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LUCAYAN ARTIFACTS FROM THE BAHAMAS

BY THEODOOR DE BOOY

SEVERAL noteworthy artifacts were found on the Bahama islands during the year 1912 by the expedition sent out by George G. Heye, Esq., of New York City, in the interest of the Heye Museum. This expedition was in the Bahamas from June until December, 1912, investigations being carried on chiefly from a sailing vessel, through which medium the various islands were visited. It is not the purpose of this brief article to describe the manner in which the work was conducted, but it may be well to state that it is practically impossible in the Bahamas to cover the many islands and cays unless one either owns or charters a sailing craft of some description, as the voyages of the mail schooners from Nassau are uncertain and at intervals of from two weeks to two months, and even then one cannot visit the uninhabited cays.

To date, practically the only wooden objects found in the Bahamas and in the Greater Antilles are idols and the well-known and characteristic stools (*duhos* or *sillas*), no wooden objects of a strictly utilitarian character being in any collection from these regions, if one excepts two bowls or platters now in the library at Grand Turk (Turks and Caicos islands). The writer is not inclined to classify duhos other than as ceremonial objects, despite the many contentions to the contrary. From the accounts of Las Casas and Herrera, these objects were held in high esteem by the Ciboneys and other pre-Columbian tribes, and it is hardly to be believed that the



FIG. 1.—Wooden paddle from Mores island.

aborigines would have given so much care to the fashioning of a piece of wood when a burnt-out log would have served the purpose of a seat equally well. The few duhos in existence are made of madeira, a species of wood related to mahogany, hard to work and undoubtedly valuable to the Ciboneys, considering the few large madeira trees that are found in the Bahamas. In fact, it is more than likely that the duhos were imported from the larger islands (Haiti and Porto Rico), as it would be difficult to find a tree of sufficient size in the Bahamas to permit the manufacture of one of these stools. A few wooden cassava-graters and a planting dibble have been found in Haiti and Santo Domingo, and while all these objects and the many references made to them by the early chroniclers assure us that the pre-Columbian inhabitants were expert wood-workers, it is to be regretted that so little material of this kind has survived. Taking the climatic conditions into consideration, however, it is not surprising that so few artifacts of wood have survived the ravages of time, and it would appear safe to state that such objects as have survived are invariably fashioned from madeira, cedar, and lignum-vitæ.

In view of the fact that so few wooden objects are known from these regions, or even from the Greater Antilles, a canoe-paddle, found on Mores island, deserves first mention. While working in the Bahamas, the author visited Mores island,

one of the cays on the Little Bahama bank. This cay is inhabited by about twenty negro families, who are engaged in the sponge industry. The Mores islanders have the reputation of being the worst negroes in the Bahamas, and their destitution is most abject. Mores island is literally honeycombed with caves, some of which are being regularly worked for guano, which is sold to the neighboring islanders for fertilizer. The author visited several of these caves, some of which had not hitherto been entered. In one of them it was his good fortune to find the canoe-paddle referred to, a specimen of special anthropological value as it is the only one of its kind known to the author.

The paddle (fig. 1) is fashioned out of a single piece of cedar, and may be described as consisting of a crosspiece, a shaft, and a blade. The paddle is in good condition, and the workmanship as a whole is excellent. It was found on a shelf in the cave and was covered only by a slight deposit of guano dust. The fact that the paddle is of cedar accounts for it not having been attacked by wood-boring insects, and as the cave in which it was found is a dry one, it was not subjected to decay. The crosspiece is 4½ inches (11.5 cm.) long and 1⅜ inch (3.5 cm.) thick. There is a small knob on the underside of the crosspiece, near each end, evidently designed to afford a better hold. The shaft is 2 feet (61 cm.) long and thickens toward the blade-end, the diameter being 15/16 inch (2.4 cm.) at the top and 1½ inch (3.8 cm.) at the point where the shaft broadens into the blade. The blade has a length of 2 feet ¾ inch (62.8 cm.), is 6¼ inches (16 cm.) broad at the widest point, whence it tapers gradually to a width of 1¼ inch (3.2 cm.) at the extremity. The end of the blade is rounded, but whether or not the paddle originally had a sharp point cannot be determined. The blade is ⅝ inch (1.5 cm.) thick at the widest point, and ½ inch (1.2 cm.) at the tip. The shaft merges gradually into the blade, and four simple, angular lines are shown on each side as ornamentation, which also serve to let the thickness of the shaft taper down by even steps to the thickness of the blade. The total length of the paddle is 4 feet 2¾ inches (129 cm.).

In Mallery's monograph on Picture-writing of the American

Indians[1] there is an illustration of some petroglyphs found in a cave on Rum cay in the Bahamas and figured by Lady Blake. In this group of petroglyphs (fig. 2) is one that appears to be an



FIG. 2.—Petroglyphs on Rum cay. (After Mallery.)

exact representation of the type of paddle found on Mores island. Mr L. G. K. Brace, a botanist of Nassau, has visited the Rum Cay cave and mentioned the picture of the paddle to the writer, who had no opportunity to visit the island in order to inspect it. The



FIG. 3.—Indian paddling a canoe. (After Oviedo.)

size of these petroglyphs is not given in the memoir referred to. An old illustration from Oviedo also figures one of the aboriginal canoes and paddles (fig. 3), and he mentions that the canoes were

[1] *Tenth Annual Report of the Bureau of Ethnology*, p. 139.

propelled by wooden oars (*nahos*) that were provided with a cross-piece at one end and a blade at the other.

Another wooden artifact was added to the Heye Museum by the gift of a duho, or wooden stool, found in a small, open cave at Spring point on Acklins island, covered by the débris of a large slab of limestone that had fallen from the roof of the cave. A negro hunter had taken shelter in this cave during a rainstorm, and observing one of the legs of the duho protruding from the débris, recovered it and carried it to the nearest white man, a Mr Darrell, who in turn presented it to Dr F. A. Holmes, a physician of Nassau.

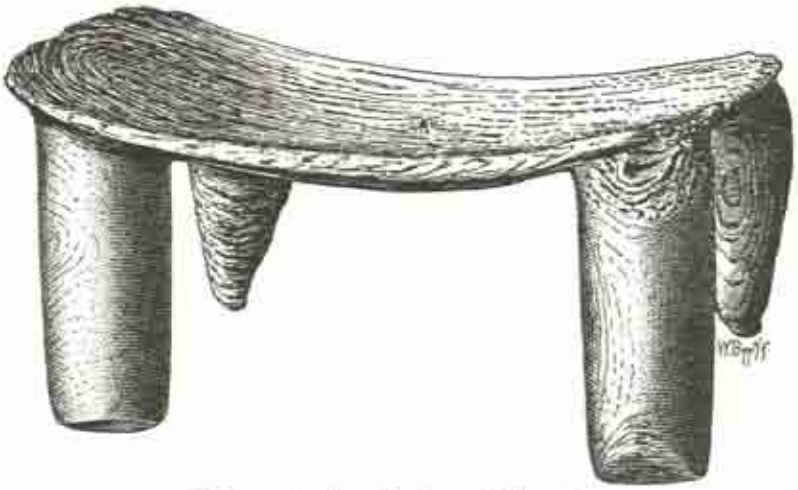


FIG. 4.—Wooden duho from Acklins island.

Dr Holmes gave it to the author, who, accompanied by Mr C. V. Spicer, a member of the expedition, visited the cave in which the specimen had been found, but they were not successful in finding any more material.

