jenness, Chief of the Anthropological Division, reports on a field trip to Newfoundland in 1927, the chief objects of which were: (1) to locate any existing remains of the extinct Beothuk; and (2) to discover what contacts there had been between the Beothuk Indians and the Eskimo to the northward.

"The Kitchen-Middens of the Pacific Coast of Canada" and "Materia Medica of the Bella Coola and Neighbouring Tribes of British Columbia" are the subjects of reports by H. I. Smith. The kitchen-middens were built up of the refuse from the aboriginal villages, refuse which consists almost entirely of clam, mussel, and other shells, with here and there a human skeleton. Mr. Smith states that in the middens of Fraser River delta, back from the sea shore, artifacts and human remains are comparatively common. Kitchen-middens are found along the Pacific Coast, not only of Canada, but also of Alaska, the United States and Mexico. Inland there are no typical shell heaps, and on the Coast they generally lie at the mouths of fresh-water streams near ocean beaches where shellfish are abundant. The other report by Mr. Smith describes the materia medica of four tribes of British Columbia—the Bella Coola of Bella Coola valley, the Gitksan of Skeena River, the Carrier who live in the territory behind both of these tribes, and the Sikani of the headwaters of Peace River. Mr. Smith submitted specimens of various plants found in these districts to reliable informants belonging to the tribes, and questioned them concerning the uses of the plants.

The field activities of the National Museum of Canada for 1929 included Mr. C. M. Barbeau's resumption of work in the culture and language of the Tsimshian; the collection of Kwakiutl and Nootka material and taking of motion pictures among various tribes by Mr. H. I. Smith; and trips by Mr. C. B. Osgood to the Hare and Mountain Indians of the lower Mackenzie. The Indians around Georgian Bay were studied by Mr. D. Jenness, while Mr. W. I. Wintemberg continued the exploration of sites along the north coast of the Gulf of St. Lawrence. Professor I. C. Boileau Grant of the Department of Anatomy, University of Manitoba, examined the Peace River Indians from a somatalogical point of view and carried out blood tests.

Dr. Waldemar Jochelson

On January 14, 1930, Dr. Waldemar Jochelson celebrated his seventy-fifth birthday in Nice. In extending to the veteran ethnographer their heartiest congratulations, the Editors also wish to avail themselves of the opportunity to present some details of his career.

Waldemar Jochelson was born in Vilna, formerly Russia, now Poland, January 14, 1855. In 1875 as a college student he had to flee from Russia to avoid arrest as a member of the revolutionary secret society, Narodnaya Volya (The People's Will). He went to Berlin and for two years worked in different plants, first as a volunteer and afterwards as a full paid worker on a turner's stand for iron. In the evenings he heard free university lectures and courses arranged by the Social Democratic party for young workers. He was introduced to some of the Social Democratic deputies and corresponded on Russian topics in their Berlin Parteizeitung. At the same time he wrote for the Russian revolutionary journal Fpered (Forward) edited in London by Lavrov, former professor of the military academy in St. Petersburg.

In 1879 Jochelson left Germany for Switzerland, going first to Zurich, where he became a student of the agricultural division of the Polytechnikum. For lack of means he had to be satisfied with one daily meal. A Swiss patron gave dinners to Russian students on condition of being repaid by his pensioners after they got a position. After a year's study in Zurich Dr. Jochelson was invited to become a teacher in a school for Russian children in Clarens, on the Lake of Geneva, directed by Mr. Parchet, a former professor of French in Katkoff's lyceum of Moscow. There he spent about four years, giving in addition to his regular job private lessons to pupils who were backward. With sufficient means he was able to support Russian antigovernmental publications edited in Geneva by the noted Tikhomirov. Among the pupils of Mr. Parchet were the children of many Russian aristocrats, e.g., the Prince Demidov San Donato, General Gorlov, the General Procureur Mouravyov. When the latter visited Clarens he requested Mr. Parchet to dismiss his exiled teachers. Besides Jochelson the noted Russian writers Zaitzev, Sokolov and Oelsnitz were lecturing there. Jochelson went to Geneva and took charge of the Russian printing office where revolutionary publications were printed.

In 1884 he decided to return to Russia under an assumed name in order to continue his revolutionary activity at home. On the frontier he was recognized, arrested, and brought to St. Petersburg. After three years of solitary confinement in the Petropavlovsky Fortress he was sent by order of the Czar for ten years to remotest places of northeastern Siberia. This period was utilized for the study of the languages and ethnology of the numerous native tribes and linguistics. Already in exile he used his ethnological knowledge for writing articles in the Publications of the Geographical Society and Academy of Sciences of Petrograd and of the scientific societies of Moscow. As a result of these writings he was invited to lead the northern division of the Yakut Expedition of the Russian Geogrpahical Society (1895–1897).

In 1899 on the recommendation of the Russian Academy of Sciences he was invited by the American Museum of Natural History to lead the Siberian Division of the Jesup North Pacific Expedition (1900–1902) headed by Professor Boas. In 1909–1911 he was leader of the Aleut-Kamchatka Expedition of the Russian Geographical Society at the expense of the Moscow banker, F. P. Riaboushinsky. In 1912–1922 he was division-curator of the Museum for Anthropology and Ethnography of the Russian Academy of Sciences in Petrograd and collaborator of the Asiatic Museum of the Academy.

He is a member of the Anthropological Society at the University of Petrograd (1898) and the American Anthropological Associations (1901); charter member of the American Linguistic Society (1924); life member of the Russian Geographical Society of Petrograd (1898); honorary member of the Society of Natural Sciences at the University of Moscow (1912); of the Geographical Society of Munich, Bavaria, (1913), and of the Anthropological Society of Washington (1929). He received a silver medal (1892), a gold medal (1898) and a large gold medal (1912) from the Russian Geographical Society in Petrograd; a gold medal of the Society for Anthropology and Ethnography at Moscow University (1912); and Akhmatov's prize of the Russian Academy of Sciences (1916).

His publications in Russian, German and English form a library by themselves. The chief researches published in America are: 1. The Koryak, Parts 1–2, Vol. VI, Jesup North Pacific Expedition, 1904–1908; 2. The Yukaghir, Parts 1–3, Vol. IX, Jesup N. P. E. 1910–1926. These two volumes were published by the American Museum of Natural History in New York. A Grammar of the Yukaghir Language was published by the New York Academy of Science in 1905 and reprinted as a Supplement to the AMERICAN ANTHROPOLOGIST of the same year. The American Museum of Natural History published in 1928 the handbook *Peoples of Asiatic Russia*, and the press of this institution is to publish, through Mr. Felix Warburg's generosity, a completed volume on *The Yakut People*. The Carnegie Institution of Washington published Jochelson's *Archeological Investigations in the Aleutian Islands, 1925*, *Archeological Investigations in Kamchatka, 1928*, and now he is writing a volume on *The History, Ethnology, and Sociology of the Aleut*. A Grammar of the Aleut Language and a Volume on Aleut Mythology (texts and translations) are to be published soon by the Linguistic Society of America under the editorship of Professor Boas. A monograph on the Kamchadal (Mythology, History, Ethnology and Sociology) is in preparation, as well as a Grammar of the Kamchadal Language.

Mrs. Jochelson, an M. D., accompanied Jochelson's expeditions as physical anthropologist. Some of her anthropometrical measurements were worked out for her doctoral dissertation: "Dina Jochelson-Brodsky, *Zur Topographie des weiblichen Körpers nordostsibirischer Völker*; Inaugural-Dissertation zur Erlangung der Doktorwürde der Hohen medizinischen Fakultät der Universität Zürich. Aus dem Anthropologischen Institut der Universität Zürich (Direktor Professor Dr. R. Martin), 1906." This was reprinted in *Archiv für Anthropologie*, Braunschweig, 1906. Another work, "Contribution to the Anthropology of the Women of Northeastern Siberia," was published in Russian in the *Russian Anthropological Journal*, Moscow, 1907. All her other measurements were worked out for the last volume, on Physical Anthropology, of the Publications of the Jesup North Pacific Expedition and will be published soon by Professor Boas, the Director of the Expedition.

MUSEUM AND LABORATORY FOR THE STUDY OF INDIAN LIFE

Plans for the construction of a museum and laboratory for the study of American Indian Life have been completed according to an announcement by the Board of Trustees of the Laboratory of Anthropology at Sante Fé. The first unit of the pro-

posed group of buildings will be built in the early spring with funds granted by John D. Rockefeller, Jr.

Mr. Rockefeller has given $200,000 for the erection and equipment of the first of the ten units planned, and will also contribute the income of a fund of $300,000 toward the budget of the laboratory for five years. Additional contributions, and possibly a permanent endowment, are expected from the same source if the laboratory proves its value as a lasting operative institution.

When completed the project will provide research laboratories, museum exhibitions, libraries, lecture halls and adequate facilities for graduate instruction in archaeology as well as public education in the history of America's native races.

The buildings will be erected on a fifty-acre plot on the outskirts of Santa Fé. The first unit will cover a ground area of about 8,000 square feet and will contain on one floor administrative offices, exhibition halls, laboratories, studies, an assembly hall and lounge, and a library.—*Science.*

According to the announcement of scholarships for training in the anthropological field method there will be a change in the regions worked during the coming summer. The area for 1929 was the southwestern part of the United States. For 1930 scholarships are offered for training in Archaeology, Ethnology, and Linguistics. Scholars in Archaeology will be assigned to a mound site in Illinois and will work under the direction of Professor Fay-Cooper Cole, of the University of Chicago. Scholars in Ethnology will take part in studies of a selected tribe of Washington or Oregon, under the direction of Professor L. Spier, of the University of Washington. Scholars in Linguistics will work on one of the languages, probably Sahaptin, spoken at Yakima Reservation, under the direction of Professor M. Jacobs, of the University of Washington.

The Florida Anthropoid Laboratory of Yale University

Yale University has acquired nearly 200 acres of land near Orange Park, Florida, on which it will establish a laboratory station for the breeding and scientific study of the anthropoid apes. The establishment of this station and its maintenance for the next ten years has been made possible by the gift of $500,000 from the Rockefeller Foundation.

The general plans for the organization of the station and the site for its establishment have been approved by a committee of distinguished scientific men, including in addition to representatives of Yale, Professor Edwin G. Conklin, of Princeton University; Dr. Milton J. Greenman, of the Wistar Institute, Philadelphia; Professor Theobald Smith, of the Rockefeller Institute; Dr. Clark Wissler, of the American Museum of Natural History, New York; Dr. H. Gideon Wells, of the University of Chicago, and Dr. John C. Merriam, president of the Carnegie Institution of Washington. This group will also serve as an advisory board for the general supervision of the program of the station.

A special laboratory will be built on the Florida site for the intensive study of one or more species of the anthropoids. According to the announcement, detailed obser-

vation will be made of the habits, social relations, life history and psychobiological development of these animals.

The station will be under the general supervision of Professor Robert M. Yerkes. The academic center for the activity will remain in New Haven, where it is hoped that enlarged laboratories and equipment may be obtained in proximity to the Institute of Human Relations. Senior members of the staff of the unit will alternate between the Florida station and the New Haven laboratories, spending some months in each place.

Observational field camps are planned in Africa and Malaysia. Here the anthropoids and other primates will be studied in their natural surroundings. Such work is now being conducted by Dr. H. C. Bingham, who is studying the mountain gorilla in the Belgian Congo in the heart of central Africa. It is expected that another member of the staff will shortly proceed for study and the collection of material to Kindia in French equatorial Africa, where the Pasteur laboratory is established.

The three divisions of activity in comparative psychobiology are planned to supplement each other. In the academic center at New Haven data will be assembled and studied in the light of their bearing upon problems of human conduct. At the Florida station, apes will be observed over long periods of time under carefully controlled conditions, and animals will be bred for use in the New Haven laboratories and elsewhere. In the field camps added data concerning the natural history of the same type of animal will be gathered.—*Science.*

Sinanthropus Pekinensis

The Peking correspondent of the London *Times* reports that at an open meeting of the Geological Society of China held on December 28 the closely guarded details of the finding in North China of the skull of a man hundreds of thousands of years old were officially revealed. The discovery was made on December 2, in a limestone cave deposit at Choukoutien, forty miles from Peking.

The find consists of the greater part of an uncrushed adult skull belonging to an entirely new genus, known to science as *Sinanthropus Pekinensis*, which is definitely placed above the Java ape-man in brain capacity, but below Neanderthal man. The Peking man is considered to antedate Neanderthal man and is held to be nearer the genus *Homo* than the Piltdown and Java types. Estimates of the age of the skull vary greatly. Dr. Grabau, adviser to the Chinese Geological Survey, states that the Peking man lived at the beginning of the Quaternary Period and gives his age as 1,000,000 years, but Père Teilhard Dechardin, president of the Geological Society of France, and also adviser to the Chinese Survey, favors an estimate of 400,000 to 500,000 years.

The credit for the actual discovery of the skull goes to a young Chinese geologist, Mr. W. C. Pei, in charge of the field work of the Geological Survey at Choukoutien last season. Excavations there had previously yielded the major parts of the two lower jaws and numerous teeth and skull fragments of "Peking Man," as well as four tons of fossil remains, including the sabre-toothed tiger, which flourished at the same time as "Peking Man." The skull is still largely embedded in hard travertine,

which will require a couple of months of difficult and delicate work to remove, but the vault from the massive brow ridges to the occiput and the whole of the right side have already been freed from the relatively soft matrix, showing that while most of the facial region seems lacking, the brain case is almost completely preserved. The massive jaw sockets are also visible.—*Science.*

* * * *

THE MUSEUM OF FAR EASTERN ANTIQUITY in Stockholm published its first bulletin on September 15, 1929. It contains a definition of the origin and aims of the Museum by Dr. J. G. Andersson, and a series of articles mostly in English by such distinguished scholars as Dr. Andersson himself, and Professor Karlgren. The volume can be secured from the Librarian of the Museum, the price being 18 crowns, or $5.00. Separate articles can be obtained; for example, Professor Karlgren's paper on the authenticity of ancient Chinese texts is issued at the price of $1.00 The second number is expected to appear some time in 1930 and will include an article by Dr. O. Janse on certain bronze implements from Yünnan and neighboring regions, a paper by Professor Karlgren on some fecundity symbols in ancient China, etc.

PROFESSOR LIDIO CIPRIANI of the National Museum of the University of Florence is continuing the investigation of African prehistory, modern cultures, and physical anthropology. He has made large collections, discovered an important new type of Bushman paintings, taken facial casts, and made an ethnographical collection from northern Rhodesia and other parts of Africa. Several papers have appeared on the results of the expedition mostly in the Archivio per l'Antropologia e la Etnologia 1928 and 1929.

PROFESSOR A. L. KROEBER has been devoting the present term to a reconnaissance of northern Mexico both from a linguistic and ethnographic point of view. He is likewise planning a study of Yuman languages of Arizona.

MRS. ZELIA NUTTALL has returned to her residence in Mexico after an absence of over half a year. Invited to serve as a member of the organizing committee of a "Retrospective Exhibition" in connection with the International "Semaine de la Lumière," a Congress held in Paris last summer, sponsored by the "Institut d'Actinologie," she made an exhibit there and lectured on "The Cult of the Sun at the Zenith in Ancient Tropical America." She also gave the same lecture at a special meeting of the Royal Anthropological Institute, London, of which she is a Fellow, and at Cambridge University. It was owing to Mrs. Nuttall's initiative and suggestions that the observation of the striking solar phenomenon of the shadowless pole or gnomon which marks the advent of the rainy season and the Aztec New Year has been revived in Mexico as a school feast of educational and patriotic value. Last year, for the first time since 1519, the event was celebrated in the public square of Coyoncan by thousands of school children, with Aztec dances and songs to the accompaniment of wooden drums and flutes.

A BRANCH OF THE SOUTHWEST MUSEUM, of Los Angeles, is soon to be built to house the artifacts collected by Mr. and Mrs. William H. Campbell. It is to be located in the vicinity of Twenty-Nine Palms, near which the collections were made.

COLONEL WILLIAM H. CORBUSIER, United States Army, retired, died on February, 8, 1930. He was born in 1844 in Nyack, N. Y., served during the Civil War, and subsequently took part in various Indian campaigns, especially against the Cheyenne, Sioux, and Apache. He was responsible for the capture of the famous Apache chief, Geronimo. He published a book on the language of the Apaches, and wrote the only worthwhile paper on the Yavapai for the *American Antiquarian* for 1886.

THE MUSEUM OF THE UNIVERSITY OF PENNSYLVANIA announces an alteration as to the scope of the museum journal. The purely popular and the scientific side are now separated, the former being published in the *University Museum Bulletin* of which three issues have come to hand and which is to be published monthly from November to May. This bulletin will contain brief accounts of recent acquisitions and current activities. *The Museum Journal* will henceforward contain only articles of definite scientific importance. It will be issued as a quarterly as heretofore but each subsequent part is to contain articles dealing only with a single field of investigation.

THE TWENTY-FOURTH INTERNATIONAL AMERICANIST CONGRESS will be held in Hamburg September 7th to 13th, 1930. Participants are asked to send their titles with a brief summary not later than June 1st. Dues may be sent to the International Americanist Congress, care of M. M. Warburg & Company, Hamburg. For regular members the dues are 20 marks, for associate members, 10 marks. The Organization Committee includes Dr. G. Thilenius, President, and R. Grossmann, Secretary.

FREDERICK STARR has been elected Academico Correspondiente of the National Academy of Arts and Letters of Cuba.

HENRY B. COLLINS, assistant curator of ethnology in the U. S. National Museum, has returned from Alaska, where he has been collecting since April. He has 56 boxes of anthropological specimens with him.

WE NOTE WITH PROFOUND REGRET the death on November 6, 1929, of one of our three Honorary Members, Dr. Karl von den Steinen, one-time director of the Berlin Ethnographical Museum and professor of ethnology at the University of Berlin. Professor von den Steinen was seventy-four years of age.

IN THE MANDATED TERRITORY of New Guinea a sociological census is being conducted by the Government to determine the causes of depopulation. Mr. Chinnery, the administration anthropologist, has devoted some months in Kieta and in New Britain to this task. Dr. Hortense Powdermaker of London University has been working in New Ireland, Miss Beatrice Blackwood in Rabaul, Mr. Gregory Bateson among the Baining and Sulka of New Britain.

THE FIELD MUSEUM OF NATURAL HISTORY has begun publication of a monthly bulletin, *Field Museum News*, which is to be circulated among the institution's members, now numbering nearly 6,000. Announcements, reports and records of all museum activities will be published in the periodical, including notes on additions and improvements in the exhibition halls, and accounts of the work conducted in the museum's scientific research laboratories, and by its many expeditions operating in widely scattered and remote parts of the world. Dr. Stephen C. Simms, director of the museum, is the editor. Contributing editors include Dr. Berthold Laufer, curator of anthropology; Dr. B. E. Dahlgren, acting curator of botany; Dr. O. C. Farrington, curator of geology, and Dr. Wilfred H. Osgood, curator of zoology. A feature of the January issue is the first installment of a history of the museum since it was founded by Marshall Field in 1893, written by Dr. Farrington, who is dean of the scientific staff, having been head of the department of geology since the museum's earliest days.

TENAYUCA, the Aztec ruin, recently gave up three more idols of stone. Two are sitting on their haunches and have their hands on their knees while their heads bear ornate head-dresses. A third idol is just a face broken off a body that has not yet been found. All three represent priests or gods, who may be identified later when their adornments are studied. The style of carving is Aztec. The site of Tenayuca has yielded an enormous quantity of pottery, whole and in fragments, which has been classified and is being studied by Eduardo Noguera, of the Direction of Archeology of the Mexican Ministry of Education. Some stratigraphic explorations have been made to determine the succession of cultures in that region. Pottery fragments belonging to the Archaic, Toltec, and Aztec periods have been found, and objects from the oldest of these periods, the so-called Archaic, have been found to an unusual depth, indicating that Tenayuca has been occupied continuously for very long periods of time.

NEIL M. JUDD, curator of American archeology, U. S. National Museum, returned to Washington on September 23 from four months' field work in Arizona in behalf of the National Geographic Society. Mr. Judd's investigations this year were primarily concerned with collection of beams from prehistoric Pueblo ruins. With these old timbers it is hoped to bridge the single remaining gap in the "tree ring" chronology being erected by Dr. A. E. Douglass, of the University of Arizona, and thus make possible the dating of Pueblo Bonito and other pre-Spanish ruins of the Southwest. While under the general direction of Mr. Judd, the society's 1929 excavations were directly supervised by Messrs. L. L. Hargrave, of the Museum of Northern Arizona, at Flagstaff, and E. W. Haury, of the University of Arizona, at Tucson. Dr. Douglass is now engaged in reviewing the material resulting from the expeditions; a midwinter report is anticipated.

MR. MATTHEW W. STIRLING, chief of the Bureau of American Ethnology, left Washington on January 13 for a cruise among the Ten Thousand Islands between Charlotte Harbor and Cape Sable, Florida, where he hopes to discover evidences of

the former occupancy of this area by the Caloosa Indians. He is being aided by Mr. Lee Parish, of Tulsa, Oklahoma, whose 85-foot yacht, *Esperanza*, furnishes transportation. After his exploration in the Ten Thousand Islands region Mr. Stirling will excavate a large sand mound on the west coast of Florida, south of Tampa Bay.

THE MUSEUM OF THE AMERICAN INDIAN, HEYE FOUNDATION, has asked the Government of Denmark, through the State Department, for permission to send an expedition to Scoresby Sound and its vicinity in East Greenland to collect ethnological material for a study of the coast Eskimo of that region, as well as archaeological specimens. Should permission be granted, the expedition will be led by Captain Robert A. Bartlett.

DR. PAUL S. MARTIN, of Chicago, as a member of the staff of the department of anthropology at the Field Museum of Natural History, is now at the museum, where he has assumed his work as assistant curator in charge of North American archaeology.

THE HUXLEY MEMORIAL LECTURE of the Royal Anthropological Institute was delivered by Baron Erland Nordenskiöld in the lecture theater of the Royal Society on November 26. Baron Nordenskiöld chose as the subject of the address "The American Indian as Inventor."

DR. TRUMAN MICHELSON, ethnologist of the Bureau of American Ethnology, has taken up field work in Oklahoma, Kansas and Iowa. The main object of his work is to ascertain whether it is not possible to reduce the Arapaho and Cheyenne languages to normal Algonquian by the application of phonetic shifts. The social organization of the various Algonquian tribes of these states will also be studied.

THE MEETING OF THE BRITISH ASSOCIATION this year will be held in Bristol, from September 3 to 10, when Sir Thomas Holland will be succeeded in the presidential chair by Professor F. O. Bower. The newly elected president of the Anthropology section is Dr. H. S. Harrison.

TWO PETRIFIED HUMAN BRAINS have been found at Odinzowo, near Moscow, in central Russia, associated with the teeth of a woolly mammoth, and are said to be the oldest fossilized human brains ever found. It is reported that a commission of scientists has been selected to make detailed studies of these remarkable finds of man during the Ice Age when the huge mammoths and the rhinoceros were clothed with a thick coat of woolly hair. These finds are not "Casts" but actually petrified human brains—somewhat shrunken, but sufficiently well preserved so that anatomists can reconstruct the form of the brains from the fossils. The Russian scientist Hindze, who is preparing a report on the brains, is of the opinion that man in the Ice Age possessed a brain slightly smaller and less developed than recent dwellers of the same area.

THE TENTH SUMMER TERM of ten weeks of the American School of Prehistoric Research, under the direction of Professor George Grant MacCurdy, of Yale

University, assisted by Mr. J. Townsend Russell, Jr., of the U. S. National Museum, will open in Paris on July 1. The field to be covered includes Paris museums, Valley of the Somme at Amiens, Brittany, northern Spain with excavations near Santander, the Pyrenes, Dordogne with excavations at St. Leon-sur-Vézère and Switzerland. In addition, the students will have opportunities to do field work in Czechoslovakia under the supervision of Messrs. V. J. Fewkes, of the University of Pennsylvania, and Robert W. Erich, of Harvard University. Applications for enrollment should be made as soon as possible to Dr. George Grant MacCurdy, Peabody Museum, New Haven, Connecticut.

THE BROOKLYN MUSEUM announces the appointment of Dr. Herbert J. Spinden as curator of ethnology in the museum of the Brooklyn Institute of Arts and Sciences. Dr. Spinden goes to Brooklyn from the Peabody Museum at Harvard University, where he has been curator of Mexican archaeology since 1921.

DR. MELVIN R. GILMORE, who was formerly associated with the Museum of the American Indian, Heye Foundation, has assumed the work of curator of ethnology in the museum of anthropology at the University of Michigan.

J. REID MOIR has been elected president of the Ipswich Museum in succession to the late Sir E. Ray Lankester, in recognition of his services to science and to the museum.

DR. CLARK WISSLER, curator of anthropology of the American Museum of Natural History and professor in the Yale Institute of Psychology, has been elected president of the New York Academy of Sciences to succeed Professor Charles P. Berkey, of the department of geology at Columbia University.

PROFESSOR H. J. FLEURE, D. Sc., at present professor of geography and anthropology in the University College of Wales, has been appointed professor of geography in the University of Manchester.

C. W. BISHOP, associate curator of the Freer Gallery of Art, has left Washington to resume archaeological research work in China.

DR. WALTER LEHMANN, professor of American ethnology at Berlin, recently gave a series of lectures at the University of Buenos Aires on old Mexican religions.

DR. K. TH. PREUSS, director of the Museum für Völkerkunde and professor at the University of Berlin, has been elected an honorary member of the Société des Américanistes de Paris.

MR. WILFRED D. HAMBLY, Field Museum of Natural History, has returned from a successful expedition to Angola and Nigeria. In addition to the usual ethnographic work of collection and recording, he has been able to record drum music and songs with the aid of a dictaphone.

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THE KASKINAMPO INDIANS AND THEIR NEIGHBORS[1]

By JOHN R. SWANTON

THE ethnologic condition of the Tennessee and Cumberland valleys during early colonial times has hitherto been involved in great obscurity on account of the few authentic references to the region and the unreliability of the maps of the period. The extreme southward swing of Tennessee river seems to have disturbed the mental balance of cartographers to such an extent that close study is required to determine whether a tribe or town was on the Tennessee, the Cumberland, or some other stream. Distortions of all kinds are met with, so that we find the Tennessee running straight west or southwest for its entire course and the relations of this river and the Cumberland to each other and to the Ohio and the Mississippi change in the most bewildering manner.

In another place[2] I have endeavored to resolve some of the confusion regarding the identity of the Tennessee tribes, but I was obliged to leave two of them, the Tali and Kaskinampo, unclassified, though I presented evidence that the former may have been the Tellico or Tahlequah (Tălikwă') band of Cherokee. For the Kaskinampo there seemed to be no clue whatever.

A recent reexamination of the whole question has, however, dissipated some of the uncertainty regarding the latter and appears to have resulted in an identification of the group to which it is to be assigned, even though the exact connection is still involved in some doubt. Our evidence is drawn first from maps and early narratives, and secondly from the name Kaskinampo itself.

Early maps of the Tennessee region fall into three principal classes, representing the results of as many distinct additions to the information of the cartographers. There are also minor variations within the classes,

[1] Published with the permission of the Smithsonian Institution.

[2] Bulletin 73, Bur. Amer. Ethn., Washington, 1922.

some of which may be accidental while others represent real or assumed advances in knowledge.

The name Kaskinampo goes back to the maps of Marquette and Joliet. On the Marquette map published by Shea it is spelled "Kakinonba" and is placed to the right of the lower Mississippi southeast of the "Cha8anon" (Shawnee) and north of the "Matahali."[3] In a map by Joliet, assigned conjecturally to the year 1690, it appears as "Kachkinouba," and is placed near a lake at the head of an eastern tributary of the Mississippi, probably intended for the Tennessee.[4] In Thevenot's map of 1681, prepared to illustrate Marquette's explorations, there is a list of tribal names near the right-hand margin and in the same latitude as the mouth of the Ohio, which stream is called "R. 8ab8quig8" (i.e., Wabash).[5] These tribes are, in the order given, the 8abanghiharea, Taharea, Kaskin8ba, and Matahale. The sizes of the tribes are indicated by subjoined circles, but only the last has more than one. These are assigned eighteen, from which it would seem that they are either the Cherokee or the Chickasaw, probably the former.[6] The name 8abanghiharea is Algonquian and signifies "easterners" or something of the sort but the identity of the tribe is unknown. The Taharea are probably the Tahogarewi, Tohogalewi, or Yuchi, and the Kaskin-8ba are of course the tribe in which we are principally interested.

What is supposed to be the earliest of the first series of maps to which I have just referred is a manuscript in the French archives and was prepared to illustrate the discoveries of La Salle, being placed conjecturally in the year 1682. A photostat copy of this map is in the Library of Congress, and from it the reproduction shown in figure 1 has been made. It is unsigned, but if the date is correct, it was either prepared by the cartographer Jean Baptiste Louis Franquelin or drawn upon extensively by Franquelin for his own charts. On it parts of the Mississippi, Ohio, and Tennessee are run together under the name "Fl. St. Louis ou Chucagoa, ou Casquinampogamou." The "Caschinampo" are placed on an island in Tennessee river, an island which is not shown unfortunately in the present reproduction, and from it a broken line extends to St. Augustine, Florida, with the legend "Ou les Caskinampo et les Chaoüenons vont en traite aux Espagnols." It is important to note the northern terminus of this trail, because in Franquelin's map of 1684, which has frequently been reproduced, the

[3] John G. Shea, Discovery and Exploration of the Mississippi Valley. Redfield, New York, 1852.

[4] MS. copy in the Library of Congress.

[5] 8=ou.

[6] See Charles A. Hanna, The Wilderness Trail, 2: 98.

"Caschinampo" village is omitted and the trail carried to a town called "Cisca" still farther north.[7] Since Cisca is evidently the same as Chisca or Chiska, which has been identified as a name of the Yuchi Indians, these later maps gave some color to the theory that the Kaskinampo were Yuchi, but this particular basis for the hypothesis is destroyed by the earlier and correct maps. On the headwaters of the Tennessee are three towns or tribes side by side, called in succession from west to east "Tehalaka," "Cacougai," and "Taligui." The first is, of course, intended for "Tchalaka,"

FIG. 1. An anonymous French map illustrating the discoveries of La Salle and conjecturally dated in the year 1682.

i.e., Cherokee. The second appears on other maps as "Cattougai," or "Catougai," and is evidently, as Hanna points out, intended for Katowagi, the Shawnee name for the Cherokee. This was derived originally from a large Cherokee town known as Kĭtu'hwă situated "upon Tuckasegee River, and extending from above the junction of Oconaluftee down nearly to the present Bryson City, in Swain County, North Carolina."[8] Mooney, who gives us this information, adds that the name of the town was first extended

[7] Charles A. Hanna, The Wilderness Trail, 2: 92.

[8] James Mooney, Myths of the Cherokee. Ann. Rept., Bur. Am. Ethn, 19: 525.

to the subordinate settlements on Tuckasegee river and later to the entire nation. Taligui I believe to be identical with Tălikwă', Tellico, or Tahlequah, one of the most important towns or sets of towns among the Cherokee. It is this name which has probably furnished the "Talligewi" or "Alligewi" of Delaware tradition, and this incidentally confirms Brinton's identification of the Talligewi with the Cherokee.[9] The fact that Kĭtu'hwă and Tălikwă' were once applied to sections of the Cherokee leads to the suggestion that the name Cherokee may once have had a limited application as well, as appears on the map under consideration. Regarding the other maps of the series we need only remark that the legend on the trade route to St.

FIG. 2. The Vermale map of 1717.

Augustine on the Franquelin map of 1688 reads as follows: "Chemin par ou les Kaskinampos et autres sauvages vont traitter aux Espagnols."[10]

The second series of maps will particularly concern us but let us first briefly consider the third. The earliest of this group is a manuscript map by Vermale dated 1717 (fig. 2).[11] It shows little on the middle and lower courses of the Tennessee, but on its headwaters, besides two groups of towns called Cherokee specifically, there are four towns or tribes near-by with separate names. These are "Rongoria," "Ajouache," "Amochi," and "Talicouet." The first refers undoubtedly to the Tahogale or Yuchi

[9] D. G. Brinton, The Lenapé and their Legends, 229–231.

[10] Copy in Library of Congress.

[11] Ibid.

after they had occupied a town among the Cherokee which the latter called Tsistu'yĭ, "Frog Town," corrupted by the English into Chestua. Ajouache, which later maps give as "Aiouache," is Hiwassee (Cherokee Ayuhwa'sĭ), on Hiwassee river. Amochi is more often spelled Amobi or Amohi and is evidently from the Cherokee word meaning "island" (ămăye'lĭ). This has a general application but there was a specific town of the name at an early period. It appears on the Popple map of 1733 as "Amoyee."[12] Talicouet is plainly Great Tellico (Tălikwă'). The positions of all these towns correspond roughly with their locations in later times so far as these are known. The semi-independent character of Tellico is again emphasized.

The earliest of the second set of maps, on which we will now concentrate our attention, is De l'Isle's manuscript map of 1701.[13] From the legend along Tennessee river, "Route que les Francois tiennent pour se rendre a la Carolinne," it is evident that part of the data entering into it was furnished by five Canadians who ascended that stream in the summer of 1701 and reached South Carolina by way of the Cherokee country. Their achievement is announced in a letter dated August 4, 1701, written by Sauvolle at the newly established fort of Biloxi, which he commanded during the absence of his brother Iberville in France. An exact copy of the section of this in which we are interested is as follows:

Le premier vilage quils ont trouvé est Chicacha, qui est à droite en montant, environ à 140 L. du Miciscipi ensorte l'on rencontre les Tougalé, qui sont environ 200 hommes, fort bien faits, apres ça les Talé ou il y a un Anglois etably pour trafiquer des esclaves, comme ils font ches plusieurs autres nations. Les Cassoty et les Casquinonpa, sont sur une isle que forme la R. aux deux extremités de laquelle sont scituées ces deux nations. ils ont passé ansi au Cheraqué qui sont voisins de la R. des Chaüanon.[14]

When we come to compare De l'Isle's cartography of the Tennessee with this narrative we find a close resemblance, as we should expect, yet some puzzling divergencies. He gives us the "petit village des Chicachas" farthest down stream and seemingly on both sides. Next we come to a "village des Taogaria" opposite the lower end of an island upon which is the "village des Tali," above this a second island with two towns, the lower unmarked, the second with the legend "les Caskighi." The islands themselves are called "Isles des Caskinampo." Higher still are "villages des Chaouenons." In 1702 De l'Isle prepared another map which was in

[12] See reproduction in Bur. Am. Ethn., Bull. 73, pl. 4. The form Amobi must be erroneous, there being no b in Cherokee.

[13] Copy in Library of Congress.

[14] MS. in French Archives; copy in collections of Louisiana Historical Society.

most particulars a repetition of that of 1701. On this, however, the first island village is called "village des Caskinampo," and at the head of the river appears the "Nation des Tarachis," by which is evidently intended the Cherokee.[15] In the accompanying reproduction of the Tennessee section of this map (fig. 3) the relative positions of the towns are correctly given but the insular locations of Tali, Caskinampo, and Caskighi have not been preserved.

But while De l'Isle's map agrees in most particulars with the report contained in Sauvolle's letter there are differences which indicate some other

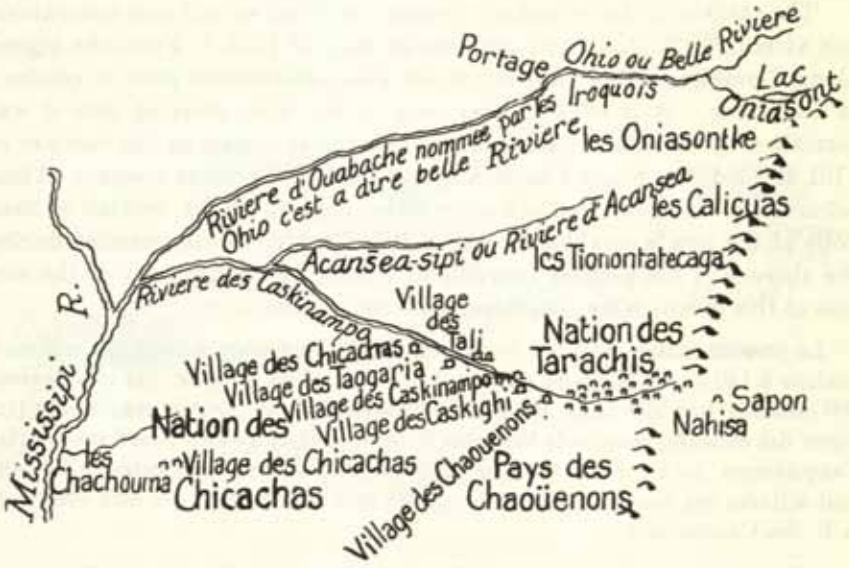

FIG. 3. The De l'Isle map of 1702.

source of information. Divergencies in spelling will be noted, but the most important alteration is in the name of the town at the upper end of the uppermost island. Instead of "Cassoty" as we might expect, we have "Caskighi." The appearance of Shawnee villages higher up the river might have been based on the report of the Canadians to the effect that the Cherokee "sont voisins de la R. des Chaüanon." But where did De l'Isle get the name "Caskighi"? It would seem that there must be some documents not yet available to students which contain the missing information. Most later maps until 1717, and some after that date, are but repetitions of these

[15] Copy in Library of Congress.

maps of De l'Isle, though some of them omit the Caskighi or Caskigui, and a few give a second Kaskinampo town lower down the river.

There are two early sources of information which disagree with the above, but both probably date from a period earlier than 1701 and may incorporate conjectures and rumors rather than the results of exploration. One is a manuscript French map of 1697[16] (fig. 4). Here the Tennessee appears as the "R. des Tasquinapous." On the south side of it pretty well down is "V. des Cochati," above on the north side in succession "V. des Tasquinap8s," and "V. des Taly," and on the south side, still higher up, the "V. des Togales." The other information is contained in the "Carolana" of Daniel Coxe Jr., published in 1705, but incorporating, in part at least, earlier information obtained by the elder Coxe.[17] According to his text the "Kasqui" were a short distance above the mouth of the Tennessee, the "Chicazas" about 200 miles higher, below "a small fall or cataract," and 30 to 40 leagues higher still were "four delicate islands" upon which lived the "Tahogale," "Kakigue," "Cochali," and "Tali," supposedly in that order as one ascended the river. Sixty leagues beyond were the Cherokee.

These two sources testify to the presence of the same tribes on the river, except that the French map does not give the Caskigui, who are, without much doubt, the "Kakigue" of Coxe. The points to be noted are that the Cherokee, Shawnee, Yuchi (Tahogale, Taogaria, etc.), and Tali are kept distinct from the rest, thus tending further to dispose of the theory that the Kaskinampo were Yuchi, which at one time seemed to the writer a plausible supposition and indicating that they were distinct from the Cherokee or Shawnee.

It is clear that the Cassoty, Cochati, and Cochali are the Koasati of later history, most of whom settled among the Creek in the seventeenth century, near the junction of Coosa and Tallapoosa rivers. A few remained upon Tennessee river at the present Larkin's Landing until a comparatively late date. It seems almost equally certain that the Caskigui were the Taskigi or Tuskegee. Either owing to miscopying or to a dialectic shift, capital T and capital K are often used interchangeably. Those Tuskegee who settled among the Creek probably broke away before the opening of the eighteenth century since we find them on the lower Chattahoochee by 1685, but another section of the tribe remained on or near Tennessee river and finally joined the Cherokee.[18]

[16] Copy in Library of Congress.

[17] A Description of the English Province of Carolana (in French, Hist. Colls. of Louisiana, Phila., 1850).

[18] James Mooney, Myths of the Cherokee. Ann. Rept., Bur. Am. Ethn., 19: 534.

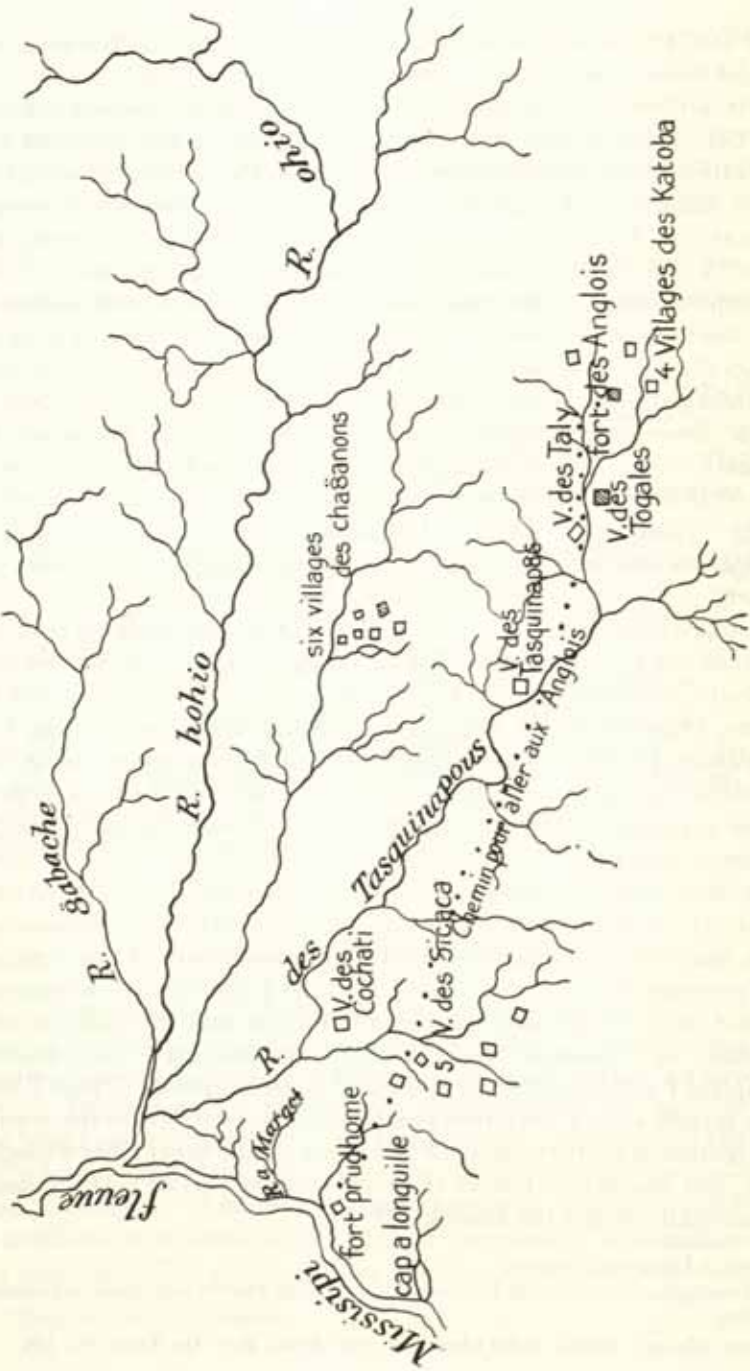

FIG. 4. An anonymous French map conjecturally dated in 1697.

This northern band of Tuskegee *might* have been the tribe earlier known as Kaskinampo, but there are certain serious objections to such an identification. If the name Kaskinampo were the one to disappear when that of Kaskigui or Taskigui appears, the identity of the two tribes would seem assured, but instead it is "Koasati" or its equivalent which thus drops out of sight, and we *know* that the Koasati and Tuskegee were distinct tribes. It is possible that the Koasati and Tuskegee tribes spoke languages so nearly related that the names became shifted from one to the other, and I believe the first part of this supposition is correct. I do not believe, however, that Kaskinampo was properly a name for the tribe known later as Tuskegee because, had it been, it would probably have alternated in use with the name of the Tuskegee. Moreover, as we shall see presently, De Soto seems to have encountered all three of these tribes at as many separate points.

My own conclusion from the above facts is that the Tuskegee, Kaskinampo, and Koasati were related tribes but that the two last mentioned finally united into one body. On a map prepared in the interest of the South Carolina colony about 1716–18, that upon which was based Moll's map of 1720, Tennessee river is called in two places "Cusatees River," and in a third place "Thegalego River," the latter name evidently a corruption or shortening of Tohogalega, a form of the name for the Yuchi which also appears.[19] These "Tohogalegas" are located, as on most of the other maps of the time, just below the great bend in the Tennessee. Immediately above that bend is an island called "Cusatees Id." which we may identify with little difficulty as Pine island. In the middle of this a French fort is indicated with the note that it had been established there "since ye warr," i.e., the Yamasee war. On either side of the fort is a native village to which the legend is attached "Cusatees 50 in 2 villages," the 50 evidently referring to the number of warriors. There is no good reason to doubt that these villages are the two visited by the Canadians in 1701, fifteen years before. If we could be sure of this, it would be evident that they represent the villages of the "Casquinonpa" and "Cassoty." At a somewhat later date James Adair enumerates among the tribes taken in by the Creek to swell their federated body "two great towns of the Koo-a-sah-te." Later he mentions "two warlike towns" of this tribe as having moved to the Tombigbee "soon after West-Florida was ceded to Great Britain." However, some probably remained on the Tennessee since we hear of a "Coosada" town at Larkin's Landing in Jackson county in 1784, said to be a mixed settlement of Creek and Cherokee. At a somewhat later date Koasati

[19] Bur. Am. Ethn., Bull. 73, pl. 3.

moved over into Louisiana where their descendants still live, while the rest of them followed the Creek to Oklahoma, and a few still retain the ancient Koasati speech. In Oklahoma there were also two ceremonial grounds of Koasati known as Koasati No. 1 and Koasati No. 2.[20] It is quite probable that the older tribal distinctions played a part in some of these later divisions, but of that we are not likely ever to be certain.

The seeming appearance of Tuskegee at the point where we should expect Koasati on De l'Isle's maps of 1701 and after is due, I believe, to the fact that the Tuskegee were living at the same period on another island higher up, probably Long island. It will be remembered that on De l'Isle's map are entered the "Isles des Caskinampo" and there are in fact two islands. These islands are represented actually close together it is true, while Pine and Long islands are something like sixty-five miles apart, but, as already indicated, we must not expect too much of the cartography of the period.

The above evidence is strengthened somewhat by linguistic considerations. "Kaskinampo" has a Muskhogean appearance but cannot be interpreted with certainty in any known Muskhogean tongue. It resembles Choctaw or Chickasaw rather than Creek, but no Choctaw words of similar aspect have a meaning such as might plausibly have been attached to a tribe. When we turn to Alabama and Koasati, however, we seem to get some encouragement as to the significance of the latter part of the word. It must be remembered that Coxe calls the tribe Kasqui, and that the Casqui or Casquin of De Soto's chroniclers is evidently the same. In my Koasati vocabulary anámpō is given as a word meaning "the next time," or "the next one," but in my very much fuller Alabama dictionary nampo appears as the equivalent of "many." This may well have been used as a plural. Plausible interpretations may be suggested for the first part of the word, one in particular being supplied by the seeming use of kaska as "warrior" in place of Choctaw and Chickasaw táshka. As Alabama and Koasati are closely related it is probable that further investigation will show that the Alabama usage of nampo is paralleled in the sister tongue. In the long form given by Franquelin, "Casquinampogamou," we may suppose that an article or postposition has been included.

The evidence thus brought together seems to indicate that the Kaskinampo were a tribe which spoke the Koasati language or a closely related dialect. While there is a possibility that it was the tribe later known as Tuskegee, I rather think that all three were independent but linguistically related peoples. We know that the Tuskegee spoke a language distinct from Creek. We do not know what this was, but the character of their

[20] See Bur. Am. Ethn., Bull. 73: 201–207.

own name which seems to contain the old Muskhogean word for "warrior," tåska or tåshka, and their constant association with the Koasati both on Tennessee river and in the Creek nation make its relationship to Koasati probable. Koasati is still spoken and it is known to be related most closely to Alabama while showing certain traces of Creek influence, just as Alabama does of influence from the Choctaw or Chickasaw.

When De Soto and his men descended the Tennessee in the early summer of 1540 he came to the province of Coste (Ranjel), Acoste or Coste (Elvas), Costehe (Biedma), or Acosta (Garcilasso de la Vega). This, as I have stated elsewhere, I believe to have been the Koasati of later writers, the only difficulty being the absence of a vowel between s and t.[21] The final -he of Biedma's form may be an attempt at the Koasati plural or collective ending -ha. Mr. Brame of the Alabama Anthropological Society has, I think, identified the site of this town quite conclusively with an aboriginal site at the upper end of Pine island.

Next, De Soto came to Tali close to the southernmost swing of Tennessee river and from there marched across country to Coosa on the river of the same name. About two-thirds of the way to the latter place he came upon a town called Tasqui. In 1567 a Spanish soldier and some Indians reported to Juan de Vandera, Spanish governor of Santa Elena, that they had visited this place and another near-by known as Tasquiqui. There can be no reasonable doubt that this last was a settlement of the historic Tuskegee Indians, and relatively little doubt that Tasqui appertained to them also.[22] It is safe to assume, therefore, that in 1540 part of the Tuskegee at least were between the Tennessee and the headwaters of the Coosa. That fission may have begun in Vandera's time, which sent one part south to live with the Creek and the other to Tennessee river and ultimately to the Cherokee country.

In March, 1541, a few days after De Soto's army crossed the Mississippi river, they came to the principal town of a province which Ranjel and Elvas call Casqui, Biedma Icasqui, and Garcilasso Casquin. The variant forms of this name indicate either that the people spoke a Muskhogean dialect or that the name was obtained through Muskhogean interpreters, or both. The i- of Icasqui would be the objective pronominal sign of the third person and the final -n of Casquin the sign of the indirect object, both of which are features common to all Muskhogean tongues except Natchez. It is likely that "Quarqui," given by Ranjel as the name of the province in which Casqui was situated, is a synonymous term, s having been miscopied r, and it has been suggested that Quizqui or Quiz-

[21] Bur. Am. Ethn., Bull. 73: 201.

[22] Bur. Am. Ethn., Bull. 73: 201–211.

quiz, which was on the east bank of the Mississippi opposite this province, may contain a variant of the word Casqui.[23]

In De Soto's time, Casqui and Pacaha were the most powerful tribes in the region and were at war. A word might be added regarding the second of these. Because Garcilasso calls this tribe Capaha, a rather close approximation to Ugákhpa, the native name of the Quapaw or Arkansas tribe, it has quite uniformly been supposed that the two were identical. But Garcilasso is the poorest of our informants and the arguments against such an identification are weighty. In the first place there is every evidence that the Quapaw Indians had moved down the Mississippi a very short time before Marquette and Joliet reached it (1673). According to the common tradition among the Indians they had formerly lived on the Ohio, and, in fact, that part of the stream above its junction with the Wabash was known as River of the Arkansas. It seems fairly plain that the sites of their former villages there were well known. Now, while the traditions regarding the general drift of a migrant people will be kept alive for a considerable period by tradition, I think it is unlikely that such clear knowledge of this movement would have been retained for a hundred and fifty years, as must be assumed if the Quapaw were on the lower Mississippi in 1541. Moreover, the reference to a temple among the Pacaha, and other facts mentioned by the Spaniards, do not agree very closely with what we know of the Quapaw.

There is also a bit of linguistic evidence. The Fidalgo of Elvas tells us that the chief of Pacaha gave De Soto two of his sisters to be his wives, one named Macanoche, the other Mochila.[24] It may be a mere coincidence, but at least the fact is interesting, that the two last syllables of the first of these names together closely resemble the Tunica word for "woman," nuhtci or nu'tci. In the same language maka is the word for "fat," or "grease," and mahka or ma'ka means "beloved," or "dear" though we cannot be sure that the latter word is used here because Tunica structure would make it necessary to place the noun first. The Tunica words most closely resembling Mochila are mucali (mushali), "a little hill or mound," and mutci, "bread." In the tribal name Pacaha the final -ha may be the Koasati plural above mentioned, but whether the rest of the word is from Koasati or the native tongue of the Pacaha people it is impossible to determine. However, the only points I wish to stress in these resemblances are: (1) that the phonetics conform to what we know of the phonetic sounds of Tunica; and (2) that the identity of -noche and Tunica nuhtci is inherently probable.

[23] Ibid., 213–214; Bourne, Narratives of De Soto, 1: 110–117; 2: 25–26, 137–140.

[24] E. G. Bourne, Narratives of De Soto, 1: 129.

Except for some light cast upon the Tennessee river region in consequence of the explorations of Juan Pardo and his associates in 1566 and 1567 we know nothing of the history of the tribes along this part of De Soto's route from the time his followers left the country until Marquette's voyage of 1673. By 1701, as we have seen, the Kaskinampo, presumably De Soto's Casqui, had settled on an island in the Tennessee, but a French description of the province of Louisiana, dated about 1712, states that they had formerly dwelt upon the Cumberland which was therefore called after them the River of the "Caskinanpau." We must suppose, then, that between 1542 and 1701 the Kaskinampo had moved some distance north to the Cumberland and then had returned to the more southern river. As Coxe implies, it is probable that they first settled toward the mouth of the latter stream but later moved to Pine island to join their relatives, the Koasati, whose fortunes they afterward followed.

Conclusions

There is good reason to believe that the Kaskinampo were a tribe linguistically related to the Koasati and that they ultimately united with them and disappeared from history by taking their name. It is practically certain that they are the Casqui encountered by De Soto shortly after his passage of the Mississippi river and that they subsequently moved to the Cumberland and then to the Tennessee, where they met the related tribe and fused with them. Although they were probably distinct from the Tuskegee, it is suggested that the first part of the names of these tribes, kaski and taski, are variants of the same word, which as tåshka in Choctaw and Chickasaw and tåsikaia in Creek is applied to a common warrior. A tåsikaia is a novitiate warrior and the term is often used as equivalent to "citizen." These words were probably employed as tribal names by several related peoples, perhaps some of those which anciently lived in eastern Arkansas and were responsible for part of the striking remains still existent there. The tribe in question we have actually traced to a former trans-Mississippi home in this section. But at least a part of the related Alabama, a tribe usually associated with the river so called, were found by De Soto in northwestern Mississippi, and they may have moved from the same region. The Tuskegee, part of whom finally settled at the junction of the Coosa and Tallapoosa rivers and part among the Cherokee, make their first appearance in history in northern Alabama, suggesting a movement from the same section. Perhaps these hints may help to guide future archaeological investigation in the Yazoo-Washita country. However, it is certain that the tribes of this group were not the only ones responsible for the Arkansas remains. I believe the Pacaha to have been a Tunican

tribe and may add that other tribal names of the section suggest the Tunica and Natchez languages.

The following tribes are known to have lived upon the middle and lower courses of Tennessee river:

1. A band of Chickasaw who were settled a few miles above the mouth of this river at the very end of the seventeenth century and the beginning of the eighteenth.

2. A band of Yuchi during the same period, located at or just above Muscle Shoals.

3. A band of Indians called Tali, probably part of the Cherokee, at the great bend, who occupied the country for over a hundred and fifty years.

4. The Kaskinampo, probably, as we have seen, relatives of the Koasati and occupants with them of Pine island for a few years at the opening of the eighteenth century.

5. The Koasati, on Tennessee river, presumably on Pine island, from 1540 until some date subsequent to 1715.

6. A band of Tuskegee, on or near Long island for a few years during the first half of the eighteenth century.

7. A band of Chiaha Indians, people seemingly connected in speech with the Hitchiti and Yamasee, and probably located on Burn's island, their incumbency in any case being known to extend from 1540 to 1567 and perhaps much longer.

Shawnee villages are placed on Tennessee river somewhat above any of the sites just mentioned on many early maps, but this may have been due to a confusion of the Tennessee and Cumberland rivers. The name of Savannah, county seat of Hardin county, Tennessee, suggests the presence of this tribe at a point much farther down and, even though they did not remain long upon this stream, they are known to have crossed it several times on their way to and from the Creek nation. At the best their occupancy was evanescent.

Let me add that for the identification of the locations of these towns we are peculiarly indebted to Mr. J. Y. Brame of the Alabama Anthropological Society, whose paper on "De Soto in Alabama, 1540" (*Arrow Points*, vol. 13, no. 3) marks an epoch in the determination of Indian sites in this section.

Explorations of the Tali and Koasati sites, if at all productive, should give us some definite knowledge of the culture of the prehistoric Koasati and the culture of a part of the Cherokee.

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SELECTIONS FROM THE LETTERS OF LORIMER FISON AND A. W. HOWITT TO LEWIS HENRY MORGAN (concluded)

EDITED BY
BERNHARD J. STERN

A. W. Howitt Sale, March 18, 1879

. . . .Fison has planned a future work which would cover the whole of the Australian field and also the Australasian island groups. I only trust it may get itself carried out but at present I don't see my way through the darkness. However, dawn may come. I think that I shall probably enlist the Victorian government. . . . .

Lorimer Fison Navuloa, Fiji, April 10, 1879

. . . .You cannot think of what pleasure your kind expressions of approval give me. They repay me for all the trouble my work has caused me. I am now picturing you to myself as on your visit to Washington, and using your powerful influence on our behalf with Prof. Baird. Let us hope that you will prevail with him. It would doubtless have been advantageous in one sense to have written my memoir during the lifetime of Prof. Henry. But I cannot be sorry for having refrained. Had I written it then I should now be preparing to recant certain opinions which I held. And even now I see that there are points requiring more light. I was very nearly putting aside my papers when about half way through the "Origins etc." and writing to Howitt that I had resolved to wait for more information. But the thing is done now. I do not think there will be anything of importance to retract, but there is much more evidence to be gained which would have come in well and effectively.

. . . .I trust that you have ere now received my appendix, and that it meets with your approval. My edition of Lubbock's *Origin of Civilization* is not the fourth as you suppose but the second. I have not seen the fourth edition containing the attack upon you. I have very slight opinion of that work. Its bulk is composed of mere extracts from other works, and its generalizations are I think hasty and incorrect. Such a work could be compiled by anybody who could afford to give an ordinary clerk a pound a week to make extracts from works on Savage Tribes in any good library. Moreover, Lubbock takes travellers' inferences as ascertained facts and generalizes from them. For this he is justly rebuked by Tylor. Wherever his assertions come within the range of my investigations he is incorrect, sometimes absurdly so; and the same remark about him has been made to me by scholarly men elsewhere the best part of whose lives have been passed

among savage tribes. I do not mean of course to maintain that travellers' statements are of no value whatsoever. The statements of fact which come under their notice are of very great value; but when they attempt to account for the facts and to draw conclusions from them, then they are almost sure to fall in error unless their knowledge of the tribes be sufficient to enable them to look at the facts from the native's standpoint. This knowledge is very rarely possessed by the passing traveler. I have indeed known not a few instances of men who had passed 20 or 30 years among savages without acquiring it. And such men are certain to be wrong in their conclusions because they measure the facts by outworn standards. It would be amusing, for instance, if the thing were not so mischievous, to listen to legal arguments as to land tenure here—arguments based on English law. . . . .

I think we shall have to take into consideration the following probabilities. All the tribes had formerly the Malayan system, but some advanced by natural causes acting upon them from within, while others were propelled by forces from without.

As long as the tribes remained nomad hunters, or pastoral, descent through the mother was not likely to be disturbed, if they were left to themselves. But when the hunters or herdsmen settled down to agriculture, the tendency must have been to division of property, to personal acquisition, and to agnatic descent. This is no more than what you have observed in another way. But what I have been forming in my mind is this. An undisturbed people would naturally advance gradually by such natural causes as "the reformatory movement" followed by the discovery and gradually extending use of cereals or even tubers (for rootgrowers are many). Having thus advanced and reached agnatic descent, they would naturally become stronger than tribes in the older condition and conquering them would bring in their system upon them.

In other words, among some tribes their progress being a natural growth, kept pace with their ideas, on other tribes an advanced system—in advance of their ideas—was imposed. Hence we may find tribes which have not passed through the experience of the reformatory movement and who yet do not permit the marriage of brother or sister. Such a tribe I take the *Bua* to be. Say for instance, that a tribe under the Malayan system is overborne by a tribe which has advanced to the Turaniana. The new system is forced upon them, but the ideas of the old systems are still in their brains. The new regulations forbid the marriage of brother and sister; but those who, according to Namata are *veicvaini*, *veivaivani* and *veitavalem* are brothers and sisters. The old terms hold them still, and do not permit their marriage. In the *Ba* system we see the new term *tavale* coming in and

taking its place side by side with brother and sister. The *first veitavalini-veitacini* may not marry but their children may. And even in that tribe I find that if those first cousins are bent on marriage, they carry out their purpose, though the elders grumble and protest. The young men say "*Tabu ga ko ira nagase tara ga koi keda*" meaning "Our fathers could not do it, but we can." Compare this with the *Bua* utter abhorrence of the marriages and we have an instructive view of the change of public opinion.

. . . .I feel quite sure that your extensive lists having established the logic of the systems, these of mine are now sufficient to establish the status of a system. Investigators henceforth can always appeal to your Tables, and their labour will be much less than was yours.

Lorimer Fison Navuloa, Fiji, April 27, 1879

. . . .I owe you far more than I can ever repay. It was you who first set me to work on a subject which has given me the keenest delight for years and which has led me to the acquisition of knowledge which I should not otherwise have attained.

Lorimer Fison Navuloa, Fiji, May 30, 1879

. . . .To have gained your friendship is more to me than I can express without using words which would have the appearance of extravagance. I don't know what it is but it is something more than the fact that "our line of investigation has taken a long turn in the same direction" which causes my feeling toward you. . . . .

. . . .I note your remarks on the gens and phratry and am inclined to think that the difference between us on this point is more apparent than real. Like yourself I believe that the "phratry comes later than the gens" simply because, it seems to me, the phratry can not be until the gens subdivides into smaller gentes. These together form the phratry which is consequently coterminous with the original gens. You seem to have observed among the American Indians that the gentes separated and then *subsequently* reunited into a phratry. I cannot see that this was the case with the Australians and other tribes which have come under my own eye. They have gone through no breaking off and reuniting, as I read their history. Their divisons and subdivisions seem to me to be simply growths throwing out branches from the stem which is the commune. . . . .

Lorimer Fison Levuka, July 19, 1879

I want to thank you for the Introduction which is an extremely valuable addition to our memoirs. . . . . .Your expressions of approval of my work will be highly valued by my friends in England.

. . . .The Royal Society of Victoria accepted and will print in Transactions a paper of mine on the Customs of the Mota, Bank Islands. This is a compilation of letters written by Rev. R. H. Codrington of the Melanesian Mission, together with notes of my own which make up more than half the manuscript. I also sent to England a paper on Fijian Burial Customs and another on Land Tenure in Fiji. . . . .

Our Colonial Secretary the Hon. J. B. Thurston sent me the number of the Spectator containing the review of R. Brough Smyth's work to which our letter refers. I returned it to Mr.Thurston together with a note stating my opinion that the review was by Lubbock. It is so far satisfactory that it shows the controversy is fairly launched and is attracting attention. Lubbock has fully committed himself to adverse views and he will doubtless fight with increasing bitterness as evidence tells more and more against him. I owe him payment for certain contemptuous words about missionaries, and have taken occasion to point out others of his inaccuracies besides those noticed in my Memoir. He certainly does not understand the consanguinity and affinity question.

I should very much like to know your opinion of my theory as to the Kurnai system. Do you think it is tenable? Howitt says that he is fully convinced that it is the true one.

Lorimer Fison Navuloa, Fiji, Aug. 1, 1879

. . . .Enclosed is a copy of a letter which I addressed to the Editor of the Saturday Review:

In a review of Mr. R. Brough Smyth's work on the Australian Aborigines which appeared in your issue of March 22nd the following passage occurs: "Mr. Alfred Howitt who examined for Mr. R. B. Smyth the Systems of the Brabrolong local tribe, unfortunately bases his narrative on the second hand knowledge of some of the speculations of Mr. Lewis Morgan. Now Mr. Morgan has two sets of theories, one published in *Systems of Consanguinity* and the other in *Ancient Society* and both confused, conjectural and unsatisfactory, in the highest degree . . . . . As Mr. Howitt had a second hand version of Mr. Morgan's hypothesis in his mind when he began, his account is necessarily of no value."

The Reviewer is certainly mistaken as to matter of fact and I think mistaken as to a matter of opinion also. As to the matter of fact I am able to state positively that Mr. Howitt had not "Mr. Morgan's hypothesis in his mind when he began" simply because that hypothesis had not then come within his observation. He began to examine "the System of the Brabrolong" that is their System of Consanguinity and Affinity (with their customs in general he had long been intimately acquainted) in order to furnish me with the terms used by the natives to denote certain specified degrees of relationship. These he obtained by means of an ingenious process patiently carried out, and the terms so ascertained suggested to him the

principle of Morgan's hypothesis before he became acquainted with it as Mr. Morgan's. It is therefore not true that he "went to look for Punaluan and Turanians and found what he sought" as your Reviewer so confidently and so courteously affirms.

The opinion that "Mr. Morgan has two sets of theories both confused, conjectural and unsatisfactory in the highest degree," has been stated elsewhere by Sir John Lubbock. But his strictures on Mr. Morgan's hypothesis are quite sufficient in themselves to show that he has most unaccountably failed to understand it and grasp the meaning of the facts, on which it rests. Mr. Morgan has not "two sets of theories" on the matter in question, the hypothesis stated by him in his *Ancient Society* being identical with that contained in his work which Sir Henry Maine justly designates as "a remarkable and very magnificient volume on the *Systems of Consanguinity and Affinity in the Human Family*" (*Early Hist. of Inst.* p. 68). Mr. Morgan's hypothesis is doubtless "unsatisfactory in the highest degree" to those whose preconceived theories are upset by it: it is "conjectural" only in so far as its distinguished author having brought to light a number of indisputable facts, offers it asa reasonable explanation of those facts: and it can appear "confused" to those only who have not studied it with care sufficient to enable them to understand it. It receives strong confirmation from the intersexual regulations investigated by my friend and fellow worker Mr. Howitt and myself among tribes scattered over an area of sixty degrees of longitude by thirty of latitude in the South Seas: and whether it be right or wrong there is certainly nothing in the hypothesis itself or in Morgan's way of stating it, to justify contemptuous discourtesy with which it has been flung aside as "utterly unscientific" by Mr. McLennan and by at least one other of Mr. Morgan's English critics.

Memo. I observe you write A. W. Howitt R. F. G. S. I wrote his title thus in mistake in my Ms. but corrected it in a subsequent letter. He is a fellow of the Geological Society not of the Royal Geographical, though I think they might have given him that acknowledgment of his labours as a distinguished Australian explorer. His title therefore is F. G. S. . . . .

Lorimer Fison Navuloa, Fiji, Aug. 17, 1879

. . . .Edward B. Tylor is extremely anxious for information on the very points set forth in our "*Contributions* etc." The evident anxiety of the English anthropologists for a setting forth of the facts connected with the Australian classes makes the unavoidable delay at the Smithsonian all the more grievous. . . . .

Lorimer Fison Navuloa, Fiji, Sept. 14, 1879

. . . . I quote the letter which I wrote and which Tylor read:

"From them (the Australian classes) it can be shown with the positive certainty of a mathematical demonstration that the terms used in the Classificatory System of Kinship, as given in Mr. Morgan's *Ancient Society*, necessarily flow from these divisions."

The letter was an old one written before I began my manuscript and gives my sister an outline of the work I had set before me. I was glad to think of Tylor reading that statement. But I don't feel wicked toward him as I do toward McLennan and Lubbock. . . . .

. . . .After my fifteen years in Fiji, where I have been living among the natives and talking with them every day of my life, I find more and more cause to believe that I know comparatively little about them. It takes a civilized man 10 years to get out of his own mind world into that of the savage.

Since I last wrote I have received from England McLennan's *Studies* etc. There is much in it that is well worked out, but he has committed himself to a false theory, and is most discourteous to its disturbers. "This wild dream—not to say nightmare—of early institutions." What does a man deserve who writes like that. His interpretation of Orestes' case is correct in so far as he shows it is based on former prevalence of Descent through the mother, but he has not perceived the *legal point* involved. Like Lubbock he does not understand the difference between personal and gentile relationship . . . .

Lorimer Fison Navuloa, Fiji, Oct. 1, 1879

. . . . We will publish it at once (*Kamilaroi and Kurnai*) through Australian publisher George Robinson because Tylor urges that information which we have to supply is precisely that which he and others have been eagerly searching for. He says that he has been trying to get at it ever since the publication of your *Ancient Society* . . . . .

Lorimer Fison Navuloa, Fiji, Oct. 10, 1879

I have reread McLennan's book with great care and cannot but acknowledge that there is much in it which is very valuable. . . . .What a pity that he should have committed himself to an erroneous theory on account of his facts; and what much greater pity that he should be violent and abusive toward facts which upset his theory while they fall in with and substantiate the facts which he himself has collected with such industry and clearness of insight. . . . .

Lorimer Fison Navuloa, Fiji, Jan 6, 1880

We find it necessary to withdraw our Mss. from the Smithsonian. Prof. Baird's promise of publication 1½ or 2 years after acceptance of the work is fatal to its prospects. . . . .I did not mention in my last letter the fact that Sir Arthur Gordon's having seen my letter which was forwarded to E. B. Tylor is a sharp spur to us. It is known that he is collecting materials for a work on the natives and he seems to consider that he has a heaven born

right to the use of other peoples' brains and labours. That letter sketched the whole framework of my memoir and told him several things which I should not have cared to tell him until they were out of his reach by being well on their way to the publisher. Our sole reason of withdrawal is absolute necessity for speedy publication. The Rev. Geo. Taplin (or rather the S. Australian government for him) has already published a most absurd book on the Aborigines, in which he coolly appropriates things which Howitt and I wrote to him, copying whole paragraphs from our letters without even a hint of acknowledgment. Another man called Curr is in the field and he is in possession of several of our facts. Moreover, our printed circulars long ago set him on the track. He wrote to Howitt claiming our territory. As Howitt said in his letter to me thereupon: "If we don't make haste we shall be accused of ploughing with the Taplin and Curr heifers."

Doubtless you have ere now received the paper on McLennan's theories which I sent you. It forms a part of my "General Summary" and it is preceded by a few pages in which I attempted to show the absurdity of his process of reasoning by which he makes the savage arrive at his system of kinship through females. I begin by noting his grandiloquent condemnation of your "conjectural solution" as "utterly unscientific" and introduce my argument thus: "Having absorbed the bane of an utterly unscientific theory throughout so many pages of these memoirs, let us now apply ourselves to the examination of a scientific hypothesis by way of an antidote." I then take up his statement at the commencement of his eighth chapter that "the earliest human groups can have had no idea of kinship," point out that in the very next paragraph he speaks of a "group of kindred" which was "held together by a feeling of kindred." Here then I remark "we have a group of savages who have a feeling of kindred strong enough to hold them together, and who yet have no idea of kinship." I have not felt myself bound to abstain from a little irony in dealing with that gentleman. His astounding arrogance toward yourself permits me to use here and there a form of words which I should never use toward a courteous opponent. But I have been sweetly polite withal.

After the examination of McLennan's theories, I glance at Lubbock's hypothesis as to Individual Marriage, Exogamy and Female Infanticide. Having quoted such of his own words from his Origin of Civilization as are necessary, I sum them up. . . . .

I then go on to point out the fallacy of his unsupported assertion that the captor has a sole right to his captive. And this is the basis of his whole theory. I defend him against McLennan as to Expiation for Marriage, but try to show that he does not clearly distinguish the group to whom the

expiation was due. In conclusion, having pointed out the accepted facts that the Group is the Social Unit as to Land Tenure, Inheritance, Succession to office and Blood Revenge, I remark "If then it is to be the group, not the individual that holds land, that inherits, that strikes and is struck, what difficulty is there in the way of our accepting the fact that it is the group which marries and is given in marriage? And if group marriage be accepted group relationship follows as a matter of course."

I wind up with a word about the Degradation Theory, which I consider untenable, and then add an appendix on the evidence afforded by certain statistics of our heathen Hill Tribes as to Female Infanticide. They go dead against McLennan's theory.....

Lorimer Fison Navuloa, Fiji, Feb. 8, 1880

... The particulars you suggest are nearly all of them given in Williams as far as the Fijians are concerned. I fear that I shall not be able to do the work on the scale you suggest, but I am doing what I can. Bits of the work I am sending out as I get them into shape and if I live I shall collect them some day into a book. But this is not what I proposed to myself as my next effort. My design is to endeavor to show the intermediate steps between the clan of nomad hunters with uterine succession and that of settled town dwelling agriculturists with descent through males. These steps can, I think, be found in Fiji and other island groups. Mr. Bandelier's Memoirs are full of light on this subject and I should be glad if you would convey to him my sense of the great value of his writings. Not that my opinion is of any great weight, but it cannot be unpleasant to hear that his work has helped another who has followed somewhat similar stud'es and gone on a somewhat similar line. As far as I am able to judge, Mr. Bandelier has thoroughly proved his proposition and this in a style which is at once masterly and a delight to the reader. I almost stand aghast before the evidence of the extent and industry of his research. It makes me feel almost painfully small—a feeling which always comes over me when I open your own books

I heard from E. B. Tylor by last mail. I told you I had written to him in reply to his note handed to me by Sir Arthur Gordon. He sends me a copy of the Academy containing a review of your *Ancient Society* and another of his address before the British Association. He writes like a man that has been staggered by unexpected evidence, and acknowledges that it would have been "safest to wait for further information." Let me tell you that he speaks in the highest terms of your work. "Mr. Morgan's *Ancient Society*," he says, "is of great value throwing light on the early marriage systems of the world." I have written to him very fully in reply. He sup-

posed that Mr. Lance had written to you direct, and to be the sole authority for the statement about the Kubi and Spartha. I told him that Mr. Lance made the statement to *me*, that I verified it by enquiry from other competent informants and forwarded it to you. That "Donald is most certainly the husband of all the Janets" it being understood that "husband" means a man of the group which is husband to the Janet group. He speaks of my "explanation of the rule meaning that the man has a temporary wife given him from the proper class." I reply that it means this and something more. It means that the man has a right to the woman, that he can claim the right to meet her in the bush; but that if he goes to the camp he makes application for his right according to the proper etiquette.

I have moreover told Mr. Tylor that in his objection to the form of the term "spouse" he seems to me to state your case exactly. "The term means precisely what you say—a 'woman of the class one may marry into' or rather 'of the class to which mine was born married.'" I have told that I am positive that the term "spouse" is never used to a woman out of the wife class. It could not be. It is that *class* which is "spouse" to the husband-class.

As to the gens, I have said "I note your objection to Morgan's use of the term *gens* and I bare my own back to the rod, for I too have offended. But why should we restrict the word to the gens as it was constituted in Rome? The word itself is not the exclusive property of the Latin tongue; and the thing, in various stages of development and with different lines of descent, is found from China to Peru." It is evident to me that Tylor has put more in your words than you meant by them. He has understood you to mean that the Iroquois gens is in every respect identical with the Roman, not merely that it is the same institution in a lower stage of development. So also he has understood you to mean by "marriage" actual cohabitation instead of the right of cohabitation which was a birthright, but which present usage may among many tribes even scarcely acknowledge. I have told him as plainly as possible that he has mistaken you; and add as follows:—"I think that it is certain that my view of Mr. Morgan's meaning as to cohabitation and marriage is correct. Not only have we been in correspondence for nearly twelve years but he has also read my Mss. and has written a prefatory Note which will be published together with them. My own views as I have briefly stated them to you, are fully set forth in my Memoir and he says in his Introduction that there is most perfect agreement between him and myself save as the manner in which the four classes (Ipai etc.) were formed. He could not say this if he meant by group marriage more than I mean." I think that Tylor will find that his objections have arisen chiefly on account of his putting into such words as "wife" "marriage" etc.

the full meaning which they bear with regard to our own system. May I take the liberty of suggesting that you perhaps scarcely make sufficient allowance for the strength of natural prejudice against which your theory has to make its way; and when to this is superadded a misunderstanding of your meaning the obstacle becomes very great.

A friend of mine in England tells me that the secret of McLennan's bitterness against you is that he took it into his head that you made use of his *Primitive Marriage* in your "*Systems*, etc." without due acknowledgment. Hence the "dash of vitriol" etc. I replied scouting the notion and saying that you certainly had no need to go to *Primitive Marriage* for information which the facts ascertained by your own laborious researches so abundantly supplied. There are many passages in McLennan's book, besides those referring to you which show him to be an ill-conditioned man. My friend tells me that he is completely broken down and not likely to be able to do anything any more. I must take a little of the most concentrated essence of bitterness out of that part of my Memoir which deals with him.

I am glad to have been brought into correspondence with Tylor, but I wish to say in concluding my letter that neither he, nor any or other man, can be to me what you have been, are, and will be. It was you who first led me to the field, and guided my earliest efforts. Your kind appreciation of my work has given me lasting pleasure, I have been proud to look upon you as my leader, and you have made me very glad by calling me your friend.

A. W. Howitt Sale, Victoria, March 22, 1880

Secret piracy necessitates immediate publishing. . . . .

With your permission we propose to dedicate our work to you. I may say for both of us how high we shall value the privilege of having your name associated with our labours which without your magnificent work could never have been.

Lorimer Fison March 26, 1880

. . . .In 1855 I entered at Caius College Cambridge, kept terms such as reckon for one year's residence, passed the College Classical and Theological Examinations and then left the University before the Mathematical Examination took place and returned to Australia. Some years afterwards, I wrote from Melbourne to the Rev. Charles Clayton, the senior Tutor of my college for my testimonials etc. He sent them accompanied by a very kind note stating that "Mr. Fison left the college before the mathematical exam took place but from what I heard from the Lecturer, I have no doubt

he would have stood creditably on the List." I may tell you that I was one of the three men who were spoken of as likely to run one another close for the first place for our year in Mathematics. On presenting these documents to the Council of the Melbourne University, I was at once admitted as an undergraduate of one year's standing and should have completed my course and taken my B.A. degree if my way had not been unexpectedly opened to the Mission work in Fiji, in which I have been since engaged. As far as acquirements are concerned it is making no claim to say that when I began my residence at Cambridge after reading with my brother-in-law, Mr. Robert Potts M.A. of Trin. Coll. during the previous long vacation, I could have easily taken an ordinary degree, if I had gone in for the Examination and in Mathematics I could have taken low honors.

I am interested to know whether I can receive an honorary D. D. or M. A. in an American University. I feel ashamed of going into print without the letters to my name. It is like going out imperfectly clad into the street. . . . .

Lorimer Fison Navuloa, Fiji, May 13, 1880

. . . .You will be glad to know that considerable interest is taken in our work by some of the leading gentlemen in Victoria, three at least of whom are "walking advertisements" of it. Howitt had two hours' conversation with Professor Hearn, who got quite excited as our plan unfolded itself before him. He and the Chief Justice arranged to wait on the Minister of Justice and urge that Howitt should be released from his magisterial duties for a year and have "special allowances to enable him to prosecute these most important researches with library assistance" . . . .

Tylor is not inclined to be so decidedly in the opposition as you imagined. Depend upon it your theory will bear down all opposition. There may be still a good deal of snarling from disappointed and jealous men, but your hypothesis is true and it will therefore prevail. You understand however that, as far as I am concerned, I stop short of what I have ventured to specify as the Undivided Commune—i.e., promiscuous intercourse of the sexes in a community not divided into exogamous clans. I simply stop short because I cannot find any positive evidence, though I do not deny a strong probability. My position is simply this—I go as far as the direct positive evidence will take me and there make a stand. I do not say that there is no road beyond nor do I deny that there is what looks very much like a road, but I do not see the ground under foot for the next step. Nothing that is true can be hurtful, and I am not afraid of any fact that can be proved. . . . .

Lorimer Fison Navuloa, Fiji, July 15, 1880

. . . .I shall read the article on gens in the Enc. Brit. as soon as I can get at the book. One thing is certain. If Tylor wrote "the Roman gens is the only gens we know" we need not wonder that he fails to see the identity of the genos and gens with the exogamous intermarrying divisons. He might have said "no other gens within our knowledge is precisely coincident with the Roman gens" but to assert that the gens is the Roman gens and no other is a very queer assertion. He might with equal justice have said "the Roman *Balneae* are the only baths we know" . . . .

The change of descent divides itself into two forms. (1) What we may call orderly development and (2) disorder, breach of existing regulations resulting in change. Of these the former is that so ably pointed out by yourself—property—especially land settlement for agriculture brings about an increasing tendency to direct inheritance instead of through the mother. The second shows itself remarkably in Australia. Elopement, we have found when successful to have resulted in a change of line of descent, and we have even found two tribes which have agnatic descent and hereditary chieftainship involving service command or rule and right to supplies of food and property. These tribes have still a survival of the class divisions in various stages of decadence and from them we can construct an ascending series leading up to the Fijian social organization, and account of which you will see in my paper on Land Tenure in Fiji to be published by the Anthro. Soc.

Then we have a remarkable paper by Codrington on the Affinity of the Melanesian, Polynesian and Malay languages, which proves the complete isolation of the Australians in a very remarkable way. This is valuable as showing the rebellious movement in Australia to have been indigenous and spontaneous, not the result of external impulse. The Kurnai again show, I think, the disruption of a class-organized tribe and the new regulations *forced* upon them by the change of cirumstances. Elopement on the other hand is rebellion against class law. Where it has established itself successfully, it can be shown to have compelled the abandonment of uterine succession. I believe too I have found the explanation of infant betrothal among savages. It is a protection against the old communal right, bringing as it does the *tapu* of the husband upon the female. It is not a little significant that if a man to whom a girl is betrothed dies or breaks the bond by running off with another girl, in some tribes the young men of his group wrestle for the girl. In other words their communal right reasserts itself, the *tapu* being taken away.

I think I have also found out the secret of the so-called "Incest in

Marriage" among the ancient Peruvians noticed by so many of the old writers and even by the Xtian fathers. It reproduces itself in Fiji and elsewhere and *is confined to the chiefs*. The chiefs consider themselves entitled to override ancient custom which makes Right. Their Power is a new factor, a disturbing element among old rules. That power ceases with the death of the chief, and a certain amount of temporary anarchy is sometimes the result. This is pointed out in my paper on Burial Customs in Fiji already by the Anthrop. Soc. . . . .By the way, the funeral of Wm. the Conqueror gives a striking proof that the ancient right of the commoner was not destroyed but only held in abeyance by the usurpation of the chief. When the clergy were about to lower his body into the grave within the church he had built, they were forbidden by a commoner who owned the ground. "The ground is mine. My father's house stood upon it. The king robbed me of both house and land to build this church. In the name of God I forbid his body to be covered with earth that is mine by right." And the clergy acknowledged his right and paid him 60 shillings for the grave. This is a remarkable case showing how even so far down in our own history, the right of the commoner was acknowledged as *law*. The king could override the law of right by the strong arm of might, but the right remained unshaken for all that and reasserted itself when the strong arm had become powerless by death. I feel a wicked malicious delight in tracing back aristocratic notions of the ways of savages and showing that they are mere unreasonable survivals of savage notions which were perfectly reasonable in their day. I am told that I horrified Sir Arthur Gordon, and the young gentlemen of his suite by asserting that the crests of our armorial bearings are nothing more than a survival of the totem; that hereditary chieftainship was a mere savage growth out of birthright and polyandry with descent through the males, and that the pride of birth was perfectly reasonable when a man had to be a full born member of the clan in order to attain a full status in the clan, but that it is utterly unreasonable at the present day, unless indeed a man's ancestors were men of worth of whom anyone might be proud. This the most horrible blasphemy in the ears of those young men. It sounds like plain commonsense to mine. Among tribes of the N. A. Indian grade with uterine succession, there can be no such thing as a base-born man among those who are born of the woman of the tribe. But where you get among tribes like the Fijian, who have descent through males, birthright and polyandry, you soon get all manner of distinctions of rank, from the poor wretch "the child of the path," child without a father, son of a pig, son of a whom perhaps, son of a clam, who was not *born* at all, up to the chief who is so high born as to be god born—the Lord himself, the Baal

of the Baalim. Yet under all this load of rank there is a full born commoner, who in conjunction with his kin, is the real owner of the land of the town and the arable, and who has the forest right. His house is the dominion, he rules within it. It is a sanctuary which no chief has a right to violate. The chief may oppress him if he be strong enough, and the commoner may submit in silence. But in his heart he holds the consciousness of his ancestral right which came to him from his fathers. He never forgets it, never allows that it can be destroyed, and watches for the opportunity to assert it. If any man wants to study the real aristocratic notions he should identify himself with one of these tribes and watch their action. It is an instructive and disgusting study.

Lorimer Fison Navuloa, Fiji, Sept. 7, 1880

. . . .I am a little over six feet high and of pretty broad and stout frame weighing no fewer than 224 pounds. A month ago I weighed 238 but I have been taking Allen's Anti-Fat with the happiest results and am gradually dwindling down in a most satisfactory way to a respectable size.

I see Tylor is advertising a new book *Anthropology*. It is a big title, almost as big as if one should write a work and call it "Universe."