The duho (fig. 4) stands 5¼ inches (13.3 cm.) high, is 9 inches (22.8 cm.) wide at one end and 8 inches (20.3 cm.) at the other. Both ends are broken off near the legs, and judging from the stools of like type in other collections, the broad end may have sloped upward as a back, while the narrower end probably terminated in the representation of the head of a turtle or a human being. The aggregate length of the seat is 9¼ inches (23.4 cm.); the legs

are 5 inches (12.6 cm.) high. Two of the legs are in good condition, but the other two are partly destroyed. The bottom of the seat is smooth and shows excellent workmanship; the top is very rough and has evidently been exposed to the weather and to the ravages of ants and other insects. The diameter of the two perfect legs is 2 inches (5.1 cm.).

A third object of interest is a fractured ceremonial celt (fig. 5) from Mariguana island. Although in fragmentary condition, this object shows clearly what the original outlines must have been, and it may be included among the best examples of prehistoric stonework from the Bahamas. The celt is 2½ inches (6.4 cm.) at the widest point, and the length of the figure is 4½ inches (11.4 cm.) from the forehead to the toes. Judging from celts of similar form, this specimen was originally about 7 inches (18 cm.) long. The celt is petaloid and is made of a green, slate-like stone, possibly of volcanic origin. It was found by a negro farmer in the bush in the vicinity of the "Betsy Bay" settlement on the west coast of Mariguana, and was taken home by the finder. It seems to have reposed in his cabin for several years, and the "Indian baby," as the negro called it, was finally given to his infant daughter as a toy, with the inevitable result that it was broken. With the aid of a few children the author was successful in discovering two of the fragments in the negro's yard. It is regretted that the remaining pieces could not be recovered.



FIG. 5.—Ceremonial celt from Mariguana island.

The figure on the celt is shown in a seated posture and is carved in low relief. The knees and arms point inward and the hands

rest under the chin. The body itself is not shown. The fingers and toes are represented by shallow grooves. The head is indicated by a carved circle, of which, owing to the fact that the top of the celt is missing, not more than half can be seen. However, the right ear is still shown outside the circle. The eyes and mouth are cut in intaglio; the nose and the right eyebrow are in low relief. It is especially regretted that the top of the head is broken off, for it would be interesting to ascertain whether or not a feather headdress of any kind had been represented. This would have served as a valuable basis of comparison with the two or three similar specimens known.

THE HEYE MUSEUM
NEW YORK CITY

PETROGLYPHS REPRESENTING THE IMPRINT OF THE HUMAN FOOT

By DAVID I. BUSHNELL, Jr

PETROGLYPHS representing various signs and symbols, birds and other animals, and the footprints of birds, beasts, and human beings, are met with throughout America. Of these, the last type is one of the most interesting, and it is for the purpose of showing their wide distribution that the present article has been prepared.

"Footprints" are usually found near water-courses. The best examples are isolated, dissociated from other figures. Again they are mingled with a group of carvings. But the first class appears to constitute a distinct type. These curious figures have been traced from below the falls of James river, near Richmond, across the mountains and down the valley of the Ohio to the Mississippi. Crossing the Mississippi, they are found in Missouri and Oklahoma. Other examples have been discovered near the upper waters of the Missouri and the Mississippi.

"By the Falls of *James* River upon Colonel *Byrd's* Land, there lyes a Rock which I have seen, about a Mile from the River, wherein are fairly imprest several Marks like the Footsteps of a gigantick Man, each Step being about five Foot asunder: These they aver to be the Track of their God."[1]

This was written before the year 1705, and it is of additional interest to know that the pictographs were still recognized and faintly visible a century and a half later.[2]

Two or more similar figures are known to be on the surface of a rock in the North fork of the Rivanna, about five miles northeast of the University of Virginia; however, they have not been seen for a long period, and now rest beneath a deposit of sand and gravel. Several persons living in the vicinity remember having seen them

[1] Beverley, Robert, *The History of Virginia*, London, 1722, p. 182.

[2] Howison, R. R., *History of Virginia*, Richmond, 1848, vol. I, p. 111.

during a period of low water many years ago. This point is within three miles of the site of the mound opened and described by Thomas Jefferson just before the Revolution.

An interesting group of petroglyphs existed, and may yet exist, about two miles south of Brasstown, Clay county, North Carolina, in the extreme southwestern corner of the state. They were thus described in a letter written by Silas Dinsmore to Governor Blount, dated Oostinahli, January 2, 1796:

"On my return from South Carolina, I paid a visit to the Enchanted Mountain, about two miles south of Brasstown, on the borders of Tennessee, to examine the much famed curiosities on the rocks, and was pleased to find that report so happily coincided with reality. There are on several rocks a number of impressions resembling the tracks of turkies, bears, horses, and human beings, as visible and perfect as they could be made on snow or sand. The latter are remarkable for having uniformly six toes each, only one excepted. . . . One of these tracks was very large, the length of the foot 16 inches, the distance of the extremes of the outer toes 13 inches, the proximate breadth behind the toes seven inches, the diameter of the heel-ball five. . . . Some of the Cherokees entertain an opinion that it always rains when any person visits the place."[1]

If it be true that certain figures of this group were intended to represent the imprint of horses' feet, it is of great importance. As horses were unknown to the Indians until the coming of Europeans, the carvings must necessarily have been made since the advent of the Spaniards. The route followed by DeSoto, during the months of May and June, 1540, passed within a few miles of this spot, and it is a well known fact that the Indians were awed by the unknown and wonderful beasts, the horses, belonging to the expedition. It would therefore be characteristic of the people to portray the tracks of these strange creatures. The horse-tracks represented on the rock appear to have been enlarged in proportion to the size of the figure of the human footprint, the dimensions given being 8 by 10 inches.

Petroglyphs of like character are met with along the banks of the Ohio, and it is probable that many exist of which no account is obtainable.

[1] Morse, Jedidiah, *The American Universal Geography*, Boston, 1802, p. 672.

"'Foot-print rocks,' so called, are at the foot of the bluff, at the edge of the low river bottom just south of the Ohio, in Union county, Kentucky. At this point the road leads to the Shawneetown ferry. This is a mass of sandstone which rises above the surface at an angle of 24°, and upon the surface are various carvings representing the foot prints of men, of birds, and of quadrupeds."[1]

Several examples of "footprints" occur on the surface of a mass of red sandstone about three miles northeast of Wickliffe, Ballard county, Kentucky, at a point near the mouth of the Ohio. One is said to measure 12 inches in length, another 8 inches.

Similar carvings have been discovered at different localities in Ohio. Near the town of Barnesville, Belmont county, two groups were found, each covering a space of several square feet. Among the various figures represented were examples of the human footprint, some large, others small.[2] Isolated specimens may occur. Other groups, including similar figures, are mentioned as existing near Independence, Cuyahoga county;[3] near Amherst, Lorain county; Wellsville, Columbina county; and "on the surface of a sandstone rock, lying on the banks of the Muskingum River."[4]

On the left bank of Illinois river, below the town of Naples, in Scott county, was a rock-shelter that evidently had been frequented by Indians during comparatively recent times. At one place within this shelter a group of petroglyphs had been carved upon the surface of the stone. These represented the tracks of birds, signs or symbols of various sorts, and the imprint of the human foot.[5] These represented the foot as having six toes, and suggest the figures on the rocks near Enchanted mountain, above alluded to.

[1] Cox, E. T., in *Seventh Annual Report of the Geological Survey of Indiana*, 1875, p. 29.