Lorimer Fison Navuloa, Fiji, Oct. 1, 1880

. . . .With regard to the Consanguine family. I accept it theoretically as presenting the only reasonable solution of the terms of Kinship such as those of Hawaii, Rotuma etc. All I say with regard to it as a stepping point is precisely what you say yourself—that no tribe has been found with it in present existence. The traces of its former prevalence appear to me to be clear and unmistakable but I cannot say of it what we can say of the exogamous intermarrying classes, simply because we can find the latter still prevailing. You must take into account the fact that my position indicates extreme caution in my statements. I should shock and grieve many of my best friends whom I should be very sorry to offend, and who might easily be offended on such a matter. Some of our old-fashioned ministers for instance. Hence while I do not feel at liberty to exercise a reticence which would be cowardly and dishonest, I feel constrained to exercise the very greatest caution in my statement. My own opinion is that the former existence of the Consanguine family is proved by the evidence but I do not assert this. I point out that the evidence *seems* to establish it; but that as we can find no present instance of it in actual existence, we need not go any further back than the Divided Commune while investigating the present gentile arrangements and comparing them with those recorded in history. I hope this will be sufficiently clear from my book. My statement is in brief—

The evidence points strongly to a former Undivided Commune. Granted this, and from your "reformatory movement" all the rest flows. This seems to me to be a strong argument for the old Undivided Commune, but I have carefully guarded myself against a *positive assertion* that it existed. Moreover, I am not satisfied in my own mind that the matrimonial right was ever exercised habitually to its full extent. The right existed and was acknowledged. It is the one fundamental fact underlying the whole system of relationship. But it seems probable that its actual assertion in the individual cases would soon become restricted more or less. This, however, does not in any way affect the main theory. The right is fully established and its general exercise is still apparent on occasions. Only by last mail, Howitt sent me an account of an Australian tribe non-Kamilaroi who betroth their girls in infancy. When the "husband" considers the girl is of sufficient age, he goes after her into the forest with his friends and seizes her. Not he but his friend consummates the marriage. The girl is common for some days to all his tribal brothers and not until they have all exercised their right, does his own come into force. But henceforth it is paramount. This is a very striking instance of expiation for marriage. I have fully satisfied myself by inquiries in Fiji that infant betrothal is a protection against the old communal right. . . . .

Lorimer Fison Navuloa, Fiji, Oct. 7, 1880

. . . .I have been thinking over what I said to you about the Consanguine Family etc., and it occurs to me that I may as well say a little more. From your own remarks I am afraid that my words have been taken by you and may perhaps be taken by others to mean more than I meant by them. For my own part it seems clear to me that we need not go beyond the exogamous clans or clan for an explanation of all the *later* developments up to and far on this side of the Roman gens, provided always that we recognise the vast importance of the descent from females to males. This is the work toward which I have set my face and everything which is beyond its outer line is unnecessary to my purpose. . . . .When I say that to the point where I stop "is far enough for us to go" I mean that it is far enough for my own purposes. The road beyond is extremely tempting. It shows itself clearly to me and looks like a solid road. To my own mind the proofs of its existence are such that nothing but its existence (i.e., its former existence) can account for the facts. But we cannot find a present instance of it. Its use has passed away from the earth as you yourself affirm: the task I propose to myself is to trace the steps in the formation of the gens from the present usage of savage tribes, and therefore what is beyond that present usage is foreign to my purpose. Even this however, requires explanation and great qualifi-

cation, because in point of fact I do go beyond present usage, and I had to guard myself against positive assertion of the former existence of the Undivided Commune. As it is, several passages in Kamilaroi and Kurnai appear to take it for granted. In my own mind I accept is as sufficiently proved, but I do not positively assert for these two reasons:

1. I expect violent opposition and therefore resolved to narrow as far as possible the ground of controversy.

2. The Undivided Commune means nothing more nor less than "promiscuity" and this would be terribly shocking to many of my best friends among our ministers. They would suppose it to involve conclusions which do not appear to me to be involved, and no argument of mine would avail to persuade them that the theory is not subversive of "the faith." As it is, I have had some little trouble and expect more. . . . .If at any time we can find a tribe of savages living in the condition to which the evidence points, then I shall be constrained to go farther myself and to *assert* that which I now admit only a strong probability. I admit this probability in my book and in my own mind I admit more than a probability. In short I do not doubt the former existence of the Undivided Commune but I do not consider it as necessary to my purpose to assert it and moreover (owing to my surroundings) it were better for me not to assert it as long as assertion is unnecessary.

. . . .You say "If you believe the Consanguine Family to be the necessary deduction from the Polynesian system, I shall feel greatly assured." I have no hesitation in saying that I do consider it, because in no other way can I account for that system. The *theory* of marriage among savages appears to me to be clearly based upon the fundamental notion that the *Individual*—the Social Unit—is a Group of Individuals. Hence flows logically the entire system of relationship and descent. And the constitution of that group is determined by the terms of relationship. As I say in my chapter on Group Mar. and Rel.—"The terms of kinship now in everyday use point out the groups and the groups taken as units explain the *raison d'être* of the terms." But for the special purpose of my work I do not consider it necessary to go beyond the division of the group into exogamous groups such as we find in the present day. Purposely, as far as I am concerned, I have narrowed the controversy to this ground. Thus I have taken up as it were an advanced post which seems to me impregnable and which covers the country behind it. If it can be maintained, we may defy the enemy's attempts to get behind it.

. . . ."Unattached": In savage society, at least where the clan organization has not been broken up, a man cannot exist without some sort of

connection with some clan or other. In Fiji, where we have a distinct god-born class of chiefs, or nobles, broken men frequently attach themselves to a chief and are very useful to him. They have no status in his clan. Hence they are anxious to distinguish themselves by usefulness in peace and by bravery in war, for thus only can they earn the right to exist. Hence arises the practice of Commendation. A broken man must attach himself to somebody or he perishes. A Noman's man is like a barnacle which misses its way and finds nothing to adhere to. There is no possibility of independent existence. . . .

A. W. Howitt Sale, Oct. 11, 1880

. . . .Received First Report of the Archeological Institute of America containing your paper on the villages present and past of the American Aborigines. It opens up a great vista and a vast field for research. It is a pity that we have not got such a society here to take in hand the Australian Aboriginal work. I shall make strenuous endeavor to induce our governments to give some aid but with what result I cannot yet forsee.

I may mention as of interest that all the information that I am now collecting fully confirms the statements we have made in the Kamilaroi and Kurnai. . . . .

Lorimer Fison Navuloa, Fiji, Jan. 28, 1881

You will allow me to express my appreciation of the remark in the *Popular Science Monthly* article by Powell.

"It is not one of the least of the results accomplished by Mr. Morgan that he has gathered about him loving disciples who are reaping harvest from fields planted by himself."

We only who have worked under your direction can feel the full truth and force of this remark. The more we have been able to do, the greater has been our sense of obligation and personal attachment.

. . . . Mr. Albert S. Gatschet, the linguist, applied to me for some information as to certain Fijian songs, which I was glad to give him at some little length.

. . . . I am glad you are satisfied with the position I take up as to the last step of your theory. All I proposed to myself was to go as far as ascertained existing facts take us, and by "theories which overleap the facts," I mean not theories which are probable inductions from them, but those which like McLennan's polyandry hypothesis and Lubbock's sole right of the captor, do not take their stand on the facts and follow them whither they go. Howitt, as you will perceive, goes to the full length of the theory,

and takes it approved that all civilized nations have passed through the same experience. Indeed, he holds views which I think you would hesitate to accept. We agree fully as far as we go together, and beyond that point we agree as fully to differ, allowing each other that freedom of thought which he claims for himself. . . . .

It strikes me forcibly that Andrew Lang must be the critic who attacked Howitt in the *Saturday Review*. Tylor said it was not Lubbock.

A. W. Howitt Sale, Feb. 14, 1881

. . . . That you should be pleased with my work is most gratifying and the flattering manner you have mentioned my part is praise indeed. I hope in the future to be able to publish more and more and am striving to the utmost to gather all the information procurable. My plan is at present to secure correspondents throughout Australia who will work under my direction. I find this satisfactory in default of a better opportunity for personal inquiry. I am in hope of being able by and by to interest our government in the work, and shall of course keep you posted from time to time. That which you say as to a future work is very encouraging, as the line which you suggest is that which Mr. Fison and I have determined to follow. The change from descent through the mother to descent through the father is a most important subject, which will be of use in opening up the subject and perhaps causing enquiry and discussion. The causes which have led to the change here are as yet not clear to me, but I have hopes that a careful and scientific discussion of the evidence may afford light. . . . .

Lorimer Fison Navuloa, Fiji, March 2, 1881

It gives me the greatest pleasure to know that you approve of what we have done and think that we have well made out our case. But if your pupils have done well the credit belonging to their teacher must not be forgotten. One of our Australian reviewers says well, "It is really to Dr. Morgan that we owe this valuable etc." I was pleased to read those words.

The same mail brought me a letter from Tylor who has seen our work and taken a great deal of pains to further its sale. He says

"You have made an important step in the difficult problem of early society. . . . . You seem to have let fly with much vigour at Mr. McLennan and those who hold his views and doubtless you will receive the like again."

From a private source I learn that he spoke in terms of high praise of the work in conversation at the house of a friend, but deprecated my "pugnacity." It is a novel experience in my life to be credited with a sort of Hibernian fondness for a "shindy." If McLennan had argued courteously

against your views I would not have expressed myself quite so strongly with regard to his own, but I hope in all events that I have not treated him discourteously. However, Tylor is doing all he can to help us and says in his letter that he will call attention to our work in his address at the Anthropological Inst. on Jan. 25. . . . .

. . . . I must express once more my great satisfaction with your contentment as to my position on the Undivided Commune. Whatever fighting there may be over the U. C., of one thing I am perfectly sure, that its former prevalence can never be *disproved*. Whether any more than the very strong probability already established by yourself can ever be *proved* is another question, and one into which I do not propose to go unless we find tribes with the U. C. still in existence. I do not think this is likely to occur. But if it does I certainly shall not hesitate to accept the consequences. There would then be a *necessity* for taking that further step from which I now hold back.

I am very glad you like the term Undivided Commune. I used it in the first instance simply because it fitted in with the context but without having invented it as a specific term. Finding it useful I repeated it in other passages and Howitt also took it up.

Howitt is getting in more and more materials. He has found a northern tribe with four classes like the Kamilaroi, but with paternal descent. I am immensely excited over this tribe and have written eagerly to Howitt asking whether they do not show marks of former uterine succession. I think they *must* show it. If not we have a new problem to solve. . . . .

Lorimer Fison Navuloa, Fiji, March 18, 1881

. . . . I hope that the work will achieve the object for which it was written, and that the men who so contemptuously and discourteously rejected your theory will find themselves staggered by the facts presented if not by the arguments drawn by the facts. After Tylor's notice in the Address they will not be able to ignore the book; and if they come out in hostile array, their attacks will be of the greatest use in helping us to arrange our fresh material most effectively in our next work. We have a considerable mass of new material—all confirmatory—and the enemy will show the weak places which need strengthening.

Some of our new facts are of a nature such as makes it very difficult to deal with them even in a private letter, and what to do with them I really do not know. To put them in Latin seems almost a childish device for both *virgo* and *puer* of the present day know Latin enough to understand them. The facts are so signi cant of a former prevalent communism that we can-

not afford to keep them back because of their extreme indecency, and so I see no way of presenting them excepting by Latin notes to which reference can be made or perhaps by Latin appendices. But this is very unsatisfactory....

Lorimer Fison Navuloa, Fiji, April 17, 1881

I have received Staniland Wake's two pamphlets. When he gets into kinship classificatory waters he is immediately out of his depth.....

I have a fine capacity for disbelief in the general classifications on the ground of craniology, custom etc. The same thing is found in different strata, and general classifications are consequently hazardous. Besides the facts are often deceptive, and have to be sifted very carefully. Thus Fijians are classified among the frizzly-haired people because their heads look frizzly and ruddy brown. But this is owing to the use of lime and clay pomatum or rather plastering. One might as well have described our late forefathers as white-headed people in the days of grease and hairpowder. Again Professor Flower has lately read a paper before the Anthrop. Inst. on certain skulls of our Navitition Hill tribes. He places them as dolichocephalous and "most narrow skulled of men." But the fact is that these measurements of their skulls are due to art, not to nature. They practice lateral compression of infants' heads and the custom is only local. The conclusion drawn by Flower is much as if one were to describe the Chinese as clubfooted on the evidence afforded by skeletons of Chinese ladies.

Wake's statement that the bow is a mere plaything in these seas may be partially true as to Polynesians, but it is altogether wrong as to the Melanesians, among whom there are many usually classed as Polynesians. The bow is their weapon par excellence, and a very dangerous weapon it is in their hands. Wake makes a point of the word in Fiji for bow *ndakai* but we have also *vuthu* which is the common Melanesian word.

The fact is simply this—very little is known about these islanders, and scarcely a book about them which comes my way fails to astonish me by some statement or other. Thus Sayce, Max Müller's deputy, has lately stated that we have no verbs. I suppose he saw that these languages make all sorts of words into verbs by means of causative prefixes and suffixes, and so he jumped at the conclusion that we have no real verbs. But we have plenty of words which are verbs absolutely and nothing else. I sent to Tylor for the Philological society 4 papers by Codrington annotated by myself. These papers are:

1. Notes on the affinity of the Melanesian, Malay and Polynesian languages proving a common original element.

2. A conspectus of 12 words in 19 Melanesian Languages and Dialects with observations. Appendix to 1.
3. Changes in sounds and letters in the Melanesian Languages and Dialects.

I think they will provoke a profitable controversy and convey much useful information. The theory that the common element in the languages from Formosa through New Guinea, Melanesia, Polynesia, and away to Madagascar is due to Malay commercial intercourse is simply absurd.

Certain customs which I have lately ascertained point unmistakably to an ancient communism, the evidence for which is becoming overwhelming. Among these tribes circumcision itself is a propitiatory sacrifice, when a chief is sick and for three or four days while the ceremony lasts, absolute communism prevails. After the ceremony, individual rights recur. This connects plainly with the Australian recurrence to communism as a propitiatory measure during epidemics, concerning which Howitt is collecting full evidence. The song accompanying an indescribably filthy ceremony connected with the propitiatory rites is most significant: *A mbitu ni si ko ra tamamundou, Era laki ndulu ki Vuni mbou*—which requires an apology for its translation "Your ancestors, *seminis pleni*, lay commingling at the foot of the house post" i.e., the large post supporting the ridgepole in the middle of the house. The house is your "long house" in which the common meal is eaten. Only among our tribes, women and children are excluded. This is the effect of descent through males. The effect of that descent among your N.A. Indian tribes would be an interesting subject of inquiry.

A horrible surgical operation commonly performed in Western Fiji is I believe a distinct survival of a belief similar to that which forms the motive for the temporary recurrence to communism above noted. The operation is performed for any kind of wasting sickness, and the natives can give no reason for it nor explanation of it except "Our fathers did it." A reed is forcibly thrust up the urinal canal until the junction of the scrotum is reached. The organ is then laid completely open by a straight cut down to the reed along its entire length. The natives say that a quantity of dark colored blood is thus released, and that in addition they pick out what they graphically describe as "things like itch spots." During the process of healing the urine often makes a new passage, or outlet, for itself. In other parts of Fiji the operation is performed in a less horrible way. A small stick with a string attached to the end is thrust up the passage. Near the junction with the body a cut is made, and the end of the string pulled backwards and forwards occasionally to keep the wound open and to cause a flow of blood.

Females are thus treated. The female patient is laid down wide astraddle, in water, those regions being immersed. When the soaking is supposed to have continued long enough she is laid on her back, the parts distended as far as possible and then severly scraped with a sharp slip of bamboo, the true Fijian *sele*, the word now for knife. I have seen a baked pig cut up with these bamboo slips. When the edge grew dull, the operator tore off a small piece with his teeth leaving a new edge.

As before mentioned, the natives give no reason for the operation excepting that it is an ancestral custom. But what I suggest is that its primary notion was for propitiation for offense against the old communism law by *torture inflicted on the offending organ*. This would be somewhat farfetched were it not for the connecting practices whose rationale is beyond question. But how is one to publish descriptions of these things?

I have got on the scent of a most interesting custom in the Hill country, but have not yet got to the bottom of it. It is very difficult to get the natives to talk about it to an outsider. In a secluded spot in the forest a space was cleaned. This is encircled with a substantial stone wall. In cases of sickness, offerings of property are placed within the circle. One informant tells me that on set occasions, the men assemble and sit down within the circle. The women then come in bringing baskets of food, which they put down and then run away. The men leap to their feet and try to catch them. Whoever catches a woman within the circle forthwith "uses" her.

But I have not yet been able to verify this account. I may explain here that my invariable rule is *never* to accept a fact that is new to me on the evidence of one informant, unless indeed it fits in so evidently with already ascertained facts that it may safely be at once accepted. This rule involves a considerable amount of trouble, and a little self-denial also for the temptation to use an account which falls in with one's theory is very strong. But I have found it necessary to make the rule and to abide by it.

Lorimer Fison Navuloa, Fiji, June 13, 1881

. . . . The man (Reviewer of *Kamilaroi and Kurnai* in *Saturday Review* of Sept. 12) does not understand the subject of which he writes, and he has not taken the trouble to study the book he criticises sufficiently to enable him to follow its arguments. He does not even understand what "group relationship" means. As for his chief argument resting on the presumably superior knowledge of the subject possessed by Ridley after his 30 years' study of it, I may just say for your own information that Ridley was only three years among the blacks; that he afterwards held the position of sub-

editor of an evening paper in Sydney, where he had no possibility of communicating with the aborigines and that as far as I know he did not pursue any studies connected with their usages after he left there until I pointed out to him in 1871 the significance of the totems and urged him to make further inquiry. I look upon his *Kamilaroi* in 1875 as the direct outcome of my urgings.

. . . . I have nothing to learn from that critique except that it has taught me how mean and offensive spiteful cavilling may appear.

. . . . What does the man mean when he says that it is incumbent upon me to explain why the "primary" divisions were "totemistic?" Does he attach anything more to that word than its real meaning? If not, what possible consequence can it be to my argument whether the names of the primary divisions are "totems" or not. The working of the divisions cannot be in any wise affected by their nomenclature.

. . . . I have sent to Howitt a long memorandum on the series of blood-feuds in the house of Pelops ending with the purification of Orestes. It is a very interesting subject and Howitt wants to make up an article on it. He is a correspondent of Drs. Bastian and Resenbusch and has sent them copies of K. and K. The Germans, as Howitt says, are not likely either to be McLennanites or Lubbockites, and if they discuss our book they will discuss it on its merit and we ask no more than this.

As for the critics, I am not sorry to see that hostility to you has involved hostility to me. I suppose that Sat. Reviewer thought he was administering a telling blow when he wrote the words, "His master, Mr. Morgan." He would not like to know that I felt proud and gratified when I read them.

Mr. Gatschet, the linguist attached to the Bureau of Ethnology, has sent me a letter in reply to one of mine containing remarks on certain Fijian songs. He is good enough to speak all too highly of their value. I find myself gradually tending towards Germany and America rather than towards England in regard to what I write, and I think it probable that most of my notes will go in the future to one of the two countries where science appears to be followed for its own sake and not in the interests of a clique.

Mrs. Waring writes "I had a nice letter from Dr. Tylor who highly appreciates K. and K." . . . .

Lorimer Fison Navuloa, Fiji, July 22, 1881

I was on voyage to Rotuma when I received McLennan's review in *Nature* and the review in *Athenaeum*.

I noticed your exhortation to "read with patience" our friend McLennan's rebuke, and have not found the slightest difficulty in following

your advice. In fact I have read the critique with more than patience—with actual pleasure. It pleased me to note that we have hit hard enough to bring the enemy out in full force—horse, foot, artillery, land transport corps, and all. This shows as the *Australian* remarks that our book has attracted considerable attention. It pleased me also to find myself surviving *totus, teres atque* (alas) *rotundus*—after the astounding broadside had gone rattling by. I cannot find a hit anywhere. Such bombshells as "traveller's mistake," "big blunder," "utterly preposterous" make a great noise but do no harm. They only show how hard the opponent has been hit, like the roaring of the vanquished giant when Jack had whipped his nimble sword through him. It is very gratifying to find the enemy driven to depend upon the questioning of the facts. It shows that they feel the facts to be fatal to them, and *we are sure of our facts*. There has been no haste or carelessness on our part, every important statement has been carefully tested and verified at no little trouble and expense. We have taken nothing on trust. Every new fact as it came in has been subjected to a rigid scrutiny, and where personal inquiry was beyond our reach, trustworthy correspondents have been consulted by letter and in many cases by printed circulars. We have not spared ourselves in any way, and our patience has been its own reward. Finally Mac's critique pleased me by affording me much quiet amusement, at its absurdly "pooh-pooh" style. It is the veteran schoolmaster, spanking his naughty little anthropological boys, who have been impertinent enough to question the wisdom of their teacher.

Howitt is hot for the fray, and has sent me a very hot reply on his part, urging me strongly to fix bayonets and charge. But I have declined for the present. I do not feel sufficiently stirred up and moreover, I do not care to trouble myself to repel an attack which has not succeeded in touching me. I am waiting for Lubbock's fire. When that is delivered, I may perhaps write something in reply to the trio of adversaries. I have no doubt that you are right in your conjecture as to Lang's authorship to the attack in the Saturday. The only doubt I have is as to whether he was helped by Lubbock. If not, probably Sir John will deliver himself before long. We shall have a full opportunity of strengthening our fortifications where they need strengthening when we publish our next work. Howitt's reply to McLennan will probably appear before long. I have sent it back to him with a few notes and just a little prod at our castigator for which I had not the virtue to deny myself.

The information we are gathering is of great interest on two points—firstly establishing more and more firmly the fact of occasional recurrence to *absolute communism* as a distinctly expiatory measure. I need not point

out to you the important significance of this fact. And secondly, descent through males—at least partial—with *chieftainship and hereditary succession in the male line* among the tribes in the southern portion of the Australian continent. The tribes there are evidently fragments of tribes, refugees or war driven remnants, who long ago broke away, or were driven away from communities organized on the Kamilaroi plan, and their present regulations have arisen out of the exigencies of their surroundings. The old Kamilaroi marks are plain upon them and we can see how they have been compelled to abandon the old rules. All this for our next work.

I suppose you have seen Tylor's critique of K. and K. in the *Academy*. It is full friendly, cautious and suggestive. He hits a blot on the fact that class exogamy would not necessarily prevent the cohabitation of father and daughter. But in the first place it is manifest that the relationship between father and daughter is not as close as is that of brother and sister, because the former is a connection by one strain of blood while the latter is by two strains, and secondly such intercourse is guarded against by the *tabu* between father-in-law and son-in-law. When the daughter is given in marriage she has no longer the freedom of her father's house. This is an interesting and instructive fact. The distance between the father-in-law and the son-in-law extends to the son-in-law's wife. I was startled some time ago by a statement made to Howitt by his guest Baron Miklucho Maklay, the Russian savant who has lately returned from a prolonged stay in the Malay Archipelago and New Guinea. He is a naturalist and knows nothing of our line. But he told Howitt that a native had informed him, in some island or other, I forget where, that the father always claimed the *jus primae noctis* from his own daughter on the ground that he who planted the seed has the right to the first fruits. This is an indispensable preliminary to marriage. I was astounded by this statement. It is so directly opposed to the notions of all tribes within my knowledge, that I am at present inclined to reject it *in toto* and so think that the native must have been "selling" the Baron. Such a connection would have been punished by death in Fiji. It would be a reproach upon the active kin so intolerable that nothing but the death of the offender would roll it away.

But setting this aside a movement which prevents brother and sister marriage is certainly not proved to be non-reformatory because it does not necessarily prevent all other in and in marriages. A law may be a good law effecting a real improvement even though supplementary legislation may be required. The prevention of "consanguine" marriage as far as brothers and sisters were concerned was unquestionably a great improvement, and my decided opinion is that the curious restriction on the intercourse of

relatives by marriage gives precisely that supplementary legislation which such a preliminary measure would have required. I am satisfied that the restrictions aforesaid have this intention and that they do not arise from marriage by capture. On the latter hypothesis, how can we account for the precisely similar restriction between brother and sister in Fiji and elsewhere, who may not even look at one another without indecency?

Lorimer Fison Navuloa, Fiji, Aug. 2, 1881

. . . . Both Lang and McLennan are so ludicrously arrogant in tone and the latter at least is so manifestly unfair, that I shall have no scruple in making the prongs as sharp as possible. Take a few instances of his unfairness.

1. He says of the Kurnai that the women call all the males *Yeerung*, and the men call all the women *Djeetgun*, whereas Howitt's statement is that the men call *themselves Yeerung* and the women call *themselves Djeetgun*. But the twist is convenient for his "Systems of Address" theory.

2. He misquotes the Kurnai girl's question to the young man, "Do you eat opossum, kangaroo, blacksnake?" Observe that he puts in Blacksnake, a Kamilaroi totem. According to Howitt p. 202 the girl asks "What does the *Yeerung* eat?" The young fellow replies "He eats so and so," mentioning kangaroo, opossum, and some other game. Unfortunately for Mac's ingenious suggestion the totems of the Kurnai are birds as are those of a Brajirak tribe in their neighborhood. I think it probable that the women never say "*Yeerung*" to the men, and the men never "*Djeetgun*" to the women excepting as an invitation to intercourse of a certain kind. This I infer as probable from Fijian customs during the periods of temporary license.

3. He says "The Australian young man would scarcely ever get a wife except by running away with her. But how did the elderly men get their wives?" If he had read with attention the work he criticises he would have seen that the monopoly of women by the old men is not a Kurnai custom. The Kurnai have the Pairing Family to a certain extent.

4. Mr. Lance's statement is called a "travellers mistake." Lance lived for more than 30 years in the Kamilaroi country employing natives and studying their ways.

5. Mac charges Ridley's mistakes to me. After having heard of the classes from Ridley in 1871, I inquired for seven years before I went to print. I sent hundreds of pages of inquiry and circulars for information and was not too easily satisfied with anything that made for my view to be trusted.

6. It is not true that I made much of the Murdu legend. Mac. makes the astounding audacious statement that the class names "appear to be names merely, and to have no effect on the right of intermarriage." Here he ignores the fact that five specimen sets of classnames are given as well as Ipai which he argues against, that it would be as easy to give 20 sets as to give five, that the intercourse between men and women of the same class is punishable by death and that even a war captive cannot be appropriated by a man of her class. . . . .

7. Arguing in a circle? He cannot grasp the fact that in marriage the *group is the individual*. I considered my definitions to be necessary because of the misleading effect of the terms Uncle, Aunt and Cousin. I venture to say it is unfortunate that we ever used those terms at all in setting forth the Classificatory System; but having them fixed in our mind by our own usage, it would have been a wonder if we had not used them. His remark:

> What is necessary to notice in these demonstrations—and nothing else is necessary—is that while by the hypothesis descent is reckoned through the mother and relationship through the mother, and so far as descent is concerned, the father is a mere nonentity, they all proceed on the hypothesis that the father (who on the hypothesis, would be in each particular case unknown) is as much a relative as the mother. Having said this no more need to be said of Mr. Fison's demonstration.

This remark alone is sufficient to show that he does not understand the distinction between descent through the mother and relationship through the mother, and that he cannot see the significance of the fact that the relationship is of group to group. The "particular father" may be unknown, but his group is known and group relationship includes him together with all the other members of his group.

6. He says of the "Classificatory terms":

> They are the terms always used when persons address one another, there being among those who use the system an invincible objection to the mention of their personal names.

Here again he ignores an adverse fact which has been brought under his notice—viz. that tribes who have no such objection use the system. Moreover he does not understand what the objection is. A man will not mention *his own personal name* but he has no objection to the mention of it by others. This is a very wide-spread savage characteristic.

The point to which I wish to call your special attention is this. Mac says

> In the punaluan family, when the husbands are brothers, the wives *are not* sisters, and when the wives are sisters the husbands *are not* brothers—they are punalua.

Your statement is "These husbands were not probably brothers" (A.S. 428), your reason being that were they so they would most likely be called brothers rather than punalua. Mac states positively what you suggest as probability. As to the general question, I venture to think your general statement to be unfortunate. As far as I have been able to ascertain, the punalua, where males, are tribal brothers and the women, when punalua, are tribal sisters. The terms of relationship are of condition so to speak. If I marry three sisters they are punalua to one another, but they are sisters as well. Our Fiji equivalent is Karua. In my list of 8 Fiji schedules hanging up in my study, I find it used for "my husband's brother's wife" interchangeably with "my sister!" Also for "my wife's sister's husband" interchangeably with my brother." It is also used interchangeably with "my sister" for "my mother's brother's son's wife," a female speaking. Our Rua is the Hawaii Lua and means two. The Punaluan Family consists evidently of a number of tribal brothers having a number of tribal sisters as their common wives. At least this is its ancient form.

Past unpleasant experience has taught me the invariable rule never to accept a new fact even from a native without further inquiry. "Natives will not reveal matters to uninitiated men." I have between forty and fifty correspondents in various parts of Australia and Oceania. Every new fact has to be tested. . . . .

My only object has been to get at facts and it has been a great pleasure to me to see the facts marshalling themselves on your side. But I have never attempted to put a fact out of its place in order to establish your views. Our statements can be tested by others at the present day. We have not written an Antiquarian treatise about things that have passed away and which cannot be recovered. There are Australian tribes on hand today and open to examination.

Lorimer Fison Navuloa, Fiji, August 9, 1881

. . . . When I first read McLennan's critique I saw there was nothing vital in it and I put it away without thinking more about it. But after reading Howitt's reply I took McLennan's out again and read him more carefully, noting his unfairness and dishonesty which I had not cared to note at the first reading. I remarked upon them in my last letter to you. As I wrote my reply I became more and more disgusted with the meanness of his tactics; till when I came to his shamefully dishonest depreciation of gentlemen of good standing and acquirements, I took the button off the foil and ran in upon him. But I don't think that I have been at all savage in my remarks. I wanted to cut out the section about "two naughty

little boys " but my wife would not let me. I ask Howitt to get his wife's opinion likewise. I have great faith in the ladies' perception in such matters, and always consult my wife about a passage concerning which I have doubts as to its effect upon the reader or to its good taste.

His plan has been to depreciate my evidence and to "throw dust in the eyes of the jury" by keeping the civilized notion of relationship before the reader as the only one possible and resolutely ignoring that of the savage. To meet these tactics I have exposed his dishonesty in regard to the evidence and tried to bring in sharp relief the contrasts between the two notions aforesaid. This ignorance of savage custom is truly lamentable in one who is supposed to be an authority upon it. But this ignorance is continually being shown by the "philosophers of the study" who have never been in the field. . . . .

. . . . The only position taken by McL. which looked at all dangerous is connected with the monopoly of women by the men but I think that it is effectually disposed of. . . . .

A. W. Howitt Sale, Aug. 18, 1881

My conscience smites me for having so long left your kind letter of 21st April last unanswered. The cause has been the constant call upon me from distant parts of my large district. You will before this have seen the various reviews in English periodicals by Dr. Tylor and others. Mr. Lang's I think was in the *Saturday Review*. One by Mr. McLennan appeared in *Nature*. I read these all with attention, was pleased with Dr. Tylor's, and felt the most perfect equanimity as to the adverse ones. Mr. McLennan I replied to on some points upon which he was at sea. I learned with regret of his decease and did not send my letter to *Nature*. One thing I am quite clear upon, that the adversaries of the Classificatory System have been hard hit and know it. I can assure you that one of the most pleasing thoughts in connection with my enquiries, which are intensely interesting in themselves is that I am following in your footsteps in the path which you have laid out. The more I work and the more materials I collect the more clearly I see how wonderful a field of inquiry there is here. It is, however, not a little disheartening to feel that there is this immense harvest as it were shedding its grain from overripeness and with sickle in hand one cannot reap it. It is always the way that those who can will not and those who will cannot. I think it will interest you to know the direction in which my work is now tending. I am now gathering materials for a critical comparison of the "tribal organization" and the "communal organization" of the Australians. I think that these materials will enable me *inter alia*

to see more clearly what may have been the causes which produced the change of idea of descent. The "tribe" is composed of "clans" having local positions in the tribal territory; each clan has perpetual succession through the sons who inherit the paternal hunting grounds and bring to the clan their wives—these being of the suitable class name; the "community" is composed of two or more intermarrying segments, and descent is through the mother, the *tribe* and community are coexistent, interpenetrate each other, and are coextensive. I find that in the series of tribes I have information concerning, there is a steady advance of social development, in which there is what I may describe as a correlation of growth in the parts; and that in this progression the *tribal* organization (dependent upon the preponderance of the man's influence) changes least; the changes being rather an intensifying of its marked features; the communal organization changes most even in kind as well as degree, until at the end of the series, *the two organizations* are both dependent upon *the male* alone. In the first instance of the series the totems change in each generation in the clan; in the last instance the totem has male descent, is with two exceptions confined to the clan, and we have then a tribe having in reality, totem clans, male descent, (and in the tribe) an elective chief. What is this but the organization (except the elective chief) which we find in the old Scottish and other clans. Many causes have no doubt tended to bring about change in the idea of descent. Among these I can see these:

1. The belief that the child emanates from the male alone: the Kurnai think any other view so ridiculous as not to be worth thinking of; one clinched the argument the other day by saying in more forcible language than I can write, "No one ever heard of a child with a mother and no father." You will remember here Apollo's argument in the Eumenides in reply to the Erinyes. . . . .

2. The custom of betrothal arising out of a feeling of personal property in the child arising *inter alia* from cause (1).

3. Possibly a feeling of personal ownership in the woman arising not out of betrothal but also out of revolt against the communal right as in elopement;

4. Similar feelings when new conditions all brought about the voluntary or involuntary separation of members of tribe from it—i.e. broken men and their wives. The subject is so difficult that it will require very careful thinking out. One thing is quite clear to me, the change in the line of descent is accompanied by the more marked character of the tribal and the fading away of the communal organization. This is a very bald sketch but may indicate the direction in which I am working. I find that the only

way to get materials is by adding to my number of correspondents who will *work*. I have now nearly 30 who do this more or less. I do not like to think how long it will be before I have collected enough for publication. I am also collecting materials for constructing a map showing the boundaries of the various classes and of the tribal groups. I find that the Kamilaroi classes in various *dialectic forms* extend over probably at least a third of the Australian continent—approximately the northeast third. Round the southern and southeastern edge of the continent a fringe of tribes with advanced organizations in which the class systems are in various stages of decay. In a few places I find what seems to be the Kamilaroi form of *classes* but with male descent. Just lately, I met with a N. S. Wales aborigine from whom I obtained most important particulars. I have subjected him to a severe examination for several days and I find that his account "hangs together" well and coincides in some important points with information I have from distant places. I am now taking steps to check this information by reference to a correspondent in the district in question. To show you the kind of information I am receiving, I give you a précis of my last acquisition. My informant's mother was a Gippsland woman who was taken by the Snowy River Kurnai tribe to the Twofold Bay tribe (see K and K where at the table of clans reference is made to marriage of the Ben Kurnai with Mallagoota). This place is the boundary between the Kurnai and the tribes I now speak of calling themselves Yuin-men. I obtained the complete confidence of this man by speaking to him of the secret ceremonies of Initiation and showing him, of course with proper mystery, a Turndun I possess. He then said "I see you know it all." He regarded me therefore as one of the initiated or as it is expressed in his language a "Gumbangara" i.e. raw-tooth i.e. one who has had a front tooth knocked out at the ceremonies. I now continue my précis:

The Yuin extend from Mallagoota along the coast to Wollongong and inland as far as Boobala and Braidwood. It is divided into two intermarrying subtribes—North men and South men. Each subtribe is a triplet of clans. Each tribe is named from its locality. In this tribe there are four or five dialects having distinct names. There are only *totems* in this tribe, scattered all through it. They do not influence marriage. Descent for boys through father; for the girls through the mother. The totemic names as you will see by and by are less "names" than "magic," what I, think the N. A. Indians call "medicine"—these men call it Io-e-a. My informant, said of his totem (Kangaroo) "It is not a name as much as like a Io-e-a"—"If I saw a Kangaroo running towards me, I should know it was giving me a sign that enemies were near." A wild dog man would get a sign from a wild dog etc., etc. Marriage between the subtribes—or in one subtribe between its clans, but not *in* a clan, as also between one clan and Ben Kurnai—was only permitted when the parties

were not too nearly related—i.e. not "cousins" (with them considered brothers and sisters). Wives obtained by arrangements of fathers at a "fair" or place of barter held at the close of the ceremonies of Initiation—and by actual exchange by brothers of their sisters, under these arrangements. One wife only at a time. Elopement of unmarried girls not infrequent. *Jus primae noctis* practised as to them only. Female captive given to some captives who have no wives. Private wrongs avenged by victims or his male relatives (agnates or cognates) or atoned by an arranged fight. In elopement man fought the girl's male relatives man to man until either he had been knocked down four times, or had knocked down all the girl's men. If couple could remain away until the girl had child, the affair condoned. Girl when caught severely beaten. The tribe governed in each clan by a Headman with other Headmen over the lesser groups. One Chief Headman over the whole. This is so curious that I give my informant's details more fully. The Headman is called Gommera. The Head Gommera is now living in extreme old age. He was according to his account selected as a boy by the then Head Gommera and trained by him in the secrets of the Gommeras. To become a Gommera, it appears to be necessary to be (1) grey-headed, (2) to speak a number of languages, (3) to be able to withstand successfully the attack with spear throwing of from ten to twenty warriors, being armed with a shield only, (4) to be able to exhibit magic as hereafter described. This Head Gommera, it is said, withstood an unusual number and finally through his advanced age became supreme. The Head Gommera consults with other Gommeras whom he summons by messengers. These consult with the elder men of their group. Offenses against tribal law are punished by the Gommeras either by subjecting the offender to ordeal by battle or by ordering his death at the hands of certain warriors. The Head Gommera orders the Initiation (Bunan). His subtribe holds the Bunan and the other subtribe attends. At the Bunan, the whole tribe being represented, certain ceremonies are held at which men, women, and children take part. These are ceremonies of welcome and of presentation of novices to the tribe. The novice is attended by "his wife's brother"—i.e. the brother of one who might be his wife. In other words the novice is initiated by one of the other subtribe. At a certain signal given in the distance out of sight of the women by the tundun (mukthe)—the women and children go away to a distance of several miles under penalty of death. It is at this point that the secret ceremonies commence, to speak of which is unlawful. The Gommeras accompanied by the novices and their "Iambis" proceed along a cleared path from the large place of ceremonial to a smaller place. Along this path are, as I am now told, figures of animals moulded in earth. These animals are the totems. At each during ceremonial dances, one of the Gommeras "brings up" (to use my informant's expression) from his inside an article which is the Io-e-a of the totem. Thus a substance like "chalk" is the Io-e-a (medicine) of the Porcupine—in the case of the Brown snake, my informant declares solemnly, that he saw a small brown snake about 12 inches long drop out of the Gommera's mouth. Such a snake is thin and might I think, be held in a large mouth. After the novices have been sufficiently impressed by the

magical powers of the Gommeras the most secret part is reached. Here I am told is a figure of a man in "mud" surrounded by weapons. A dance is held here round this figure with cries of "Daramulun." Here a Gommera brings up what is supposed to be a fearfully powerful Io-e-a like "flesh"—this is the Io-e-a of Daramulun. This Daramulun is the equivalent of the Brewin of the Kurnai. I find him under this name as far out as the Lachlan River and similarly connected with magic, with the magicians and with the initiations. The head Gommera is supposed to communicate with this Daramulun (and he has no wife "because Daramulun has none"—that is this now living Head Gommera). Here I find exactly that which I have foreseen—namely the source of new laws in the tribe—the source being "supernatural" through the mouth of the wizard and the wizard is either a member of the tribal council or the head of that council. In this tribe, from him emanated a new law that babies' noses were no longer to be flattened "because it smothered such a lot." In the Dierie tribe the wizard is in the council of Elders from which emanated the new law which divided the "undivided commune" and "Mooramoora" is the equivalent of "Daramulun." Is it not true that nowhere in history has a great social law been carried out, bringing with it radical change unless under supernatural sanction? From the Dieri legend to the Mormon Revelation—from the earliest to the latest, it has been the same. This is one of the questions on which I am trying to get information—the influence of these magicians in the Australian tribes has been often noted but what the influence has been and is, has not I think been fully seen.

These magical ceremonies having been completed, the novices are taken to a more distant and more retired spot where in a small enclosure, Bunan, one of the front upper teeth of the boy is knocked out by the Gommera. The evening is then spent in theatrical games and pastimes to amuse the novices. For instance, a Kangaroo man represents that animal and is hunted by several men of the Wild Dog totem. Even burlesques are indulged in, for instance a man appears carrying something that is made up to represent a baby. One of the men burlesques the "practise" of one of the Doctors in curing this sick child. The laws relating to the Bunan, to marriage etc. are here laid down to the youngsters by the Gommera, who displays to them his various Io-e-as and explains the power of each. They are told the various kinds of game, they are forbidden to eat during their period of probation, and also shown the Io-e-a belonging to each which will, they are informed, kill them if they disobey the law. Besides this supernatural vengeance they are told that if they eat forbidden food their offense will be seen by the Gommeras in dreams who will then kill them. Finally they are forbidden to reveal one word of what they have heard to child, woman or *whitefellow* under pain of death to them and to all belonging to them. (This was the prohibition at the last Bunan held.) Can one wonder that these secret ceremonies after the sending away of the women and before the theatrical games I have mentioned are scarcely ever revealed? Following this the Gommeras, the Iambis, and the Gumbangaras return to the women's camp, where the boy's mother gives him a blow on the chest and one

on the back with a piece of bark. The boy then and his comrades run off into the bush and there live for months gaining their own living by catching the least nutritious game, until the Gommera considers that they are sufficiently tried and permits them to return as *men*. The Gommera who knocks out the tooth, gums it to the end of a piece of ngulia (the man's waist cord) and carries it to the next neighboring Headman. In the case I have been describing there were three boys admitted and their teeth were carried, first to Wollingong, thence to Sidney, thence to Camden, Lake Bathhurst, Yass, Grundagai and returned to Moniya where the Bunan had been held, by way of Tumut after many months. The tooth was then returned to its former owner. Together with the teeth was sent what may be called the sacred shield of the Yuin tribe. This was in charge of the Head Gommera and always went the round with teeth. I am told that the kindred tribes amongst whom the teeth were carried had each a shield for which great reverence was felt. As my informant expressed himself, "this shield was nearly like Daramulun himself." Let me remind you here of the jagged spear which came round from Omeo to the Kurnai before the last battle of the clans. These tribal tokens of war or ceremonial will make an interesting chapter and will, I think, afford many parallels to classical incidents. The Divine shield of the Yuin reminds me of the naked sword which I think Herodotus records was worshipped by the ancient Scythians. The history of this shield as told me by Iebin, my informant, is so curious that I cannot resist the desire to tell you although the length of my letter might well alarm you. He said "Long ago—long before the old Head Gommera was born, there was a young Gommera of the tribe who was very skillful. As the men heard so much 'blowing' about him they came to try him and he stood out before them all. They all threw showers of spears and boomerangs but he came safe through them all. Then they came up and shook hands with him and made him their Head Gommera. The shield he defended himself with is the one that now goes the rounds. It is a millidu and it is very black with age. It is covered with spear rents and dents of boomerangs." This millidu is a very narrow shield made use of in close fighting with clubs—and not the broader shield used for spear fights.

These are some of the interesting points in my latest acquisition. Some of the details may require amendments but I do not feel any doubt as to the truth of the main facts. They fit in too well with that which I know from other places and my informant stood a severe cross-examination on several days. I see in the above particulars indications of the possible origin in some instances of totem worship, of idolatry and of a priesthood. The knocking out of a tooth I regard as the visible sign of manhood. It is noteworthy that the range of Daramulun and the rounds of the tooth are seemingly the same.

I trust that I have not wearied you with these particulars. But they seemed to me likely to interest you as showing the nature of the evidence

I am gathering. My next step will be to open communication with the Head Wizard. For this purpose I shall most likely send off Ienbin in the aboriginal manner as my messenger and as I have acquired a good deal of influence over him, I hope that he will not only travel the three hundred miles of mountain between me and the Head Wizard, but so favorably report to him of the whitefellow Gommera in Gippsland that he may be induced to return with him. If however the mountain will not come to Mohamet, Mohamet intends to go to the mountain. . . . .

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PREHISTORIC NORTH AMERICAN BASKETRY TECHNIQUES AND MODERN DISTRIBUTIONS[1]

By GENE WELTFISH

THE study of American Indian basketry techniques, with a view to pointing out historical implications, needs little justification in view of the known antiquity of the Basket-Maker culture. Largely through the efforts of Kidder and Guernsey this has been established as the earliest identifiable culture in the Southwest.[2] While the modern Pueblo Indians and their ancestors in this region are skilled potters, these more ancient inhabitants of the region are noteworthy for the fineness of their basketry

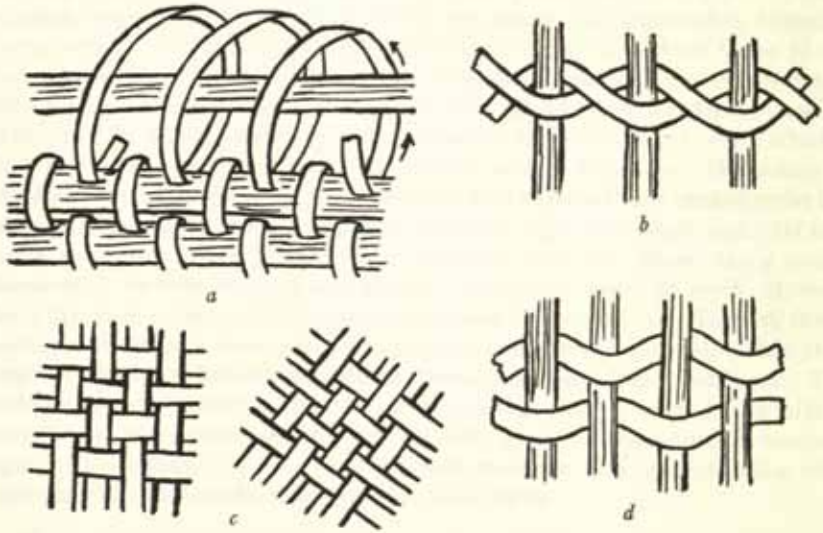

FIG. 1. Types of basketry techniques. *a*, coiling; *b*, twining; *c*, plaiting; *d*, wicker.

products and the absence of a true pottery art. It is thus evident that this basketry art, which flourishes in comparable form among many of our aboriginal groups today, is very old in North America.

In the comparison between prehistoric basketry techniques and modern distribution of techniques, the distinction between prehistoric and modern must for the present remain a broad and general one, since for most of

[1] Read at the annual meeting of the American Anthropological Association, New York City, December 28, 1928.

[2] Guernsey and Kidder, 3, 1921. Kidder gives an estimated date of 2000 to 1500 B.C., 119, 1924.

the prehistoric material with the exception of the Basket-Maker neither relative nor absolute chronologies are as yet available. In general, all material referred to as prehistoric is undoubtedly pre-Columbian.

The basketry with which we shall deal falls into three general technical types,—the coiled, the twined, and the plaited. These differ in principle, viz., in the position and relation of the active and passive elements, the warp and the weft.[3] In coiling, we have a horizontal warp sewn with a vertical weft thread; in twining, we have a vertical warp sewn with a horizontal weft thread; in plaiting, the distinction between warp and weft does not hold, since both elements are usually equal in degree of activity and proportions: the position of the elements in plaiting is either horizontal-vertical or diagonal. On the basis of this classification, the technique called wicker[4] would come within the same type as twining.

I. Modern Basketry Areas

The distribution of modern American basketry can be characterized by referring it to ten basketry areas.[5] (See map.) Along the west coast of the continent four of these areas occur:

1. Northwest coast.—In the Northwest coast area the baskets are finely twined and cylindrical in shape. In addition to twined ware, the southern group make baskets of cedar bark in checker-plaiting and twilled-plaiting.

The northern group includes the Aleut, Tlingit, and Haida. Tlingit baskets are decorated in false embroidery.

The southern group includes the Tsimshian, Kwakiutl, Bella Coola, and Nootka.

[3] There are two principles involved in this descriptive fact: first, the relation of the warp and weft to each other; and second, the position of these elements with respect to the worker during manufacture. Statements covering both these principles are indispensable to complete description.

[4] Mason, 228, 1902.

[5] This classification was made on the basis of museum collections of basketry. In preparing the discussion for publication, I have added bibliographic notes.

This museum study of modern basketry and ancient basketry remains has taken me to the exhibitions and store rooms of a number of museums. For their courtesy and cooperation when I visited their museums I am particularly indebted to the staff members of The American Museum of Natural History, New York; Museum of the American Indian, Heye Foundation, New York; Peabody Museum of American Archaeology and Ethnology, Cambridge, Mass.; Brooklyn Museum, Brooklyn, New York; University of Pennsylvania Museum, Philadelphia, Pa.; U. S. National Museum, Washington, D. C.; Field Museum of Natural History, Chicago, Ill.; University of California Museum, San Francisco, Calif.; Los Angeles Museum, Exposition Park, Los Angeles, Calif.; Southwest Museum, Los Angeles, Calif.; and the San Diego Museum, San Diego, Calif.

2. Northern California-Puget sound.—In the northern California-Puget sound area the baskets are made primarily in overlay twining. The Makah on the northernmost coast of Washington use wrapped twining very extensively. In the northern part of this area this technique and false embroidery are often used on bags and soft baskets for the decorated portion.

The northern part of the area includes the work of the Clallam, Quinaielt, Tillamook, Skokomish, Wasco, Wishram, Umatilla, Cayuse, Wallawalla, Nez Percés, and Cowlitz.

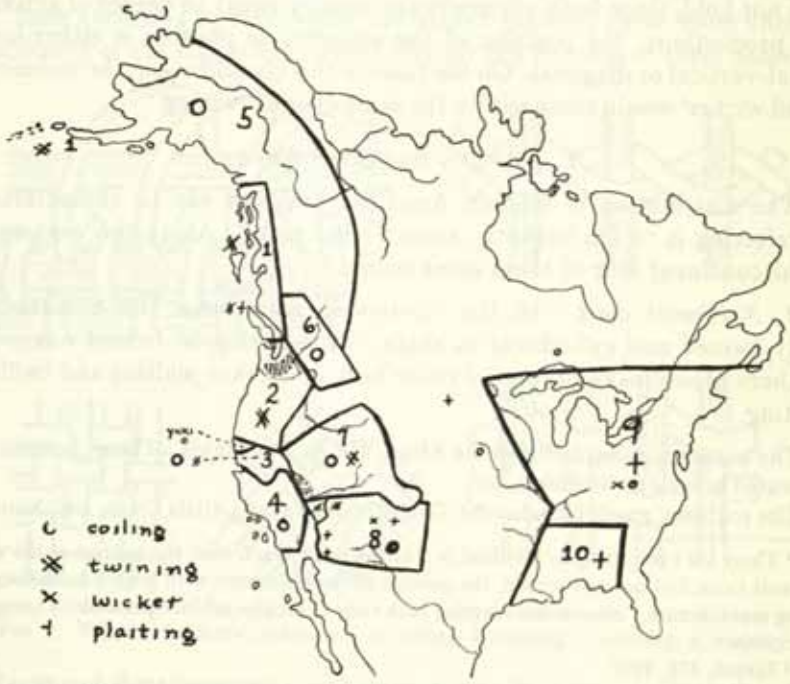

FIG. 2. Basketry areas of North America. The peoples of area 2, indicated by vertical shading, also now make imbricated coiled ware such as is found in area 6. The people of area 7 indicated by horizontal shading, make coiled ware which might be classed with area 3.

South of these the western group includes the Yurok, Karok, and Hupa, the Wiyot, Wailaki, and Shasta. According to Kroeber, the Athapascan Tolowa, Lassik, and Sinkyone (as well as the extinct Chimariko), had twined basketry of the northwestern California type.[6] In the eastern north California group we have the Klamath-Modoc, Northern Wintun, Pit River groups (especially the Achomawi and Atsugewi), and the Yana.

[6] Kroeber, 127, 144, 147, 111, 1925.

3, 4. Central California and south California.—The central California and south California areas are both characterized by the predominance of coiled ware. Twining in twilled and open-work form is used for objects of everyday use. The Pomo, in the central area, make use of a variety of twined weaves. The distinguishing features of the coiling of these two areas are differences in the technique which I shall describe later.

The Pomo, Maidu, Miwok, and Washo are the chief central Californian basket-making groups. The coiled ware of the Yuki is technically different from that of these other groups. "Coast Yuki basketry was like that of the Kato and Yuki, it is said, though no examples have been preserved. The Usal Athabascan (Sinkyone) are said by the Coast Yuki to have made coiled baskets of the same kind. It is likely, however, that as among the Wailaki, and in another part of the state among the Yana, this ware was only sporadically manufactured by them alongside of the standard forms in twining."[7]

Included in the south California area are the Yokuts and Mission, Chemehuevi, Chumash and Salinan. The Salinan also make twined work.[8]

Immediately inland we have again four areas:

5. Mackenzie.—The baskets of the Mackenzie region are rudely coiled.

In this group is included the work attributed to the Athapascan Tinné, that of the Athapascan at Anvik, Alaska, and of the Alaskan Eskimo.

6. Salish and Sahaptin.—To the south among the Salish and Sahaptin tribes there is intensive development of coiling with imbrication.

Most of the imbricated basketry now available is of four types, the Chilcotin (Tsilkotin), Thompson, Lillooet and Klickitat.[9]

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[7] Kroeber, 214, 1925.

[8] According to J. A. Mason, 1912, it is probable that twined ware, in greater abundance and of finer quality than is made in the south California area today, was characteristic of the coast tribes south of San Francisco. The only example of Costanoan basketry (illustrated in J. A. Mason, pl. 36, fig. 2) is of twilled twining of fine quality and peculiar in weave and decoration. See also Kroeber, 561, 1925, plate 53. Of Costanoan basketry, J. A. Mason writes: "According to Petit-Thouars, Voyage autour du Monde, 2:115, the baskets at Monterey were decorated with colors, feathers and pearl beads. It is probable that their basketry most closely resembled that of the Miwok." Nothing is known of the basketry of the Esselen.

[9] According to Teit, 487, 1909, "coiled basketry was formerly made by all or nearly all the Shuswap bands and was of the same kind as that made by the Chilcotin, Lillooet and Thompson Indians."

An historical treatment of the present and past distribution of basketry in this region will be found in Boas, 1928. The following are excerpts from this treatment: Page 383, "The area in which imbricated basketry is made stretches along the eastern side of the Cascade range, beginning with the Chilcotin and following south through the territory of the Thompson as far as Wenatchi and Cowlitz."

7. Basin.—Among the Shoshonean tribes of the Basin crudely finished coiled baskets and twilled-twined ware, for the most part either undecorated or decorated with very simple designs, are the features.

These include the Paviotso, Paiute, Bannock, Ft. Hall Shoshoni, and Ute groups.

8. Southwest.—In the Southwest, finely finished coiled ware is the predominant product. In addition there are more limited and sporadic occurrences of other weaves, as for example the wickerwork of the Hopi and Zuñi, the twilled plaiting of the Hopi, Zuñi, Rio Grande Pueblos, the Pima and the Papago, and the plain and twilled twining of the Havasupai and the Apache groups.

From the standpoint of basketry, the Southwest area includes, in addition to the pueblos, the Havasupai, the San Carlos,[10] Jicarilla and Mescalero Apache, the Navaho, Pima,[11] and Papago.

"All of the *in erior Salish* tribes of British Columbia once made coiled basketry of cedar or spruce-root—the Upper and Lower Lillooet, the Upper and Lower Thompson, the Shuswap, the Lake (of the Okanagon group) and the Okanagon proper. The last were the least productive. The Lake and Okanagon as well as the Shuswap make almost no coiled baskets at the present time, but the Lillooet and Thompson probably manufacture as many now as they ever did. Of the *Athapascan* group of southern British Columbia, the Chilcotin are the only people who make coiled ware."

Coast Salish: "On the coast only the Sechelt, Squamish, Stalo of Lower Fraser, the Nootsak, the tribes of Puget Sound, and the Cowlitz, all of whom live not far from the Lillooet and Thompson and their southern neighbors make coiled baskets of which they produce no small amount at the present day. The interior people say that although these tribes had access to the very best material in their own country none of them made coiled ware in old times, but learned from the Thompson and Lillooet."

Sahaptin (p. 137): "According to the Cowlitz and Nisqualli, the Klickitat, when they came into their country, found the other tribes of the region well versed in basket-making. They say that the Klickitat formerly resembled the Yakima in that they did not make baskets . . . . only when they learned the art from the Cowlitz and Nisqualli were they able to manufacture plenty for their own use."

Page 136: "From this information, as well as from that derived from other localities, it would appear that the original home of this type of coiled work lay in the Cascade region. The Salish antedated the other tribes in this manufacture, having produced the ware before the arrival of the Klickitat west of the Cascades, a statement which is confirmed by the distribution of the industry."

Page 135: "The interior Salish were not the only people, however, who produced coiled work in the early days. They state that the Snake, Nez Percés and some Kootenai knew the technique, but not the Blackfeet, who formerly bought their baskets from the Flathead and Tunā' xe."

[10] The work of the White Mountain Apache may be grouped with that of the San Carlos. One or two examples of Chiricahua Apache work that I have seen are also of this type. I have seen no examples of work attributed to the Mimbreños and Tonto Apache.

[11] Several baskets attributed to the Maricopa resemble Pima work in technique, but the

Thus, eight of the basketry areas which can be distinguished technically, occur in the western third of North America. In the rest of the continent there are two areas:

9. Algonquian (Northeast).—In the Algonquian region, baskets are made of sweet-grass and splint in coiling, wicker, and checker plaiting techniques. While it is not possible without full archaeological evidence to determine what features of modern Algonquian basketry are due to white contact, it is probable that the influence of European culture has been an important factor in the history of the basketry as in the other phases of eastern native culture.

The northernmost groups in the east, the Naskapi and Montagnais, are not basket-makers (bark baskets, however, are in use here).

The Abnaki, Micmac, and New England groups make splint basketry in plaited and wicker techniques and some wickerwork in sweet-grass and splints.

South of these, the Iroquois make twilled and checker-plaited splint baskets, twining—especially in corn-husk—and an openwork plaited technique with two diagonal elements and a horizontal element, similar to chair caning. This is a technique also found on snowshoes.

West of the Iroquois, the Central Algonquian group includes the Ojibway and the Chippewa who are a northern branch of the Ojibway, the Ottawa, Menomini, Sauk and Fox, Potawatomi, Peoria, Illinois, Kickapoo, Miami, Piankashaw, and Shawnee. Specimens are not available from all of these groups, some being now extinct. Splint basketry in checker and twilled plaiting exists for most of these groups; the sweet-grass coiled ware is attributed to the Ojibway, Chippewa, and Menomini. In the Museum of the American Indian, Heye Foundation, there is one coiled specimen from the Miami and a twined specimen from the Kickapoo.

10. Southeast.—In the southeastern area the baskets are of cane splints chiefly in the twilled-plaiting technique.[12]

These baskets are made by Cherokee, Chickasaw, Choctaw, Alibamu, Koasati, Attacapa, Chitimacha, and other groups in this region.

In contrast to this western and eastern distribution of basketry, the central part of the continent, taking in the region from Hudson's Bay through the Mississippi to the Gulf, shows practically no basketry.

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stitches are spaced further apart so that the foundation element shows between the stitches; in contrast to Pima baskets these examples are undecorated or are rubbed on the surface with a pinkish paint after the basket is finished.

[12] Speck, 1920, treats the whole eastern distribution of cane and splint basketry.

In this region of the *non-use of basketry*,[13] the coiled gambling trays collected from most of the Plains tribes furnish an exception. These also occur among the Caddoan Pawnee and Arikara, by whom they are made; the Pawnee, Arikara, and other Caddoans also made twilled carrying-baskets. These were also found among the Hidatsa.

II. Coiling and its Distribution

In considering the distribution of each of the three types of basketry technique in North America—coiling, twining, and plaiting—the technique of coiling will be the most extensively treated. This is justified by two considerations,—the widespread use of coiling in ancient and modern basketry; and, of still greater importance for comparative technical study, the possibility of analyzing the technique into a number of mechanically independent traits.

a *b*

Fig. 3. *a*, counter-clockwise and *b*, clockwise spirals.

Coiling occurs in six of the basketry areas characterized above. These are: (3) and (4) central and south California; (5) Mackenzie; (6) Salish; (7) Basin; and (8) Southwest. Of these, the south California groups make coiled ware almost exclusively. Coiled ware is preponderant in central California, in the Salish area, and in the Southwest. Except for the coiled plaques of the Hopi, the modern Pueblo groups do not make coiled basketry. This preponderance of coiled ware occurs in other groups I have included in the Southwest area. Among the Basin Shoshoneans, coiling and twilled-twining are equally stressed. In the east and central part of the continent, sporadic examples of coiled ware occur in the Algonquian and Plains areas.

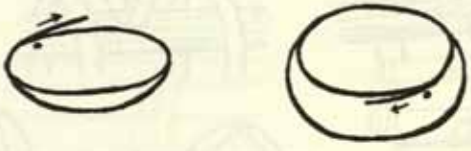
Four features of the coiled technique are of widespread comparative value,—the direction in which the work proceeds, the surface from which the basket is worked, the method of sewing, and the foundation element.

As practically all coiled basketry is built in a continuous spiral from bottom to mouth, the spiral may progress either clockwise or counter-

[13] An exceptional basket was collected by Skinner, 129, 1911, from the Northern Salteaux at Fort Osnaburgh, on Lake St. Joseph. This is made in *non-spiral* coiling. Dr. Ronald Olson reports having collected two baskets in this technique from British Columbia.

clockwise. Conceiving the mouth of the basket as a clock, the stub of the last course of coiling reveals the clockwise or counter-clockwise direction in which the coiling proceeded. This spiral may also be observed on the inside[14] bottom of the basket. If necessary, the direction of the spiral may be calculated on any part of the body of the basket by following one course of coiling to the completion of its circuit.

The significance of determining the direction in which the spiral progresses is not in the descriptive fact itself, but in its interpretation as a motor habit of the basket-maker. For the purpose of this interpretation, the position of the basket with respect to the worker during manufacture must be taken into account. The woman may work with the concave or the convex surface facing her. When the concave surface is the workside, the far edge of the circumference is worked; when the convex surface is the workside, the near edge of the circumference is worked.[15] The basket is revolved circularly so that the hands of the worker move in a horizontal



a *b*

FIG. 4. *a*, a clockwise spiral worked from the concave surface; *b*, clockwise spiral worked from the convex surface.

line, rather than in a circle. From the point of view of the worker, the coiling may proceed toward her right or toward her left. In order to translate the direction of the spiral into these terms, we must ascertain which was the work surface,[16] the concave or the convex. Thus while the sur-

[14] Examining the bottom of a basket on the outer or convex surface, the watch-spring spiral proceeds in a direction opposite to that of the rim. In describing the direction of work, especially in fragments or broken baskets, this factor should be taken into account.

[15] This agreement of surface worked and edge worked is true of North American plaiting and twining as well as coiling.

Basket-making illustrating concave work surface worked at the far edge is shown in: Kissell, 188, fig. 38; 210–212, figs. 53–58 (Pima coiling), 1916; Spier, 130, fig. 12 (Havasupai twining), 1928; Mason, pl. 197 (Mission coiling); pl. 200 (Havasupai coiling), 1902.

Basket-making illustrating convex work surface worked at the near edge of the circumference is shown in: Spier, 130, fig. 13 (Havasupai twining), 1928; Boas, pl. 2 (Thompson coiling), 1928; Mason, pl. 12 (Pomo twining), pl. 13 (Tlingit twining), pl. 120 (Abnaki plaiting), pl. 121 (Chippewa plaiting), pl. 171 (Hupa twining), pl. 172 (Wintun twining), pl. 198 (Saboba coiling), pl. 215 (Hopi coiling), pl. 235 (Pima coiling), 1928.

[16] The work surface usually has a better finished and more even appearance than the non-work surface. Natives are inclined to designate this work surface as the "good side."

face worked is a feature which is mechanically independent of the direction of work, the latter feature cannot be determined until we can determine which is the work surface.

A clockwise spiral worked from the concave surface and a clockwise spiral worked from the convex surface represent different directions of work. This follows from the relation between the surface worked and the edge of the circumference worked, as above explained. See also figure 4.

Each course of coiling consists of a filler or foundation element which proceeds horizontally, and the binding stitches which appear on the surface

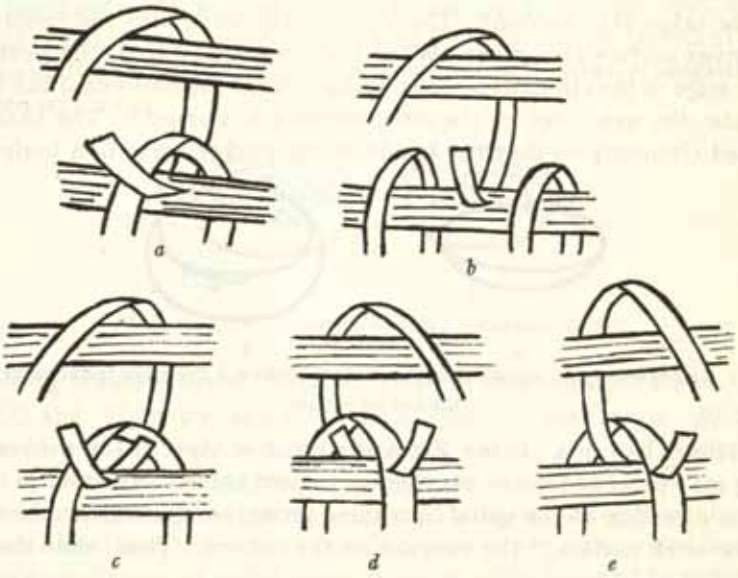


FIG. 5. *a*, interlocking stitches; *b*, non-interlocking stitches; *c*, split stitches on non-work surface; *d*, split stitches on work surface and non-work surface; *e*, split stitches on work surface.

and are vertical. The purpose of the binding stitch is to hold the filler together and to attach it to the completed course of coiling below. The new binding stitches may be inserted into the completed course of coiling in three ways: (1) the stitches of the new superimposed row either split the stitches of the course below; (2) they interlock with them; or (3) they do not interlock with them.[17]

[17] As can be observed from the illustrations, the new stitch always includes some of the foundation element of the course below, and in the case of non-interlocking stitches attaches the new coil to the one below by means of the foundation element alone.

Mason,[18] in his analysis of coiling, considers the interlocking of stitches a basic feature of all coiling; he includes split stitches in his conception of interlocking, and his treatment would imply that the occurrence of non-interlocking stitches in coiled work is exceptional. I believe Mason's interest in the netting techniques (coiling without foundation) as the prob-

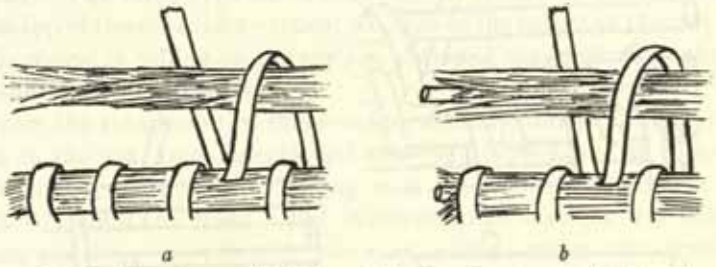


FIG. 6. Type 1. *a*, multiple foundation; *b*, rod surrounded by bundle.

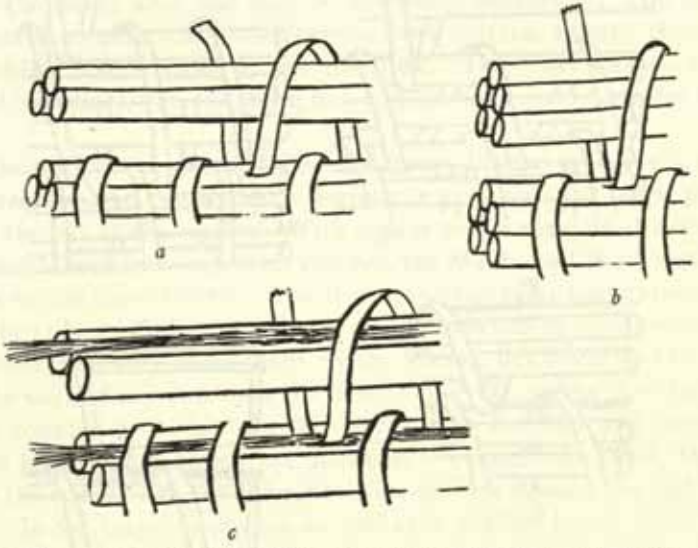


FIG. 7. Type 2. *a*, three-rod triangular; *b*, five-rod triangular; *c*, two-rod and bundle triangular.

able origin of coiling was the basis for this emphasis upon interlocking stitches. Logically, it is hardly necessary to find a unit origin for the coiling technique. As the pictures of birch-bark vessels in Mason[19] indicate,

[18] Mason, 244, 245, 1902. Kidder and Guernsey, 169, 212, 1919, remark upon the presence of non-interlocking stitches in Basket-Maker material and the contradiction this offers to Mason's definition.

[19] Mason, 277, 1902.

edge-binding and the binding of sticks or bunches of grass, as well as the netting technique, might well have given rise to the technique of coiled basketry. Whatever might have been the origins of the technique, the actual distribution of the three manners of sewing indicates that inter-

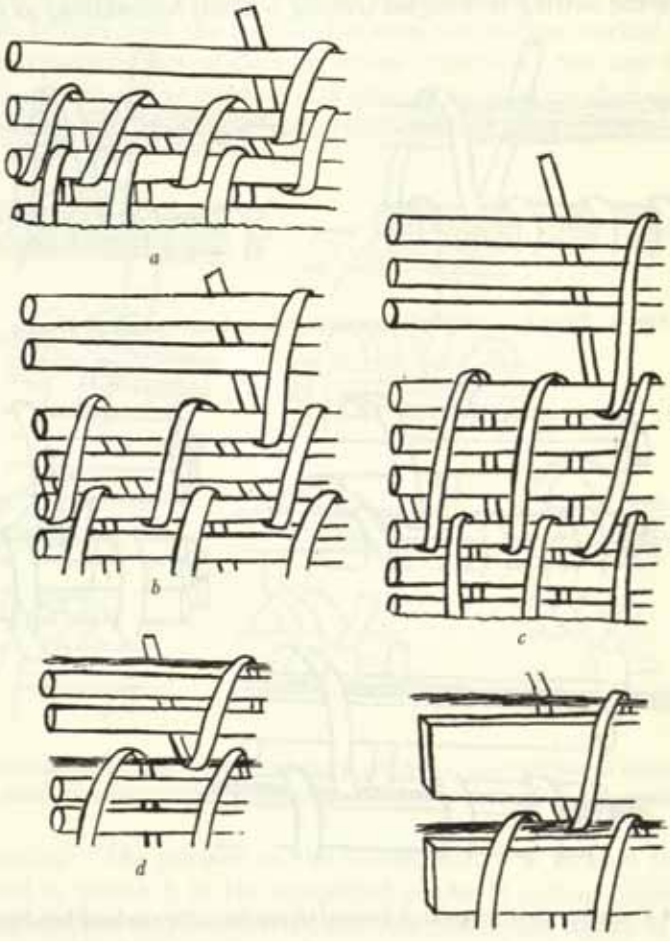


FIG. 8. Type 3. *a*, one-rod; *b*, two-rod vertical; *c*, three-rod vertical; *d*, two-rod and bundle vertical; *e*, slat and bundle vertical.

locking of stitches is, if anything, a more exceptional feature in its appearance than non-interlocking. It seems to me, therefore, reasonable to use these three distinctions as independent in technical descriptions and comparisons, rather than to identify any two of them as equivalent.

The foundation element contained within the stitches is, in North America, of three types:[20] first, a bundle of grass or splints (multiple foundation); second, three rods in triangular form, so that the cross-section of the course of coiling would form a triangle with apex pointing upward (sometimes a bunch of grass or a splint being substituted for the top rod). The third type has a one, two, or three-rod foundation placed one on top of the other in a vertical position in the height of the coil, making a wide course of coiling on the surface. Some of the variants of these three types are illustrated (figs. 6, 7, 8).

From the standpoint of these technical characteristics, the coiled ware found in the six areas mentioned can be differentiated as follows: The northernmost occurrence of coiling as a predominant technique in California is among the Yuki. The Wailaki north of them use coiling and twining equally. Sporadic occurrences of coiling among tribes north of this group have been reported.[21] The Yuki do not belong technically to the central California area and may be mentioned separately. The direction of the coil is counter-clockwise, convex work surface, toward the right of the worker. The stitches do not interlock. The Yuki use one-rod surrounded by splints, two-rod and splint, and the three-rod triangular foundations.[22]

In the work of the central California groups the coil proceeds in a clockwise direction, the convex work surface is used and the work proceeds toward the left of the worker. With regard to the manner of sewing, the Pomo and Miwok interlock their stitches, the Maidu and Washo split their stitches on the inner surface. The three-rod triangular foundation is used by all the tribes; in addition, the one-rod foundation is used by the Pomo and Miwok, and very occasionally by the Washo, but never by the Maidu.

In the south California area the direction of the coiling is either clockwise or counter-clockwise. In jar shapes with shoulder and constricted neck, or in globular shapes, the direction is counter-clockwise, the work surface the convex side, and the direction of work toward the right of the worker. In flat tray-like shapes, as well as in shallow bowls, the direction of the coiling is clockwise, the work surface the concave side, and the direction of work toward the right of the worker. In the deep, truncated

[20] I have made no attempt here, however, to present an exhaustive list of all the variations of these types that can occur.

[21] See the discussion under areas 3, 4, p. 457.

[22] The Yuki have been subject to some influence from the Pomo in their basketry technique, but it is significant that their basketry art is still distinct. Of ethnological importance in this connection, are the facts that they are also distinctive in speech and physical type. See Kroeber, 159, 169, 1925.

cone-shapes usually characteristic of burden baskets and hats in this area, the direction of the coil is either clockwise with concave work surface, or counter-clockwise with convex work surface, and in both cases the direction of the work is toward the right of the worker.[23] While we have a variation in this area of the direction of the coil and the work surface used, the actual direction of work is always toward the right of the worker.[24]

The stitches in south California coiled ware are non-interlocking. Looking at the surface, the stitches on these baskets show a decided leftward lean, which is also noticeable on Salish coiled ware, and is probably a concomitant of work toward the right of the worker combined with non-interlocking stitches or those split both inside and out. In both cases the binding stitch passes through the completed course of coiling at right angles to it. Following this principle, a right lean would be expected in non-interlocking stitches toward the left of the worker, but this lean is not so marked.

In this area a multiple grass foundation element is used. (Exceptions are: the Chumash, who use three reeds in triangular form; and the Chemehuevi, who use three rods in triangular form.)

Chemehuevi basketry is unique in North America in the technical fact that within a well-defined basketry style, direction of work both toward the right and toward the left of the worker occurs. Right and left directions of work occur in both the general types of Chemehuevi baskets, flat ware which is worked on the concave surface and globular and bottle shapes which are worked on the convex surface. Kroeber early drew attention to this fact of the two directions of work in Chemehuevi basketry.[25]

In considering this anomaly of Chemehuevi basketry technique, it should be remembered that for the individual basket-maker it is improbable that weaving is done in both directions. The methods of handling, for economy of motion and control of technique, become habitual, and any deviation is likely to be inconvenient and clumsy. The evidence on distribution of techniques presented in this paper supports this contention; for not only is the direction of work consistent within any tribe, but also it is uniform throughout wide contiguous areas. Variation in direction of work within a tribe which may occur, is usually numerically insignificant and can probably be attributed to the number of left-handed basket-makers normal to that group. Among the Chemehuevi, however, the proportion of the variant direction is

[23] These deep, truncated, cone-shaped baskets are made in the coiled technique by the Maidu, Miwok, and Washo to the north, the direction of the coil being consistently clockwise, the work surface convex side in all cases, and the direction of work toward the left of the worker. In these groups this is the most characteristic coiled shape.

[24] As noted below, the Chemehuevi are exceptional in this feature.

[25] Kroeber, 50, footnote 16a, 1908.

too great to be attributed to this factor. 1:5—1:6 is the proportion of work toward the left to that toward the right.[25]

While in Los Angeles in November, 1929, I was fortunate in finding a collection of over two thousand Chemehuevi baskets in the Los Angeles Museum, which I was able to examine through the courtesy of Mr. Arthur Woodward. Almost the entire collection was tabulated for certain outstanding traits, and what seemed to me important results appeared as a result of the counting.

The baskets were first sorted as to direction of work. Disregarding all other characteristics, the numbers in the two directions of work, tended toward a proportion of 1:6.

This proportion was not consistent, however, for all shapes found in the collection. Three shapes showed great disproportion to the average.

The first of these, shallow trays ranging from 9 to 20 inches in diameter, when tabulated were found to include eighty-five worked toward the left of the worker, and one hundred sixty-seven worked toward the right, a proportion of over 1:2 as against the expected 1:6. Among baskets of this shape two were found which almost certainly had been made by the San Carlos Apache. San Carlos Apache trays are worked on the concave surface toward the left of the worker, and in this fact agree with the eighty-five Chemehuevi baskets. In addition, Chemehuevi baskets share with the Apache the three-rod triangular foundation, the use of wood instead of reed sewing-thread, and the use of *martynia* as the black thread for design and rim.

The second shape is that of the Yokuts burden basket, a deep trapezoidal form. There were sixteen of these worked on the concave work surface and toward the worker's right, while there were none of this shape in the other direction of work. A fact to be associated with this, is that in a comparison of deeper bowl shapes practically all which can be said to have a decided bend at the base, such as is characteristic of Yokuts work, occurred with right direction of work.

The third shape is that of Yokuts "bottleneck" baskets, of which there were thirteen in right direction of work, and none worked toward the left.

The above two shapes, the "bottleneck" and the burden basket, as made by the Chemehuevi, agree with Yokuts and other south California work not only in shape, but in the direction of work, which for south California is consistently to the right.

The suggestions of these technical facts seem clear. Since experience with other basket-making groups makes it probable, as above explained, that the same basket-maker would hardly produce finely finished coiled baskets, working at one time toward the left and at another toward the right, the Chemehuevi basketry should probably be associated with two groups of basket-makers, those working toward the

[25] Wardle, 296, 1912, discusses a Tlingit basket which is exceptional in direction of work and other technical features, and calls attention to the fact that the exceptional direction of work, lean of stitch and clumsiness of execution is attributable to "left-handed" workmanship. This suggests that in addition to numerical facts we should expect inferior workmanship in "left-handed" baskets, which, however, is not found in Chemehuevi baskets worked in the exceptional direction.

right and those working toward the left. Whether these are scattered families within the group or are geographically distinct is a matter of conjecture. From the evidence of the basketry, I feel that an east group working toward the left in contact with the San Carlos Apache, and a west group working toward the right in contact with south Californian groups might be postulated.

Such a postulated group of western Chemehuevi basket-makers should, however, not be confused with the Kawaiisu, a Chemehuevi-speaking people of California, whose work is distinct. Those baskets identified as definitely Kawaiisu[27] were all worked toward the right, and in materials and forms as well as direction of work could be identified with the south California group.

In the Mackenzie-Alaska area, the Eskimo coil is counter-clockwise, convex workside, toward the right of the worker. They split and interlock their stitches, and use a single-rod and multiple-grass foundation. The work attributed to the Tinné has the same features, but has only a single-rod foundation.

A coiled ware of rawhide, without foundation, with twisted, interlocking stitches, illustrated by Mason,[28] might here be mentioned. This, however, is of the bag or wallet rather than of the basket class of weaving. This distinction is chiefly a classificatory one, and as usual, the classes often overlap. The distinction, however, has some basis in manufacture, since stiff baskets are woven from the bottom upward, while soft bags and wallets are generally suspended and progress from the top downward. On the Northwest coast, where the warps of twined baskets are soft and fine, the baskets are often woven suspended with mouth down (Aleut, Haida).

In the Salish area the direction of work is counter-clockwise, convex work surface, worked toward the right of the worker. The stitches are split through and through, both on the inner and outer surface. (Among the Chilcotin the stitches are more evenly bifurcated and the coils are finer, so that the surface presents a more regularly stitched appearance.[29]) In this area a multiple foundation of a bundle of splints is used with the exception of the Lillooet, who use a slat-and-bundle-vertical foundation, producing a wide, flat coil. In Salish work the stitches lean rather decidedly toward the left as one looks at the surface. Baskets are decorated by beading and imbrication (see fig. 9).

[27] Mr. T. McCown discussed with me the baskets he had collected among the Kawaiisu during the summer of 1929. Later I examined these at the University of California Museum.

[28] Mason, plate 129, Dog Rib Indian game bag, 1902.

[29] Teit, fig. 217, p. 490, 1909, notes that the example of Shuswap basketry in the American Museum of Natural History (specimen 16/9280) has split stitches on the outside only, and that the same method is found in Athapascan baskets. It is not certain whether work of the Chilcotin is referred to. Those I examined in the Brooklyn Museum had stitches split both inside and out.

In the Basin Shoshone area are the Paviotso or Northern Paiute and the Southern Paiute groups. The Paviotso include the groups found at the Walker River, Pyramid Lake, and Stillwater reservations in Nevada. The work of the Paviotso is decidedly coarser than that of the Southern Paiute groups, and is irregular in technical style. Two coiled baskets collected by M. R. Harrington from the Walker River reservation[30] are coiled clockwise, convex work surface, toward the worker's left, with three-rod triangular foundation. In the first specimen the stitches are irregularly split, in the second they are non-interlocking. From the Pyramid Lake reservation, those baskets worked toward the worker's left have interlocking stitches, while

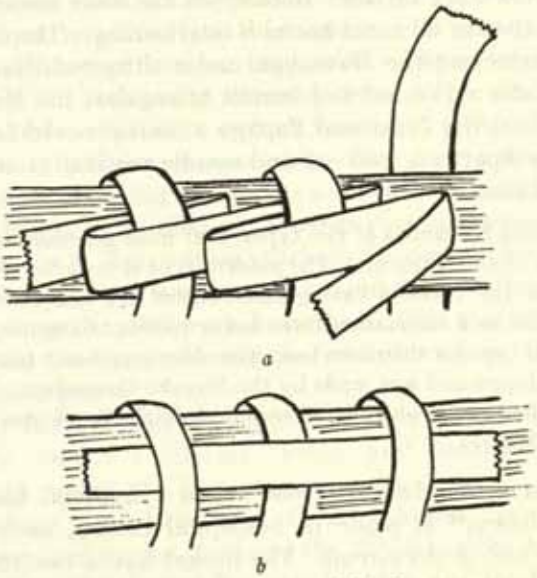


FIG. 9. *a*, imbrication; *b*, beading.

those worked toward the worker's right have non-interlocking stitches, three-rod triangular and one-rod foundations being used. Specimens from the Stillwater reservation show both clockwise and counter-clockwise coiling, convex work surface, toward the left or toward the right of the worker, using a single-rod foundation only. Examples of both interlocking and non-interlocking stitches are found for both directions of work.

Of the Southern Paiute groups, the basketry of the Moapa is most fully represented in collections. This is coiled in a clockwise direction, convex work side, toward the left of the worker; the stitches interlock, and the

[30] Heye 13/4420, 13/4223.

foundation is three-rod triangular. The basketry of the Kaibab Paiute resembles that of the Ute.

The Ute baskets are coarse in texture and are coiled in a clockwise direction, convex work surface, toward the left of the worker, with the stitches split on the inside. A two-rod and three-rod vertical foundation is used. The basketry of the Bannock and the Shoshoni also resembles that of the Ute. The top rod is often split by the binding stitch of the course above.

In the coiled work of the Southwest, trays are coiled in a counter-clockwise direction, concave work surface; while jars are coiled in a clockwise direction, convex work surface. Both types are made toward the worker's left. The stitches in all cases are non-interlocking. The San Carlos and Jicarilla[31] Apache and the Havasupai use a three-rod triangular foundation; the Navaho a two-rod and bundle triangular; the Hopi a multiple-grass foundation; the Pima and Papago a multiple-reed foundation; and the Mescalero Apache a two-rod and bundle vertical or slat and bundle-vertical foundation.

Basketry called Navaho is of two types, that most generally in use today, and an older variety of softer texture. The modern type is made by the Ute especially for Navaho use, the Navaho having discontinued the manufacture of baskets. This Ute type has as a foundation three heavy rods in triangular form. The Ute do not make this type for their own use. The older type has a two-rod and bundle triangular foundation and was made by the Navaho themselves. This is the only basketry of modern times which in all technical details duplicates the work of the ancient Basket-Makers.

In the area of non-basketry, one coiled cylindrical basket from the Northern Saulteaux[32] is made in non-spiral coiling, each course being finished at the end of the circuit. The basket has a one-rod foundation. The stitches are sewn far apart so that the foundation rod can be seen in the interval between the stitches. The sewing appears like a series of radials emanating from the bottom center up along the sides to the rim. Occurring in this area are the small, shallow coiled gambling trays of the Plains. Specimens have been reported from the Cheyenne, Arapaho, Kiowa and Comanche, the Arikara, Pawnee and Mandan. These are of two types, one having a foundation of one or more rods and splints vertically, and sewn either with yucca leaves or wood sewing-thread. These are coiled counter-clockwise, concave work side, toward the left of the worker. The

[31] Sometimes a five-rod triangular foundation is found in the work of this group.

[32] Now in the American Museum of Natural History. See Skinner, 129, 1911. The specimen is said to come from Osnaburgh on Lake St. Joseph. See also note 13, above.

second type is that of the Arikara and Pawnee, and perhaps the Mandan, having a single willow-rod foundation and sewn with heavy willow sewing-thread. In some cases this thread appears as if lacquered, but it is not treated artificially in any way. This type is coiled clockwise, concave work side, and is worked toward the right of the worker. The first type is likely to have split stitches, while the second usually has interlocking stitches.