[2] Ward, James W., Sculptured Rocks, Belmont County, Ohio, in *Journal of the Anthropological Institute of New York*, vol. 1, 1871–1872, pp. 57–64.

[3] Whittlesey, Charles, *Ancient Earth Forts of the Cuyahoga Valley, Ohio*, Cleveland, 1871, p. 28.

[4] Mallery, Garrick, Pictographs of the North American Indians, in *Fourth Annual Report of the Bureau of Ethnology*, Washington, 1886, pp. 21–22.

[5] Henderson, J. G., Aboriginal Remains near Naples, Illinois, in *Smithsonian Report for 1882*, p. 719.

Two caves, or, as they should probably be described, rock-shelters, in Monroe county, Illinois, not far from the Mississippi, contained similar carvings. These were described by Professor Rau in a communication to the American Ethnological Society of New York, and the account was printed in the *Bulletin* of that Society for October, 1861. One of these is described as having shown a "square heel and the toes of equal length, and terminating in a line." In the same county, near the town of Waterloo, is a cave, on the bottom of which are three or four "footprints" having the toes spread in a marked manner. In this respect they differ from the majority of the known examples.[1]

Like carvings, similarly placed on the bottom of a cave, have been found near Saline river, in Ste Genevieve county, Missouri, a few miles west of the Mississippi, and just south of Monroe county, Illinois. At a meeting of the American Ethnological Society, held during January, 1861, E. G. Squier "read extracts from the *St. Genevieve County Plaindealer*, (Mo.,) of a recent date." The article was in part as follows:

"Higher up on the Saline is a cavern. . . . Entering the mouth of the cave a short distance, we discovered foot-prints of a *pappoose* just commencing to walk. There are three distinct marks. The child was walking, and the first step was with its right foot, the next with its left, then again came the right. There is near by a very large foot-print of a man. Turkey-tracks and several other very singular things can be seen very distinctly. There is also the outline of an eagle cut into the rock. The work is neatly executed."[2]

Numerous examples of the form of petroglyphs under consideration were formerly to be met with along the bluffs of Jefferson county, Missouri, and northward on the river bank near and within the city of St Louis. Three depressions in a mass of red sandstone, near Herculaneum, were pointed out by an old inhabitant, who described them as once having been very distinct representations of human footprints. The stone is at the side of a road, and the surface has been greatly washed and worn away. Referring to the upper stratum of limestone in the vicinity of Herculaneum, School-

[1] Mentioned in a personal letter from Dr F. A. Glasgow, of St Louis.

[2] *Bulletin of the American Ethnological Society*, vol. 1, New York, 1861, pp. 49–50.

craft wrote: "The supposed prints of human feet, at this place, now preserved in the outer chimney-wall of Mr Honey, were originally quarried from this stratum, as well as the more striking impressions formerly to be seen at St Louis."[1]

A rather small "footprint" was discovered near Kimmswick, Jefferson county, Missouri. It was cut in the upper exposed surface of the limestone cliff shown at the extreme right in plate 1, *a*. The block of stone, as removed, is represented in *b*. This was obtained by the writer and presented to the Peabody Museum of Harvard University. The petroglyph represents the impression of the left foot; its extreme length is 7 inches; spread of toes, 3¾ inches. At the foot of the cliff was a saline spring, and within the distance of a hundred yards were several groups of stone graves and an important village site.[2] Rock creek, flowing past the village site, entered the Mississippi about two miles beyond. Several hundred feet below the mouth of the creek, on the immediate bank of the Mississippi, were two very clearly defined "footprints." They were examined during the summer of 1901, but within the following year they were removed, by whom it was not possible to learn. One represented the impression of the entire foot; the second, which followed the first, represented a part of the foot, including the toes. The distance between the toes of the two figures was about 18 inches. The length of the full example was about 10½ inches. Both figures represented impressions of the right foot, and were directed northward.

The members of Long's expedition, while in St Louis during the early part of June, 1819, had occasion to examine certain "footprints."

"The horizontal strata of limestone which underlay the town of Saint Louis and the surrounding country, have strongly attracted the attention of the curious, on account of having been found in one or two instances, to contain distinct impressions of the human foot. There is now in the possession of Mr. Rapp, of the Society of the Harmonites, a

[1] Schoolcraft, Henry R., *Travels in the Central Portions of the Mississippi Valley*, New York, 1825, p. 273.

[2] Bushnell, D. I., Jr., Primitive Salt-Making in the Mississippi Valley, pt. 1, *Man*, London, 1907, 13; pt. II, ibid., 1908, 35.



a. Limestone Cliff Near Kimmswick, Jefferson County, Missouri. The White Stake Indicates the Original Position of the "Footprint"



b. "Footprint" from the Summit of the Cliff Shown in the Above Figure

stone, which has upon its surface, marks that appear to have been formed by the naked feet of some human being, who was standing upon it while in a plastic state; also an irregular line, apparently traced by a stick or wand, held in the hand of the same person. This stone was taken from the slope of the immediate bank of the Mississippi below the range of the periodical floods." [1]

This stone was taken by its owner to Indiana, and two years later Schoolcraft wrote:

"Before leaving Harmony, our attention was particularly directed to a tabular mass of limestone, containing two apparent prints or impressions of the naked human foot. This stone was carefully preserved

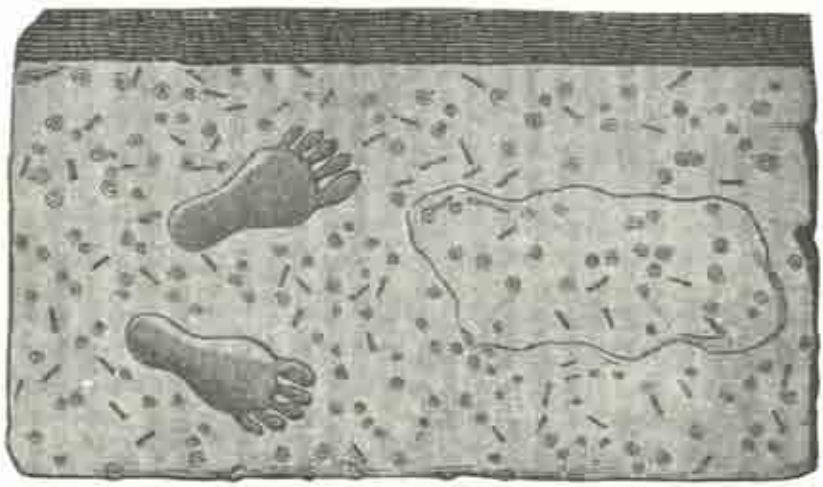


FIG. 6.—Block of limestone bearing petroglyphs, removed from St Louis, Mo., to Harmony, Ind. (After Schoolcraft.)

in an open area, upon the premises of Mr. Rappe, by whom it had previously been conveyed from the banks of the Mississippi, at St. Louis." [2]

Schoolcraft's illustration of this example is shown in figure 6.

Some very interesting examples of "footprints" were found by Dr William Jones near Salt creek, in the Seminole Nation, Oklahoma, and were later removed to the American Museum of Natural

[1] James, Edwin, *Account of an Expedition . . . under the Command of Major Stephen H. Long*, Philadelphia, 1823, vol. 1, pp. 56–57.

[2] Schoolcraft, op. cit., pp. 173–179.

History, New York City. The largest of the five carvings was slightly less than 12 inches in length, and was 5 inches in width; the smallest was a little more than 8 inches in length and 3 inches in width. The greatest depth was one-quarter inch. Three figures represent the impressions of the right foot, two the impressions of the left foot. The ridges separating the toes are clearly and sharply defined. The material is sandstone.