From the Algonquian area two coiled baskets are of special interest, one from the Miami, and a set of five flat circular discs, about four inches in diameter, from the Chippewa.[33] The Miami basket is coiled counter-clockwise, concave work side, toward the left of the worker. Each coil is about three-quarters of an inch thick and is sewn with bark thread from one-quarter to three-eighths of an inch wide. The stitches are sewn far apart, exposing the foundation between them. The stitches are interlocking, and the foundation is a thick bundle of grass. The Chippewa discs are exceedingly fine in workmanship. They have a single-rod foundation, the rod being exceedingly narrow and flexible. After the spiral course of the coiling has been finished off, another ring, non-spiral in character, is placed on the rim.[34] Every other stitch on the rim catches the rod below, while the stitches between simply wrap around the foundation rod. This is the finest specimen of coiled work from the eastern part of the continent.

In surveying the various features of coiled ware we have found the following distributions:

Comparing the direction of work, baskets are woven to the left of the worker in the central California, Basin, and Southwestern areas; to these should be added the Plains gambling baskets of the first type. Baskets are woven toward the right of the worker in the south California and Salish areas, and by the Yuki and the Eskimo of the Mackenzie area; to these should be added some Paviotso baskets, and the Plains gambling baskets of the second type. The work surface is the convex side in the central California, Basin, and Salish areas, among the Yuki, and among the Eskimo of the Mackenzie area. In the Southwest trays and bowls are worked on the concave surface, bottle-shapes on the convex. In the south California area trays are worked from the concave surface, bottles and globular forms from the convex; but deeper baskets may be worked either from the concave or convex surface. Stated in terms of the last or rim coil, as observed from above, the direction of the spiral coil progresses in clockwise fashion in the central California and Basin areas; in Plains

[33] Both specimens are now in the Museum of the American Indian, Heye Foundation.

[34] This rim ring is sometimes used by the Chemehuevi and the Salish.

gambling baskets of the second type; in south California trays and bowls; and in Southwestern bottle-shapes. The spiral coil progresses counterclockwise in the Salish area; among the Yuki; among the Eskimo of the Mackenzie area; in Plains gambling baskets of the first type; in south California bottle-shapes; and in Southwestern trays and bowls.

In the manner of sewing, interlocking stitches are characteristic of the work of the Pomo and Miwok, the Southern Paiute, the Eskimo of the Mackenzie area, the Miami, and the Pawnee (viz., as above classified, Plains gambling baskets of the second type). Non-interlocking stitches are characteristic of the Yuki, the south California and the Southwestern areas. Stitches split on the non-work surface characterize the work of the Maidu, Washo, and Ute; the Plains gambling baskets of the first type; and the Eskimo of the Mackenzie area, in addition to interlocking their stitches, split them on the non-work surface. In the Salish area the stitches are split both inside and out, viz., on both surfaces; the Shuswap, however, split their stitches on the outer or work surface only.

In the foundation element, foundations of the bundle type (see fig. 6) include the multiple-grass foundation used in the south California area and by the Eskimo of the Mackenzie area; the multiple-splint foundation used in the Salish area, and in the Southwest area by the Pima, Papago, and Hopi; and the rod surrounded by splints foundation used by the Yuki.

Foundations of the triangular type (see fig. 7) include the three-rod triangular foundation used in the central California area, and by the Chemehuevi, Moapa Paiute, Havasupai, and the San Carlos and Jicarilla Apache; the five-rod triangular foundation used occasionally by the Jicarilla Apache; and the two-rod and bundle foundation used in modern times only by the Navaho.

Foundations of the vertical type (see fig. 8) include the one-rod foundation used in the Mackenzie area, and by the Pomo, Miwok, and Paviotso, and found also in the Chippewa coiled discs and the Plains gambling trays of the second type; the two- and three-rod vertical foundation used by the Ute and Shoshoni in the Basin area, and in the Plains gambling trays of the first type; the two-rod and bundle vertical foundation which occurs among the Mescalero Apache; and the slat and bundle vertical foundation of Lillooet basketry and some Mescalero Apache basketry.

III. Twining and its Distribution

Twined weaving for matting, bags, sandals, and as a means of fastening loose fibres together, has a wide distribution in North America. Here I am limiting myself to baskets in this weave. These, as distinct from bags,

mats, nets, and sandals, are stiff in texture and permit of weaving upward toward the mouth, while softer fibres are necessarily woven from the top downward, or the warps are artificially stretched on a frame or loom.[35]

Twined basketry occurs in the Northwest coast area, the north California-Puget sound area, the central California area, among the Basin Shoshoneans, and in the Southwest area. Of these the tribes included in the Northwest coast and northern California areas make twined baskets almost exclusively. In the eastern part of the continent, twining in corn husk is found among the Iroquois, and there are suggestions of a technique of twining from the Kickapoo.

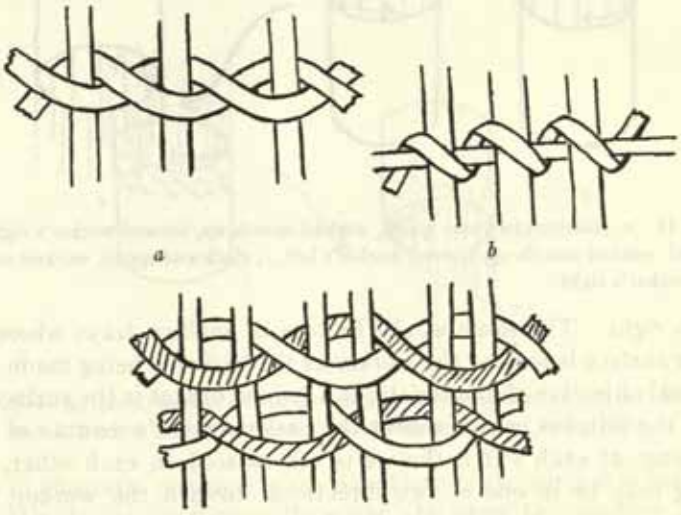


FIG. 10. *a*, plain twining; *b*, wrapped twining; *c*, twilled twining.

For comparative treatment, two main varieties of twining may be distinguished,—plain twine and twilled twine. A third variety of twining, wrapped twining, as far as it is employed in basket-making, has a North American distribution limited to the Puget sound region. (See fg. 10)

As in coiled work, most twined basketry is built up in a continuous spiral from starting knot to mouth. Also, as in coiled work, the basket is revolved so that the part in work is directly in front of the worker during manufacture. In describing twined work, statements should cover both the direction in which the spiral proceeds and the direction of the work in relation to the basket-weaver. However, as a general rule, twining in

[35] See also p. 468 for this tentative distinction of bags and baskets.

North America proceeds from left to right of the worker. Where the basket is woven suspended with mouth downward, as among the Aleut and Haida of Alaska and British Columbia, a clockwise spiral direction would be equivalent to the reverse in baskets worked mouth up; in both these cases, however, the direction of work would be toward the basket-

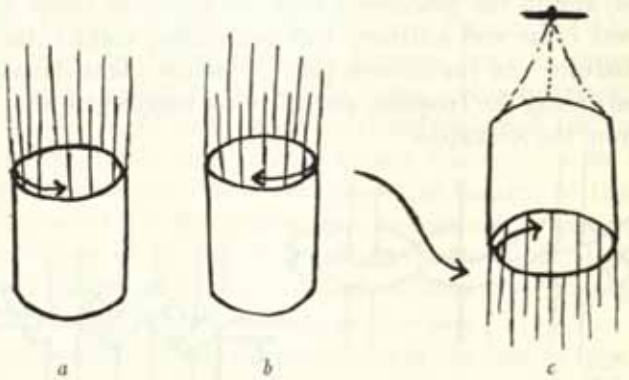


FIG. 11. *a*, counter-clockwise spiral, worked mouth up, toward worker's right; *b*, clockwise spiral, worked mouth up, toward worker's left; *c*, clockwise spiral, worked mouth down, toward worker's right.

maker's right. The same would be true of shallow trays whose inner or concave surface is toward the worker as the basket is being made.

A final objective characteristic of a twined basket is the surface appearance of the stitches, which reflect the basket-maker's manner of weaving In twining, at each stitch the wefts are twisted on each other, and this twisting may be in one of two directions: toward the worker, or away from the worker. In terms of the direction of the work, a twist toward

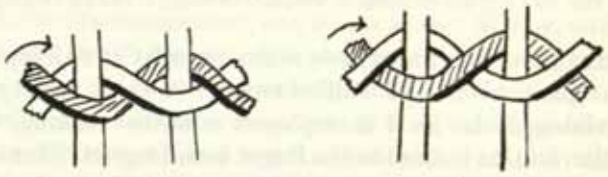


FIG. 12. *a*, downward lean; *b*, upward lean.

the worker results in a downward lean of the stitch on the work surface, while a twist away from the worker results in an upward lean of the stitch on the work surface. (See fig. 12*a*, *b*.)

Thus from the surface appearance of a twined basket we can determine the twist used in twining. But in order to determine which twist was used,

the other technical traits enumerated must first be defined, viz., the direction of the woven spiral; the surface worked—whether concave or convex; the position during manufacture, whether mouth up or mouth down; the direction of the work, whether toward the right or the left of the basket-maker. The lean of the stitch has to be stated in terms of the above, although all these descriptive facts, as well as the lean of the stitch, represent mechanically independent traits. The lean of the stitch, representing objectively the motor fact of the twist used in weaving, is of use in comparisons of basketry technique because in a large number of groups it is conventional to twist the wefts in one of the two possible ways exclusively.

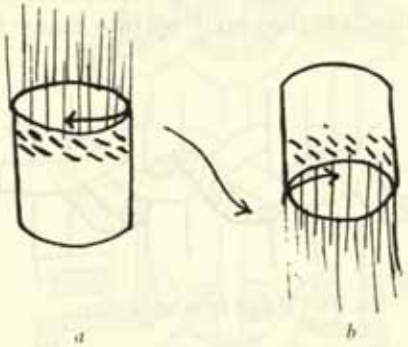


FIG. 13. *a*, clockwise spiral, worked mouth up, stitches leaning upward to the left; *b*, clockwise spiral, worked mouth down, stitches leaning downward to the right.

Figure 13 illustrates that to give the actual lean of the stitch it is not enough merely to identify the direction of the spiral. In figure 13*a*, we have a basket worked mouth up, with a clockwise spiral, and stitches leaning upward to the left. In figure 13*b*, drawn by simply turning 13*a* upside down, we have a basket worked mouth down, but the spiral is still clockwise, and yet the stitches will be seen to lean downward to the right.

In the Northwest coast area twined ware of the finest quality is made in the plain twined technique. The baskets made in the area are for the most part cylindrical in shape. Cursory examination will show that there are apparently two types of baskets here, those of the Aleut and Haida on the one hand, and those of the Tlingit on the other. This apparent difference arises from the fact that when the finished baskets are viewed in their normal sitting position, the direction of the spiral is seen as clockwise for the Aleut and Haida basketry, but as counter-clockwise for basketry for the Tlingit. However, Aleut basket-makers suspend their

work mouth down while in process, Haida basket-makers weave with their work mouth-down on a short stake, but Tlingit basket-makers weave with their work resting mouth upward on the ground.[36] Thus the actual direction of work with respect to the worker is the same throughout, viz., toward the right of the worker. In addition, throughout this area, the stitches lean downward toward the right as the basket is in work, and the convex work surface is the surface always used.

The Tlingit use the technique of false embroidery for decoration (see fig. 14).

Finely twined hats are attributed to the Tlingit, Haida, and the groups south of them in this area. The shape of the Nootka hats is distinctive; they often have plaited starting knots showing four squares at the center. These four strips that are plaited are then split up into many fine warp threads.

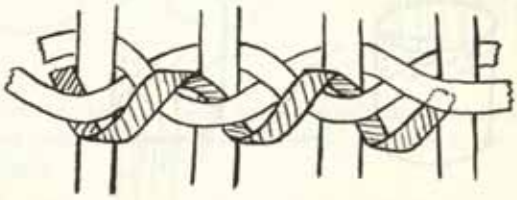


FIG. 14. Tlingit false embroidery.

This method of splitting wider plaited elements into finer strips at a certain point of the work is often found in plaited baskets of this area; for example, the wider strips which have been used in plaiting the bottom of the basket, may be split at the bend into finer strands, which are then used in plaiting the walls.[37]

In the north California-Puget sound area the twining is in the plain twined technique. The spiral is always counter-clockwise, the convex work surface is used, and the direction of work is toward the right of the worker. All baskets are manufactured mouth up. Many round, shallow trays, some of which are slightly conical, appear to be worked on the concave surface, but this is not the case. These are worked as all other baskets of the area, from the convex surface; when finished, they are dampened

[36] Kwakiutl openwork baskets in wrapped twining are manufactured resting on a stake, mouth-down. Boas, 1909, plate xxviii. The Koskimo, on the other hand, rest this kind of basket on the ground, mouth-up, during manufacture. Boas, 1909.

[37] A hat of very peculiar shape, collected about 1794 among the Nootka, and now in the Heye museum, is made entirely in overlay twining. Mason, 419, and pl. 151, 1902.

and turned inside out, so that the work surface appears on the inside.[38] In general the stitches lean upward toward the right—the direction of work—with some exceptions among the Klamath-Modoc, in some Pit River examples, and in sporadic cases from Puget sound.

Two rectangular twined baskets from the Quamichan of Vancouver island, a Salish tribe, alternate several rows of twining, stitches leaning upward to the right, with several rows of twining, stitches leaning downward to the right, throughout the body of the baskets, producing in this way a decorative effect on the surface.[39]

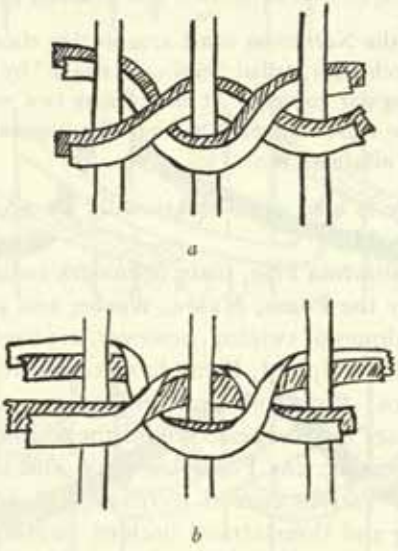


FIG. 15. *a*, overlay twining (northwestern California); *b*, overlay twining (northeastern California).

The method of decoration used in this area is overlaying, a technique by which the surface of both weft threads is covered with ribbons of grass. In northwest California the overlaying does not appear on the inside of the basket, which is also the case in overlaid work around Puget sound; while in northeast California the stitches are so twisted that the overlaid design appears both inside and out, identically. (See fig. 15.)

[38] Explained to me in conversation by Miss L. M. O'Neale of the University of California. A new basket is weighted down over an old one placed bottom up to serve as a mold and covered with a wet rug or quilt. When the rug is dry the new pan has been given its permanent shape.

[39] Field Museum of Natural History, 85451, 85452.

Among the Coast Salish an openwork twining with vertical warps and with double diagonal-crossing warps is found in which the warps are overlaid at intervals with ribbons of grass.[40]

The Makah of the northernmost coast of the state of Washington use for their baskets a weave known as wrapped twining. In wrapped-twining, the vertical warps are crossed by a horizontal warp. The weft proceeds horizontally, and is wrapped around each crossing of the warps. This technique is used for decorated zones on bags and soft baskets by the tribes in Washington, as well as further north along the coast.

The Kwakiutl, of the Northwest coast area in this classification, make openwork baskets in this technique, called "bird-cage weave" by Boas.[41] These baskets are four-sided with angular corners. At the corners two wrappings are made instead of one, and these cross diagonally so that the diagonal lean of the wrapping stitch changes in each alternate row.

False embroidery is also used occasionally by groups of this area for decoration. (See fig. 14.)

In the central California area, plain openwork twining is used throughout the area, viz., by the Pomo, Maidu, Washo, and probably also by the Miwok. Finer techniques of twining, however, are used only by the Pomo.

From a technical standpoint, Pomo basket-makers are the most versatile in North America. Both coiled and twined ware are equally stressed, and in both techniques the workmanship of the finished products is of the finest quality. In twining, the Pomo use plain and twilled twining most extensively; and for various special purposes, the techniques known as three-strand twining and three-strand braided twining, as well as lattice twining, are used. In a basket whose body is made in plain- or twilled-twining, the Pomo often take a few stitches in wrapped twining technique at places in the decoration where it is more practicable for manipulating the color.

For twined baskets the spiral progresses counter-clockwise; the convex work surface is used, and the work proceeds toward the right of the worker.

While the women make all the fine baskets, the men make certain openwork twined baskets and fish traps. In work made by the women, the stitches lean downward, in that made by the men, the stitches lean upward.[42]

In the Basin Shoshoni area, twilled twining is used in making water bottles—which when finished are covered with pitch to render them water-

[40] Am. Mus. Nat. Hist., Quinault 16/4935. 16/4895.

[41] Boas, 1909.

[42] Barrett, 147, 1908.

tight—, winnowing trays, and women's caps. The direction of the spiral in bottles and caps is counter-clockwise, the convex work surface is used,

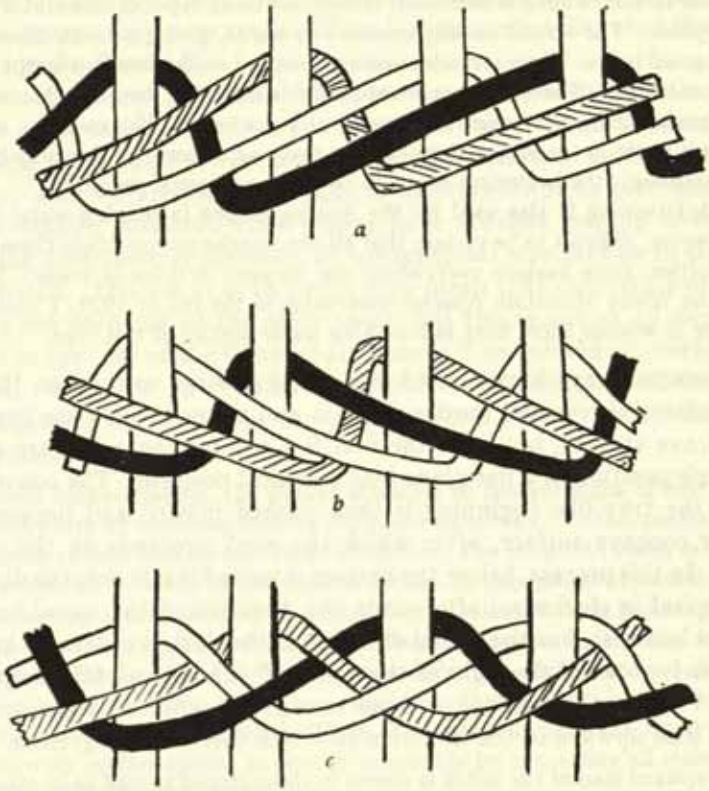


FIG. 16. *a*, Havasupai-Shoshoni three-strand twining; *b*, Pomo three-strand twining; *c*, Pomo three-strand braided twining.

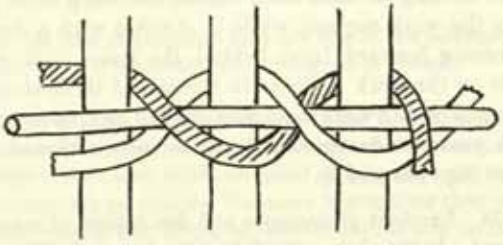


FIG. 17. Pomo lattice twining.

and the direction of the work is toward the right of the worker; the stitches lean upward.

In the Southwest area twilled-twined carrying baskets, as well as plain-twined cooking baskets are made by the Havasupai.

"Three strand twining is commonly introduced on all types of baskets for decorative purposes. The strand usually crosses two warps, giving a much closer stitch than diagonal twine. Three strands crossing three and sometimes four warps are also used decoratively. There is no great regularity in inserting these stitches; crossing three often lapsing into crossing four warps, and vice versa: The majority of water bottles are made in three strand twine over two warps (some of this may be three strand braiding); the beginning seems to be always diagonal twine."[43]

Twilled twining is also used by the Apache groups in making water bottles. It is, however, difficult to be certain that all the Apache groups made these twined water bottles, since baskets everywhere are frequent articles of trade. When I visited the White Mountain Apache reservation in the fall of 1929, I found that a number of women there were still making water bottles of this type.

Havasupai trays have a clockwise spiral and are worked on the concave surface; Havasupai burden baskets and water bottles are begun on the concave surface, but after the first few courses the warps are sprung from their position in a flat plane into a conical position. The convex surface of the tray-like beginning is then pushed inward and becomes the inner or concave surface, after which the work proceeds on the convex surface. In this process, before the bottom is turned inside out, the direction of the spiral is clockwise; afterwards the direction of the spiral becomes counter-clockwise, but the actual direction of the work is constant throughout, namely, toward the right of the worker.[44] Thus in all Havasupai and Apache twining the weaving is done toward the worker's right, and the stitches lean upward in the direction in which the work progresses.

This upward lean of the stitch is shown in three-strand as well as in other varieties of twining. The three-strand twining of the Havasupai-Shoshoni type (fig. 16*a*) differs in this respect from that of the Pomo. In the upward leaning stitches the thread which is coming forward from behind the warp stick passes *under* the thread which is on the work surface, while in stitches with a downward lean the thread which is coming forward from behind the warp stick passes *over above* the thread which is on the work surface. In the case of three-strand twining there are always two threads on the work surface instead of one, and the thread from behind the warp stick passes under or over these *two* surface threads in crossing over to the work surface (fig. 16*a* and *b*).

[43] Spier, 132, 1928. Excellent photographs and descriptions of manufacture are to be found in this treatment. In the above quotation, Spier has used "diagonal twine" for the technique which I have called twilled twine in the present treatment, and "three strand braiding" where I have preferred three-strand braided twine.

[44] Spier, 130, 131, 1928, describes this process and illustrates it by photographs.

In eastern North America twined basketry occurs only among the Iroquois. Here a number of salt bottles and tobacco baskets of twined corn husk are attributed to Iroquoian tribes, but it is not known among which Iroquois groups they were made. There is some probability that they were chiefly by the Seneca.[45]

These baskets, as seen from above, have a clockwise spiral at the mouth and are apparently worked on the convex surface. There is some possibility that these baskets were hung mouth downward in making, in which case they were woven toward the right of the worker. Some specimens have stitches leaning upward, while others have stitches leaning downward, indicating that there is probably no conventional standard as to the twist of the stitch. The use of both twists may mean that different workers or families use only one or the other twist; but this is not at all necessary, since as in the case of the Quamichan baskets,[46] an individual worker may use both twists. As no detailed records of the manufacture of these Iroquoian baskets are available, technical analysis cannot be conclusive on these points.

In most basket-making, the worker attempts to conceal stubs of new threads and added warps by confining them to the non-work surface. To this generalization, the Iroquois twined baskets may be an exception. The Iroquois twined salt bottles would ordinarily be made on the convex surface by any group of basket-makers, unless some very special method were used. Nevertheless, in these baskets the stubs of added warps show on the outer or seen surface. At the rim, in finishing the bottle, the warps are bent outward so that the stubs appear as a fringe around the mouth on the outer surface. Thus if the convex surface in these baskets is to be considered the work surface, the Iroquoian basket-maker does not make the usual effort to have the work surface appear as smooth as possible by concealing all stubs or clipping them off on the non-work surface.[47]

From the Kickapoo there is an example of twining which might well be considered here in relation to twined basketry. This is a double gourd with

[45] Specimens of this type of Iroquoian basketry now in the possession of the Museum of the American Indian, Heye Foundation, are catalogued as Seneca.

[46] See p. 477.

[47] Dr. F. Olbrechts, who has recently been among the Tuscarora, has told me about their masks and tobacco baskets and has shown me specimens of the masks. Both these types are made of braided strips of corn husk which are coiled spirally and sewn together with commercial cord. Dr. Olbrechts tells me that the Tuscarora in preparing their braided strips for baskets, masks, or mats, nsert a new thread so that the stub is seen on the surface toward the worker. When questioned, the woman could see no objection to these stubs. This stub surface is used for the outside or seen side of the masks and mats. This information supports the view taken above that in the Iroquois twined baskets, the convex surface which shows the stubs is nevertheless the work surface.

a large globular body and a small neck, which is encased in a twined basketry covering. This covering was probably made upon it, evidently for the protection of the gourd. The warps are slats or splints about three-quarters of an inch wide, and the wefts are grass of much softer texture. The stitches lean upward toward the right. There are also several rectangular baskets from the Kickapoo which combine twining and checker-plaiting. In these a row of plaiting alternates with a row of twining throughout the body. The progress of the plaiting thread is non-spiral, while the twining threads progress spirally, crossing the ribbon-like course of plaiting diagonally upward toward the right, and continuing horizontally above it. Evidently, the work proceeded toward the right of the worker, the stitches leaning upward.[48]

In the above survey of the technical features of North American twined basketry, we have found, first, that as regards direction of work, all North American twined ware is worked toward the right of the basket-maker.[49]

The work surface is the convex side throughout, with the exception of Havasupai trays, where the concave surface is the work side, and Havasupai twined water bottles and carrying baskets in which the first few courses are worked on the concave surface. It is not known if Ute and Paiute twined water-bottles are made in the same way as those of the Havasupai. North California trays are worked on the convex surface, and when completed are turned inside out.

All twined basketry in North America is manufactured mouth up, with the exception of Aleut and Haida basketry, which is manufactured mouth down, the Aleut suspended, the Haida set on a stake.

The lean of stitch is downward in the twining of the Northwest coast area, in the finer twining of the Pomo, including all the women's work, in some examples from Pit River tribes and the Klamath-Modoc, and in some of the Iroquois twined specimens. The lean of stitch is upward in the twining of the north California, the Basin-Shoshoni, and the Southwest areas, in the coarser twined work of the Pomo, which is made by men,

[48] This gourd, and the baskets combining plaiting and twining, are now in the Museum of the American Indian, Heye Foundation.

[49] A possible exception is the twined tule trinket basketry of the Salinan described by J. A. Mason, 152, 1912: "In making, the bottom of the basket is held toward the worker, the twine progressing clockwise as the hollow of the basket is looked into, and the strands taking a downward direction on the exterior." From this it would appear that these baskets are made on the convex work surface, the spiral progressing clockwise, and are woven toward the left of the worker. This interpretation, however, makes the direction of Salinan work apparently inconsistent with the rest of North American twining, and suggests that some fact of position during manufacture might account for the seeming exception.

and in some of the Iroquois twined specimens. Stitches leaning downward and stitches leaning upward are found together on the same basket in specimens from the Quamichan, a Salish tribe of Vancouver island.

IV. Plaiting and its Distribution

Most of the plaited basketry in North America is manufactured in the eastern part of the continent,[50] in the Eastern Algonquian and Southeastern areas. In western North America plaited baskets are found among the Kwakiutl and neighboring tribes of the Northwest coast, and among the Pueblo and Pima groups of the Southwest area. In central North America, the Mandan, Hidatsa, and several Caddoan tribes made plaited burden baskets. Cane or splint are the usual materials for plaiting, particularly in the east, but the Mandan, Hidatsa, and Arikara use strips of rawhide instead.

Plaiting is of two main types, plain or checker, and twilled. In checker plaiting the elements are woven under-one-over-one so that a checker pattern results.

In twilled plaiting the elements are woven under-two-over-two, or under-one-over-two, or under-three-over-three, or under-two-over-three, or in any combination or variation of these. Instead of checker patterns as produced in plain plaiting, twilled plaiting results in a large number and variety of angular, diamond, and diagonal patterns, which may be further developed and complicated by intricate combinations of colored materials. The patterns resulting from twilled plaiting depend both upon the way the first crossing of strands is made in the center, and also upon the order of alternation of the strands.

In both types of plaiting, checker, and twilled, while the basket is in work the strands may be in horizontal and vertical positions, or in diagonal positions, one set of strands slanting to the left and the other to the right of the worker.

The detailed analysis of the interrelations between the mechanics of the alternation of strands in plaited basketry and the patterns produced is of more technical interest than of use for comparative historical treatment.[51]

Since, as should be apparent, the mechanical possibilities in plaiting are very limited, the amount of technical parallelism that occurs is great; so that for comparative purposes the distribution of the technique as a

[50] Speck, 1920, considers the distribution of plaiting in eastern North America and the problems in plaited basketry of the interrelation of technique and design.

[51] I have considered the fundamentals of the problem of technique and design in my "Technique and Design in North American Basketry," as yet in manuscript.

whole rather than an enumeration of the distribution of minor varieties, is the main fact of historical interest.

V. Prehistoric Basketry

The present discussion is not intended to be an exhaustive treatment of all the prehistoric material in museum collections.[52] The material I have examined is as follows:

Basketry of the ancient Basket-Makers from Grand Gulch, Utah, secured by G. H. Pepper.[53] This material includes a number of round coiled trays and small coiled globular baskets, coiled carrying baskets with oval bottoms and flaring mouths, as well as fine twined bags and sandals, a twilled globular basket containing corn, and a twilled ring basket. The last two may not be contemporaneous with the other material. In addition there is a sifter of openwork coiling with one-rod foundation coiling around the rim.

Basket-Maker specimens from Kane county, Utah, secured by J. L. Nussbaum.[54] This material includes fragments of shallow coiled trays, and some larger baskets; and two unfinished pieces, one of an oval coiled bottom, the other of openwork coiling similar to the sifter-basket from Grand Gulch. In all, thirty basketry specimens were recovered, all made in coiled techniques. While there was no twined basketry, fine twined bags and sandals were also found.

Basket-Maker material from northeastern Arizona secured by Kidder and Guernsey.[55] This is the largest collection of Basket-Maker material from any one locality that we yet have and is the basis of Basket-Maker chronology. The specimens include a large number of shallow coiled trays; a few complete baskets, of small globular shapes and large coiled bottle shapes with pointed bottom and globular top; and a large number of fragments, representing in addition to the above types, carrying baskets with

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[52] Since the above was written, I have had opportunity to examine prehistoric material more extensively. This later technical study is discussed in a paper which is essentially supplementary to the present treatment, entitled Problems in the Study of Ancient and Modern Basket-Makers, to appear shortly. Decorative designs and forms of the prehistoric material, I am considering in a detailed study of Southwestern decorative art now in preparation under the auspices of the Council for Humanistic Studies of Columbia University.

[53] Pepper, 1902; material now in the American Museum of Natural History. See also Mason, 497–498, pls. 205–211, 1902.

[54] Nussbaum, 1922; with the notes on the artifacts by Kidder and Guernsey. The material from this site is now in the Museum of the American Indian, Heye Foundation.

[55] Kidder and Guernsey, 1919; Guernsey and Kidder, 1921. This material is now in the Peabody Museum of American Archaeology and Ethnology.

flaring sides. All the above specimens are in coiled technique. Twining occurs only in the form of fine twined bags and sandals.

A comparison of these three collections shows that the most characteristic Basket-Maker form is the shallow coiled tray; other frequent forms are the coiled carrying baskets and fine twined bags and sandals.

Material, probably Late Basket-Maker, has been secured by Earl Morris from Cañon del Muerto.[56] This includes coiled specimens of shallow trays, deeper forms, globular baskets, and carrying baskets with flaring rims.

Material of Basket-Maker type is included in the Wetherill collection,[57] and in the Hazzard collection.[58] No chronology is available for these specimens. The bulk of these collections are in technique and form of the type of Basket-Maker work, including coiled trays, coiled bowls, coiled carrying baskets with flaring rims, coiled sifter baskets, and a few twill-plaited ring baskets.

For a later period of the Southwest, Cliff-Dweller material has been secured by Kidder and Guernsey from northeastern Arizona.[59] These specimens include twill-plaited yucca ring baskets, twill-plaited matting, and some coiled ware. Twill-plaiting rather than coiling is here the predominant technique.

Pueblo work of "considerable antiquity," illustrated by O. T. Mason,[60] includes coiled bottles, shallower coiled cups, wickerwork, and twill plaiting.

Important prehistoric material has more recently been found by M. R. Harrington at Lovelock, Nevada.[61] These specimens include a few complete coiled baskets, a small coiled basket bottle, and half of a plain twined basket bottle; a large number of fragments of coiled and twined techniques; and many fragments in a wicker technique of a type unknown in modern North America.

[56] These specimens are now in the American Museum of Natural History.

[57] Now in the University of Pennsylvania Museum.

[58] Now in the University of California Museum. This is a combination of three collections: one from caves and cliff houses in southern Utah, collected by McLloyd and Graham in 1892; a second from the cliff houses in Mancos and tributary cañons of southwestern Colorado, collected by the Wetherill brothers in 1892–3; and a third lot of miscellaneous material from McElmo canyon of Colorado. This statement is taken from a note appended to the collection in the University of California Museum.

[59] Kidder and Guernsey, 1919; now in the Peabody Museum of American Archaeology and Ethnology.

[60] Mason, 253, 499, 501, pls. 28, 212, 214, 1902.

[61] Loud and Harrington, 1929; the collections are now in the Museum of the American Indian, Heye Foundation, and the University of California Museum.

In Ozark Bluff Dweller sites of Arkansas and Mississippi, M. R. Harrington found several specimens of coiled basketry.[62] These included a fragment of a plain-twined water bottle lined with pitch, and a number of twill-plaited baskets in cane splints with vertical-horizontal, and diagonal elements.

Coiled basketry has been found in California caves in the southern part of the state.[63] A few specimens of twining of considerable age have been found in California and Rhode Island.[63]

VI. Prehistoric Coiling

Coiled basketry is present in Basket-Maker, Lovelock, ancient pueblo, Ozark Bluff-Dweller, and California cave material; some specimens of Cliff-Dweller provenience, but of Basket-Maker type, have also been found. Technically this coiled work can be described as follows:

Material referred to as Basket-Maker has, almost without exception, a two-rod and bundle triangular foundation. Trays have a counter-clockwise spiral, and are worked on the concave surface toward the left of the worker. Deeper forms, including those almost cylindrical, are also worked in this way on the concave work surface, toward the left of the worker. In some globular forms, the body up to the shoulder is worked on the concave surface, while at the shoulder work is taken up on the convex surface and continues on this surface from shoulder to rim; the direction of work is toward the left of the worker throughout. To attain this end, the basket-maker has to alter the spiral progress of the coil at the shoulder. This shows on the surface as two breaks in the coil, one where the counter-clockwise circuit was finished off, and the other where the clockwise circuit was begun. Illustrations of this device can be seen in Basket-Maker globular baskets from Marsh Pass, Arizona.[64] Late Basket-Maker globular baskets from Cañon del Muerto,[65] and in "Ancient Southwestern" bottle-shaped baskets.[66] It has also been used occasionally in modern times in the globular baskets of the Pima and Papago.[67] Thus in Basket-Maker material there is a strong convention to use the concave work surface, and direct

[62] Now in Museum of the American Indian, Heye Foundation.

[63] The specimens from these localities which I examined are in the Museum of the American Indian, Heye Foundation. Coiled ware from the California caves is illustrated in Mason, plates 201, 202; see also text p. 487, 1902.

[64] Now in the Peabody Museum of American Archaeology and Ethnology. See Kidder and Guernsey, pl. 76b, 1919.

[65] Now in the American Museum of Natural History.

[66] Am. Mus. Nat. Hist., 50/9579, Hopi; Heye 7/825, Santa Ana.

[67] Am. Mus. Nat. Hist., 50.1/8345, Pima.

the work always toward the left of the worker; stitches are in all cases non-interlocking.

While two-rod and bundle triangular is the typical Basket-Maker foundation, a Basket-Maker specimen from Kane county, Utah is exceptional in that it has a foundation of a rod surrounded by fibre.

There are other variations in foundation in material which can be associated with Basket-Maker. A coiled bottle from the "Cliff Dwellers of Southwest Utah" has a three-rod triangular foundation, is coiled in a clockwise direction, convex work surface, toward the left of the worker and has non-interlocking stitches.[68] Certain coiled specimens in the Wetherill collection which have a triangular-form foundation, use a reed instead of a bundle of fibre for the third element at the apex.

One specimen in this Wetherill collection is made in double-coil on a two-rod and bundle vertical foundation. This basket is marked as from Sandal Cliff House, Mancos Cañon. Double coiling is known in modern times as used by the San Carlos Apache and the Salinan.[69] Double coiling is not manufactured in a figure-eight stitch but is made exactly like ordinary coiling, the two courses being carried along simultaneously: first about an inch of the lower course is sewn, then about the same distance of the course above it, then the lower course, then the upper, etc. In the ancient specimen and that of the modern Salinan, double-coiling begins at the starting knot, while in that of the modern San Carlos Apache, double coiling begins after the bottom disc has been sewn for some distance in single-course coiling. This double coil method may mean a slight saving in time, since in each revolution of the basket in double coiling, twice as great an area is within reach as is presented in single-course coiling; in the actual sewing of the stitches, however, no time can be gained, as the same area is covered.

A unique type of coiled ware found in prehistoric Southwestern material is the sifter basket. This type of coiling is unknown in modern North America. In principle it resembles Samoan and Fuegian types of coiling, and an example from San Salvador.[70] Two methods of twisting the thread are found in this technique (see fig. 18*a* and *b*) one in a specimen from Kane county, Utah,[71] and the other in a specimen from the Hazzard collection. Specimens from other localities illustrating the Kane county type

[68] Heye 8/7397.

[69] Mason, pl. 31, figure 2, 1912; see also p. 148, note 122, where Mason mentions the same prehistoric specimen referred to above.

[70] Now in the Museum of the American Indian, Heye Foundation.

[71] Illustrated by Kidder and Guernsey in Nussbaum, 97, 1922.

of twisting are one in the Wetherill collection, marked "found in a ruin in Lake Cañon," and another from Grand Gulch, Utah.[72]

Coiled basketry from Lovelock Cave has, in flat trays, a counter-clockwise spiral, worked on the concave surface, but in bottle shapes, deeper vessels and fragments of such types, a clockwise spiral, worked on the con-

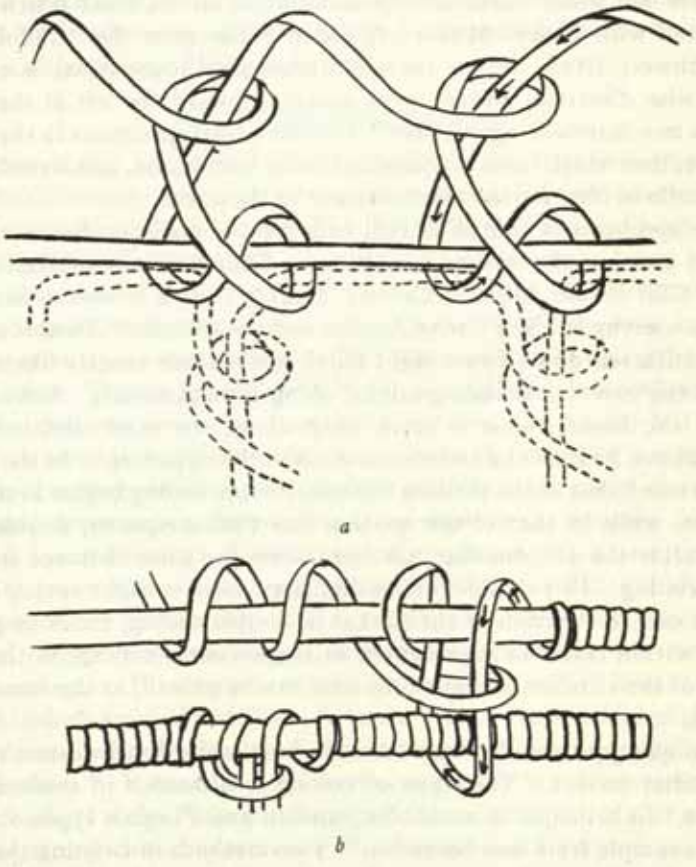

FIG. 18. *a*, technique of coiling of Kane county type sifter basket; *b*, technique of coiling of sifter basket in Hazzard collection.

vex surface. In both cases the work proceeds toward the left of the worker. Foundations include a three-rod triangular foundation in which the upper rod is split by the stitch from above, and a one-rod foundation. Most specimens show split stitches on the non-work surface; examples of stitches

[72] Mason, pl. 31, 1902; now in the American Museum of Natural History.

split inside and out also occur; and a number of specimens are made with interlocking stitches.

From the Ozark Bluff Dweller remains there are three specimens of coiling, two entirely flattened round trays, and a small fragment. All of these were probably worked toward the left of the worker, the two trays probably on concave work surface. Since the original shape of these baskets is lost, the work surface cannot be stated with certainty. As regards foundation, the trays have a two-rod-vertical, the fragment a one-rod. The stitches in the trays are split on one surface, probably the convex or non-work surface; while the fragment is of a basket made with interlocking stitches. The trays have a plaited starting knot, an unusual feature for coiled basketry, which is found in modern work only among the Pima.

Material from the caves of south California are coiled in a clockwise spiral for those baskets worked on the concave surface, but in a counter-clockwise spiral for those baskets worked on the convex surface. In all the specimens the actual direction of work is toward the worker's right. Stitches are throughout non-interlocking; and the foundation element regularly multiple-grass.

VII. Prehistoric Twining

Twined basketry, as distinguished from softer products of twining such as fabrics, bags, and sandals, is not so frequent in the prehistoric remains as coiled basketry. The only site at which twined basketry was of equal importance with coiled basketry was in Lovelock cave. In addition to Lovelock material only isolated specimens have been found. Prehistoric twined water bottles lined with asphalt are reported from the south California area.[73] A single fragment of a twined water bottle lined with pitch was found with the Ozark Bluff Dweller remains. Finally, there are two twined fragments of some age: one is from Rhode Island and was found in association with European cloth and iron objects; the other is from Santa Catalina island, California.[74]

Twined specimens found at Lovelock include material made in the techniques of plain-twined, twill-twined, three-strand-twined, and overlay-twined. Basing my statements on the specimens large enough to give the technical clues, it is probable that throughout Lovelock twined basketry the spiral circuit is counter-clockwise, the work surface is the convex side, the position of work is mouth up, and the actual direction of work is

[73] Kroeber, 561–562, and pl. 55, 1925.

[74] Both these twined fragments are now in the Museum of the American Indian, Heye Foundation.

toward the right of the basket-maker. Both leans of stitch, upward to the right and downward to the right occur, the former being a good deal more frequent.

In a number of particulars the Lovelock twined material resembles work of northern California. Many of the Lovelock specimens are in overlay twining and show the design identically on both surfaces. Overlay twining in modern North America has a distribution limited to the north California-Puget sound area;[75] this work is of two types, that showing the design only on the outside, localized to northwest California, and that showing the design inside and out, localized to northeast California.[76] Thus Lovelock overlay twining is a direct parallel to northeast California work. Further, in Lovelock work an occasional row of lattice, three-strand, or three-strand braided twining is introduced on plain-twined surfaces, a decorative method used also in modern north California overlay-twined baskets.

The twined water bottles from south California caves pictured by Kroeber are in plain twining, three-strand twining and twilled twining. It is impossible to be sure of other technical characteristics from the pictures alone, but if these were manufactured mouth up and toward the right of the worker, as seems probable, then the stitches have a downward lean toward the right in the plain-twined and three-strand-twined specimens, while in the twilled-twined specimen the stitches lean upward toward the right.

The Rhode Island twined fragment is in plain twining and has a double-twisted warp. The Santa Catalina island fragment combines wicker and twining. Both are too incomplete to permit determination of other technical characteristics. I have not as yet been able to determine the characteristics of the Ozark fragment, beyond the fact that the work is plain twining.

VIII. Prehistoric Wickerwork and Twilled Plaiting

Wicker.—The modern distribution of the wicker technique in North America is limited to rough globular baskets of the Hopi and Zuñi, some rough carrying baskets of the Zuñi, some ceremonial trays of the Hopi, the Pomo wickerwork seed-beaters, and the trinket baskets made in eastern Canada. In the latter case, several Algonquian tribes have, in recent times, made these trinket baskets extensively for trade. In our own culture, wickerwork is one of the most widely used techniques in basketry manufacture.

[75] See page 477.

[76] See figure 14.

In prehistoric material, the most important wickerwork is a technique found exclusively in Lovelock cave, except for a single specimen allocated to "Dry cave no. 2, Pyramid lake, Washoe county, Nevada."[77] This technique which occurs in a large number of specimens at Lovelock is not duplicated in modern North American basketry. The warps are peeled rods, the wefts are flat stiff ribbon-like material. There is always a double thickness of weft. Sometimes the under weft is pushed upward to widen the ribbon, increasing the width to one and one-half times its usual width. The warps are visible between the stitches. Sometimes the rows of weft are so tightly squeezed together that the warps are covered and the surface gives the effect of twining. One specimen, tied to a wicker fragment, was of twining mixed with wicker, of material similar in texture to other specimens. The twined part has an overlay design.

Designs in this Lovelock wicker technique are made by using dark brown bark wefts. The double ribbon is twisted to eliminate or bring forward the brown dark side, and thus the design is seen in reverse on the inside.

The borders or edges of these Lovelock baskets are finished in a unique way. Where part of the edge is intact on these specimens, it can be seen that the warps are taken double and woven diagonally to the right, over-two, under-two, upon themselves, until the body is reached, where the ends are fastened with one or two rows of twining.

Twilled plaiting.—In prehistoric material twilled plaiting is found in Cliff-Dweller remains, in Ozark Bluff Dweller remains, and in work attributed to the Basket-Makers. Of these it is the typical technique of the Cliff-Dwellers, who use it in making shaped baskets, mats, and yucca-ring baskets. In a few Cliff-Dweller fragments, designs appear, made by combining black and natural elements.

The Basket-Maker material from several sites includes in twilled-plaiting, besides some yucca-ring baskets, a number of baskets in globular and cylindrical shapes. These shaped baskets are open on the bottom, and where a closed bottom is desired, the opening is either covered with leaves, or with a flat piece of plaited work, which is attached to the body of the basket by twining it to the stubs of the body.

SUMMARY

The distributions of prehistoric and modern technical traits compare as follows:

[77] Heye 15/8437.

In prehistoric coiled basketry, the direction of the spiral circuit is counter-clockwise in Basket-Maker trays, bowls, deeper forms, and in globular forms from the shoulder down; in Lovelock flat trays; and in those specimens from the south California caves which are worked on the convex surface. The spiral circuit is clockwise in Basket-Maker globular forms from the shoulder up; in Lovelock deeper bowls and bottle shapes; in south California cave trays and deeper forms worked on the concave surface; and in the one "Cliff Dweller" bottle from Utah. Some emphases should be added: Basket-Maker is principally counter-clockwise, Lovelock and California cave principally clockwise.

The work surface is the concave side in Basket-Maker trays, bowls, deeper forms, and in globular forms up to the shoulder; in Lovelock flat trays; in most of the south California cave material; and probably in the Ozark Bluff Dweller trays. The work surface is the convex side in Basket-Maker globular forms above the shoulder; in Lovelock deep bowls and bottle shapes; in a few south California cave specimens; and in the "Cliff Dweller" bottle from Utah. Emphases are: Basket-Maker and south California cave are principally concave work surface, Lovelock principally convex work surface.

The actual direction of the work is toward the left of the worker in all Basket-Maker material; in all Lovelock material; in the "Cliff Dweller" specimen; and probably in the Ozark Bluff Dweller specimens. The direction of work is toward the right of the worker in all the California cave specimens.

In the manner of sewing, stitches are interlocking in some Lovelock material and in the small Ozark fragment. Stitches are non-interlocking in all the Basket-Maker material, in all the California cave material, and in the "Cliff-Dweller" specimen. Stitches are split on the non-work surface in most Lovelock material, and probably in the Ozark Bluff Dweller trays. Stitches are split inside and out in a few Lovelock pieces.

In the character of the foundation, triangular-type foundations are found in the typical Basket-Maker two-rod and bundle triangular; in several Wetherill pieces which have two-rod and reed triangular; in the "Cliff-Dweller" specimen which is three-rod triangular; and in most of the Lovelock material which is three-rod triangular. Vertical-type foundations are found in the Ozark Bluff Dweller trays which are two-rod vertical; and in the double-coil Wetherill piece which is two-rod and bundle-vertical. One-rod foundations are found in the sifter baskets from a number of Basket-Maker sites; in some Lovelock specimens; and in the Ozark fragment. A foundation of one-rod surrounded by fibre is found in one

Basket-Maker specimen from Kane county, and I believe that other Basket-Maker material with this foundation is known. The material from the south California caves is all on a multiple-grass foundation. Emphases here should distinguish Basket-Maker and Lovelock foundations as triangular in type, Ozark foundations as vertical in type, and south California cave foundations as bundle in type.

In making a comparison of the distribution of modern and prehistoric technical traits of coiled basketry, the objective direction of the spiral coil can be disregarded, as the real significance of this is in the actual direction of the work and in the work surface used. Speaking broadly, the convex work surface is a convention of the prehistoric Lovelock people and the tribes of the modern central California, Basin, and Salish areas. Convention requires the concave work surface in the prehistoric Basket-Maker and modern Southwestern material. Convention favors the concave work surface in the ancient and modern south California material. The direction of the work is habitually toward the left of the worker in prehistoric Basket-Maker and Lovelock ware, and in modern work of the central California, Basin, and Southwestern areas. The direction of the work is habitually toward the right of the worker in work of south California, both ancient and modern, as well as in that of the modern Salish area. Interlocking stitches, which occur sporadically in Lovelock material and occur also in the Ozark fragment, are characteristic of the modern work of the Pomo, Miwok, and Southern Paiute. Non-interlocking stitches are characteristic of the prehistoric Basket-Maker material, the ancient and modern south California basketry and the work of the modern Southwestern peoples and the Yuki. Stitches split on the non-work surface characterizes the prehistoric Lovelock material and is also found in the Ozark trays, as well as in modern Maidu, Washo, and Ute. Triangular-type foundations are characteristic of the prehistoric Basket-Maker and Lovelock material and the work of the modern central California groups and several groups of the modern Southwest area. Foundations of the vertical-type appear in the Ozark material and are characteristic of work of the modern Basin area. Finally, foundations of the bundle-type characteristic of the ancient south California material are characteristic also of modern south California work; and occur also in work of the Yuki, Pima, Papago, Hopi, and some Salish tribes.

In regard to prehistoric twining, as already explained, it is of great importance only in the Lovelock material, and here a large part of the twined material is decorated in overlay. This method of overlay is similar to modern work of northeastern California.

In prehistoric wicker at Lovelock we found a technique wholly unique and unduplicated in modern work.

Several special facts of technical interest have appeared in the course of the survey. In the sifter baskets of the Basket-Makers, we found a coiled technique on a one-rod foundation which has special and unique characteristics in the manner of stitching of a kind unknown elsewhere in modern and ancient North America.

In Ozark coiled trays were discovered plaited starting knots, an unusual way of beginning coiled basketry found in modern times only in Pima work.

Among specimens of Basket-Maker type we found a single basket made in double coiling, a method which is very rare, and except for this basket, known only from modern San Carlos Apache and the Salinan.

There is, finally, the curious resemblance in foundation between Yuki basketry, which is on a rod surrounded by welt foundation, and the Basket-Maker specimen from Kane county, Utah, with a rod surrounded by grass foundation. This is hardly significant, however, since the basketry styles of the two are different in all other technical traits.

In general, save for the special exceptions just noted of Lovelock wickerwork and Basket-Maker sifter baskets, North American basketry of early and modern times displays throughout comparable techniques and processes. Of modern technical methods, only that of imbrication, as used in the Salish area for decoration of coiled work, is absent in the prehistoric material.

Thus the evidence as a whole indicates as high a development technically in prehistoric as in modern times in North America. The material also indicates that in early times basketry was widespread in North America and highly specialized in localized features.

In view of this high degree of specialization and localization in early basket-making, it seems probable that modern highly specialized manifestations of the art, such as we have in the case of the Pomo, should not be thought of as recent localized achievements on the basis of earlier unspecialized arts. On the contrary they more probably represent the persistence into modern times of ancient specializations.

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THE EM′-TIM′-BITCH, A SHOSHONEAN TRIBE

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THE Em′-tim′-bitch have been known by name for upwards of three-quarters of a century. Members of the tribe were among the signers of the treaty executed at Camp Belt on Kings river by the government commissioner G. W. Barbour on May 13, 1851. During the next five or six years the tribe was visited by W. M. Ryer, Major H. W. Wessells, and General E. F. Beale. But until 1904, so far as I have been able to learn, it was not referred to any linguistic stock.

In 1903, when working with Indians in the Kings river region on the west slope of the Sierra, I found members of two tribes—Em′-tim′-bitch and Wik-tchum′-ne—living near the place called Dunlap, in Mill Creek valley, Fresno county. They told me that the valley belonged to the Em′-tim′-bitch (Monache Piute of Shoshonean stock) and that the Wik-tchum′-ne (Yokuts stock) were intruders from Lemon Cove, a few miles above Visalia. Vocabularies of both were obtained.

In an article entitled "Distribution of Indian Tribes in the Southern Sierra and Adjacent Parts of the San Joaquin Valley, California," published in *Science* of June 17, 1904 (912–917), I correctly enumerated the Em′-tim′-bitch among the "Piute" tribes of the west slope of the Sierra.

Three years later Kroeber published an important paper entitled "The Shoshonean Dialects of California,"[1] in which he gave a useful comparative table of vocabularies of nineteen tribes (71–89). One of these is the Em′-tim′-bitch (written by him "Endimbich")—but the author is silent as to where or by whom it was obtained. This vocabulary, except for easily adjustable differences in alphabet and a few discrepancies, agrees with mine and belongs unmistakably with the Owens Valley or Monache series of so-called "Piute" tribes.

But on the last page of Kroeber's paper a most unfortunate footnote is added. It reads:

> Since the first portion of this paper was printed, Mr. S. A. Barrett has been among the Endimbich, whom he finds to inhabit the territory accredited to them on page 120, but to be Yokuts, not Shoshonean Mono (165).

In this statement Barrett was misled by his informant, an old man called "Tanner Dick" and "Big Dick." His Indian name is Al-al′-chă. He is gifted with a sense of humor and when asked by me in 1903 to count ten,

[1] Univ. Calif. Publ. Am. Arch. Ethn., vol. 4, no. 3.

repeated the well-known Yokuts numerals as spoken by his Wiktchum'ne neighbors, namely: Yet, Pong'-oi, So'-a-fin, Hat'-po-noi, Yit'-ching-it, and so on, but with an unmistakable "Piute" accent! I complimented him on his knowledge of a foreign language but added that I would be obliged for the words in his own tongue, whereupon he smiled and promptly gave me: Soo'-mă', Wah-hi', Pah'-he, Waht'-skwe, Mi'-ne-ge, Nah'-vi-he, Tah'-tsoo-e, Wah'-soo-e, Kwan'-nek-ke, Să'-wan-noi.

I then obtained from him in Em'-tim'-bitch—his own language—a fairly good vocabulary, which I later checked by a woman, and still later by another man, of the same tribe. There is, therefore, no question whatever as to the relationship of the Em'-tim'-bitch. In fact, the name itself, to anyone acquainted with "Piute" dialects, is unmistakable.[2]

The melancholy result of the well-intentioned footnote above quoted is that for twenty-three years various Californian anthropologists have complacently accepted the misidentification of the tribe, thereby referring it to Yokuts instead of Shoshonean stock.

The Em'-tim'-bitch is one of the series of Monache-Piute tribes—tribes derived from the Monache-Piute of Owens Valley—which in the long ago filtered through some of the high passes of the Sierra and established themselves in canyons and small valleys on the west slope. These tribes from the north southward are: Nim, Hol'-ko-mah (or To-win-chē-bă), Ko-ko-he'-bă, Wo'-pom-nutch (or Wo-pung'witch), Em'-tim'-bitch, Wuk-să-che, Pot'-wish-ah.

Mill Creek valley, the home of the Em'-tim'-bitch tribe, is a narrow, tortuous and picturesque valley, hemmed in by lofty oak-forested mountains, among which several grassy baldish knobs rise well above the trees. The highest mountains are on the northeast, where the southern continuation of the lofty Pine ridge, clothed along its summit with ponderosa pines and sequoias, cuts off from sight the still higher mountains beyond.

There is no white settlement in the valley, Dunlap in the upper part being merely the name of a ranch postoffice.

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[2] Kroeber himself evidently had some qualms, for he seems to straddle the fence. On page 480 of his valuable Handbook of the Indians of California (B. A. E. Bull. 78) he remarks that the Entimbich "have also sometimes been classed on Monos; but a vocabulary of their dialect establishes them as Yokuts." However, on page 585 of the same volume he admits that "there is some confusion whether they are Yokuts or Mono." And by Mono he means one of a group of related tribes of the Monache-Piute series.

A few years ago Martha Louise Baker in a newspaper article mentioned the En-dim-bitz, Wo-po-noich, and Wuk-sa-chi and correctly placed them as "branches of the Piute tribe" (Fresno Republican, Dec 14, 1924).

At the time of my first visit, during the latter half of October 1903, the Indians were gathering acorns and had already collected large quantities. All day every day the older women were out getting them. The nuts were carried home in gunnysacks that rested on the back and were held in place by the usual flat band of milkweed fiber (called tew hahp) which passes over the front of the head and is fastened to the corners of the sack.

The acorns were of three species—the black oak, *Quercus californicus;* the blue or foothills oak, *Q. douglasi;* and the large valley oak, *Q. lobata.* The blue and valley oaks are abundant but the favorite species, the black oak, does not reach down into the valley, so the Indians must go up the slopes for its acorns. The first mush of the season was already cooking, and all the women had looped sticks for stirring the hot stones that kept it boiling in the baskets.

One day about two miles above Dunlap I met an old man and a woman gathering acorns. The woman was large and strong, well built though rather fat, and vigorous for her age, with a big head and plenty of character and determination—evidently a person of intelligence and force. She had much to say and said it rapidly and with emphasis, but I didn't understand enough of her language to know what she was talking about. I was told that she had two husbands, and that it is not unusual for an Em′-tim′-bitch woman to take a second husband when her man grows old.

The Em′-tim′-bitch said that in former times they had several large villages scattered up and down the valley, each containing a hundred to a hundred and fifty people. The largest was near the spot where the Dunlap postoffice stood in 1903. A division or subtribe was called Tim-katch.

At the time of my first visit the Indians, except one family, were Em′-tim′-bitch. The head man or leader was Al-al′chă, commonly called "Big Dick" or "Tanner Dick." The single non-Em′-tim′-bitch family consisted of Jim Tippeno and wife, his children and mother. They were Wik-tchum′-ne and had come from Lemon Cove on Kaweah river.

Many of the Em′-tim′-bitch owned their own land, much of which was fenced. They were living in rough board houses, owned some cattle and horses, and were much annoyed by white men who pastured stock on their land.

About the end of October 1919 a full-blood Em′-tim′-bitch woman died. She was said to be about eighty years old and went by the name of Nancy Jane Jack. The other Indians laid her body on the floor and covered it with a white cloth. The women came, with their hair hanging down their backs according to tribal custom, and standing around the body began the death wail, which was kept up for hours. In former times the death-cry

dance lasted all night, and while the body was being carried around the grave every member of the tribe had to jump over it. This was believed to keep them from dying for a long time.

The men made a coffin of rough lumber and into it put the body, wrapped in quilts, and also her own clothes.

The burying ground had been used so long "that it was hard to dig into the soft earth without digging up a body" (Fresno Republican, Nov. 9, 1919).

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Enatbicha plural of Endimbich. See below.

Endembich. See Endimbich below.

Endimbich. Kroeber, Shoshonean Dialects of Calif., 68, 120; also note at bottom 165 [erroneous reference of tribe to Yokut stock]; also vocab. 71–89, 1907. (Written also Intimpich, ibid., 68; Indimbich, Entimbich, Endembich, plural Enatbicha, ibid., 120).

En-dim-bitz. Martha Louise Baker, Fresno Republican, Dec. 14, 1924.

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CHEMICAL EXAMINATION OF PREHISTORIC SMUDGED WARES

By FLORENCE M. HAWLEY

IN A former paper on Prehistoric Pottery Paints (AMERICAN ANTHROPOLOGIST, 31: 731–749) the subject of composition and method of application of the black color which covers the interior of some Southwestern wares was taken up. Since then the question has arisen concerning the possibility of this black coloring, heretofore called a smudge, being black iron oxide, magnetite, Fe_3O_4, produced by heating in a reducing atmosphere the vessel over which a slip of red iron oxide, hematite, Fe_2O_3, had previously been applied. As both smudging and the reduction of Fe_2O_3 to Fe_3O_4 require a reducing atmosphere, which the Indian probably produced by covering the surface of the vessel with smoldering organic matter, the chemical reaction rather than the method of color application was in question. As examples of the type of ware concerned may be cited the red with black burnished interior so common at Flagstaff, the plain red and the corrugated with black burnished interior found on the Upper and Middle Gila, and the late red-on-buff with black interior of the southern Middle Gila.

Although this subject had been previously considered, it seemed advisable to obtain further and more detailed chemical tests. For this a sherd from a vessel that looked typical of the black interior type was used. Its black coloring disappeared when subjected to red heat in an oxidizing atmosphere, in the manner typical of the sherds previously tested and described in the former paper. While sweeping statements can not be made on the evidence of a single sherd, we know from its examination that smudging does account for the black interiors of some of this ware, and the fact that the sherd tested appeared to be in all ways typical of the type concerned would suggest that the results obtained on it might be characteristic of a large proportion of the black interior types if not of them all.

The following tests were performed by F. G. Hawley, who had collaborated in some of the original chemical work on pottery paints.

TESTS ON POTTERY SMUDGE

These tests were made on a broken bowl about 8 or 9 inches in diameter which was found at Burch near Miami, Arizona. The vessel wall was about 1/8 to 3/16 inch thick, rather soft and porous. On the outside was a reddish slip; on the inside it was very smooth, glossy, and black, and except for the unusually thin walls the vessel seemed to be a typical piece. There was no black streak of unburned carbonaceous matter to be seen in the interior center of the walls, as the thinness of the

pottery, together with the thorough burning it had received, had completely oxidized any carbonaceous matter that originally may have been present. The wall for about one-third of the way through was dark, which the following experiments indicated was due to penetration of that carbon smudge which produced the black surface.

Careful examination with a good microscope showed plainly that the black color did not have the nature of a coating of paint on the surface of the pottery; the carbon had penetrated the pores in the body of the sherd and acted more like a dye than a paint. When it was ignited in a muffle, the carbon quickly burned out, leaving the sherd a light creamy buff color, as smooth and polished as before

With a steel scraper, 0.6 gm. of fine scrapings was removed from about 15 square inches of the inner surface of the bowl. The scraping penetrated less than 0.01 of an inch. The material was pulverized still finer and 0.5 gm put in a platinum dish with an excess of HCl and H_2F_2 (HF). This mixture will dissolve any ordinary constituent of pottery, including iron, but does not dissolve carbon. The treatment was repeated, and then the residue was evaporated dry several times with HCl to remove all fluorides. On dissolving the residue in dilute HCl, there was left some black amorphous carbon that was so light and fine it would not settle for a long time. It looked and acted like lampblack. This was filtered off on an asbestos pad, and the carbon was oxidized to CO_2, absorbed in the standard manner, and weighed. 1.3% carbon was found. This is not very much, but since it exists in the interstices of the clay, not as a surface coating, is extremely light, and has a remarkably high covering power, it seems to be sufficient to account for all of the black color.

Before making this determination, a piece of the pottery was slowly heated to see if any fumes or smoke would come off, which would indicate that there might be volatile carbonaceous matter present, such as grease, oil, vegetal extracts, etc., that might vitiate the assay for carbon. None was seen.

The filtrate from the carbon determination was run for iron and 4.4% was found. This is about a normal amount for an impure clay that burns to a creamy buff color. Some of the bowl was broken up rather finely and a lot of small pieces showing little or no black color were taken, ground, and tested for iron. 4.5% was found, indicating that no more iron oxide was present in the black surface than in the interior paste of the wall.

Undoubtedly much of the iron exists as some form of silicate, but some may exist as free oxide, which, when burned to Fe_2O_3 gives the slight reddish cast to the clay. This, on heating in a reducing atmosphere, should form a little Fe_3O_4. This is black, but considering that it does not exist as a coating on the surface, but is diffused throughout the clay, and that Fe_3O_4 is a very inefficient pigment, it should not have much to do with the black color.

When making experiments on reducing the Fe_2O_3 in pottery sherds, it should be remembered that if they are heated in a reducing gas containing carbon, in addition to reducing Fe_2O_3 to Fe_3O_4, there generally will be much carbon liberated by catalytic action, and deposited on the sherd. The reduction can be easily done by

hydrogen at a comparatively low temperature, and no carbon can be deposited; at a high temperature it would be further reduced to metallic iron. A sherd of this bowl that had been well oxidized so that the color was a very light buff was reduced by hydrogen as described. The color darkened perceptibly, but still it was only a light brownish gray, proving that while a small amount of Fe_3O_4 might be present, it had little effect on the color. Scrapings from the reduced piece were tested by a strong electromagnet, but showed little or no magnetism, as they would if much Fe_3O_4 (magnetite) had been present. On a control, one percent of Fe_3O_4 mixed with clay showed considerable magnetism.

The last test was to determine whether a sherd would gain or lose weight when heated. It was first well extracted with dilute HCl to remove carbonates, then thoroughly washed many times in boiling distilled water and finally heated some time in a muffle. The heat was kept just below redness, so as not to burn out the carbon. It was cooled and weighed and then heated to medium redness until all carbon was oxidized, and again cooled and weighed.

Original weight (after first heating)	2.9794 gm
Weight after burning off carbon	2.9550 gm
Weight of carbon	.0244 gm

This is nearly .0183%. It is lower than the regular carbon assay because part of the sherd contained no carbon, and possibly because there was a very little Fe_3O_4 present which took on a little weight. It shows, however, that any Fe_3O_4 is entirely subordinate to carbon.

Finally, it may be added that since Fe_2O_3 is a more efficient pigment than Fe_3O_4, any black piece of pottery presumably containing Fe_3O_4 should turn to a strong red color when it was oxidized to Fe_2O_3. This, however, was not the case. When the black paint was oxidized, only a very faint trace of red was found.

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THE SPIRIT THEORY IN EARLY MEDICINE[1]

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QUICK to agree with Tennyson's hero that we "are heir of all the ages," we "announce with confidence" or "point with pride" that in the twentieth century civilization has reached an enviable peak. How far this is from being universally true is apparent when we observe the medical practices of guillible and superstitious people, who in their search for a catholicon have not yet learned with Sir Thomas Browne that death alone is the cure of all diseases. Yet we need not look to the tropics or to the antipodes to find proofs of man's eagerness to be deceived. Radios and twelve-cylinder racers are no guarantee against over-credulity; superstition may go clad in plus-fours or opera hats, in sables or glove silk. Neither Russia nor China is altogether unenlightened, according to modern standards—witness the alacrity with which Oriental and Muscovite have adopted, with dim perception of consequences, Western garb, machinery, political methods—yet in those countries people are still occasionally beaten to death or buried alive at the instigation of local spirit doctors. In Harlem, in the heart of New York city, there are today, according to credible authority, more than a score of voodoo doctors, or negro shamans, reaping enormous yearly harvests from the purses of their infatuated brethren. A writer in central Pennsylvania, lamenting the benighted condition of that region, observes that

> we consult "Powwow doctors"; we are "hexed" by those who have a grudge against us; we decorate our barns with odd designs to ward off the "evil eye"; we pass a baby three times around the leg of a table to cure the "liver groans!"

And in a circular, distributed from Atlantic City, a Brooklyn "doctor" announces, for cash or credit, with prices ranging from $15 to $1000, "Spells of all kinds broken or released. Love apples in all forms. Black Cat's Ankle Dust, and all kinds of highly appreciated roots and herbs."

All of which, not to multiply illustrations, may appear shocking and inexcusable to those of us who forget how slightly we are removed from the atavistic, how strong the primal ties between the aborigine and the élite. Yet it should not be difficult for us to trace back to the despised and ignorant medicine-man a far-reaching indebtedness. From the practices of the sometimes barbarous, sometimes ridiculous shaman have derived various of our most scientific and effective methods of treating disease; to

[1] A lecture delivered before the Anthropological Society of Washington.

say nothing of numerous and not altogether shadowy resemblances between religious ideas and civic institutions which heathen blindness and Christian progressiveness often possess in common.

The when of the primitive doctor's evolution is not ascertainable, the why is reasonably obvious. One day, in the Philippine islands, I observed several Visayan natives engaged in smearing something over the doors and windows of a hut. In the air hung the familiar but unpleasant odor of garlic. Wondering, I asked what was the idea. A spokesman replied that a child had just been born in the house, which was being fumigated with garlic in order to keep out the asuangs—pernicious little spirits particularly fond of new-born children. When the malicious spirits smell the garlic, they take flight, for like some of us they cannot abide the pervasive and characteristic odor of the melting-pot.

Asuangs are not, of course, the only spirits supposed to work mischief. According to primitive notions there are ghosts, demons, spirits everywhere. The very air is filled with them. If a man falls ill, spirits are responsible. If he loses his knife, hatchet, head-ax, or spear, a spirit took it away. If he accidentally trips over a stone, a spirit placed it in his path. Why, we ask, should primitive peoples live a world so filled with baleful creatures? It is not a pleasant world in which to live. The answer is simple: evil spirits, according to the crude notions of the savage, are directly responsible for the presence of bad luck, sickness, disease, and death. In his crude gropings after a philosophy to explain his woes, the primitive man, passing over indifference and agnosticism, settles upon a third alternative, faith: there must be something in which to believe, so he manufactures for himself an unseen foe responsible for the falling trees which maim his friends, for the beasts which devour them, and for the abysmal wickedness of human enemies.

Dreams are the storehouses from which the primitive man draws his illusory spirits. In dreams he sees once more his imperious and implacable ancestors, and concludes, therefore, that they must be alive; even though, waking, he remembers that he himself had helped to dispose of their bodies. He dreams of dead enemies, and in the morning imagines that he is surrounded by their ghosts. During their earthly existence, these ancestors had maltreated him and these enemies had worked against him. Since death has made them invisible and carried them beyond his reach, he thinks their power has been increased, and naturally he ascribes his woes to their ghosts and spirits. Sickness, especially, he finds hard to explain. Who is responsible for it? An evil spirit, he concludes, has gained an entrance into his body and is tormenting it by way of compensation for earlier deeds.

Thus, the Finns believe that the souls of the dead feast on the hearts and entrails of the living. Spirits do not spare even a near relative, for these shades, being something like human, must eat and drink.[2] The Zulu of Africa offer the sacrifice of an ox to the dead ancestor of whom a sick man dreams.[3] Australian tribes believe sickness is caused by a ghost eating the liver of the victim.[4] In Samoa illness and death are thought to be occasioned by the souls of the dead which have crept into the head and stomach of the living.[5] In cases of epilepsy, when the patient falls to the ground, foams at the mouth, his arms and legs torn by convulsions, the victim must be possessed by another spirit. Surely no man's own spirit would treat his body so.

Similarly, spirit activity is the cause of all bad luck, sickness, and death. When a savage falls ill, it is not of hostile germs or bacteria that he thinks. He calls in a doctor who knows how to deal with the malicious spirit responsible for his sickness and who, instead of administering ingredients to calm nerves and to kill germs, sets about soothing and banishing the possessing spirit.

The man who attends to the sick and demented is something more than a doctor. In the language of the North American Indians he is called the Medicine Man, or the Mystery Man—for "medicine" is used by the aborigines of this country to describe anything sacred, mysterious, or of wonderful power or efficacy. Hence, the medicine-man is not only doctor, but diviner, rain-maker, soothsayer, prophet, priest, and sometimes chief or king as well. He is, in short, the great man of his tribe. Sitting Bull, for example, the leader of the Custer massacre, was a medicine-man.

The medicine-man answers to many names, for he is called among various peoples, the shaman, the angakok, the voodoo-man, the obi-man, the conjuror, the magician, the wizard, and the sorcerer. But how does he rise to power? Sometimes he inherits the position from his father, but more often he has some unusual qualification that fits him especially for the post of mediator between the human and superhuman worlds.

A typical case was that of Enchong, whom I met while serving with my regiment in the Philippine islands, and who was one of the most famous "spit-doctors" of that archipelago. He told me, when I asked him, of how he became a doctor:

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[2] J. Smirnov, Le Cannibalisme et les Sacrifices humaines chez les Ancêtres des Finnois orientaux. Congrés international d' Anthropologie et d'Archéologie préhistorique, 11:316, 1893.

[3] Encyclopaedia Britannica, ed. 9, 7:61.

[4] E. B. Tylor, Anthropology, 354.

[5] Encyclopaedia Britannica, ed. 9, 7:61.

One day, as I was walking in the San Mateo mountains, I became very tired. I lay down at the foot of a tree to rest and refresh myself. Sleep overtook me. I saw a wonderful being in my dream. This being had long, white whiskers, and made mysterious motions with his hands, arms, and legs. And, then, he talked with me. And this is what he said:

"Enchong, you are appointed chief doctor in these Islands. By virtue of this appointment you are empowered to heal all the sick that seek your aid. Spit upon them and you will receive their eternal gratitude."

When I returned to my barrio [native village] I told everybody about my dream, and soon the sick from far and near were coming to my door. I healed them all by rubbing them with my saliva.

Enchong, like quack doctors everywhere, was a great publicity seeker. His cures were notorious, and he was besieged by rich and poor alike for his miraculous saliva rubs. Civil authorities got word of his activities, however, declared him insane, and committed him to an asylum. And that was the end of Enchong.

Other doctors' fame comes by different routes. A Pima Indian had only to recover from a rattlesnake bite upon the hand or near the heart, and he was elected chief wizard of the community[6]—rather a stiff entrance requirement, but then the position had its rewards. In Australia, again, a man was made a shaman as the reward of stupidly sitting upon the wrong end of the limb he was cutting from a tree, and climbing out unharmed when it fell to the ground.[7]

Spirits are responsible for the nomination and election of all medicine-men, and, naturally enough, insanity is an asset rather than a liability. The fact that an insane person is different from other people is proof positive that he has an indwelling spirit. Being, by virtue of his divinity, upon intimate terms with the gods, and possessing a knowledge of their nature and disposition, he is admirably equipped for devising ways and means of procuring celestial benefactions.

The thoroughfare of shamanic honors, of being initiated into the mysteries of the sacred calling and getting into the necessary inspired state is a hard road to travel. The medicine-man must often resort to sleeplessness, seclusion, and protracted brooding upon some morbid fancy in order to bring about hallucinations which prove his superior qualifications, both to himself and to his fellow-tribesmen. He is usually successful, for it is well known to medical science that the more frequently these diseased conditions of the mind are sought, the more readily they are found. The shaman tries

[6] Frank Russell, Pima Indians. Bureau of Ethnology, Annual Report 26: 257.

[7] R. Brough Smyth, The Aborigines of Victoria, 465.

repeatedly, until finally the nature he has tried so assiduously to induce by artificial means comes without seeking. He then, without effort, possesses hallucinations in all the garb of reality.

The horseplay initiation of college fraternities resembles somewhat the ordeal the shaman has to undergo when publicly inducted into office. Among the Dyak of Borneo the initiation ceremony is an elaborate process. The Menangs, or priests, lead the neophyte into a curtained apartment, while a medicine-man is posted on the outside to tell the awestruck spectators what is taking place within. The officiating priests, the publicity man outside announces, cut open the young man's head and take out his brains, for, says he, the candidate's mind must be clean and clear to enable him to penetrate the mysteries of evil spirits and the intricacies of disease. After having carefully washed the brains, the operating priest surgeons replace them. The priests then insert gold dust into the eyes of the candidate in order to give him keenness and strength of sight that he may see the soul wherever it may wander. The Menangs then plant barbed hooks upon the neophyte's finger-tips, so that he may seize the soul and hold it fast, and, finally, they pierce his heart with an arrow to make him tender-hearted. At last the new-fledged medicine-man emerges from the sanctuary looking fit and fine. We need hardly explain that all that was done to him behind the drawn curtains was a series of symbolic actions, representing the terrible things as they were described.[8]

Initiation among the Tschi-speaking peoples of the west coast of Africa is a more serious matter. The candidate there must undergo a purity test. A circle, three feet in diameter, is formed by glowing embers, and the neophyte is made to step within its clear space. Rum, kerosene oil, and other inflammable liquids are thrown upon the embers, so that the flames leap high in the air, sometimes higher than a man's head. After an interval this process is repeated a second and a third time, and the ordeal is over. If the candidate survives all three trials without sustaining injury, he is thought to be pure—the gods have protected their favorite from the fire. If, however, the intense heat compels him to leap outside the circle, or if he receives a burn or other injury, he is believed to be impure. Only those candidates, whom the gods especially love, come through the fire unscathed, and, as a matter of course, become highly honored medicine-men.[9]

Woman has her rights, too. Among the Karok of California, for instance,

[8] H. Ling Roth, Natives of Sarawak and British North Borneo, 280–281 (quoting Archdeacon Perham). Journal of Straits Asiatic Society, no. 19, 1887.

[9] A. B. Ellis, Tshi-Speaking Peoples, 138–139.

there are two classes of doctors: root doctors and barking doctors. The barking doctor is by far the more important person and is generally a woman. It is her office to diagnose sick cases. This she does by squatting upon her haunches, dog-fashion, and barking for hours. In addition to her diagnostic office, she doctors "poisoned" cases. This condition is very common among her people, for when sick they think they have fallen victims to witches who cause some noxious reptile or animal to grow through the skin into the viscera or intestines. When so attacked they apply to the barking doctor, who first locates the intruder and then sucks the "possessed" spot until the skin is broken and the blood flows. After having completed this part of the treatment, the shamaness takes an emetic and contrives to make it appear that she vomits up a frog or some other small animal which she pretends she sucked out of the patient.[10]

In east central Africa the medicine woman combines with her functions of healing and prophecy the office of witch-detective, and in this capacity is the most terrible character in village life. It is to her, supposedly, that the gods, through visions and dreams, make known their will. When she sees the spirits face to face—always in the dead hours of night—she begins her operations by raving and screaming. She continues until the entire village is astir and she herself falls prostrate to the ground, where she remains in a state of catalepsy while the awe-struck villagers gather around, awaiting her revelations. At last she begins to speak, and her words are accepted as commands of the gods. Even should she command human sacrifices she must be obeyed.[11]

The position of medicine woman is no petty or despised office. In Borneo, as a matter of fact, the very notion of a medicine woman is so full of mystery and power that male shamans deliberately assume the costumes and habits of women, and are treated like women and do women's work. Such characters, known as manang bali, are most extraordinary persons, and in view of the enhanced prestige, which the idea of the feminine carries, go about their duties seemingly untroubled by the Nordic's masculine aversion to effeminacy.[12]

Medicine men and women are quick to appreciate the value of cooperation. They often work in associations, being banded together for their common interest. Among the Tschi-speaking peoples priests circulate bulletins of information conveying the intelligence of what persons are

[10] S. Powers, The Tribes of California. Contributions to North American Ethnology, 3: 26.

[11] J. Macdonald, East Central Africal Customs. Journ. Roy. Anth. Inst., 22: 105-107.

[12] H. Ling Roth, *op. cit.*, 270, quoting Brooke Low.

likely to seek advice, and upon what subject. A priest will sometimes frankly tell a client that his own god refuses to accord the assistance required, and pass him on to another shaman. The applicant, when he presents his cause to the second priest, learns to his amazement that the new doctor already knows the purpose of his visit.[13]

The medicine-man is a wise individual; he understands his people, and knows how to deal with them. Realizing that fear and intimidation are powerful expedients, he makes good use of these means of offense and defense. Such a weapon is the detective function, referred to in connection with medicine women. In time of adversity and disaster, the savage asks: "Who prevailed upon the spirits to despoil the crops or slay the cattle? Who caused the unclean spirit to enter the patient, and bring about his sickness and death?" For "proper" answers, these questions are always submitted to the servant of the gods—the medicine-man. Woe, then, unto those individuals who are *persona non grata* with the shaman! Upon them will he throw the responsibility of the misfortune, and the end of the recalcitrants will not be peace.

Some of the ruder folk of Australia are unaware that death is ever owing to invisible causes. When, therefore, a man dies the belief prevails that it is only because some other person has killed him. The shaman is quick to turn this conviction to account. If murder actually has been committed, all is clear sailing, for in that case the medicine man is required merely to detect the criminal.[14] If there has been no homicide, however, or if nobody knows who gave the fatal blow, the shaman is not at a loss, for immediately after death has taken place he unhesitatingly asserts that he received the name of the murderer in the dying confession, and bluffingly points out the direction in which the criminal lives. It may take several years to track down the insubordinate, but sooner or later the resourceful medicine-man settles the score.[15]

Among the Tschi-speaking peoples, priests are frequently employed to prevail upon the spirits to send death to persons who have offended or injured the applicants. The individuals against whom these priests work their evil magic sometimes die natural deaths, and in such coincidences the shamans take the credit, thus magnifying their office. In case the offender does not die from disease or accident, however, the priests, if they be

[13] A. B. Ellis, *op. cit.*, 128–129.

[14] A. W. Howitt, The Native Tribes of Southeastern Australia, 357; On Australian Medicine-Men (Journ. Roy. Anth. Inst., 16: 26); Spencer and Gillen, The Native Tribes of Central Australia, 46–48.

[15] Spencer and Gillen, The Native Tribes of Central Australia, 533.

sufficiently interested, cause poison to be administered secretly to the hapless individual whose death is desired.[16]

The medicine-man, therefore, by means of his detective function, his power of cunning, and his superior resourcefulness, can gratify his choicest malices, punish the recreant, whip the disobedient into line, and at the same time intensify to a superlative degree the superstition and awe which enshroud his own person. Because of the sentiments thus inspired he controls the savage tribe and moulds the community after his own desire.

It is plain, therefore, that an individual occupying an office so plenteous in possibility must, as already suggested, hold within his group a position of tremendous importance. The conviction of the shaman's supernatural origin, the effect of his adventitious aids, his superior mental and moral qualities in addition to the exhibition of truly wonderful powers, cause a feeling of awe which does not fail to assist in extending his spiritual sway over all classes. It is, accordingly, to the advantage of every tribal member to ingratiate himself with the medicine-man. If a person can so influence the spirits that they will do his behest, it is obvious that everybody will strive to the utmost to make friends with him. Even if he has no mystical power, since by reason of his detective function he can throw the blame of evil fortune upon the insubordinate, every person in the society will show him respect, reverence, and even worship. The shaman is naturally keen in turning to advantage the unusual esteem and privilege which come to him by virtue of his office; and it is not surprising that he should use his power to elevate himself to the position of chief.[17] The medicine-man in some cases exercises not only kingly power but pretends divinity;[18] he "goes from strength to strength."

The shaman even invades the realms of the occult and takes unto himself the office of prophet. It is asserted that animals—pigs, dogs, grouse, sheep, and the like—are sentient to atmospheric changes. When slugs enter houses and cattle stand closely together, with their backs to the wind, a naturalist will conclude that a storm is at hand. As we go higher among the various forms of life, however, we find this atmospheric sensitivity becoming weaker and weaker, and when we arrive at civilization we discover that cultured man has, for the most part, lost the power to forecast through feelings and sensations. But even in civilization some in-

[16] A. B. Ellis, *op. cit.*, 142–145.

[17] A. S. Thompson, The Story of New Zealand, Past and Present, 114; H. R. Schoolcraft, Information Respecting the Indian Tribes of the United States, 4: 495; G. Turner, Samoa, A Hundred Years Ago and Long Before, 278.

[18] A. Bastian, Der Mensch in der Geschichte, 468.

dividuals through rheumatic pains or sense of oppression can foretell the approaching storm. Many medicine-men possess this meteorological sense, and, by predicting the approach of storm and calm, fair weather and foul, come to be regarded as possessing supernatural power.

Shamans do not confine their prophesying powers to the weather. They have a readiness at predicting other events with an accuracy which often seems uncanny. Some years ago, in northwestern California, a Kelta Indian murdered four persons, including Stockton, the Indian agent, and made good his escape. The murders created much excitement and speculation among the other Indians upon the reservation. A Kelta medicine-man, one day, suddenly cried out that he saw the fugitive at that moment with his spiritual eyes. He then proceeded to describe minutely the place where the criminal was concealed, told how long he had been there, and many other details. Subsequent events showed the spirit doctor to be substantially correct in everything he said.[19]

The ability to ward off bad luck and to bring good luck is the medicine-man's chief claim to distinction. The worst luck possible to a pastoral or agricultural people is a season of drought; the best luck imaginable an abundance of rain. When vegetation is dying, when there is no water to drink, when man and beast have no nourishment, the individual, who can make the heavens open and give forth rain, is a person of importance. Rain-making is one of the great methods by which the shaman seeks to establish his reputation. If his power stands the test here, he can rest assured of going through life with fame untarnished and place secure. Now no man by any flash of genius or by any measure of effort has ever succeeded in bringing about the proper atmospheric conditions necessary to produce rain. But whether or not the medicine-man is conscious of his impotence, he never allows his people to doubt his ability to open the heavens, and in view of their belief in sympathetic magic he sets to work as a rain magician. One of the principles of sympathetic magic is that any effect can be caused by imitation. Thus, in Brazil, it is the custom of the rain-maker to mount the roof of his house, vigorously rattle a dried gourd containing pebbles, in representation of thunder, and scatter water upon the ground, to prevail upon the gods to send rain.[20] And whether rain falls sooner or later, the shaman need have no fear of losing caste; for when rain comes he takes the credit, and his people, since they are unable to appreciate negative evidence, allow one success to outweigh many failures.

[19] S. Powers, *op. cit.*, 91.

[20] D. G. Brinton, The Myths of the New World, 184; Brinton, Religions of Primitive Peoples, 174.