Specimens in the National Museum were described some years ago as follows:

"On two of these slabs, which have been completely cut out of the rock, may be seen, respectively, two impressions of feet represented as being covered with moccasins of a pattern still in use among the Sioux and other western tribes. The slabs consist of sandstone . . . and were obtained from the banks of the Missouri River." [The third example] "is a flattish block of quartzite (probably a boulder), which bears on one of its flat sides the impression of a naked foot, each toe being distinctly marked by a cavity of proportionate depth. The foot is surrounded by a number of cup-shaped depressions. This relic was obtained in Gasconade County, Missouri."[1]

An oval mass of sandstone, bearing the representations of the imprints of two feet, one right, the other left, and both wearing moccasins, was found some years ago near the Gasconade river, in the southern part of Missouri. This specimen is now in the collection of the Missouri Historical Society.

"Footprints" have also been discovered on a limestone bowlder, on the banks of the upper Missouri, near Forest City, Potter county, South Dakota.[2]

A group of carvings evidently intended to represent human hands and feet was discovered on an exposed ledge of sandstone near Trempeleau, Wisconsin.[3] These are merely outlines, and in this

[1] Rau, Charles, The Archæological Collections of the United States National Museum. *Smithsonian Contributions to Knowledge*, pub. no. 287, Washington, 1876, p. 57.

[2] Thomas, Cyrus, Catalogue of Prehistoric Works East of the Rocky Mountains, *Bulletin 12, Bureau of Ethnology*, Washington, 1891, p. 198.

[3] Lewis, T. H., Sculptured Rock at Trempeleau, Wisconsin, in *American Naturalist*, September, 1889.

respect agree more closely with the petroglyphs found in the eastern section of the country. But it is a curious fact that "footprints" are often represented in intaglio when other figures of the group are in outline. Examples are found at Millsborough, Washington county, Pennsylvania, on the banks of the Monongahela, and near Morgantown, Monongalia county, West Virginia.[1] These latter are excellent examples of Algonquian petroglyphs.

Various groups of carvings, in which the human footprint is represented, are met with in different parts of the country, occurring as far west as California, but the isolated "footprints" appear to be confined to a more limited area. They are evidently in some way associated with water or water-courses, as all examples known to the writer are, or have been, found near the bank of some stream. Similar petroglyphs undoubtedly exist along the bluffs bordering the Ohio, the Mississippi, and other streams of lesser magnitude. The writer would be pleased to learn of all such specimens.

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[1] Mallery, Garrick, op. cit., pp. 224–226.

IZAMAL AND ITS CELESTIAL PLAN[1]

By STANSBURY HAGAR

I. Description

THE modern town of Izamal, in the north-central part of Yucatan, is built on the site of Itzamal, an ancient theocratic center of the Maya dedicated to the deity Ytzamna. The earliest mention of the ruins is found in the work of Landa, who wrote in 1566, forty-five years after the Spanish conquest of the peninsula. He describes these ruins first, and more fully than any others, and seems to have regarded them as the most important in Yucatan. He says:

"As for the edifices of Ytzamal, there are eleven or twelve, but no one knows who built any of them.[2] . . . These edifices of Ytzamal were eleven or twelve in all, although this one (described below) was the largest; and they are very close to each other. There is no memory of their builders, who seem to have been the first (inhabitants of the country). They are situated eight leagues from the ocean in a very beautiful location and in a fertile and thickly populated region.[3] . . . Here at Ytzamal amongst other buildings there is one of such height as to inspire awe. . . . There were twenty steps, of more than two large palms in height and a palm and a third in width; and the edifice itself has a height of over one hundred feet. These steps are of very large and excellently cut stones, although they are already much defaced and injured by time and storms. Around the building in a semi-circle extends a wall of perfect workmanship, and great solidity, about nine feet high, one projecting cornice of very beautiful stones throughout, above which the edifice rises until it reaches the terrace at the top of the first flight of stairs."[4]

[1] An elaboration of a paper read at the meeting of the American Association for the Advancement of Science, Baltimore, 1909.

[2] Diego de Landa, *Relacion de las cosas de Yucatan*, Brasseur de Bourbourg ed., pp. 32, 33.

[3] Ibid., pp. 328–331.

[4] Ibid., pp. 328, 329.

It does not seem possible now to identify this structure with any particular building, but it was probably a type of those upon the mounds of Izamal.

Concerning the history of Izamal, Landa says that its priests, called Chel, were believed to be descendants of a daughter of the chief of the twelve priests of Mayapan and a young noble, Achchel. They were in constant strife against the two noble houses of the Cocomes and Xius, with whom they divided the control of Yucatan.[1] Brasseur calls the place preeminently a sacerdotal city, which for this reason must have had great authority in Yucatan. Lizana, writing sixty years after Landa, found the remains of only five temples at Izamal, but he gives a detailed description of four of these which reveals the basic plan of this sacred city. He says:[2]

"There are in this town of Ytzamal five very lofty and sacred pyramids or mounds built entirely of hard stone, with foundations and retaining walls which serve to support the edifice above, but no edifice is seen today entire, though traces of what they were are observable in one situated towards the south. The ancient inhabitants had an idol, the most renowned that they possessed, called Ytzmat-ul, which signifies 'He who receives and possesses the virtue or the spirit (rozio, dew) or the nature of heaven.' This idol had no other name, or, at least, no one gave him any other, because they say that he was a king, a great lord of this land, who was obeyed as a son of the gods. When he was asked his name or who he was he spoke only these words: 'Ytzen caan, ytzen muyal,' which signifies 'I am the (spirit or the) dew of heaven and of the clouds.'

"This king having died, they erected altars in his honor; he was an oracle and we shall see farther on how and why another temple was erected to him. When this divine king lived, people consulted him as to events which were to happen in far distant regions, and he informed them about these and other future events. The dead were also carried to him and they say that he brought them back to life and that he also healed the sick, and so they held him in great veneration. . . .

"In heathen times these same Indians erected another altar and temple to this Ytzmat-ul, their king and false god. They placed in it

[1] Ibid., pp. 56–59.

[2] Lizana, *Historia de Yucatan*, Museo Nacional, Mexico, 1893, cap. III; Brasseur ed., pp. 357–365.

the figure of a hand to recall the memory of him, for they say that it was on that spot that they brought to him those who were dead and those who were ill and he restored them to life and health by touching them with his hand. This temple was the one towards the west, and they named it Kab-ul, which signified 'the Working Hand.' There they offered liberal alms and they brought presents thither; people made pilgrimages to it from all directions, on which account they built four roads or highways towards the cardinal points, which extended to the extremities of the country as far as Tabasco, Guatemala and Chiapas. Remains of these roads can still be seen in many places. Such was the number of people who came to these oracles of Ytzmat-ul and Kab-ul,[1] on account of which they had made these roads.

"They had another sacred mound or hill towards the north, which is now the highest; it is called Kinich-Kakmo, because there was upon its summit a temple with an idol called by that name, which means in our language 'Sun with visage like rays of fire,' and it (the fire) descended at noon to burn the sacrifice, in the same manner as the ara with its many colored plumes descends in its flight.

"Much reverence was shown for this god or idol and they say that when there was great mortality or a pestilence or other public calamities, all went to him, men and women alike, carrying a great number of presents to offer to him, and then, in sight of all, a fire descended (as I have said) at noon and consumed the sacrifice. Then the priest announced to them what would happen concerning the subject about which they desired information, such as diseases, famine or death, and, after that, they became acquainted with the good or evil fortune to come, although sometimes the event was contrary to what had been announced to them.