Sometimes, however, the medicine-man is placed in embarrassing situations, from which he must use his wits to extricate himself. On one occasion, for example, an Australian rain-maker, after calling upon the spirits, planted his rain-stick in the ground. When it rained it poured, and the country was flooded. Later, the shaman, in the presence of his constituents, boasted of his success to a white man. The white man retorted, "If you made the rain, cause it now to cease raining, for the crops are being ruined." Whereupon the rain-maker naïvely explained that such a feat was impossible, because the floods had covered the rain-stick so that he could not find and remove it. The child-like natives accepted this explanation without question.[21]

It is evident, however, that this clever apologist is not always able to make his excuses tell. A plague, which killed many victims in a single day, once prevailed throughout Pima villages. Three medicine-men, who were suspected of having caused the disease, were put to death, "and nobody was sick any more."[22] Among the Bari of the upper Nile, the rain-maker, who does not succeed in bringing rain when it is needed, loses not only his reputation but his head.[23]

During the British-Ashanti war of 1871–1874, a priest in the Ashanti camp was required to inform the public upon which day the English gunboat, lying at anchor, would put out to sea. After making the proper conjuration he announced that the ship would depart upon the following day. The next day at sunrise, instead of the boat departing, two other enemy craft hove ominously upon the horizon. The priest was beheaded.[24]

On the other hand, particularly if the practitioner has been successful, he is well paid for his services.

Here is a Sarawak doctor's price list: For getting back a human soul, six gallons of rice; for extracting an evil spirit, six gallons of rice; for securing the soul of the rice at harvest festivals, three cups of rice from each family in the neighborhood.[25]

The modern doctor's custom of making his fee proportional to the financial ability of the patient is, no doubt, the survival of a savage antecedent. The native doctor of the Makhelchel (Clear Lake Pomo) of northeastern California had a clever method of fixing his honorarium. He wrap-

[21] W. E. Roth, Superstition, Magic, and Medicine. North Queensland Ethnography Bull. 5: 9–10, 1903.

[22] F. Russel, *op. cit.*, 48, 59.

[23] F. Ratzel, History of Mankind, 3: 26.

[24] A. B. Ellis, *op. cit.*, 124.

[25] H. L. Roth, *op. cit.*, 267, note.

ped the patient in blankets, and laid him upon the ground with his back to the fire. He next drove a stake into the ground near the head of the sick man, and then bade family and friends of the invalid to stretch strings of shell beads (money) from the stake to ankles, knees, elbows, and wrists of the sufferer. When the medicine-man had "pow-wowed" sufficiently to make a well man sick, he pocketed the money.[26]

The Dakota often gave a horse in payment for medical services.[27] In Korea the sums demanded by the shamans were at one time estimated to aggregate annually two and one-half million dollars.[28] Sickness is so costly in Nias that persons often sell themselves into slavery to procure the funds necessary for medical aid.[29]

Is the shaman sincere about his "pow-wowing" or is he an unprincipled charlatan and unmitigated knave? Is he a conscious impostor and contemptible quack or an honest man, doing his best according to the light given him? Candor leads to the assertion that this man is usually quite sincere and enters upon his profession in good faith. There are, of course, black sheep in every flock; but the majority of medicine-men honestly practice the principles of their art. In proof of this it is only necessary to observe that when a shaman becomes ill he calls in other shamans to treat him.[30]

Does anything positive, however, come from this hocus pocus treatment? Again the answer must be in the affirmative. Even though the efforts of the medicine men may seem well nigh imbecile, amazing results have been achieved by them. The shamans of the Similkameen (Okanagan) of British Columbia are credited with curing persons apparently in the last stages of consumption.[31] In Liberia white people afflicted by certain kinds of tropical diseases have been cured by native doctors, after European medical men had confessed their inability to do anything for the patients.[32] Concerning the success of a native healer of West Africa, it is related,

> We met a woman lately who had come from Freetown with a dreadful disease in her face, and our doctors could do nothing for her; and so her husband brought her right up here in the interior to one of these "medicine men" to be cured "country

[26] S. Powers, *op. cit.*, 216–217.

[27] Max Bartels, Die Medicin der Naturvölker, 58–59.

[28] Isabella B. Bishop, Korea and her Neighbors, 403.

[29] Max Bartels, *op. cit.*, 59.

[30] E. M. Curr, The Australian Race, 1: 48, 2: 75; D. G. Brinton, Religions of Primitive Peoples, 58; Max Bartels, *op. cit.*, 92.

[31] Mrs. S. S. Allison, An Account of the Similkameen Indians of British Columbia. Journ. Roy. Anthro. Inst., 21: 311, 1892.

[32] Max Bartels, *op. cit.*, 50.

fashion," and she is getting better every day. Her suffering was intense, but now she has absolutely no pain, and is evidently on the high road to recovery.[33]

The way has now been cleared for an inquiry into the social significance of the shaman. Some writers assert that he is a parasite, that his influence has been altogether for bad, and that only after he has been routed from his entrenchments can civilization make any progress. It must be admitted that the medicine-man does no productive physical work, and that, therefore, he may technically be called a parasite. Granting this, however, he produces indirectly, and, therefore, his efforts have not been in vain. He and his associates, supplied by other classes with bodily sustenance, constitute a leisure class. Without a leisure class it would seem impossible among savage as well as civilized peoples to attain any intellectual progress. For the leisure class the struggle for existence is eliminated, and these individuals of necessity have a surplus of mental energy to expend, and a large amount of leisure time to be consumed. That this energy and time have not been altogether wasted we have direct evidence. The priests of New Zealand, for example, turned to account their leisure time by acquiring skill in wood carving and in other arts; the shamans of the ancient Mexicans and Peruvians became adepts at mixing colors, at painting, at drawing hieroglyphics, at composing music and in reckoning time.[34] In Oceania and central California the religious leaders gave careful physical, mental, and moral instruction to the boys and young men of their people.[35] The observation of the heavenly bodies, the adjustment of the calendar, and the pseudo-science of astrology are indebted for their beginnings to the regulation by the priest class of religious festivals. From the study and practice of astrology came the real science of astronomy. Under primitive conditions the intellectual force of tribe and nation centers chiefly in the medicine-man class. The shamans hence become the preservers of the legends and traditions of the tribe and nation; and since they alone of their people are acquainted with the art of writing, it is the members of this leisure class who compile these legends into history. The medicine-man, therefore, was the first musician, painter, teacher, writer, historian, reckoner of time, physician, priest, and astronomer.

The shamanistic class, furthermore, has aided social progress by enforcing an unbending, irresistible discipline upon wild and loosely governed tribes. The civil ruler does much to restrain the savage from cutting and slashing his way through life to the confusion and detriment of the com-

[33] Dorothy Cator, Every-Day Life Among the Head-Hunters, 189.

[34] J. G. Wood, The Natural History of Man, 2: 178; Ratzel, *op. cit.*, 2: 155.

[35] Dixon, Some Aspects of the American Shaman. Journ. Am. Folk-Lore, 10, 1908.

munity in which he lives. The chief to a great extent keeps the commoner within bounds. If the individual does not comply with the chief's laws, he loses his head, and no longer makes himself obnoxious; he generally obeys because he is afraid to disobey. Yet, law can be evaded; its guardian may be off the beat. The masters of the medicine-man, however, are omnipresent at all times and the fear of human vengeance is not a circumstance to the fear of the gods. The chief can lash a culprit or turn him out of his holdings, but the gods can torment him both in this world and in the world to come. While the primitive man, therefore, might fail to conform with regulated conduct, he cannot forget that the gods and their representative are not mocked. As an illustration of the way in which fear of the supernatural works out in savage life, it is only necessary to say that among sundry peoples this fear is so intense that brave young men sometimes die of fright upon discovering that they have unwittingly violated one of the shaman's regulations.[36] Many of these priestly laws enforce labor, thrift, personal cleanliness, chastity, fidelity between husband and wife; they require obedience to the regulations of the cult; they demand self-sacrifice, restrict personal freedom, prescribe the renunciation of pleasure and property, and, in general, are quite effective in disciplining savage peoples into an approximately fixed code of conduct. In view, therefore, of the shaman's service as a disciplinarian can it truthfully be affirmed that his presence in society has been a detriment?

The medicine-men, moreover, cooperate with the civil powers in enforcing submission to political authority as in a case which the writer observed at Bontoc, in the mountain province of Northern Luzon, Philippine islands. A Bontoc Igorot was serving in the Philippine constabulary when he sickened and died from pneumonia. At the funeral his relatives, believing he had been murdered by Benguet Igorot, traditional enemies of their clan, nearly prevailed upon the Bontoc people to make a head-hunting raid upon the villages of Benguet for blood revenge. The United States authorities assembled the Bontoc priests and explained to them the real cause of the death. Those shamans then persuaded the angry relatives that their suspicions were unfounded, and the trouble was averted.

It is in the field of medicine, however, that the shaman's contribution to social culture is most apparent. When called to the bedside of a sufferer, the medicine-man, like any other practitioner, first diagnoses the case. The diagnosis consists in determining whether the sickness is due to the influence of a *friendly* or *unfriendly* spirit. If an unfriendly spirit is present, the doctor sets about casting it out.

[36] A. G. Keller, Social Science, 138.

One method of casting out spirits, or exorcism, is that of causing the patient's body to become such a disagreeable habitation that the evil spirit will not remain in it. The shamans of Sumatra, for example, attempt to banish the evil spirit from an insane person by placing the unfortunate in a house and setting fire to the building, leaving the wretch to escape if he can.[37] In other tribes the sick person is fumigated, made to swallow nauseous substances and drenched with foul concoctions which only the savage imagination could conceive—all for the distinct purpose of disgusting and driving out the unseen intruder. Absurd, says the modern man. And yet the administration of vile-tasting substances for the purpose of routing evil spirits led to the discovery of drugs and medicines which have vomitory and cathartic effects—remedies indispensable in every modern medicine chest.

Physical force is frequently employed by the spirit doctor to expel the disease demon. Among the Columbian Indians, in case of abdominal pains, the medicine-man pressed his clenched fists with great might into the center of the solar plexus.[38] The writer has known many innocent old men and women of the Tagalog people, natives of the Philippine islands, when they were thought to be possessed by vicious spirits, to be cruelly beaten and otherwise maltreated because the doctors believed that in this manner the evil spirit could be exorcised.

Navaho and Ojibwa medicine-men applied a bony tube, similar to a European stethoscope, to the part of the patient's body where the pain was most intense, and sucked in order to give relief.[39] The California Indian doctors had a tube, called the "chacuaco," made from a very hard, black stone. This they used for sucking out the disease spirit.[40] Preposterous, says the citizen of the twentieth century. The therapeutical expedient known as "cupping," however, still in vogue, especially in country districts, had its beginning in this primitive sucking method. The native doctor of Alaska uses the bone of an eagle's wing as a sucking instrument.[41] The transition from sucking with the mouth to a real cupping instrument is here seen. By use of a cupping glass, in case of a boil, for example, the blood is drawn to the surface of the body where the boil is located. The phagocytes, then, combat and destroy the cocci bacilli, which have gained entrance to the tissue spaces, and the patient is relieved. Is it not interesting

[37] William Marsden, The History of Sumatra, 156.
[38] H. H. Bancroft, The Native Races of the Pacific States of North America, 1: 286.
[39] Max Bartels, *op. cit.*, 270.
[40] M. Venegas, Histoire naturelle et civile de la Californie, 1: 126.
[41] Max Bartels, *op. cit.*, 270.

to know that the procedure of cupping, a real scientific measure, was unwittingly hit upon by the shaman, whose intention was not to bring the blood to the periphery, but to abstract an evil spirit?

Another method of exorcism is by kneading and massaging the body. This process as practiced in central Australia has been described as follows by eye-witnesses:

> A middle-aged man fell sick. His illness was at once ascribed to the fact that he had deliberately done what he perfectly well knew was contrary to the custom, and no one was in the least surprised. "Amongst the men in the camp were five doctors, and as the case was evidently a very serious one, they were called into consultation. One of them, a celebrated medicine-man from a neighboring . . . . tribe, gave it as his opinion that the bone of a dead man, attracted by the camp-fire, had entered the body of the patient and was causing all the trouble. The others agreed with this opinion, but, not to be outdone by a stranger, the oldest [home doctor of the tribe] decided that, in addition to the bone, an *arabillia*, or wart of the gum tree, had somehow got inside the man's body. The three less experienced doctors looked very grave, but said nothing beyond the fact that they fully concurred in the diagnosis of their elder colleagues. At all events it was decided that both the bone and the wart must be removed, and under the cover of darkness they were in part [supposed to be] removed after much sucking and rubbing of the patient's body."[42]

Cases of this kind might be multiplied, but one must suffice. The point in question is that the shaman, in spite of an untenable theory, lighted upon a modern method of treatment. For the practice of osteopathy is based upon massaging processes. The osteopath, be it understood, does not pretend to remove an evil spirit or other disturbing agents; his object is to restore dormant organs to normal action. Massaging is recognized by physicians of repute as a therapeutic agency in cases of sprains, bruises, indigestion, and many other complaints. Again our savage friends have anticipated a distinctly modern method.

Fire is regarded by the medicine-man as a powerful means of spirit expulsion. According to his theory fire is caused by spirit activity. Whence came fire? How did man first obtain possession of it? In volcanic regions its discovery is easily explained. It was belched up from the depths of the earth. To the savage mind there is but one explanation of volcanic eruption—it is mysterious, and therefore due to spirit activity. Hence the resulting fire either contains a spirit or is itself a spirit. In non-volcanic territories there is another explanation for the discovery of fire: electrical storms have always occurred over all the earth. Fire, then, must have come from the lightning's flash which ignited the trees of the forest and the

[42] W. B. Spencer and F. J. Gillen, The Northern Tribes of Central Australia, 515–516.

grass of the steppes. Since, however, lightning comes from the skies, it must, in savage thought, be sent by the spirits who abide in the heavenly regions.

Fire crackles, sputters, and inflicts pain. Primitive man ascribes these powers to a spirit in the fire or to the spirit which is the fire itself. Now, since fire either is, or contains a spirit, may it not be used to drive away infernal spirits? This the savage believes, especially since he finds it useful in ridding himself of his mundane foes. Since, therefore, fire can vanquish earthly enemies, it can likewise drive away spirit adversaries. The reasoning is clear.

Thus, among the Yakut,

> a boy whose finger had become inflamed came to the conclusion that a "yor" or spirit, had established itself in the finger. This opinion was shared by a group of bystanders. Desiring to drive out the spirit, the boy took a burning coal and began to apply it around the place while blowing upon it. When the burned flesh began to blister, and then burst into a little crackle, the curious group which had crowded around him flew back with cries of horror. But the wounded boy with a smile of satisfaction said, "You saw how it (*the spirit*) jumped out."[43]

Curiously the medicine-man by his crude employment of fire unconsciously initiated a scientific procedure. Fire is the only infallible germicide known to the scientific world. By it water is purified, surgical instruments are sterilized, and by the cooking of food, germs of disease are destroyed and many a period of sickness thus prevented.

The invaluable process of cauterizing infected bites and wounds goes back to a cure by the Araucanians, by the Gilbert islanders, and by the Indians of southern California.[44] When the shamans of those tribes applied the live coal to an infected wound it was, of course, for the purpose of driving out an evil spirit. What they really did, however, regardless of intentions, was to cauterize the wound.

Water, too, in primitive thought, is believed to have a powerful influence over spirits. The sea rolls, the breakers roar, the waves lash the shore. Floods overwhelm men and beasts, canoes are overturned and the occupants drown—all this calls for explanation. The savage reasons that water abounds in spirits who do these beautiful, mysterious, and terrible things. And so the shaman uses its occult powers. He observes that water can cleanse clothing, weapons, and the human body. Why, then, cannot water spirits cleanse and purify invisible stains? Here is an

[43] W. G. Sumner, The Yakuts. Journ. Roy. Anthro. Inst., 31: 105, 1901 (abridged from the Russian of Sieroshevski).

[44] E. R. Smith, The Araucanians, 233; Max Bartels, *op. cit.*, 287.

anticipation of our own baptismal rites, and also of hydrotherapy—the cold bath, the host bath, the wet sheet pack, the Russian bath, the Turkish bath—"water cures" which are recognized as treatments for various ailments.

If the primitive doctor thinks the disease spirit is friendly, his method changes from exorcism to propitiation. Among all primitive peoples the most unfailing means of appeasing the angry gods and of securing their favor, is thought to be the offering of blood. The spirits, as has been suggested, are anthropomorphic beings, and since, therefore, they relished the taste of blood when in the flesh, they have not changed subsequently to their apotheosis. Thus, the rulers of the ancient Mexicans were the descendants of conquering cannibals. The idols, representing their gods, were fed with human hearts. When the priests represented to the chiefs that the idols were starving, war was waged and captives taken, "because the gods demanded something to eat."[45]

It is not always necessary that the priest kill a victim, however, in order to obtain sacrificial blood. He sometimes cuts the skin of the victim's head with a seal's tooth, catches the blood in rags, and lays the bloody rags beside a corpse as a substitute. In other instances he simply pierces the ears and shoulders of the victim, gathers the blood in a sponge, and squeezes it into a sacred vessel.[46]

The striking thing about sacrificial blood-letting is that the shaman in his zeal to propitiate the spirits by blood offerings, unconsciously and inadvertently initiated a therapeutic agency which has never been abandoned—that of venesection, or the cutting of veins in order to draw away the patient's blood. In the seventeenth and early eighteenth centuries, blood-letting was applied by doctors in every kind of sickness. During the latter half of the eighteenth century, however, there was a reaction against its excessive use, and the practice was to a great extent discontinued. But within the last quarter of a century there has been a revival in its favor, and it has been employed by progressive physicians in cases of advanced mitral disease, pneumonia, and other complaints. Here again the twentieth century practitioner owes something to the medicine-man, and has been benefited by the pioneering work of his precursor.

Additional evidence that the shaman's contribution to the science of medicine has been most real and positive is forthcoming from the assertion that

[45] Antonio de Herrera, General History of the Vast Continent and Islands of America, 3: 206–213 (translation by Stevens).

[46] Julius Lippert, Die Kulturgeschichte der Menscheit, 2: 328.

our materia medica owes tobacco, gum-copal, liquid amber, sarsaparilla, resin of tecamaca, jalap, and huaca to (the medicine men of) the Aztecs;

and, again, that

guiacum, ipecacuanha, and certain purgatives first became known through the Indian medicine men;[47]

and from the fact that a painstaking, personal comparison between the Cherokee pharmacopoeia and the United States Dispensatory reveals the fact that about twenty remedies examined were correctly used. I have, in another place, traced scores of useful drugs back to the customs and practices of medicine-men.[48]

The shaman, therefore, adverse criticism to the contrary notwithstanding, is not a social octopus. Despite the strong conviction of many writers concerning the perniciousness of his influence, he and the principles for which he stands have always formed the conservative element in his group Despite the selfish aims and ambitions of the medicine-man and his fellows, the growth of political institutions has been tremendously promoted by the activities of the priest class. Despite the parasitical imposition upon society of this "hanger-on," certain phases of history, education, literature, and natural science have had their origin with him. Despite the shaman's oppression of the masses, he has been instrumental in the enforcement upon men of a rigorous, uncompromising discipline, and for that reason alone he represents one of the most socially beneficent institutions ever evolved. Despite the multitudinous faults and even crimes that have been laid to the charge of this personage, to him and his class must be credited the initiating, fathering, fostering, and for centuries of preserving the noble art of healing.

Upon this fragile foundation the science of medicine has built its imposing structure. Beginning with the blind gropings of the shaman in his efforts to expel or appease malicious or angry spirits, medical science left, long ago, the lap of its mother superstition, learning anatomy from Egyptian embalming, increasing its knowledge from the Greek study of living bodies, adding, as time went on, public hygiene from the Jews and the beginning of operative surgery from the Hindus. It acquired skill in sick nursing during the Middle Ages, and developed anatomy as a science during the Renaissance; it began the study of pathology and the practice of instrumental diagnosis during the eighteenth century. Nineteenth century practitioners brought the crude beginning of surgery well-nigh to a

[47] Lucien Biart, Lez Aztèques, 285 (translation).

[48] John Lee Maddox, The Medicine Man, 217–282.

state of perfection and organized medicine into a science; while contemporary physicians have honored their profession by the introduction of antiseptic surgery, serums, and preventive medicine. A truly wonderful record! And the medical is one of those sciences which seems capable of boundless, measureless development; it is ever advancing, and showing the capacity for we know not what illimitable progress. "Thus far but no farther" is not written for it. Could any future be more alluring?

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PREHISTORIC POTTERY AND CULTURE RELATIONS IN THE MIDDLE GILA

By FLORENCE M. HAWLEY

THE question of how far the prehistoric Mexican and Pueblo cultures have influenced each other has been rife for several years; in the Middle Gila drainage of Arizona is evidence that will throw considerable light upon that subject. Not until the last two or three years has this region been more than cursorily examined by archaeologists. This Middle Gila region is important not only because of its location but also because of the large prehistoric population indicated by innumerable sites marked with crumbled walls and covered with potsherds.

The term "Middle Gila" we have applied to a part of that district formerly known as the "Lower Gila." The Lower Gila culture has been supposed to extend from a vaguely defined eastern boundary of the Upper Gila to the mouth of the Gila, where that river joins the Colorado. But as very little is known at present about those ruins west of Gila bend, and as the Gila polychrome ware is found as far west as that point, it has seemed well to divide the Gila drainage into three main areas according to the extent of the characteristic pottery types. The Upper Gila may be said to extend from the headquarters of the Gila and San Francisco rivers in western New Mexico to Bylas, a small Arizona town near San Carlos on the Gila; the Middle Gila extends from Bylas to Gila bend, and the Lower Gila would then be that land between Gila bend and Yuma. The naming of the Middle Gila is of some importance in exactly defining the region in which occurred the events here outlined.

Middle Gila Culture South of the Gila River

The first makers of decorated pottery in the valleys and plains south of the Gila seem to have been migrants from farther south, probably from Mexico, for their red-on-buff ware is more closely related to the southern than to the northern pottery types. Most of these people settled in the valleys south of the river itself, but a few built their villages just north of it around San Carlos and Bylas, and others occupied the Salt River valley in the Phoenix region. They did not, however, go far enough east in the valley of the Salt to reach the Roosevelt district; there we find evidence of a people who had come down from the more eastern Upper Gila and from the more northern Little Colorado drainages. Thus we find in the Middle Gila two sub-districts which might be empirically designated as the North and the

South Middle Gila. The former includes the country between the Gila river and the Mogollon plateau between the points indicated as the east and west boundaries of the Middle Gila culture; here the Gila polychrome ware was finally developed. The second sub-district comprises the country from the river south to some at present undefined periphery near the international boundary; here the people manufactured red-on-buff pottery, the remains of their culture being finally radically changed by influence from the North Middle Gila shortly before it passed into decadence and oblivion. Chief among the changes resulting from contact with the north were the discarding of cremation for earth burial and the revolution of colors and designs used on the pottery. In determining the chronologies and relationships of these wares three methods were used:

1. Stratigraphy
2. Cross finds of pottery
3. Study and comparison of pigments used in decoration[1]

As only small trash mounds are to be found in many of the ruins of the Middle Gila and as no stratigraphy is apparent in many cases, the following chronology is chiefly based on cross finds of pottery, which have been fairly abundant. By noting that black-on-white and black-on-red wares are found together in one pueblo, that black-on-white, black-on-red, and one type of polychrome are found together at a neighboring ruin, and that another type of the same polychrome is found at still another neighboring site where there is no black-on-white, and almost no black-on-red, but a number of Jeddito yellow trade pieces which have been entirely lacking at the other pueblos, one finds a pottery series of which one end is evidently contemporary with the Jeddito yellow period. Knowing from Dr. Douglass' tree ring and pottery correlations[2] the date for Jeddito yellow, and from E. W. Haury's similar correlations in the Silver Creek drainage of the White mountains[3] the dates for the Little Colorado black-on-red and polychrome wares of which cross finds occur in the north Middle Gila, we are able to affix approximate dates for the pottery succession of the Middle Gila. These are indicated in the chart accompanying this paper. Stratigraphy of burials and of some trash mounds further clear the issue.[4]

[1] F. M. Hawley, 1929.

[2] A. E. Douglass, 1929.

[3] E. W. Haury, 1930.

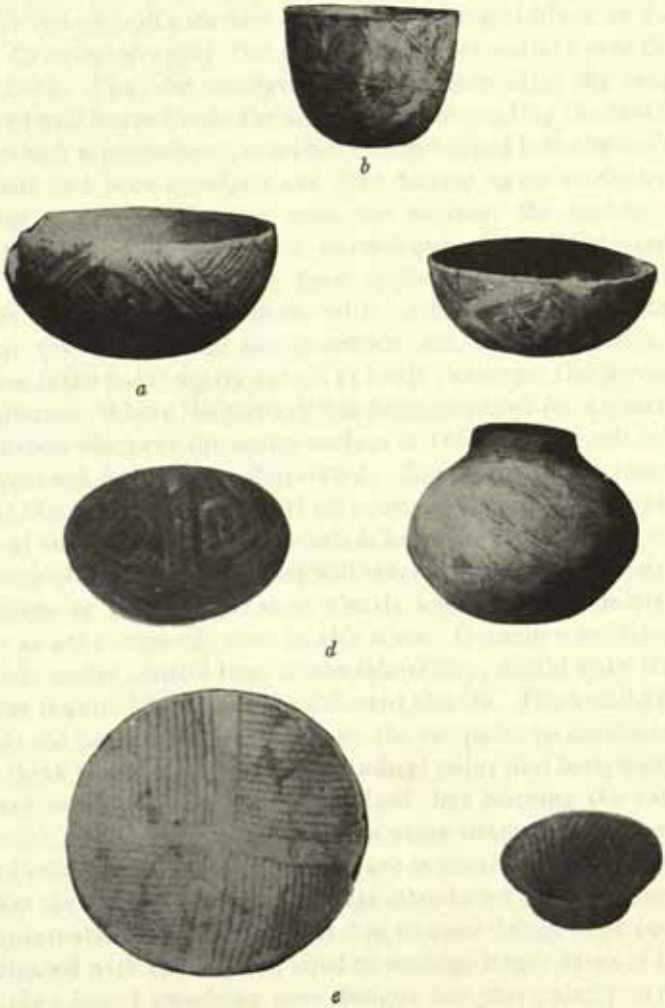
[4] The following classification of pottery, submitted as a thesis in May, 1928, depends upon our recent work for its verification and dating. The red-on-buff series here listed agrees in many points with H.S. Gladwin's findings at Casa Grande published later the same year and with his more extended surveys still in progress.

1. Crude, unslipped red-on-buff.[5]—An example of rectangular pit houses with a predominance of red-on-buff pottery of an early type, together with some corrugated ware is found near Bylas and again near Casa Grande. (Pl. 8*e*.) The pottery paste is light gray-brown, rather coarse, and tempered with considerable mica and a little fairly fine sand. Vessels are smoothed but unslipped and unpolished, with walls about 3/8 inch thick. Very shallow bowls that resemble plates are found as well as deeper bowls with outflaring sides in inverted bell shape. Animal forms were sometimes used for the shape of vessels. Bowls were decorated only on the interior; the designs used were small repeated elements, H's, swastikas, meanders, crosses, interlocked scrolls, and very crude little animals or human figures. All are characterized by poor brush work. The area to be decorated was commonly divided into quarters, each of which was filled with a single repeated element. The surface was so porous on some pieces that the thin ochre paint sank into it, and, after firing, produced faded chocolate red designs on a buff background. Other pieces seem to have been rubbed while still damp until a thin clay film spread over the surface or to have been very thinly slipped.

2. Slipped, unpolished red-on-buff.[6]—As pottery technique developed, the clay was sifted finer and burned harder, although the texture was still poor (pl. 8*d*). The surfaces were slipped and well smoothed, although rarely polished and consequently lacking in luster. Cups, bowls with flaring sides, and ollas with vertical necks were the favorite shapes. The ollas were often modeled with the sharply angled low Gila shoulder, although some had globular bodies. Rims were flat. Casas Grandes polychrome, which developed similar although not exactly parallel designs, was also molded with with this shoulder. Differences in development of wares would be due to the separation of the two peoples even if both wares, as might be possible, came from the same prototype. Many of the red-on-buff ollas about ten inches high and nine inches in diameter served as cremation urns. Some small figures but a great many more larger geometrical units were used. Interlocked water symbols of curved or straight lines, scrolls, checkerboards, cross-hatching at right or acute angles, zigzags, series of parallel lines used to outline the large elements, and solid triangles from the upper corner of which projected a tangent with a short line pendent were combined into a running design in a wide band which covered the upper exterior of low-shouldered ollas. The same elements were used in the interiors of bowls and sometimes on the exteriors as well. On much of this

[5] Approximate parallel—"Colonial period red-on-buff"—Gladwin, 1929.

[6] "Sedentary period red-on-buff"—Gladwin, 1929.



South Middle Gila. *a*, *b*, *c*, finest polished red-on-buff, black burnished interior; *d*, slipped unpolished red-on-buff; *e*, unslipped red-on-buff.

ware are found large firing clouds, often covering half or more of the surface of the vessel. The excessive size of these clouds would seem to indicate that they were produced intentionally as a variation in decoration. Many of the bowls were decorated in red-brown on both the exterior and interior, after which most of the interior surface was crudely smudged. This produced vessels with red-on-buff exteriors and red-on-smudged-black or dark gray interiors. Occasionally only the one or the other surface was decorated instead of both. That the smudging had been done after the designs had been painted and burned onto the surface is evidenced by the fact that the red paint, which is permanent, must have been burned into the surface, and if the vessels had been smudged and then heated again to that red heat required for burning the paint onto the surface, the carbon of that smudged surface would have been burned out. One might expect that smudging after the designs had been applied would have obliterated the designs by impregnating them with carbon, but experiments have shown that the carbon will not penetrate the fine and comparatively hard surface of the paint nearly as well as it will penetrate the porous lusterless background. Where the pottery has been smudged for a short time so that the carbon blackens the entire surface of the vessel, it will be noticed that the painted figures are obliterated. Laboratory experiments have shown that this may be done with 15 minutes' smudging of a sherd buried in a crucible of smoldering sawdust which is kept hot from the outside. Ten minutes more of the same treatment will reverse the action and partly burn off the carbon, so that designs show clearly and backgrounds are of deep gray, such as are commonly seen in this ware. Outside conditions, which would be less under control than in the laboratory, would vary the results only in time required to obtain the different shades. The small amount of carbon that did penetrate and remain on the red paint so darkened it as to make one think that a slightly darker shade of paint had been used on that surface than on that which was unsmudged, but burning the carbon out with excessive heat will leave this red the same shade as the other. Since this is our earliest example of smudged ware in southern Arizona, we might surmise that the method of decoration was introduced through some potters noticing unintentional smudged spots due to poor firing. The people, not being displeased with these spots, tried to smudge larger areas of their vessels since they found smudging over designs not particularly satisfactory and in the meantime having developed the art of polishing the surfaces of their vessels, they began to decorate the background with black carbon paint, over which the red designs were drawn. At Martinez Hill ruin are found good examples of this method.

The house structure of this period was the rectangular pit house. Villages were surrounded with compound walls, as in the later period.

3. Finest polished red-on-buff.[7]—The next development in red-on-buff was the manufacture of a slipped but lusterless ware, fairly well decorated on the exterior, with a plain black polished and smudged interior (pl. 8*a*). Somewhat later this developed into a very fine slipped ware, neatly and artistically decorated on a polished exterior and with the interiors of the bowls highly burnished and smudged to produce a remarkable satin-like effect (pl. 8*b*). The paste was hard, the temper fine, and the slip ranged in shade from a cream to a light reddish brown, the later vessels averaging much darker than the earlier, and both being darker than the red-on-buff of preceding periods. Flagged triangles in series, interlocked scrolls, and groups of parallel enclosing lines were the most characteristic design elements. These were still arranged into a wide band, which covered the upper surface of ollas and bowls and left the lower surface plain. Now the elements were arranged to form varied individual units which were fitted pattern-like into the band. The early red-on-buff III ollas were large and low-shouldered, the later ollas were half the size, with rounded shoulders midway of the vessels, slightly longer necks and even less of a lip. Rims were roughly flat. Bowls had large bases and rounded vertical sides slightly constricted at the base of the short flaring lip. The early type was found at Gila Bank ruin, fifteen miles below Bylas on the Middle Gila; the latter in ruins in the Santa Cruz valley, and at Casa Grande village.

The polychrome of the late period from Casas Grandes, Chihuahua, is also characterized by the use of interlocked scrolls, volutes, and triangular rain clouds with the tangent and pendent lines. Parallel lines in groups from 1/2 to 1 1/4 inches in width outline all large design elements just as in the south Middle Gila red-on-buff. The red-on-buff ware extends to our international border, but, unfortunately, almost no data concerning the early period south of the line is at present obtainable. The decided similarity between the colors and designs used on the Casas Grandes polychrome and on the red-on-buff ware of the early southern Middle Gila period indicate a rather close inter-relationship. If the two wares were placed together without indication that they came from different sites and periods, the red-on-buff might very well be taken for the prototype of the Casas Grandes polychrome, the black and red on buff ware. No relation between the red-on-buff and any other Arizona ware is traceable. As might be expected, the clay used for the paste was the same as that later used

[7] "Classic period red-on-buff"—Gladwin, 1929.

CHRONOLOGY OF CONTEMPORARY WARES IN THE GILA AND LITTLE COLORADO CULTURES[8]

Approximate dates suggested through cross finds of wares from the Little Colorado drainage	North Middle Gila	South Middle Gila	Upper Gila	Little Colorado
	Abandoned		?	F. Recent glaze, black or green[9]
				E. Modern polychrome (no glazes)[9]
	Late Gila polychrome	Late Gila polychrome Red-on-buff—III (declining)		D. Black-or green-on-white. Non-glaze colors used[10]
				C. Black, green, or purple on white[9]
1400 A.D.	Early Gila polychrome Little Col. black-and-white-on-red Tularosa black-on-white (declining) White-on-red—modified corrugations	Red-on-buff—III	Little Col. black-on-red Tularosa black-on-white Painted corrugated	B. Black-or-green-glaze-on-red[9] A. Black-on-white-on-red[10] Black-on-white Fine corrugated
1300 A.D.	Little Col. black-on-red Tularosa black-on-white White-on-red—modified corrugations	Red-on-Buff—II	?	Black-on-red Black-on-white[10]
1200 A.D.	Tularosa black-on-white	Red-on-buff—I		Black-on-white Corrugated[10]
?				

[8] This chart is to be read from the bottom upward; that is, those wares listed at the bottom are the earliest. As the periods of different types of characteristic wares graduated into each other, the division lines as drawn here must necessarily be considered as only approximate. Stratigraphy and cross finds were used as the basis of this chronology.

[9] After Hodge.

[10] After Spier.

in the Middle Gila polychrome ware from the same district; it was the common clay of the country. The brush work of the Casas Grandes polychrome averages about on a par with that of the contemporaneous slipped and polished red-on-buff. If the black paint were eliminated from the Chihuahua polychrome, many of the pieces would be so similar to some of the best red-on-buff vessels from the Santa Cruz as to be possibly confused with them. Natural parallel development of totally unrelated wares could hardly be expected to produce such a remarkable similarity. Only the theory that both were developed from a common prototype or that one was quite closely related to the other through diffusion would seem to account for the similarity as well as for the difference between these wares. We have ample evidence of trade between Casas Grandes and the Middle Gila in the late period.

Some time after the last red-on-buff ware had been developed, a new type of pottery came into the southern Middle Gila country. This was the late Middle Gila polychrome which had been developed in the north Middle Gila and which now spread in all directions. Schmidt and Gladwin give high percentages of polychrome sherds in the upper strata of red-on-buff mounds. At the time of the adoption of the polychrome ware the north Middle Gila custom of full-length burial was adopted in some south Middle Gila villages. Before this time, with few exceptions, cremation appears to have been the customary method of disposal of the dead in the south Middle Gila and inhumation in the north Middle Gila. This indicates a great influence exerted by the north Middle Gila at this time, for burial customs are among the most conservative rites of a people. Some red-on-buff ware of the late type was made in the south Middle Gila even after the advent of the polychrome, but in some villages the polychrome supplanted the red-on-buff almost entirely. Sites located in the peripheral area between the two centers yield evidence of the interinfluence of both culture groups even before this period.

On this hypothesis, then, which finally might be proved by an investigation of early Casas Grandes ware, the early makers of red-on-buff ware in the south Middle Gila were Mexican Indians possibly related to the ancestors of the Casas Grandes people. They may have been pushed north into this country at the period of early red-on-buff pottery, or they may have developed this from a still earlier type they brought with them, although as yet we have no evidence of any earlier decorated type in this area. Their relation to those Santa Cruz people who made undecorated pottery and lived in what must have been jacal-walled dwellings, with their bases surrounded with crude walls of heaped stones, is unknown.

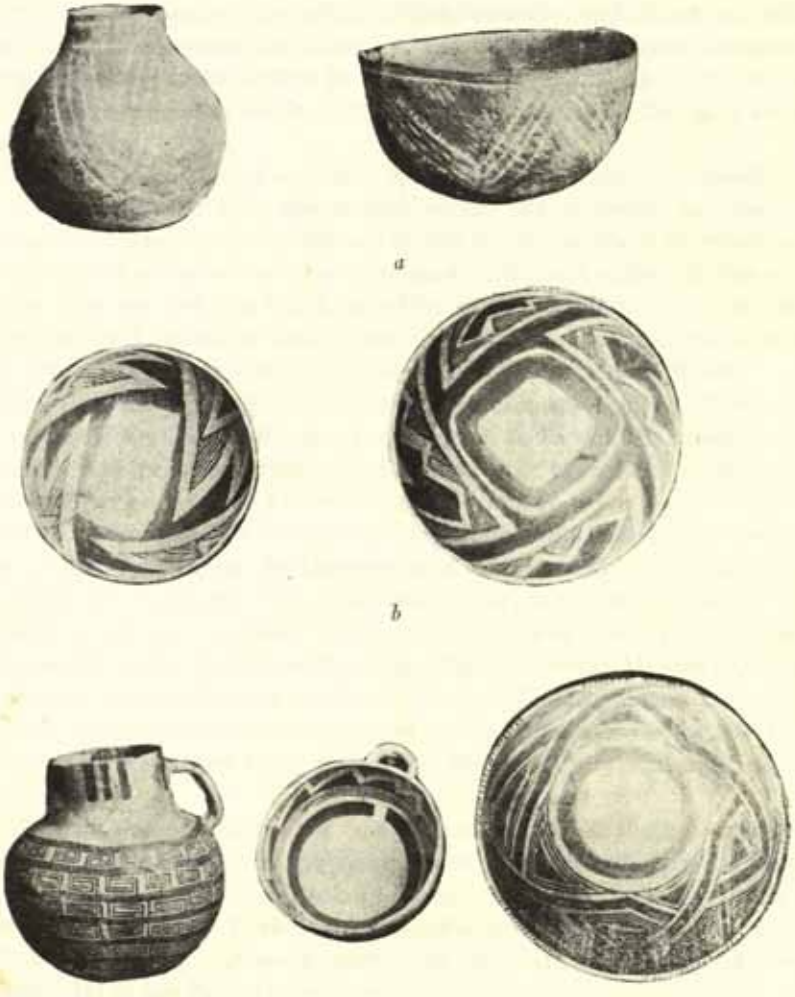
Middle Gila Cultures North of the Gila River

In the meantime, who were in the north section of the Middle Gila, and what were they doing?

1. Tularosa black-on-white.—First, into the Miami-Globe-Roosevelt district came a people who seem to have migrated from the Upper Gila country. In fact, the Upper Gila at that time extended from the headwaters of the Gila as far west as where Roosevelt lake now is. Their pottery was of the black-on-white Tularosa type (pl. 9*c*). The paste is fairly fine and gray-white in color; the temper is of quite fine sand. When overburned, this paste turns slightly pinkish-yellow; when underburned it is dark gray, owing to the carbonaceous content. The slip was thick and dead white. The surfaces are slightly uneven and bumpy, but usually slick and shiny from polishing. Both exteriors and interiors of bowls, which average small, and of cups, small bowls with horizontal handles, are slipped. They are decorated in a sharp clear black paint composed of carbon and iron. Brush work averages well.

The pitchers, one of the most common shapes, had globular bodies, cylindrical necks making sharp angles with the bodies, and handles built up of three parallel clay fillets or of one wide fillet, flat, and unevenly criss-crossed with black. Many handles are modeled into crude animal figures. The necks of these pitchers are often decorated with three groups of perpendicular wide black lines arranged in groups of threes, or with variations of the stepped rain cloud design. Over the bodies are repeated small key figures, large scrolls, rectilinear or curvilinear, which contrast hatching with solid color, groups of parallel lines, and fine herring-bone work which entirely covers the surface. Neck and body designs are separated by an undecorated narrow zone of white. Dippers, which are not common, are of the bowl and handle type and are decorated in the interior. Bird vessels, sometimes made as water jars with open necks and no heads, are one sign of their propensity for copying life forms.

Red corrugated or plain red-brown bowls are common. The interiors of both types are smudged black over a well polished surface to produce a burnished effect. The coiling is fine, ranging from 4 to as many as 12 coils to the inch, and the corrugations are even and close. Bowls are from 8 to 10 inches in diameter and average deep for their width. A few are slightly constricted at the rim. The bowls were sometimes decorated by alternating bands of coiling with bands of corrugations; some were ridged with corrugations only in a narrow band of plain coils. Many were left ridged for a background and were indented to form geometric designs, which were sometimes quite elaborate and painted with a thin white wash over the corrugations.



North Middle Gila. *a*, modified corrugated white-on-red; *b*, Little Colorado black-on-red; *c*, Tularosa black-on-white.

Variations of the key pattern were most common. Scattered through the Miami-Globe district and on the hills which now form the shores of Roosevelt lake are pueblos whose main painted ware is the Tularosa black-on-white, although usually a few sherds of the Little Colorado black-on-red are found also. These wares are typical of the Tularosa or Upper Gila people, who seem to have been the first to occupy the region. Black on White ruin near Miami is a good example of this period, also many of the ruins around Roosevelt lake.

2. Little Colorado black-on-red.—Spier has worked out a chronology in the Little Colorado, with the second period characterized by black-on-white and corrugated ware, followed by the decline of black-on-white ware and the introduction of red ware decorated with black paint. In the north Middle Gila we find the black-on-white period followed by a period of decline in black-on-white and a rise of the Little Colorado black-on-red ware. This condition is well illustrated at Hilltop House near Miami.

The black-on-white periods of the Little Colorado, of the Upper Gila, and of the Miami-Globe-Roosevelt area seem to have been contemporaneous and very probably deal with but one large group of people, whose culture center was in the Little Colorado drainage. The Little Colorado people spread southward during this period, becoming separated from the home stock; succeeding developments in the pottery of people of the peripheral areas differed from those worked out at the same time by their northern relatives. Jeddito yellow ware followed the Little Colorado black-on-red in the Jeddito valley in northern Arizona; Middle Gila polychrome was the successor of southern Arizona. The use of iron-and-carbon paint on both the black-on-white and on the black-on-red in the Little Colorado, in the Upper Gila, and in the Middle Gila would also indicate a relationship.

While the people south of the Gila were making their slipped unpolished red-on-buff, those north of the river began to make the Little Colorado black-on-red as well as the black-on-white. This was probably about the beginning of the Great Pueblo period as that period was recently described by E. B. Renaud in "Culture Evolution in the Southwest" in *Social Forces*, or Pueblo III of the Pecos chronology.

The black-on-red bowls are hemispherical; ollas are not so common as bowls (pl. 9*b*). The clay is light colored, fine, and hard; the temper is of fine sand. Careful firing drove all the carbonaceous matter from the interior of the 3/8 inch vessel walls. The red slip which covers the bowls inside and out is of iron oxide. Surfaces are very smooth and occasionally well polished. Surface cracks are uncommon. Interiors of bowls are decorated

with deep black paint containing both carbon and iron oxide. Designs are usually geometric, made up of four sections of combined elements leaving an undecorated square in the center of the bottom. Workmanship was uniformly excellent. Some vessels show the broad black bands outlined in white, and many of them are decorated on the exterior with a white band design usually composed of repeated scroll or key figures.

In some of the ruins of this area a late form of the black-on-red is found, a form which so differs from the Little Colorado black-and-white-on-red that it must be considered an intentional imitation. The clay of the walls is of the same color and coarseness as that of the later polychrome, the surface is smooth but lacking in lustre, and the red slip is thinner and of a darker and more brownish red than the orange-red slip of the true Little Colorado ware. White fret designs are sometimes found on the exterior. Incomplete firing has left the center of the walls dark so that the fine white sand temper shows. This type seems to belong to that transitional period between the making of the Little Colorado and the Upper Gila pottery types, which were brought into the district at what we now suppose to have been its first period of occupation, and the invention of the Gila polychrome ware. The period is well represented by Dr. Cummings' excavations at Gila Bank ruin near Coolidge dam.

The white-on-red ware with modified or partially smoothed corrugations is much cruder than the other pottery types found in association with it (pl. 9*a*). A similar type may have been the proto-type of that painted corrugated ware common at Bylas. Both types are found near Miami, but there the former predominates. The paste of this cruder ware is coarse and tempered with a great deal of mica; the shapes lack perfect symmetry. The walls are about 3/16 inch thick, and the vessels are smudged black in the interior but are not polished to a high luster. During the process of coiling the pieces, vertical or slightly slanting indentations from 1/4 to 1/2 inch long were made in the exterior; later these were partly obliterated by use of the polishing stone, and the surface was covered with a deep purplish red which might seem never to have been burned on, as some of it will come off every time the vessel is washed and it may be entirely removed by brushing it in water. Not all these vessels were decorated, but most of them show crude linear designs in white, which also easily washes off and is sometimes almost gone when the piece is found. The designs consist of concentric zigzags, the outer lines of the group usually being edged with dots or short lines intended to be perpendicular to the main line. Brushwork was poor. The ollas are small and have short necks which slope directly into the bodies of the vessels.

The red-brown undecorated ware varies little in the different periods. Most of it found here shows a surface markedly streaked with the parallel strokes from the rubbing stone. Interiors of the vessels are usually smudged. Rectangular bowls, squash-shaped ollas, and circular bowls with an hemispherical depression in the base, occur.

In Hilltop House on Bead mountain were found graves which ran under the walls of many of the outer rooms of the village. Evidently these burials were made at the time the pueblo occupied only the highest crest of the hill; as the village grew, new rooms were added to the sides of the structure; the graves over which walls were built had probably been long forgotten by this time. In the trench graves are found those wares I have already described as occurring in the first two periods, besides which types there is one entirely new ware, the early Gila polychrome. Its occurrence here would indicate that this pueblo was occupied in a later period than Black on White ruin, its neighbor, which shows only black-on-white and black-on-red wares; and in an earlier period than Bead Mountain House, its other neighbor, which had no black-on-white ware, and no early polychrome, but where a great abundance of the late Gila polychrome was made.

The proportions of types as found in the early polychrome period at Hilltop House is as follows:

White-on-red with modified corrugations	40%
Little Colorado black-on-red and polychrome	20%
Tularosa black-on-white	10%
Early Middle Gila polychrome	10%

This period, characterized by the first appearance of Middle Gila polychrome, marks the height of the pottery development of the Middle Gila pueblos north of the river. The growing crudeness of later pottery here seems to indicate decadence, finally culminating in the fall of the culture in the latter part of the late pueblo period, listed early Pueblo IV in Pecos chronology.

The white-on-red ware listed has already been described. The Little Colorado black-on-red of this period shows a few new characteristics. The clay used for paste was now that most common in the district, a rather coarse brown clay, the same as that later to be used for the Gila polychrome ware. The surfaces of the vessels were smooth, but they lacked the slick finish of the earlier black-on-red. The slip was thinner and of a darker, more brownish-red than the orange-red slips formerly employed. Little white was used. Temper of fine white sand speckles the brown paste and is especially noticeable where incomplete firing has left the clay dark, another

characteristic shared by this black-on-red ware with the polychrome. This late type must constitute a subdivision of the Little Colorado black-on-red and belongs to the transitional period between the time when this Middle Gila region was of Upper Gila or Little Colorado culture and that later period when the true north Middle Gila culture was established. Chief among the characteristics linking this type to the Middle Gila polychrome is the use of carbon paint instead of the carbon-and-iron paint that had been formerly used on the Little Colorado black-on-red.

3. Early Middle Gila polychrome.—After studying the black-on-red ware and the black-on-white ware that had been prevalent in the earlier periods and which was still being made, and then studying the early polychrome, one wonders whether some progressive potter did not notice the pleasing effect produced when some black-on-white bowl happened to be nested inside of a black-on-red bowl and so decide to imitate that effect in a single piece (pl. 10*b*). In some such way the idea for the polychrome ware must have been born, for it is quite evidently a combination of the other two wares. One bowl found is decidedly of the polychrome type on the interior and of the black-and-white-on-red type on the exterior. In the polychrome in general more of the black-on-red than of the black-on-white characteristics prevailed.

As in the Little Colorado black-on-red ware, the interior designs of the early Middle Gila polychrome were brought clear to the edges of the bowls. The background, as in the Tularosa ware, was white, but the slip was slightly more creamy than in the Tularosa and much less creamy than the slip of the late polychrome. The interior finish was smooth, like that of the black-on-red, and much slicker than the surface of the later polychrome, a difference more noticeable to the touch than to the eye. The numerous tiny surface cracks which check the interior of the late pieces are lacking. Black carbon paint was used; it was made from the extract of a plant, probably some species of the *Cleome* or of the Mustard. After this paint came into favor, it was used until the end of the Gila culture; the old iron paint never reappeared. Shapes, finish, and designs were at their point of highest perfection when it was discovered that a carbon paint without the addition of mineral matter would serve their purpose almost as well as the old paint on which they had to expend more energy in preparing. The new paint was not quite so permanent as the old; and since it gives the first indication of a lassitude that was later to grow and effect a period of decadence and finally the fall of these people, we can perhaps see the change in paint as a possibly ominous sign. A gradually growing carelessness in the selection of clay for the paste is also apparent.

North Middle Gila. *a*, Late Middle Gila polychrome; *b*, Early Middle Gila polychrome.

As the light clay used before does not occur in large deposits in this district, it was something of an undertaking to secure it in quantities sufficient for their decorated pottery. The common coarse, light brown clay had been used for the ware with modified corrugations and for the undecorated pieces before. Now the brown clay was used for the polychrome, although the clay of the early pieces is finer and lighter in color than the clay of the late type. This was the same clay the people of the southern section of the Middle Gila drainage had been using.

The exteriors of the vessels were streaked with the rubbing stone and were of a more orange-red than the late polychrome. No red was used on the decorated interiors of bowls or on the decorated upper body of ollas. Perfect symmetry and a fine finish are typical. Rims are flat or slightly rounded.

Designs are almost entirely rectilinear; curves are found only in interlocked water symbols. Fine and accurate brushwork is especially noticeable in the hachure lines, which are thin and almost as even in many cases as if drawn with a ruler. Edges of all the lines are smooth, unwavered. Light, rather delicate, refined, and artistic, these bowls present a contrast to the gaudy productions that followed and from which they may be distinguished by negative quite as much as by positive characteristics. There are few life lines, no cross-hatching except where series of parallel lines intersect at a corner, no bird wing designs, no stepped or saw-toothed edges on the broad lines, no large masses of black, no border designs. The central design is commonly arranged around a modified swastika, which leaves the center of the bowl undecorated. In some bowls a circle takes the place of the inner square, but the quadrate arrangement is still carried out. The designs are not so heavy or as clumsily sprawled over the surface as in late polychrome; instead we find a sensitive appreciation of the beautiful, although some pieces were evidently the productions of less artistic souls. These designs are almost always arranged in a dual-quadrate symmetry, that is, there are usually four large design elements of which the opposing two are alike. Three elements are occasionally used instead of four. The dot inside of a square, the groups of parallel lines, stepped rain clouds with only two or three steps to one side, and the lines edged on one side with pendent drops, are typical of early polychrome and were used to a much less extent in the later ware. The design composed of concentric stepped lines in zigzags is almost a duplicate of that which is common on the black-on-white ware. The distinguishing characteristics of the early polychrome are quickly recognized after a few pieces have been examined.

The early polychrome ware was rapidly becoming popular, spreading,

and beginning to entirely replace the black-on-white and the black-on-red wares, which soon went entirely out of style. As the ware spread, it became cruder in color and design. The next step was a marked expansion of the area of influence or of cultural dominance. Not only did the late polychrome spread south; we have it in the upper strata of other mounds near Phoenix, north to the Mogollon rim, south to Cananea, Mexico, and from Solomonsville to Gila Bend, and trade pieces are found scattered throughout the entire Southwest. It was the last decorated ware to be made in the Middle Gila drainage in prehistoric times.

4. Late Middle Gila polychrome.—The clay of the late polychrome was coarse and brown; in the center of the walls a dark carbon line almost invariably attests to insufficient firing (pl. 10*a*). Bowls were the most common vessels. Their rims curved somewhat inward and were slightly rounded at the edges. Ollas were made with plain necks of varying heights or with bulged necks. A few had double necks. A decorative band of black-on-white encircled each neck. Bird vessels, low, wide-mouthed ollas onto which the small molded head and flat tail of a bird were attached, are about the only example of effigy forms. The bases of these are red and the entire upper part is in black-on-white, with occasionally an introduction of the background red.

This period of direct dual-quadrate symmetry, when design elements were characteristically grouped in combinations of twos and fours, was passing, and obverse mirror symmetry came into vogue, although some pieces of dual-quadrate design were still made. The obverse mirror symmetry may be understood if one visualizes a circle divided into four quarters, *a* and *b* over *c* and *d*. In sections *a* and *d* the same design element is used, but the two are turned opposite to each other as if one were reflected in a mirror. The symmetry is called obverse because the design is repeated in opposite corners. The most common design elements are the "bat wing," the interlocked water symbol, the triangular rain cloud with dripping rain pendant, stepped rain clouds, cross hatching, and the life line. Crude conventionalized human and animal figures are found, but they are rare. Designs are heavy, broad, and careless, with many large figures in black. The wide black bands are edged on one side with coarse saw teeth, and the whole gives the effect of a hurried careless effort to cover the surface in the manner of an impressionist rather than in careful detail. Some of the later potters did skilful work and some of their predecessors were careless, but in general the designs were much better in conception and execution in the early period.

When red was to be used in the interior decoration, the whole vessel

was slipped inside and out with red for the background color. White areas were then added, then the black, and finally in some cases the red area was again painted in to brighten the color. A final recoating of the red is often seen on the exteriors of ollas also. Exterior band designs, usually enclosed between heavy black border lines were occasionally used on bowls in combination with all-over designs which covered the entire lower interior surface of the vessel, the interior rim being also decorated with a border design between heavy lines. Exterior decoration of bowls and the use of red in interior decoration seems to have been limited to the latter part of the late period, at least in all cases except for simple black or white figures, which are occasionally seen near the exterior rim of an early polychrome vessel, quite after the style of the Little Colorado polychromes.

The decoration of ollas was divided into two wide bands, one of which encircled the body and the other the neck. They were separated by a narrow band of red. The above-mentioned two zone decoration of the bowls is similar, but occasionally a series of narrow zones in stripes running around the ollas or bowls is found. The border designs of the two zone type were of a simple repeated geometric unit, often the stepped rain cloud. Sometimes only a heavy black life line with its break for the exit of life or spirit was used. Below this line or band of design in the bowls a space of about an inch was left between it and the main design, which covered the whole bottom of the bowl. The life line is rarely seen on early Middle Gila polychrome.

SUMMARY

It would seem that Arizona might be divided into three large culture areas according to related pottery types:

(1) The black-on-white ware San Juan area, in which carbon paint was used

(2) The Little Colorado area, characterized by black-on-red ware with carbon-and-iron paint. This area would include the Jeddito district, where the yellow ware evolved from the black-on-red and retained the same type paint, and the north Middle Gila, where Gila polychrome evolved from the black-on-red and the Tularosa black-on-white, being decorated with the carbon paint which supplanted the carbon-and-iron paint formerly used in this district on black-on-red and black-on-white wares. The Upper Gila should also be included in this large general area because of the black-on-red commonly found with the black-on-white Tularosa type.

(3) The red-on-buff area of the southern Middle Gila (which incomplete surveys of the Lower Gila would indicate probably continued as a red-on-buff district toward the mouth of the Gila and southward).

Each of these large districts would, of course, have to be divided into subdistricts in an extensive study of pottery, but the division into three great areas may best show cultural and probably generic relationships.

In the Middle Gila, the southern region was peopled by aborigines related to those of northern Mexico. They first built pit houses and later true compounds, and made red-on-buff pottery which passes through three stages of development. During the period of the first stage, people from the Upper Gila and the Little Colorado pushed into the northern division of the Middle Gila area. At first Tularosa black-on-white was the characteristic pottery, but soon the Little Colorado black-on-red and the white-on-red with modified corrugations were also made. The black paint was a combination of carbon and iron. From the black-on-white and the black-on-red wares, the early Gila polychrome was developed, characterized by decoration similar to that used on the black-on-red, by a new carbon paint, and by a paste somewhat coarser than that formerly employed.

Late Gila polychrome, cruder in color, design, and workmanship, evolved from the earlier ware and spread south and west to those pueblos which had been making the red-on-buff ware in the southern Middle Gila. The polychrome supplanted the red-on-buff ware in some of the villages. Trade with Casas Grandes, Chihuahua, and with those pueblos making Jeddito yellow ware was carried on. Use of the life line might indicate some relationship with Zuñi, Sikyatki, Awatobi, and other pueblos of the Little Colorado drainage, where this relatively localized symbol was used. The Middle Gila culture was, however, about to pass into that oblivion from which archaeologists have but recently tried to bring it back to life. Cultures, like organisms, must grow, reach their maturity, decline, and finally die, if not previously swept out of existence by war. No evidence of forced abandonment of this region or of general extermination is found; the people, probably weakened by drought and famine, declined in number as in culture and finally either eventually died out or were absorbed from the last few pueblos by other tribes, possibly the people of the pueblos which exist today.

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BOOK REVIEWS

PREHISTORY

L'Art et la Religion des Hommes Fossiles. G. H. LUQUET. (Paris: Masson et Cie., 120 Bd. St. Germain, 1925. 131 pp., 119 ills.)

The book is divided into two parts—the first on Art, the second and much the shorter on Religion. After the orientation chapter, the author discusses in turn decorative art and figurative art and ends the first part with a chapter on the origins of art.

Decorative art reposes on the idea or the sentiment that artificial modifications of pre-existing objects renders them more beautiful, more agreeable to the eye. Figurative art is in essence realistic. There are two kinds of realism in Paleolithic art, not only different but also opposed. Visual realism is preponderant, but there is also intellectual realism. The co-existence of the two subsists down to the Magdalenian epoch, which is the artistic apogee of the Paleolithic period.

The author believes that figurative art of the Aurignacian epoch was purely and simply figurative, dictated by the pleasure the artist had in creating images of objects existing in nature; it had neither the magic destination nor the decorative rôle which is attached to Magdalenian art.

Figurative art properly so-called, must have been preceded by a preliminary phase in which figured works were produced not intentionally but by chance. It is logical to suppose that one of the sources of figurative art is the voluntary accentuation of a perceived resemblance. This artistic realization of *lusus naturae* might have commenced at even an earlier date than the Aurignacian epoch, probably during the Lower Paleolithic period.

In summing up Part Two, it is declared that, as far back as the Mousterian epoch, sepultures indicate that the dead were considered as conserving after death a sort of existence analogous to their earthly life, in which relations were kept up with the living; hence the funeral rite as a step toward making these relations as agreeable and harmless as possible.

Certain manifestations of Magdalenian art presuppose belief in sympathetic magic—for example, figures of animals wounded and masked human figures. It is probable that the efficacy of disguises in the chase may have led to belief in the magic virtue of the disguises or masks, which in turn became the attributes of the magician.

The author's familiarity with the subject is confirmed not only by the quality of the text but also by the numerous references to the literature now at the command of the serious student of prehistoric art and religion.

[An English translation by J. Townsend Russell, Jr., has just been published (1930) by Yale University Press: The Art and Religion of Fossil Man.]

GEORGE GRANT MACCURDY

Vorgeschichtliches Jahrbuch für die Gesellschaft für vorgeschichtliche Forschung. Herausgegeben von MAX EBERT. (Band II: Bibliographie des Jahres 1925 mit sechs Tafeln und einer Abbildung im Text. Berlin and Leipzig: Walter de Gruyter und Co., 1926.)

The Gesellschaft für vorgeschichtliche Forschung, founded in 1925, has for its object the advancement of Prehistory in all its fields. Its managing Committee consists of Max Ebert (Chairman), Königsberg; O. Almgren, Upsala; G. Karo, Halle; B. Meissner, Berlin; H. Obermaier, Madrid; H. Ranke, Heidelberg.

The 344 pages of the Prehistoric Year Book form a fair criterion of the ever increasing activity in the general field of prehistory. All but 78 pages are given over to bibliography, only the more important references being accompanied by a review consisting of one or at the most a few paragraphs. This "review" of the literature comes under four heads: A, Europe—General; B, Paleolithic and Mesolithic; C, Europe—Neolithic and later periods; D, Egypt; E, Palestine and Syria; F, the Near East.

The other features of the volume are: (1) an illustrated article on the excavation of prehistoric fortifications (22 pages), (2) news of a scientific and personal nature, and (3) the index consisting of 28 pages. This is an Old World Year Book as will be seen from the Table of Contents. That such a large and creditable volume is annually possible is a striking commentary on the rapidity with which our knowledge of Old World prehistory is expanding; it fully justifies the existence of our American School of Prehistoric Research, founded in 1921 in order that American students might the more readily obtain first-hand knowledge of Old World prehistoric records as well as to have a part in recovering and interpreting them.

GEORGE GRANT MACCURDY

Prehistoric Aigina. A History of the Island in the Bronze Age. JAMES PENROSE HARLAND. (Paris: Librairie Ancienne Honoré Champion, 5 Quai Malaquai, 1925. XII, 121 pp.)

The author explains that the Bronze Age lies before the period of written documents in this region, hence his choice of *Prehistoric Aigina* as a title. While a Fellow of the Archaeological Institute of America in the American School of Classical Studies at Athens, he took advantage of the opportunity to visit the island of Aigina, and the intimate knowledge thus gained is reflected in the work. Aigina lies in the center of the Saronic gulf approximately equidistant from the shores of Attika, Megaris, Korinthia, and Argolis. The island, which has an area of about eighty-five square kilometers (33 square miles), was conquered by the Athenians in 457 B.C.

The three sites which have been thoroughly investigated are:

1) The site of the Temple of Aphrodite in the northwest corner of the island near the modern town of Aigina, called by the author the "Northwest site."

2) The site of the Temple of Aphaia in the northeast corner.

3) The Oros, or Mt. Hellenion, in the southern corner forming the apex to the island triangle.

In addition, graves have been excavated in various parts of the island. The only fully published site is that of the Temple of Aphaia (Furtwängler et al., *Aigina: Das Heiligthum der Aphaia*, 1901–1905). Harland was fortunate, however, in being given access to the *Apotheke* of the museum in the town of Aigina, in which are stored the finds from the excavations on the Northwest site and the Oros. From the results based on a study of this material, and that found by the author as well as the existing literature, "a history or at least the framework for a history of the island of Aigina in the Bronze age," has been reconstructed.

The author makes use of the chronological system devised by Wace and Blegen, with but a single modification—he has made 1400 B.C. (not 1600 B.C.) the dividing point between the Middle and the Late Helladic periods. The three main divisions of his chronological table are:

1) Early Helladic period, ca. 2500 to 2000 B.C.
2) Middle Helladic period, ca. 2000 to 1400 B.C.
3) Late Helladic period, ca. 1400 to 1100 B.C.

A few entire pottery vessels and several dozen sherds that are characteristic of the Early Helladic period have been found on the Northwest site, attesting to its occupation by man in the first period of the Bronze Age. The pottery from this site is similar in style and technique to the Early Helladic wares found on the mainland at Korakou, Zygouries, Tiryns, and elsewhere.

The evidence for the occupation of the Northwest site during the Middle Helladic period is abundant, including pottery, graves, house-walls, and objects of obsidian. The Aiginetan pottery of this period is similar in technique, shapes, and styles to the contemporary wares of the Peloponnesos.

Very few sherds of the Late Helladic period have been found on the Northwest site. But the graves on the highland east and northeast of the site, now marked by the remains of the Temple of Aphrodite, have yielded many Late Helladic vases such as "squat bowls," two-handled beaker bowls, stirrup vases, one-handled jugs, and other vessels, as well as small terracotta figurines, or "Mykenaian idols"; the latter are probably images of a primitive female deity. Harland believes the "Gold Treasure" from Aigina now in the British Museum, consisting of gold pendants, necklaces, bracelets, rings, cups, beads of blue glass-paste, etc., came from a Late Helladic grave.

On Cape Perdikas at the southern end of the island, the author found scanty evidence of a settlement dating from the Early Helladic period. The Oros, as the conical peak of Mt. Zeus Hellanios is called, is also in the southern part (apex) of the island. Harland believes that the settlement on the Oros does not antedate the Late Helladic period. The decorative motives on the sherds found here are for the most part paralleled by those on the typical Late Helladic vases from Korakou, Mykenai, and elsewhere.

The work of Furtwängler and others already referred to, shows conclusively that the Temple of Aphaia site in the northeast corner of the island was not occupied before the Late Helladic period.

The author summarizes his archaeological evidence as follows:

1) Aigina was inhabited from the first settlement in the Early Helladic period throughout the rest of the Bronze Age and down to the present day.

2) The Bronze Age culture of the island was essentially the same as that of the Peloponnesos.

3) Cultural relations and trade intercourse existed between Aigina and the Kyklades in the Early Helladic period.

4) The hand-made Early Helladic pottery with decoration in lustrous paint suddenly ceases at about 2000 B.C., forming a break in the pottery sequence. In its stead appear the distinctive wheel-made Gray-Minyan ware and the Matt-painted ware. Another break in cultural sequence is noted about 1400 B.C. This second break marks the beginning, or the first wave, of the "Achaian Invasion" and the approximate date of the arrival in Aigina of the worshippers of Zeus Hellanios.

A study of the Aiginetan names and traditions leads the author to conclude that during the Bronze Age the island of Aigina was inhabited in turn by three different peoples: (1) Aigaians (Early Helladic), speaking a non-Indo-European dialect and worshipping "Aigaios"; (2) Minyans (Middle Helladic), speaking an Akadian dialect and worshipping Poseidon; (3) Achaians (Late Helladic), speaking a Proto-Doric dialect and worshipping Zeus Hellanios.

Whence came these peoples? What evidence there is points to the coming of the Aigaians from southwestern Asia Minor. The Minyans, on the other hand, came from the North. As for the Achaians, Harland believes they had previously resided for some time in Thessaly and the Spercheios valley.

Students of the subject who have not yet read this little volume should do so, as well as a somewhat smaller work by the same author entitled: *The Peloponnessos in the Bronze Age.*[1]

GEORGE GRANT MACCURDY

Some Irish Pleistocene Deposits and their Correlation. J. P. T. BURCHELL. (Man, 77–80, 1929.)

Burchell's correlation, which agrees in a remarkable manner with the results achieved in East Anglia, England, by Reid Moir, is as follows:

Deposits	*Culture stages*
7. General glacial retreat; formation of youngest recessional moraines.	Epi-paleolithic
6. Return of glacial conditions; readvance of the Scottish ice; formation of local upper boulder clay (brown, sandy, and loess) of Cos. Sligo, Mayo, Galway, Kilkenny, Carlow, and Queen's county, etc.	Magdalenian

[1] Harvard Studies in Classical Philology, 34: 1–62. 1923.

5. Deposition of gravels, sands, and loams of Cos. Sligo, Mayo, Galway, Kilkenny, Carlow, and Queen's county, etc.	Solutrean, Aurignacian Upper and Middle Mousterian.
4. Return of glacial conditions, attaining maximum glaciation; formation of Ivernian or local lower boulder clay (dark-grey and tough) of Cos. Sligo, Mayo, Galway, Kilkenny, Carlow, Cork, Waterford, and Queen's county, etc.	
3. Deposition of gravels, sands, and loans of Cos. Galway, Cork, Waterford, Wexford, Dublin, Donegal, and Queen's county, etc.	Lower Mousterian and Acheulian
2. Invasion of Scottish and Irish sea ice; formation of shelly basement boulder clay of Cos. Cork, Waterford, Wexford, Dublin, and Donegal, etc.; formation of lowest local boulder clay.	
1. Infra-glacial land surface as represented by the Nemestown loam.	Chellean

GEORGE GRANT MACCURDY

Kunst und Kultur der Vorzeit Europas. Das Palaeolithikum. HERBERT KÜHN. (Berlin and Leipzig: Walter de Gruyter and Co., 1929. 529 pp., 126 pls., and 8 maps.)

Dr. Kühn, a member of the Faculty of the University of Cologne, has already become well known as founder of *Ipek: Jahrbuch für prachistorische und ethnographische Kunst* (Leipzig, 1925). His special interest in the art of the cave period has led him to travel widely so as to study personally the original documents, in museums as well as in the caves themselves. He has a right to speak therefore as one having authority.

The present volume is the first of a series of four, to be followed in turn by one volume each by the same author on the Neolithic, the Bronze Age, and the Iron Age. While its title includes the term "Kultur," one will look in vain through its pages for a treatment of the industries bound up with the Paleolithic, except in so far as certain objects, such as dart-throwers and batons, may also be classed as tools. The author has treated the problem in a manner calculated not only to form a complete picture but also to tell the story of how the picture grew with the increase of our knowledge. Each station where cave art has been found is treated in the order of discovery and with a remarkable fullness of references to the literature. The subject is likewise treated from another viewpoint: the evolution of the art itself.

While the title of the book would seem to limit the author to Europe, he has generously included two chapters on the prehistoric art of northern Africa. And here the author is bold enough to refer the rock engravings and paintings of northern Africa to the Paleolithic period. In this connection, it will be recalled that

Frobenius and Obermaier, in *Hádschra Máktuba*, did not express a definite opinion as to the age of the art in question. The last chapter is devoted to the meaning of Paleolithic art.

The volume is profusely illustrated with well-chosen examples. Six of the 120 plates are in color. In addition there are 169 figures in the text. Dr. Kühn is to be congratulated on the completion of a treatise, at once easily comprehended, thoroughly scientific and all-embracing in scope, on a subject so all-absorbing as Paleolithic art.

GEORGE GRANT MACCURDY

La Bohême préhistorique. I. L'age de la pierre. ALBIN STOCKY. (Small quarto, X+219 pp., 122 pls., 77 figs., Prague, 1929.)

Bohemia is singularly poor in relics of the Paleolithic period. On the other hand it is rich in relics of the Neolithic period, so that practically the entire volume is devoted to the latter subject. No mention is made of the Mesolithic. Much space is rightfully given to Neolithic pottery.

The Neolithic period in Bohemia is divided into two epochs. The older epoch is characterized by the banded type of ceramic ornamentation in two forms: ribbon and punctate. Practically no cemeteries belonging to this epoch have as yet been located. The punctate type of band ornamentation is more recent than the ribbon type. The pottery forms remained practically unchanged. The bone and stone implements of the two epochs are practically the same. Substantially all the relics come from dwelling sites (hut pits) rather than from cemeteries, and these sites do not differ much from those in which pottery with ribbon ornament is found.

Painted pottery appears for the first time with the late Neolithic. The Moravian painted forms are found only sporadically in Bohemia. The principal types are "Lengyel" and "Jordansmühl." To this phase also belong the pottery with string ornament, the Michelsberg type, and caliciform vases. The tools, weapons, and ornaments include hammer-axes, wedges, knives, divers points and chipped flints. Necklaces and bracelets were formed of perforated teeth of the wolf, fox, dog, and red deer. Artificial imitations of teeth were also employed. The Michelsberg type of pottery was merely an episode in the prehistory of Bohemia. One can say that the Aunjetitz epoch in Bohemia is derived from the Michelsberg type of Alpine pile-village pottery. The caliciform vases as a group are distinct from the other Bohemian cultures; the caliciform group is not indigenous. There are three dominant forms in the caliciform group: goblets, plates, and pitchers—each with its variations. As for ornaments, tools, and weapons associated with caliciform pottery, there are flint arrowheads, plaques perforated at the corners, stone axes, and a few daggers of copper or of bronze. Inhumation of the flexed body was the rule. It is believed that the culture which developed caliciform pottery had its origin in the Iberian peninsula and penetrated easterly and northeasterly as far as Hungary, Moravia, and Finland.

The author concludes that the first Neolithic peoples to enter Bohemia came

from the southeast. The second ethnic element came from the north and northwest—represented by string-ornamented pottery and spherical amphorae. The ethnic influx from the southwest brought the caliciform pottery. The various elements fused and gave rise to the Aunjetitz culture.

The volume is fully illustrated and documented by means of maps, lists of sites, and bibliographic references.

GEORGE GRANT MACCURDY

NEAR EAST

Oriental Institute Communications. Edited by JAMES HENRY BREASTED. (University of Chicago Press. Communications Nos. 2–6, inclusive.)

The Oriental Institute of the University of Chicago, under its Director, Professor James Henry Breasted, is carrying on three series of publications of which the *Communications* are the first.[1] The first series is devoted to popular illustrated reports of Institute projects in the form of preliminary bulletins, for general readers. Of the first series, No. 2 is on "Explorations in Hittite Asia Minor," by H. H. von der Osten. The author begins with the historical and archaeological background as well as the geographical structure of Asia Minor, especially its central part. This is accompanied by three maps, one of which plots the route of the expedition. The preliminary report covers 104 pages and is profusely illustrated. The final report of this expedition has just appeared as volume 5 of the third series: *Publications of the Oriental Institute.*

Communications No. 3 embodies the "First Report of the Prehistoric Survey Expedition," by K. S. Sandford and W. J. Arkell. The expedition spent two seasons, 1926–27 and 1927–28, exploring for prehistoric cultures in situ in the terraces of the Nile, Upper Egypt. The five terraces of the Nile examined by Sandford and Arkell are at elevations above the river of 150, 100, 50, 25–30, and 10–15 feet respectively. The oldest (150 ft.) terrace is sterile. Chipped implements of the Chellean type were found in the 100-foot terrace, Acheulian in the 50-foot terrace, early Mousterian in the 25–30 foot terrace, and Mousterian in the 10–15 foot terrace.

The beaches of the Faiyum were found to contain implements of the Upper Paleolithic period. An industry with Capsian (Upper Paleolithic) affinities was found in situ in a silt deposit north of the First Cataract. This silt deposit is above the present-day level of the Nile, while farther north, it is below the present-day level.

So far as stratigraphic evidence is concerned, the transition to the Neolithic period is hidden beneath the modern alluvium in the Nile valley, the Hawara channel, and the eastern part of the Faiyum, but is available for study in the western part of that depression. Sandford and Arkell believe that the Faiyum lake and the Nile remained in contact, the lake draining itself into the Nile—just the reverse of the middle and late Paleolithic drainage.

[1] No. 1 of this series is now out of print.

No. 4 of the *Communications* is the preliminary report on "The Excavation of Armageddon," by Clarence S. Fisher. The foreword by Professor Breasted tells of the historic and military significance of the site and of the plans to complete its excavation, thanks to the generosity of John D. Rockefeller, Jr. The expedition was organized during the summer of 1925. Headquarters were built and the work of excavating was begun in the spring of 1926. It was during this first season (in April) that members of the International Congress of Archaeology visited the site on the way from the sessions in Beirut to those in Jerusalem. The present reviewer and Mrs. MacCurdy returned to Megiddo for a few days two weeks later as guests of Dr. Fisher. A year later Dr. Fisher's health had become so undermined from malaria that he was succeeded by P. L. O. Guy, of the Palestine Department of Antiquities. The important historical dates connected with Megiddo are 1479 B.C., when Thutmose III began a campaign into Palestine and Syria; about 970 B.C., when Solomon is said to have fortified and garrisoned the place; the invasion of Shishak in 932 B.C., and the reconstruction of some of the buildings during the reign of Ahab in 870 B.C.

One of the first fruits of Dr. Fisher's campaign was the finding of an important inscribed fragment of a great stela of Pharoah Shishak. This came from the dump left by the excavations previously carried on there by a German expedition in charge of Dr. G. Schumacher. The original stela had been broken up and its fragments used in constructing a building subsequent to 930 B.C.

Fisher's report deals with Topography and History, Organization and Methods, Clearing the Eastern Slope, Excavation of the Summit, and the Pottery Corpus.

The term "Armageddon" has come to have a generic meaning and is thus more widely known than the mound's specific name "Megiddo." Those who have not visited Megiddo can with difficulty comprehend the amount of work its excavation will require. The summit alone covers an area of 46,000 square meters.

Some of the Bronze Age tombs uncovered on the eastern slope date from 2500 B.C.; others belong to the Middle and Late Bronze Age (down to 1300 B.C.). Certain of the tombs included burials belonging to the Iron Age and even down to 400 A.D., when Roman influences were merging definitely into Byzantine.

The excavations on the summit reveal that during its last two periods, the hill was a mere fortified post along the highway and not a great walled-in city. The only tomb found on the summit that belongs to a period later than 350 B.C. was found in the ruins of a house in Stratum I. In Stratum II, but few objects have been found from which one can establish a date, but the stratum immediately below yielded objects dating from 800 to 600 B.C.

The report is fully illustrated by means of maps, panoramas, plans, sections, views of the excavations in detail, specimens, etc.

"Medinet Habu, 1924–28," is the title of *Communications* No. 5. The report consists of I: The Epigraphic Survey of the Great Temple of Medinet Habu, by Harold H. Nelson; and II: The Architectural Survey of the Great Temple and Palace of Medinet Habu.

Medinet Habu is the great mortuary temple, in the necropolis of Thebes, built by and for Rameses III (12th century B.C.). The building was intended to form the chief monument of the reign of this monarch, hence the walls were covered with scenes from that phase of his activities, which would insure him the highest approval in the sight of both gods and men. There are over 1600 linear feet of historical reliefs, both inside and outside the temple, telling the story of the Pharoah's wars. The inscriptions which accompany the reliefs are a veritable mine of philological riches. A point not always appreciated in dealing with these Medinet Habu reliefs is the extensive ancient use of plaster to cover up defects in the masonry. This plaster, especially in the exposed portions of the walls, has for the most part fallen, carrying with it the designs once carved into or painted upon it. In spite of this unfortunate circumstance, there remains of the records at Medinet Habu a mine of archaeological, artistic, historic, and religious information.

Little more than a quarter of the report is devoted to the architectural survey of the great temple and palace of Medinet Habu, by Uvo Hoelscher. The report throughout is accompanied by numerous and beautiful illustrations.

No. 6 and latest of the *Communications* is by H. H. von der Osten: "Explorations in Hittite Asia Minor, 1927–28." This report of 153 pages (the longest of the series) is provided with an index and glossary. It and *Communications* No. 2 are by the same author. The Hittite expedition was early divided into three separate projects: (1) exploration to gain a bird's-eye view of the general conditions, ancient monuments, and geographic structure of one of the large units into which Asia Minor is naturally divided; (2) the explorer, having seen the various ancient sites in such a unit, makes the preliminary selection, and afterwards with the excavator chooses a site for excavation; (3) then follows the surveyor, recording in a square 40×40 kilometers every ancient monument around the chosen site.

In 1927 excavations were started at the great Alishar mound and were continued for six months. A 40-kilometer square was laid out with the Alishar mound approximately at its center. During 1927 about a dozen shorter trips within the square to be surveyed were made. As to Alishar, the main result of excavations there was to establish the relative chronology of the pottery. During the season of 1928, the whole square around Alishar was finished and a region as large as that explored in 1926 and bordering it on the east was selected for exploration.

In brief, the Alishar mound provided a reliable relative chronology for pottery from early Turkish times back to the "Hittite" period. Two chronological dates have been established: the late classical period from the first to the sixth century A.D., and the Hittite period between 1200 and 1000 B.C. Two still earlier periods are also known. The survey has given an idea of the dense population of this region in ancient times. The investigations carried on thus far will help immensely toward the solution of the Hittite problem in an archaeological sense. The 160 illustrations give an added interest to the illuminating text.

GEORGE GRANT MACCURDY

PHYSICAL ANTHROPOLOGY

Rassenkunde Europas. Mit besonderer Berücksichtigung der Rassengeschichte der Hauptvölker indogermanischer Sprache. HANS F. K. GÜNTHER. 3. wesentlich vermehrte und verbesserte Auflage. (München: J. F. Lehmanns Verlag, 1929. 342 pp., 483 ills., 34 maps. Geh. M 10,—, Lwd. M. 12.)

The author introduces the usual caution against confusing race with language, and then defines race as a group of mankind having certain physical traits in common which are peculiar to the group, and also a spiritual life which distinguishes it from every other group of men. He distinguishes, by these criteria, five European races: the Nordic race, with high stature, long head, small face, prominent chin, small nose with high nasal bridge, light or golden hair, deep-seated light (blue or gray) eyes, reddish-white skin; the Western race, with small stature, long head, small face, less prominent chin, small nose with high nasal bridge, brown or dark hair, sunken brown eyes, brown skin; the Dinaric race, tall, short-headed, small face, very strong nose, brown or black hair, sunken brown eyes, brown skin; the Eastern race, short of stature and of head, broad-faced, with feebly developed chin, short nose with flat nasal bridge, brown or black hair, fairly prominent brown eyes, yellowish brown skin; the East Baltic race, short stature, short head, broad face, heavy massive lower jaw, feeble chin, short, moderately broad nose with low nasal bridge, light (ashy blond) hair, prominent light (gray or light blue) eyes, light skin with gray undertone. There follows a more detailed description of these respective races, illustrated by hundreds of photographs of the living and by sketches of skulls; but, except for a few maps no statistical evidence of their frequency is offered.

The author then comes to grips with the souls of these races. He embraces the Nordic amorously, and it includes all the worth-while men from ancient Greece and Rome to the present, in the New World as well as the Old. Figure 475 exhibits "the ocean flier Charles Lindbergh, father Swedish, of Nordic stock"; other photographs show us John W. Davis, two university professors (one from Yale and one from Stanford) and the former president of the last mentioned institution. One can see by looking at pages 312–313 that Stonewall Jackson, Grant, Monroe, Jefferson—to mention but a few—were sturdy Nordics.

The final chapter introduces us to "Nordic thought," and to its exponents (further illustrated by photographs), Houston S. Chamberlain, Count Gobineau, Lafrange, Ammon, Madison Grant, Lothrop Stoddard, and finally (fig. 482) to a group of upstanding Viennese youths, all of Nordic stock.

WILSON D. WALLIS

Rassenkunde des jüdischen Volkes. HANS. F. K. GÜNTHER. (München: J. F. Lehmanns Verlag, 1929. 305 ills., 6 maps. Geb. Mk. 11.—, geb. Mk. 13.)

This is a comprehensive account of the Jews in historical, cultural, and geographical perspective, with a minimum of statistical information. The pre-Jewish

inhabitants of Palestine were Nordic, and inter-marriage with them is responsible for the Nordic Jewish strains. The concluding chapter gives the distribution of Jews in the Old World and the percentage they form of the respective populations.

WILSON D. WALLIS

Der nordische Mensch; die Merkmale der nordischen Rasse mit besonderer Berücksichtigung der rassischen Verhältnisse Norwegens. HALFDAN BRYN. (München: J. F. Lehmanns Verlag, 166 pp., 10 charts, 126 ills. 10 M; cloth 11 M.)

In striking contrast to most books by non-Scandinavians on the Nordic race, this work—avowedly dealing especially with Norwegian conditions—may be heartily recommended for its wealth of factual material and the absence of the propagandist spirit. There is also a sane appreciation of the significance of individual variability. Says Dr. Bryn:

> Bei einzelnen Menschen in den rassereinsten Bezirken kann dieser (Längen-Breiten-) Index zwischen 60–90 schwanken, ohne dass man deshalb sagen kann, dass die mit niedrigem Index rassereiner seien als die mit hohem. Niemand wird wohl die Rassereinheit leugnen, weil ein Mensch einen Index hat, der 10 Einheiten niedriger als der Mittelindex liegt. Warum sollte er denn nicht auch bei ebenso aussergewöhnlichen Kreuzungsverhältnissen 10 Einheiten höher liegen können als der Mittelindex? Wenn man aber eine Zeitlang in solchen rassereinen Bezirken arbeitet, dann wird man auch auf derartige Menschen stossen (p. 77).

The author distinguishes two strains of Nordics. One has yellowish-brown hair and dark blue or bluish-gray eyes; the other, ash-blond hair and light blue eyes. Dr. Bryn believes in a sharp differentiation of the two, suggesting immigration at different periods, but insists that the distinction corresponds merely to a subdivision of the Nordics (pp. 102–113). He goes so far as to postulate psychic differences between the two strains, but admits from the start that there is no objective determination of them and ends with the statement that mentally, too, they are mere varieties (*Spielformen*) of a single stock (p. 122).

In opposition to Dr. Fritz Paudler, Dr. Bryn deprecates the recognition of a blond brachycephalic race in Scandinavia. There is surely a strain (*Schlag*) of this description, but not a race. The preponderant body of tall dolichocephals impressed their blondness in mixture with less numerous dark brachycephals of Western Norway and from Finland (pp. 130–141).

The photograph of the "Norwegian explorer" on p. 84 will be identified by American readers as that of the late Dr. Lumholtz.

ROBERT H. LOWIE

OCEANIA

Primitive Economics of the New Zealand Maori. RAYMOND FIRTH. (New York: Dutton, 1929. Pp. XXVI, 505. $6.00.)