"There was another pyramid, still called by the natives Papp-Hol-Chac. This is the one on which the monastery of our father Saint Francis has been built, and this name signifies in Spanish 'House of Heads and Lightnings,' for the priests of the gods dwelt in it who were respected and regarded as lords; they punished and rewarded and were served with the most complete obedience; it was there that they declared their oracles which were believed so completely that nothing incredible could issue from their mouths. On the other hand these priests were, and still are, called in the Maya language Ahkin, a word which comes from Kinyah, which signifies 'to cast lots or draw presages.' For, as the priests of former times drew presages from their sacrifices when they wished to ascertain or declare the things which were asked of them they were called Alakin. . . .

[1] The original reads Tiabul.

"There was another pyramid which was the house and dwelling of a great captain named Hunpictok and it is situated between the south and west. The name of this captain signifies in Spanish 'the captain who has an army of eight thousand lances' because the lance and arrow points with which they fought in time of war were kept there; his office was of the greatest importance and the army served to keep the vassals in submission and to compel them to maintain the king or deity and the priests, as well as to defend the subjects of this realm and to guard their temples. Such were the most famous oracles of Ytzmat-ul or Ytzamal, as it is now called."

In recent times Izamal has been visited by Stephens, Norman, Le Plongeon, Charnay, and Holmes, who give general descriptions of the ruins and more detailed accounts of the few sculptures.[1] Charnay counted twenty pyramids, more or less, showing that the eleven or twelve mentioned by Landa must have formed a special group probably differentiated from the others because they possessed in common a symbolism peculiar to them.

II. Significance of the Symbolism

Lizana's description of the ruins indicates an undefined central space from which four roads extended toward the cardinal points to the extremities of the country. In various directions from this central space were located five of the eleven or twelve edifices mentioned by Landa, resting upon the summit of pyramidal mounds typical of Mexico and Central America. All of them bore the name of the deity Itzamna, yet each had its special name and attributes. It seems difficult to explain this unless we regard Itzamna as a name of the Cosmic Spirit which is the ultimate divinity of ancient America, and the other names as special manifestations. Toward the north stood the highest mound, as all writers agree, and upon it rested the temple of Kinich Kakmo, Sun Eye, Ara of Fire, who was represented by a human figure in the act of sacrifice pointing a finger toward a ray from the mid-day sun,

[1] Stephens, *Incidents of Travel in Yucatan;* Norman, *Rambles in Yucatan;* Charnay, Ma Dernière Expedition au Yucatan in *Le Tour du Monde*, Paris, 1886, pp. 278–283; Le Plongeon, *Queen Moo*, p. 196; Holmes, Ancient Cities of Mexico, *Field Columbian Museum Pub.*, pp. 97–100; Mme Le Plongeon in *Proc. Amer. Antiq. Soc.*, 1878, pp. 88–96.

as if to draw a spark wherewith to kindle the sacred fire.[1] In the Mexican figurative symbolism, eyes are very generally employed to express radiating light, especially that of stars. Stars shooting down from the night sky are thus designated. On a temple in the Borgiano codex the sun is symbolized by an eye surrounded by radiating eyes. This is the sun eye, Kinich.[2] As Kinich Ahau, Lord of the Sun Eye, Cogolludo calls this deity the greatest god of all, regarding Ytzamna as his son.[3]

Like the eye, the fiery ara was a solar symbol. Dr Seler defines it as a particular conception of the sun god. The ara is the macaw, a species of parrot with brilliant fiery plumage, apparently identical in symbolism with the red guacamaya, called by the Zapotec "picture or reflection of the sun." Concerning the fiery ara, Lizana adds:

> "As for its rays (those of the sun), some poets call them hair or golden plumes, alluding, it seems, to the reference which the indigenes make to the solar rays when adoring the varicolored plumage of the ara, and when causing their offerings to be consumed (by fire). I indeed believe that they symbolize in this manner the burning of the woods and the drying up of vegetation, occasioned by the intense heat of the solar rays, since this was their only means of burning (the waste growth) in preparation for the next sowing: the only plough at their service."[4]

Brasseur further explains that the statement refers to the Maya custom of setting fire to the parched woods and underbrush and sowing their seed in the ashes after the first rain. This indicates the connection of the fiery ara with the burning heat of the sun at the time of the June solstice. In fact the uinal or twenty-day period beginning at the solstice was called Cumku, "noise of an explosion heard in the distance, such as is caused by the cracking of the (dry soil in the) swamps at the approach of the rainy season or by the reverberation of thunder in distant storms . . . "[5] The Maya new-fire festival was held under Pop, the uinal following

[1] Bancroft, *Native Races*, III, p. 464.

[2] Seler in *Bull. 28, Bur. Amer. Ethnology*, pp. 311, 312.

[3] *Historia de Yucatan*, p. 196.

[4] Ibid., cap. 10; Brasseur ed., p. 360, note 3.

[5] Pio Perez in Landa, p. 382.

Cumku, and in the ritual of the supplementary days between these uinals an angel was thought to descend from the sky to receive the sacrifices—probably a reference to the fiery ara.[1] Moreover, the ara head, or the tortoise head which resembles it, is the particular symbol of the June solstice and of Kayab, the uinal preceding Cumku. To this period pertain the day signs Cauac and Ahau, Music and Lord. The former name appears also in the hieroglyph of the deity Kinich Ahau. It signifies descending fire, and is so represented in the Codex Cortesianus.[2] The latter name doubtless refers to the Lord of the Sun Eye. The corresponding Zapotec day sign is Lao or Loo, Eye; and in Guatemala, Ayotl, Tortoise, symbol of the June solstice, precedes it. One species of Mexican tortoise actually has upon its shell a yellow radiate figure suggestive of the sun.[3] On page 40 of the Dresden codex the ara or tortoise deity carries in his hands an upright and inverted torch to represent the northern and southern course of the sun touching at the June solstice.[4] And in the spear-throwers group (page 46) Cancer is represented by a fiery head from which flames are issuing. In the Mexican codices there are a number of drawings depicting the descent of the sun bird and others on the altar in the solstitial temple.

The deity of the eye of light is represented on a sculptured slab at Santa Lucia Cozumalhualpa with flames issuing from his arms, and he is plunging head-first from the sky.[5] Directly below him is a priest gazing upward at the descending figure while he holds in his right hand a basin-like object, upon which appears the head of an ara. His head-dress consists of an eye with three pointed rays, behind which are feathers. Beneath the right elbow of the celestial figure this eye seems to be repeated in miniature, and from it two objects, perhaps flames, descend upon a square symbol similar to the Mexican *tlalli*, "earth." This suggests the flame-like figure which projects from the head of the Tlaloc, who repre-

[1] See Landa, p. 216.
[2] Seler, op. cit., p. 53.
[3] Seler, ibid., p. 382.
[4] See Förstemann, ibid., p. 423.
[5] Seler, op. cit., pp. 311, 312.

sents the Etzalqualiztli festival under Cancer, in the Humboldt picture-writings. The left hand of this Cozumalhualpa figure terminates in a tiger paw which seems to identify him as the representative of the Tiger-paw deity, and an inverted tiger-skin appears behind him. Facing the priest is a smaller human figure who holds a smaller basin and points to the zenith with one finger, thus corresponding to the description of the Kinich Kakmo idol at Izamal. Beside him is a face like that of god K of the Mayan codices; over it are two crossed sticks used in determining the position of constellations, as Mrs Nuttall has shown. Over the priest are two circular glyphs containing tigers' heads.