If anthropology is making progress, it is not alone by solving old problems, but also by opening up many new branches of study. Some of these are new, not in an

absolute sense, but in the sense that they have only recently received careful, empirical, and realistic treatment. The study of primitive economics is one of these new fields of endeavor.

Until recently most students believed that primitive men had no economic life worth studying. Economists were not interested in them: for were not these folk savages? They possessed only a small amount of material goods, had little private property, and often no money, tolerated no great amount of free enterprise, and did not produce for a market. Not much material for scholars whose attention was centered on the phenomena of exchange and price. When primitive people were mentioned by economists, it was usually for the sake of examples from their conjectural history.

Anthropologists, as well as economists, for a long time believed that there was little to primitive economics. The lack of good field reports, detailing the economic life of pre-literate peoples, lent support to the view, while this tradition buttressed the neglect of field workers. About most tribes, therefore, we possess, at best, fairly accurate accounts of their material culture—that is, of things that could be brought home to museums. While we may know that a certain people lived in skin tents and used polished stone axes, we remain totally ignorant of its economic organization.

What little attention primitive economics received came because the simpler (?) forms were considered illustrative of the stages through which our own industrial system had evolved. With this antiquarian bias, anthropologists studied native tribes in pursuit of origins about which we can know little or nothing. Such researches and such theorizing were destined to be sterile in consequences for economics and all the social sciences.

But not all anthropologists have followed traditional methods, and with a larger perspective has come a different and a greater interest in primitive economics. We owe most perhaps to Professor Bronislaw Malinowski, of the University of London. His *Argonauts of the Western Pacific* (1922) analyzed with great acumen and sympathy the economic organization of the Trobriand Islands. But he did more than this; he established the study of ethnological economics.

Primitive Economics of the New Zealand Maori is by Raymond Firth, a New Zealander, one of Malinowski's students; in fact, it is a Ph. D. thesis presented to the University of London. It attempts for the Maori even more than Malinowski did for the Trobrianders.

Dr. Firth significantly declares that he wishes to bridge the gap between anthropology and economics. An introductory chapter deals with the study of primitive economics, and here Dr. Firth surveys the whole field, doing well a useful work. A complete bibliography will be a help to persons interested in further study of this topic.

After a complete account of the physical and social environment of the Maori, Dr. Firth takes up the analysis of production, distribution, ownership, and exchange among this primitive people. In the eleven chapters dealing with these topics he has a large amount of material and a large number of points of theory,

which will interest anthropologists and economists alike. Indeed, he can be criticized for permitting himself too many digressions, which, interesting and profitable though they may be, detract from the readability of his book. There is, furthermore, too much repetition. But the value of the book is not really decreased by these minor faults.

R. H. Tawney, the economist, has written a commendatory preface to Dr. Firth's book. He points out that the *Primitive Economics of the New Zealand Maori* has something to teach us, because

> civilized peoples are disposed, perhaps, to underestimate the part played by economic rationalism in primitive society, and to exaggerate that which it plays in their own. Studies such as that contained in the following pages, by correcting the first error, help indirectly to remove the second . . . . The whole tendency of his book is to emphasize . . . how immensely more complex than is often supposed are the forces that produce the activities commonly described as economic.

Mr. Tawney ends his preface by saying:

> One who has been charmed and enlightened by Dr. Firth's book may be allowed to confess that the sentiment uppermost in his mind, as he lays it down, is the desire that an equally gifted Maori anthropologist should write an equally faithful account of the people of Great Britain.

Dr. Firth is to be congratulated on his excellent book, and Dr. Malinowski on his worthy disciple. Dr. Firth has made a valuable contribution to the advancement of the study of primitive economics.

MAURICE G. SMITH

AMERICA

Tizoc, Great Lord of the Aztecs, 1481–1486. MARSHALL H. SAVILLE. (Contributions from the Museum of the American Indian, Heye Foundation, vol. 7, no. 4, 1929.)

The technical merits of this little monograph must be judged by Mexicanists; but every anthropologist will find it an illuminating and stimulating cross-section picture of Aztec life, built up from authentic documents and data. The work is the result of the acquisition of a beautiful gold statuette of Tizoc, with his name-sign and date on the back, and thus deals with one of the few identifiable pre-Columbian personalities. It is to be hoped that Saville will give us more productions as interesting as this one.

A. L. KROEBER

Darien in the Past. S. LINNÉ. (Goteberg, 1929.)

This volume is an application to archaeology of the methods made familiar by Professor Erland Nordenskiöld's *Comparative Ethnographic Studies.* As an example of good description and far-reaching comparisons through maps and tables it is ad-

mirable. The paper presents the archaeological results of the Swedish expedition to Panama and Colombia in 1927 under Professor Nordenskiöld's direction. The ethnographical results are to appear in further volumes of the *Comparative Ethnographic Studies*. Most of the archaeological work was done along the coasts of Panama, largely in the southern part, the Pearl islands off the Pacific coast, and on part of the Pacific coast of Colombia.

Most important of the conclusions reached is perhaps Professor Linné's assertion that,

> We can assume with some certainty that the art of making pottery was independently invented in America (p. 270).

While the discussion of the evidence on which he bases this assertion is rather brief, this opinion from one who is so well acquainted with the problem of pottery bears considerable weight and should aid in stemming the tide of verbal trans-Pacific canoes laden with culture and elephants. Professor Linné, indeed, does not wholly deny the possibility of outside influence but he limits it to possible Asiatic affiliations of the Mandan-Hidatsa type of pottery through the same channels by which the Eskimo may have received their pottery.

Some evidence as to migration paths in Panama is adduced. While Professor Linné seems usually to imply large migrations of people, cultural transmissions must have followed the same routes. The Atlantic coast of Panama presents a much less desirable environment than does the Pacific coast. Here the expedition found no evidences of a large population or advanced cultures, particularly in the north. It is on the Pacific coast that most of the population lived and along which most cultural movements appear to have taken place. Most Central American elements seem to have come down the Pacific coast, crossed the isthmus about the canal and entered Colombia along either the Rio Atrato or the Magdalena. On the other hand South American elements seem to have worked northward along the Pacific coast to the isthmus, where they also crossed to the Atlantic side, where they must have made slow progress although the author does not indicate the effect of the inhospitable environment. He suggests that the close similarities between the cultures of Central America and the coast of Ecuador may be due to a large scale migration or migrations, which passed rapidly through Panama, as no trace was found by the expedition of any intermediary link of importance. He adds that much detailed excavation will be necessary before the problem of connections via the isthmus will be solved.

Secondary urn burial Professor Linné concludes is a South American trait while earthenware grinding pans, pattern stamps, cremation, incense burning, and masks for mummies are Central American. The placing of the origin of pattern stamps in Central America is a bit surprising, at least to the reviewer, but not improbable on the basis of the evidence presented. Roller stamps, incidentally, are not as old as plane stamps. Of late Central American influences the Pacific coast of Colombia seems entirely free except for earthenware grinding pans which the author considers a recent development. The culture of the coast seems entirely derived from the highlands with this exception.

Inasmuch as one of the objectives of the expedition, stated by Professor Nordenskiöld during his visit to Berkeley in 1926, was the discovery if possible of evidence bearing on trans-Pacific connections, the silence of Professor Linné on this point is worth noting.

The arrangement of material, proof-reading, and translation are not above reproach. Many of the apparent errors in translation may be due to the careless proof-reading, but there are occasional quaint constructions and such mistakes as "cannal" and "artefacs" some of which are used consistently throughout the paper. The meaning, however, is in no case in doubt and one would prefer this to incoherence and incorrectness of detail.

More serious criticism may be made of the arrangement of material. The distribution maps and often interesting discussions of their significance are inserted in the midst of detailed descriptions of excavations. The maps appear to be inserted at the first place the object discussed is found in the course of the descriptions of the diggings. This method does not appear particularly out of place in Professor Nordenskiöld's ethnographic work, where the viewpoint is from a single culture, but where several cultures are described with each site in detail the arrangement is less satisfying. Nor is there any apparent reason, other than to trap the hasty reviewer, why the most important summary with the most interesting conclusions should be sandwiched between the appendices and the ample bibliography.

A more helpful arrangement would be to segregate the purely descriptive matter and bring the distribution maps and discussions together, much as has been done in the first appendix, where funerary customs are discussed as a group along with the relevant distribution maps. Even here a description of one burial ground is brought in,—why, it is difficult to see, as others were described elsewhere.

These criticisms are small stones to throw at a work of such merit. It may be said with some assurance that were all reports of excavations as thorough and with as much attention paid to comparative data, the number of unsolved problems in American archaeology would be considerably reduced.

RALPH L. BEALS

Dress and Ornaments in Ancient Peru: Archaeological and Historic Studies. GÖSTA MONTELL. (Göteborg, 1929; Oxford University Press, vi, 265 pp., 99 figs.)

This is a scholarly work which owes its method, and apparently the stimulation that led to its production, to Erland Nordenskiöld. It makes exhaustive use of ancient textiles, vase paintings, modeled representations, Huaman Poma de Ayala's drawings, documentary sources. Each type of garment and ornament is considered for each area. The allotment of space, which also gives an idea of the scope of the work, is: Pre-Incan Age: Primitive, 5 pages; Recuay, 5; Tiahuanaco 9; Early Chimu (Chicama, Chimbote, etc.) 89; Late Chimu, 20; central coast, 20; Ica-Nazca, 12; Paracas and Ica 8; Incan Age: 64; Post-Columbian Age: 8; Bibliography: 20; Appendix (by F. Henschen, on tattooing): 1, with figs. *a-c*. Technology is only passingly considered (p. 180). Chronology also is touched on incidentally. The author

might find it as difficult to prove some of his opinions, such as that the Late Chimu pottery style originated about Lambayeque (p. 114), as he is on occasion skeptical of the historical views of other. However, there is still so much opinion and so little precise fact in the culture history of ancient Peru, that the one desideratum is to remain both open-minded and critical; and these qualities Montell possesses in unusual degree. He has shown several things: that real tattooing was practised, for instance, and that the poncho in the strict sense, i.e., with unsewn sides, was not old Peruvian but probably Chilean and post-Columbian in origin, so far as South America is concerned. Very interesting are the assemblages of face paintings (figs. 34–38). The nature of the material scarcely permits clear-cut general findings; but some sort of a summary review of the occurrence of types—by means of maps, tables, or paragraphs—would have been a convenience. All in all, this is a valuable monograph.

A. L. KROEBER

La civilisation matérielle des tribus tupi-guarani. A. MÉTRAUX. (Paris: Geuthner, 1928; xiv, 331 pp., 10 pls., 30 figs., 11 maps.)

Another work written in Göteborg on the initiative of Nordenskiöld. Of the maps, four show tribal positions at various periods; the remainder, trait distributions by the Nordenskiöld technique. The range of the work is as extensive as that of the stock or the 18 page bibliography. Primarily it is objects that are treated, rather than their use. Weapons receive 18 pages, utensils for food preparation 14, agriculture only 5. The Conclusion lists the distribution of culture elements among 17 tribes on which there are sufficient data. Of the traits, 57 are northern and eastern; 31, almost wholly confined to 5 tribes, Andean or western; 9 only, northwestern; 12, southern or sporadic; 37 have too wide or badly known a distribution to make their origin ascertainable. Of 43 common Tupi-Guarani traits, 24 are northern and eastern in occurrence, the remainder continental and without distributional significance. The center of dispersion of the stock is placed between the Amazon, Madeira, Paraguay, and Tocantins, probably on the upper Tapajoz. The reviewer feels some doubt whether the trait distribution technique, which deals with atomized elements of *culture*, can be legitimately applied to a determination of the origins or movements of ethnic *groups*. The case is the weaker here in that the author is sure of only three traits as due to Tupi-Guarani invention: finger impression pottery decoration, mantle, feather bonnet. He has the Tupi, Arawak, Carib move successively southward as waves in a peopling movement which was subsequent to that of the Gês and Chaco tribes.

If the chief criticism lodgeable against Montell is too little conclusion, it is the opposite here; perhaps a case of Scandinavian versus Latin temperament, at bottom. The body of the book, its materials and analysis, however, seem thorough, and it is a welcome and useful contribution.

A. L. KROEBER

Havasupai Ethnography. By Leslie Spier. (American Museum of Natural History, Anthropological Papers, vol. 29, pp. 81–392, text figures, 1–60, 1928.)

The Havasupai are a small Yuman group, who have never numbered more than 250–300 persons, and who occupy the narrow ravine of Cataract canyon and the surrounding plateaus on the south side of the Grand canyon. Their territory merges on the west with that of the Walapai, with whom they have the closest social and cultural relations. Spier regards the Havasupai as a distinct people, but points out that their speech is only a dialectic variation of Walapai, and it now appears in the light of recent work among the Walapai[1] that the two groups form a single cultural unit within which the Havasupai vary only in consequence of their enthusiasm for agriculture and their trading relations with the Hopi and Navaho. But the Walapai themselves cultivated where possible, as along the Great Sandy and in Diamond Creek, a smaller version of the canyon occupied by the Havasupai. They also traded directly on occasion with the Pueblos although, in general, Mohave influences were among them the counterpart of the Hopi contacts of the Havasupai.

These northwestern Yumans are, however, remarkably distinct from the Colorado River tribes whose characteristics are southern Californian and, perhaps still more strongly, Sonoran. The aggressive warfare and mourning ceremonies of the River tribes are lacking among the Havasupai.

The Havasupai are indeed a Basin-like people whose culture has been leavened by exceptional opportunities and contacts. During the winter they pursue a hunting and gathering life on the plateau, but in spring they move down into the canyon bottom, plant and irrigate every available plot of ground and enjoy a period of plenty, during which they are able to concentrate in a compact village unit. After the harvest a considerable part of the crop is stored in cliff granaries and a limited quantity is carried painfully up the canyon trail in October when the exodus to the plateau comes round once more.

The unity with the Basin area is apparent in both social and material culture. There is no trace of sibs and the family is the fundamental group. Post-marital residence is temporarily matrilocal but later reverts to patrilocal, whereby a concentration of the paternal lineage tends to appear. Chiefs are counselors rather than rulers and express their views at meetings through other speakers. There is, however, a tendency toward the Californian hereditary principle in chieftainship.

On the material side, apart from such widely distributed western traits as the two-piece skirt and rabbitskin blanket, the burden baskets, seed beaters, parching trays, and other domestic basketry are very prominent and of Basin-Central Californian types. The pottery is a crude coiled ware characteristic of western rancheria and some Basin tribes including the Paiute. Houses, although the square, gambrel-roofed Mohave structure of recent times has also been introduced, appear to be related to the conical earth and brush shelter as found, for example, among the southern Paiute across the Colorado, the people they most closely resemble in the wandering life of winter. Family groups then scatter to various localities where seeds and

[1] Laboratory of Anthropology, Ethnological Field Party, 1929.

fallen nuts are abundant. The men hunt in small parties in the Coconino basin or go off on trading expeditions among the Navaho and Hopi, or westward to the Mohave on the Lower Colorado. Mescal, collected on the canyon benches after the descent in spring, relieves the pressure on the stored corn and squashes while awaiting the late summer harvest.

With the return to the watered gorge bottom the life of the Havasupai is transformed. Forsaking the scattered migratory existence of the past season they apply themselves with Pueblo-like devotion to agricultural pursuits. Fields are cleared and fenced, dams across the stream are repaired, the irrigation ditches cleared or cut anew. Planting begins in April and continues until mid-June. The family groups cultivate their own fields, men and women sharing the labor.

The Havasupai in consequence of this occupational dichotomy manifest both in behavior, outlook, and material culture, the patterns of both a gathering and agricultural life. Professor Spier was able to visit them only during the agricultural phase, on which his data are in consequence more abundant and tend perhaps to overshadow the activities of the plateau life. The agriculture, although grafted onto a gathering life and developed in response to an unusual opportunity, is not to be regarded as wholly the result of recent Pueblo influence. The numerous varieties of Hopi corn were not introduced until the eighteen 'sixties, and the small-eared "Mohave corn," which was also grown on the Lower Colorado, is still used. The irrigation of the Havasupai is technically distinct from the dry-farming of the Hopi, and was also practiced where possible by the Walapai. On the other hand, sunflowers are grown for their seeds, a characteristic Pueblo delicacy not found on the Lower Colorado.

The period in which all are together in the village is the socially active period of the year. Games and songs, dancing and festivals are all concentrated in this period. Here again the Basin-like character of the culture is fundamental. Political, ceremonial, and religious organization is of the slightest. The Round dance and Bear dance are secular activities, as among the Basin tribes. There is no puberty rite for boys and the "roasting" for girls is somewhat perfunctory. The small dome-shaped sweathouse is of the type used in the Plains, the Basin, and central California. The magician-doctor is powerful but acquires his power individually in dreams and without a vision quest. He alone has a guardian spirit and resembles his Basin and Californian brethren. Actual inspiration is said to occur; the familiar spirit inhabits the "shaman's" chest, leaves it on journeys of discovery and returning

> re-enters his mouth, makes noises and sings. The shaman shuts his eyes and apparently sings, but in reality it is the spirit telling what it saw.

But the Havasupai were participators and to a considerable extent middlemen in the trade which passed from the Hopi and Navaho westward through Havasupai and northern Walapai territory to the Mohave. Woven blankets and sashes, pottery, beads, horses and buffalo skins were obtained in return for buckskin among the Hopi and agricultural products among the Navaho. Large quantities of deer, antelope, and mountain-sheep skins were bartered from the Walapai and tanned

by the Havasupai for this trade. Oraibi was the Hopi village most frequented by the Havasupai, but the old people at First Mesa remember seeing small Havasupai parties visit Walpi, and several had themselves journeyed to Cataract canyon, while Garces, in the eighteenth century met Hopi returning from the still more remote Walapai country. To the Mohave were carried buckskin and Hopi and Navaho textiles, which were bartered for white seashells—themselves traded up the Colorado from the Gulf.

These contacts with the Hopi pueblos, which were renewed almost every season and had been effected on foot long before the introduction of the horse, have not failed to affect Havasupai culture. At the annual dance which occurs after the harvest has been gathered and to which the Hopi, Navaho, and Walapai guests are normally to be expected, the clown who whips reluctant dancers is masked. Although the dance itself is the Round dance common to such Basin tribes as the Moapa, Shivwits, Kaibab Paiute, etc., men would attach fox or coyote skins to the back of their belts in Pueblo style. Until about twenty years ago a masked dance was given

> for good fortune, rain and to make crops grow. Six, ten or more men prepare within a house . . . they proceed to the dance ground following the leader in single file. Each second man steps to the left of his predecessor in line, forming a file of twos. The leader and his partner face about and dance twice between the files and back, then to the bottom of the files where they take up positions (much like a Virginia reel). The next couple now at the head of the files repeats this performance taking stations below the first couple, and so on as long as desired.

The masks are sack-like with transverse crests, tubular mouths, and painted designs. The dancers carry green branches in their hand. The performance and its vague ceremonial purpose has the air of an ill-learnt or half-remembered Pueblo rite. A rattle replaces the rasped stick in the Bear dance among the Havasupai and the manner of its use again indicates the incorporation of Pueblo technique.

The frequent addressing of prayers in planting, in stringing a bow, to the sun in hunting, for prosperity and above all to the springs where prayer sticks are planted also manifest considerable Pueblo influence, although elaborate practices are here reduced to an attenuated form.

Dr. Spier tends to minimize the importance of these Puebloan characteristics, fearing perhaps that from them some elaborate diffusion will be assumed. He emphasizes on the contrary the great fall in cultural level from the Hopi to the Havasupai and even favors indirect contacts through the Navaho rather than immediate Pueblo influence. It is, however, probable, as he shows, that the Havasupai did not encounter the Navaho until after the middle of the last century, while it is certain that they frequently visited the Hopi and knew enough of their practices, to take one instance, to say that the Hopi planted prayer sticks in the fields because, unlike themselves, they had no creek to irrigate with and had to pray for rain all the time (in itself a characteristic Hopi explanation). Indeed the extent of Pueblo influence, slight in content and restricted largely to a few obvious externals, is exactly of the character which one would expect, given the cultural conditions of the Havasupai and the type of contacts which were effected.

A bare skeleton of Havasupai life and its external relations does not, however, do justice to Dr. Spier's work. His monograph is one of the relatively few comprehensive, balanced, and yet detailed studies of an aboriginal group in North America. The accuracy and vividness in the descriptions of the material culture have not been equaled since Wissler's study of the Blackfoot. The sections on basketry, skin-dressing, tools, houses, and clothes are delightful in their concise precision. The smallness of the group permitted detail and intimacy in the study of the social life, but only great skill and sympathy could have achieved the completeness with which individual lives emerge from the accumulated data. The observations on such little studied topics as the instruction of children, thought, mannerisms and customary behavior are not casual *obiter dicta* but illuminating data obtained only by patient vigilance and observation. Indeed the freshness of the whole section "Individual Development" should call attention to the opportunities that may be missed through the excessive formalization both in relations with informants and in presentation of material. Sinyella and Jess and such minor characters as Big Jim are delicately portrayed. As one hears their opinion on this matter and that, their relations with their fellows, the journeys they have made, and the achievements they value, they grow as personalities; but there is no trace of over-writing, nor of the introduction of personalia for ulterior motives. One must indeed admire the insight into native ways and character and the ability to recreate them which Dr. Spier shows in this study.

At the end of each section there is a comparative study of Havasupai traits and artifacts in relation to those of neighboring areas. Each of these "Comparative Notes" is a mine of information, the result of considerable labor. They are accompanied by many distribution maps, and some of them, such as those on "Manufactures" and "Individual Development" gather together material whose comparative study has long been needed.

Havasupai Ethnography is a model of field study and strengthens the high tradition of American ethnography.

C. DARYLL FORDE

MISCELLANEOUS

The Prehistory of Aviation. BERTHOLD LAUFER. (Field Museum of Natural History, Publication 253, Anthropological Series, vol. 18, no. 1, 1928. 96 pp., 12 plates.)

This is an amusing collection of myths of flying gods and winged machines, of kites and carrier pigeons. It is difficult to know if Dr. Laufer was quite serious in styling it the prehistory of aviation. Certainly modern heavier than air machines took their origin in experiments with kites and flying contraptions in the nineteenth century, as a glance at any history of aviation will show, and it is equally true that in some of the earlier forms proposed imagination was expected to achieve what mechanics could not. But it is quite another thing to infer that every myth of flying humans must have had some basis in fact because we can now suggest what might have been tried. We will agree that speculation on the matter is very ancient indeed.

The range of tales is Chinese, Indian, Babylonian, Persian, Greek, Arabic, and mediaeval European.

An item for culture historians, in Dr. Laufer's familiar style, concerns kites. These were known in China at least as early as A.D. 549, and were diffused thence to all eastern Asia subject to Chinese influence (Korea to Borneo and the Philippines), to the Near East, and finally to Europe not earlier than the end of the sixteenth century. Oceanic kites are mentioned but their relation to Chinese is not indicated.

Similarly, carrier pigeons are mentioned in China as of the seventh century and may be ascribed to India at the opening of our era. Spasmodic use of them was made in classical antiquity, the source of the idea, Persia and the Near East. But European use dates from direct contact with the East at the time of the Crusades. Mesopotamia seems to have been the home of the domesticated pigeon, a domestication accomplished in Sumerian times, and the highest development of their use occurring in the empire of the Caliphs and under the Mohammedan dynasties of Egypt.

LESLIE SPIER

Cultural Anthropology. NIRMAL KUMAR BOSE. (Calcutta, Arya Sahitya Bhaban, 1929).

This booklet of 150 pages evidently aims to make certain general anthropological concepts more familiar to English-reading Indians. It discusses, in successive chapters, What is Culture, General Nature of Culture, Structure of a Cultural Trait, Distribution of a Trait, Changes due to Contact, Evolution and Progress. This sounds as if it might be Wissler; but the work is an independent, simple reformulation, illustrated especially by Indian examples. The treatment is sane, moderate, intelligent; and—to an Americanist—seems free of propaganda motivation.

A. L. KROEBER

The Savage as He Really Is. J. H. DRIBERG. (Routledge Introductions to Modern Knowledge, No. 3). (London: George Routledge & Sons, Ltd., 1929. 78 pp.)

This is an exceedingly clearly written introduction by one who has done notable ethnographic research in Africa. Mr. Driberg effectively vindicates the savage's capacity for rational thinking by considering a selected number of topics, such as the clan, magic, medicine. Limited as to space, he wisely confines himself to peoples he knows from first-hand experience and thus achieves an essay in popularization while at the same time providing for the specialist some eminently worth-while details. Somewhat greater definiteness as to the habitat of some of the tribes, however, seems desirable.

ROBERT H. LOWIE

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REPORTS

AMERICAN ETHNOLOGICAL SOCIETY, INC.

SUMMARY OF REPORT FOR THE YEAR 1929 PRESENTED AT THE ANNUAL MEETING, JANUARY 28, 1930

Present Membership:

Life members	13	
Members	30	
Fellows	109	
Members of the Central Section of A.A.A.	9	
Special members	2	
Subscribing libraries	14	Total, 177

Changes in Membership Record:

New members: 1 Member and 6 Fellows have been added during the year.

Resignations: Members, Mrs. Henry Bartel, Mrs. S. M. Colgate, Mrs. Walton Martin, Mr. R. J. Hunter.

Fellows, Mr. Stewart Culin, Mr. G. Phelps Stokes.

Deaths: Stewart Culin, Percy R. Pyne, Jr.

Names dropped: Mr. Frederick Gallatin (mail returned).

Altered status: Drs. Franz Boas, Gladys Reichard, and Ruth F. Benedict from Fellow to Member.

Meetings Held During the Year:

Jan. 28. The Bush Negroes of Dutch Guiana, by Dr. Morton C. Kahn.

Feb. 25. Impressions of Chinese Culture, by N. C. Nelson.

Mar. 25. Present Status of Prehistoric Archaeology in Asia, by N. C. Nelson (Dr. Erich Schmidt, who was to talk on the Hittites, being absent).

Apr. 22. Songs and Dances of the Pueblo Indians—a Lecture Recital by the Misses Bessie and M. G. Evans.

Oct. 28. Excavations at Zacatenco, Mexico, by Dr. Geo. C. Vaillant.

Nov. 25. Spiritualism and Sorcery in Melanesia, by R. F. Fortune.

Publications Mailed During the Year:

Volume VIII, Parts 1 and 2. Keresan Texts, by Franz Boas.

Volume XII, Menomini Texts, by Leonard Bloomfield.

Business Meetings:

Four meetings of the Board of Directors have been held during the year, chiefly for the purpose of devising ways and means of relieving a deficit, in excess of one thousand dollars, recently incurred by the issuance of the publications above cited. One proposal, of interest to a number of the present Fellows, is to raise their status to that of Member as has been done voluntarily in three instances previously indicated.

Officers Elected for the Year 1930:

President,	Clark Wissler
First Vice-President,	F. W. Hodge
Second Vice-President,	Elsie Clews Parsons
Secretary and Treasurer,	Ruth F. Benedict
Editor,	Franz Boas
Councillors,	Clarence L. Hay, Bruno Oetteking, Gladys Reichard

E. G. NELSON,
Secretary.

THE CENTRAL SECTION OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION

With an average attendance at each session of about one hundred, the 1930 annual convention of the Central Section of the American Anthropological Association, held May 9 and 10 at Milwaukee was voted a great success by all attending. The Section unanimously adopted the following resolution:

"Resolved that the Central Section of the American Anthropological Association express and record in its minutes, its recognition and appreciation of the fine hospitality tendered its 1930 Convention by the Wisconsin Archeological Society, the Milwaukee Public Museum and the city of Milwaukee."

From the calling of the first session at 10:00 A.M. on Friday, May 9, the two days' meet was packed with interesting papers, banquets, and pilgrimages. Ralph Linton, President of the Section, presided at all meetings except at the banquet on Friday evening, when Dr. S. A. Barrett had charge.

The papers and discussions of the 1930 meet were increasingly concerned with studies of the material and facts already assembled, although many reports on discoveries and work of the past year were given.

George A. West, President of the Board of Trustees of the Milwaukee Public Museum, welcomed the members in a talk in which he complimented the Central Section on the work done, and told something of what was being done in Wisconsin with its wealth of archeological remains and materials.

President Linton responded briefly. Committees were appointed as follows: Nominating: Carl Guthe (Chairman), Wilton Krogman, and Dr. S. A. Barrett. Resolution: H. C. Shetrone (Chairman), Geo. R. Fox, and Frank Setzler. Auditing: W. C. McKern (Chairman), Dr. Charles R. Keyes, and A. T. Olmstead.

At the Friday morning session papers were presented by Dr. William M. McGovern, of Northwestern University, who spoke on "Some Problems of Ethnology in Central Asia," discussing the origin and relations of the Altaic and the Mongoloid with reference to the Turanian and the Semitic; by Dr. Berthold Laufer, of the Field Museum (read by Paul S. Martin) on "Inspirational Dreams in Eastern Asia;" by Willoughby M. Babcock of the Minnesota Historical Museum, on "A Midewiwin Cache from Northern Minnesota" (by diagrams and sketches Mr.

Babcock brought out the characters as found inscribed in birchbark, in a cavern—they were made within very recent years and are medicine songs); by Henry Field, of the Field Museum who, with an excellent series of slides, told of the year's progress in the "Field Museum-Oxford University Expedition at Kish, Mesopotamia;" and by Wilton Krogman, of the University of Chicago, on "The Illinois Archeological Survey," in which he systematized the various discoveries made in Illinois as far as evidence permitted.

At the afternoon session on Friday, A. T. Olmstead, of the University of Chicago, speaking on "Race and the Historian," pointed out that, according to anthropologists, there were no distinct races, and that the effect this was having on the historian and his work was of importance to anthropologists. With slides Henry Field showed the work done in preparing for exhibition the new group in the Field Museum, in "A New Reconstruction of Homo Neanderthalensis." Dr. M. J. Herskovits of the Northwestern University discussed "African Relationships of Dutch Guiana Negroes." Dr. Fay Cooper-Cole of the National Research Council told what had been done in making "A Tentative Plan for the Anthropological Section of the Chicago World's Fair."

The session, on adjourning, spent the time in studying methods and exhibits of the Public Museum as developed by Dr. Barrett and his able corps of assistants, and were later entertained at tea by the Museum.

The evening meeting was held at the Hotel Schroeder, where a banquet was tendered the members by the Wisconsin Archeological Society. After a most delightful meal Dr. Barrett opened the evening's program by announcing that the Lapham Medal (for preeminence in anthropological and archeological work) had been voted by the Wisconsin Archeological Society to certain men present at the tables. He then presented the medal to Dr. Carl Guthe, President Ralph Linton, W. C. McKern, and Joseph Ringeisen, Jr.

The address of the evening was given by Dr. Carl Guthe of the Museum of Anthropology, University of Michigan, who spoke on "The Hidden Story of the American Indian." Dr. Guthe developed his theme along the line of unveiling the hidden parts of the story, citing work done and theories evolved.

At the Saturday morning session Alton K. Fisher of the Milwaukee Public Museum, discussed "Dental Diseases of Prehistoric Wisconsin Indians." From a study of several hundred skulls and teeth largely from Wisconsin he found that nearly all diseases known to modern man were present in the teeth of the prehistoric American.

Dr. Charles R. Keyes, State Archeologist of Iowa, reported on "Some Archeological Features of the Middle Des Moines. His talk was illustrated.

Frank M. Setzler, State Archeologist of Indiana, detailed the work of "The Indiana Archeological Survey in 1929."

Dr. W. B. Hinsdale's paper, "Spirit Stones of Michigan," was read by title.

President Linton then called the meeting into business session: The first subject taken up was the meeting place of the Central Section for 1931. Willoughby M.

Babcock invited the Section to St. Paul and George R. Fox invited the 1931 Convention to Three Oaks. On motion of Dr. Cole, seconded by Dr. Barrett, which motion prevailed unanimously, the matter of selection of a meeting place was left in the hands of the Executive Committee.

The Auditing Committee then reported that they had examined the books of the Treasurer, Geo. R. Fox., and found them correct.

The Financial Report showed:

Amount on hand (bank statement, May 10, '29)	$229.19
Dues collected up to May 7, '30	415.91
	645.10
Expenditures to May 7, 1930	420.24
Balance on Treasurer's books May 7, '30	$224.86

The Secretary's Report showed the membership at the 1929 meet as 101, 72 Active and 29 Associate. Since that time 6 new full members were added and one Associate transferred to Active status. One member has died and two resigned, which with the four life and honorary members makes at the 1930 meet, 81 Active. Of the Associate members two were added, one was transferred, and four dropped, making the total 26, a grand total at the Milwaukee meeting of 107.

In addition to the Resolution of Thanks the Resolution Committee submitted two others:

Resolved that the Central Section expresses to the family of the late Edward Carlton Page, of DeKalb, Illinois, the sympathy of the Section in their bereavement and sorrow at his loss. And that a copy of these resolutions be sent the family and the resolution spread on the minutes of the Section.

The other resolution endorsed the program for the observance of the Two Hundredth Anniversary of the Birth of George Washington, to take place in 1932.

The Nominating Committee reported:

For President, H. C. Shetrone, Columbus, Ohio

For First Vice President, Henry Field, Chicago, Ill.

For Second Vice President, M. J. Herskovits, Evanston, Ill.

For Secretary–Treasurer, Geo. R. Fox, Three Oaks, Mich.

For members of the Executive Committee:

Ralph Linton, Madison, Wis.

E. K. Putnam, Davenport, Iowa

Robert Redfield, Chicago, Ill.

Peter A. Brannon, Montgomery, Ala.

Willoughby M. Babcock, St. Paul, Minn.

The report was received and on motion the officers, as nominated, were elected.

On a return to the papers of the day, W. S. Webb, of the University of Kentucky, gave an illustrated talk on "A New Type of Cremation in Kentucky," wherein he described a crematory apparently central for a region.

In "Wisconsin Pottery," W. C. McKern of the Milwaukee Public Museum described the types as now known from Wisconsin, and told of the work done in assigning these to certain cultures. His talk was illustrated.

Peter A. Brannon of the Department of Archives of Alabama told of pottery finds in his state, and showed reconstructions as worked out. It was a custom of the Indian inhabitants of Alabama to break up housekeeping once a year, burning the habitations and breaking the pottery.

Dr. Carl Guthe, of the Museum of Anthropology of the University of Michigan, told of a pamphlet being issued by the National Research Council, "Guide Leaflet for Amateur Archeologists," and the purpose the committee had in issuing the booklet.

In the afternoon the members and guests to the number of fifty were taken by courtesy of the Wisconsin Archeological Society to the fine group of effigies at Vernon Center, Waukesha county. W. C. McKern gave a brief talk and description of the effigies speaking from the top of one of the larger members of the group.

The pilgrimage completed the program and the members on the return to Milwaukee dispersed, except such as were members of the Committee on the Archeological Survey of the States.

All sessions were held in the Trustees' Room of the Milwaukee Public Museum, except the Banquet and lecture by Dr. Guthe, given at the Hotel Schroeder, and the Friday afternoon session held in the public lecture room at the Museum.

GEORGE R. FOX
Secretary–Treasurer

DISCUSSION AND CORRESPONDENCE

Dr. Louis Capitan

Born in 1854, Dr. Louis Capitan died at his home, 5, rue des Ursulines, Paris, on August 26, 1929.

The breadth of his activities may be judged by noting a partial list of his titles and honors.

He was Officer of the Legion of Honor; this is the second grade, the initial title being Chevalier; this was acceded to him "à titre militaire" in consequence of his services during the War while in charge of the Department of Contagious Diseases at the Hôpital Bégin at Vincennes. He was a member of the Académie de Médecine (his doctorate being that of M.D.).

He was Professor at the Ecole d'Anthropologie (Prehistoric Archaeology) and Chargé de Cours at the Collège de France (American Antiquities).

He was a member of the Comité des Travaux Historiques at Scientifiques and also of the Commission Municipale du Vieux Paris as President of the Section which took special interest in excavations.

He belonged to the Société d'Anthropologie de Paris and was a Corresponding Member of the American Museum of Natural History in New York.

At the time of his death he was President of the Société des Américanistes de Paris and Secretaire Général of the Institut International d'Anthropologie.

His life and works have been described frequently: one may compare the short biography in the introduction to the first edition of his *Préhistoire*, N. C. Nelson's article in *Natural History* for July-August 1923, pp. 419–420, and the article in the same journal for March-April 1923, p. 200.

It may be well, however, to emphasize some of his views on vexed questions (by citing from *La Préhistoire*, 2nd edition, 1925) and to recall some of his activities during the last years of his life.

On the Eolithic question (*La Préhistoire*, pp. 26 and 27) of Ipswich he says: the studies of Reed Moir, Burkitt, Breuil, himself and others

"nous permettent aujourd'hui d'affirmer, qu'au moins certains d'entre eux" (the crag specimens), "d'ailleurs rares, sent incontestablement taillés t retouchés pour constituer des outils à racler, gratter, percer").

As to the Cantal flints he goes on to say:

"Leur étude très prolongée que nous avons faite et refaite nous permet d'affirmer, qu'en l'état actuel de nes connaissances, seul un travail volontaire peut expliquer le façonnement d'un certain nombre des silex miocènes du Cantal."

Thenay and Boncelles he does not accept.

A note on Red Paint (*Préhistoire*, p. 35):

Nos fouilles à La Ferrassie, avec Peyrony, nous ont démontré l'existence de matières colorantes dans les feyers moustériens (manganèse et ocre rouge); Serait-ce l'indication d'un emploi plus ou moins rituel de la couleur?

His opinion on intentional sepulture in Mousterian times is clear but not bigoted (*La Préhistoire*, p. 37):

Il paraît établi que, au moins, certains cadavres, comme nous avons vu à La Ferrassie, avaient été inhumés dans les fosses rudimentaires, creusées dans les foyers et recouvertes de quelques pierres et du contenu même des foyers.

He says as to the meaning of Palaeolithic art (p. 52):

Neus considérons cet art [Aurignacian] depuis nes premières observations in situ (1901–1904) aux Combarelles et à Font de Gaume, comme la manifestation d'une pure opération fétichique; rituelle par besoin et précise par nécessité.

A society in which Dr. Capitan took great interest is the Institut International d'Anthropologie founded after the War and now counting "Offices" in nearly all European countries and formal representatives in many others including the United States. Sessions have been held in Paris, Liége, Prague, and Amsterdam; the next is planned for Oporto and Coïmbra in 1930. As Secrétaire Général Dr. Capitan has been the life of the organization, carrying it over many a difficulty, and as Presiding officer of the Prehistoric Section has shown extraordinary tact and knowledge; under his impulsion the Institut, affiliated with the Société d'Anthropologie et Archéologie Préhistoriques, has a certain future of success before it.

In later years he laid great stress on two subjects dear to his heart: the origin of the American race or races, and the development of the comparative method in prehistoric archaeology. At the Collège de France he emphasized the cultural elements similar or identical to be found in the two Americas on the one hand and in Oceania and Asia on the other; paralleling Dr. Rivet's linguistic theories he felt assured that all migrations were not limited to the Behring Straits route, but with his characteristic caution he never let a lecture pass without referring to the "difficultés énormes" standing in his way.

He always insisted that a culture corresponding to the Paleolithic would be found in America and took great interest in the presentation by Georges Montandon of the photograph of the "Singe d'apparence anthropoïde" discovered by de Loys near the Colombia-Venezuela boundary; this discovery, of course, if admitted, deals a blow against the argument against independent American evolution based on the absence of anthropoid apes.[1]

At the Ecole d'Anthropologie his Monday course, which he varied each year, was largely devoted to an exposition of modern methods in prehistoric research; reconstruction through drawings and in imagination of the prehistoric scene enforced by comparison with the more primitive of existing cultures.

A great loss to science, his is likewise a personal loss not to be made up; the writer felt for him as he had felt for the late Professor Putnam an affection that stood apart from others, warmer, deeper and more respectful.

CHARLES PEABODY

[1] Cf. l'Anthropologie, Report of the meeting of the Institut français d'anthropologie for March 20; 1929. George Montandon, Journal de la Socité des Americanistes de Paris, XXI, I, 1929. pp. 183 ff.

Wesley Bradfield

Wesley Bradfield, curator of the Museum of New Mexico, who died in Santa Fe, New Mexico, November 10, 1929, was born in Michigan. He was the son of a Methodist clergyman. He was graduated from college at Alma, Michigan, in 1900; attended Cornell for two years, and later majored in forestry at the University of Michigan, subsequently securing a position in the U. S. Forest Service at Washington, D. C. In 1909 he was sent to Santa Fe for field research in forestry. He later resigned, went into the curio business, became an expert photographer, and in 1912 was dispatched by Director E. L. Hewett of the Museum of New Mexico to Guatemala to take photographs and procure moulds of the great Mayan monuments at Quirigua. Casts made from these moulds, exhibited at the San Diego exposition, are still marveled at in San Diego. Bradfield became associate director of the San Diego Museum in 1926. Following his experience on numerous field expeditions of the School of American Research, he entered upon his most important task, excavations on the Cameron Creek sites in the Mimbres region of Grant county, New Mexico. These were partly financed by the Chino Copper Company, Manager J. M. Sully of that concern and Daniel C. Jackling, head of the Nevada Consolidated and other great copper companies, taking a personal interest in this work. Bradfield spent three seasons in the field there. In the summer of 1929 he did similar work in the foothills of the Sacramento mountains in Otero county, New Mexico, Attorney W. A. Hawkins bearing a share of this expense. While at work on his report of the Mimbres field work, involving pre-Spanish remains dating back to the pit-house culture, he had to go to San Diego for an operation, returned, and passed away after an illness of less than a week, following a sudden seizure with pneumonia.

Bradfield was well known as a lecturer, and developed unusual skill in the reconstruction of pottery and photography of the same.

As an archaeologist he had two outstanding characteristics. Precision was his guiding star, almost his obsession. He was capable of meticulous, tireless accuracy with the minutiae of field and laboratory work. Yet with this determined striving for impersonal, adding-machine procedure with hand and brain, he had the broadest and most human view of the whole and aided wonderfully in vitalizing archaeology. Museum exhibits were to him tangibles with which to tell a living story of intangible people.

He recognized that in order to compare material from different areas, to identify intrusive pieces and so trace culture contacts, and to follow development of craft in one group, an accurate systematic method was imperative. Impatient with technical obstacles, if a means was not at hand, he devised one. Thus he worked out a way to photograph bowl interiors and flatten out the design without distortion; discerning a long-obvious need, he completed a finely graduated color nomenclature for pottery. In the technique of ceramics and improvement of analytical methods, other accomplishments were the development of objective measure of porosity, specific gravity, hardness, and determination of firing conditions. The photographic process mentioned above he used to advantage in illustrating what has been pro-

nounced the most nearly complete design sequence recovered in the Southwest; largely so because of the astonishing sharpness of his eyes and his patience in recording data.

The spirit of Bradfield's approach to his work, and his attitude toward it, approximated the ideal. To those with whom he came in contact, he gave archaeology a new meaning through his magnetic, sparkling personality, alert intelligence, keen sense of humor, humanity, unfailing energy, ever-fresh and infectious enthusiasm. Despite his absorption in his beloved work, he found time to give of himself generously in civic, fraternal, and general community affairs. It is most unfortunate that his life had to be cut short at the top of his stride, just when years of faithful labor under many handicaps were about to reach their fruition in the wider recognition he so richly earned. It has been said authoritatively that he was fitted as few others to assume and maintain a leading part in the new progressive trend in museum work.

E. DANA JOHNSON

PALESTINE RICH IN RELICS OF THE OLD STONE AGE

Professor George Grant MacCurdy of Yale University, Director of the American School of Prehistoric Research has just received word from Dr. Hackett, who with Mr. Theodore D. McGown is representing the School in the latter's joint excavations with the British School of Archaeology at Jerusalem, that during the first ten days of April no less than 5,000 tools dating from the Aurignacian epoch of the Old Stone Age were dug from a single cave of the group south of Haifa. Miss D. A. E. Garrod of the British School is in charge.

The season's excavations will terminate in time for Dr. Hackett and Mr. McCown to take part in the work of the tenth annual summer term of the American School of Prehistoric Research, which will open in Paris on July 1, under the direction of Professor MacCurdy. The following students are enrolled: L. Cabot Briggs, Harvard University; Miss Jeanne Ernst, Mount Holyoke College; John Gillin, University of Wisconsin; Raymond M. Gilmore, University of California; Robert F. Greenlee, Northwestern University; Robert H. Merrill, University of Michigan; John Z. Miller, Lehigh University; Panchanan Mitra, University of Calcutta and Yale; Cornelius B. Osgood, University of Chicago; Froelich G. Rainey, University of Illinois; and Miss Lucile Serrem, Columbia University.

An anonymous donor has given a scholarship of the annual value of $750.00 to be awarded to a student of the American School of Prehistoric Research. By the terms of the gift, the scholarship may be awarded only to a student of Mount Holyoke College. The first award has just been made to Miss Jeanne Ernst of Worcester, Massachusetts, who will take part in the tenth summer term of the Prehistoric Research, which will open in Paris, July 1, under the direction of Professor George Grant MacCurdy of Yale University.

Assisting Professor MacCurdy in the field there will be three of his former students: J. T. Russell, Jr., U. S. National Museum; V. J. Fewkes, University of Pennsylvania; and Robert Ehrich, Harvard University.

The Origin of the Graphic Art of the Ancient Cave Dwellers[1]

It is well known that the oldest examples of creative art productions by man in the Old World are the drawings and plastic works found in ancient caves. The earliest date from the Aurignac and stretch through the oldest to the latest Paleolithic periods.

It can be said that these artistic efforts represent the beginning of human creative art and that an inquiry into their origin signifies an inquiry into the origin of all creative art. How may these works have originated? What may have led primitive man to delineate on the walls of caves the things and especially the animals that were familiar to him? In studying these questions, the first point to be considered is that nearly all of these drawings and carvings are situated in portions of caves, difficult of access, in hidden places, nooks and corners. This proves therefore, beyond a doubt, that they were made by artificial light in places of refuge sought and permanently inhabited by human beings for hiding, protection from wild animals, or other reasons.

These facts justify a conjecture about the origin of the pictorial productions, which was suggested to me by a peculiar circumstance in a particular case, namely, the fact that in one cave small button-like projections on the surface of the rock were used to represent eyes in the drawing of a bison. It is a familiar fact that often, on uneven surfaces like those of the walls of a cave, figures, outlines, and lines appear which with the exercise of some imagination can be construed into resemblances to human and animal forms. Such resemblances often occur in masses of rocks and these are given names in consequence, as, for instance, in the Adelsberg cave, where a great number of rock formations are designated by the names of the things, persons, or animals which they are supposed to resemble.

Such imaginary, illusory forms are particularly apparent in a faint, artificial light which, proceeding from one or more sources, throws sidelights on rocky walls. It was precisely such an illumination that the ancient cave-dwellers employed, being limited to burning chips, torches, or the primitive lamps which are said to have been found.

I therefore believe that it can readily be assumed that individual cave-dwellers, gifted with fantasy and imagination, on observing at leisure the walls of the caves in which they spent many hours, may have thought they saw outlines of objects and particularly of the animals which belonged to their surroundings, such as the bison, the mammoth, cave bear, wild horse, etc. It would require but a short step from this to an attempt to draw these outlines with a coloring material such as ochre.

The same process can often be observed at the present time. On uneven white walls, faintly lighted, particularly in places resorted to by many persons, one often finds outlines of faces, animals, etc., drawn by people who do not know how to draw, but are merely stimulated to trace imaginary outlines. This is the same primitive process employed by the cave-dwellers.

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[1] Published in the Zeitschrift des Hauptverbandes Deutscher Höhlenforscher. Jahrgang, 1928. H. 4. Berlin, 1928.

In agreement with this is the fact that the cave drawings are almost always in a marked degree realistic, as the images the cave-dwellers fancied they saw were, of course, no stylistic types but representations of the natural forms with which they were familiar.

Thus the foundation and root of all of the creative art of later centuries may well be attributed to the fantasy and imagination existing in the profundities of human subconsciousness.

P. SCHELLHAS (Berlin)
(Translated by ZELIA NUTTALL)

INDEX OF MAYA RUINS

During 1923 and 1924 Oliver G. Ricketson and the writer were working under the direction of Dr. Alfred M. Tozzer at the Peabody Museum of Harvard University. As a task for the requirements of a Master's degree we were instructed to work out an index of the ruins in the Maya area. The results of this work were multigraphed in an edition of thirty-five copies of both text and map, and distributed to a number of scientific libraries and individuals interested in the field.

Upon my arrival in New Orleans as archaeologist in the Department of Middle American Research of Tulane University, this index was considerably elaborated, and as it is my belief that it will be useful to students to be acquainted with it I am giving the following description.

It may be best to start with the map. This was compiled from about fifty different maps, both old and recent. Maps of southern Mexico, Guatemala, and Honduras are inaccurate at their best, and it was therefore no easy undertaking to locate cities, and even less to locate ruined cities reported by explorers without geographic training.

Since the original map was finished, corrections and additions have been made, and we have attempted to keep the map up to date.

On the said map all the major geographical features are shown, present geographic divisions are maintained, and rivers and large modern towns are located, so that the explorer can orientate himself.

All ruins, whether buildings or groups of mounds, are indicated by an inverted T.

Next we come to the Index. This consists of several sections:

(*a*) An alphabetic list of the names of all ruins, giving the present geographical units in which they are located. M. stands for Mexico, G.—Guatemala, B. H.—British Honduras, H.—Honduras, S. S.—San Salvador, etc. Taking an example at random: Toniná, Chiapas, M. gives the name of the ruins of Toniná, in the state of Chiapas, Mexico.

(*b*) An index of large cards, filed under states or departments, i.e., the states of Veracruz, Chiapas, Tabasco, Campeche, Yucatan, etc., of Mexico, and the various departments of Guatemala, and so on. On these cards first come the names of the ruins (if Indian this name is translated into English), and then the geographic location. Then follows a brief description of the structures encountered, as for example, buildings, mounds, bridges, stelae, altars, etc. This is followed by a bibli-

ography of the authors who have visited the ruins and actually contributed to our knowledge about them. Only original investigators are given. In the bibliography one finds the author's name, the year his book or paper was published, and the page on which he describes the ruins in question. After this follow indications regarding pictures of structures, maps, and plans.

This data is contained on the leading card, and followed by other cards on which are pasted all the photographs and drawings it has been possible to gather on the site, as well as tracings of maps and ground plans.

Furthermore one will find a card for every monument on record whether it has a legible inscription or not. If the inscriptions on a monument have been deciphered the date is given in full in units of the Maya calendar, and with bibliographical references to those who read the inscriptions or made important comments on them. For example:

CHACMULTUN M. YUCATAN

Buildings, mural paintings. Maler, 1895, pp. 249–50; Maler, 1902, p. 199, fig. 2, Phallic temple, right wing, south façade. Thompson, 1904, pp. 2, 8, 9, plan, X. Spinden, 1913, pp. 104–5, elevation and ground plan. Holmes, 1895. Reygadas, 1928, pp. 181–186; Marquina, 1928, pp. 67–70; Mariscal, 1928, pp. 15–21.

Large photographs from a site are kept in special drawers.

(*c*) Bibliography. This is written on small cards, and contains every author mentioned on the large cards, giving author's name, titles, the year of publication of book or paper, and where published.

(*d*) Finally the index contains a list of all Maya dates in Maya calendar units. Whether a date has been recorded as an initial series, katun or tun end, or has been reached by secondary series, a card will be found for it in the date-index. This card gives a cross reference to the card for the monument on which the date is found in the main index of the ruins.

When one finds a new dated monument, or makes a new reading of an inscription, one has only to go to the date-index immediately to find cards for all the identical dates recorded on monuments in other parts of the Maya area.

Several institutions and individuals who have worked in the Maya field have cooperated in the most generous way to make this index useful, and special mention should be made of the Peabody Museum of Harvard University, through Dr. A. M. Tozzer; the Museum of the American Indian, Heye Foundation, through Professor Marshall H. Saville; and of Messrs. Oliver Ricketson, H. J. Spinden, J. Eric Thompson, Thomas Gann, and Erwin Dieseldorf.

The value of the index is manifold. When an expedition prepares to go into the field it first advises us of its main route. We then furnish a tracing of our map, indicating which sites are located on or near the route. We give copies of our cards with bibliography of each site, and a list of plans, maps and pictures on hand. In case an institution has explored a group of ruins, but as yet has not published anything on them, then we furnish a list of the pictures and plans which have been made, and refer to investigator the the Institution which conducted the research.

We do not release unpublished pictures and plans, but leave it to the man going into the field to communicate directly with the Institution which initiated the given piece of work.

When expeditions return from the field we expect them to furnish us with a report of their findings, so that our index may be kept up to date and serve its purpose. The sooner an expedition reports its results, the more certain it is of getting credit for its work, and protecting its priority to a new "discovery."

Our index may aptly be called a clearing-house of information on Maya field work, and it should be obvious to all those who work in this field that it is to their advantage not only to draw upon us for information but also to give us their cooperation, and place their information at our disposal.

FRANS BLOM

TULANE UNIVERSITY,
NEW ORLEANS, LOUISIANA

THE CHEWING OF TOBACCO IN SOUTHEASTERN NORTH AMERICA

Elsewhere I have noted the practice of artificial blackening of the teeth among the Natchez, Houma, Bayogoula, and Tunica of the lower Mississippi valley, and the use of tobacco pill mixtures by the Natchez. I suggested that these phenomena were marginal to the chewing of tobacco with lime, which I presumed must have once existed in Mexico.[1] Since then I have shown that lime-and-tobacco chewing was a feature of archaic Mexican culture.[2] I think now that it probably also existed among the Chitimacha neighbors of the Natchez. First, there is no note of any smoking nor evidence of pipes among the Chitimacha; and second, the Chitimacha origins myth mentions only the chewing of tobacco.

The Duralde manuscript in the library of the American Philosophical Society in Philadelphia (Jefferson Collection), of date ca. 1800, which is in part reprinted by Swanton,[3] gives the Chitimacha origins myth. The creator made the waters; then a diving animal brought up the earth; then the creator "formed men whom he called Chitimacha" and called the land Chitimacha. The myth states that the original home of the Chitimacha was in the region historically occupied by the Natchez. (This recalls the fact that the Chitimacha called the Natchez their "brothers.") The first men suffered many misfortunes and "in despair lost their repose." Then the creator for this reason created tobacco, and "they *chewed it* and reposed." Then women were created; later, fire. But with the coming of fire there is no mention of smoking.

This evidences only chewing; not chewing with lime. But the facts mentioned above concerning Mexican chewing and Natchez dental blackening suggest that

[1] W. C. MacLeod, Natchez Cultural Origins. American Anthropologist, 1926.

[2] W. C. MacLeod, Central American Origins of Northwest Coast Culture. Anthropos, 1929.

[3] J. R. Swanton, Indians of the Lower Mississippi. Bulletin 43, Bureau of American Ethnology, 1911.

the Chitimacha probably chewed lime with their tobacco within the historic period.

In connection with these Chitimacha data I wish to make note of information from the Negroes and "poor whites" of tidewater Virginia. My informant is a person born and raised near Tappahannock, Virginia, who left there ten years ago.

Both the Negroes and the poor whites, in spring and summer, would cut the sappy roots of sassafras, dogwood, and althea. Then they would bake clam shells to make lime. Dipping the stem into the lime they would then vigorously rub their teeth and gums with it and then chew on the stem with the lime, swallowing the lime with the juice of the stem. Old folks did this to remedy acid stomach. Children did it because they relished the flavor. It appeared to have the effect, I am told, of making the teeth a brilliant white.

Adult Negroes and "poor whites" in this area very frequently used tobacco in the form of snuff, but never chewed lime with tobacco. The sappy stems with lime were frequently chewed after using snuff to sweeten the mouth.

The Negroes of this area used the blowgun as a toy and had other practices which are possibly borrowings from the Indians. They have other traits that are patently colonial white customs,—such as snuffing tobacco. As for this chewing of lime with herbs, I cannot guess whether it is of Indian or of colonial white derivation. In either case it is significant for the problem of the history of lime- and herb chewing in America and the Old World.

W. C. MacLeod

University of Pennsylvania,
Philadelphia

A Note on Navaho Pottery

Few of the Navaho women of today remember the precise technique of Navaho pottery; fewer still, if any, still make this crude ware. At Dr. A. V. Kidder's request I tried in the course of field work among the Navaho in the summer of 1929 to assemble a few facts about pottery making, but could get nothing tangible on the subject till the latter part of the fall of 1929, when I received a letter from my interpreter, Albert G. Sandoval, of Lukachukai, in answer to my suggestion that he make inquiries among the older women. The passage dealing with pottery reads as follows (slightly edited by E. S.):

> I want to tell you what I found out about the Navaho pottery. I got this from my mother-in-law, who used to make some. She says that first you look for a certain kind of mud (adobe), the kind that is not apt to crack when it starts to dry. She says that it is rather hard to find this kind of mud. It is reddish in color and very sticky when you start to work it. And then you pick some of the broken pottery around in the ruins in the Navaho country, and then you grind that pottery up and mix it with the adobe and work it into a stiff dough, so that you can work the clay into any shape you want and it is ready to be made into a pot or bowl.
>
> First you take a piece of that clay and flatten it out and shape it like a sauce-dish in any size you want. Next you take small pieces of the soft clay you prepared and roll them as a baker rolls out the dough when he is making bread, and wind them around one on top of the

other, using a corn-cob to smooth it inside and out as you go along to the finish. When you have it all finished and the pot is dry, but not too dry, you use a small boulder, about the size of a hen's egg, and very smooth, to rub it and polish it in that way. She says you are to keep the pot inside of a hogan while doing this because if you do it outside or in the draught, the pots are liable to crack on you. And another thing—not everybody can go into where they are making pots because it is bad luck, that is, you are bound to have bad luck if you allow everybody to come and watch you.

You keep those pots inside of the hogan until they are perfectly dry, and when they are thoroughly dried you are ready to bake (i.e., fire) them. In baking them, you rub together sheep manure, enough to completely cover your pots, and set fire to the sheep manure with the pots in it. Let it burn gradually, and when it all burns up, your pots are ready for the pitch, which you have ready for them. The pitch you apply to the pots while it is hot. And that is about as well as I can explain the making of pots to you in English.

EDWARD SAPIR
ALBERT G. SANDOVAL

THE DISTRIBUTION OF SECONDARY CREMATION AND OF THE DRINKING OF ASHES

In Father Schmidt's study of *kulturkreise* in South America it is noted that secondary cremation followed by drinking of the ashes of the deceased exists throughout two very extensive areas in the Amazon valley; also in the Guianas, and among the island Carib of the Antilles. Frazer states that drinking of the ashes is a mortuary custom found only in South America, *absent in the Old World* (although possibly survival is evidenced in the drinking of Mausolus' ashes by Artemisia[1]).

But I have to add a further note on distribution which evidences the influence of perhaps Antillean culture in the lower Mississippi valley.

Cabeza de Vaca, prior to the middle of the sixteenth century, noted of the Indians of Galveston island (the Texan home of the Atakapa in the early eighteenth century) that:

> they bury all their dead except their physicians whom they burn and turn their bones into powder which, at the year's end when the funeral rites are consummated they give to their kindred to drink up in a draught of water.[2]

This indicates drinking of ashes but implies primary cremation.

The Chitimacha were neighbors of the Atakapa of this area. The modern Chitimacha told Swanton that in the olden days they themselves first buried their dead; then later dug up the bones, cleaned them of flesh, burned the bones, and preserved the ashes in baskets, which were preserved by relatives of the deceased. Here we have evidenced secondary cremation.[3]

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[1] F. P. W. Schmidt, Kulturkreise und Kulturschichten in Südamerika. Zeitschrift für Ethnologie, v. 45, 1913. W. E. Roth, The Guiana Indians (Annual Report of the Bureau of American Ethnology, 642, 651, 654, 657, 1920–1921) gives the Guiana and Antillean distribution. For Frazer's note see J. G. Frazer, Totemism and Exogamy, 1: 74, 1910.

[2] Cabeza de Vaca, Narrative, circa 1540 (in Orig. Narrs. of Amer. History).

[3] J. R. Swanton, Indian Tribes of the Lower Mississippi and their Neighbors. Bureau of American Ethnology, Bulletin 43: 350, 1911.

It is very possible that we have only some of the facts in both cases noted. It seems to me that fuller note-taking by Cabeza de Vaca might have revealed the cremation of shamans as secondary cremation; and that did we know more of olden Chitimacha customs, we might learn that ashes drinking formerly obtained among them. But in any case we have just west of the lower Mississippi evidence of both secondary cremation and of ashes drinking, although we cannot be too positive that the two were linked.

Additional Note

Since writing the above I have lately met with two examples of drinking of ashes in the Old World, which may perhaps, or may not, in some way, be related to the American phenomena. R. B. Mitra in Spiritous Drinks in Ancient India (Journ. Bengal Branch of the Royal Asiatic Society, 43: 3, 1873) gives an account from ancient India of a teacher who unwittingly slew his pupil and then afterwards drank the ashes of his cremated victim. J. MacDonald in East Central African Customs, (Jour. Roy. Anthrop. Soc. Gt. Brit., 22: 111, 1892–93) writes for the Basuto and the Angoni that warriors sometimes cut out the heart and liver of enemies and in order to acquire bravery and other soldierly virtues burn these organs to ashes and then stir the ashes in gruel or broth and lap up the broth and ashes with one hand, throwing the mixture into the mouth. The mixture must be taken this way, not eaten in the fashion in which one eats ordinary food.

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The Sun Dials and Other Time-Route Recorders of the Northern Woodlands and the Northwest Coast

In the American Anthropologist of 1924, H. I. Smith described a primitive sun dial designed as a time-route recorder, in use by the Bella Coola, the Carriers, and the Chilcotin, of the northwestern coast and plateau. A circular hoop was tied to a slanting stick set up in the ground, the shadow of the hoop marked in the soil. Subsequent visitors to the spot, by noting the deviation of the shadow of the hoop from the mark made by their predecessors, could estimate the time passed since the first party broke up camp and thus also estimate the distance the first party had by now probably covered. Mr. Smith adds:

> The distinctive character of this time-route recorder may possibly be useful in the solution of the problems of distribution.

In H. Y. Hind, Explorations in Labrador (2 vols., 1863) I note two other forms of time-route recorder, one used by the Naskapi of Labrador, the other by the Ojibway of the Lake of the Woods, northwest of Lake Superior.

The Naskapi set up merely a stick without any hoop, marking the shadow of the stick when leaving camp; followers noted the deviation of the shadow from the mark indicating the shadow's former position.

It is difficult to see any added utility in the Bella Coola use of the hoop in addition to the stick.

The Ojibway method was not that of the sun dial. Two sticks are set up in the snow; a line drawn in the snow, by anyone arriving later at the spot, between the two sticks, directs the eye to the point in the sky where the sun stood at the time the sticks were set up and the line drawn. I think that since a mark drawn in the snow to indicate a sun dial shadow might disappear, this double stick device with the line to be drawn by the follower was very likely an ingenious improvement on the sun dial as a time-route recorder.

Hind's notes are as follows. After describing the use of the bow drill for fire-making among the Naskapi he adds (1: 150):

> Some days afterward I was walking before the rest of the party with Michel, being perhaps an hour in advance. We sat down to rest on a boulder lying close to the portage path, when the Indian, who was always doing something, cut a stick about two feet long, and selecting a sandy spot on the path fixed it upright and drew a line in the sand where the shadow of the stick fell. His object was to communicate to Louis who was following us, the time of the day when we passed the spot where he had placed the stick. The position of the sun would of course be indicated by the shadow of the stick, and by referring to the line in the sand Louis could form a tolerably correct notion of the distance we were ahead.

Of the Ojibway he adds:

> When I mentioned this to Mr. Gaudet, he said that he once sent an Indian belonging to the Lake of the Woods, in the winter, to a camp some fifty miles distant, intending to follow him the next day. Three times he observed on the track which the Indian had passed, two sticks stuck in the snow; so that by drawing a line between them, and looking in the direction to which it pointed, it would show the position of the sun in the heavens at the time the Indian placed them there, and thus indicate the hour at which he had reached the spot.

In the case of these time-route recorders possible European influence should be taken into account. It seems to me, offhand, that they are probably aboriginal. If so, despite the differences in the devices, they would seem to indicate cultural contact between the Great Lakes area and the remote northwest in this instance. One may also suspect that comparable devices may be evidenced in northeastern Siberia. It is interesting and perhaps profitable to speculate on their relation to the astronomical structures of the more advanced civilizations.

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On A Method of Making Rubbings

For the benefit of those archaeologists confronted by the problem of picturing incised, stamped, or other rough surface designs, I am describing below a technique that I have found to be most satisfactory. It is one used by the Japanese, and has been employed by orientalists in taking off inscriptions as well as decorations.

It was while making a study of the ceramic art of certain sections of the

southeastern United States that I chanced upon this method. Regardless of how carefully drawn, incised or stamped motifs lose much of their individuality and character. Even when photographed, many of the lines become shadowed or overemphasized. In many cases, irregularities are most important, and unless carefully handled their part in the design composition is lost. In making rubbings according to this method, even the finest of lines appear most distinctly, and when photographed make a clear plate. A description of the method I mention is as follows:

Small sheets of a good grade of hand-made Japanese paper are moistened between blotters. When evenly soaked, a sheet is placed over the design that is to be taken off. With a daub of fine silk filled with cotton, the paper is pressed into the irregularities of the pottery surface. If there is too much moisture in the paper, a dry sheet should be placed over it so as to absorb all excess water. Before the paper dries, it is patted with a second daub made of the same material as the first and one that has been pressed on a pad into which lamp black oil paint has been worked. It will be found that the quicker the motion used in the patting, the better the results. The paper is then gently pulled from the surface of the jar and placed on a blotter until thoroughly dry. The process of moistening and then drying paper of this kind will often cause it to become wrinkled. However, when mounted for photographing, these wrinkles can be easily smoothed out. When mounting rubbings for photographing, it is necessary to paste them evenly on heavy cardboard, being careful not to allow any ridges or folds to remain. The results should be clear and present an accurate picture of the design. The process of making plates of these is the same as used for drawings or photographs.

MARGARET E. ASHLEY

WHAT IS CLOCKWISE?

Most reports which have appeared in recent years have carefully mentioned the direction of twist of cordage and textile strands when those objects figured in the discussion. The terms right and left, clockwise and counter- or anti-clockwise, are variously used, according to the writer's preference for long or short words. This duplicate terminology, while unnecessary, probably is not confusing. Right is clockwise, left is counter- or anti-clockwise, to all concerned.

There is disagreement, however, as to the application of these terms. Consequently all information on the subject compiled to date is valueless unless an illustration accompanies the verbal description, as the reader can easily convince himself by the examination of a few reports, particularly in the field of Southwestern archaeology. An excellent report which appeared recently has constant reference to left twist, while invariably the illustration of the object shows it to have the right spiral. Another writer in the same field refers to clockwise twist and his illustrations consistently show the right spiral. A compilation of the data contained in the two reports would be an utter waste of time, for one writer contradicts the other at every mention of the word twist.

The explanation of this unfortunate state of affairs is probably to be found in the varying individual conceptions of how twisting is done and how its direction is determined. If two pieces of string are twisted into a single composite strand by holding one end in either hand, the hands move in opposite directions during the operation of twisting; otherwise no twist would result. Which hand is to determine the direction of twist? Again, if two pieces of string are tied to a fixed object at one end, and twisted to the left from the other end, the resulting strand spirals to the right. Shall the direction of twist or the direction of spiral be the criterion?

Most writers seem to prefer the direction of spiral; wisely, for it alone is constant, regardless of the method of twisting or the angle of view. It is easily determined, even in a picture, for every twisted fabric in which the individual strands are visible shows a constant spiral trend to either right or left. The use of the terms left spiral and right spiral would avoid the possibility of misinterpretation and help to establish a uniform practice.

Here at Gypsum cave we are finding a consistent inconsistency in twists. Cordage of apocynum and cotton from the Pueblo horizon is usually left-spiraled, yucca right-spiraled. Similarly, apocynum is left, yucca right, in the Basket Maker horizon. The Paiute of Moapa valley used the left spiral with few exceptions in both apocynum and yucca cordage; but their fur cloth shows the right spiral, as does that of the Pueblo in one fragment found at Gypsum cave. These facts are in themselves interesting. The reasons behind them, when disclosed, may prove important. Meanwhile it is surely desirable to establish a method of recording such data which will facilitate comparison of the findings of one investigator with those of another.

(Written from Gypsum cave, Nevada, April 20, 1930.)

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ANTHROPOLOGICAL NOTES AND NEWS

Some Shell-heaps in Nova Scotia

Bulletin No. 47 entitled "Some Shell-heaps of Nova Scotia," issued recently by the National Museum of Canada, contains the following reports: (1) The Archaeology of Merigonish Harbour, Nova Scotia, by Harlan I. Smith, and (2) The Eisenhauer Shell-heap, Mahone Bay, Nova Scotia, by W. J. Wintemberg. It also contains numerous drawings of tools, fragments of pottery, and other objects found as a result of excavation.

The shell-heaps found in Merigonish harbour were the largest in this locality that had not been ransacked, and were sufficiently large and typical to afford much knowledge of the culture of the aboriginal coast dwellers along this part of the Atlantic seaboard. Most of the shell-heaps found were in sheltered places, some on southern shores and others on islands. In undertaking this investigation it was desired to compare the culture of the Algonkian Indians of the Maritime provinces with the culture of the Iroquois Indians of Ontario, one of whose villages had been excavated previously. Earlier investigators had suggested that the Eskimo may have inhabited this region but Mr. Smith states that although it is possible that a few Eskimo may have visited these prehistoric Micmac sites and that the Micmacs may have obtained some objects and ideas from them such as the toggle points for harpoons, the sites excavated were undoubtedly of Micmac origin.

As a result of this investigation considerable archaeological material was collected most of which is described in the report.

The Eisenhauer shell-heap is one of several small shell-heaps on the shore of Mahone bay, Lunenberg county, on the south coast of Nova Scotia about seventy miles west of Halifax. This shell-heap was discovered about 1908. When a new road was being made from Kaulbauch cove to Indian Point a cut was made across the south side exposing the shells. The excavation work for the National Museum was done by Mr. Wintemberg.

Mr. Wintemberg states that this shell-heap was small, shallow, and unstratified, so that it was probably of only one period. It is considered prehistoric because only aboriginal artifacts were found in it. The material found is described in detail.

Copies of this report, the price of which is 25 cents, may be obtained upon application to The Director, National Museum of Canada, Ottawa, Ontario.

Dr. H. D. Benjamins

Dr. H. D. Benjamins, the well-known West Indian specialist, celebrated his eightieth birthday on February 25th, 1930. Born at Paramaribo, Surinam, he was principally educated in Holland, taking his degree of Ph. D. in 1875 at the University of Leiden.

After his return to Surinam, where Dr. Benjamins spent nearly thirty years of his life, he became Inspector of Education, and besides held several government

positions. In 1885 Dr. Benjamins accompanied Professor K. Martin, the geologist, on his expedition to the Upper Surinam river. Some time afterwards when Dr. ten Kate traveled in Surinam for anthropological purposes, he accompanied Dr. Benjamins on two different trips, one to the upper Para, and the other to the Saramacca. On the latter the Becoe-Maesinga Bush Negroes were visited.

While Dr. Benjamins was on furlough, but especially after his definite return to Holland, he devoted himself to various pending questions, both historico-geographical and political, such as that of the Lawa-Tapanahoni and the western frontier of Dutch Guiana. On the latter (Corantine river) question Dr. Benjamins wrote not less than ten articles in *De West-Indische Gids*, of which magazine he is an associate editor. Taken as a whole, these articles form a brilliant and convincing plea for certain important territorial claims against British Guiana. However important these publications may be from a geographical and political point of view, Dr. Benjamins' purely scientific contributions are chiefly to be found in the excellent *Encyclopaedie van Nederlandsch West-Indië*, edited by him and Mr. Joh. F. Snelleman at the Hague during 1914–17. The numerous, mostly unsigned articles which Dr. Benjamins contributed to this standard work give evidence of his remarkable special and profound knowledge of things West Indian. The bulk of Dr. Benjamins' scientific and literary work was published in *De West-Indische Gids* between 1919 and now. Even the titles of these papers are too numerous to be listed here. They treat of ancient Guianese history, bibliography, folklore, statistics, immigration, etc. However, mention must be made of the two most recent articles in the magazine above quoted, viz., Treef en lepra in Suriname and "Sneki-koti" inentingtegen den Geet van vergiftige slangen. Both papers deal with Negro superstitions, and purport to show the danger of the belief in *treef* and the inefficiency of the so-called inoculation against snake poison.[1]

Hemianthropus Osborni

Fragments of skull, face-bones, jaw and shoulder-blade, found by Professor Wilhelm Freudenberg in Ice-Age gravels of the Bammental near Heidelberg, have proved upon piecing together to be the remains of a big ape-like creature with a brain bigger that that of any known anthropoid ape, either living or extinct, says *Natural History*, a publication of the American Museum of Natural History, New York. The animal has been named by its discoverer *Hemianthropus osborni*, in honor of the seventieth birthday of Dr. Henry Fairfield Osborn, president of the American Museum.

The *Hemianthropus* part of the name is Greek for "half-man." The creature, if an ape, was a highly advanced kind of an ape. Its somewhat gorilline face was uncommonly wide, and its brain is stated to surpass that of the Trinil skull from Java, and to equal in size the brain of Neanderthal man. The Trinil skull, *Pithecanthropus*, is considered to be human by a great many scientists, though some are of the opinion

[1] The Notes on the Saramaccaner Bush Negroes of Dutch Guiana (American Anthropologist, n. s., 31; 481–482, 1929) induced Dr. Benjamins to write an exhaustive comment on Dr. Morton C. Kahn's article.

that it belonged to an ape; but Neanderthal man is unquestionably human. The editor of *Natural History* adds a note that "the question of the validity of *Hemianthropus osborni* as distinct from Heidelberg man remains an open question."

The Heidelberg man has been represented to date only by a jawbone found at Mauer near Heidelberg, in sands of the same geologic age as the gravels that have yielded the bones of *Hemianthropus*. It has been regarded as undoubtedly human, though of a very primitive type, characterized chiefly by its exceedingly massive structure and its almost total lack of a chin. The jaw which Professor Freudenberg found is even more chinless than the classic Mauer specimen. Its lower border resembles that of the Java skull.

Professor Freudenberg has been a tireless searcher for human and anthropoid remains in the region around Heidelberg. Recently he found a portion of a broken and water-worn arm-bone which he attributes to a fossil gibbon.—*Science*.

Oceania

A new anthropological journal has made its advent. It is Oceania, a journal devoted to the study of the native peoples of Australia, New Guinea, and the islands of the Pacific Ocean. It is published for the Australian National Research Council by Macmillan and Company Limited, Melbourne. Volume 1, number 1, dated April, 1930, sells for seven shillings and sixpence. The editor is Professor A. R. Radcliffe-Brown, University of Sydney.

A wonderfully lucid description of The Social Organization of Australian Tribes by Dr. Radcliffe-Brown is the outstanding article. Three other articles are Some Aspects of Warfare in Melanesia, A Dart Match in Tikopia, and The Wik-Munkan Tribe of Cape York Peninsula. In addition to articles there are sections for Reports and Proceedings, Notes and News, Reviews of Books, and Bibliographical Notices.

The excellent character of the first issue of the journal commends it for support, which the editor states must come from subscriptions and contributions if the venture is to be a success. Communications relating to subscriptions or advertisements should be sent to the publishers.

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Two Fragmentary Human Skulls, together with bones of two skeletons of prehistoric man, have been unearthed in Algeria by the Beloit College-Logan Museum expedition under Dr. Alonzo Pond. Thirteen student workers and 16 Arabs have started excavations at a site 12 kilometers north of Ain Beida and east of Berriche. Lauriston Sharp and John Gillen, both University of Wisconsin students, have come upon parts of an adult skeleton and the bones of a child about six years of age. The bones were found in an undisturbed section of a shell heap, which gives evidence that the individuals were as old as the deposit in which they were found. Numerous flints and some animal remains have been uncovered. Robert Kreiger, a Beloit student, found a human radius which had been used as a flaking tool.

DR. FAY-COOPER COLE, chairman of the department of anthropology at the University of Chicago, has received the gold medal of the Chicago Geographic Society for his anthropological researches. The presentation speech was made by Dr. James Henry Breasted, director of the university's Oriental Institute, who received the same honor in 1929 for research in Egypt and the Near East. Dr. Cole's ethnological investigations have taken him into the Philippines, the Malay peninsula, Sumatra, Java, and Borneo.

THE LONDON TIMES reports that on the eve of the departure of Professor Nicholas Roerich, the Russian painter and archaeologist, for Central Asia it was announced that there had been founded a Himalayan Research Institute, or Roerich Museum, with headquarters in the Kulu valley, Western Himalaya. The institute, which will cooperate with the American Archeological Institute, is an outgrowth of five years' work in Central Asia of the expedition led by Professor Roerich. Among its honorary advisers are Dr. Ralph V. D. Magoffin, president of the Archeological Institute, Mr. Roy Chapman Andrews, Professors R. A. Millikan, Albert A. Michelson, and Alexander Klemin, Professor Jacques Bacot, of Paris, Sir Jagadis Bose, Dr. Sven Hedin, Professor Albert Einstein, and Professor A. Geoffré de la Pradelle.—*Science.*

IT IS ANNOUNCED at the Smithsonian Institution that John P. Harrington, of the Bureau of Ethnology, returned to Washington on April 26, after eleven months of field study among the Karuk and San Juan Indians of California, and that Dr. J. W. Gidley, of the U. S. National Museum, left Washington on May 1 to continue work begun in Idaho last summer in the Snake River valley.—*Science.*

FATHER BERARD HAILE, Franciscan monk and for twenty years missionary among the Navaho Indians of Arizona, has joined the scientific staff of the University of Chicago as research associate in anthropology. He spent this summer tenting among the Apaches of New Mexico, equipped with a phonograph for recording their language and music.—*Science.*

THE FIRST MEETING of the American Association of Physical Anthropologists was held from April 17 to 19, at the University of Virginia, Charlottesville, coincidentally with the meeting held by the American Association of Anatomists. The program was devoted to subjects of mutual interest to the two societies.—*Science.*

MR. M. W. STIRLING, chief of the Bureau of American Ethnology, has returned to Washington from Florida, where he excavated a large shell mound and a sand burial mound near Safety Harbor. A large amount of skeletal material was obtained, as well as a good collection of objects representative of the culture of the period.—*Science.*

DR. HENRY CHAPMAN MERCER, anthropologist, archaeologist, historian, and founder of the Mercer Museum at Doylestown, Pennsylvania, connected with the Bucks County Historical Society, died on March 9 at the age of seventy-four years. —*Science.*

THE RIVERS MEMORIAL MEDAL for 1929 has been awarded by the council of the Royal Anthropological Institute to Mr. J. H. Hutton, of the Indian Civil Service, for his services to anthropology in the field in Assam.—*Science.*

THE AMERICAN MUSEUM of Natural History receives $557,361 under the will of Frederick G. Voss. The bequest is to be used in the further development of research in anthropology and archaeology.—*Science.*

DR. THOMAS R. GARTH, professor of educational psychology in the University of Denver, is conducting researches on the color blindness of Indians, starting at Santa Fé, New Mexico.—*Science.*

PROFESSOR G. ELLIOT SMITH gave a lecture on "The Human Brain" at the Royal Society of Arts, London, on March 12.—*Science.*

ON MARCH 29, Dr. Edgar L. Hewett, of Santa Fé, New Mexico, lectured at Chapelle House, Denver, Colorado, on the Indians of the Southwest, with special reference to the ruins of ancient pueblos.—*Science.*

LISTED BELOW are grants-in-aid for anthropological projects made by the Social Science Research Council during 1929–1930. The next distribution of grants-in-aid will be made in March, 1931. Applications will be received up to February 1st of that year by Walter R. Sharp, Secretary, Committee on Grants-in-Aid, at the Council's New York City office, 230 Park Avenue.

Herman Beyer (Tulane University) to aid in the completion of his study of the Maya Codex in Dresden, Germany, and the writing of an extensive commentary on the document.

Alfred Irving Hallowell (University of Pennsylvania) to aid in the completion of his study entitled "The Interrelationship between the Kinship Terms and the Social Organization of Cree Speaking Bands in the Environs of Lake Winnipeg (Manitoba, Canada), especially with reference to the influence of native marriage customs upon linguistic usage."

Daniel Sutherland Davidson (University of Pennsylvania). Research Associate in Anthropology. Project: "A Comparative and Distributional Study of Australian Material Culture in the Museums and Private Collections in Australia." Study in Australia.

BULLETIN NO. 6 of the American School of Prehistoric Research, edited by the Director of the School, Professor George Grant MacCurdy, contains an article by Miss Dorothy A. E. Garrod on "The Paleolithic of Southern Kurdistan." Miss Garrod was in charge of the School's Joint Expedition with the British Percy Sladen Fund.

NEIL M. JUDD, curator of American archaeology in the U. S. National Museum, returned to Washington on February 13 from an aerial survey of the prehistoric canals in the Gila and Salt River valleys, Arizona. Mr. Judd was sent as a representative of the Smithsonian Institution to cooperate with representatives of the

Army Air Corps assigned to this survey. Mr. Judd estimates that approximately 400 miles of prehistoric main line canals and laterals were formerly utilized in central Arizona, chiefly in the Gila and Salt River valleys. Most of these ancient canals have recently been destroyed owing to the extension of agriculture. The purpose of the survey was to prepare a mosaic map of the two valleys in order that a permanent record might be made of their prehistoric irrigation systems.

THE OHIO ACADEMY OF SCIENCE held its fortieth annual meeting at Ohio State University on Friday and Saturday, April 18 and 19, under the presidency of Dr. F. C. Waite, of Western Reserve University. One interesting feature was an illustrated lecture on "The Mound Builders—the First Ohioans," by Director H. C. Shetrone, followed by a personally conducted tour of the museum.

IN CONNECTION WITH the meeting of the Second Congress of Tourists, the Museum of Peruvian Archaeology, at Lima, has held a special exhibition of Peruvian art in which were shown important discoveries made principally in Paracas, a peninsula in the south of Peru. The site of the excavations is near Pisco.

The most notable of the discoveries were the mummies taken from the tombs of Cerro Colorado. The cadavers are artificially preserved and have apertures at the levels of the aorta and the stomach. They are in a squatting position, surrounded with food and utensils and wrapped up in bundles which stand a meter and a half high. There are cranial deformations and evidences of trephining.

THE SOCIETY FOR PENNSYLVANIA ARCHAEOLOGY, founded on May 6, 1929, for the purpose of organizing the individual archaeologists and private collectors of the state, plans to publish a periodical organ to be sent free to all members. Further information regarding the Society, together with a copy of its constitution, will be sent to all who request it, by the Secretary, Miss Frances Dorrance, 69 South Franklin Street, Wilkes-Barre, Pa.

AT THE MEETING of the American Ethnological Society on Monday, April 28, 1930, Mr. E. W. P. Chinnery presented a paper illustrated by lantern slides on "Twenty Years in New Guinea."

ON OCTOBER 1, 1929, the new Gesellschaft für Völkerkunde was organized as the first German society for the promotion of ethnology, i.e., cultural anthropology, exclusively. By-laws were adopted and Dr. Fritz Krause, the Director of the Museum für Völkerkunde in Leipzig and the leading spirit in the undertaking, was elected President. The initiation fee is three marks; and the same amount is charged annually as membership dues. A quarterly journal was created under the title of *Ethnologische Studien; Zeitschrift fur allgemeine Völkerkunde* (subscription 18 RM for members, plus postage). Payments may be sent to the Society in care of the Dresdner Bank in Leipzig C 1, Goethestrasse. At the meeting there was a discussion of the Tasks and Essence of Ethnology, the speakers being chosen as representatives of diverse theoretical positions.

THE FIFTH ANNUAL meeting of the Catholic Anthropological Conference was held on April 22, 1930, at the Catholic University of America, Washington, D. C. The following papers were presented:

Biren Bonnerjea, "The Hindu Family"; Chi-Lin Chao, "The Chinese Family"; Paul G. Gleis, "The Early Teutonic Family"; Vincent Koppert, "The Nootka Family"; John M. Cooper, "The Origin and Early History of The Family"; James A. Geary, "The Early Celtic Family."

THE FIFTEENTH INTERNATIONAL Congress of Anthropology and Prehistoric Archaeology, constituting the Fourth Session of the International Institute of Anthropology, will be held in Portugal September 21st to 30th. The first five days will be spent at Coimbra, the next three in Porto, and the last two in Lisbon. Dr. Pessoa, general secretary of the session, may be addressed at Coimbra regarding details of the trip to Portugal and stay there. The membership fee is forty francs.

There will be four sections devoted respectively to physical anthropology; human paleontology and prehistoric archaeology; heredity and criminology; and linguistics and cultural anthropology. The International committee includes R. Thurnwald, W. Koppers, Charles Peabody, J. Kleiweg de Zwaan, Sergio Sergi, R. Torii, Professor Poniatowski, Dr. Arne, and E. Pittard.

THE MUSEUM OF the University of Pennsylvania and the Peabody Museum of Cambridge, Mass., sent out their second joint archaeological expedition to Czechoslovakia in June. The expedition was headed by V. J. Fewkes and has a staff of six men representing the two museums equally. The work will be done in cooperation with the State Archaeological Institute, Prague, whose buildings will be used for expedition headquarters. Further excavations will be carried out in three of the sites explored last summer and reconnaissance work will be done in preparation for systematic exploration in the Balkan states next year.

ALAN ROWE, field director of the University of Pennsylvania Museum expedition at Meydum, Egypt, reports the finding of a mummy 4000 years old with its decorations of amulets and jewelry undisturbed. The mummy is of a woman named Sat-Her-em-Hat. The decorations included a pendant of concentric rows of faience cylinder beads and a string of polished amethyst beads. A string of amulets cut in carnelian, jasper, and lapis lazuli was also found.

HERBERT SPENCER DICKEY and Mrs. Dickey left New York about March 20 on an expedition in behalf of the Museum of the American Indian, Heye Foundation, to determine the exact source of the Orinoco river. Dr. Dickey also has some hopes of finding archaeological material. Mrs. Dickey will make a collection of small mammals and birds for the zoological gardens in the Bronx. The expedition includes among its personnel Major De Forest Morton, Robert Durrett, and Briesen Menken.

S. K. LOTHROP, in charge of the Mrs. Thea Heye expedition to Chile, reports the uncovering of thirty burials with much pottery of a type not hitherto known, from

near La Serena. At Taltal Dr. Lothrop obtained bone implements, large knives, and knuckle-dusters.

CLARENCE GRIFFIN, lecturer in the Imperial University of Taipeh, Formosa, for the last three years, invites communication from museums interested in anthropological, zoological, and botanical material from Formosa, particularly material on the skull-collecting tribes which abounds now but is being rapidly dispersed.

THE UNIVERSITY OF PENNSYLVANIA expedition in Egypt, working on the excavation of the huge Mastabah at Meydum, has discovered twelve chambers cut in the rock, mostly stacked to the ceiling with coffins. Nearly thirty mummies have been recovered in fair condition. The best of these was in a double coffin of the new empire.

E. W. P. CHINNERY, Australian government anthropologist, has discovered in New Guinea stone pestles, mortars, and pottery relics of an ancient civilization.

C. LEONARD WOOLLEY, director of the joint expedition of the University of Pennsylvania Museum and the British Museum, reports the finding of the remains of the ancient city wall of Ur, built by King Ur-Engur about 2300 B. C. The wall was about twenty-six feet high and from seventy to ninety feet wide at the base.

THE FREDERICK H. RAWSON-FIELD MUSEUM Ethnological Expedition to Angola and Nigeria, West Africa, under the leadership of W.D. Hambly, has completed its work and is back in Chicago. The expedition brought back extensive collections, still and motion pictures, dictaphone records of native languages, and scientific data. The expedition traveled more than 10,000 miles in making its collection.

AN EXPEDITION, headed by Captain Robert R. Bennett, has been sent out by the Museum of the American Indian, Heye Foundation, to explore the ruins of the Mayan city of Coba, Yucatan, and a stone road presumed to run from Coba to Chichen Itza.

A BRITISH EXPEDITION has set out from Belize, Honduras, to search for Mayan temples in Guatemala and British Honduras.

HARRY L. SHAPIRO has returned to New York from an expedition to the Marquesas and Society Islands and the Tuamotus on behalf of the American Museum of Natural History. Dr. Shapiro made a racial survey to determine if possible the origin of the Polynesian races, and brought back a collection of ethnological material for study.

MISS ELIZABETH STEEN, University of California, is making a journey into unexplored country in the State of Matto Grosso, to search for Indians of the "Tapirape" tribe which has not heretofore been visited by white men. Miss Steen will travel attended only by an Indian guide and a negro maid.

FRANS BLOM, leader of Tulane University's expedition to Yucatan, has discovered monuments with hieroglyphs that extend the history of Uxmal 500 years further into the past.

JOSEPH MARQUART, curator of the Ethnographical Museum, Leyden, from 1902 to 1912, died February 4, at the age of 66 years.

AN EXPEDITION sent by Harvard University and the Catholic University of America has discovered fourteen Sinaitic inscriptions on stone dating from 2000 B. C., near Serabit-el-Khaden in the Sinai desert. This discovery doubles the total of documents known in this script.—*The Museum News.*

DR. HENRY W. HENSHAW, first editor of the American Anthropologist, 1888–1893, died at Washington on August 1 at the age of eighty years.

DR. PAUL H. STEVENSON, of Peking Union Medical College, gave two courses at the University of California during summer session, one on Origin and Antiquity of Man, and the other on Race Problems.

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THE QUESTION OF THE ORIGIN OF ESKIMO CULTURE

By THERKEL MATHIASSEN

THE question of the origin of Eskimo culture has in the course of time occupied many scientists. Where did they come from, these curious people, differing in body, language, and culture from the other American natives? Are they Asiatics who in a comparatively recent time intruded in American soil, or are they a branch of the American race which has undergone a special development in the Arctic? Or possibly the descendants of the Arctic people who in the distant past once inhabited Europe,—the Palaeolithic cave-dwellers of the Ice Age? Or are there still other possibilities? The first to frame a theory about the origin of the Eskimo was the Moravian missionary Cranz,[1] who lived in Greenland in the middle of the eighteenth century. Cranz thought that they were physically and linguistically related to the Mongolians of Central Asia, especially the Kalmucks. On account of political disturbances in their home country they were driven away to the northeast and crossed Bering strait to the Arctic coasts of North America. They reached Greenland in the fourteenth century, where their arrival caused the destruction of the old Norse settlements. In 1865 C. R. Markham[2] propounded the theory that the Eskimo originally lived on the north coast of Siberia east of Cape Schelagskoi, but owing to political disturbances in Central Asia were driven northwards out over a number of partly hypothetical Arctic islands and then over the North American Arctic archipelago, where innumerable ruins mark their path, and so came to Greenland. In 1874 Boyd Dawkins[3] set forth a new and surprising hypothesis, that the Eskimo were the descendants of the Palaeolithic cave-dwellers of Europe, who followed the reindeer to the north when the ice disappeared. The evidence on which he based his theory was the similarity in the hunting implements and art of the two people.

[1] Historie von Grönland, 333. Barby, 1770.
[2] Journal Royal Geographical Society, no. 35: 87.
[3] Cave Hunting. London, 1874.

Quite a different theory was advanced by the Danish scientist H. Rink.[4] He considered the Eskimo to be an originally inland race, who descended the rivers to the coast. There they adapted their culture to the new surroundings, and only after this new Eskimo culture was formed did they spread out over the huge areas which they now occupy. The sub-arctic form of Eskimo culture he took to be the most typical, and he considered the mouth of the Yukon in Alaska as the most favorable place for the development of this culture.

After a study of the legends and traditions of the Eskimo, Boas[5] in 1888 came to the conclusion that their home must be in the central regions, since the legends point towards that locality as the place from which the migration started. In the same year Murdoch[6] arrived at a similar conclusion, by adopting a more cultural point of view, since he considered the culture in the central regions to be more primitive than that to the east and west; as the native place of the Eskimo he fixed on the region south of Hudson bay. Thalbitzer[7] considers Siberia to be the home of the Eskimo and in this he is supported by Bogoras.[8] Their reasons are, however, principally linguistic.

In 1905 Steensby[9] propounded a new theory, which he further developed in his interesting book (1916). According to him, the Eskimo culture first arose on the Barren Grounds, the woodless region between Hudson bay and Coronation gulf, through an adaptation to arctic conditions of the culture which we find among the Forest Indians. It then gradually made its way to the coast, took on a sea-facet, and spread east and west to Greenland and Siberia. Steensby called this original Eskimo culture "Palae-Eskimo." Around Bering strait through the influence of Palae-Asiatics and Pacific races arose the "Neo-Eskimo" culture, with women's boat and kayak, a pronouncedly coast culture, which now spread eastwards and deposited a new stratum over the whole Palae-Eskimo culture.

Hatt[10] would reverse Steensby's stratification: that which Steensby calls Neo-Eskimo, the decided coast culture, is the older, whereas the markedly inland Palae-Eskimo culture is later. Hatt thinks

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[4] Eskimoiske Eventyr og Sagn, 2:215. Kjöbenhavn, 1871.

[5] The Eskimo. Proc. and Trans. of the Royal Soc. of Canada, vol. 5. Montreal, 1888.

[6] AMERICAN ANTHROPOLOGIST, vol. 1, 1888.

[7] Meddelelser om Grönland, 39:917.

[8] Twenty-first Int. Congr. des Américanistes. Gothenburg, 1925.

[9] Meddelelser om Grönland, vol. 53, 1916.

[10] Geografisk Tidsskrift, 288, 1916.

that the northern coasts of America have first been taken into use by an old coast culture, which undoubtedly stood in connection with Palae-Asiatic cultures in northeast Asia, and which contained the elements which are now absent in a part of the central region, namely the umiak, the fishing net, the gut-skin shirt, urine tanning, the square house, women's boat, etc. and besides naturally a part of the elements which are now to be found among all Eskimos, such as the seal harpoon, fish spear, bird dart, etc. Into this old coast culture then came one, or more likely several culture and race streams from the lands between Hudson Bay and Mackenzie River, carrying with them, among other things, the kayak, and just in virtue of this valuable culture element, succeeded in spreading over the northern coast of America, absorbing and partly transforming the earlier culture and extending the Eskimo language as far as southern Alaska and eastern Greenland.

To investigate these matters was one of the main problems of the Fifth Thule Expedition, to be solved partly by archaeological investigations in the central regions and also by a study of the people of today, especially the Caribou Eskimo of the Barren Grounds west of Hudson bay. This last was undertaken by Knud Rasmussen and Birket-Smith, and on the basis of their work, they regard the Caribou Eskimo as the last survivors of the "Primordial Eskimo," the possessors of that primitive Eskimo culture which was developed on the Barren Grounds even before it had got so far as to take on a sea-facet. This, then, they thought was the solution of the question of the origin of Eskimo culture.

In my work, Archaeology of the Central Eskimos,[11] I did not enter into the discussion of the origin of Eskimo culture but simply put the different theories up against each other. The reason was that in my central archaeological material I did not find a basis for a satisfactory solution of this question, and besides, I knew that Birket-Smith was working to give his theories their final form. Since then Birket-Smith's large and important book, The Caribou Eskimos,[12] has been issued, where he fully discusses the problem; and besides, some important material from the western regions has appeared,[13] throwing light on the question. In a way I think there is now a better basis for a real discussion of the subject, though it can hardly be solved definitely until more archaeological work has been done. The

[11] Report of the Fifth Thule Expedition, vol. 4, 1927.

[12] Report of the Fifth Thule Expedition, vol. 5, 1929.

[13] Jenness, Archaeological Investigations in Bering Strait. Nat. Mus. of Canada, Ann. Rep. for 1926. Ottawa, 1928. Mathiassen, Some Specimens from the Bering Sea Culture. Indian Notes, vol. 4, no. 1, 1929. J. A. Mason, Excavation of Thule Ruins at Point Barrow. Twenty-third Int. Congr. of Americanists, New York, 1928. Mathiassen, Notes on Knud Rasmussen's Archaeological Collections from the Western Eskimo. Twenty-third Int. Congr. of Americanists, New York, 1928.

main object here must be to discuss the theory that Birket-Smith has set forth in his above-mentioned book. This theory will be most easily explained by figure 5 in Birket-Smith's work (2:232, 1929). The basis of the culture is a circumpolar ice-hunting culture which in a distant past (late or Epipalaeolithic), seems to have ruled in the northern parts of both the Old and the New World. Birket-Smith regards the Caribou Eskimo (1) as the last remnants of this old culture stratum. The next layer (2) is the Palae-Eskimo, the first real Eskimo culture adapted to life at the sea coast. As the place where this adaptation could have occurred Birket-Smith, like Steensby, mentions the coasts between the Mackenzie and Hudson bay. This Palae-Eskimo culture spread out over the Arctic. It is, however, not sure that it ever reached Greenland, but it extended into Alaska. Here in the west a new culture now arose, influenced by Asiatic and Pacific cultures. This Neo-Eskimo culture depended mainly on the hunting of whales and other big aquatic mammals and it spread to the east over the whole Eskimo territory, exterminating the Palae-Eskimo culture and penetrating into Greenland. The recent cultures in Alaska (3a) and Greenland (3b) are descendants of this culture, while in the central regions it is represented by the now vanished Thule culture (3). Finally, we have in comparatively recent times a new cultural wave from the inland (the culture of the Caribou Eskimo), in the central regions forming the Central Eskimo culture, the "Eschato-Eskimo" culture (4). Thus this last is very closely related to the culture of the Caribou Eskimo. (?) on the drawing represents the Aleutic-Pacific culture, the origin of which is uncertain.

Of these different culture layers, the two last, (3) and (4), are facts which cannot be disputed. (3) is the Thule culture, a great wave moving from Alaska to Greenland. The cultures of the west and of the east have been built upon this as a foundation, but at both places there has been a strong local development, and in the west influence from the Indians besides. In the central regions the last remnants of the Thule culture disappeared with the Sadlermiut, who became extinct in 1903. The population in Baffinland and Labrador has, however, still retained some elements of the Thule culture. All this I have thoroughly discussed in my archaeological work. The fourth layer, Birket-Smith's Eschato-Eskimo, is represented by the recent Central Eskimo between Coronation gulf and Davis strait, particularly by the tribes west of Hudson bay. This culture I have also previously discussed, both in the same work and in my book on the Material Culture of the Iglulik Eskimos.[14]

[14] Report of the Fifth Thule Expedition, vol. 6, no. 1, 1927.

The main interest must be concentrated here on two points. Is it possible to give convincing evidence that a Palae-Eskimo culture has ever existed, and can a comparison between the culture of the Caribou Eskimo and the Thule culture reveal which has the older foundation? We must ascertain in which culture are to be found the most primitive types of those elements which occur in both.

The first question ought to be answered archaeologically. *Have we archaeological evidence that there has ever existed in the central regions a culture older than the Thule culture?* The answer must be in the negative, as I have already pointed out.[15] In the central regions there have never been found either implements or ruins of an earlier type than the Thule culture, despite the many places that have been excavated (on the Fifth Thule Expedition alone in ten different places). In reply it might be said that the Palae-Eskimo in the winter used only snow houses, which do not leave many traces. But then we should be able to find summer camping sites with tent rings, meat caches, etc., and these, on account of the rising of the land, should be situated at a higher level than the oldest ruins of the Thule culture (about 20 meters above sea-level); yet such remains are never seen. But could not the Palae-Eskimo have spent the summer inland? In the spring, the time of the important utoq-hunting of seals, they must have dwelt at the coast in tents, and probably some people would have dwelt at the coast all summer, as is the case with the recent Central Eskimo.

We have, then, to concentrate our attention on the other point, *the relation between the Caribou Eskimo and the Thule culture*. Here also we have no archaeological evidence, since we know nothing of Caribou Eskimo prehistory. Thus, it is only ethnological arguments which Birket-Smith brings forward in his analysis of the elements of their culture. He investigates the geographical distribution of these elements in order to discover something of their origin and history. We will now examine his arguments.

In his discussion of the relative ages of the Caribou and the Thule cultures, Birket-Smith mentions a number of elements where he seems to find the older stage among the Caribou Eskimo and the younger in the Thule culture. These elements are: the lamp, platform covering, water pail, bow, bird dart, stiletto or dagger, fish hook, bird snares, dog harness, some features in the cut of the frock, tattooing, the comb, thimble holder, swivel, dice, skin tanning with urine or water, and burial.

The lamp.—In his analysis of the culture of the Caribou Eskimo Birket-

[15] Mathiassen, 200, 1927.

Smith[16] has arrived at a view of the origin and position of the Eskimo lamp different from my own.[17] He regards the small flat soapstone lamp of the Caribou Eskimo, adapted to caribou fat and used only for lighting, as the oldest form from which the other forms developed when the Eskimo arrived at the sea and adapted their life to it. Only then did they burn blubber in the lamps and made use of them for cooking and heating.

The lamp is such an important element in Eskimo culture that the question of its origin and development is a far-reaching one. This Hatt[18] has already pointed out in his review of my archaeological work. Hough[19] was the first to emphasize the importance of the lamp for the populating of the arctic coasts of North America. Birket-Smith tried to minimize its importance, believing that the lamp for lighting is older than the lamp for heating and cooking. This is very probable when we consider the whole distribution and development of the lamp outside the Eskimo territory as well. No doubt its original use was for lighting, as it still is in civilized countries with plenty of other fuel for heating. This is also the case in the sub-arctic regions of Alaska, but not in the real Arctic. Here we know of only one single case where the lamp is not used for heating and cooking, and this is among the Caribou Eskimo of the Barren Grounds west of Hudson bay. The question then is: Is their lamp really the oldest form of the Eskimo lamp, or is it not a strongly reduced form, adapted to deer fat since no blubber is obtainable, and thus used only for lighting? If so, this lamp should be called rudimentary instead of primitive. Birket-Smith maintains that a people who once knew the blubber lamp would probably never have given it up, but would have bought blubber from the coast-dwellers. There may, however, be unknown circumstances which caused them to give it up,—taboo rules or unfriendly relations with the coast-dwellers. We have a similar example in the case of the Sadlermiut, who were isolated by the penetration to the coast of new peoples; they could not get soapstone for their lamps and cooking pots, and so had to make them out of limestone. The problem, however, is too complex to be solved by speculation alone.

The Eskimo have two main types of lamps,—one round or oval, made of stone or clay; and the other crescent-shaped and of soapstone. Of these, the first form seems to be the most primitive and has its main distribution in the western regions. The crescent-shaped lamp is to be found

[16] 2:100, 1929.
[17] 2:99, 1927.
[18] Geografisk Tidsskrift, 11, 1928.
[19] Rept. U. S. Nat. Mus., Washington, 1898.

in the central regions and in Greenland; it is now also used in northern Alaska, but here it seems to be a rather late importation from the east. The soapstone lamp of the Thule culture with its rounded crescent shape forms an intermediate stage between the two main types, and in addition it has a row of knobs or a rim close to the front edge. The rounded form of this lamp is, I think, derived from the shape of the clay lamp, which I consider to be older than the soapstone lamp. As a matter of fact, we have (from St. Lawrence island) clay lamps with a rim similar to that of the Thule lamps. This chronology is confirmed by the archaeological material from Alaska and from Siberia. Birket-Smith points out that the clay lamp has a very narrow geographical distribution, i.e., Yukon-Kuskokwim delta, Bristol bay, the Asiatic Eskimo, and the Aleutians; and that on the whole we have very few of them. Against this may be argued that the clay lamp has now also appeared at Pt. Barrow,[20] and considering the very fragile character of Eskimo ceramics, it is not peculiar that so few lamps have been preserved. In the whole territory between Coronation gulf and Davis strait we have as yet found only three small sherds of Eskimo pottery. The disappearance of the clay lamps was no doubt hastened by the more nomadic life the people of the central regions had to adopt. Here the more substantial soapstone lamp would be superior.

As the most primitive and oldest form of lamp among the Central Eskimo Birket-Smith suggests the naturally hollow stone. I am not sure that he is right in that. The lamp was not invented by the Eskimo, but came to them from the outside (probably from the west). Birket-Smith points to the fact that several Eskimo tribes occasionally use such hollow stones as lamps and makes that an argument in favor of its being a very old and widely distributed form of lamp. I think the explanation is much simpler: as soon as the lamp idea is known at all, people will hunt for a substitute—it may be a hollow stone or the enamel cover of a cooking-pot—when the ordinary lamp is broken or for other reasons not available. I myself on Southampton island looked for a naturally hollow piece of limestone to be used as a lamp when we had moved from the coast to a salmon lake and had left the big, heavy soapstone lamp behind us. These various emergency lamps are not necessarily connected and thus can hardly be regarded as a special, primitive type.

If we consider the distribution of the lamp outside of the Eskimo territory,[21] it looks as if we have an element from the Old World. The only other American people known to have had a real lamp are the Northwest

[20] Mason, *op. cit.*

[21] Birket-Smith, *op. cit.*, 2:189.

Indians and the Beothuk of Newfoundland, both of whom may have borrowed it from the Eskimo. If such a useful possession had been used in America in former times, it is strange that it has been retained in so few places.

Thus I must insist that the lamp is an Asiatic element introduced into America by the Eskimo, probably at first as a round or oval clay lamp, later on made of soapstone. If so, the small lighting lamps of the Caribou Eskimo must be called rudimentary and not primitive.

The platform covering.[22]—The skillfully twisted baleen mats of the Thule culture no doubt represent a higher stage than the simple heather mats of the Caribou Eskimo. But, first, it is very improbable that the Thule culture did not know something so simple as the heather mat. Its geographical distribution seems to indicate that it must be called common Eskimo, although it has been difficult to find archaeologically. Both at Naujan and at Ponds inlet, however, I have found heather on the platforms in the houses of the Thule culture.[23] Secondly, the baleen mats are excluded from the Caribou Eskimo on account of their geographical distribution.

The water pail.[24]—Similar arguments may be advanced concerning this culture. Birket-Smith regards the skin pail of the Caribou Eskimo as more primitive than the baleen pail of the Thule culture. It is very probable, however, that the Thule culture had skin pails, too, and it is impossible, on account of geographical conditions, that the Caribou Eskimo should have had the baleen pail, and thus we can hardly draw any conclusions from a comparison between the two cultures in this respect.

The bird dart.[25]—The Thule culture had the type with the side-prongs, while the Caribou Eskimo seem to have used the probably more primitive type with several end-prongs. The distribution of the two types among the Eskimo, however, seems to indicate that among these, at any rate, the type with the side-prongs is the older and that the other type may have been introduced under Indian influence in the central territory. Finally, the proof of the occurrence of this latter type among the Caribou Eskimo has a rather weak foundation: an old man thinks he has played with such a dart as a boy.[26]

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[22] *Op. cit.*, 56.

[23] 1:12, 134, 140, 142, 1927.

[24] 2:58, 1929.

[25] *Op. cit.*, 65. Birket-Smith says that the bird dart with side-prongs does not occur in Labrador. It is, however, found at Point Harrison (Mathiassen, 1:290, 1927).

[26] 1:115, 1929.

The stiletto.—Birket-Smith regards the stiletto[27] as older than the bone dagger known from the Western Eskimo and the Thule culture. The rather local distribution of the stiletto in the central and eastern regions suggests that it is the younger. These two implements, however, resemble each other too closely for any deductions to be made from a comparison between them.

Fish hooks.—The case with the fish hooks[28] is the same. The types are too indistinct and the distribution too sporadic. The most primitive form is also known in the Thule culture in the form of the simple gull hook.

The bird snares.[29]—Of these we have the simplest type, a single loop, among the Caribou Eskimo, while the Thule culture has probably known the longer snares, consisting of a row of loops. The difference here is probably explained by the fact that baleen, the best material for such snares, is missing among the Caribou Eskimo.

The comb.—The comb[30] of the Caribou Eskimo with a narrow, rectangular handle is regarded by Birket-Smith as a special, primitive type in comparison with the combs of the Thule culture with narrow and often finely decorated handles. In my opinion the truth of the matter is that the comb of the Caribou Eskimo is a coarser form of the combs of the Thule culture, due to the poorer material at hand (musk ox horn or antler instead of ivory), and to the general degeneration of artistic skill always to be found when going from the Thule culture to the recent Central Eskimo. One of the combs of the Caribou Eskimo has, however, the hole in the top, so characteristic of the Thule culture. Finally, we have a similar poor comb from Southampton island.[31] Such combs have doubtless been used occasionally in the Thule culture.

The thimble-holder.[32]—We have the anchor shape in the east and west and also in the Thule culture. The double curve shape seems to be a later Central Eskimo form, appearing in the later stages of the Thule culture. The toggle-shaped type seems, despite its simple form, to be the youngest, having a rather limited distribution: among the Caribou and Iglulik Eskimo, as well as in Greenland, though not among the two oldest phases of the Greenland culture—the Polar Eskimo and Northeast Greenland, both having the anchor type.

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[27] *Op. cit.*, 2:64.
[28] *Op. cit.*, 67.
[29] *Op. cit.*, 69.
[30] *Op. cit.*, 95.
[31] Mathiassen, 1:266, 1927.
[32] Birket-Smith, 2:111, 1929.

The dice.—Birket-Smith compares the dice[33] of the Caribou Eskimo, consisting of a number of metatarsal and toe bones, with the elaborately carved ivory bird figures (tingmiujat) of the Thule culture. These, however, are only known to have been used as dice in Baffinland, while in other places they seem to have been merely playthings. But even if they were originally used as dice, it is not sure that they were for the same kind of game as the bones. And finally, the Caribou Eskimo have no ivory, and so cannot make the birds,—not at any rate from that material.

Graves.—The stone ring the Caribou Eskimo and several other people put around their dead seems to be most easily explained as a remnant of the stone graves[34] of the Thule culture.

We have still to discuss the sinew-backing of the bow, the dog harness, the cut of the frock, tattooing, the swivel, and skin tanning. All these are elements not actually found among the Thule remains, and their occurrence in that culture is only indirectly deducible. For this reason the arguments based on them have not the same importance. Nevertheless, we will discuss some of them.

Urine tanning.[35]—This belongs no doubt to the Thule culture. Instead of this the Caribou Eskimo wash their skins in hot water, a method Birket-Smith is probably right in regarding as more primitive. It is, however, a question whether the lack of urine tanning in the central regions may not be explained otherwise: the very nomadic life makes the keeping of urine vessels and their contents difficult. Urine tanning seems to have disappeared only gradually from the central tribes; for instance, it was used by the Iglulik in Parry's time while it has now entirely disappeared.

Tattooing.—Needle-and-thread tattooing[36] seems, as Birket-Smith has pointed out, to be connected with the Thule culture, being distributed over nearly the whole Eskimo territory. Prick tattooing is known only from two narrow areas: among the Central Eskimo, and among the Aleutians and the Pacific Eskimo. Among the last mentioned, influence from the Northwest Indians is not impossible, and in the central regions it seems to be also most easily explained as the result of Indian influence; prick tattooing is known both among the Chipewyan and Cree, and besides, is widely distributed in North America. Even though prick tattooing is on the whole a simpler method than the needle-and-thread tattooing, it is not certain that it is older among the Eskimo. Thus, the Iglulik since Parry's times have changed from the needle-and-thread to the pricking method.

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[33] *Op. cit.*, 120.
[34] *Op. cit.*, 122.
[35] *Op. cit.*, 1:116.
[36] *Op. cit.*, 2:24.

The dog harness.—The dog harness[37] with parallel loops has a rather wide distribution, from East Greenland to Bering strait, and has been ascribed, correctly, I believe, to the Thule culture. The harness with crossed loops has, on the contrary, a rather narrow distribution, being known only from the central regions. This seems to me, contrary to Birket-Smith, to indicate that the type of the Thule culture is the older, even though the type of the Caribou Eskimo is technically the simpler.

The swivel.—The swivel,[38] as Birket-Smith says, is an Asiatic element which has intruded into the Eskimo culture, but that it is as old as the Thule culture seems doubtful; its two types seem to have an equally wide distribution and are thus hardly useful for chronological conclusions.

The sinew-backing of the bow.—As to the sinew-backing of the bow,[39] we are on so uncertain ground concerning the form, both among the Caribou Eskimo and in the Thule culture, that far-reaching conclusions can hardly be drawn from it.

About the *cut of the clothing*[40] in the Thule culture we also know nothing.

Now we have reviewed the elements which Birket-Smith has set forward as the basis of his contention that the culture types of the Caribou Eskimo are older than the corresponding types of the Thule culture. In no case does this comparison seem to speak in favor of his theory. On the contrary, several examples seem to argue that the Thule types are the older, and in most cases the question is very uncertain.

On the other hand, I think we have a number of elements whose older types are found in the Thule culture and whose younger forms are found among the Caribou Eskimo, showing that in these respects, at any rate, the Thule culture was at the older stage. These elements are: harpoon heads, the snow house, snow knife, sledge shoes, whip, woman's knife, cooking-pot, and dipper.

Harpoon heads are of no great importance in the culture of the Caribou Eskimo. We only know that a harpoon head is used for fishing, and that it has barbs, but nothing else about its shape.[41] Most probably it is of the same type as the salmon harpoon heads of the neighboring tribe, the Netsilik: long, with shaft socket, no spurs, but several barbs in two rows. It is a type which I have tried to show[42] has developed from one of the

[37] *Op. cit.*, 74.
[38] *Op. cit.*, 75.
[39] *Op. cit.*, 1:103; 2:61.
[40] *Op. cit.*, 2:79.
[41] *Op. cit.*, 1:121, 2:66.
[42] 2:18, 1927.

most important types of harpoon heads in the Thule culture. We have here the older form in the Thule culture and the younger in the culture of the Caribou Eskimo. The harpoon heads of the recent Central Eskimo are, as is elsewhere pointed out,[43] at a higher stage than the harpoon heads of both the Thule culture and the Western Eskimo, while the Greenlanders' are at a still higher stage. We find here a continuous development from the west to the east.

Birket-Smith has pointed out that the oldest form of the domed *snow house*[44] with a frame of branches is known in the west among the Colville Eskimo and the Kerek tribe. On the contrary, we do not know whether the real snow house without a wooden frame has been used west of the Mackenzie. That the real snow house, though in a less highly developed form, has been known in the central Thule culture, I have previously inferred from the conditions among the Sadlermiut and the Polar Eskimo. The snow house has reached its highest development, however, among the recent Central Eskimo, where it is one of the most important culture elements. This seems to me to indicate that the snow house originated in the west from a dome-shaped hut of branches, covered with snow. The snow house without a skeleton of branches appeared first in the woodless countries to the east. On account of the roving life of the Central Eskimo it here attained its highest development and got its central position in the culture. Farther east in West Greenland and Angmagssalik it disappeared again, partly on account of geographical, and partly on account of cultural conditions (the dense population). Birket-Smith concludes from this distribution that the snow house has originated in the central regions and from there has been spread in all directions, the most primitive form being pushed furthest out until it is now to be found close to the periphery. I can hardly agree with this argument. We have no evidence that the snow house with a skeleton has ever been used in the central regions, even by the Caribou Eskimo. The snow house is one of the several cases where we have the most primitive form in the west, a higher in the central Thule culture, and the highest among the recent Central Eskimo. This, I think, points to a development from the west towards the east.

The broad *snow knife*[45] of the Thule culture has a very wide distribution and seems to be an older form than the slender snow knife of the Caribou Eskimo (and the other Central Eskimo), which has a narrow distribution. The *ice-shoeing*[46] of the sledge is also widely distributed and belongs prob-

[43] *Op. cit.*, 26.

[44] 2:43, 1929.

[45] Mathiassen, 2:65, 1927; Birket-Smith, 2:105, 1929.

[46] Birket-Smith, 2:73, 1929.

ably to the Thule culture, while the Central Eskimo mud-shoeing is younger; this is also the opinion of Birket-Smith. The slender *whip*,[47] known in east and west and thus probably in the Thule culture, seems to be older than the Central Eskimo form, of limited distribution, with short handle and thick braided lash used by the Caribou Eskimo. That the *ulo*[48] (woman's knife) with a tang, used by the recent Central Eskimo and the Greenlanders, is a more highly developed and later form than the ulo without a tang, used in the Thule culture and among the Western Eskimo, Birket-Smith admits, but at the same time he maintains that this seems to indicate that the ulo has originated in the central regions; I would rather suggest a western origin.

Birket-Smith regards the soapstone *cooking-pots*[49] as older than the clay pots, contrary to my formerly expressed view. In the west round cooking-pots are the predominant form, both in the present culture and in the old finds (Van Valin and Birnirk). We find also here imported soapstone pots from the east, but this importation is shown by the archaeological material to be rather new; neither the Van Valin nor the Birnirk collections contain any soapstone. In the Thule culture we have besides the remains of clay vessels rounded soapstone pots. These last predominate in Greenland. As the Thule culture is derived from the west, I must still maintain that the most natural explanation of these rounded soapstone pots is that they are derivations from the round clay vessels. The rectangular soapstone pots of the central regions seem to be the latest stage of the development, and in this I agree with Birket-Smith, but when he then concludes that the cooking-pot originated in the central regions I cannot follow him. On the contrary, the distribution of the different types seems to indicate a western origin. That a clay pot can also be shaped after a soapstone vessel, is illustrated by an example Birket-Smith mentions from St. Lawrence island (probably a rather new specimen), but this is probably exceptional. When Birket-Smith mentions that soapstone cooking-pots are widely distributed in North America, in support of his theory of the great age of the soapstone pots in the Eskimo culture, this does not necessarily prove anything about the development inside the Eskimo culture, which in many respects seems to have gone its own way. Even though the Eskimo territory was not cut off from the other American cultures by a high wall, there seems to have been some sort of a fence.

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[47] *Op. cit.*, 75.
[48] *Op. cit.*, 107.
[49] *Op. cit.*, 104; Mathiassen, 2:103, 1927.

The broad *dippers*[50] of musk-ox horn, found among the Central Eskimo, seem to be a younger form than the more oval shapes used in the east and west (and probably in the Thule culture, too). Here I agree with Birket-Smith.

To these elements a very important one may be added, in fact that which Birket-Smith regards as the most fundamental in the Eskimo culture, the *breathing-hole hunting of seals*. This element is of course not found in the inland culture of the Caribou Eskimo, but in the culture of the other Central Eskimo (and in the hypothetical Palae-Eskimo culture, also). It is of the greatest importance, and it has here developed further than among any other Eskimo in the east or west or probably in the Thule culture. Besides the Eskimo, this method of hunting is also practised by several Siberian peoples, the Chukchi, Koryak, Kamchadal, and Gilyak. Birket-Smith[51] set forward several arguments which do not seem absolutely convincing to me that the breathing-hole hunting has been borrowed by the Siberian people from the Eskimo and thus is comparatively recent; and that the high development of this hunting method among the Central Eskimo seems to indicate that its origin is to be found here. In this argumentation I cannot agree with him. I cannot see that at the present moment we have the means of determining where the home of the breathing-hole method is to be found. The only thing we know is that this hunting method is more highly developed among the Central Eskimo than among any other Eskimo.

We have now discussed a number of elements which have reached a higher development among the Caribou Eskimo (and the other Central Eskimo) than in the Thule culture. The answer is that it is not certain that they are the same type which were found in the original culture of the Caribou Eskimo; but of the latter we know absolutely nothing and we can only discuss the types which are really known. If the culture on the Barren Grounds really represents such an old layer of culture, we could have expected to find many older forms of the different types preserved there. For one thing, many of the culture elements are themselves ancient, —the lamp, cooking-pot, harpoon heads, ulo, etc.,—but the special forms of them found among the Caribou Eskimo do not seem to be very old. On the contrary, several of them seem to have reached a high development. This can hardly be used to prove that the culture of the Caribou Eskimo is more primitive than other phases of Eskimo culture.

Another important consideration is that *a comperatively large number*

[50] Birket-Smith, 2:60, 1927.

[51] *Op. cit.*, 225.

of Central Eskimo implements, types only known from the central regions, *are to be found in the culture of the Caribou Eskimo*. Such elements must be regarded as comparatively new. Besides the elements Birket-Smith regards as borrowed from the Indians, viz. the conical tent, pipe, snow-shoe, two-handed scraper, roasting meat, tongued bags, hair sticks, ear ornaments, painting of the skin with ochre, whistle, double curve, disk-shaped and zigzag ornaments, and a pole beside the grave (in all 15 elements), we have the following local central elements: urine scraper, a special toggle for the draught line of the sledge, fringes on the frock, the women's leggings and belt buckles, cloak, child's tippet, wolf hunting with a bloody knife, carrying bags for dogs, moss spade, scrapers of bone and stone with bent handle (in all 11 elements), besides those which have been discussed in the foregoing: the square cooking-pot, prick tattooing, dog harness with crossed loops, long salmon harpoon head with barbs, slender snow knife, broad musk-ox horn dippers, heavy whip, and mud-shoeing (8 elements).

Thus, we have in the culture of the Caribou Eskimo in all 34 elements which seem to be late. Of these, 15 are due to Indian influence. If we now are going to mention the elements in the Thule culture which have a similar local central distribution, these are quickly enumerated: scrapers of bone and stone with bent handle, sharp fat-scrapers, the loose lance head, bird harpoon, and stone arrow head with concave base,—in all only 6 elements, in contrast to the 34 of the Caribou Eskimo. These figures seem to speak in favor of the supposition that the Thule culture as a whole represents an older stage than the culture of the Caribou Eskimo, the former containing comparatively new elements with narrow, local distribution. Of these local central Thule elements, the scrapers and the loose lance head have been directly transferred into the culture of the Central Eskimo, the two first scraper types into the culture of the Caribou Eskimo as well, while the bird harpoon and the stone arrow head with concave base disappeared with the Thule culture.

With what has been said in the foregoing the arguments for the high age of the culture of the Caribou Eskimo in comparison with the Thule culture seem to dwindle away. On the contrary, there are a number of points on which the Thule culture seems to be at the older stage. To this may be added the archaeological evidence, the lack of ruins and implements older than those of the Thule culture, and the superposition above the Thule culture of the recent Central Eskimo culture, to which that of the Caribou Eskimo is closely related. *Thus, I see no reason for supposing that there has existed in the central regions a Palae-Eskimo culture older than the Thule culture.*

How then are the Caribou Eskimo to be regarded? Are they coast people who in former times went inland and there changed their culture? Or are they remnants of a formerly much more extensive inland Eskimo population? The question is still difficult to decide. In my archaeological work I made a suggestion:

> that a group of Eskimos, when from the west they got to the coast regions between Coronation Gulf and Boothia, were enticed into the country by the great herds of caribou, where on Barren Grounds they reformed their culture; in this case the culture of the Caribou Eskimo should rather be called residual than primitive. With the well-known love of the Eskimos for caribou in preference to all other meat, such a migration with the herds into the country does not at the outset seem incredible.[52]

The preceding investigation has not caused me to change my opinion that this is the most natural explanation, and it has besides removed some of the difficulties Birket-Smith has raised against such a hypothesis.[53]

Reviewing the elements in the culture of the Caribou Eskimo which it would be possible to find archaeologically, we will see that excepting the above-mentioned younger Central Eskimo elements nearly all of them are known from the Thule culture (except only the square meat tray), and, as I have tried to show above, several of them are at an older stage in the Thule culture than among the Caribou Eskimo. Thus, there seems to be no trouble in deriving the culture of the Caribou Eskimo from the Thule culture. The culture of the Caribou Eskimo, when compared with the Thule culture seems so poor, and therefore primitive, because everything connected with the sea has been cut away by their life in the interior, for it is, as a matter of fact, in the implements for hunting sea-animals that the Eskimo have developed their greatest skill and ingenuity. To this may be added the general degeneration in artistic ability and craftsmanship which has taken place in the central regions since the time of the Thule culture.

If this explanation of the culture of the Caribou Eskimo is correct, the Thule culture is the oldest in the central regions. The first Eskimo to migrate over the arctic coasts of Canada and Greenland were thus the carriers of the Thule culture, and as we have the home of that culture in the west, *it is to the west that we must turn to find the original home of the Eskimo.*

Whether the Thule culture is also the oldest form of Eskimo culture in the western regions is another question, which is still awaiting a solution.

[52] Mathiassen, 2:200, 1927.

[53] Birket-Smith, 2:129, 1929.

We as yet know too little of the development of culture in this area. We have first to find out the elements which this western Thule culture possessed, and here we are only at the beginning, even though recent discoveries (especially the Van Valin collection), have brought much new information. Besides, we do not know much about the range and importance of Jenness's Bering Sea culture. The conditions seem to be very complicated here, and we have yet to build up the chronology of the Alaskan Eskimo.

After the discovery of the elements of the oldest Eskimo culture in these regions comes the task of finding out from where these elements have come; how and when they were fused together to form that synthesis which is the Eskimo culture. Many of the elements of the Eskimo culture, as Birket-Smith's investigation has shown, are very old and widely distributed in time and space. Birket-Smith has made it probable that many of them have their roots in an ancient (late or Epipaleolithic) circumpolar, "ice-hunting" culture. I think, however, that Birket-Smith has in some degree over-estimated the age of Eskimo culture, or in any case of its distribution over the arctic coasts of North America. Both the cultural and linguistic conditions seem to indicate that this distribution is not so very old. I hardly think that many thousands of years have passed since the Eskimo first arrived on the shores of Canada and Greenland. They probably dwelt for a longer period around Bering strait, but this future archaeologists have to elucidate.

An attempt to trace all the elements of the oldest Eskimo culture will not be made here. Birket-Smith has done an important work towards solving this question, but he has not included all the elements of the Eskimo culture in the discussion, and besides he has usually taken only North America and Northern Asia into consideration. To get at the bottom of this problem will necessitate far-reaching studies. Here I shall only mention that a number of the elements of Eskimo culture,—and among these some of the most important,—seem to have been derived from Asia: the bow with sinew-backing and the compound bow, the dog sledge, sail, bow drill, needle case, thimble, fire drill, lamp, pottery, snow beater, chain links, needle-and-thread tattooing, and probably harpoon heads of the Thule type with open sockets: the only finds outside of the Eskimo territory where these last are to be met are from an old Lappish camping site in northern Norway and from the Stone Age of Japan.[54] I believe we must look to the Old World for the deepest roots of the Eskimo culture.

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[54] O. Solberg, Eisenzeitfunde aus Ostfinmarken, Vidensk. Selsk. Skr.

THE QUESTION OF THE ORIGIN OF ESKIMO CULTURE: A REJOINDER

By KAJ BIRKET-SMITH

"Die Zeiten der Vergangenheit
Sind uns ein Buch mit sieben Siegeln.
Was Ihr den Geist der Zeiten heisst,
Das ist im Grund der Herren eigner Geist,
In dem die Zeiten sich bespiegeln."

GOETHE: *Faust*, I.

IN THIS number of the AMERICAN ANTHROPOLOGIST Dr. Therkel Mathiassen has published an article the principal contents of which is a criticism of the hypothesis regarding the origin of Eskimo culture set forth by me in part 2 of my work on The Caribou Eskimos.[1] Indeed, a reader not especially well versed in Eskimology will sometimes get the impression that I have borrowed from him what is right in my hypothesis, while what is wrong is put down to my account. As science makes progress mainly by calm discussion of the problems, I may, perhaps, be allowed to reply in this place, stating why I cannot accept the opinions of my old travelling companion and colleague.

Briefly, the hypothesis in question tends to show the following: Originally the Proto-Eskimo lived inland from Hudson bay and farther west. Whereas some of them, of whom the Caribou Eskimo are the last survivors, remained on the Barren Grounds, others resorted to the coast between Coronation gulf and the Boothia peninsula, where they adapted their living to the sea and were thus enabled to spread along the coast; this is the so-called Palæ-Eskimo stage. At a later period the far richer Neo-Eskimo culture came into existence in Alaska; it spread as far to the east as Greenland, but at present it is not known from the central regions except from the so-called Thule culture which was brought to light by the archæological investigations of the Fifth Thule Expedition, being otherwise obliterated by a modern Eschato-Eskimo advance of inland tribes that penetrated to the sea and constituted the recent Central Eskimo.

Before entering further into the matter I wish to call attention to a fact not mentioned by Mathiassen, viz., that I have myself spoken under correction. Regarding the oldest culture center in the central regions I said:

I must emphasise that there is no absolutely binding proof. To obtain this, extensive archaeological investigations will be necessary, both in Alaska and in northeastern

[1] Report of the Fifth Thule Expedition, vol. 5. Copenhagen, 1929.

Asia . . . . But I accept the hypothesis of the Central origin of the earliest Eskimo culture as that which, in my opinion, most readily explains the facts we now have before us,

and I bring my work to a conclusion by characterizing my view as a working hypothesis which I myself will be the first to abandon as soon as it turns out to be untenable.[2]

However, I will try to show in the following that the time has not yet come to change my opinion.

Mathiassen first turns his attention to the Palæ-Eskimo culture, the existence of which he calls in question. His principal reason is that it has not hitherto been archæologically demonstrated. It might be answered —as is also mentioned in my work—that the Palæ-Eskimo probably used snow huts, of which it is of course impossible to find archæological evidence, and it is just as unlikely that graves should ever be found, because the dead were in all probability disposed of by exposure and not buried.

But then we should be able to find summer camping sites with tent rings, meat caches, etc., and these, on account of the rising of the land, should be situated at a higher level than the oldest ruins of the Thule culture (about 20 meters above sea-level), but such remains are never seen.

That they have not been observed is, of course, no proof that they do not really exist, for the regions where they may be found are so enormous and moreover during the winter, when the long sledge journeys take place, so buried under snow that they are very easily overlooked. Mathiassen himself gives an example of how difficult it often may be to catch sight of old settlement remains in these regions. The last day of the year 1921 he and I visited the old camping ground Aivilik at Repulse bay. Later on, he and the Greenlander, Jacob Olsen, came repeatedly to this place both during winter and summer; but it was not until they happened to meet a certain Netsilik Eskimo that they heard of house ruins there which none of us had observed before and that even seemed to be unknown to the local Aivilik Eskimo.[3]

Besides attention should be paid to the rising of the land spoken of as an established fact by Mathiassen. It is true that there has been an uplift since the period of the Thule culture, but it is an entirely unwarranted supposition that it has continued without interruption since a much earlier date. If we may draw conclusions from Scandinavia and Greenland, where

[2] *Ibidem*, pt. 2:226, 233.

[3] Archæology of the Central Eskimo. Report of the Fifth Thule Expedition, vol. 4, pt. 1:102. Copenhagen 1927.

conditions are somewhat better known, the postglacial rising of the land has not been unbroken, and if the Palæ-Eskimo culture happens to coincide with a depression of the shore line or merely a position like that of the early Thule period, it will be altogether in vain to look for geological evidence of Palæ-Eskimo remains, for in that case they will occur at the same level as the Thule sites.

There remains only a slight possibility of a typological distinction, but whether it can at all be accomplished is still an open question. Mathiassen states that the heavy tent rings of the Thule culture are never found on the low-lying gravel flats "where the more lightly built [i.e., recent] tent rings are *principally* to be found."[4] From my own experience I dare not decide whether this means that the latter type also, though more rarely, occurs at a higher level. At any rate Mathiassen's remarks point into this direction, and in that case these highly situated, less solidly built tent rings may perhaps be the Palæ-Eskimo remains looked for. At least this would agree with their similarity to the recent ones, as the Palæ-Eskimo and the Eschato-Eskimo cultures are supposed to show many points of resemblance.

As archæology leaves us in the lurch, my argumentation regarding the existence of the Palæ-Eskimo culture rests upon an ethnological foundation. I have tried to show that the culture of the Caribou Eskimo has been developed from an earlier stage than the Thule culture, for if this can be proved it goes without saying that there must be a culture layer beneath the Thule culture.

Mathiassen is of opinion that the simple lamp of the Caribou Eskimo, which is fed exclusively with deer's fat and has no other purpose than lighting, is not a primitive type as supposed by me: it should rather be interpreted as resulting from a process of degeneration, an adaptation to inland life. When I refer to the fact that Eskimo inland tribes in Alaska use blubber lamps and buy the necessary fuel from the coast dwellers, this is not conclusive.

> There may . . . be unknown circumstances which caused them to give it [i.e., the blubber lamp] up,—taboo rules, or unfriendly relations with the coast dwellers. We have a similar example in the case of the Sadlermiut, who were isolated by the penetration to the coast of new peoples; they could not get soapstone for their lamps and cooking pots, and so had to make them out of limestone.

For once Mathiassen seems to have lost himself in guesswork, and even guesswork of a not very plausible kind. It is true that the inhabitants of Southampton island and the adjacent coast of the continent were on bad

[4] *Ibidem*, 102. Italics by K. B-S.

terms—though hardly more than so many other Eskimo tribes—but the reason for the isolation of the former lay principally in very difficult conditions of communication with the continent and not hostile feelings towards the population. However, any difficulty for communication between coast and inland dwellers that can be ascribed to geographical causes is entirely out of the question. And even if hostile feelings occurred—though this supposition is utterly unfounded—they were not likely to result in a complete break of commercial relations. Primitive peoples know their own interest just as well as we do. No groups have been more hostile to one another than the Mackenzie Eskimo and the Loucheux, nevertheless they had regular trading intercourse. The taboo hypothesis is even more improbable. It is contrary to human nature that any taboo should befall a really vital culture element, and at any rate among the Eskimo nothing like this is known. Moreover, if this taboo ever existed among the forefathers of the Caribou Eskimo, it must have passed entirely into oblivion again, for at present nobody makes a scruple of burning blubber if he can. Therefore I can see no reason why they should once have abandoned the blubber lamp that means invaluable comfort in Arctic life.

Mathiassen admits that the deer fat lamp of the Caribou Eskimo has the oldest and original function of the lamp, viz. lighting and not heating. Thus the object of it does not go against regarding it as primitive. The Caribou Eskimo make their lamps of stone. Mathiassen, however, believes that the clay lamps as used in Alaska are older. For this assumption he relies on the shape and on the fact—that was not known, by the way, when I wrote my work—that only pottery lamps but no soapstone lamps occur in some recently made finds with nearly pure Thule culture from Alaska. Nobody knows how carefully these excavations were made (at any rate they were not carried out by an expert), but even if it should appear that clay lamps predominated during the Thule period of Alaska, that means nothing, if there has been an earlier, yet undiscovered stage where stone lamps might be used, as my supposition is. The distribution of the types goes to show that the stone lamp is the oldest type, for of course it is not the eastern Eskimo alone that use stone lamps. We also find them south of the clay lamp area among the Aleut, the Pacific Eskimo, and the Tlingit. In northeastern Asia they occur in Kamchatka and the Kurile islands. Even if Mathiassen may be of the opinion that the stone lamp has displaced the pottery type among the eastern Eskimo, because it did not agree with their roving habits, he cannot refer to similar causes among the latter peoples who are, to all intents, as permanently settled as the Eskimo around Bering straits. Thus the diffusion decidedly favors the hypothesis,

set forth also by Walter Hough,[5] that the clay lamps are intrusive in the Eskimo area, as is, according to my view, pottery on the whole. It should also be mentioned that stone lamps occur in palæolithic times in Europe, i.e., millennia before the invention of ceramics, and it is not at all improbable that a connection between these and the Eskimo lamps may be established.

Mathiassen also believes that the shape of the lamp proves that the stone type should be derived from the earthen one, because he considers the rounded form of the latter the most primitive. I have never doubted that the latter part of this supposition is right,[6] but I fail to see why this should involve a greater age of the clay lamp. A primitive stone lamp assumes a rounded shape as easily as an earthen one, whether it be derived from a naturally hollowed stone, a mussel shell, etc. The primitive stone lamps on both sides of the northern Pacific are rounded, and this is also true of the European stone age lamps. Wherever primitive stone vessels occur, they have mainly a rounded form.

However, the rounded lamp of the Thule culture is not primitive in all respects. In one direction, at any rate, it has attained a higher stage of development than the present Central Eskimo lamp, being generally provided with a partition or row of knobs. According to my view, therefore, the state of the matter is this, that both types have retained primitive features (the rounded shape and the absence of a partition, respectively) while acquiring at the same time higher developed details (partition and crescent shape), but this very difference in the line of development makes it improbable that one should be derived from the other. They must represent two different scions from a common ancestral stock, and this I find in the simple lamp of the Caribou Eskimo, intended for lighting only.

When considering the Central Eskimo regions the place from which the Eskimo lamp has spread, I rely upon the fact that Alaska with its primitive stone forms in this case seems to be a backward marginal area; but otherwise this problem is one of the before mentioned cases where a decisive proof is still lacking. That, nevertheless, the lamp finally goes back to the Old World is not Mathiassen's discovery. It has been maintained among others by myself as clearly as possible, while I have also tried to explain how this view should be combined with the theory of a spread from the Central Eskimo regions.[7] I only wish to add that it is not at all so

[5] The Lamp of the Eskimo. Report of the U. S. National Museum for 1896 [Washington, 1898]: 1038.

[6] Caribou Eskimo, 2:102.

[7] *Ibidem*, 189 ff.

strange that the lamp should disappear among the boreal Indians as it has done also among the Siberian peoples. It belongs principally to a rather sedentary mode of life (though it has also been retained by the nomads of Central Asia), and the early stage of culture in the circumpolar regions, the "ice hunting culture" from which Eskimo culture, as well as others, developed, is characterized just by a comparatively settled life, while on the other hand the later "snowshoe culture" typical of the boreal woodlands requires more roving habits that cannot but hamper the use of lamps.

Mathiassen admits that platform coverings made of heather are older than mats of baleen. There would be nothing strange in the circumstance that they were also used during the Thule period, just because they are the oldest, but this does not shake the fact that the Caribou Eskimo use the oldest type. On the other hand, it is self-evident, of course, that baleen mats are precluded from the inland for purely geographical reasons; but it will appear later that there are other cases where the Thule types are lacking inland and where environment cannot possibly have played a part.

According to Mathiassen geographical conditions have also prevented the use of water pails of Thule type inland. This is true, as long as we only consider vessels of baleen, but exactly the same type is made of wood, a thin edge being bent round a flat bottom piece. What kind of geographical conditions prevent these vessels from being employed interior? Nevertheless, only the presumably older skin pails are to be found there. The possibility that they were also known during the Thule period does not make them less primitive.

Mathiassen objects to the view that the bird dart of the Caribou Eskimo is an older type than that of the Thule culture, because the distribution of the two types among the Eskimo "seems to indicate that among these, at any rate, the type with the side-prongs is the oldest and that the other [multipointed] type may have been introduced under Indian influence in the central territory." Since the multipointed bird dart is found right from the Aleutian islands to Labrador, it seems rather puzzling how the diffusion may indicate a younger age, and it is also a pity that Mathiassen does not state from which Indians he believes the influence in the central area to originate. It is—in Mathiassen's view—a rather awkward fact that the bird dart, whether the side-pronged or the multipointed type, does not occur at all among any tribes that are the least in touch with the Central Eskimo.

It is true that the dividing line between the stiletto and the bone dagger is difficult to draw, but on the other hand I do not comprehend why the

distribution suggests that the former is the younger. Nowadays it only occurs in the central regions and Greenland, whereas the bone dagger is known from a far greater area. It is true that an entirely local distribution in many instances *may* be a token of young age, but it does not hold good, when, as is the case here, we have two widely separated occurrences. In this case there are but two possibilities: either the stiletto has been more widely diffused in former times than now (but then the narrow distribution certainly must be dropped as evidence of recency), or else we are confronted with two mutually independent local occurrences, that is to say, the stiletto was developed in two places, and such cases of convergence are so exceedingly rare that particular proof at any rate is necessary.

I cannot agree with Mathiassen that the types of fish hooks are too indistinct to permit any conclusions. Even if mixed forms occur, the main types seem to be sufficiently fixed. Also in this case it is a fact that the simplest type and only this—apart from the hook for fishing from the ice, which appears to be very late—is used by the Caribou Eskimo.

Mathiassen grants that the simple snare of the Caribou Eskimo is more primitive than other Eskimo types, but also this case "is probably explained by the fact that baleen, the best material for such snares, is missing among the Caribou Eskimos." I willingly own that my understanding fails in this point. The type of snare that, according to its distribution, must be ascribed to the Thule culture consists of a long line with a number of loops. Why baleen should be a condition for this type seems a mystery to me. The Polar Eskimo and the West Greenlanders make rows of snares of thin seal thong, and snares of similar type are employed by Californian and Pueblo tribes, none of which can very well be suspected of having access to baleen.

I likewise doubt that anybody else than Mathiassen can explain why the comb of the Caribou Eskimo is only "a coarser form of the combs of the Thule culture, due to the poorer material at hand (musk-ox horn or antler instead of ivory), and to the general degeneration of artistic skill always found when going from the Thule culture to the recent Central Eskimo." Nobody will deny that musk-ox horn and caribou antler is a less attractive material than ivory, but Mathiassen has to prove that it is impossible to carve a comb of the same shape for this reason. The small amount of artistic skill among the recent Central tribes as compared with the Thule culture is unquestionable, but we have no evidence that it is due to a degeneration, as Mathiassen says. It may just as well or even better be a primitive feature, an inheritance among the former from their Proto-Eskimo ancestors.

Mathiassen believes the toggle-shaped thimble holder, in spite of its simple form, to be younger than the anchor and double-curve types, because it has not been archæologically demonstrated and has a limited distribution. Whether the former circumstance is due to anything but chance, neither Mathiassen nor I can decide at present, and as to the latter, we meet something similar as when dealing with the stiletto: it occurs in two widely separated areas, in the east and among the Chukchi, i.e., in such a way as to characterize it as a survival.

According to Mathiassen there is nothing strange in the fact that the bird figures which I regard as analogous to the Caribou Eskimo dice made of metatarsal and toe bones are lacking inland, because the former are always made of walrus ivory. Nevertheless, it seems rather puzzling to me that it should be impossible to carve bird figures of antler, and still more puzzling that the inland tribes, when giving up the bird figures, should fall back upon such a primitive type as unworked toe bones that is found, like so many other Caribou Eskimo elements, in California and northern Mexico as well as in North and Central Asia, i.e., showing a type of diffusion in the marginal areas of the circumpolar culture region characteristic of very old elements.

Mathiassen regards the stone ring which the Caribou Eskimo and other central tribes put around their dead as derived from the closed stone grave of the Thule period. I have myself referred to this possibility.[8] On the other hand, it cannot be denied that the exposure of the corpse bears witness of a train of ideas entirely different from the one that asserts itself, when the dead are buried in a closed cairn. Nor should it be forgotten that the stone ring does not always occur. Of course exposure of the corpse is *per se* a more primitive procedure than regular burial, and it is everywhere among tribes of the lowest order, or—when it exceptionally occurs among more advanced peoples—at least among the lowest classes, that exposure takes place. To Mathiassen, however, it is in this case as with the bird dart: even if a type may be proved to be more primitive among all other nations of the world, it is otherwise among the Eskimo!

Mathiassen proceeds to a number of elements which do not actually occur among the Thule elements, whereas they have been supposed to belong there on account of their present-day distribution. Now, this is not due to any fault of those elements but to their character. This is sufficient reason for Mathiassen, however, to ignore some of them. This arbitrary selection might, perhaps, be considered inconsistent, for either one must stick solely to such elements as have been archæologically demonstrated,

[8] *Ibidem*, 122 ff.

or else all elements must be discussed, including those the occurrence of which have solely been indirectly shown. By selecting some, one runs the risk of being suspected for doing so, because nothing can be said against the rest.

I abstain, therefore, from discussing the sinew-backing of the bow, arrow feathering, and the cut of the dress, although according to my opinion simpler types have been demonstrated among the Caribou Eskimo in these cases than in the Thule culture.

As to skin curing, Mathiassen admits that washing the skins in hot water is more simple than urine tanning, but thinks that the roving life of the central tribes makes it difficult to keep the urine. I have mentioned this possibility myself,[9] but I do not think that it is a valid explanation. During the summer the West and East Greenlanders roamed about as much as any central tribe, but they did not give up their urine tanning for that reason, and stone houses, on the other hand, are characteristic both of the Polar Eskimo and the inhabitants of Southampton island, but they only treated the skins with water. The correlation of permanent settlement and urine tanning therefore seems more than doubtful to me.

It is a foregone conclusion that prick tattooing is simpler from a technical point of view than the needle-and-thread method, because the latter requires a very fine needle, so fine, indeed, that one is tempted to presuppose the use of metal. Nevertheless Mathiassen is of the opinion that needle-and-thread tattooing is the older among the Eskimo, while prick tattooing is adopted from the Indians. Among the Eskimo prick tattooing occurs with the central tribes, the Aleut, and probably also the Ugalagmiut (not the Pacific Eskimo generally, as stated by Mathiassen). Among the former it might be due to Indian influence as it is also employed by the neighboring Indian tribes, but this solution becomes doubtful when we regard conditions towards the west. The one tribe in direct contact with the Aleut are the Eskimo on Kodiak and the near-by coast of the continent, and they employ the sewing method. Prick tattooing is not met with till we reach the Ugalagmiut (?) and the North Pacific Indians, among whom the two peoples nearest to the Eskimo, i.e., the Tlingit and Tsimshian, practically speaking do not tattoo at all. If Mathiassen were right, the supposed Indian influence should in this case date from a time when tattooing was more generally practised than now, and besides it should in some enigmatical way have skipped over the Kodiak Eskimo. As, however, prick tattooing must be the older in the history of mankind, it seems to me a

[9] *Ibidem*, 116.

much more likely supposition that this is also the case among the Eskimo, but among them it has been forced into the background by the needle-and-thread method of Asiatic origin.

Mathiassen and I agree in regarding the dog harness with parallel loops as a Thule type, and Mathiassen also admits that the harness with crossed loops is technically the simpler. Nevertheless, he believes, on the basis of its narrow distribution, that it is a recent type. I do not think that it is allowable, however, to rely solely on the distribution as an age criterion, when it is expressly gainsaid by other facts, as in this case, where we have a very fine typological series starting with the single-loop harness used for dogs in North Asia and for men in the Central Eskimo regions, and further to the types with crossed loops and with parallel loops, the highest development being reached in Greenland, where we have two parallel loops and three cross straps.

When Mathiassen says that the two forms of swivels have an equally wide distribution and thus are hardly useful for chronological conclusions, it is only because as usual he confines his view to the Eskimo area. The simpler type with a flat collar, i.e., the one that is known from the Caribou Eskimo, occurs throughout northern Eurasia and even in prehistoric finds from Norway, whereas the swivel with a ring-shaped collar is a strictly Eskimo form, known only from the border regions, i.e., where the typical Thule types occur.

In contradistinction to the elements discussed above "I think we have," says Mathiassen, "a number of elements whose older types are found in the Thule culture and whose younger forms among the Caribou Eskimo, showing that in these respects, at any rate, the Thule culture was at the older stage." This expression is somewhat misleading, for I have myself a paragraph in my book with the heading "Later Elements in the Culture of the Caribou Eskimos," beginning with the words: "It would result in a distorted picture, however, if we adopted the view that all elements in the culture of the Caribou Eskimos were at a particularly ancient stage."[10] In this paragraph I make mention of the kayak, snow hut, certain cuts of the dress, the soapstone pot, and the woman's knife (*ulo*), and at the same time I refer to elements with a narrow central diffusion which must be considered comparatively young at the coast, at any rate younger than the Thule culture. As will be perceived, it is to a very great extent the same elements mentioned by Mathiassen.

As to the occurrence of younger elements within the culture of the Caribou Eskimo we are, therefore, more fully agreed than might be supposed

[10] *Ibidem*, 130.

on the basis of Mathiassen's words, even if certain details may be open to doubt. For instance, I find no decisive proof for Mathiassen's theory that the broad snow knife and light whip of the Thule culture is older than the modern Central Eskimo types, though on the other hand it is not improbable. Mathiassen also mentions the harpoon type, but in this context it must not be forgotten that we do not know the type of the Caribou Eskimo, and therefore it means nothing that other Central tribes, among others, have a form that is influenced by (hardly derived from) the Thule type.

Mathiassen does not believe in my view that the snow hut and the soapstone cooking pot originated in the central regions. I have found a support for my hypothesis in the fact that there we meet with these elements in their highest developed forms, which might indicate that they have had the longest time for development there. I admit that this is far from being a decisive proof, though it seems to me equally well founded as Mathiassen's view, and at any rate as regards the cooking-pot we have further evidence of its great age in its distribution in Indian North America. This, however, Mathiassen will not acknowledge, for "even though the Eskimo territory was not cut off from other American cultures by a high wall, there seems to have been some sort of fence." It is difficult to me to see any fence. There is a greater difference, at any rate, for instance between the North Pacific Indians and the rest of the inhabitants of North America than there is between the latter and the Eskimo. On the other hand, if we study the culture of a typical tribe of the northern woodlands, as the Chipewyan, we shall find that more than fifty percent of their elements are widely diffused among the Eskimo.[11]

Together with the younger types mentioned in the culture of the Caribou Eskimo Mathiassen also speaks of the breathing-hole hunting; to this I will, however, return later, as it does not concern the Caribou Eskimo directly. On the other hand, there is reason to turn the direction to another argument set forth by Mathiassen in order to prove the younger character of the Caribou Eskimo culture. There occur in this culture 34 elements with a more or less pronounced central diffusion (15 of which are due to Indian influence), while in the Thule culture there are only 6 central elements, of which 4 are also found in the recent Central Eskimo culture.

What does this mean? To Mathiassen the answer is clear, as "such elements must be regarded as comparatively new." However, the matter is not so simple. We are placed before the question, how have these central

[11] Birket-Smith, Contributions to Chipewyan Ethnology. Rept. on the Fifth Thule Expedition, v. 6. (In press.)

elements originated? Setting apart for the present the few that also occur in the Thule culture, it must be considered out of the question that the remainder have their roots in this culture. They seem to make their appearance rather suddenly in the central regions contemporaneously with the change of people when the Thule culture succumbed, and as far as the archaeological investigations permit of any conclusions there are not the faintest traces in the later phases of this culture which might be interpreted as an attempt to develop these elements.

Now, did they come into existence *after* the Thule period? It is conceivable as far as some elements associated with breathing-hole hunting are concerned, but as to the bulk of them this possibility must be dismissed. Since the Thule culture disappeared there has been, for instance at Repulse bay, an upheaval of the coast of about 5 meters, and at Ponds inlet there are traces of European influence in the uppermost Thule layers, which would seem to date them at least as late as about 1600.[12] Jenness is of the opinion that the present Copper Eskimo have only lived a few centuries in the region of Coronation gulf,[13] and on the southwest coast of Hudson bay an offshoot of the Thule culture held out as late as the middle of the eighteenth century.[14] Thus everything goes to show that the Thule culture has not till comparatively recently disappeared from the central regions. On the other hand there is from Anangiarsuk on the Melville peninsula a find a hundred years old, but nevertheless with an entirely modern Central Eskimo character. The period comprised between the disappearance of the Thule culture and a find like the latter is far too short to permit of the development of a dozen and a half different culture elements.

However, Mathiassen and I entirely agree that the ancestors of the present Central Eskimo came from the inland and advanced to the coast at the close of the Thule period, and under these circumstances it is only natural to suppose that they have brought the local elements discussed along with them. In other words, these elements originated inland before they were brought fully developed to the sea, and this entails that every reason for regarding them as particularly young must disappear.

If the inland ancestors of the present day Central Eskimo originally are Thule Eskimo that left the coast, as Mathiassen supposes, they have at least had the Thule period at disposal for the development; if, as I hold,

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[12] Mathiassen, *op. cit.*, 2:7.

[13] Origin of the Copper Eskimo and their Copper Culture. Geographical Review, v. 13, 1923.

[14] Caribou Eskimo, 2:14 ff.

they originally belong to the interior, they have had a still longer time. The fact that a few central elements (certain scraper types) occur as early as in the oldest Thule finds from Malerualik and Naujan, might, in fact, suggest that the Thule culture from the very beginning was in contact with the interior, the culture of which must therefore be at least of the same age as that of the coast. This, however, remains an open question. The main thing is that the narrow distribution of the central elements cannot be due to their recency in the absolute sense of the word but only to their recency *on the coast*.

We have now gone over the arguments set forth by Mathiassen in favor of his view that the culture of the Caribou Eskimo is younger than that of the Thule period; if finally we sum up the conclusions arrived at, they may be formulated thus: (1) I must insist that some of the elements in the culture of the Caribou Eskimo have an older stamp than the corresponding ones in the Thule culture; (2) other elements are more developed than those of the Thule culture, a fact I have myself emphasized as plainly as possible; (3) there are also a greater number of elements with a narrow central distribution than there are in the Thule culture, but it is true of many of them at least that they are only younger than the Thule culture at the coast, whereas nothing is known of their age in the interior.

It seems to me that the occurrence of undoubtedly older types in the culture of the Caribou Eskimo can be interpreted only in one way, viz., that it cannot be derived from the Thule culture as it is known to us. We must go farther back to some common base. This view is not the least affected by the fact that there are also several cases where the less developed types are to be found in the Thule culture, for this only means that the two cultures have taken different paths from their common starting-point. It agrees perfectly with this hypothesis that the Caribou Eskimo have a number of types which do not occur in the Thule culture, just as the latter has a great many elements known neither to the Caribou Eskimo nor to any other central tribe.

If I have indicated the culture of the Caribou Eskimo as old-fashioned in order to give a complete characterization of it, it is of course not because I regard every single element of it as on a lower level than among all other Eskimo; it only means that its starting-point is deeper than that of other Eskimo culture forms, and that it seems to have parted less from it on essential points. On the other hand, it would be entirely meaningless to assert that it was a complete reflection of the earliest Eskimo culture.

Mathiassen has founded his criticism on a one-sided Eskimological base. If, however, we look farther away, we also there find a powerful support

for considering the Caribou Eskimo culture an old form, and this aspect of the case has been left entirely out of consideration by Mathiassen, although a very great part of my work is directed to the purpose of showing this. If we trace the culture elements of the Caribou Eskimo over America and Asia, we find that more than half of them have a very wide distribution over both continents; it is, indeed, far from being rare that we can follow an element throughout the greater part of North America and northern Eurasia. Among the elements with a narrower diffusion only extremely few are particularly connected with the circumpolar forest belt, whereas a great many crop up as soon as we get south of it: in America in the Great Lakes area, the Pacific plateaus, and California; in Asia sometimes in Mongolia and Tibet, although conditions there are much obscured by the proximity of the great civilizations of China and India. Probably this distribution is most readily understood when we regard these elements as constituents of a very widely diffused and extremely old culture layer which has succumbed more or less in the circumpolar forests owing to later development (introduction of the snowshoe and reindeer nomadism), while it has been retained in the outskirts and particularly among the Caribou Eskimo.[15]

It might be objected, however, that even if it be true that the culture of the Caribou Eskimo rests on this very old base, the same is the case of Eskimo culture as a whole, and therefore the explanation given above may prove that Eskimo culture sends its roots far down into the history of mankind, but not that the culture of the Caribou Eskimo is at a particularly old stage.

In order to view this in the right light it is worth while to make out which are the elements that the Thule culture has in advance of the Caribou Eskimo. Some of them, it is true, are so intimately connected with the coast that they are bound to disappear, if a group of coast dwellers migrate to the interior. This applies to the particular implements for sea mammal hunting, but probably also to some others as the fishing-net (which is difficult to dry during the winter if one has not permanent winter houses like the Thule Eskimo, or open fires like the northern Indians) or the umiak and the sail, although the demand for imported canoes among the present inland dwellers would go to show that they really need big boats. If, however, we proceed to a number of other elements like bone arrowheads with a row of barbs and conical tang, the toggle-shaped harpoon head (that may be used—and among certain Indian tribes actually is used—for fishing as well as for sealing), the so-called tower trap, the bola, the adze,

[15] *Ibidem*, 208 ff.

the needle case, eye shade, and the richly developed ornamentation consisting of incised patterns, chain links, and—in the working of skins—of narrow, drawn-through strips, then every attempt at a geographical explanation must be a failure, for nobody can deny that these elements might be used inland just as well as on the coast. There is absolutely no reason for giving them up. This alone tells decidedly against the theory that the culture of the Caribou Eskimo is derived from the Thule culture, whereas the matter is clear if we take them to be mutually independent.

If we go further and study the distribution of the pronounced Thule elements, we find that those among them that can at all be traced outside the Eskimo area have, with a single exception, a very narrow distribution in North America, it being in the main limited to the northwest. *If* the the culture of the Caribou Eskimo was simply derived from the Thule culture, and *if* the elements discussed were only lost at the shifting of the habitat from coast to inland, it would indeed be a very remarkable coincidence that the elements with narrow diffusion of all others should be condemned to disappear, whereas the widely diffused elements continued unassailed. This difficulty, however, vanishes also, as soon as we adopt the other view.

The question whether the culture of the Caribou Eskimo is particularly old and a survival of a Proto-Eskimo stage as I believe it to be, is entirely independent of the problem of the origin of Eskimo culture, if by this we understand the development of the particular culture that enabled the Eskimo to conquer the Arctic coast. This process might be supposed to have taken place at Bering straits or in the central regions, without this being in itself influenced by the conception of the position of the Caribou Eskimo.[16]

Before entering further into this matter I wish to remark, however, that according to my opinion inland and coast life among the Eskimo mean a real time difference. It seems to go against experience that a people should be able to develop two essentially different forms of culture simultaneously; where we meet an inland and a coast life, as among the Chukchi and Koryak, one phase is evidently older than the other.

I believe that Mathiassen and I agree on this point, but when he is of the opinion that "we must look to the Old World for the deepest roots of the Eskimo culture" it is because the Thule elements show Asiatic affinities, a fact I called attention to before Mathiassen.[17] As soon as the Thule culture is not regarded as the oldest Eskimo culture we have to turn our attention in another direction. On the strength of the supposition that the

[16] *Ibidem*, 232, 123.

[17] *Ibidem*, 232.

two main props of coastal life, i.e., sealing at the breathing-holes and the blubber lamp, have spread from the central regions, I have set forth the hypothesis that the central culture hearth is the older.[18] This view finds a further support in the fact that the elements that seem to have originated in the central area between them constitute a well circumscribed complex, comprising hunting methods, types of dress and habitation, means of conveyance, etc.—in other words seem to be well fit for forming an independent culture.[19] On the other hand, I will not deny—nor have I ever denied—that there is no absolutely binding proof as yet. We still know so little as to this point that any decisive judgment is at present impossible.

Nevertheless the hypothesis of the central origin of Eskimo culture is indirectly supported by some other facts which are well worth mentioning. The Jesup North Pacific Expedition arrived at the view that there has formerly been an intimate connection between the Palæ-Asiatic peoples and the Indians east of the Bering sea, but this was interrupted by the advance of the Eskimo coming from the north.[20] This theory agrees with the view that the population in southern Alaska and the Aleutian islands seems to be Eskimoized, but neither somatically, linguistically, nor culturally of Eskimo stock in the strict meaning of the word.[21]

We also know that the snowshoe and a very essential part of the complex characteristic of the boreal woodlands must have been introduced from Siberia across Bering straits. If the Eskimo from times immemorial had been living at Bering straits, they must have been the first to receive the snowshoe, and this implement must have impressed their way of living at any rate in Alaska. This, however, is far from being the case—another circumstance that goes to show that they have only in recent times, at least after the introduction of the snowshoe, reached as far west as Alaska.[22]

In my last work I have also called attention to the fact that the boreal forest zone northeast of the Mackenzie was practically speaking uninhabited, when the great migrations of the Athapaskan tribes took place in the eighteenth century.[23] Without any doubt this lack of inhabitants is connected with the advance of the present Central Eskimo tribes to the

[18] *Ibidem*, 100 ff., 224 ff.

[19] *Ibidem*, 132.

[20] Franz Boas, Die Resultate der Jesup-Expedition. Verhandlungen des xvi. Amerikanisten-Kongresses, Bd. 1, 1910.

[21] Caribou Eskimo, 2:226 ff.

[22] Birket-Smith, A Geographic Study of the Early History of the Algonquian Indians. Internationales Archiv für Ethnographie, bd. 24:219, 1918.

[23] Folk Wanderings and Culture Drifts in Northern North America. Journal de la Société des Américanistes de Paris. (In press).

coast and the destruction of the Thule culture. The size both of the area mentioned as well as of the wave of people penetrating to the coast, seems, however, to be at variance with the view that it was only a re-migration to the coast, whereas both figures are in better accord with the hypothesis of a central origin.

At last we come to the not less important, but still much more obscure problem regarding the age of the Eskimo culture. Mathiassen thinks that I exaggerate in considering it a link in a late or epi-palæolithic complex. It is, however, only the Proto-Eskimo culture, the last survival of which should have been preserved among the Caribou Eskimo, to which I have ascribed that high age. About the age of the adaptation to the Polar sea I have not said anything at all, but as to this point I can gladly subscribe to the view of Mathiassen that hardly "many thousands of years have passed since the Eskimo first arrived on the shores of Canada and Greenland."

Mathiassen finally seems to deplore that when tracing the elements of the Eskimo culture among other peoples I have "usually taken only North America and North Asia into consideration." I do not quite understand what he means by these words—whether he would prefer that I had taken South America or Africa? Of course I should be the last to deny that there are still an infinite number of points that remain obscure in Arctic ethnology. But I believe that during the last decades several questions have been elucidated, and this permits us to entertain good hopes for the future. I should be glad if there would also be occasion for Mathiassen and me to meet in collaboration and discussion.

NATIONAL MUSEUM OF DENMARK,
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TRADITIONS AND INFORMATION REGARDING THE TONA'XA[1]

By JAMES A. TEIT

I OBTAINED the following information on the Tona'xa tribe during the last two or three years.

Information obtained from the Kutenai.—The Tona'xa were once a very numerous people. They lived altogether east of the Rocky mountains, in the country south of Macleod, and ranged as far east as the Sweet-Grass hills. Most, if not all, of the country now comprised in the Blood reservation in Alberta, and the South Piegan or Blackfoot reservation in Montana, belonged at one time to the Tona'xa. Salish people related to the Flathead, or part of the latter, lived immediately south of them; and the KakwagEmEtû'kEnEk,[2] a band of the Upper Kutenai, occupied the country north or northwest of them towards the mountains. To the north and northeast were the Blackfoot tribes. At that time it seems that the Gros Ventre and Assiniboine were farther to the east, and the Shoshoni or Snake to the southeast. West of them (west of the Rocky mountains) were the Pend d'Oreilles, and above them the Upper Kutenai (called Qua'te'n by the Tona'xa). It is not known with certainty into how many bands or camps the Tona'xa were divided; but it is known that there were two bands with separate chiefs, which lived together near Browning, Montana, on the present Blackfoot or South Piegan reservation, and this place was considered their principal home. Here their old camp-sites may be found, although now covered with earth. When the earth is dug away, the tent-circles and fireplaces may be seen. According to John Star, numbers of these circles of stones have been unearthed in this vicinity. Chief Paul told me that when he was a young man he saw the remains of a great Tona'xa camp in the country south of Macleod,[3] in the foot-hills, the circles

[1] The information contained in the following pages was collected by Mr. Teit in 1912 and 1913 as part of an investigation of the distribution of western tribes which was made possible by the generosity of Mr. Homer E. Sargent of Pasadena, California. The general results of his studies were published in the Bur. Am. Ethn., Ann. Rept., v. 45, and in the Univ. Wash. Publ. in Polit. and Social Science, v. 2.—Franz Boas.

[2] This band spoke the same dialect as the Upper Kutenai of Tobacco Plains and Fort Steele. They are said to have had their headquarters in the heart of the Rockies, in the Crow's Nest pass, near Michel, B.C., and to have hunted on both sides of the divide. They are reported to have been killed off with an epidemic, and the few survivors became scattered and lost. A very few of them settled among other bands of Kutenai as far north as Windermere. (The ending -nik! means people.—F. B.)

[3] As in the country around Macleod and some distance south strong winds are frequent, stones would naturally be required to be placed against the lodge-poles to steady the lodges.

of stones for their tents being traceable for a distance of about five miles. The tribe is reputed to have had neither horses nor guns; and at some time long ago one of the bands living near Browning was visited by an epidemic (some say it was small-pox), and all of them died except nine, who became well through the administrations of a young woman called their younger sister. This girl had an elder sister married to a man of the other band, and lived among them. The nine survivors went to take up their abode with their friends of the other band; but the latter would not let them come near, for fear of contagion. At last they allowed the girl to join her sister. The other eight then left the country, and, crossing the mountains to the west, settled among the Pend d'Oreilles. Some years afterwards the remaining large band disappeared, and it is not known whether they were exterminated by the Blackfeet or some other tribe, died of small-pox, or migrated. It is generally believed that they went off in a body to some distant country, where their descendants are now living. In later years the Blackfoot tribes overran and occupied the country where the Tona'xa had been.

Origin of tribal name.—The Tona'xa spoke a dialect of the Kutenai language. Many of their words were different; but still the language was distinctly Kutenai, and could be understood by any Upper Kutenai. The terms "Tona'xa" and "Kutona'xa" (from which "Kutenai") are the same. After the Tona'xa had disappeared from the Plains, the Blackfeet found a people who spoke a similar language (viz., the Upper Kutenai) living west of the Rockies.

Origin.—At one time long ago the Tona'xa were very numerous. Among them lived a great man whom no one could kill. No arrow or other weapon could wound him. He was very large and strong, and a great fighter. He killed nearly all the people of his tribe. Some fled for fear of him, and settled in distant places. Then he made war on the neighboring tribes, and took many slaves back to his country. Then the tribe increased again. They were no longer of one blood, however, but a mixed people, as the slaves were of various tribes. This man had many descendants. Thus it happened that some families spoke other languages. At a later time the tribe was killed off by disease and became extinct.

Information obtained from the Salish.—The information I gathered in 1907 from Pend d'Oreilles and Flathead on the Flathead reserve in Montana agrees in many points with what I obtained recently from the Kutenai, except that the Salish tribes considered the Tunā'xe, the Salish pronunciation of the name, to have been Salish, and to have spoken a dialect related to the Flathead, but so distinct that it was very difficult to understand. They claimed that the headquarters of the tribe were on Sun

river, and that the tribe or part of it owned horses, at the time when they were scattered by the Blackfeet. A tribe of Kutenai lived close to them to the north, and were fast friends with the Sun River Tunā'xe. What additional information I have since gathered from Salish sources agrees with this, and is as follows: The Tunā'xe inhabited the region at the head of the Missouri, having their headquarters on Sun river. They occupied the country at least down to Great Falls on the east. Their northern boundary is uncertain, but probably it did not extend as far as the southern boundaries of the present Blackfoot or Piegan reserve in Montana. A tribe of Kutenai lived adjoining them on the north. At one place on the northern border near the mountains it is said that a large band of Kutenai lived in close proximity to them, and in fact they often lived together. The people at this place were much mixed through intermarriage. In fact, all the Tunā'xe were more or less intermarried with Kutenai. The latter occupied a considerable area of country immediately north of the Tunā'xe, and were at one time numerous. The Blackfoot tribes lived to the northeast, and at one time the Tunā'xe carried on trade with them. All along the east of the Tunā'xe the country was held by Shoshoni or Snake. Some of the latter lived there habitually. To the south lived a band of the Flathead (or Salish proper), with headquarters near Butte. This band intermarried often with the Tunā'xe, and had considerable intercourse with them. They carried on a trade with the northern people; and in their country near Butte, or some place a little east of there, there was a trading place or rendezvous where Tunā'xe came to trade. Flathead from farther south and west also came there occasionally, and maybe some Kutenai and Shoshoni. About two hundred years ago, or shortly after the introduction of the horse among the Salish, the Blackfoot tribes attacked the Shoshoni, Tunā'xe, and Kutenai. At this time the Tunā'xe of Sun river had horses, but the Kutenai and Blackfeet had few if any. The Blackfoot war-parties always travelled on foot. They persisted in this custom long afterwards, even on the Plains in open country. The Blackfeet did not learn to fight on horseback until long after they had plenty of horses. They were about the last tribe to use horses in war, and continued to fight on foot after all the other tribes were mounted. The Blackfeet are said to have driven the Shoshoni away to the south, and the Kutenai west of the Rockies. They fought a long time with the Tunā'xe, and eventually completely routed and scattered them. In this war many Tunā'xe were killed, the survivors evacuated the country, and some parties of them were lost. No one knows what became of them. A few small parties fled west and settled among the Pend d'Oreilles and Flathead. A few even joined the

Kalispel, and some the Kutenai to the north, west of the Rockies. One band migrated south, and was attacked by a hostile tribe, and most of them were killed. Some say that the Blackfeet followed and overtook them, and some think they fell in with the Crow. Their remnants settled among the Shoshoni and Bannock, and a few, it is said, among the Nez Percé. Another band migrated east, and were never heard of again. Still others, it is said, were adopted by the Blackfeet, to whom they had surrendered. No doubt, they soon became absorbed.

From the foregoing information gathered from both Kutenai and Salish sources it appears that when the Kutenai refer to the Tonā'xa, they mean the tribe of Kitunaxa or Kutenai formerly inhabiting the Plains, and living in the country north of Sun river, with their southern headquarters near Browning. The Salish agree that this part of the country was held by the Kutenai or at least by a Kutenai tribe. When the Salish refer to the Tunā'xe, they mean a tribe related to themselves that lived chiefly on Sun river. As the two tribes appear to have been constant friends and often intermarried, there would be a tendency on the part of strangers from a distance to consider them as one tribe, and also probably to refer them either to one stock or the other. A case somewhat similar is that of the Shuswap division which formerly inhabited the Lower Chilcotin river (see Teit, The Shuswap, Jesup Expedition, 8: 469 sq.). It seems that Blackfoot tradition agrees with the early distribution of tribes as stated by Salish and Kutenai. Particularly does it agree with the Salish information, as given by Wissler in his Material Culture of the Blackfoot Indians (p. 17):

> The Piegan claim that before the white man dominated their country (an uncertain date, probably 1750–1840), the Blackfoot, Blood, and Piegan lived north of Macleod; the Kutenai, in the vicinity of the present Blood Reserve; the Gros Ventre and the Assiniboine, to the east of the Kutenai; the Snake, on the Teton River, and as far north as Two Medicine River; and the Flatheads, on the Sun River. These traditions were so definite and consistent, that consideration must be given them. The other point of interest is that the traditional expansion of the Blackfoot which drove all these beyond the mountains or elsewhere came after the introduction of the horse.

Some Salish state they think the chief object of the Blackfoot in attacking the Tunā'xe was plunder, for the people of Sun river had numbers of horses when the tribes farther north had few or none, and, besides, they were reputed to be otherwise wealthy. Mr. E. S. Curtis informed me a few years ago, that when in Montana he had recorded some traditions about the Tunā'xe, and had also written down some dozen words of the old

Tunā'xe tongue, that he obtained from an old woman who was part Kutenai. He said these words were related to the Salish tongues (Flathead, etc.).