The basins give us the key to the meaning. The tableau represents a priest marking the June solstice, the time of the sun eye and fiery ara, by means of the reflection of some star or constellation in the mirror basin which he holds. Probably the basin contained water.

"In the native Maya chronicles the reflection of a star upon the trembling and moving surface of the water is given as an image of the Creator and Former, the Heart of Heaven, and it was believed that the divine essence of life was thus conveyed to earth by light shining on and into the waters."[1]

The real descent of the fiery ara was probably marked by the reflection of a constellation within a bowl upon the temple altar at the solstitial noon of the year. The ocelotl symbols represent Leo, as the author has shown in a previous paper.[2] The Mexicans began their festivals at the end of the twenty-days period to which they pertained. If the Maya did the same, this would place the June solstice ritual between their constellation of the Sun Eye and Fiery Ara and that of the Ocelotl. According to Seler's description of this tablet, the head of the deity is set, as it were, like an eye, under a large eyebrow which is curled up at the ends. The dancer below wears an eye as a hair ornament, and there is another eye at the top of the staff beside him. The sun-eye is therefore elaborately symbolized.[3] It seems probable from these references that the

[1] Nuttall, Fundamental Principles of New and Old World Civilization, p. 225.

[2] Hagar, Elements of the Maya and Mexican Zodiacs, in *Proceedings Internat. Cong. Americanists*, Vienna, 1908.

[3] Seler, op. cit., p. 312.

descent of the fiery ara is a symbol of the annual descent of the sun from the highest point of its journey in the northern hemisphere at the June solstice. The northern position of this pyramid may then represent the northernmost point in the annual journey of the sun, the noon descent, the annual noon of this journey, and the superior altitude of the pyramid, the greatest solar altitude which was attained on that date. The Mexican ritual contains a parallel to this symbolism in the human victim who at the time of the solstice was conducted up the temple steps to represent the ascending course of the sun and was then hurled down to represent the solar descent. But, as we have seen, the symbolism is not exclusively solar. Burgoa states that in an ancient Zapotec town significantly called in Mexican *Teotitlan*, "near the sun god," there was a very ancient sanctuary where an idol uttered oracles in a terrific rumbling voice which sounded as if it came from the depths of the earth; and this idol was said to have come from heaven in the form of a bird *in a luminous constellation*. Seler identifies this bird with the fiery ara.[1] If our explanation be correct, this constellation must evidently be that through which the sun was passing at the time of the northern solstice.

In the Maya codices Cancer is governed by the god K, the Mexican lord of fire and water to whom the fire-sticks pertain, the Kiche Toh who first produced fire. The ara is frequently figured beside the water goddess. On page 30 of the Codex Fejérváry-Mayer it is represented flying down upon an altar in a temple before and on which appears the sign of an offering. Cipactli, a day sign pertaining to Cancer, is the only symbol placed before the temple.

The Indians and mestizos of Izamal have a tradition that under the Kinich Kakmo mound there is a large pool of crystalline water, and standing in the middle of it a beautiful image of a woman, so resplendent and shining that it illuminates the whole place.[2] This may be a genuine ancient tradition, for an interior chamber has actually been reported within this mound by Stephens,

[1] Op. cit., p. 296. Italicized by the present author.

[2] Mme Alice Le Plongeon in *Proc. Amer. Antiq. Soc.*, 1878, p. 96.

and the image may have been that of the Water Goddess, the Mexican Chalchiuhtlicue or Emerald Woman, who represents the sign Cancer in the spear-throwers group of the Borgiano and other codices.[1] Somewhat less than half-way to the top of this mound was a platform from which the people were permitted to watch the ceremonies performed by the priests on the summit.

To the west of Izamal was the mound and temple erected in honor of the dead "king" Ytzamna, by which is evidently intended that deity in the aspect of lord of the dead. He was an oracle who foretold future events and brought the dead to life by touching them with his hand. Because of this feat the temple contained an image called Kab-ul, the working hand. The death god A of the codices, with whom this aspect of Ytzamna may be identified, is figured as a skeleton spine and skull. He is connected with the uinal Xul or End (October-November) and governs the day sign Cimi or Dead, which is opposed to the Moan symbol of the Pleiades.[2] He is also associated with the festival Chich Kaban, the Calling Down of the Great Hand, which was celebrated during the uinal Xul. It commemorated the ascent of the deity Cuculcan to heaven amongst the gods, "on account of which the Indians regarded him as a god and built temples to him," also the descent of the same deity from heaven at this time to accept the offerings presented to him by the faithful.[3] The uinal and the day sign mentioned pertain to the sign Scorpio, and the ritual was held while the sun was passing through this sign, which in Mexico, Peru, and in many parts of the world was regarded as the death sign, opposed to the beneficent Pleiades in symbolism as in celestial position. The uinal End would then refer as a symbol to death as the end of human life and to the end of Cuculcan's career on earth. The Kab-ul temple likewise becomes a Scorpio symbol.

Lizana places the temple of Hunpictok, Eight Thousand

[1] Cf. Elements of the Maya and Mexican Zodiacs, p. 287.

[2] Cf. Schellhas, Deities of the Maya Manuscripts, *Peabody Museum Papers*, vol. IV, no. 1, p. 10; Förstemann, Commentary on the Maya Manuscript of Dresden, ibid., no. 2, p. 250.

[3] Landa, pp. 298-303; Brinton, *Native Calendar*, p. 37.

Lances, between the south and west. As a matter of fact it lies south of Papp Hol Chac and a little east of south from the central square. It is not unlikely that because of its similar symbolism, described farther on, Lizana confused this mound with one situated to the west of the plaza and to the southwest of Kinich Kakmo. He states that it was the home of the captain who had an army of eight thousand lances. Arrows and other warlike implements were kept here, and here the army had its headquarters. This was therefore the temple of the war gods who ruled the opposite zodiacal signs Gemini and Sagittarius. Similar symbolic attributes are usually assigned to opposite signs amongst the Maya and Nahuatl. But this mound probably pertained to the sign Sagittarius for reasons stated beyond.

The first mound mentioned by Lizana was dedicated to Ytzmat-ul, the Spirit or Essence of Heaven, and of the Clouds. Cogolludo calls him son of the supreme incorporeal cosmic deity Hunab Ku, the One Saint from whom all things emanate.[1] He bore the name Ytzmat-ul because, as a master of spiritual laws, he was said to have received from his father and to possess the virtue, spirit, and nature of heaven. This name is probably a corruption of Ytzam-na-t-ul, House of the Working Spirit, and refers to a temple dedicated to the all-pervading Spirit who occupies the supreme position in the pantheon of American Indians generally. The fact that Lizana places his temple toward the south in contrast with Kinich Kakmo at the north would indicate an association with the southern sign Capricornus opposed to Cancer, if indeed this is an astronomical symbol like those preceding. On page 12 of the Codex Cospiano (Loubat edition) the sun in Cancer is represented by the sun god before the house of day, in which stands an ara. With these symbols are contrasted a black deity before the house of night, in which stands an owl, symbol of darkness and death. This deity seems to be the black god called L and M by Schellhas, sun of winter, the night of the year. He represents Capricornus on sheet 19 of the Codex Cortesianus. The name *muyal*, "clouds," in his title may have some connection with *muluc*, day sign adjoining and

[1] Cogolludo, lib. IV, cap. 6.

perhaps pertaining to Capricornus, in whose glyph appears the cloud symbol.