On my recent trip to Kootenay I took down a list of names given to alien tribes by the Tobacco Plains band. No doubt, the same names are used by all the Kutenai. I obtained names for nineteen tribes east of the Rockies, and twenty west of the Rockies (including Shoshoni and Bannock). On the whole, the meanings of the names agree very closely with the Salish names for the same tribes. Most of the names for western tribes are borrowed from the Flathead language. Not many names throw light on the early history of the tribes. The designations for the Flathead are of interest. The Kutenai claim that their oldest name for this tribe was "Leg-Descendants [or People]." Why they were so called is uncertain. This name was applied to the real Flathead or Salish. At one time there lived in close proximity to the latter, in a part of what is now considered Flathead country, a tribe who were different from the Salish in appearance, for they pressed their heads so that they bulged at the sides. These people were called "Flat Heads." The Salish (now called "Flatheads") were always called "Leg-People"; but when this flatheaded tribe died out (possibly being absorbed by the Salish), their name was applied to the Salish, and gradually this term superseded the other. The Kutenai name for the Pend d'Oreilles is "Red-Willow-Descendants [or People]." Why they are so called, is uncertain. Some say there is an old story connected with the origin of this name. The name "ntcu'wa'," which I collected from the Kalispel for a tribe I was not able to identify at the time, is their designation for the Ojibwa or Chippewa, as I learned recently.

The following words and phrases of the old Kutenai-Tonā'xa[4] dialect were obtained from Kiēunalī'pel[4] (Kyuna-upēł [?], "Many-Killed"), an old woman of the Tobacco Plains band of the Upper Kutenai tribe, about seventy years old. They were collected at Tobacco Plains, B. C., in April, 1913.

It is claimed that Kiēunalī'pel is the only person living on the Canadian side who knows much or any of the old Tonā'xa language and it is now doubtful if any one survives on the American side who knows any of it. A few years ago some women were living among the Kutenai of the Flathead reservation who remembered part of the language, and only a couple of generations ago several people there among the Kutenai and Pend d'Oreilles spoke it habitually among themselves.

Kiēunalī'pel stated that she was one of the very few people now living

[4] I have added the Kutenai equivalents so far as they could be ascertained.—Franz Boas.

among the Kutenai who could claim Tonā'xa descent. She was quarter Tonā'xa, her paternal grandfather being a full-blood Tonā'xa. His name was Katsantlākma'na[4] (K-sa'nta-a'kma'na'm, "Bad-Road"), a Tonā'xa personal name. His wife (her grandmother) was from the Windermere band of the Upper Kutenai. Her father's name was KENXUNTXAKELA'ULA[5] ("Many-Running-Grizzly-Bear"), a Kutenai personal name. Her mother was half Lower Kutenai from Bonner's Ferry, and half Upper Kutenai of the band now on the Flathead reserve. Her father was brought up in the Flathead country among the Flathead (Salish).

When a very young girl, she spoke only Tona'xa, as she lived among a small group of people who talked in that dialect; but later, owing to the dying-off of the old people, to intermarriage with strangers, and to the final scattering and separation of the few people who knew this dialect, it went completely out of use. After thinking very hard, the following words were all she could recall of the Tona'xa words that were different from the other Kutenai dialects.

TONA'XA WORDS

1. Kowākełokankatsā'ge	Term applied to a long, narrow smooth slope, devoid of timber, such as occur in high mountains.
2. Ākin'qū'pes	Term applied to a patch of windfalls or down timber, when the logs are strewn very thickly.
3. Yuna nkopi'sene[6]	Many windfalls.
4. Letē.nkopi'sene[7]	No windfalls.
5. Akun(k)opisenna'na *or* Ākin(k)opisenna'na[8]	Term applied to a patch of windfalls, where the trees or logs are of small size and not many.
6. Kaiunankopi'sene[9]	Patch of windfalls consisting of only a few lying across each other.
7. Tsenekaka'nkopisxonte'tek	There is a windfall [or log] across [the trail] here and there (in answer to a question).
8. Kakankopwsxō'mek (-xo-mek reflexive unintentional)	Are there many logs [or windfalls] in the way [or across the trail]?

[4] -nuxu—to run away; k.ła'wła—grizzly bear.

[5] yuna-nyopis-ne; the stem -ngopis may be Kutenai, but has not been recorded—F. B.

[6] łit-without.—F. B.

[7] The same: small windfall.—F. B.

[8] ga-negation; yuna-many.

9. Koko.słĕ'ɛt (-łeit country).....Forest consisting of tall timber and no underbrush, so that a person can see a long way under the trees.
10. A.kwɛłłipł'ɛt[10].....Weeds or springing vegetation.
11. Aqlqɛna'na.....Spring of water.
12. Wō[11].....Water.
13. I'su$_w$o.....Snow-water, melted snow.
14. Isuû'ɛn.....To melt snow.
15. Axwo'ɛnał.....Snow-shovel.
16. Ax'wû'kwun.....To shovel snow.
17. Lō[12].....Awl, bone awl.
18. Kû'$_a$[13].....A camping-place that has been left.
19. Nixqaxhû'n.....A pack that gets on one side when a pack turns over.
20. Iqkakī'nin[14].....To turn over a thing.
21. Ikkinki'nen[15].....Open the door (command).
22. Kîn'tsē'ɛk[16].....Do you (those) want to eat? (question, singular)
23. Ka'psɛn.tsɛlsîlsē'ɛk[17].....What do you want to eat? (question, singular) (ga'psin trɛtsitsē'ek)
24. Konaxkopłēlēt[18].....I will whip [or strike] you [or ye] (said by elders to children when bothered by them).
25. U''u.....An exclamation or expression used in talking at the commencement of almost every disconnected sentence. Said to have been very commonly used. If the sentence dealt with distance in time or space, it was much drawn out, and *vice versa*. If the person were angry, it was spoken sharp and abruptly.

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[10] a$_a$'kug łu'pe'n, young trees;—łeit country.—F. B.
[11] wu'u, water.
[12] ło'u, awl.
[13] ko'o, tent site.
[14] k'n-e', do it with the hand.
[15] huk! ''e'n, to open; k''ne'n', do it with the hand; ''zn-Vz' open with the hand.
[16] K'ntse''ek.
[17] ga'psin tsxał'ĕk, what does he want to eat?
[18] ku, I who;—-gKup-, strongly—-łałt, to strike.

TRIBAL NAMES, ETC.

26. Tuna'xa, Tona'xa, or To'na'xa } (meaning unknown)... Own name for themselves as a tribe. Tunā'xe they say is the Salish pronunciation (viz., Flathead and Pend d'Oreille).

27. Qaqa'tē'n (said to mean "glove" or "mitten," or "they have or possess gloves or mittens," why so called is obscure)..... Kutenai or Upper Kutenai tribe.

28. QaqatEnā'tat..... A young or little Kutenai, a Kutenai child.

29. Katsantākma'na (said to mean "bad road")..... Personal name of a male.

PALAEOLITHIC MAN IN IRELAND

By E. B. RENAUD

THE authors of text-books on prehistory and European archaeology are unanimous in denying Ireland the privilege of having known Palaeolithic man. An argument advanced is the fact that up to the time of their writing no human bones or artifacts dating back to the Pleistocene period have ever been found or recognized on the island. They also state that Ireland, but for a very narrow southern section, was covered with ice during the whole of glacial times. This supposition may be true. However, it must be remembered that the four generally accepted glaciations were separated by very long and warm interglacial stages. During these many millennia of more favorable climate man existed in England. The remarkable discoveries of Mr. J. Reid Moir and of several other British prehistorians have established these facts beyond doubt for East Anglia and other localities. Why England should enjoy a much more genial climate than Ireland at about the same latitude and at relatively the same distance from the ice cap, is not clear! Moreover, in Pleistocene times, Ireland and England were connected, as was England with the continent, thus allowing easy passage even for the most primitive men from the mainland to what is now the British Isles, and this also admits of a possibility of their reaching Ireland. This seems confirmed by the discovery in several Irish caves of bones of typically Pleistocene animals, such as are also found in England and in France. Where animals went, contemporary men could go. These arguments should weaken at least one of the objections to the existence of Palaeolithic man in Ireland.

Besides, the negative reason that no remains attributable to a human origin of that period have ever been found on the island is no longer a fact. For, in June 1927, Mr. J. P. T. Burchell, picked up on the beach of Coney Island, County Sligo, two flakes of limestone. A few days later he discovered some more. Their appearance, coupled with the fact that violent storms failed to produce similar flakes, convinced him that he was in the presence of humanly shaped implements. Nevertheless, he was unable to ascertain their geological association and age. He continued, then, his research.

> At Rosses Point, a little over a mile to the north, I found, concentrated in a very small area (47 by 9 feet) situated above the level of high-tide, over one hundred unrolled limestone artifacts exhibiting the technique of the Coney Island specimens. There is no doubt that at Rosses Point I had located a factory site, since in addition to implements and flakes, there occurred cores from which they had been struck.

The Rosses Point artifacts were recovered from beneath enormous blocks of limestone, and having regard to the positions occupied by the blocks I was forced to conclude that they represented the remains of a rock-shelter which had given way when the weight of the Boulder Clay was deposited on the top of it. But though the finds at Rosses Point threw much additional light upon those at Coney Island, the geological evidence lacking at Coney Island was not supplied at Rosses Point.

The only way of dating the newly found artifacts could be by means of comparison with implements of similar appearance and technique of age known in stratified English sites. But this method is not without danger, especially when materials differ, such as limestone, flint, and quartzite. Looking, then, for geological evidence, Burchell was lucky enough to find it, three weeks later, at Ballyconnell, a near-by place, in the form of two specimens he firmly believed to be of human make. They were discovered 39 feet below the surface and embedded in Boulder Clay. The stratification was the following: Landwash, 4 ft., Boulder Clay, 35 ft., Horizon of flaked implements, Boulder Clay, 7 inches, Middle Limestone. In Suffolk and Norfolk the relation of the Boulder Clay of various sites in regard to glaciation had been carefully established and many implements of Lower and Middle Palaeolithic found in it and dated. It was then possible and acceptable to state that the limestone specimens discovered by Burchell at different sites near Sligo were of Palaeolithic age and typologically Mousterian. The assortment of artifacts now comprised Levallois-like flakes, side racloirs or scrapers, fan-shaped scrapers, square-ended scrapers, choppers, ovate hand-axes, and pointed hand-axes as well as cores.

In *Nature* (London, August 20, 1927), the fortunate discoverer of the first Irish palaeoliths revealed to the scientific public the nature and conditions of his important finds and expressed his patiently and logically reached conclusions.

> From the researches I have carried out it seems clear that the specimens—(a) are of undoubtedly human origin, and of Lower Palaeolithic (Early Mousterian) types; (b) are older than the deposit of Boulder Clay present upon the Sligo coast; and (c) have a considerable distribution, and are not confined to one site only. The surfaces of the artifacts exhibit a different color from the freshly broken limestone, and some show patches of what appears to be a very definite patination. The material from which the specimens are made has a well-marked conchoidal fracture, and was very skilfully flaked by the palaeolithic hunters of Sligo.

Reid Moir endorsed these opinions and contributed an interesting article (*Nature*, Sept. 24, 1927) on the probable method of manufacturing the strange limestone artifacts. No one was better qualified than the Ipswich archaeologist to do it. He comments upon the very close similarity of

technique between that used in the making of the Sligo and Mousterian implements, the only difference being

> in the breaking up of the raw material into suitable blocks; and in the detachment of more than one Levallois flake from the prepared core,

which he plausibly explains on account of the material being in the first case limestone, in the second flint, and also because of the large blocks which otherwise would have been wasted.

A rather violent controversy ensued, as can be expected whenever an unforeseen discovery comes to contradict the accepted doctrine of masters of the time. One of the leaders of the opposition was R. S. A. Macalister, author of an excellent work, European Archaeology. He headed a group of scientists from Dublin who visited the Sligo sites. In his report he contradicted most of Burchell's assertions, expressing the belief that the flakes were due to natural causes. The other members of the party concurred in these conclusions although they had not seen the original specimens. A Mr. S. H. Warren, from Essex, had also joined the opposition in spite of the repeated opportunity to see the collection of Sligo artifacts and to discuss them freely with Mr. Burchell. It is even due to the generous offer of the latter that Warren's letter was published in *Nature* on the same date as the report of Professor Macalister and his colleagues, November 5, 1927. Three weeks later, in the same publication, Reid Moir and Burchell vigorously answered their opponents, showing them that they had mistaken the location of the Rosses Point site, replying to their erroneous statements, and insinuating politely but clearly that they hardly seemed to know what they were talking about, and in fact so it appears!

This ended the 1927 campaign. On the first of January 1928, Mr. Warren made a claim for a natural origin of the Sligo specimens. But much more competent British archaeologists—A. L. Armstrong, Henry Dewey, D. A. E. Garrod, and Reginald A. Smith—wrote jointly that

> after a study of the type of flaking and of the forms of these specimens, we are of the opinion that they are of human origin. This view is based upon the various criteria applied to universally accepted implements and has been reached only after the explanation of the Sligo specimens being due to natural forces has been considered and rejected. This statement is without prejudice of their cultural age.

This was a first and important victory for Burchell and Moir, especially when considering the respective positions and the scientific standing of the members of that group.

Nobody took seriously the suggestion that the limestone flakes came from primitive anchors as described by three members of the College of

Technology of Manchester (March 1, 1928). Professors O. T. Jones of the University of Manchester and P. G. H. Boswell of the University of Liverpool were "requested to assess the geological evidence furnished by the sites, and for this purpose visited the Sligo district at the end of March." They reported:

> We are convinced that there is absolutely no case whatever for supposing that the sites concerned are of any antiquity, with the exception of Ballyconnell,

offering no opinion on the specimens which, being on exhibit in London, they had not seen. Reid Moir doubted the value of their statement concerning the work of the sea on the limestone blocks. Burchell refuted more fully, and with the help of information obtained on the spot and from people of the region, several important assertions made by the investigating geologists. He added that he had since secured additional archaeological and geological evidence in support of his belief and confidently concluded

> . . . . the fundamental importance of my claim—i.e., to have discovered traces of palaeolithic man in Ireland and to have established an interglacial period for that country—remains unaffected. (June 6, 1928)

In August, Mr. Ernest Dixon, H. M. Geological Survey, after a careful examination of the ground, published an important report from which the following quotations are made as bearing directly on the disputed points.

> The specimens found by Mr. Burchell at Rosses Point and in situ in Boulder Clay in the neighborhood are, as a suite, unlike the flakes produced by any natural forces with which I am familiar but, on the other hand, carry such impress of design as compels me to regard them as of human origin.
>
> The forms of those from Rosses Point are not those of quarryman's refuse, and the site is a most unlikely one for a quarry. On the contrary they appear to belong to a crude Stone-age industry.
>
> Their preservation, unrolled and with comparatively unblunted edges, despite the fact that the site has been within reach of wave action since glacial times, would appear sufficiently explicable from the fact that they were recovered from beneath massive blocks of limestone.
>
> The occurrence of similar flakes in Glacial deposits in situ conforms, in my opinion, the provisional inference as to the age of the Rosses Point specimens. . . . .

The weight of unbiased and competent opinions was then increasing in favor of the palaeolithic implements from Sligo.

On August 11, 1928, J. P. T. Burchell and C. Blake Whelan published privately the record of their meeting with the delegates of the Royal Irish Academy in Sligo during the second half of April. The delegation comprised again Professor Macalister and Dr. Lloyd Preager with two

new members, Mr. T. Hallissy and Herr Adolf Mahr. Most of the time seems to have been occupied in squabbling about one thing or another without leading anywhere. Thus, the complaint of Macalister about geographical and geological description of the shelter site as inaccurate was shown to be entirely unfounded. When attention was called to a heap of builders' refuse

> the delegation did not appear to wish to become acquainted with the technique resulting from a stone-mason's flaking of limestone,

although it had a direct bearing on the case in view of opinions expressed by some opponents. The important occurrence was that

> Professor Macalister ultimately put forward two limestone objects, rolled and battered, which he stated were similar to those figured in the Sligo memoir published by Messrs. Burchell and Moir. Upon being asked whether these objects might be retained as examples of the delegation's contention, he readily agreed.

Reid Moir and Burchell, on May 14th, issued a statement in which we read:

> We have now subjected the two specimens picked up by Professor Macalister to a close examination, and have compared them with those collected by us, and we wish to state with all the emphasis at our command, that, except for the fact that the members of both series are composed of limestone, they bear no resemblance to each other.

And, after a detailed description the same gentlemen add:

> We believe also that if Professor Macalister had examined, which he has not yet done, the specimens collected by us, he would never have allowed himself to be guilty of such a gross error of judgment.

And it is a real pity that an archaeologist of the standing and accomplishments of Macalister would, through what seem personal prejudices, stubbornly oppose the fair and substantiated opinions of his colleagues and would also dare pass judgment on a collection of artifacts he had not had the prudence to examine before condemning. Professor Henri Breuil, of Paris, rejected also the resemblance of the stones picked up by Macalister with the Sligo implements. The opposition was routed and has remained practically silent ever since.

Professor Breuil, besides his remarkable knowledge of Palaeolithic typology, has had the opportunity to study many other limestone implements found in situ both at the Grotte de l'Observatoire of Monaco and the Cave of Castillo, Spain. After examining the Sligo series of the Ipswich Museum and the British Museum he issued a brief statement in *Man*.

His conclusions could be translated and summed up as follows: all the stones have been fractured by a violent percussion on a limited point, often displaying a bulb with radiating striae, as is normal for compact limestone. Many large flakes show also on the dorsal side negative traces of other flaking and some recall the Northfleet artifacts obtained after preparing a tortoise core. This could not in any way be produced by natural causes, pressure, or wave action. Secondary retouches are even visible on a few flakes and some large fragments can be considered as nuclei. Although Breuil does not believe the manufacturing technique to be Mousterian and leaves the question of geological age open, he sees no impossibility for the Sligo artifacts to belong to a very early Palaeolithic period. In view of the fact that the learned professor of the Institute of Human Palaeontology of Paris is regarded in England as one of the highest authorities on such matters, his statement completed the victory of Reid Moir and Burchell.

Finally, as late as November 28, 1928, Dr. W. J. Sollas, professor of geology in the University of Oxford, published a report entirely favorable to the authenticity and antiquity of the Sligo flakes. Dr. Sollas is especially well qualified to express an opinion on the subject as he has done much geological work in Ireland and he is an archaeologist of note. He concludes by the following statement:

I regard them, therefore, as implements fashioned by the hand of man. . . . . I am informed by Mr. Dixon, of H. M. Geological Survey, that two specimens were found in an interglacial deposit and two others at the base of the Lower Till (Boulder Clay)of the locality. Should the Lower Till represent the Riss Glaciation, as seems probable, then the earlier series would be Lower Palaeolithic and the later series Mousterian of exceptionally rude workmanship. . . . . These are the first limestone implements discovered in the British Isles, but it must not be overlooked that an industry of the same material has been found at various localities in the south of France. Thus, as Professor Boule informs us, three true bouchers (hand-axes) in limestone were discovered as far back as 1879 by M. Rivière in the cavern Lymphia at Nice, and later another in the Grotte de l'Adaouste in the Bouches du Rhône. To these we may now add the bouchers and other ruder forms from La Grotte de l'Observatoire at Monaco which have been made the subject of an exhaustive monograph by Professor Boule. The ruder forms, which are associated with a warm fauna (Elephas antiquus and Hippopotamus) and are most certainly contemporaneous with the ancient sea beaches characterized by Strombus bubonius. They are, therefore, regarded, by Professor Boule, as Chellean and by analogy this should be the age of the implements found by Mr. Burchell in an interglacial deposit.

This is the last and most complete statement made in favor of the Sligo artifacts. Anyone who has compared the figures seen in the publica-

tions of Burchell and Moir with those of the splendid memoir of Professor Boule cannot fail to recognize the similarity of size, shape, and technique of the limestone implements found on the Irish coast and the Riviera. This is in itself an important argument in view of the fact that the flaked limestone artifacts from the Mediterannean coast have never been disputed as they were discovered in stratigraphic position, critically discussed as to typology and palaeontologic association, and also that a similar industry was thus found in two widely separated regions. Besides, it is curious that in both cases that very rude and primitive industry was located close by the sea shore. Professor Boule remarks that the Monaco finds are very homogeneous and he refers them clearly to the "Old Palaeolithic." Enumerating the various types collected he says that most specimens are enormous flakes, showing hardly any work at all other than rough chipping. Their purpose is difficult to determine but some can be recognized as large scrapers, choppers, and hand-axes, precisely the same as the Sligo artifacts. On typological grounds such a series, outside of all other considerations, must be attributed to a very old Palaeolithic, of Chellean or Acheulean aspect. Stratigraphically, the deposits in which this primitive industry is found in the Grotte de l'Observatoire correspond to the seashore of Grotte du Prince with *Strombus bubonius*, as Sollas previously remarked, and with hearths containing remains of warm fauna of Old Pleistocene, this referring to an interglacial phase. This may serve, by comparison, in the discussion of the possible age of the Sligo implements.

In a letter dated from Ipswich, January 29, 1929, Mr. J. Reid Moir wrote me:

> Both from the geological and archaeological evidence I am inclined to place the Sligo specimens in the Early Mousterian and Mindel-Riss.

Abbé Breuil, a month before, had written me, in his concise style, reaffirming his stand on the question:

> Sligo is certainly shaped by man. . . . . If it is true, as I believe it, that there are implements in the glacial deposit, I would not be astonished that it would be "Clactonian"; it is not Mousterian at any rate, nor Levalloisian.

There is here only an apparent contradiction with Moir's opinion, due mostly to a difference in terminology. Breuil has recently split the Lower and Middle Palaeolithic into four parallel series based upon typology and the manner used in preparing and making the implements. The new "Clactonian" industry is one of these specialized techniques and according to him the Sligo artifacts would rather resemble it than the two others named. Moir, using the older and more classical terminology, speaks of

Mousterian in a general way. However, both the French and the British experts agree perfectly as to period since Breuil in the same letter places his "Clactonian" in the Mindel-Riss stage and it is exactly the time ascribed by Reid Moir as well as Sollas for the Sligo artifacts.

Such is the last word on the subject. Now, nobody with unprejudiced mind can deny the presence of Palaeolithic man in Ireland; the Sligo implements prove it conclusively, and the leading authorities on both sides of the Channel proclaim it.

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EXCAVATIONS NEAR ATHLIT, PALESTINE, 1929 (PRELIMINARY REPORT)

By HARRIETT M. ALLYN

EXCAVATION of the cave known as Mugharet-el-Wad (Cave of the Valley) was undertaken under the auspices of the British School of Archaeology with the American School of Prehistoric Research cooperating and Miss Dorothy Garrod of Cambridge directing. Work was begun in early April as soon as the close of the rainy season made this possible and continued until the end of June, when the heat became too intense for camp life.

The cave is located on a foothill at the lower end of Mount Carmel, about ten miles south of the city of Haifa in the northwestern part of Palestine, and some three miles inland from the coast of the Mediterranean. It has been well known to the Arab herdsmen who have used it for stabling their flocks in winter until last year, and to the soldiers of the Great War who used it for a refuge and camping place.

Somewhat more than a year ago when the Board of Public Works in Palestine was seeking a place to obtain rock for the harbor of Haifa, plans were made for blasting in the region of this cave. It is, of course, a limestone region. Immediately the Department of Antiquities knew of this plan they requested the Board of Public Works to stop operations until soundings could be made in the floor of the cave to determine whether it were worth excavating.

Mr. Lambert, assistant director of the Department of Antiquities, was sent to make such a sounding. He dug several trenches, both within the cave and on the terraces outside and found the dig exceedingly rich. Moreover, the finds appeared to be of great value from a prehistoric point of view,—the presence of burials, culture, and art of a new and most interesting type in the history of Palestine, indicated the possibility of a relationship with Europe which might aid in the solution of certain of the problems of European prehistoric cultures. An article by Sir Arthur Keith was published in the *London Illustrated News*, giving the salient features of the excavation and suggesting a comparison of the culture with the Magdalenian of Europe.

All plans for work by the quarry-men were at once abandoned and the Department of Antiquities asked the British School of Archaeology to undertake excavation of the cave. This they did, with Miss Dorothy Garrod as Director and with the cooperation of the American School of Prehistoric Research. The staff consisted of five women, three English and two American.

The region is, as I have said, a limestone one, of low but precipitous and ragged cliffs, through which open abrupt and narrow valleys carrying tiny streams in the rainy season, but completely dry at other times of the year. All over the cliff are small hardy bushes and many sturdy little blossoming plants, and at the foot there are carib and olive trees. A fertile plain covered with grain, stretches out to the low sand hills that form a back-stop for the Mediterranean sea.

In the cliffs are innumerable caves, ranging in size from mere shelters sufficient to keep a man or a goat dry in a sudden storm, to large ones like the Mugharet-el-Wad, which could easily have furnished Obediah with his much needed opportunity for "hiding one hundred prophets by fifty in a cave." Many of these caves undoubtedly contain prehistoric and historic remains. Some are known to have served as stables for the horses of the Crusaders. Two in which our party made soundings near the Mugharet-el-Wad contained a Mousterian culture—one of these called the Oven Cave and the other the Cave of the Kid.

The Oven Cave presents a most interesting problem for another season. It consists of a rather small cave high up on a very sharp hillside at the foot of a steep cliff. The floor is a thick Mousterian deposit with one or more hearths. At the back, a passage nearly choked with a fall of earth and rock, leads precipitously up to a round pot-hole cave above. This upper cave is completely open to the sky and there is no access to it except from below or by coming down from the comparatively flat top of the cliff above by ropes of some sort, as its sides are straight and high. In its floor are Mousterian implements.

The Mugharet-el-Wad, however, was the cave upon which attention was mainly focused. It is situated in the foot of a yellow and gray cliff above a sharply sloping talus, and overlooks the plain and the sea to the west. It is at the end of the cliff where it is cut through by the Wady-el-Mugahara (Valley of the Cave). There are three openings into the front chamber; one small and high up in the wall, serving as a window; one large and apparently the old main opening, in the middle; and one some two yards across and about equally high, at the left side of the old main opening. This is the one now in use, for the central opening has been partly walled up with large rough blocks of limestone at a date long past. The wall leaves an opening above it of several feet beneath the roof. It is nine feet thick. Its top makes an excellent lookout spot over miles of the approach to the cave. Who built it cannot be determined as yet. Some have suggested the Crusaders, some the Romans, etc., but there is no way of deciding the question until digging can be done at the foot or the blocks

can be removed. Whether it was for purposes of protection from enemies or from the weather, or for some other reason, is also not determined.

The opening at the left, which has been used since the building of the wall, is made interesting by the fact that at some time the inhabitants of the cave apparently made a door and hung it there. The rock at the entrance has been smoothly cut to form a door-sill. At one end of the sill is a flattened rock with a hole sunk in it, obviously for a doorpost, and up the side of the rock wall are holes which would have served for the side supports of the door. This opening may have been a "window" originally, for it is considerably above the floor of the cave at the Mousterian level.

The main chamber of the cave lies just within these three openings, large, light, and well ventilated. It is roughly round in shape, with a small alcove on one side and a mass of rock jutting out into the middle of the back. The roof is very high and domed. Diagonally across the chamber from the opening had been built a wall of rocks dividing it into two portions. A passage opens at the left side of the back of the chamber, which penetrates deeply into the cliff and ends blindly in a small rounded recess. High up in the wall just before the end of the passage, is a deep recess which we did not have opportunity to examine, but which one of the workmen said opens to the outside on top of the cliff. This statement remains to be investigated, but the hole may have been the entrance point for a stream. The roof of the passage is interrupted by a series of more or less pointed arches. At some distance back from the entrance the passage widens out into a second small chamber.

The hillside outside the cave had been terraced. The upper terrace was fairly small, the middle and lower ones quite extensive. At the lower edge of each was a wall of rough stones, but these walls were presumably of comparatively late date, as soundings showed them to be superficial only.

The earth of the floor in the cave was soft and easily dug for the most part, although there were places where the constant dripping of water from the roof had formed a sort of breccia, harder and more cohesive. There was a great amount of stone all through the floor, fallen from the roof, varying from small pebbles up to boulders which it was necessary to blast. The removal of this stone was very time-consuming, of course.

For the heavy work fellaheen of the neighboring village of Jeba were employed. Six men and a dozen girls made up the working force during the greater part of the season. The men loosened the earth with picks and it was then gathered into baskets and searched by both men and girls. In the portions of the cave where material of any value was found, all the earth was screened through fine wire sieves. All objects of every sort except

pebbles were picked out by the workmen and put into boxes to be sorted by the staff. Later all such as were regarded worth saving were washed and shipped to England for study. The human skeletons went to Sir Arthur Keith, the animal bones to Miss Dorothea Bate, the flints and carved bone specimens to Miss Garrod at Cambridge. The potsherds were examined by Dr. Albright of Jerusalem, and will also be studied further. Excavating of skeletons was done by means of very small hand-picks, digging-knives, and soft brushes.

The site proved to be a very rich one, showing the cave to have been occupied continuously from the middle of the Old Stone Age to the present. The top layer was mixed, too badly mixed to make any separation of culture levels possible. In it were found potsherds from the recent Arab, the Byzantine, the Roman, the Greek, and the Bronze periods, both early and late. There were also artifacts of bone and stone and a *very* little metal, together with much animal bone. Some of the pottery lamps and pieces of decorated jars (?) were very interesting, but as none of the staff were experts in pottery they had to be set aside for later study.

Beneath this mixed layer which was called *A* level, were six definite and distinct cultures, as follows:

B-Mesolithic in type

C-Upper Paleolithic—Capsian in type, showing probable relation to African culture

*D*1-Middle Aurignacian in type

*D*2-Middle Aurignacian in type

E-Upper Paleolithic—Early Middle Aurignacian in type

F-Mousterian in type

A brief description only can be given, as there was not sufficient time to study the material on the field. It came out in large amounts, several thousands of specimens altogether.

Mesolithic.—The Mesolithic level apparently made up the whole of the terrace in front of the old main entrance, for clearing there down to the rock floor disclosed no culture other than the Mesolithic under the mixed top layer. This layer also lay directly behind the old main entrance inside the cave, in the outer chamber. Flint and bone implements were found, ornaments in stone and in bone, human skeletons, and many animal bones. Hearths were located both within and without the entrance.

In flint the most common implements were little "crescents" and "sickleblades," with all intergrades of implements between the two. The crescents were sharp and untrimmed on the cutting edge and had a back blunted with tiny strokes. They were about 3/4 inch long, some more and

some less. Some were beautifully done, others only half finished. Innumerable tiny flakes attested to the waste in their manufacture. They resembled the crescents found the year before at Shukbah in southwest Palestine, but there was a decided local differentiation. The sickle-blades were somewhat longer, the majority about 1½ inches long and were rather like larger crescents with the ends cut off. Many of them were finished with a saw-tooth edge. Large numbers showed a bright polish on the cutting edge, such as is made by the constant cutting of grass or grain stems of various sorts. A broken piece of worked bone was found grooved on one side, which might easily have served as a haft for a row of crescents or sickle-blades.

There were a large number of small cores also, made with narrow, nearly parallel strokes, not so well made as many Aurignacian cores, however. Often they had a small amount of retouch along the bottom edge on one side to form a scraper. There was frequently one deeper stroke in one side. Some had the scraping surface oblique, some perpendicular to the sides, some were flat-backed like half a core.

Aside from these implements there were large numbers of unfinished or slightly retouched small implements which might be called knives, scrapers, awls, etc., but were not of any definite type, many being flakes only, but showing signs of use.

The culture contained artifacts of bone as well as of flint. There were bone points, many retaining one end of the bone intact, as a handle. Some were small enough to be needles but without an eye. Others were like straight fish hooks pointed at both ends. There were two or three fragments of harpoon, the first ever found in Palestine. They were very small, only about three-sixteenths of an inch wide, barbed on one side, mere fragments an inch or less in length. The only other harpoon found in the Near East was discovered a few years ago in the Cave of Antelias near Beirut, Syria. It was considerably larger and heavier. There were bone polishing tools and a piece of bone grooved, as I said a moment ago, as though for the hafting of crescents or sickle-blades. There was also a piece of deer antler, one small sharp tine of which was polished, whether from use as an awl or by other means. For ornaments there were small bone pendants of several sorts, a bone bead, and various teeth cut and pierced for stringing, the canine teeth of a small carnivore being especially numerous.

There were a broken stone pendant and several small plummet-like pieces. But most remarkable of all the finds was a small carved human head made from a black and gray banded pebble. The hair and back of the head were unfinished, but the face was done with care. The eyebrows were

very thick and exceedingly long; the eyes very long and large; the nose was well done, broad but not excessively flat; the lips were prominent, but either broken in carving or later, or possibly done on an imperfect part of the pebble. A small portion of the neck was likewise carved. The whole was about as large as the end of a man's thumb. This, Miss Garrod said, was the oldest representation of the human form yet found in Palestine.

Three things new to Palestine I have mentioned, found in the Mesolithic of the Mugharet-el-Wad, the bone haft for crescents or sickles, the bone harpoons, and the stone head. Two other specimens of art of a type new to the Near East had been found by Mr. Lambert in his sounding-trench; a pierced bone resembling a *baton-de-commandement* and "an animal figure carved in the end of a fragment of long bone." These chiefly were the specimens which had suggested to Sir Arthur Keith a similarity to the Magdalenian culture of Europe. Objects found later, however, did not particularly uphold this suggestion.

Yet another find new to Palestine was a multiple human burial. In the Mesolithic level of the cave opposite the old main entrance in the outer chamber, there had been buried ten persons—four adults and six children and infants. They were lying on a prepared hearth, piled one upon the other, with a small child at the bottom; all were extended and they lay at various angles. Two were lying with their arms about one another. The head of an infant apparently had been laid upon the shoulder of one of the adults. They were not in excellent condition; some bones were lacking and the bone was exceedingly friable. All about them were remains of the Mesolithic culture. The deer antler of which I spoke, some of the bone pendants, and the stone head were all from this burial place, the stone head being directly beneath the skeletons.

Another skeleton or part of a skeleton was found in what appeared to be a Mesolithic deposit in a recess of the north wall at some distance away, and lying upon its right femur was yet another skull.

On the terrace in the trial trench, Mr. Lambert had previously found two skulls but no skeletons with them. In digging there later, no further signs of the two missing skeletons were discovered, but a flexed skeleton was uncovered nearer the cave and at a somewhat higher level. It was lying upon a hearth, knees drawn up almost to the chin, feet crossed, the left arm straight down beneath the body which lay on its left side, the right bent at the elbow so that the hand lay near the lower jaw. Three large stones had apparently been placed upon the body, one on the cranium, one on the face, and one on the thorax. The skull was badly crushed thereby. The arm and leg bones were broken also, whether from the weight of earth

and stones or otherwise could not be told, as we cleaned it up as little as possible. The skeleton was very delicate and taken out with difficulty.

The Mesolithic extended through the center of the outer chamber, as has been said, and here it lay directly upon a culture of Mousterian type. There were cultures of upper Paleolithic type on either side of it and behind it, however. Four upper Paleolithic occupation levels were distinguishable by the difference in artifacts and general composition of the levels. In the back of the chamber they lay superimposed upon one another. At the entrance to the inner passage the Mesolithic was also in place, lying upon the upper Paleolithic, but here layer *C* (of Capsian affinities) was missing. At the sides of the chamber, to the right and left of the Mesolithic, not all four were distinguishable. One of these side deposits was just within the present entrance; the other was in a small alcove formed by rock that juts up from the floor and out from the wall. In this alcove were found two pieces of human jaw and some other bone fragments, also a number of large human teeth.

At the back there was a curious situation. When the upper mixed layer was removed it was found that there had apparently been digging done a great number of years ago, possibly in Byzantine times. The floor had been dug down several feet, leaving a sharp "cliff" of earth at the back. In this "cliff" were the four undisturbed upper Paleolithic levels lying one upon another. The mixed level had filled in thickly in front of the "cliff" and sloped off gradually toward the front of the chamber over the Mesolithic level. This mixed level, as I said before, was a combination of recent Arab, Byzantine, Roman, Greek, Bronze, and Mesolithic. There were a very large number of ribbed Byzantine sherds.

To take up the upper Paleolithic levels in more detail. The upper one, which was called *C* level, contained thick and chunky burins of both tabular and nodular flint, cores, scrapers with comparatively poor retouch, and some blades resembling those of Chatelperron.

The next two levels *D*1 and *D*2 were much like the middle Aurignacian of Europe in certain respects. The culture was superior to that of the *C* level above, both in number of types and in skill of manufacture. There were rounded scrapers with beautiful retouch, scrapers retouched on end and sides, high keeled scrapers, core scrapers, saws, scratchers, a good many specimens of the grattoir museau, burins somewhat like those of level *C* but rather less clumsy, and small fine pointed blades, very thin and delicate.

The last and lowest of the upper Paleolithic levels was early Middle Aurignacian in type. The burins were less chunky than those of the higher levels. There were great numbers of exquisitely fine, thin, pointed blades,

with very delicate retouch, in some cases along the entire length of the blade on one or both sides. There were ordinary scrapers also, and some large and heavy bone points.

Beneath the whole floor was a Mousterian layer several feet thick. Into this we sank a sounding-trench about five feet deep without coming to the rock. This level remains to be dug out in the spring of 1930. The entire passage at the back of the cave also must be dug. Two trial trenches were sunk, one at the extreme end, where artifacts were not found, and one in the middle chamber, where was an undetermined culture. The rest of the upper terrace must be cleared, and wide areas searched in various parts of the middle and lower terraces. The Oven Cave and Cave of the Kid also remain to be cleared, and the location of other caves for future work should be sought. There is the possibility of work in the region for many seasons to come, and it may be that correlation of this work with that in Iraq and North Africa will aid in the solution of the problem of the culture sequences of Europe.

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PECULIARITIES IN THE SINGING OF THE AMERICAN INDIANS

By FRANCES DENSMORE

TO THE average listener all Indian singing is peculiar. To an experienced student of the subject there are many sorts of peculiarities which may be grouped as racial (or primitive), regional, personal, and those connected with certain classes of songs. Each is often modified by others, and there are contributing circumstances which affect them all. One such circumstance is the fact that phonograph records of single voices are the basis of study, although solo singing without a loud accompaniment is contrary to Indian custom. The exceptions are apart from present consideration. We hear the peculiarities of Indian singing at gatherings on the reservations, and this observation is an important part of the study, but phonograph records, as indicated, form the basis of actual study because they can be played over and over without possibility of variation in the performance. Numerous repetitions of the song are also available for comparison, as well as renditions of the song by other singers.

The following observations are presented with a realization that they do not include all the peculiarities of Indian singing. They are those which recur to the writer after an intensive study covering more than twenty-two years and a wide range of tribes.

1. Racial peculiarities.—The principal thing the Indian does in his singing which the white man does not do is to separate the tones without the use of words. The Swiss yodeler has a singing technic without words, and the lilting tra-la-la in certain classes of songs are isolated examples. We are rather a wordy race, hence we are getting where words mean nothing. They have been overworked until there is no life in them, as in the "I-love-you" songs of the vaudeville stage. There is very little poetry of value in the words of our songs, as we have gradually separated poetry and song, but in the mind and custom of the Indian they are one. When he uses words in a song they are important, but he is also able to do without them. An Indian said, "There are no words in that song—it is just *singing*." In many instances there are a few words in the middle of a song, the rest of the melody containing meaningless syllables. In a minority of such songs the vocables can be recognized and written out as *ho-ho* or *hi-hi*, but generally it is impossible to represent the vocalization by letters. The Indian is able to separate his tones neatly and precisely, with no recognizable vowel or consonant sound. On one occasion the writer sang an Indian

song for identification and the Indian said, "The tune is right, but you cannot sing it like an Indian because you have not an Indian throat."

A recent article on the American Negro[1] is quoted as follows by *Science*:

> The only respect in which Negroes show a racial advantage in music over whites is in vocal ability. This is due to anatomical differences in the vocal organs of the two races.

This statement is based upon a "scientific test" in connection with an intensive study of the Negro. No similar study of the Indian has been undertaken, so that it is unsafe to express an opinion in the matter. We only know that the Indian has a singing technic which we do not possess, many tribes of Indians singing with teeth and lips slightly parted and separating the tone by a contraction of the glottis.

A second racial peculiarity is the Indian custom of spacing the accents unevenly in song. The spacing is not always determined by the words, as instances have been noted in which the words are accented differently in speaking and singing. When transcribed, the uneven spacing is shown by uneven lengths of measures. The writer finds no secondary accents in Indian songs except that 6/8 time is distinct from 3/4 time, the former being double and the latter being triple in its feeling. There is no secondary accent in 5/8 and 7/8 measures, nor is there a secondary accent in measures transcribed in 4/4 time, a meter which occurs very rarely in songs recorded by the writer. These accents occur uniformly in two to ten renditions of a song. The writer recalls only two songs which wholly or in part lacked accent altogether. In addition to the normal rhythmic accents there occasionally are sharp accents of certain tones. These sometimes fall on tones other than those of the first count of a measure, being sung with emphasis but not interfering with the regular rhythm of the song.

Another racial peculiarity is the ability to dispense with rests. A difference is seen in singers, the old Indians not requiring a pause for breath during a long melody while Indians of the present generation introduce eighth-note rests when needed for taking breath. In a genuine Indian song the rest, when it occurs, is intentional and appears at the same point in every rendition, but the absence of a breathing-space does not inconvenience the singer. Tribes differ in this respect.

A further peculiarity, so general that it may be considered racial, is a pulsing of the voice on prolonged tones. Thus it is sometimes uncertain

[1] Yale S. Nathanson of the department of psychology of the University of Pennsylvania, in the Annals of the American Academy of Political and Social Science, 1928, a volume devoted to a study of the American Negro.

whether a tone shall be transcribed as a quarter note or as a triplet of eighths. It is the writer's opinion that pulsations equivalent to four sixteenth notes occur less frequently than those equivalent to a triplet of eighths. This is by no means a universal custom in all classes of songs, but is frequently noted and does not seem limited to any region. The singing voice of the Indian is less like the speaking voice than in our own race, and this pulsation is a part of the difference.

A distinct *glissando* is not a general characteristic of Indian singing but is sometimes used intentionally. This, like a *rubato*, is sometimes found in several songs of the same class. A *vibrato* and a falsetto tone are not universal and are considered later as personal mannerisms. Miss Alice C. Fletcher states:

> These mannerisms do not form an integral part of the Indian's music, he is unconscious of them . . . . if one would hear Indian music and understand it, one must ignore as he does his manner of singing.[2]

The Indian does not associate a minor tonality with sadness, neither does he express joy or excitement by a rapid tempo and small count-divisions. An Indian was once asked whether songs of excitement in war were sung faster than other songs and he replied: "No. When we are excited we sing louder but not any faster." A restraint in tempo and rhythm has often been noted in songs of war, adding a dignity worthy of recognition.

There are standards of excellence in singing among the Indians, as in our own race. This was made a subject of special inquiry among the Chippewa and Sioux, a group of Sioux from five localities in South Dakota being questioned on their knowledge of Sioux standards. In their reply they placed mental qualifications above what we term technic.[3] Thus they stated that a good singer must be able to sing a song correctly after hearing it two or three times, he must have a retentive memory, giving him command of a large repertoire, and he must sing with a convincing quality of rendition, as one with authority. Observation has shown these to be standards in other tribes. More than eighty songs have been recorded by one singer without in the least exhausting his repertoire, and more than sixty have been obtained from other singers. Accuracy of repetition has been tested and found exact, both by the same and other singers, proving the integrity of a song. The writer has frequently been told of the teaching of

[2] Appendix to A Study of Omaha Indian Music, Peabody Mus. Am. Arch. Ethn., 1893.

[3] Teton Sioux Music by the writer, 58–62. A consideration of mannerisms, as well as a comparison between renditions of songs, is included in the descriptive analyses of songs in Chippewa Music, Chippewa Music II, Teton Sioux Music, Northern Ute Music, Mandan and Hidatsa Music, Papago Music, and Pawnee Music, by the writer.

songs to one man by another, but these are generally the songs of healing or for some other definite purpose. No mention has been made of technic in connection with this instruction, for which a very high price is often paid. Apart from this, the only mention of learning songs is that, in the singing for dances, the young men "sit with the singers at the drum and learn the songs in that way." They are allowed to pound on the drum with the others, and they sing softly until they learn the melodies. If a man has learned a song in another tribe, he may teach it to the other singers in the same manner, allowing them to sing with him until they learn the tune, pounding meantime on the drum or, in tribes that use a rattle, shaking the rattle as they gradually learn the song.

In a general consideration of Indian singing, mention should be made of the primitive ability to carry two rhythms and tempi at the same time. In many Indian songs the tempo of the melody is slightly faster or slower than that of the drum, and the voice is in double time while the drum is in a triplet division. Frequently there is no ratio between the two tempi, unless we permit a node consisting of 40 or 50 measures, which would be absurd. For example, in a Chippewa song the tempo of the voice is ♩ = 100 and that of the drum is ♩ = 108, in another the tempo of the voice is ♩ = 104 and that of the drum is ♩ = 112, each being steadily maintained.[4] In these instances the rhythm of the drum is not unlike that of the voice, but in another Chippewa song the tempo of the voice is ♩ = 120, that of the drum is ♩ = 126, and the voice is chiefly in quarter and eighth notes while the drum is in a rhythm of three eighth notes to a quarter note,—a triplet rhythm with the second count of the triplet silent. It appears probable that the producing of two rhythms simultaneously is the first phase of development in music, and that rhythmic pleasure is more primitive than gratification by means of melody or technic in singing.

2. Regional peculiarities.—The musical instruments used by the Indians are determined by the available materials, and these in turn depend upon the environment. To some extent the manner of singing is also affected by the environment, particularly by the type of dwelling or other structure in which the songs are commonly sung. The Sioux and neighboring tribes sang chiefly under the dome of the sky, the accompanying instrument being a large drum, as buffalo hides were easily obtained and generous in size. There were many dancers, while the music was supplied by a comparatively small number of persons seated around the drum. Therefore it was necessary for the singers to use a loud tone, and in these tribes a "good singer" has a strained, forced voice of great penetrating quality.

[4] Chippewa Music, by the writer, nos. 81 and 88.

One of the greatest difficulties in recording songs in these tribes is in persuading the singers to restrain their voices within the recording capacity of a phonograph. They would like to sing in groups, pounding on a large pan, since a drum does not record.

The Algonquian tribes sing outdoors in many of their social dances but the meetings of the Midewiwin are held in a long lodge, usually having a frame of poles interlaced overhead. The accompanying drum is the type known as a water-drum, having a tone of great carrying quality but not loud when one is near it. Their songs, in meetings attended by the writer, are in a moderate voice, entirely different from the piercing quality of the Plains singers. Winnebago and Menomini dances have been attended in circular lodges, open at the sides and with a roof of boughs. The circle of dancers cannot be large as it is limited by the size of the lodge, and it is not necessary for the men at the drum to force their voices. Sometimes fifteen men are seen at the drum and only about thirty persons in the circle of dancers.

The Mandan and Pawnee lived in earth lodges and held their gatherings in large structures of this type. The manner of tone production, at gatherings attended by the writer, was different from that of the white race and also different from that of the Plains tribes, so often designated as "typical Indian singing." Tribes of southern Arizona, living in adobe houses, have very agreeable singing voices and, when heard in groups in open air dances, they use a gentle tone and accompany their songs by a gourd rattle or by pounding on a woven basket, inverted on the ground. Tribes of the Northwest Coast sing in the open air at their social gatherings, but formerly sang in long wooden houses. They pound upon planks and formerly used huge wooden boxes as rattles, tipping them back and forth so that the stones inside them rolled to one end or the other. Their large drums were formerly boxes made of wood and kicked by men sitting upon them, though small drums with heads of hide were used by individual singers. Their small rattles are wood or made of pecten shells. More than two hundred songs of these Indians were recorded by the writer, and their singing was heard at several large gatherings. The voices of the men are resonant and those of the younger women have a piercing quality, but neither is like the voice of the Plains Indian.

A study of Pueblo music in the field is made impossible to the writer by an altitude inhibition, but a study of Acoma songs was made from Indians in Washington, D. C., twenty-seven such songs being recorded for the writer and more than sixty songs, recorded for the Chief of the Bureau of American Ethnology, being studied. About forty of the Acoma

songs were transcribed. In many of them a gradual raising or lowering of pitch was noted. This has not been found in other tribes studied by the writer except as isolated instances. The raising of pitch was sometimes about half a tone, and in many songs was a tone and a half. As the songs were all recorded by the same singer there was no opportunity for comparison, but the shifting pitch cannot be regarded as a personal mannerism since others have attached great importance to it. Miss Helen H. Roberts calls attention to this in two songs of the Copper River Eskimo,[5] changing the pitch of the transcription to correspond to the tones produced by the singer. In the Acoma transcriptions the writer has used the same signature throughout, believing the change of pitch to be incidental and probably not within the consciousness of the singer. Moreover, an abrupt change of signature from C to D flat does not show the pitch of the transitional tones, each of which is slightly altered as the general pitch of the song ascends. In a review of this work Mr. George Herzog states[6]

> One fact is beyond doubt, that the *way* Eskimos and Indians sing is identical; the general style of Indian singing throughout the whole continent, as Dr. von Hornbostel states, is shared by the Eskimo. Style of singing is an exceedingly important and significant factor in primitive music.

George Herzog, in his article on the music of the Yuma, mentions several peculiarities which have been noted by the writer, including the introductory use of the rattle. He also states that

> The song is usually kept on the same pitch and in the same time, which contrasts with other areas where there is constant rise in pitch and increase in time.[7]

The latter does not correspond with the writer's observation. Any change in tempo is made clearly and abruptly—never as a gradual increase throughout a song.

It is impossible, within the scope of this article, to enumerate all the peculiarities of Indian singing, neither is it possible to group them accurately in the classes designated, as many peculiarities may properly be placed under more than one of these headings. Many northern tribes have a custom of shouting short phrases between renditions of a song or interpolating them in a song, such as "Dance faster," or "Sing louder." There

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[5] Helen H. Roberts and D. Jenness, Songs of the Copper Eskimo. Reports of the Canadian Arctic Expedition, 1913–1918, vol. 14, (Ottawa) 1925. Songs 26 and 81.

[6] George Herzog, *Review of* Songs of Copper Eskimo *in* Journal of American Folklore, 39: 218–225, 1926.

[7] George Herzog, The Yuman Musical Style. Journal of American Folklore, 41: 191, 1928.

are various signals given by men at a drum. For example, in the Dream Dance the Menomini often give the drum a sharp, heavy stroke as a signal for the women to finish the song without the men, and sometimes the women sing softly, alone, four times during the repetitions of a song, after which the men finish it. A sharp stroke of the drum often signifies that the singing of a particular song will end with that rendition. The "Ki-yi" of women during a war or pleasure song is a northern, or perhaps more accurately, a northern and Plains custom. The Sioux have a peculiar custom of singing heard also in the Menomini Dream Dance, which was received from the Sioux. In this dance the women sing with hand or shawl held over the mouth and head bent forward, the sound being nasal and resembling a humming with lips closed. The giving of loud, sharp yells at the end of a song is a Plains custom, while the Algonquian tribes give the explosive syllables *ho ho ho* after songs of the Medicine Lodge. A flourish of the rattle, or tremolo beating of the drum are not common to all tribes and may be termed regional peculiarities, the former being heard in Arizona. In many Pawnee songs there is an increase of the drum tempo in the fourth or fifth measure, the resultant tempo being maintained throughout the song. Frequent changes of tempo were noted in the Acoma songs and in those of the Tule Indians of Panama, but such changes occur rarely in songs of the other tribes under observation. A connective phrase between repetitions of a song was not found in the Sioux and Chippewa, neither did it occur in songs of the Mandan, Hidatsa, and Ute, but it is of frequent occurrence in Pawnee songs. A monotone introduction characterized the recorded Acoma songs, and there are instances in many tribes of short introductory phrases that are not included in the repetitions of the song. The Yuma and Cocopa songs contain a three-period form in which the second period is short and higher in pitch than the first. This has not been found in any other tribe except the Acoma, in whose songs it is a striking characteristic. The old Yaqui songs are different from those of any other tribe. Mention may be made of a peculiar accompaniment recorded with Yuma game songs, consisting of a rhythmic grunt in long and short pulses like the beats of a drum. The hand clapping of the Makah, which forms a rhythmic accompaniment to the songs, has not been heard elsewhere.

The sixteenth note followed by a dotted eighth note, sometimes mentioned as characteristic of Indian music, has not been a marked feature of more than eighteen hundred songs transcribed and a much larger number heard or studied by the writer. It occurs sometimes, as in the music of the

white race, but not with sufficient frequency to be typical of the Indian race or of any particular region.

A peculiarity which is regional and also connected with a class of songs is the howl with which the Makah and Clayoquot precede songs connected with the killing of a whale. This howl consists of a tone prolonged to the length of several half notes in ordinary tempo, followed by a downward sliding of the voice for an interval of three or more tones, fading away into silence. This is different from the trailing downward of the voice in the Mandan ceremonial songs and the glissando occasionally heard in other tribes.

The voices of the northern Ute were robust and forceful but not so strident as the voices of the Sioux. Among these people the notched stick rattle, or rasping sticks, is a favorite accompaniment of dance songs, sometimes with an inverted basket as resonator and, in the Bear dance, with a resonator consisting of a piece of zinc over a trench dug in the ground. This dance is held in a large enclosure surrounded by a board fence.

More than 120 British Columbian songs were recorded at Chilliwack, B.C., but are from so many localities that regional peculiarities cannot safely be indicated.

3. Peculiarities of classes of songs.—In several instances these features are connected with the use or purpose of the song. For example many of the game songs in all tribes are explosive in style, with short phrases and more frequent rests than in other classes. In many tribes there are songs of grief in which the singer "cries as he sings," these being particularly frequent among the Pawnee. The love song of the Chippewa and Menomini is sung in an artificial manner, with a pinched, nasal quality of tone by which it can be recognized. The Menomini and Winnebago say these songs are in imitation of the flute. The Pawnee also state that love songs imitate the flute. Many of the songs connected with stories about animals contain some characteristic of the animal, a song of the bear moving heavily while one about the gopher is a lively melody. A sliding tone is employed in the lullabys of all the tribes under observation, this being a gentle glissando unlike that of the wailing songs. It appears that the natural crooning of mothers to little children gradually took the form of a definite remembered melody and that the two customs overlap, the sliding tone being continued after the melody is repeated with reasonable accuracy.

The songs of the best "doctors" when treating the sick were sung softly, the aim being to put the patient to sleep. In contrast were the noisy songs of the jugglers or shamans, who shook rattles, jumped about, and startled the sick person. The Papago believe that all diseases are

caused by spirit birds or animals or by the spirits of the dead, each imparting songs to be used in the cure of the disease. There is a prescribed manner for many of these songs. For example, those of the rattlesnake medicine and those received from spirits of the dead were sung "with a certain degree of loudness", while the songs of the horned-toad medicine were sung more softly and with a drawling tone. In other instances the singer said, "The song is always sung in this way," recording it in that manner.

In the Morning Star ceremony of the Pawnee a peculiar manner of beginning the song suggested an attempt at polyphony. The leader sang three measures and then sustained a tone while two or three voices repeated what he had sung, after which all the singers joined in the song. In the Yuma cremation ceremony, witnessed in 1921, there were four "stops" in the ceremonial songs. Mention has been made of the downward trailing of the voice after recorded songs of a Mandan ceremony. The songs of the Chippewa and Menomini Medicine Lodge are followed by the explosive syllables *Wa hi hi hi*, or *Ho ho ho*, suggesting the "shooting with spirit power" which forms part of the ceremony. The words of many of these songs are fragmentary, so that the song will not be understood by the uninitiated.

Many other examples might be given, but the foregoing is sufficient to show that such mannerisms exist.

4. Personal peculiarities.—An interesting mannerism of Young Doctor, a Makah singer, consisted in the use of the labial *m-m-m* in portions of his songs, this being sung with lips closed. This occurred in songs learned by him from a medicine-man named Santiano who died many years ago. Occasionally a singer is found who has a habit of attacking high tones by an upward sliding of the voice, or who loses his pitch on repeated tones, or does not sing a semitone with any degree of accuracy. These are regarded by the writer as mannerisms similar to those of singers in our own race. Some singers use a more throaty tone than others so that it is more difficult to recognize the count-divisions of their songs. A Papago medicine-man disguised the words of his personal songs so that others could not learn and use them.

According to a certain Chippewa singer, he had discovered as a young man that he could give a vibrato tone, and had cultivated this ability. A similar instance was noted in North Dakota, where a vibrato is admired and its use considered a mark of excellence. In this connection it is interesting to note that the vibration probably increases the carrying power of

the voice, which is desirable in outdoor singing. A falsetto tone is rarely heard but was noted at Red Lake, Minnesota.

To one accustomed to Indian singing there are peculiarities in almost every voice, like the individuality of speaking voices, but these are not important to the general subject of Indian music, neither is it possible to describe them or to show them in notation.

Emphasis is here placed upon the fact that no musician learns entirely by rote, and that the Indians, as a race, are highly individualized. Vocal technic is not standardized in our own race, and we can scarcely expect to find uniformity in the manner of singing by American Indians. The correct form of a song is established and a good singer does not deviate from that form, but he may have personal mannerisms in his singing. The study of Indian music is the study of a primitive expression by men of strong individuality. There are limited attempts at discrimination in the manner of performing various classes of songs but the Indians appear to have been without a formulated system of either composition or technic in their songs.

RED WING,
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BOOK REVIEWS

METHODS AND PRINCIPLES

Ethnologischer Anzeiger. Herausgegeben von M. HEYDRICH (Dresden). (Stuttgart: E. Schweizerbart'sche Verlagsbuchhandlung, 2: 1–152 (3 Hefte), 10 pls., 1929–1930.)

These three instalments contain full ethnographic bibliographies (1–128) designed to cover the publications of 1926–1927 and—with separate pagination set off by parentheses—reviews, abstracts, notes, and brief original articles. The latter included Dr. Egon Frhr. von Eickstedt's reports of his trips to Burma, to the Little Andamans, and to the Southern Dravidians (23-30, 77-90, 133-140). Attention may be also called to Curt Nimuendaju's account of his "excursions in Amazonia" on behalf of the Gothenburg Museum (90-97). The Americanist bibliographies are the joint work of Drs. Jeudrid and Gusinde.

The brief articles suggest *Man*, but it differs in the stress put upon reviews and the listing of new publications. The wealth of news items constitutes another distinctive feature. Altogether the *Anzeiger* may be welcomed as a very valuable addition to the stock of our technical journals.

ROBERT H. LOWIE

Readings in Sociology. WILSON D. WALLIS and MALCOLM M. WILLEY. (F. S. Crofts & Co., 1930.)

This book is dedicated to William F. Ogburn—not the distinguished exponent of quantitative sociology, but the author of Social Change. So far as there is any framework of argument binding together the materials here collected, it is much the same as that presented in Social Change. That which is characteristically and significantly human is culture; culture can be studied without reference to possible innate ethnic differences; culture change may be considered in terms of inventions and their spread; factors resisting culture change are of several describable kinds; changes in the material culture are, especially in recent times, more rapid than changes in the non-material culture; the resulting cultural lag is the characteristic situation for the development of social problems.

There are six parts. The introduction reprints some familiar recent statements by anthropologists as to what culture is, Linton's note of totemism in the A. F. F., and Kimball Young's account of the development of a taboo among the Mormons. Part 2 includes thirty-five excerpts describing instances of culture change, or of failure of culture to change. This is the most interesting part of the book; partly because the materials are intrinsically interesting, and partly because the arrangement of the materials will help a student to see that there is something here that can be studied, that has its own characteristic ways of behaving under conditions that study may some day define. Part 3 does not take advantage of this opening; it

reverts to "Physical and Biological Factors," and asks whether white men can live in the tropics, if the intelligence tests are valid so far as racial differences are concerned, and if the sterilization of defectives is warranted. Part 4, on "Social Psychology," includes materials on the group and the individual, the crowd, language and custom, opinion, tradition and history, and nationalism and war; but it does not indicate how these are related to one another, or why "social psychology" is to be regarded as a subdivision of a book on sociology. The fifth part deals with six important institutions (the family, religion and the church, education and the school, the press, political and legal institutions, and "crime and social institutions"), presenting some of the ways in which practical problems arise in connection with them, and illustrating the general theme that now that social change is so rapid and so unequal, maladjustments become social problems. Finally "The Wider Significance of Social Change" offers some examples of diffusion, two articles which give a vivid picture of the effect of modern communication upon the width and depth of the individual's mental world, and, in conclusion, four readings on "Progress."

I think this is one of the most interesting introductions to sociology that has been prepared in the form of republished and classified materials. The articles are mostly concrete, and deal with contemporary situations. The book has freshness; a great many of the readings do not appear in other sourcebooks, many were originally written for non-technical periodicals; the journalists are well represented; the philosophers are almost entirely absent. And with a few exceptions everything in the book was written within the last ten years.

I doubt, on the other hand, if the book is as useful as it is interesting. The compilers have endeavored "to make the book a volume which can be used either independently or in connection with another text in sociology." The beginning student will probably gather from these readings that human activities are intriguing, that they change rapidly and in surprising ways, and that the individual is largely at the mercy of the cultural pattern. But it does not present any method of study. To reduce these activities to types, to derive some tentative order from the diversity, to give the student an idea of the serviceability of empirical generalizations upon social change, however much such generalizations may have to be modified in the light of further knowledge—none of these things does the book do to any important extent. The book does, however, offer the teacher and the student a great deal of vivid and timely illustrative material.

ROBERT REDFIELD

Studies of Savages and Sex. ERNEST CRAWLEY. (New York: E. P. Dutton & Co., 1929. 300 pp. $4.50.)

This posthumous volume, like the revised edition of the author's The Mystic Rose, has been edited by Mr. Theodore Besterman. The present book, as the title indicates, consists of a series of articles for the most part dealing with the "evolution" of the mores of sex. Other subjects, however, such as anointing and the use of the oath, are treated in the latter half. While most of the material is here published for the first time, certain of the articles are reprinted from Hastings' Encyclopedia of Religion and Ethics.

The critical reader will receive a somewhat better impression than that gained by a perusal of The Mystic Rose, in spite of the handicap which the comparative method has imposed on both works. Here, at least, there is no striving to solve many of the mysteries of sex institutions by insistence on a single psychological explanation, the magical dangers of womanhood. In other words, the mystic element has been eliminated. The omission of this particular theory brings in, however, fresh demerits of its own, for certain of the essays, such as the "Sketch of the Forms of Love" appear simply as a collection of more or less authentic facts.

Malinowski in his latest works on the Trobriand islanders, although dealing in the main with but a single group of people, has doubtless contributed far more toward a scientific insight into the sexual life of the savage, than would an unlimited number of books of the character of Crawley's. The obvious time for the comparison of ethnic data is some time after the data have been recorded. Crawley dwells at length upon the sexual frigidity of the savage, and bases the chief theory of the earlier essays on this inference. He writes that:

> The difficulty experienced by the savage in attaining tumescence, except under specially stimulating circumstances, is overcome by so-called orgies, which also frequently have the secondary (and, often, the primary) intention of magical processes for the promotion of the fertility of the crops.

Neither Malinowski nor Mead has recorded that primitive man is more frigid than civilized man. From my own experience among the Californian Indians I should judge that the Indians require perhaps less stimulus to arouse their sexual passions than their white neighbors, and most certainly not more. Preliminary embraces are said to be dispensed with in Pomo courtship.

Somewhat more interesting is the attempt made by the author to classify the various forms of racial kisses into scientific categories. From this standpoint, however, certain difficulties arise in the matter of definitions, and I doubt whether many European adepts would accept the point of view that a kiss is "a bite and a suction." The interesting fact remains that the European kiss is one of the few fruits of enlightenment against which the Orient still maintains a closed door.

Crawley writes entirely from the viewpoint of attempting to find a psychological explanation behind primitive custom, and to arrange these customs in layers of cultural development. This need not hinder a more modern worker from taking certain of the subjects treated, such as oaths or lucky and unlucky days, and tracing paths of diffusion.

E. M. Loeb

The Mind of the Savage. Raoul Allier. (New York: Harcourt, Brace & Co., 1929.)

This volume is concerned chiefly with an examination of the thesis that "Human nature is everywhere and always the same, and consequently the difference between uncivilized man and ourselves is only one of culture and development." After a cursory survey of the views of various writers from Voltaire and Rousseau to Lévy-Bruhl, M. Allier undertakes to tell us why primitive peoples

are different from us. In two excellent chapters on "Magic and the Arrest of the Intelligence," and "Magic and Moral Disintegration," he gives us an illuminating picture of the effects of magic upon thought and feeling. Even when pre-literate peoples are engaged in some matter of fact process such as working iron, they are often dominated by magical considerations rather than practical.

> First of all charcoal is made. Should the operation fail, no one attributes it to error or lack of skill. The accident can have but one cause: one . . . . of the blacksmiths . . . . has violated the ritual prescriptions (47).
> Magic furthers the discovery of no real value in anything; rather does it prevent the improvement of what has been discovered.

Moreover, magic gives one an answer or a solution to a difficult problem so easily, and it is so frequently the *very solution* that one seeks, why, then, should one discard this technique for one more laborious and less satisfying?

In his chapter on moral disintegration, M. Allier has an excellent account of the rôle of magic in the societies of sorcerers of West Africa, societies of black magicians who specialize in the most immoral (antisocial), cruel, and revolting practices. Belief in magic very often results in a suspension of ordinary, humane morality and leads gentle, well-meaning folk to torture or slaughter well-intentioned, inoffensive persons in the most brutal manner.

But M. Allier does not assume, as his countryman M. Lévy-Bruhl does, that there is a great gap between "primitives" and "us" (this work bore the French title *Le non-civilisé et nous*). On the contrary, he shows how magic lives and even thrives among "us moderns." His chapter "On the Threshold of Magic" is a most illuminating exposition of ways in which magical ideas and practices may be generated. Curious beliefs and acts are to be observed among children and neurotics, which, had they occurred among children and mild neurotics among savages, would have contributed inevitably to a system of magic. Quoting from Edmund Gosse's autobiography, *Father and Son*:

> Being so restricted . . . . my mind took refuge in an infantile species of natural magic. I persuaded myself that if I could only discover the proper words to say or the proper passes to make, I could induce the gorgeous birds and butterflies in my father's illustrated manuals to come to life, to fly out of the book, leaving holes behind them.

Again, an intelligent, adult woman told M. Allier that whenever she found herself in an embarrassing or disquieting situation, she always performed the following ritual:

> She lights a gas warmer, then, with the match she has just been using, she attempts to light a spirit lamp some distance away. If the match goes out before this has been achieved, the state of disquiet continues; if the lamp is lit, her uneasiness is replaced by mental tranquility.

With such tendencies abounding in our society, it is no wonder that elaborate and powerful systems of magic operate among pre-literate peoples. The author's analysis of the genesis of magic and his comparison of pre-literate tribes with modern peoples lead him to this conclusion:

At the stage which we have reached in our analysis, we feel justified in asserting that, between uncivilized man and ourselves there exists, not an irreducible difference but a fundamental identity (211).

While M. Allier's work is sound and illuminating in most respects, it is, I feel, open to a number of criticisms. In the first place, he tends to regard the dominance of magic as complete. "The uncivilized man . . . . is magic bound every moment of his life," he says (217). But primitive peoples are not much more consistent in their adherence to magic than we are to reason and logic. The Bontoc Igorot insist, when talking to the ethnologist, that all deaths are caused by anitos. But in their behavior at death, and in their chants and prayers, they show quite clearly that they understand this phenomenon very well indeed, and face it in a most matter-of-fact way. Then, M. Allier tends to regard many primitive groups as not only stagnant—or "arrested," but in a state of actual degeneration from which they could not emerge. Disregarding contacts from other groups, the author underestimates the effect of sub-lingual processes at work in the practical techniques of handicrafts, trial and error in making dyes, medicines, etc., which eventually would give rise to new conceptions which would *forcibly* modify the prevailing ideology dominated by magic. We have had this amply demonstrated in our own history of medicine.

The volume closes with allusions to programs of colonization, the significance of which is not entirely clear to the reviewer. Early in his work, the author raises the question of the relation of religion to magic (118). He does not attempt to answer this question. "The contrasting of magic and religion would bring before us very grave and delicate problems," he says. Now, primitive cultures have been demoralized by the shock of white invaders. But they can be saved—provided, of course, that the colonial policy is French rather than German—from which "the conscience of France recoils." And, apparently, the way these backward peoples are to be saved is by preaching to them the gospels of the "one religion capable of replacing that which is crumbling away." "What we give them is mental calm, peace, and joy in living" (271). Another version of the "White Man's Burden" hymn? Well,

unquestionably the colonies have need of manual labor, but . . . . this labor should not consist of *simple* machines (271, reviewer's italics).

What these people need, apparently, in addition to the salvation of the gospels, is the discipline of benevolent French industrialists. Verily, the ledger follows the prayerbook.

It seems a shame, in the opinion of the reviewer, that a work so rich in insight and sympathetic understanding as the present volume should end in an irrelevant and ignominious rationalization of the French colonial program. This defection should not, however, deter the student of primitive mentality from reading this wise and thoughtful book with much profit.

LESLIE A. WHITE

AFRICA

Das Eingeborenenrecht. Herausgegeben von ERICH SCHULTZ-EWERTH und LEONHARD ADAM. Band 1. *Ostafrika:* geordnet von BERNHARD ANKERMANN. (Stuttgart: Strecker und Schröder, 1929, IX, 380 pp.)

In the study of primitive law, Germany long ago assumed a leadership which it is not likely to lose unless investigators from other countries adopt Germany's methods. One of these methods consists in a close cooperation between jurists, anthropologists, and colonial administrators. As early as 1888 a questionnaire was proposed to be given to field workers. Several were prepared and published, one of them by Joseph Kohler in the *Zeitschrift für vergleichende Rechtswissenschaft* (12: 427–440, 1897). It is this questionnaire, enlarged by Kohler himself, which in 1907 was sent by governmental authority to all German colonial administrative centers and missions. The answers as obtained by field workers up to the war have been examined, sifted, and prepared for publication, and the first volume is the one that deals with the former colony of German East Africa, leaving Togo, Kamerun, Southwest Africa, and the German South Sea colonies for later publication.

Kohler's questionnaire follows the scheme of analysis familiar to Continental jurists and ultimately based on the Roman law. The original form contained one hundred questions, but each one was quite general and would permit a great deal of specialization. I suspect that untrained observers must have found it difficult to elicit answers to them, even with the slightly more concrete illustrations that were subjoined. But the answers were checked by experienced ethnologists and a great many of the questioners were themselves of this class.

As might be expected, more than half the material deals with social and family law (5–221). In all investigations of primitive law, this material is likely to be abundant since it is obvious that legal institutions of such peoples will be more intimately associated with family relationships than would be the case in European societies. And, again as we might expect, some nineteen pages suffice to cover the entire law of succession, of which the general principle seems to be the gentile limits of the transmission of property (270). There is no sign of testamentary power. It may be noticed that the vast majority of the tribes studied seem to be patrilineal (270–284). Of matrilineal tribes, the most important is the Wamakonde (284), where the succession goes to the ablest adult son of the maternal sister nearest to the intestate in age.

Legal historians will note with particular interest the presence or absence of such institutions as talion (313), the oath (354 et seq.), which is regularly a self-curse and is often, but not always, associated with ordeals (355 seq.) (cf. also 261). Torture (351), to elicit a confession, is as common as it was in Christian Europe until recently; the death penalty on the other hand is far less common (332 seq.).

A characteristic element is the development of procedure in these regions—a fact with which Post had already made us familiar. Procedure, further, depends in approved modern form on witnesses who are really evidential and not mere

oath-helpers or champions. Ordeals, however, are not infrequent and in many cases human or animal representation is permitted (358)—something for which European or Mediterranean parallels would be hard to find.

Since the material is disposed according to subject matter, as determined by Kohler's questionnaire, information on any specific tribe must be derived from the rather summary index. That has disadvantages for the ethnologist, but has corresponding advantages for the comparative jurist for whom these studies were in the first instance made. Indeed, it is expressly stated that the book is to be considered as source material for comparative law, and little attempt has been made to give more than a systematizing continuity to the facts that are here put end to end. There can be no question of errors in judgment though there may be questions occasionally as to the interpretation implied in the very act of classifying.

Under all circumstances, the compilation is one of major importance. The method followed has demonstrated its utility, and American anthropologists interested in comparative law will be well advised to take with them an adapted form of Kohler's questionnaire.

MAX RADIN

Pages Arabico-Madécasses. (Histoire, Légendes et Mythes.) Governor G. JULIEN. (Paris: Société d'Editions géographiques, Maritimes et Coloniales, 1929.)

Governor G. Julien, who has become, since Dr. J. Sibree's recent death, the greatest living authority on Madagascar, has been once more entrusted by the French government with a linguistic mission there. So he was able, in the summer of 1927, to undertake a new tour on a large scale in that great Indian Ocean island.

This time his task consisted in revising his version of the Arabic and Malagasy parchments published in volume 6 (1925–26) of the Reports and Communications of the Academy of Colonial Science in Paris. The authenticity of the documents considered is beyond question. The same could be said of the exegesis undertaken by Professor Julien. Having secured the confidence of the Malagasy many years ago, he has been able to study and cross-question the learned older natives on the spot.

The splendid special edition we have in hand is enriched by 32 full page reproductions of parchments, with an interlinear and literal translation in addition. The historical interest of this work is undeniable. For the first time in history, and with a purely native text as starting-point, we are well informed about the extent of Islamic influence in Madagascar. The first document published by Prof. Julien should be traced back to the beginning of the thirteenth century, if we time it by the arrival of the first zealots of Islam in that region, which took place in the year 542 Heg. The man whose name was given to Ste. Marie island (Nusi Burahu) was an Islamic convert who landed there, coming from the Comorean islands at the beginning of the thirteenth century; so he was not a Jew, as many writers have asserted. The Islamic influence went on developing, owing to a clever policy, and only began to decline at the beginning of the sixteenth century, upon the arrival of the Portuguese.

It seems from a social point of view, that a partial result of the documentation in hand shows that the local form of marriage has been strongly influenced by the

Koranic law. The matrilineal family of the Malayo-Polynesian pattern seems to have been supplanted by the patrilineal family of the African-Semitic tribes. Further, the criminal law borrowed the penalty of retaliation from the Koranic law, traces of which we still find in many proverbs and axioms of their tradition.

Linguistics, in particular, is much enriched by Professor Julien's new contribution. Many misconceptions are corrected; the relative form is not a recent addition to the Merina grammar, as has been thought, since it appears in many archaisms. As to the vocabulary, a number of words formerly supposed to be of European importation are related to their Malagasy-Polynesian sources; lalána does not come from the French, la loi, any more than dahúlu comes from the English, the whole. Professor Julien's prettiest find is perhaps the one which allows us to see in the etymology of Farafangana (name of a town on the East coast), the triumph of an Islamic sect over the primitive animism of the Malagasy; Farafangana means really Fára Fanáni, end of the (seven-headed) hydra.

It is interesting for us to remember that the first volume of Pages Arabico-Madécasses scarcely represents a quarter of the documentation ready for press. We can therefore very shortly expect a great amount of information on the problems referring to the question of the origin of the Malagasy tribes, which up to now has been so inadequately dealt with.

EMILE CAILLIET

Ethnology of Africa. WILFRID D. HAMBLY. BERTHOLD LAUFER, editor. (Field Museum of Natural History, Department of Anthropology, Guide, part 3, 226 pp., 4 maps, 42 plates, 1930.)

Dr. Hambly's little book on the Ethnology of Africa will prove useful not only as a museum guide, for which it has been specifically prepared, but also as presenting a series of word pictures of African cultures. To summarize concisely yet readably the material for so vast an area is a well-nigh impossible task. Dr. Hambly has met the situation by presenting the West African material rather fully and using it as the criterion in describing the culture of other areas. He continues the unfortunate habit of other writers on Africa by using the word Hamitic in both linguistic and racial senses.

The continent is divided into seven major areas: West Africa, Congo Basin, Angola, South Africa, East Africa, Northeastern Africa, and Northern Africa. The last embraces the Mediterranean states and the Sahara, while northeastern Africa includes Abyssinia, Sudan, and the Nilotic Negroes.

Four useful maps and forty-two plates in photogravure embellish the work. The maps show (1) racial movements, (2) explorations, (3) location of tribes, and (4) linguistic groups. Many of the plates portray extensive series of objects; e.g., plates 1 and 2 show six house types.

A regionally arranged bibliography opens the door for further study. An index would have been a desirable addition.

Although somewhat limited in its treatment of political and social organization, as might be expected in a museum guide, the book is of such scope that the reviewer is using it as a text book in a course on Africa.

E. W. GIFFORD

Der Tote in Brauch und Glauben der Madagassen. KURT STULPNER. (Studien zur Völkerkunde, Leipzig, 1929. 144 pp. 6 maps.)

In this book the author has brought together and summarized a mass of data on Malagasy mortuary customs and beliefs and has attempted to deduce from these the original native concepts in regard to the dead. One error is at once apparent. The author assumes a priori that the culture is practically uniform throughout Madagascar and when a belief is recorded for any one tribe usually takes its presence for granted in all the others. He appears to be working from a preconceived idea and shows considerable ingenuity in fitting the data into his pattern.

His conclusions may be summarized as follows: The Malagasy originally believed that man was composed of two parts, the body, called tena before death and matoatoa after, and the life, called aina. The latter was bound up in, or equated with, the fluids of the body. Death was due to the separation of the two and was, therefore, a long drawn out process, complete only when the body became desiccated. After death the body continued to exist as a "living corpse," dwelling at the tomb and carrying on the same activities and having the same needs as when alive. It was deeply interested in the affairs of the living and could help or injure them. It also appeared to them in dreams or visions. The aina, on the other hand, changed or entered into an animal, usually a snake or crocodile. After the death of this animal it was completely dissipated. The concept of a soul was originally lacking, its modern occurrence being due to Mohammedan or Christian influence.

In the light of my own studies these conclusions do not appear justified. The Tanala and Betsileo, who seem to have the most archaic culture in Madagascar, hold quite different beliefs. They insist that man is composed of three parts: the life, aina; the body, tena or matoatoa; and the soul, ambiroa. The aina is equated with the breath, not the bodily fluids. It has no connection with the personality and no separate consciousness. At death it ceases to exist or returns to Andriamananary, the Supreme Being. The latter belief is probably due to Christian influence. The Tanala do not believe in animal incarnations of the dead. The Betsileo do, but limit them to members of the royal and noble clans. Members of these clans are believed to carry in their bodies a small maggot-like embryo from which, after death, the animal is developed. The practice of extracting and collecting the fluids from royal corpses rests on a desire to insure the escape of this embryo and is continued only until it appears in one of the containers.

The body is not believed to possess consciousness after death, but the ambiroa frequently revisits it and spends much of its time near it.

The ambiroa is equated with the personality. It is believed to be identical with the body in form, but of very tenuous material. It leaves the body in sleep and unconsciousness and dreams are its experiences. At such times it may visit the dead and talk with them. The identity between the ambiroa of the dead and living is shown by the statement of one informant that the ambiroa of a living person might settle in a village of the dead, marry, and plant fields there, and would then be un-

willing to return to its body, which would die. Absence of the ambiroa is constantly assigned as the cause of various illnesses, especially those connected with lassitude and gradual wasting away. There are numerous ceremonies for its recall, none of which show Christian or Mohammedan influence, and I am convinced that the belief is ancient.

The book contains an excellent bibliography, but the author has omitted the two most important modern sources, the *Antananarivo Annual* and the *Bulletins* of the Academie Malgache.

RALPH LINTON

EUROPE

Some Tribal Origins, Laws and Customs of the Balkans. M. E. DURHAM. (New York: Macmillan, 1929. $6.50.)

Miss Durham's book is rightly entitled Some Tribal Origins, etc. since her concern is chiefly with the manners and customs of Balkan tribes as such. However, the scope of her work is more limited than the title implies since her material is drawn principally from Montenegro and Albania, with occasional references to Serbia and Bosnia. Within the reviewer's knowledge, many of the customs discussed have a far wider range than the book implies. Since, however, much Balkan folklore and anthropological data are unavailable to the English student, Miss Durham's contribution is a valuable introduction to the general area.

The word "introduction" is used advisedly since Miss Durham herself tells us that her work was interrupted by the great war. Her contribution is not, however, to be minimized, as she brings together a large quantity of specific information under the headings of government and law, tattooing, relationship and blood customs, customs of birth, marriage, and death, magic and various medical remedies, the curse, the oath, soothsaying, and taboos. To these is prefaced an account of the history, location, and organization of the Albanian and Montenegrian tribes.

Miss Durham found a firm tribal organization still existing. The tribes are patrilineal, composed of one or more exogamous patrilineal stocks. So strongly patrilineal are they that "a child has none of its mother's blood" and relationship on the mother's side does not count at all. As would be expected, Serbian and Albanian relationship terms make a strict differentiation between maternal and paternal relatives and the incomplete table given of Montenegrian terms would suggest a similar condition.

Much interesting material is given in the section on marriage. Bride purchase is still a living custom in Albania and is found in an apparently vestigial form in Montenegro. In the former country an extended form of levirate, though battled by the Christian church, is in full sway.

> The tribesman . . . . considered it his bounden duty to marry the widow, not only of his brother, but of any male of the house, except his father.

As mentioned before, it is well to bear in mind that many of the traits described by Miss Durham have a wide eastern European distribution. To mention

just a few which come to mind, the koljivo (Greek, kolyva), a wheat offering to the dead; the potency of garlic against the evil eye; the shtrigla or sorceress (Gr., stringa); the name taboo between husband and wife; and the custom of carrying the corpse about the streets in an open coffin, which was until recently extant in Constantinople.

Miss Durham makes occasional attempts at historical reconstruction, which are usually unfortunate and often prove unsound in the light of comparative material. She does this in the belief that there are certain necessary stages in society. The first sentence of her book is telling in this respect. "The tribal system," she writes, "seems to be a social stage through which mankind normally passes." She also has the habit—and let him who is without sin cast the first stone—of giving details which are not pertinent, simply because she has accumulated the data; this she does particularly when she sketches the history of the religions which invaded the Balkans. The frequent attacks which she makes on the barbarism of civilized nations might also have been omitted without loss to the reader. However, all through the book she shows a valuable insight into the subjects she discusses, as for instance in her distinction between blood-taking and vengeance. Having lived with, and worked for, the people she studied, she has a sympathy with them and an esoteric point of view which makes her book a valuable piece of ethnography.

D. DEMETRACOPOULOU

PREHISTORY

The Aurignacians and Their Culture. GEORGE L. COLLIE. (Beloit, Wisconsin: The Logan Museum Bulletin, vol. 1, no. 1—issued January, 1928, as Beloit College Bulletin, vol. 26, no. 2.)

It is a peculiar but probably a fortunate circumstance that there should be men and institutions in America disposed to carry on archaeological researches in foreign lands even while many sections of the home field are being neglected. What the Americans will be able to contribute towards the solution of foreign prehistory problems remains to be seen; but if we do little else we may at least be expected to gain familiarity with facts and methods of work which shall enable us ultimately the better to solve our home problems.

The publication here to be reviewed is the first contribution of the Logan Museum, an institution which obviously is more than generously supported by its founders, Dr. and Mrs. Frank G. Logan, and which for a number of years has been conducting excavations in both France and North Africa. The title indicates, however, something more ambitious than a report on actual first-hand field work. What we have is intended as a general treatise

> prepared to aid the students of the [Beloit] College and visitors to the Museum to a better understanding of the Aurignacian people and their culture and thus to stimulate appreciation of the great collection (III)

there available. To that end thirteen more or less brief and comprehensive chapters have been developed, treating of all the principal topics relating to human life

during the earliest phase of what is commonly called the Upper Paleolithic or Advanced Hunting stage of culture, viz., the Aurignacian. After preliminary section the chapter headings run as follows: The Coming of the Aurignacian Man, The Glacial Epoch and its Relation to the Aurignacians, The Climate, The Fauna, and the Men of the Aurignacian Age, Stone and its Use by Paleolithic Peoples, The Utensils of the Aurignacian Age, Deposits of the Aurignacian Age and their Attendant Culture, The Life, Customs and Manners of the Aurignacians, The Art and Religion of the Aurignacians.

The author, who is Curator of the Logan Museum, has brought together for us probably the largest available single body of information about the life and times of Aurignacian men, and he has sprinkled his facts liberally with interesting interpretations, original and otherwise. He writes with the enthusiasm and flair of one thoroughly well informed and a reading of his account makes it obvious that Mr. Collie has enjoyed an enviable extended opportunity in the way not only of travel and study of local collections, as well as of books, but the actual excavation of important archaeological stations, new and old. The reviewer can think of only one other American investigator who has been equally favored by fortune.

Briefly, our author considers the origin, the general physical characteristics, and the apparent disappearance of what he calls Aurignacian man. He likewise considers the origin, spread, general contents, local peculiarities, relative duration in different localities, and the final complete or partial transformation of the Aurignacian culture traits. Thus Mr. Collie argues not only for the African origin of humankind but especially for the African origin of "Aurignacian man" and with him, naturally enough, Aurignacian culture. He argues, moreover, for the essential newness or uniqueness of Aurignacian man and of his culture, but in the end appears to recant on both counts. In any case, he makes Aurignacian man the first and direct forerunner of modern man, and Aurignacian accomplishments the foundation of our own present-day culture. This of course, is merely another way of saying that he sees the germs of most of our own physical and cultural traits as already present in the Aurignacian complex, as now known to us.