Although Charnay, Mme Le Plongeon, and Cash agree in placing this mound to the east of the plaza, a careful reading of Lizana establishes another conclusion. In the first paragraph of his description quoted in this article (p. 17) he mentions five pyramids, one toward the south, and describes the idol Ytzmat-ul. He then proceeds to locate the other four pyramids in directions other than south, and to connect them with the other names, mentioning Ytzmat-ul again only in the third paragraph as the general deity of whom Kabul was a symbol. Therefore it seems probable that Lizana intended to identify Itzmat-ul with a mound toward the south.

The remaining mound temple of Lizana is called Papp Hol Chac, House of Heads and Lightnings, where oracles were declared. In this temple dwelt the priests who punished and rewarded and who also foretold the future by throwing or drawing lots. One method used for this purpose was the counting of grains of maize, a favorable or unfavorable result depending upon whether the final sum were odd or even.

Rites in honor of the first priest and a ceremonial announcement of prognostics are described by Landa in the second uinal, Uo, but the sequence of symbolism would lead us to assign these ceremonies to the following uinal, Zip, which pertains to the sign Libra. In the Borgiano and Vaticanus codices this sign is represented by the figure of a *tlahtouani*, or oracular priest, in the act of announcing the prognostics. He is an embodiment of the Mexican constellation Teoyaotlatohua, which governed rites in honor of dead kings and lords in the twenty-day period Hueymiccailhuitl under Libra. The "house of the priests" would therefore seem to be associated with the sign Libra.

West of the plaza there is another mound which has been identified with Kab-ul by Lizana and all modern writers. This is the only mound upon which symbols have been found, but these symbols do not agree at all with the attributes of Kab-ul. Fortunately sculptures on three sides of this mound were sketched or photo-

graphed before they were completely destroyed by the ignorant population of present times. On the south and east walls were two gigantic human faces, one drawn by Stephens, the other photographed by Charnay and others. Stephens describes the expression of one as stern and severe.[1] Now Landa tells us that the Maya always had two generals in command of their armies, and one of them presided over the ritual in the uinal Pax under our sign Gemini. At this time they celebrated the rites of the warriors. It seems probable that the two human faces are those of the two Maya generals, symbols of Gemini. But on each side of the face upon the east wall there are numerous S-shaped double spirals, the Mexican *xonequilli*, symbol of the sign Sagittarius, opposite Gemini. On the west wall there is a crouching disemboweled man having a tiger mask before his face "beautifully molded and reminding us of the orders of knighthood in which the tiger had the preeminence."[2] His figure was photographed by Le Plongeon and sketched by Holmes. Accidentally or otherwise it assumes the form of the *xonequilli*. It seems to be the same figure as that of the warrior of Sagittarius who is struck by the spear on page 50 of the Dresden codex, and it no doubt represents the sacrificed captive taken in war who was a prominent feature in the warriors' ritual of Gemini and Sagittarius. During the supplementary days the Maya celebrated four festivals to the four signs governing the seasons. In this ritual Gemini was represented by the *bacab* or deity called Hozan-ek, the Disemboweled Asterism, with whom this Izamal figure may reasonably be identified.

The Sagittarius uinal Mol or Paw may have been derived from mool or jaguar, likewise the day sign Muluc. Another day sign Manik signifies the seizing hand grasping a captive or prey. In the Mexican ritual we find Gemini similarly represented by the two war gods Uitzilopochtli and Tezcatlipoca. The latter is figured as a jaguar, and is also associated with Sagittarius under the name Camaxtli. Hence we may regard the symbols of this mound as primarily representing Gemini, but they are also symbols of Sagit-

[1] Stephens, *Yucatan*, II. pp. 434–508.

[2] Charnay, *Ruined Cities*, p. 310.

tarius. This is the same association of the symbols of opposite signs which we found connected with the Sagittarius mound of Hunpictok.

III. Plan

The question now arises as to the identification of these traditional mounds with the present remains at Izamal. Modern writers are in accord with Lizana's location of these mounds excepting that they place Itzmatul to the east instead of to the south and also excepting that, as tradition testifies, Hunpictok was situated to the southeast instead of to the southwest. Charnay indeed made several mistakes in naming the mounds in his *Ruined Cities of the New World*, but corrected them in a later paper.[1]

The accompanying plan of the ruins (fig. 7) was made for the writer in 1910 by Mr Henry A. Cash, an engineer of repute, through the kindness of Mr Edward H. Thompson, formerly United States Consul at Merida. It shows the location of six mounds, and in the accompanying report Mr Cash mentions a seventh to the southwest of the region covered by the plan. But he was unable to obtain any information with respect to the names or attributes of these two additional mounds, or to verify or add anything to the traditions reported by Lizana. In fact he states that the present inhabitants of Izamal have no interest in the antiquities of their town, and traditional knowledge concerning the mounds has probably perished completely.

There is general agreement as to the position of Kinich Kakmo, the great mound to the north of the present plaza. The position of Papp Hol Chac is also definitely fixed because Lizana locates it on the site of the Convent of St Francis, and this is known to have occupied part of the space upon which rests the present parish church. Tradition also determines the position of Hunpictok. In seeking, then, to understand the plan of Izamal, we have as a starting point three mounds definitely identified and the position of two others shown by Mr Cash. The symbolism of all five mounds described by Lizana is probably associated with zodiacal signs; therefore it seems reasonable to expect that the general plan

[1] See reference, p. 27.

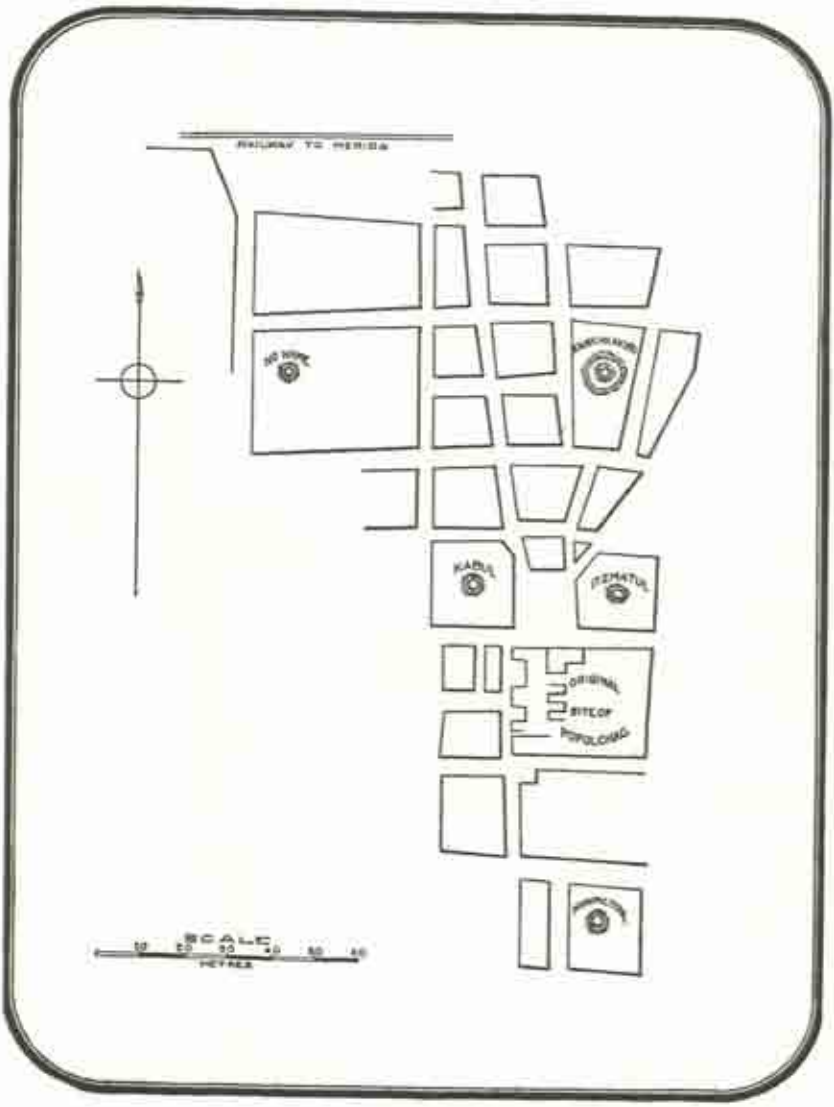


FIG. 7.—Plan of part of the city of Izamal showing the position of the various prehistoric mounds. (Surveyed for Stansbury Hagar by Henry A. Cash, 1910.)