So much by way of summary, made brief primarily because of the space needed for comment. With the new facts cited presumably few, either here or in Europe, are in position to take issue; with some of the interpretations, most likely it will be otherwise, even in the case of the interested Americans who study Old World archaeology at long range, when it comes to the manner of presentation, every intelligent reader is bound to complain.

The fundamental difficulty with Mr. Collie's essay is that in his enthusiasm he has attempted to do the impossible. He has tried to combine the essential substance of a semi-popular Handbook with the occasional details of a technical Report. The result, as would be expected, is too technical as a handbook and not technical enough as a report. The writer's enthusiasm and fullness of his subject naturally predispose his readers to overlook the various shortcomings to which we are all more or less liable, such as weak and wobbly sentence construction, flounderings over tenses, misuse of common words, faulty punctuation, careless spelling, and so on. But

there are limits to everything. When the resulting ambiguity amounts to unintelligibility and the reader finds himself compelled to labor over and ultimately to guess at the writer's meaning, he must of necessity rebel.

To start at the beginning, let us take the first important word in the title of the paper—Aurignacians. The writer's free and persistent use of this term amounts to an implicit and explicit confusion, if not identification, of the two concepts Race and Culture. Racially speaking, who or what are the Aurignacians? The cave of Aurignac, after which the Aurignacian culture stage is named, to be sure once yielded up some seventeen human skeletons; but they are all effectually lost to science. Moreover, some have surmised these skeletons to have been of Neolithic date. At any rate, we appear to have no skeletal remains from Aurignac which can be connected with the Aurignacian culture. So far as western Europe is concerned, most students are agreed that the bearers of the Aurignacian culture constituted a number of physically closely related members of the *Homo sapiens* group, the most outstanding of which is named the Cro-Magnon man. Accordingly, most writers link the Cro-Magnon man with the Aurignacian culture, as they link the Neandertal man with the Mousterian culture. To be sure, probably every writer, to vary the monotony of expression, occasionally puts down "Mousterian man" and "Aurignacian man;" but strictly speaking such phraseology has no more racial significance than would have, for example, the term "Detroiters" applied to people throughout the world who drive Fords and other makes of automobiles.

Again, the author proposes early in the paper to systematize our archaeological time divisions by introducing the usage of geologists and making us say Stone Era, Paleolithic Period, Upper Paleolithic Epoch, Aurignacian Age. Well, probably there may be a need for greater precision in our discussions; but it is doubtful whether a discipline so closely related to geology as is archaeology has the right to appropriate strictly defined geological terms and to give each of them a new meaning. This may not be an entirely valid objection; because historians use the terms Era, Period, Epoch, and Age in their own very indefinite way, and perhaps prehistorians may claim the right to do the same, though certainly we must use them with greater precision or fail. The term Age, by the way, has no precise meaning for geologists and is used loosely for any and all time periods. But after all is said for and against present practice—now about a century old—I venture to suggest that most of us will find it a little awkward to begin saying "Bronze Era" and so on. More serious, however, is his misuse of such words as "artifact" and "utensil"—in the latter case without the warrant of either the dictionary or common everyday usage; and also the positive abuse of, for example, the word "culture," which has been worn to meaningless shreds.

Turning to features less subtle, the general reader is entitled to complain of the unnecessary use of many undefined technical words. It is true the Bulletin starts with a glossary of some twenty terms; but among these are included such simple words as "midden" and "ochre," while excluded are tidbits like "epiphysis" and "platycephalic." More objectionable still is the very frequent use of French terminology. Such practice might be tolerated in a technical report; but it is inex-

cusable in a general treatise, especially when the terms used are not italicized and thus liable to send the reader off to the English dictionary, in some cases to worse than no purpose. Most readers probably do not possess a French dictionary and must consequently remain in the dark about many interesting facts. The reviewer has himself worked enough in foreign lands to know the ease with which one falls into the habit of using foreign terms; but the English language needs to be recognized as sufficiently rich and expressive for all purposes of archaeological description.

The preceding partial list of commissions suggests a long inventory of equally serious omissions. In the first place, not a few of the formal descriptions of Aurignacian flint implements—in particular those relating to gravers and scrapers—will be unintelligible, except possibly to the most expert. The language is inadequate and lacking in precision. Mr. Collie has not analyzed the simple flint flake sufficiently to recognize its various aspects, necessary to unambiguous description. And what, e.g., is the "top of a nodule" (37)? This text difficulty could have been remedied in part by directly adjoining illustrations; but here again there is cause for complaint. The given illustrations are grouped by themselves, are not numbered, and are not referred to by the text, except in two or three instances relating to another subject. Moreover, the illustrations as such are inadequate, both as to quantity and quality. Nothing short of pen and ink drawings suffice to show the essential features of Paleolithic flint implements. We are grateful, of course, for illustrations of new material from the Abri Cellier, Dordogne, France, and from Mechta el Arbi, Constantine, Algeria; but these scarcely serve the purpose of a complete manual on the Aurignacian culture.

In the second place, a general treatise on a phenomenon having geographic distribution should provide a map showing the known range of such distribution. Also any archaeological publication designed to meet popular demand should have something to say on the age or antiquity of the things considered. How old is it? is the never failing question on the lips of the lay public, and while a precise answer is impossible at the present moment, when geological time is undergoing tremendous expansion at the hands of the students of radio-activity, a statement of the extreme estimates would have been better than nothing at all.

The author has introduced a number of graphs to show the relative frequency of different flint implements found in a certain excavation. The idea is excellent in its place; but some of these graphs are rather carelessly made and also carelessly labeled. For example, in the case of the graphs on pages 66–67, a special piece of detective work is required to determine just what culture layers indicated on "Map" I they do refer to, simply because of a confusing and needless introduction of double labeling in the trench section concerned. No lay reader is going to stop to figure out such puzzles.

There are many more items, of both large and small import, which are in need of comment and criticism. However, the editor has to be considered, and the reviewer, having spent the better part of two days on a moderately critical reading of the Bulletin, reluctantly concludes by merely questioning a number of alleged

facts and opinions. Thus it is a little startling to him to learn that the *baton-de commandement* was used for *polishing* instead of *straightening* spearshafts. It is news that the *coup-de-poing* was ever found in the Aurignacian culture levels; likewise that there is a Mousterian industry at Solutré. Some will certainly object to the statements that Neandertal man suffered no tooth decay and that *Homo sapiens* appeared suddenly and *de novo*, contemporaneously with the Aurignacian flint and bone-working techniques. The reviewer fails to see that strictly geological considerations are necessarily involved in the study of artificial cave deposits, and he is reduced to a skeptical attitude about the Mediterranean sea level conditions at the time the bearers of the Capsian culture are said to have migrated to Europe, because in one place (14) the author has them come across when the sea was low, and in another place (26) when the sea presumably was high. But perhaps the most serious observation the reviewer has to make concerns the necklace figured opposite page 104 and described on pages 111–112. This specimen looks like a creation from Tiffany's, but, unless I am very much mistaken, when I last saw these beads and pendants, in 1922, they were merely so many separate items in a cigar box in the possession of M. Didon, at Perigueux. What the reviewer really means to say is that unless the Logan Museum has additional unpublished facts regarding the history of this "necklace," it is not acceptable as a piece of scientific evidence.

But there must also be an end to everything. After all these strictures the reviewer is still ready to admit that the Bulletin has redeeming qualities and that it is a short-cut to a lot of valuable information. He would hesitate, nevertheless, to recommend the work for perusal by serious young students.

N. C. NELSON

The Evolution of Earth and Man. L. L. WOODRUFF, G. H. PARKER, R. S. LULL, C. SCHUCHERT, H. B. FERRIS, J. BARRELL, A. G. KELLER, G. G. MACCURDY, E. HUNTINGTON, J. R. ANGELL, E. G. CONKLIN, W. R. COE. Edited, with a preface, by G. A. BAITSELL. (New Haven: Yale University Press, 1929, 476 pp. $5.00.)

The present book is the outcome of two series of lectures delivered at New Haven under the auspices of the Yale chapter of the society of the Sigma Xi. The first series of lectures, delivered by Professors Barrell, Schuchert, Woodruff, Lull, and Huntington, were originally published under the general title of The Evolution of the Earth and its Inhabitants. The second series, delivered by President Angell of Yale University and by Professors Lull, Ferris, Keller, Parker, and Conklin, were published under the general title of The Evolution of Man.[1] This last volume has combined and revised these previous books, and in addition offers important material on Cultural Evolution by Professor MacCurdy, and on the Mechanism of Evolution by Professor Coe.

[1] This book has already been reviewed by P. L. Faye in AMERICAN ANTHROPOLOGIST, 25: 263 f., 1923.

Perhaps the most natural way for the anthropologist to begin expounding man's place in the universe is to review briefly existing theories regarding the origin of the earth and life, and this is adequately done by Barrell, Schuchert, and Woodruff in the opening chapters. Following this, we are given the rare treat of two lectures by Lull, dealing first with the evolution of animal life and then with the evolution of man himself. In reading them I can still remember the thrill I experienced as an undergraduate at Yale when Professor Lull gave the final address in our course on historical geology. By unanimous vote the hour was prolonged into two, in order to allow time for the remaining slides and subject-matter. While agreeing with Mr. Faye, therefore, in regard to the general excellence of Professor Lull's lectures, I feel in duty bound to point out that an error Mr. Faye mentioned in 1923 is repeated in this edition. Contrary to the impression created by the name "Neolithic," the polished stone axe appeared only in the later portion of the era and is not characteristic of the period as a whole, as stated by Lull (149).

Following Lull, Professor Ferris furnishes a chapter on "The Natural History of Man." I cannot give this portion of the book further praise than has been already accorded to it by Mr. Faye, but, on the other hand, must criticize the author for his brevity. An extension of this chapter into a textbook would be of the greatest aid to students of medicine and anthropology.

There appears no need to enter into a further discussion of most of the following material, which deals with the natural and cultural development of man. While nothing new to science is added, yet the general results of recent investigations are given in succinct form. Especially interesting is Professor Coe's article on "The Mechanism of Evolution." Here is mentioned the newest theory concerning mutations, that is, that they have been caused in the past, at least in part, by the natural emanations of radio-active substances. It is to be regretted, however, that in an elementary book knowledge of the Mendelian law has been taken for granted.

In a book of the symposium type certain of the contributions naturally fall beneath the high level set by those above mentioned. While it would be unjust to question the stimulation afforded by Keller and Huntington, we may well doubt whether the particular points of view presented by these authors deserve a place in what pretends to be a book of proved fact or generally accepted theory.

As has been pointed out in the previous discussion of Professor Keller's theory of Societal Evolution, this Yale sociologist has formulated a scheme whereby the "mores" or customs of man are constrained to act in a manner suspiciously like the species of animal and plant life, and therefore to change, for better or for worse, in response to the needs for a better adjustment to environment. Keller begins by denouncing the shallow adaptations of Darwinism to the study of society which were in vogue twenty years ago, and then, as far as I have ever made out, proceeds to do the very thing for which he has condemned others. What can be more evident of a gross misuse of Darwinism than the statement that

> The mores are to a society what, for example, density and color of fur are to arctic animals: namely, automatic adaptations to environment?

Did one species of animal ever change the density or color of its fur because it saw or heard of another species with a different variety of fur? And yet, are not the customs of groups of people constantly undergoing alteration, not as an automatic adaptation to environment, but from mere conscious imitation of foreign customs?

A similar charge can be brought against the chapter by Huntington on "Climate and the Evolution of Civilization." This author, also, has entirely neglected the historical method and the proved facts of the diffusion of culture, in favor of emphasizing his hobby, climate, as the most important factor in human progress. It is true that Huntington gives mention to other "minor" factors, such as mental capacity, material resources, and energy, but the geographical position of a people in regard to the path of diffusion of culture does not even receive honorable mention among these. Dixon has recently pointed out the exaggeration in Huntington's claims,[2] and mention need only be made here of the incongruity of stating that the maximally favorable conditions which gave rise to the modern high cultural status of the eastern United States so significantly failed to arouse the backward aborigines.

To sum up, this book should be of the greatest utility in giving the general reader or the student of the sciences a bird's-eye view of the whole subject. For class use, a combination with the similar survey of the sciences recently published by the University of Chicago would be of value: the instructor could assign readings from one book or the other according to the ability shown in the treatment of a particular subject.

E. M. LOEB

Paleolithic Man and the Nile-Faiyum Divide; a Study of the Region during Pliocene and Pleistocene Times. K. S. SANDFORD and W. J. ARKELL. (Vol. 1 of the Prehistoric Survey of Egypt and Western Asia, edited by James Henry Breasted. University of Chicago Press, 1929. Quarto, 77 pp., 25 text figs., 11 pls., map. $5.00.)

Since Napoleon's military expedition to Egypt, 1798–1801, the world has been kept in a state of growing astonishment over the gradual unearthing of the ancient and forgotten historic civilization of the Nile valley. Whisperings about things prehistoric in the same region have been heard now and then for nearly fifty years, to be sure; but though these were sometimes founded on fairly extensive collections (one of them in the American Museum of Natural History) they were drowned by exultation over such discoveries as Tutankamen's tomb. But now, at last, there are signs that scientific interest is to be fairly divided between ancient history and geologic prehistory.

The volume before us is the joint product of the University of Michigan and the Oriental Institute of the University of Chicago, in cooperation with the Cairo Museum, the project having been initiated by the late Professor Kelsey and car-

[2] Roland B. Dixon, The Building of Cultures, 20 f., 1928.

ried forward by Director Breasted. The authors, representing the University of Michigan, are accredited geologists, thoroughly familiar with the recognized typological succession of flaked, chipped, and ground stone implements and thus prepared to determine the essential synchronization of all outstanding geological and archaeological phenomena. The present publication is in the nature of a partial or preliminary report on two seasons' work (1926–28) covering observations over a large portion of the Nile valley proper, the adjacent tributary basin known as the Faiyum, as well as the divide separating the two and the Hawara channel, which cuts this divide and thus unites the two drainage systems.

Briefly outlined, the authors set forth in clear and concise form: (1) the geologic origin and history of the Nile valley as due to alternating processes of erosion and deposition, dating from early Miocene times; (2) the origin and development of the Faiyum basin due to erosion dating from early Pleistocene times; (3) the noteworthy absence of evidence pointing to the presence of man in Egypt in Pliocene times; (4) the presence of four extended river terraces in Upper Egypt at 100, 50, 30, and 10 feet above the Nile, which are characterized respectively by Chellean, Acheulean, early Mousterian, and Mousterian flint industries *in situ;* (5) the tracing of the Mousterian-bearing formation from the Nile valley terrace proper through the Hawara channel and into a corresponding old beach level circling the Faiyum basin; and (6) the recognition in the Faiyum lake basin itself of no less than eleven ancient beaches, marking temporary standstills in the drying up of the lake and containing a succession of stone implement industries which range from the Mousterian down to the Neolithic.

Time, space, and words all fail the reviewer in attempting to write a suitable appreciation of this remarkable performance. We have here obviously one of the most beautiful chronological demonstrations ever put forth by the joint labors of geologists and archaeologists. Perhaps no more need be said at this time. In fact, the authors do not in the present report describe the implement series in sufficient detail to give the archaeological commentator a full chance. This of course will be done later and in the meantime we may speculate with G. Elliot Smith on Egypt as one possible place where the transition from the Paleolithic hunting stage of culture to the Neolithic agricultural stage actually took place and where perhaps it may be traced with sufficient fullness, such as has not hitherto been possible in Europe. Professor Breasted and the authors are deserving of the heartiest congratulations and of encouragement that they go on to complete their promising undertaking.

N. C. NELSON

ASIA

Santal Folk Tales. Edited by P. O. BODDING. Vol. 3. (Oslo: Institutet for Sammenlignende Kulturforskning, 1929.)

The present is the third volume in the series of Santal Folk Tales, of which I have had the pleasure of reviewing the first two in previous issues of this journal.[1]

[1] AMERICAN ANTHROPOLOGIST, 29: 709 ff.; 30: 705 ff.

As there stated the Santal are the most important of what remains of the Kolarian tribes of India.

These tales are especially enlightening on Santal social organization. The Santal are endogamous as a people, but exogamous in regard to their paternal sibs. Of these there are twelve, of which one is lost (i.e., no one belonging to it is known); and each sib is similarly supposed to be divided into twelve subsibs. As a matter of fact, there are more than twelve subsibs to each of the known sibs, some having as many as thirty. Evidently the Santal are fond of the number twelve. The old rule that marriage within the sib would outcast the pair is nowadays restricted to the subsib.

Marriage is, in the main, patriarchal and patrilocal and rests on purchase, real or symbolic. A widow or divorceé is free to marry again, but as the union of a spinster with a bachelor is valid for the next world also, not being influenced there by such remarriage, the bride-price in such cases is only half a spinster's. The ceremonies gone through with such women are different, and the marriage is for this world only.

According to Santal theory, sexual intercourse is sinful, or, more properly speaking, unclean. One of the most common names for sexual intercourse is baric kami, literally, bad work. Because of this attitude, purification is necessary, for which one requires children who grow up and go through three ceremonies of atonement. The first or birth ceremony makes the child a human being, a member of his family and sib. Next comes the walking ceremony, corresponding to the more primitive tribal initiation, which makes the child a full member of Santal society. Until this has been performed a Santal cannot be married or cremated after his death. The ceremony has often been performed on a dead body to prepare it for cremation. Finally, comes marriage, as a part of which ceremony the mother actually gives suck for the last time to her grown-up son, the bridegroom. When the parents have in this way married off all of their children, the responsibility of the parents is transferred to the children.

In dealing with the second volume of Santal Folk Tales, I mentioned the joking-relationship between a man and his elder brother's wife. In the present volume it appears that a younger brother also has rights to sexual intercourse with the elder brother's wife; in other words, we are dealing with another case of Indian fraternal polyandry. On the other hand, an elder brother has to treat the wife of a younger brother with the greatest possible reverence, to "avoid" her.

Volume 3 is divided into four parts. The first relates about those who practice yoga, the second about souls in human bodies, the third about animals born by women, and the fourth contains miscellaneous stories. Mr. Bodding evidently kept his piéce de résistance to the very end, for the last story is not only the most interesting of the collection, but would compare favorably with any tale taken from comparative folklore.

The story concerns "The Prince whom his Wife Saved." It seems that this prince, in conformity with Hindu custom, had been married to a girl while they were both infants. The boy only heard about his marriage when he was grown up.

At once he was seized with a desire to meet his wife. He mounted his horse and rode off in the direction of her village. On the way he was indiscreet enough to save the life of a snake caught in a burning field. It wanted to bite the poor prince then and there, but he pleaded for a legitimate legal trial. The snake called upon three judges to make a decision in the matter: a cow, a banyan tree, and water. The judges based their decision upon the fact that mankind as a whole is ungrateful, and since the prince was human he was therefore deserving of death. The prince asked as a boon that he be allowed to look upon the face of his wife before he died. He promised to return to the snake in three days, and he called upon his judges to act as surety.

After matters had been arranged in this manner, the prince again mounted his horse, and rode to the village of his wife. Once there, he announced his name and birthplace and was given a proper welcome and feast. When night fell, the parents-in-law gave the man a room to sleep in; and they gave their daughter some oil and said to her: "Please, girl, rub your husband in with oil and massage his arms and legs, and you too stay there with him."

Now, truth to tell, the girl was grown up and felt like a grown-up person, so at once when they said so to her, she went. She rubbed him in with oil and was giving him massage to his arms and legs, and was asking him about many different things. Now the young man would not talk freely, and seemed utterly unwilling to have anything to do with her. The girl waited for some time; then she suddenly asked him: "I say, you, you are a grown-up man, is it not so? Is there no fun in you?"

The young man replied: "Of course I am grown up; therefore I have come to take you away; but I suppose, it will for us only be this seeing each other; I have a great grief in my mind. Why should I treat you in such a way that you will afterwards feel badly? You would only remember me with longing.

The husband then related his mishap and wound up again with the request that his wife have naught to do with such an unfortunate man, but let him depart in peace. But this Santal Ruth replied: "Then I too shall go with you and be killed together with you; for I am yours for my whole life. You bought me, therefore where you are going to die, there I also shall die; and I tell you this, whatever may happen, the day you go I shall go together with you."

So at the end of the three days the pair departed together and when they came to the spot where the snake waited, it was the girl who walked in advance. The cobra came along and tried to persuade her to stand aside. He had no grudge against her, it was her husband who had saved his life. But the girl replied: "This is impossible, because, you see, my parents have sold me to this man. Both bones and ashes he has bought me; therefore, whatever may happen to him, I shall have the same. Therefore I am saying to you, if you are eating him, then eat me too."

Finally a bargain was struck, and the woman agreed to allow the snake to bite her husband if he would first give her a magical powder which would consume anything it lit upon. The snake, not being of the guileful Hebrew variety, did this, and fell a ready victim to his own magic. The wife then, conforming to the customs of her sex everywhere, turned to her husband and said: "Did you see? Because I came

along, I rescued you and saved you. If I had not come, you would to-day have ceased altogether to trample this earth."

This story illustrates that marriage by purchase may be in form one thing, and in intent quite another.

E. M. LOEB

OCEANIA

Outlines of the Anthropology of the Timor Archipelago. H. J. T. BIJLMER. (Weltevreden, 1929.)

The Races of Java. J. H. NYESSEN. (Weltevreden, 1929.)

These two books form the third and fourth of a series of publications issued by the Indisch Comite voor Wetenschappelijke Onderzoekingen (The Netherlands Indian Committee for Scientific Research). Judging by the merits of the two works on hand, a continuation of investigations into the physical anthropology of Indonesia will prove of great value to science. The fact that the publication is being done in English adds to the accessibility of the data.

The islands investigated by Dr. Bijlmer included Sumba, Flores, and Timor. Nine hundred people were measured in all, and the book contains ninety pages of photographs. The author tells us in the Introduction that these islands are peopled by a mixed folk of Indonesian and Papuan origin. In his conclusions Dr. Bijlmer grants that it is far from easy to draw an anthropological scheme of the Timor archipelago, because of the many strains in the population, including Malay, Mongoloid, Negroid, Papuan, and Melanesian. At any rate, we are now presented with accurate measurements and fine photographs.

The book by Dr. Nyèssen on The Races of Java is intended as a first approach to the subject. Much material has been gathered, but little as yet worked up. So all conclusions contained in the book are to be considered as tentative. The first part contains principles and plan of approach. The author intends to correlate environment with race type, and to distinguish changes wrought on the soma from those on the germ (phaenotype and genotype). The conclusion arrived at from the preliminary measurements is that:

> The population of Java is perhaps divisible into three groups, an Eastern, a Western and a Meridional [Negroid].
>
> The first is probably of South Mongolian, the second of Dravido-Australian origin. Side by side with Asiatic components, the third group possibly embraces elements resembling the Meridionals of Africa.

In case the presence of Negroid type arouses surprise, it may be pointed out that individuals of this variety are presumed to have resulted from early Pygmy admixture, and that the evidence is deduced from data other than hair. No people with close frizzy hair are to be found on the island.

E. M. LOEB

Die Toba-Batak auf Sumatra in gesunden und kranken Tagen. JOH. WINKLER. (Stuttgart, 1925. 234 pp., 14 figs., 29 plates.)

This book, written by a medical missionary of the Rheinische Missionsgesellschaft, is divided into two main portions, the first dealing with Batak hygiene, the second with the Batak medicine-man, or datu. While Herr Winkler makes no pretension of being a professional ethnologist, he has unquestionably made an important contribution to our science in his complete and well arranged data on the Toba-Batak medicine-man. This will be clear from the few topics of greatest comparative interest here selected for consideration.

The Toba are the largest and most centrally located Batak group in Sumatra. While the religious beliefs of all the Batak are fairly similar, until now through the writings of Warneck[1] we have been best informed concerning that of the Toba. This authority discusses Batak religion under a threefold scheme: (1) the idea of the higher gods (entirely of Hindu origin); (2) the cult of the soul (tondi); (3) the cult of ghosts, demons, and ancestors. The cult of the tondi is the most important of the three, for the higher gods are on the whole neglected, and it is the tondi which after death turns into the begu or ghost. According to Warneck, the fight with the tondi and around the tondi is the center of Batak ethics. Everyone seeks to enrich his own tondi at the expense of all others, and this concept furnishes the keynote to eating habits, sacrifice, prayer, and even to marital unions. While the souls of the living are feared, the souls of the dead, begu, are feared still more.

The Batak have no true priesthood, since anyone, including women, is capable of making sacrifice. The inspirational shaman, si baso, reveals the wishes of the dead. In Toba the shaman is usually female. The medicine-man (datu) is seldom a medium, although occasionally the spirit of his instructor or that of a former datu speaks through him. While the shaman is usually a woman, the datu is always a man. Furthermore, while only women specially gifted for the profession can serve as mediums, anyone with sufficient wealth may attempt to become a datu.

Winkler gives a full account of the duties and education of the datu. After the chief, this native doctor has the highest standing in the village. Many chiefs also function as doctors, in this way increasing their prestige. The duties of the datu are many. He is in the first place a physician, and as such has to treat the sick and protect the healthy from sickness. Sickness is directly determined by "soul loss," but the contributing cause may be the secret influence of the begu, the capriciousness of the patient's tondi, or the power of a hostile magician. The datu must therefore be versed in "white magic." He functions as priest only at a big feast, when alone it is important to perform the ritual with exactitude. The datu is the sole oracle, soothsayer, and clairvoyant. He is also the weather-maker. The people are able to make and drive away rain by magical means, but the datu alone can provide permanent freedom from storms. The datu is not only conversant with "white magic" but also controls the "black" art, and is the sorcerer.

[1] L. J. Warneke, Die Religion der Batak (Göttingen, 1909); *id.*, Das Opfer bei den Toba-Batak in Sumatra (Archiv für Religionswissenschaft, 1925).

Finally, it is the duty of the datu to have occult knowledge handed down entire from generation to generation. Oral tradition is not deemed sufficient for this purpose, so the first thing a pupil in magic has to learn is the art of writing. The magic books and the calendar are written down by the pupil at the dictation of the datu; the paper bark of a forest tree, a brush, and native ink, serve as writing materials. The script is of course derived from the Hindu. The books contain oracles, prayers, and exorcisms. Batak calendars are of Hindu origin and are used for the determination of lucky and unlucky days, not for time reckoning. They may be either written in books or scratched on bamboo.

The course of studies for a pupil of magic involves great difficulties and pecuniary sacrifice. The man who can afford it, and who wishes his son to become a datu, invites the chosen teacher to a feast, at which the prospective student ceremonially feeds the master. After this the pupil must board the datu, and frequently his entire family, in order to receive instruction. He must first learn the nineteen chief signs of the Batak alphabet, next the vowel signs, and finally the actual reading. Then only follows instruction in the magic art.

Since all beginning is difficult, the tondi of the pupil reacts against the reception of the higher science of reading. In order to remedy this condition, the teacher now takes energetic measures. He goes with the pupil into a river, puts a handful of rice meal into his mouth, and ducks him under the water until he has swallowed the rice. This is done seven times. The datu then makes a food offering to the ancestors and the gods, praying that his pupil will acquire more wisdom and that the instruction will enter into him. The pupil is then taken back to the village, and his tondi rewarded with food.

If the pupil still has difficulty in learning the rudiments of the science, the datu makes a second and last attempt to cure his stupidity. The two go at night to a mountain on whose peak the tribal ancestor abides. There, uttering a spell, the datu recounts the dulness of his pupil over a pot filled with magical implements. He then places the pot on the swaying point of a bamboo shaft, this being done in urder that the pupil's stupidity shall escape into the wind. On the return of the two men to the village, the datu again gives the elders hope for a successful completion of the course of studies, but only after certain necessary presents have been handed over. If, however, this second attempt also fails, the datu gives up the course of instruction.

Winkler believes these ordeals to be a survival of the initiation of shamans, the ducking representing a symbolic death, while the nocturnal visit to the mountain top signifies the formal communication of the apprentice with the spirits during his course of training. I myself can see in the ducking of the candidate nothing more than the customary form of Batak ordeal. This is a common Indonesian test, and the swallowing of dry rice a specific Batak ordeal. It is, however, probable that the Batak in early times had "seers" rather than inspirational shamans and that a portion of the present day training of the datu is a survival of the former actual vision quest on which the seer obtained his guardian spirit.[2]

The material here presented on the sacrifice of horses and human beings is of interest. Winkler is the first writer to give us the details of the Batak horse sacrifice, a custom presumably introduced from India together with the higher gods and the horses themselves, which are at present raised by the Batak for sale, but not made use of in any other manner.

In a great sacrificial feast for the three highest gods, horses are offered up. Every sib[3] has a sacred horse consecrated to one of these gods. It is the "throne," that is, the symbol of the presence of the divine tribal father for his descendants. The black horse is sacred to Rappa, the brown horse to Soripada, and the piebald to Mangala bulan. Each sib, in accordance to which of the three gods it traces its descent, possesses a black, brown, or piebald horse. These sacred animals are inviolable and non-alienable. They are not confined but graze anywhere with impunity.

When a sacred horse (hoda debata) has grown old in honorable service, it must be replaced by a young beast of the same color. For this purpose a feast is arranged, at which the old horse is sacrificed to the god appropriate to its color. A lucky day is picked out with the aid of the calendar, and the sib members, including the women, assemble in the village of the head chief, who, as manager of the feast, has already obtained a black, brown, or piebald young stallion, selected for its beauty. The two sacred horses, the intended victim and its successor, are now bridled, the ears of the young being decorated with flowers and sweet-smelling herbs. To the strains of the native orchestra both horses are conducted to the center of the village, where the men entrusted with the duty of slaughter and evisceration await their office. They kill and skin the old sacred horse. The pelt is washed and laid over a "rangin," the crudely cut image of a horse, which is simply a tree trunk, hollowed out on the underside and ending in the image of a horse's head. The rangin covered with the hide is brought to the chief's house, where, amid a food offering of rice, sacrificial cakes, fruit, white flowers, and the purifying lime juice, the datu offers the hide to the god as a covering for his throne. Sprinkled with the consecrated water the hide is then left in the house for the time being. The people return to the village, where the datu summons the three gods, Mula Djadi (the Batak creator and father of the three gods), the nature gods, and the ancestral spirits, for the consecration of the new horse. A man comes forward with a plate of sacrificial cakes and a small sack of rice kernels with a chicken's egg or a gambir nut on top. When the datu has summoned both the gods and the ancestors of both sexes up to the seventh generation for the blessing of the people, the young horse is sprinkled with lime juice water. The participants scatter rice kernels over its head, praying, "Our tondi is firm, may we remain healthy." The young horse is now led back to its stall, through a further shower of rice. The people return to the house of the chief, where the ceremony

[2] For the distinction between shaman and seer, see my paper in the AMERICAN ANTHROPOLOGIST, 31: 60–65, 1929.

[3] The Batak are divided into patrilineal exogamous sibs. The major sibs are again subdivided into minor sibs. I presume that Winkler has reference here to three major sibs.

ends in music and dancing. The god, stimulated by the orchestra, enters his medium, one of the chiefs, to inform the people that he has received their sacrifice and will give them help. After the feast the horse flesh is divided up, and everyone takes his portion back to his village to eat.

Among the various forms of human sacrifice formerly practiced by the Batak, the making of a pangulubalang is the most remarkable. The pangulubalang serves as a spirit champion against hostile villages, and each village must own one or else go undefended in the spirit world. Winkler's description indicates that this custom is traceable to Hindu custom and folk-lore.

To obtain a pangulubalang, a child must be stolen from a hostile village. When the chief and the datu have recognized the necessity of the undertaking, the datu consults his calendar and selects a propitious day for the expedition. At the appointed time the warriors assemble. They are entertained and fed in order to strengthen their tondi for the difficult undertaking, their wages being paid beforehand. They set out that same evening. A child is kidnapped either from a field hut or from the hostile village itself. Muffling its cries with a cloth, they bring it back to the village sopo (communal house), where it is held prisoner and fed for weeks and even months with the best of foods, including gold-colored rice, spiced meat, and sour fish, and especially the liver of all kinds of house animals, apes, and other game animals. A "sahan," a buffalo horn with a hole in its end, is used to give the child palm wine. In this manner the tondi of the child is made willing and ready for everything that will be demanded from it. Three and four years is considered the best age for a child to be used in the preparation of the pangulubalang, for such a child is old enough to answer the questions put to it, but young enough to be unsuspecting.

When the tondi of the child has been properly propitiated, the datu says to it, "I am going to send you to destroy my enemy. Wherever I send you, there must you go. You must never, however, reveal either your or my name to anyone, nor the manner of your death."[4] If the child refuses to obey, it continues to be well taken care of until such time as it is ready to accede to anything asked of it. The child is led blindfolded out of the village on a day reckoned favorable by the datu. After placing it in a ditch with earth around it so that only the head remains above ground, the datu asks once more, "Will you allow yourself to be sent by me?" If the child answers, "Yes," the datu puts some food into its mouth and speaks to it kindly, saying, "Here, take this special meat, take this sour rice, take this ginger, take this roasted rice kernel, take this palm wine and be obedient." Unsuspectingly the child answers, "I ma tutu," (Yes, certainly). The datu says, "Open your mouth, so that I can give you something more." The child obeys and receives in his mouth the point of the drinking horn from which he has been accustomed to drink palm wine. Boiling lead is immediately poured into the child's mouth, and he dies a quick but painful death. The vow, however, which the child has taken with his last words binds

[4] The Batak believe that a person's name is a part of him, and therefore can be made use of in magic. As among many, if not most, primitive people, there is a strict name taboo.

his tondi after death. The operation has succeeded, and the village has obtained in the ghost world a willing and obedient ally for the fight against the enemy.

Since the ghost of the child remains in contact with its body, the magical substance, pupuk, can be prepared from this. The body is dismembered, parts are charred with other magical ingredients, and the whole filtered into a pot. The pupuk is divided up among the datu of the subsibs, and is used to besoul, or make potent, all images and idols from which magical power is desired. Some of the pupuk is actually inserted into the images for this purpose. The Batak magic staff, tunggal panaluan, is one of the most important besouled in this manner.[5]

Winkler's account of the making of the pangulubalang differs to a certain extent from that given by Meerwaldt.[6] According to the latter, the victim, either bought or stolen for the purpose, is a boy of 12 to 15 years of age, is not treated kindly "as a god" in conformity with Hindu concept, but on the contrary is tortured with hunger and thirst until he furnishes the required promises. Both agree however that if a child cannot be obtained for the purpose, the body of a person who has died a sudden death, a suicide, or war victim, may be substituted. One wonders whether the Batak ever actually stole children for this usage; if they did, the custom may be considered to show traces of Hindu influence, for Crooke mentions a tribe of Brahmans said to have lured strangers to their feasts, treated them with the greatest kindness for months, and then drugged and sacrificed them before the altar of the goddess Sakti. More specifically, in northern India a prevalent superstition relates to the supernatural virtues of momiăi, an unguent prepared from the fat of boys murdered for the purpose. This is believed to heal wounds and render the body invulnerable.[7]

Apart from the pangulubalang, Winkler describes a sacrificial sham battle which occurs at the time of harvest. An animal is killed and related families share the meat.

[5] Winkler makes a scanty reference to this important magical implement, one of which is owned by every datu. According to Meerwaldt, the magic staff has two functions. In the first place, it is used to bring the enemy into a state of submission, and therefore its name is tunggal panaluan (stick which produces submission). This effect is produced by the tondi in the stick. The people make sacrifice to the tondi at the outbreak of a war, and the datu dances with the staff in his hand. It is also carried at the head of troops engaging in combat, and can also be used by the datu to produce rain after a long drought.

The magic staffs are made with great ceremony from a special wood. They are decorated with human and animal images, which vary in number, order, and kind from stick to stick. Most of the origin myths relating to the sticks refer to the belief that the Batak received their magic through the incestuous union of a twin brother and sister. Meerwaldt believes that the figures on the stick represent people who have been punished and turned to wood by the avenging hands of the gods. Ophuijsen, on the other hand, thinks they represent a marriage between heaven and earth, and that the Batak have derived the idea of the staff from India, where long droughts are known. See J. H. Meerwaldt, De Bataksche Tooverstaf (Bijdr. K. I., 297–306, 1902; Ch. A. Van Ophuijsen, Der Bataksche Zauberstab (Internationales Archiv für Ethnographie, 82 ff. 1911).

[6] Meerwaldt, *op. cit.*, 302.

[7] W. Crooke, The Popular Religion and Folk-Lore of Northern India, vol. 11: 170, 176 (Westminster), 1896.

Then the youths of the sacrificing party divide into two bands, and, armed with reed lances or with stones, fight a sham battle. Passions rise on both sides, the married men join with the youths, while the women look on and incite the combatants to fiercer struggle with cries and clapping of hands. For complete success, blood must flow and a life be lost on both sides so that there will be no cause given for blood revenge.

Warneck mentions[8] that the Batak also formerly practiced voluntary human sacrifice. This occurred when a sombaon (ancestral spirit) through his medium, demanded a human sacrifice at an ancestral feast. The datu sent people through all the villages of the district, crying, "Who is tired?" When anyone answered, "I am," he was destined for the sacrifice, whether he were a powerful or a lesser personage. (When someone answers "I am," it is a sign that his tondi has designated him for sacrifice, for the tondi determines the fate of man.)

The next morning the victim and a buffalo were tied to a sacrificial pole. All the people streamed to the place of sacrifice, beat drums, and danced around the pole. With prayers the sacrifice was given over to the sambaon, for the forgiveness of the people. The spectators spat on the bound man, as a sign that they transferred their faults and misdeeds to him. Finally the human scapegoat was released and allowed to run away. But he lived scarcely a month, for he was avoided by all, since his life was given over (sacer facio) to the sambaon and no one would feed him. His death was a sign that the sambaon had accepted him.

As is common elsewhere in Indonesia, a human victim was formerly placed under the main pillar of a new house as a sacrifice to the earthquake god. A slave was used for this purpose.

Finally, the occurrence of the sweat-bath is of importance. Winkler describes it in dealing with Batak hygiene. For the sweat-bath (mortup, mananjas), the fruit and leaves of various kinds of citrus are taken and mixed with assorted herbs in an earthen pot, which is placed between the outstretched legs of the patient and is covered by a number of blankets, so that the steam will go over the entire body. This form of sweat-bath is used for cases of fever, rheumatism, skin disease, and for the bite of a mad dog. In many of the regions of Toba a complicated form of sweat-bath is used to cure mental ailments of various kinds. It is supposed to expel the spirit which causes the disease. Steam is led into a tent by a clay-covered bamboo pipe. The patient creeps into the tent and allows himself to be enveloped by the steam. Rivers[9] has reported the existence of the sweat-bath in Oceania, in Melanesia, New Guinea, and Polynesia. This distribution may now be extended to Indonesia.

E. M. Loeb

Der Reisbau und die Reisbaukulte auf Bali und Lombok. P. Wirz. (Intern. Arch. für Ethnographie, Supp. zu band 30, Leiden, 1929.)

Notwithstanding the attention American ethnographers have paid to wet rice culture and terracing in the Philippines, very much less interest has been devoted

[8] Warneck, Das Opfer, 346.

[9] W. H. R. Rivers, Medicine, Magic, and Religion, 102, 1924.

to the diffusion of what is obviously the same trait in the East Indies. A brief summary of the article by Wirz on this subject, therefore, seems desirable.

Wirz believes that wet rice was introduced into the islands of Java, Bali, and elsewhere in the archipelago by Hindu colonizers. This probably took place earlier in Bali than in Java, for already in the beginning of the Christian era[1] a regular trade existed between Bali and the coast region of the mouth of the Ganges. It must be presumed, however, that dry rice was earlier in the Indonesian archipelago than wet, and that dry rice preceded Indian contact. It seems certain that the system of artificial irrigation goes back to direct Hindu influence.

The first account of rice culture in Bali is given by Hartman in 1597. The natives grew wet rice then, but on a small scale, and some rice was imported from Lombok. After war with the Dutch in 1849, at which time the latter took firm footing in Bali, rice culture increased.

In Bali, Lombok, and south Java rice is cultivated by a group of people working together and operating a subak. The subak consists of a number of plots of ground, owned by a group of people interested in their water and drainage. Each subak has its own name, derived either from that of the settlement in which it is located or from its founder's name. Every subak is an autonomous unit, its head being called the klian-subak. Above the klian-subak comes the sedahan-tembuku, who has several subak under him. Above all is the chief, sedahan-agong.

In both Bali and Lombok, contrary to usual Indonesian custom, the planting and transplanting of the rice is entirely men's work.[2] But both men and women work at harvest time in cutting the plants. Most of the people of the highest caste on Bali build their own sawahs (wet rice fields), even the Brahmans, who refuse to do any other kind of manual labor. As everywhere in the Orient, the watering system of the sawahs is a masterpiece of engineering skill.

There is scarcely another plant which has so many enemies. Rice is constantly threatened by both animal parasites and innumerable forms of disease, so that great care must be taken in its cultivation. There are both secular rules and religio-magical observances, many of the latter going back to the taro period. When rice culture came in—above all, wet rice—the people had to give more work and care to the new plant. Then many of the old regulations became attached to the new plant, and new ones were added. An elaborate ritual attends the entire period of rice agriculture, beginning with the planting and transplanting and closing with the bringing of the rice to the granaries.

One of the most significant moments in rice culture in Indonesia is the plucking and special treatment accorded to one of the rice plants at the time of harvest. This special plant is plucked either at the beginning or at the end of the harvest, the custom varying among different people. It always plays the rôle of *pars pro toto*,

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[1] According to Krom the oldest mention of trade between India proper and the archipelago dates from 70–71 A. D. (Hindoe-Javaansche Geschiedenis, 52, Gravenhage, 1926.)

[2] Taro culture, in parts of Indonesia lacking in rice culture, is the work of women, and hence rice culture when it superseded taro, became as a rule also women's work.

cannot be mixed with the remainder of the rice, and as a rule may not be eaten. This sheaf is then the first used in sowing the following year. In Sumatra and among the Dayak of southeast Borneo the best sheaf of the field is selected for this purpose, and selection was probably the original object everywhere. This, in brief, is the idea of the rice soul or "Rice Mother," to use the catchword of Indonesian students.

Concerning the philosophy behind the Indonesian concept of the Rice Mother, there appears to be room for a divergence of opinion. Thus Wirz writes,

> More than for any other plant, all the rice growing people of Indonesia ascribe a soul to the rice plant, sometimes in the form of a fine fluid, sometimes as a spiritual being, which however can, on occasion, take tangible form, as an animal or human being. This rice soul, or power, is different from the power which is held in other plants and also in lifeless objects, and is clearly distinguished from these by most of the rice raising people of the Archipelago both in its conception and in its name. For example, the Dayaks of southeast and Central Borneo call the power of animals and plants *gāna*, while they call that of man *kambarwan*. The Toradja of Celebes also ascribe a soul to rice, which is called the same as that of man, *tawuna*. Among the Bataks the rice soul is called the *tondi*, and among the Javanese, Malay, Makassers and Buginese, it is called *sumangé*, *sumangat*, or *sémangat*. Almost always one and the same name is used for the rice plant and the human soul, while another name is used for the souls of other objects.
>
> It can thus be seen that the rice plant is a thinking and feeling being. Although the rice soul is in every rice plant and in every rice kernel, yet this is especially true for the special plant which is ritually taken out of the rice field. The rice soul is thought to be concentrated in this plant, which is called mother, grandmother, grandfather or uncle. The other rice plants of the field are called children or nephews.
>
> The Indonesians believe that the single rice kernels or plants are persons who possess a power which can readily be lost at the time when the rice is cut, stamped, or cooked. For this reason a "mother plant" is chosen, which is distinguished by a rich and powerful force and which contains the force of the rice field. The Rice Mother also attracts the soul of rice, which has been lost to the crop, such as that which has been eaten by birds or mice.
>
> One often finds that certain specific rites are performed, either before the crop has been taken in or afterwards, which have for their purpose the gathering of the soul of the rice in the field and the bringing of it into the granary. But the general purpose of all the rice rites is to summon the highest good of the rice crop, the soul, and to lock it in the granary. The rites therefore assure a plentiful crop for the following year.

While Wirz is no doubt right in the main in his interpretation of the Indonesian rice rites, I can see no need for his following the lead, perhaps the sole lead, of Kruyt, and ascribe a "Zielestof" or fluid soul to the rice crop. Kruyt, himself, admits that the rice-raising people of Indonesia today believe that the rice has a personal soul, but he thinks that Islam has converted the impersonal idea of previous times to the present personal concept. What factor then worked on the Northern and Central Batak who have remained uninfluenced by Islam? But there is no need to think of the rice soul as a fluid or impersonal force. The commonest rite in the whole of Indonesia is the summoning of the soul of a plant, animal, or man back to its original body for health-giving reasons. This is the core of the Rice Mother ritual. The fact that the rice soul is both in the Mother and in the rice crop does not argue

that it is a "force" or "fluid." In Samoa, as is well known, a god is considered to be incarnate in each and every of its sacred animals, and yet the eating of one of these animals does not destroy the god. If one is to speak of "fluid souls" one would have to end up by speaking of "fluid gods."

It is of final interest to note the manner in which, on Bali, the conception of the rice soul has assimilated itself to the Hindu goddess of rice culture, Çri. The wet rice is supposed in Bali to have come from the navel of Çri, and in this manner to have obtained its soul. In both Bali and Lombok most of the rites concerned with rice culture center around the Hindu goddess.

E. M. LOEB

AMERICA

The Caribou Eskimos: Material and Social Life and their Cultural Position. KAJ BIRKET-SMITH. (Reports of the Fifth Thule Expedition, volume 5. I, Descriptive Part, 306 pp., 116 figs.; II, Analytical Part, 419 pp., 5 figs. Copenhagen: Gyldendalske Boghandel, Nordisk Forlag, 1929.)

This is a splendid example in the best tradition of Scandinavian ethnographic and archaeological scholarship: arduous, exact, painstaking, critical, yet never pedantic because always pressing toward real interpretation. The descriptive half adds invaluable new data. The analytic and comparative portion contains four sections: Coast and Inland Population, 30 pages; Cultural Position of the Caribou Eskimos, in Comparison with other Eskimos, 102 pages; Within the Circumpolar Region, 78 pages; Features of the Development of Circumpolar Culture with Especial Reference to the Eskimos, 168 pages. The last section lists full data on the distribution of 111 Eskimo and 73 American Indian and North Eurasian culture traits—in the Nordenskiöld manner, but without maps. This will be a most welcome contribution to others than Eskimo specialists. It is the beginning of a task which American students should long ago have undertaken in their own field. In the third section Birket-Smith develops his interpretation of Eskimo culture as originally an inland one dependent on ruminant hunting, only later developed to the stage of coastal life and sea-mammal hunting. This makes the Caribou or Barren Ground Eskimo culture more archaic than that of the other Eskimo. The reviewer, like Therkel Mathiassen, would read the evidence in opposite direction; but we are here at the point where interpretation begins to contain the element of opinion; and the author's case is well substantiated and argued. His whole monograph is of the highest quality.

A. L. KROEBER

L'Amérique Pré-Colombienne et la Conquête Européene. LOUIS PIERRE LANGLOIS. (Paris: Boccard, 1928, liv and 523 pp.)

This is volume 9 of the Histoire du Monde of E. Cavaignac, who appears to have contributed the unsigned Introduction. The work proper consists of three parts: Origins and Migration Routes; American Civilizations; the Europeans in

America. There is nothing new; much that is vague or inaccurate; and many of the really significant findings of American archaeology are ignored. The Bibliography contains errors, omits many fundamental works, and gives incomplete citations throughout.

A. L. KROEBER

Handbuch der präkolumbischen Kulturen in Lateinamerika. TH. W. DANZEL. (Hamburg: Hanseatische Verlagsanstalt, 1927, 137 pp.).

This is a work of popularization in the informational German manner. There is an index, but no table of contents for the illustrations. These are mainly from codices or the Hamburg Museum. The book is as scholarly and exact as can be hoped for in a work of this character, sound in interpretation, and not lacking in generalizations; but a little disappointing in failure to achieve incisive elementary organization. One wonders why certain points are covered in detail and others hurried over. There remains a bit of smack of compilation, perhaps even of the pot-boiler. The following is the allotment of pages to subjects: ethnic groups of Mexico-Central America, 5; historic development of Mexico, 5; Mexican society, 14, material culture, 2, religion, 17, writing, 3; Maya culture, 15; Antilles, 5; ethnic groups of (all) South America, 10; Chibcha, 5; Inca history, 2, economics and society, 13, material culture, 8; Peruvian religion, 16. Most of the data are from documentary sources; relatively few archaeologcal results have been used. The work is scarcely a "handbook" but rather a combination of introduction and review. Accepted in this sense, it is a useful and creditable little volume; yet one feels that the author has it in him to do a longer and more valuable work on the same subject.

A. L. KROEBER

Monumentale vorgeschichtliche Kunst: Ausgrabungen im Quellgebiet des Magdalena in Kolumbien und ihre Ausstrahlungen in Amerika. K. TH. PREUSS. (Göttingen: Vandenhoeck und Rupprecht, 1929; vol. 1, 116 pp.; vol. 2, 86 pls., 193 text figures, map.)

This important monograph reports in full on Preuss's three and a half months' work, in 1913–1914, on the unique and impressive sculpture and associated culture of San Agustin in the uppermost Magdalena drainage in Colombia. The study is thorough, exact, conservative in interpretation, and will no doubt constitute the permanent classic on the subject. San Agustin pottery is mediocre, but the sculpture is not only intrinsically significant, but the most notable between Central America and Peru. Preuss analyzes the style on the basis of specific objective traits and finds resemblances as far as lake Nicaragua, the Trombetas river in Brazil, and Chavin and Nazca in Peru. Sarcophagi, tusks, and double faces (the spiritual alter ego) are among the principal of the distinctive traits. He concludes that the principal irradiations of the culture were from San Agustin into Peru. It may be added that the Chavin-Nazca resemblances suggest a relatively early horizon, which fits with the disappearance of the culture from later Colombia. The author,

publishers, and Berlin Museum are to be congratulated on this scholarly and sumptuous work.

A. L. KROEBER

A Method for Designation of Ruins in the Southwest;
The Use of Potsherds in an Archaeological Survey of the Southwest;
The Red-on-Buff Culture of the Gila Basin;
The Red-on-Buff Culture of the Papagueria;

H. S. GLADWIN.

(Printed privately for the MEDALLION, Pasadena, California, and Gila Pueblo, Globe, Arizona, 1928 and 1929.)

In this series of papers, Harold S. Gladwin and his staff have made further contributions to our knowledge of the Middle Gila and adjacent territory. These four papers constitute a coherent unit; they are so interdigitated that three of the lot are essential to the understanding of the fourth. The key map for designation of sites is absolutely indispensable unless one has the system deeply ingrained.

The principal virtue of the scheme just mentioned lies in the fact that it is logical; is based on the standard used in government surveys; that it is capable of infinite expansion to cover newly discovered sites; and that it admits the inclusion of North Mexican data. The scheme is avowedly arbitrary—perhaps unnecessarily so, at least in the alphabetic desgnation of unsurveyed areas. In actual practice, the position of Gladwin's system may be likened to that of a proposed orthographic reform. The older, more haphazard, and cumbrous system, or lack of system, is backed by usage and tradition, and conservatism and natural inertia tend to oppose a newer, simplified, and logically founded scheme.

The author recognizes six periods of Middle Gila culture, based upon pottery types: (1) Early or Colonial; (2) Middle or Sedentary; (3) Late or Classic; (4) Polychrome; (5) Decadent; (6) Historic. The first period is well set off; the second and third rest on typological ware distinctions; the fourth is definitive in other features as well as in ware; the fifth is a hypothetical grouping to cover sites yielding only undecorated ware; the sixth is self-explanatory.

Distribution of the above types is charted and the following suggestions offered to explain the facts. Colonization by a group, presumably Sonoran, is postulated; the ensuing development is eventually interrupted by an invading Polychrome people bringing stone masonry and inhumation. Until this contact, Middle Gila development is thought to have been virtually free of Pueblo influence.

It is evident from the above that Sonora, as a possible source of early Middle Gila culture, assumes significance, and data from this region are the crying need. In response to this need, the Papagueria survey was undertaken. The evidence, in the main, was negative as regards the source of Middle Gila culture, as the earliest Gila pottery type was scantily represented; the two succeeding types, entirely lacking. The undertaking was far from fruitless, however, and increased knowledge of this district can hardly fail to throw light on Puebloid development.

Little is said regarding the time relations of Middle Gila and the Pueblos of the north. Gladwin seems to equate his Middle Period (Gila Basin, 25) with Pueblo 2, but it is not entirely clear if one is to take this as contemporaneity or as merely a correspondence in cultural level. Plate 5 of the Gila Basin paper shows an intrusive corrugated sherd associated with Early Gila material, and this would doubtless suggest Pueblo 2. As a matter of fact, the tables show little in the way of intrusive sherds. However, when one site in Arizona A-11 (Gila Basin, 58) shows 20% intrusive ware, one's curiosity is piqued. The author undoubtedly plans to present these data in a subsequent paper, and it promises to be of interest and importance.

In conclusion, it may be said that Gladwin offers valuable material from a little known region and that he does it in a methodical, thorough, and unusually clear manner.

ISABEL KELLY

Prehistoric Man of the Santa Barbara Coast. DAVID BANKS ROGERS. (Published by the Santa Barbara Museum of Natural History, 1929.)

In David Banks Rogers' Prehistoric Man of the Santa Barbara Coast we have the first serious (and I think successful) attempt known to the reviewer to investigate the sequence of aboriginal cultures in southern California, in itself a real achievement. Even without this the overwhelming mass of detailed information wrung from the stubborn soil by the indefatigable author would make the volume an outstanding contribution.

Mr. Rogers begins with an historical chapter in which is outlined the written history, drawn from various sources, of the ill-fated Chumash Indians (whom he styles Canaliño)—a pitiful history of the virtual extermination of a once numerous people, under mistreatment and affliction with new diseases brought to them by the whites along with liquor and other gifts of civilization. Except for this first chapter the author has paid little attention to printed sources, and the four succeeding chapters are devoted to the first-hand description of the numerous ancient village sites he explored on the mainland in the vicinity of Santa Barbara.

Three other chapters are given over to excavations on the Channel islands off the coast, and the final three to a study of the specimens found and their interpretation.

As appendices we find under the head of "Technicalities" an account of the cranial measurements of skulls found in the excavations, and finally a summary of the island fauna written with the assistance of Mr. Donald R. Dickey of the California Institute of Technology.

As before intimated, the most valuable part of the results concerns the succession of cultures. Of these Mr. Rogers believes he has found three in the Santa Barbara region; and, upon the evidence presented he has made out an excellent case, though the second and third blend somewhat, and to my mind may perhaps represent earlier and later phases of the same culture.

His earliest culture which underlies one or both of the others on sites where they happen to be found together, is characterized by the metate and mano to the

exclusion of other forms of grinding apparatus until almost the end of the period, when a few mortars appear. The chipped flints are exceedingly crude, for the most part roughly-made knives, and there are occasional rude hammerstones and a few bone implements. There is no evidence of hollow containers except abalone shells. These "Oak Grove People," as Rogers calls them, occupied circular semi-subterranean huts or pit-dwellings and apparently lived mainly on acorns and shellfish. They buried in an extended positon, but their bones have so far disintegrated that they can seldom be preserved. The few skulls recovered are distinctly dolichocephalic. Even the materials composing their refuse heaps show an advanced stage of decomposition, although parts of the middens are so consolidated as to be almost as hard as stone. These people, it seems, did not know the use of asphaltum.

The "Hunting People," as Rogers calls the representatives of his second culture, used an entirely different type of grinding mill, the so-called "basket-mortar," consisting of a crude flat stone slab to which a bottomless basketry hopper was cemented with asphaltum. The pestles were rather crude but apparently efficient. The metate had entirely disappeared.

Projectile points and knives of flint and obsidian were well developed, but did not show much refinement in execution; while the bowls, all small and of sandstone, were also rather crude. Fairly heavy beads of shell and stone served as ornaments. Instead of interring their dead in an extended position, as had their predecessors, these people used the widespread flexed posture which Rogers describes as "embryonic." Their skulls are typically brachycephalic.

As he was able to find no trace of their dwellings, Rogers believes skin tents or other flimsy structures formed the only type of shelter.

Many bones of land animals in the refuse heaps, a relatively large number as compared to those of marine species, justify the name of "Hunting People" used by Rogers. They were the first to use asphaltum.

The culture of the third people, the Canaliño, i.e., the Chumash, was much more highly developed. The basket-mortar was retained in improved form, the unshaped slab forming the bottom having given place to a carefully wrought circular utensil of stone, and mortars entirely of stone were in common use. The pestles show a surprising perfection of form and workmanship, while the flint implements, including knives, arrowheads, and other forms, show a delicacy of finish not seen before. Stone bowls varied in size and shape and show artistic execution, being often provided with decorative inlays of shells set in asphaltum. Bone implements were numerous and varied, while the ornaments of shell and other materials in the form of beads, pendants, and the like are unexcelled in ancient America for variety and beauty.

The Canaliño drew most of their living from the sea, upon which they ventured out in great canoes, each an ingenious patchwork of small pieces of wood cut, fitted, laced together with thongs, and calked with asphaltum. Their homes were dome-shaped thatched wigwams, but they also made semi-subterranean sweat-houses called "temescals," also shrines and dance floors. Their skulls vary

greatly, but average mesocephalic. They buried in a flexed position in small densely-populated cemeteries, there being often one burial plot for the men and another for women.

Rogers states that while he has found various pure sites of both the Hunting People and the Canaliño others show a village originally of the "Hunting People" merging gradually into a typical Canaliño settlement, as if an immigrant population had blended with one already established. Personally I think this may indicate that the "Hunting People" culture is an early phase of the Canaliño.

The "Oak Grove" culture is sometimes found underlying one or both of the others but is never seen blended with them in any way. Rogers thinks there was some lapse of time between the vanishing of the "Oak Grove People" and the coming of the "Hunters."

It is not an agreeable task to criticise adversely such an honest, laborious, and valuable piece of work as Mr. Rogers has produced, yet the reviewer must do his duty. To tell the truth I met my first disappointment before I even began to read his text. It was on the back of the title page and consisted of four short lines reading: "Copyright, 1929, by Santa Barbara Museum of Natural History." I have before me reports of the University of California, The Museum of the American Indian, Heye Foundation, and the Bureau of American Ethnology, but I look in vain in these volumes for a copyright line. Is any comment necessary?

In view of recent discoveries one merely smiles at the statement that the "theory of Man in America in Pleistocene times" is "now discarded"; but the reader is really disappointed when he finds that, outside of the first chapter, there is practically no documentation. While Rogers is laboriously digging his information from the ground and piecing it together we do not need documentation, for his specimens are available for study and he has listed many sites where his findings may be verified if desired. The case is different, however, where he makes certain statements without revealing the source of his knowledge. For instance, on page 341 we read

> that they (the Channel islanders) were directly derived from Central Asian stock is strongly indicated by anatomical characteristics . . . . in many ways their culture much more resembles that of the Aleuts than that of their nearest neighbors, ...

One really craves to know whether Mr. Rogers obtained this information by personal experience or from books, and if the latter, from what books.

The same holds for his dictum that pit-dwellings may still be found in eastern Siberia, and various other statements, all of which may be true, but references to sourcebooks would help those interested to verify or probe further.

With Rogers' identification of the specimens as to probable use, I cannot always agree. For instance, I believe that the chipped blades he illustrates and describes as the "spearheads" of the "Hunting People" are in reality knives once provided with wooden handles, and that his "arrowheads" of the same people are just as likely to have been spear- or dart-points.

When we read a statement to the effect that the "Hunting People" may have

cooked with hot stones in a green hide one wonders why it might not be more reasonable to suppose that they used watertight baskets for this purpose, as was commonly done among other Californian tribes.

I should like to know also Rogers' source of information when he states on page 382 that the Canaliño had "not reached proficiency in the tanning of hides."

One feels that the chapters dealing with the island explorations are more or less a thing apart and might better have been treated in a separate paper, while many of the illustrations are not altogether satisfactory.

Other minor faults might be found in considerable number, but to my mind after all they do not seriously detract from a piece of work that really marks an epoch in the study of the archaeology of southern California.

M. R. HARRINGTON

Black Roadways: A Study of Jamaican Folk Life. MARTHA WARREN BECKWITH. (Chapel Hill: University of North Carolina Press, 1929. xvii, 243 pp., 22 pls., 1 map. $3.00.)

This publication possesses two distinct merits: it presents an accurate, well-rounded account of Jamaican folk life, and it is extremely well written. The data collected by Miss Beckwith over a period of five years in Jamaica have been carefully synthesized with the material of more than fifty other and earlier observers. The author indicates the type of culture dealt with:

> It is necessary to deny here any effort to make a complete study of social life and religious thought among the whole colored population of Jamaica . . . . . The material here gathered represents the peasant class—the great majority of the folk, although hardly the most ignorant, whose poverty prevents their adoption of British standards (ix, x).

and again that it is general rather than local:

> But differences of race or culture which were in earlier days distinguishable among isolated groups rapidly vanished when, after 1834, the freedom of the island was open to the whole population. The present study therefore must consider the black peasantry as a homogeneous people (4).

A list of the chapter headings will give in the briefest manner an idea of the material covered in the book: 1, The Land and Its People; 2, The Small Settler; 3, Fishing, Trapping, Stockraising; 4, The Market; 5, The Family Life; 6, The Burial of the Dead; 7, The Spirit World; 8, Obeah; 9, The Myal People; 10, The Revivalists; 11, The Pukkumerians; 12, The Maroons; 13, Folk Art. But such a list does not give an idea of the happy combination which the author has achieved in conveying a feeling for the people and their life together with the facts. Thus in describing the market system:

> . . . . All night long the procession moves toward the market, silently or with song, driving the loaded donkeys. Those who get in early drop down beside their donkeys to sleep until morning, when they take advantage of an early sale to start back with a load to sell in another market. Others in their festive clothes remain for the day, dickering with this one and that and

getting the sweet taste of cosmopolitan life and gaiety before returning to take up again the round of the week in the country.

In the market, stations are taken in an orderly way so that each kind of ware has its own locality and each vendor his place. Women vend the produce of their gardens temptingly arranged in neat bunches within a single large basket or wooden tray, or spread out before them in neat piles on the floor, each vendor's display a green grocer's shop in miniature (43).

. . . . The sellers in the market do not cry their wares; they save their breath for bargaining. But the street vendors of Kingston . . . . have each their own musical cry which rises and falls with a peculiar inflection, generally with an upward turn at the end.

Those who sell ground provisions cry: 'Buy yo' white yam! buy yo' yellow yam! buy yo' green banana!' or 'Black an' white coco gwine pas',' or in the pear and mango season as they pass up and down the streets—'Nice black mango gwine pas', three dozen fe quattie!' or 'Ripe peer fe breakfas'—ripe peer!' this last cry referring to a favorite breakfast dish of the Negro which consists in avocado pear with a bammie and a bit of salt fish eaten together like a club sandwich (50).

Most interesting are the chapters on Obeah and Myal practices, the Revivalists, and Pukkumerians (104–182), which contain material with theoretical implications. The Obeah and Myal practices are of African origin though they have developed local characteristics since their early introduction into Jamaica. But the Revivalists are the result of acculturation: certain phases of Christian teachings have been blended with Obeah and Myal concepts to produce a new religious cult. A secondary cultural outgrowth of this blend is the Pukkumerian sect, which is derived from both the Obeah and Revivalist cults. The material, much of which is excellent primary data, is so presented that the facts of acculturation are clearly visible though the processes are not. A theoretical discussion would, of course, have been out of place in a book of this type, and Miss Beckwith has maintained throughout her rôle of observer rather than annalist. But perhaps it is not too much to hope that this authority on Jamaican folk life will some day give us an analytical study of these and other Jamaican acculturations in terms of the dynamic cultural processes involved.

A. H. GAYTON

Los Primitivos Habitantes del Territorio Argentino. ANTONIO SERRANO. (Buenos Aires: Librería y Editorial "La Facultad," Juan Roldán & Cía, 1930. 215 pp., 149 text figures, 1 map.)

Professor Serrano has produced a useful handbook which describes briefly the aboriginal ethnical provinces of Argentina. He maps ten regions, one of which, Region de los Archipielagos meridionales, lies almost entirely in Chilean territory. Certain other ethnic areas also extend beyond the borders of Argentina.

With synoptic treatment in the limited space of a small octavo volume description of cultural features must be brief. For material culture, the author largely overcame this difficulty by introducing a profusion of text figures.

An alphabetic index of tribes and extensive bibliography of 282 titles form the last 35 pages of the volume.

E. W. GIFFORD

Bulletin of the Texas Archaeological and Paleontological Society. (Abilene, Texas: Published by the Society, vol. 1, Sept. 1929.)

Archaeologically, big things may be expected of Texas—the bridge between the Southwest and the Mississippi valley. And this first bulletin of a society organized in Abilene in October, 1928, under the presidency of Dr. Cyrus N. Ray is very promising. Not only is the society actively engaged in the preservation of prehistoric material, but a scholarly effort is being made to interpret its story and place it before those interested. "Preliminary reports," descriptions of "reconnaissance trips," and catalogues of pot-hunting raids are so constantly with us that it is a genuine pleasure to note their absence in the activities of the Texas Society.

In a conservative but highly suggestive article, Dr. Ray presents the evidence of four different cultures, each of which is localized and represented by an abundance of material. These are:

1. Paleolithic or Hunting type, characterized by large flints in the Chellean technique, heavy points, many large scrapers, and no manos. As artifacts are found quite deep this appears very antique.

2. Sand Dune culture, characterized by blades in the Solutrean technique, square based points, scrapers with the thin, rather than the thick, edge retouched, freshwater mussel shells, manos, and no bone, shell, or wooden artifacts. Because of the formation of the dunes and the marked changes in watercourses this culture is deemed quite old.

3. Bifurcated Base culture, characterized by points with bases thus described, many large scrapers, no manos. Age considered considerable because of the patination of material and the absence of artifacts in perishable materials.

4. Small Scraper culture, characterized by three classes unique in the region, ground celts, pitted hammerstones, very small but well worked scrapers. Manos and potsherds "brown on the outside and black inside, of both plain and incised or indented decoration" are also found with this culture.

Dr. Ray also describes a notable burial near Albany. The reviewer suggests that had Dr. Ray numbered his plates and specifically referred to them in his text his exposition would have been clearer to the reader.

Dr. W. C. Holden has an interesting report on work among the stone houses in Northwest Texas, a report showing the need for the publication of Dr. Moorehead's determinations in the same region, and for further work before vandalism renders it impossible.

Colonel M. L. Crimmins reviews the archaeological possibilities in the El Paso district with emphasis on the wealth of petrography there.

Mr. E. B. Sayles, reviewing in part Dr. Ray's ground, gives the characteristics of at least eleven types of sites discernible in the Abilene vicinity.

The article by Mr. Geo. C. Martin is apparently based on surface collections made along the southern coast of Texas, and is, perhaps, more speculative than the others in this bulletin. However, much interesting information is offered with regard to artifacts. For example, manos, metates, pestles, and mortars are unknown here—a striking contrast to their presence in practically all the inland sites.

The final paper is on the culture of the Comanche Indians, by Dr. Rupert N. Richardson. Considering the lack of space for publication of the results of archaeological research, it may be suggested with no reflection upon the interest and scholarship of Dr. Richardson's article that such essentially non-archaeological papers might better be omitted from the future bulletins of an archaeological and paleontological society. Dr. Richardson himself recognizes this.

The great need of our science is strictly localized material, a thing hard to find in even our best museums. No field is "worked out." Hence a society, such as this one, not only has an ample field but promises more definitely to advance science the more strictly it confines its activities to the field nearest at hand.

W. Egbert Schenck

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DISCUSSION AND CORRESPONDENCE

The Lolo of Szechuan Province, China

In southwestern Szechuan there lives a race of people known as Lolo, but calling themselves Noso.[1] They generally inhabit the higher altitudes, while the lower and more fertile lands are occupied by the Chinese.

The Lolo are taller and darker than the Chinese, and they have higher and thinner noses. Their eyes are brown, and while they have the Mongolian slant, it is not so pronounced as among the sons of Han. Their hair is generally black and straight.

Many Lolo wear long, sleeveless robes of wool or felt that reach from their necks to their ankles. When the wearers squat down on the ground, these robes make what is not unlike small, warm tents. The hats of the women resemble old-fashioned bonnets. Both men and women wear earrings, some of which are made of silver, and some of red coral. Straw sandals are sometimes worn, but it is customary to go barefoot.

The Lolo do not generally use chopsticks. They have large wooden bowls, out of which they eat with wooden spoons. Their stoves often consist of hoops of iron, which stand on three iron legs. A fire is built underneath, and the cooking utensils are placed on top of the hoops.

Most of the Noso are agriculturists. They raise pigs, horses, cattle, sheep, goats, and chickens. They plant corn, wheat, buckwheat, rice, potatoes, and other vegetables. They thresh their grain by flailing.

In former days bows and arrows (the arrows were sometimes poisoned), long spears, swords, and knives were used in hunting and in war. In battle the warriors were protected by thick leather armor. Today modern firearms are employed, and leather armor is a relic of the past.

There are no definite months. The year begins and ends some time in the tenth Chinese moon. Besides the New Year, there are two holidays, one in the fifth Chinese moon and one in the eighth.

There is a written language differing both from the Tibetan and from the Chinese. It is understood only by the priests or shamans and is used in reading and writing the sacred books.

The Lolo are lovers of strong drink. They often become intoxicated, and even their chiefs will bow very low and beg the traveler for money with which to buy liquor.

They are also lovers of music. Among other instruments, they use the flute and the mouth harp. The music of the latter is low and alluring. The Lolo have many folk-songs.

[1] These data were gathered during a trip to Ningyuenfu in the summer of 1928. Most of them were secured near Fu-lin, and may not be true among all the Lolo, who are also found in Yunnan province. Allowance must be made for possible local variation.

Nearly everything in the universe, even inanimate things, is either male or female. For instance, a flower might be considered female and a tree male. This resembles the Chinese yinyang conception.

Many of these people are afraid to have their pictures taken. They believe that when the photographer takes the picture of a person, he secures some or all of that person's soul, or at least a vital part of him, and that the subject of the picture can be injured by doing harm to the picture.

The Lolo are divided into many tribes or clans. The members of each clan are bound together by blood relationship, and all have the same name. For instance, the Liu clan may consist of over three hundred families, all related and all named Liu. They must not intermarry, but they may intermarry with any other similar group of Lolo. Descent and relationship are reckoned primarily through males—the clans are patrilinear and exogamic. Members of the same clan render mutual aid in times of calamity or of war. Each clan has its headman, and sometimes there are rulers of larger groups. Kings were done away with soon after the Chinese republic was established.

Engagements are made through go-betweens. The bridegroom's family give the family of the bride three cows, three sheep, one pig, two rolls of cloth, a jar of wine, two quarts of rice, and a ring for the finger of the bridegroom.[2] On the arrival of the three cows and the other gifts in exchange for the bride, the family of the bride must give a feast to those who have brought the gifts, killing first a pig, then a sheep (no two-legged creature will do). If the gall-bladders of the animals killed have gall in them, the marriage will be fortunate, and may be consummated. If there is no gall, the young people must not be married.

On the day of the marriage the brothers and male relatives of the bride escort her to the bridegroom's home. She may ride a horse or a mule, but if the road is so bad that an animal cannot be ridden, she must be carried on a man's back. When the bridal party has arrived, the bridegroom's relatives must kill at least two cows and a pig, and give a feast to the bridal party and there must be plenty of wine. If all the food cannot be eaten, the bridegroom's relatives rub the remainder on the bodies of the bride's relatives. This is a way of making fun of them because they cannot eat it all. Songs are sung to welcome the guests and in praise of the bridegroom's relatives. All drink wine until they are intoxicated, after which the guests depart—sometimes after there have been quarrels and fights.

Sickness is supposed to be caused by demons. Hence the shaman or priest, who is called a be-muh, is an important factor in avoiding or healing disease. If a person is sick, or is afraid of falling ill, a priest is called. The sick person is carried out into the open. First, the shoulder-blade of a sheep is burnt. Then an ox is led around the sick person seven or nine times, after which it is killed. From the shoulder-blade of the sheep it is divined whether the ox must be male or female, and what color. When the ox is about to be killed, the clothing of the sick person is placed on the ox. Then the sick person puts his mouth to the mouth of the beast, and blows his breath into it. After the ox has been killed, the priest burns as an offer-

[2] This custom probably varies in different Lolo groups.

ing one-tenth of the meat, and the remainder may be eaten by the priest and others. A straw man is made, and meat and some of the blood is placed on it. Then it is carried around the sick person. It is finally carried away and deposited by the side of one of the main roads of the district.

When a person dies, cloth is used to bind his arms against his sides, and his legs against the front of his body in a doubled-up position. The body is bound to two poles, which are used for carrying the corpse. The dead person is thus taken to the funeral ground, where an animal is killed, a cow by the well-to-do or a pig by the poor. The corpse is carried over the dead animal, after which it is carried to the burial spot.

The funeral grounds are sacred groves. The trees must not be used for any other purpose than the cremation of the dead. The wood of the trees of the sacred grove is used to burn the corpse. No other wood can be used. When the body has been reduced to ashes, these are covered up with dirt. Then the living relatives and friends return to the home of the deceased, eat the flesh of the animal, and drink wine. Poor people cremate their dead and merely cover them up with dirt. A few of the more wealthy use coffins and bury the dead much like the Chinese, from whom this custom has evidently been borrowed in recent times.

Priests, or be-muh, are taught by other priests. As has been said, they have a script that is neither Chinese nor Tibetan. They have sacred books which only the priests can read. The be-muh conduct the ceremonies for the exorcising of demons, for the healing of diseases, and for securing rain. Generally the Lolo have no temples.

When the crops are threatened by prolonged drought, a priest is called to pray for rain. A cow is killed. If the meat is burnt, the priest gets the skin. If the meat is not burnt, it must be eaten. Some burn a sheep's shoulder blade with the meat.

Before going to battle, they kill a cow. The skin is hung up, and the warriors pass under it, after which they drink wine mixed with the blood of the cow. There are a number of war songs.

The Lolo have only one god, who is called in Chinese t'ien p'usah. This means the sky god, or the god of heaven. He is invisible, and has no image. He is depended upon for good crops, victory in war, and for all other blessings. Many of the men wear their hair done up into a single knot above their forehead to symbolize this god. A Christian Lolo told the writer that his fellow tribesmen find it easy to identify their god with the Christian God. He believed that the two gods are the same, but that the Christian conception and revelation are superior.

D. C. GRAHAM

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CHINA

A CARD OF CORRECTION AND SUGGESTION

My attention has been called to the sentence on page 546 of The Mound Builder Problem to Date, in which I say: "It is high time the physical anthropologists did their part!" The gentleman, himself a distinguished anthropologist, thought it was slightly unfair. I assured him that it was farthest from my thoughts

to offend any person or group, but that the facts remain, nevertheless, to the effect that regardless of reasons, the study, tabulation, and publication of data concerning crania have not kept pace with our published field notes or studies. His explanation, in justice to the physical anthropologists, should be presented here.

There are fewer physical anthropologists than archaeologists, they have other tasks to perform, their appropriations are meager, and there is not sufficient financial support. This explains why they have been unable to present us with the results of their studies. I heartily agree with the gentleman's statement. It fully explains the "so-called delay." One might suggest certain important researches which should be put into effect at the earliest possible moment.

We have all heard a great deal about the Hopewell culture, and splendid work has been done by our friends in Ohio. Many crania were secured, also a large collection by myself under Professor Putnam, which was turned over to the Field Museum, Chicago.

At Oregonia, Ohio, the farthest extension north of the Stone Grave people, between ninety and one hundred of these were opened for Professor Putnam, and many skeletons secured and sent to the World's Fair (1893) and later transferred to the Field Museum. There is a large collection of crania obtained by Professors Mills and Shetrone through their work in Ohio. I need not extend the list. In our museums throughout the United States are these collections, varying from a few dozen to some thousands. If the National Research Council, Laura Spellman Rockefeller fund, or Carnegie Institution, or the Anthropological Laboratory, Council of Learned Societies, or any of the other foundations called into being the past few years, and which either have or can obtain large sums, would take an interest in this important subject and properly finance the work, the results would help us solve some of our problems. Specifically, we do not know the difference between Hopewell crania and those of the Stone Grave people, or whether they are the same as the crania from the Illinois region. I suppose the enormous number of skulls found at Madisonville have been tabulated. If so, through the physical anthropologists we should know whether these people are practically the same as those who inhabited other large sites in the Ohio valley. By comparing the crania in large groups with the artifacts themselves (also studied in large groups) we shall obtain accurate information.

We assume that the Fort Ancient culture, or that of the "middle class" Indians of western Pennsylvania, eastern Illinois, or northern Kentucky are practically the same when based on study of artifacts. Now, let us study the crania. Does that indicate similarity? This is very important, and will enable us in the future to check up accurately. The net result of these observations faithfully sustained through appropriations from these large foundations will advance knowledge of our migrations and origins.

That is what I had in mind in writing the sentence and I am very glad indeed that it has caused my good friend to emphasize the point.

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ANDOVER, MASSACHUSETTS

ANTHROPOLOGICAL NOTES AND NEWS

THE FIELD MUSEUM OF NATURAL HISTORY has installed many new exhibits—anthropological, botanical, geological and zoological—during the last year. One of special importance, because there is nothing else like it in any museum of the world, is a life-size restoration of a Neanderthal family and the cave they lived in some 50,000 years ago. The group is a gift from Ernest R. Graham, and was made by Frederick H. Blaschke, sculptor. During the year an extensive program of reinstallations and improvements of exhibition halls was carried on.—Science.

THE SAN DIEGO MUSEUM announces that, for the second successive year, it is the recipient of an $800 grant from the Smithsonian Institution of Washington, D. C., toward cooperative archaeological research in southern California. The Museum is providing a like amount and the total is to be expended on the study of ancient shell middens along the Pacific coast, and an investigation of evidences of Pueblo culture in the Mohave Sink region of California. Both projects will be a continuation of previous exploration, carried on by the San Diego Museum in 1928 and 1929, under the direction of Malcolm Rogers.

The Mound Builders, by H. C. Shetrone, Director of the Ohio State Museum, has been published by D. Appleton & Company, New York. The book contains about 510 pages, 300 illustrations, a colored frontispiece, and a folding map of the general Mound area.

This volume is intended to afford a belated answer to the oft-heard query: "Where can I find a book that will give me the important facts regarding the Mound-Builders?" The investigations involved cover more than twenty states. The price is $7.50 per copy.—Museum Echoes.

DR. CARL E. GUTHE, director of the Museum of Anthropology at the University of Michigan, was awarded the Lapham Medal for distinguished service in anthropological research, at a meeting of the central section of the American Anthropological Association held in Milwaukee on May 10.

DR. CYRIL DARYLL FORDE has been appointed to succeed Professor H. J. Fleure in the chair of geography and anthropology at the University College of Wales, Aberystwyth.

THE CHICAGO ORIENTAL INSTITUTE expedition under H. H. Von der Osten has resumed work at the site of the Hittite fortress at Giavour Kale.

PAUL S. MARTIN, assistant curator of North American archaeology, Field Museum of Natural History, led an expedition to Southwest Colorado to make archaeological and ethnological collections. Three months were spent in the field.

PROFESSOR GEORGE GRANT MACCURDY, of Yale University, director of the American School of Prehistoric Research, has received word from Dr. Hackett, who with Mr. Theodore D. McCown is representing the school in the latter's joint excavations with the British School of Archeology at Jerusalem, that during the first ten days of April no less than 5,000 tools dating from the Aurignacian epoch of the Old Stone Age were dug from a single cave of the group south of Haifa. Miss D. A. E. Garrod, of the British school, is in charge. The season's excavations will terminate in time for Dr. Hackett and Mr. McCown to take part in the work of the tenth annual summer term of the American School of Prehistoric Research, which will open in Paris on July 1, under the direction of Professor MacCurdy. Assisting him in the field there will be three of his former students: J. T. Russell, Jr., U. S. National Museum; V. J. Fewkes, University of Pennsylvania, and Robert Ehrich, Harvard University.

THE EGYPTOLOGICAL expedition of the Turin Museum reports the discovery of 200 tombs, mostly of the pre-dynastic period, in the region of Gebelein. The expedition uncovered graves of circular and oval form with bodies in contracted posture wrapped in mats or gazelle skins. Vases, flint knives, and other artifacts were found.

DR. JESSE WALTER FEWKES, ethnologist of the Bureau of American Ethnology from 1895 to 1917 and from 1918 until his retirement in 1928 chief of the bureau, died on May 31 in his seventy-ninth year.

FAY-COOPER COLE has been awarded the gold medal of the Chicago Geographic Society for his anthropological researches.

HENRY FIELD, of the Field Museum of Natural History, sailed for Europe June 7 to purchase material for use in the Hall of Prehistoric Man.

PERE TEILHARD DE CHARDIN has announced at a meeting of the Geological Society of China, in Peking, that Old Stone Age implements have been found along the Yellow river in the eastern part of Shensi province.

THE JOINT EXPEDITION of the University of Pennsylvania Museum and the British Museum has ended its work at Ur for the season. The expedition's share of the finds, after division with the Iraq government, fills fifty-three cases and includes many of the oldest objects unearthed in the Mesopotamia valley. C. Leonard Wooley, director of the expedition, reports that a remarkably well preserved temple built by Nebuchadnezzar about 600 B. C. has recently been uncovered.

DR. ALES HRDLICKA, of the U. S. National Museum, left Washington on May 5 for Alaska. This year's expedition was devoted to the anthropologically practically unknown Kuskokwim river. Mr. J. N. B. Hewitt left on May 10 to continue his researches on the Iroquois, and Dr. F. H. Roberts, Jr., of the Bureau of American Ethnology, left on May 12, for a point twenty-five miles southwest of Zuñi to

excavate a series of pit house ruins belonging to the earliest stages of the prehistoric pueblo people.

THE BOARD OF NATIONAL RESEARCH FELLOWSHIPS in the Biological Sciences held its first meeting in 1930 on February 7 and 8, and made the following appointments and new appointments for the academic year 1930–31 in anthropology: Reappointments, For Domestic Study: Carleton S. Coon, Anna H. Gayton; New Appointments, For Domestic Study: Gene Weltfish; For study abroad, W. M. Krogman.

C. M. BARBEAU, who has made extensive observations on colonial influences on the Indians of eastern Canada, continued this summer, under the auspices of the National Museum of Canada, his work in certain parts of Quebec, Ontario, and New York, studying modern handicrafts and designs used by the Indians and concentrating on bag-making, basket-making, wood-carving, and quill and moose-hair work with a view to getting a better comprehension of the original native art and culture.

J. T. MACPHERSON undertook an ethnological study of the Indians living around Lake Abitibi, for the National Museum of Canada. This included an investigation into the economic life of the Indians in earlier times, their original material culture, their social organization, and the presence or absence of totemic clans, shamanism and its connection with the puberty fast, and their religious beliefs.

I. A. LOPATIN spent this summer, for the National Museum of Canada, among the Indians living around Kitimat, British Columbia, and an investigation was made of their social and religious life, special attention being given to the phratic, clan and family systems with their crests and privileges, to their government, the institution of property and the potlatch system, social customs, religious beliefs and practices including secret societies and their rites, and intercourse with neighbouring peoples.

DR. J. C. B. GRANT, of the University of Manitoba, worked among the Cree Indians of Wabasca and of the reserves south of Lesser Slave lake, Alberta, and made a complete series of physical measurements of adults and children. This was in continuation of the anthropometric investigations that Dr. Grant has been conducting among the Indians of the western interior of Canada.

ARCHAEOLOGICAL EXCAVATIONS were made near Newcastle, New Brunswick, and on the Magdalen islands, Quebec, by W. J. Wintemberg, in the hope that some light would be thrown thereby on differences in handicraft between the Micmac Indians of eastern New Brunswick and those of the Nova Scotia coast.

DR. GEORGE GRANT MACCURDY, of Yale University, honorary collaborator in the anthropological department of the U. S. National Museum, has been appointed American delegate to the eleventh International Congress of Prehistoric Anthropology and Archeology at Coimbra, Portugal. Dr. MacCurdy will also be the American delegate to the fourth session of the International Institute of Anthropology meeting simultaneously at Coimbra.

DR. PAUL RADIN has resigned his position as Research Professor of Anthropology at Fisk University and will be succeeded by Mrs. Fanny R. Bandelier.

DR. PAUL RADIN has recently returned from Mexico where he made a preliminary investigation of the Tlappanec and Otomi languages. Tlappanec was found to be simply a sub-dialect of Subtiaba (Nicaragua). Its relationship to Subtiaba had been pointed out some years ago by W. Lehmann.

Phonetically Tlappanec proved to be exceedingly complex especially in its tonal development, there being four registers—low, very low, middle, high—and six compound tones—high to middle, high to low, middle to high, middle to low, low to middle. and low to high.

DR. BERTHOLD LAUFER, Curator of Anthropology, has been elected to membership in the National Academy of Sciences, Washington, D.C., an honorary organization. The honor was conferred on Dr. Laufer in recognition of the vast amount of research he has conducted, especially in connection with Oriental cultures.

DR. E. B. RENAUD, rofessor of anthropology at the University of Denver, has returned from the first archaeological survey of eastern Colorado. Accompanied by student assistants, Dr. Renaud explored the region between the mountains and the Kansas state line, bringing back nearly a ton of relics which are now being worked over and classified. The trip was financed jointly by the Smithsonian Institution, the Colorado Museum of Natural History, and the University of Denver

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