will reveal a like association. We have seen reasons for thinking Kinich Kakmo was situated toward the north, because it represents the northernmost zodiacal sign. We find Papp Hol Chac situated

toward the east, the proper relative position of Libra, the sign with which its symbols are associated, and Hunpictok representing Sagittarius in its proper relative position toward the southeast. Since these three mounds, then, are properly situated to represent their respective signs in the zodiacal circle, let us see whether the same purpose may govern the positions of the other mounds. If so, a mound dedicated to the sign Leo should adjoin Kinich Kakmo, the Cancer mound, on the southeast. This position is occupied by a mound called Itzmatul by Charnay, Mme Le Plongeon, and Cash, but we shall follow Lizana in locating that mound toward the south. In that case the real name of this mound has been forgotten. Passing on, the next space toward the south should be occupied by a mound representing Virgo, and here we encounter an interesting fact which may or may not be significant. The mound, if there was one, that occupied this position, adjoined the site of the present parish church, which contains the image of the miraculous Virgin of Izamal. Now, in the Maya symbolism this sign pertained to woman, especially to Ixchel the Priestess, deity of the female sex. Her rites were celebrated in the uinal or twenty-day period Zip corresponding with our September, when the sun is in the sign Virgo.[1] It is the well-known policy of the Roman Catholic Church in missionary fields to locate its shrines upon or near spots formerly occupied by native shrines and to dedicate its altars to some saint whose attributes resemble as closely as possible those of the native deity supplanted. Therefore the presence of the Virgin of Izamal on this spot may indicate the former existence near it of a shrine to Ixchel or some other form of female deity. While describing the temples of Izamal, Cogolludo refers to houses of virgins, the occupants of which were highly respected during life and were worshiped as goddesses after death.[2] He may have had in mind a House of Virgins at Izamal.

Next comes the Papp Hol Chac, representing Libra in its proper position in the sequence. This should be followed by Kabul representing Scorpio, but no mound remains on this spot, and, as

[1] See Landa, p. 288.

[2] *Historia de Yucatan*, p. 198.

we have seen, Lizana and all modern writers locate Kabul toward the west, identifying it with the mound of the Gemini and Sagittarius symbols and thus opposing both our theory and the significance of the symbolism. Hunpictok next represents Sagittarius in its proper position.

Capricornus should be represented by the mound dedicated to Itzmat-ul. This may be identified with a pyramid mentioned by Cash as situated to the southwest of the mounds mentioned above and beyond the limits included in his plan.

Having now attained the southernmost sign, in order to complete our scheme we must suppose another series of mounds representing the signs from Aquarius to Gemini and extending northward to the west of the series just studied. The pyramid of the sculptures occupies the proper position and presents the proper symbolism to represent Gemini in such a series, but no trace remains of any of the mounds or symbols which should represent Aquarius, Pisces, Aries, and Taurus. The scheme as completed now indicates a sequential arrangement of the twelve zodiacal signs in two columns of five signs each, to which must be added Cancer at the north and Capricornus at the south. The four roads must also be included in this scheme, and are readily explained as symbolizing the terrestrial division into four regions corresponding with the celestial four seasons divided by the solstices and equinoxes. This fourfold division and the cross as its symbol are in common use throughout native America.

In the following summary of this scheme the actual names and remains of Izamal are given in capitals, supposed remains and names in small letters.

Theoretical Plan of Izamal

		N.	
		CANCER (KINICH KAKMO)	
	GEMINI	LEO	
	Taurus	Virgo (Ixchel?)	
W.	Aries	LIBRA (PAPP HOL CHAC)	E.
	Pisces	Scorpio (KABUL)	
	Aquarius	SAGITTARIUS (HUNPICTOK)	
		CAPRICORNUS (ITZMAT-UL)	
		S.	

Comparative Positions of Mounds from Plaza

	Lizana	Cash and Modern Writers	Theoretical Plan
ITZMATUL	South	East	South
KABUL	West	West	Southeast
KINICH KAKMO	North	North	North
PAPP HOL CHAC	Southeast	Southeast	Southeast
HUNPICTOK	Southwest	Southeast	Southeast

The writer does not claim for the existence of the above plan anything more than a reasonable probability based on its consistent and systematic explanation of the few known symbols. It is to be hoped that some day scientific excavations may reveal other symbols which will determine its truth or error with greater certainty. But if this plan existed, it presents another example of a theogonic center, typical of native American culture, in which the sacred city was sacred because built on a sacred plan, and the plan was sacred because it was believed to reflect on earth the observed design of the sacred and perfect celestial world. This was a design peculiarly appropriate to a city of priests who watched the stars. Other examples of this celestial plan are found at Cuzco in Peru and at Teotihuacan in Mexico, and it is not improbable that we should find it in general use if our studies were not limited to the comparatively few places where anything is known of the local symbolism. The primitive beginnings of the celestial plan may be recognized in the location of the altars of the Skidi Pawnee with respect to the comparative positions of the constellations to which they are dedicated.[1]

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[1] See Dorsey, Traditions of the Skidi Pawnee, *Memoirs Amer. Folk-Lore Society*, vol. VIII, 1904.

THE RED-PAINT PEOPLE OF MAINE

By WARREN K. MOOREHEAD

IT is rather strange that in Maine there should recently have been discovered the evidences of an unusual culture of considerable age. We are accustomed to regard the South, the Mississippi valley, and the Southwest as sections in which one expects to be confronted by archeological problems; but it is in the most easterly portion of the United States that we have now found indications of a culture different from that existing anywhere else in this country. Excepting the strange remains of the cave-people of the Ozark mountains, explored by Dr Charles Peabody and the writer[1] in 1904, perhaps nothing found in the United States in recent years is comparable in interest with the problem of the "Red-paint People" of the lower Penobscot valley.

When Joseph Chadwick made his journey up Penobscot river to Quebec in 1764, he recorded most of the Indian sites along that stream, but these sites pertain to the occupancy of the Penobscot Indians.[2] In 1823 Moses Greenleaf, in a letter to the Reverend Jedidiah Morse, gave a more complete list of Indian sites from the mouth of the Penobscot to the Allegash and down the St John, but the names given are also Penobscot.[3] These sites are known at the present time; they were examined by the party of the Department of Archæology of Phillips Academy in the summer of 1912, and, so far as could be ascertained, appear quite different from the sites attributable to the Red-paint People.

In 1892 Mr C. C. Willoughby, of the Peabody Museum, Harvard University, explored prehistoric burial places at Bucksport, Lake Alamoosook, and Ellsworth, Maine, finding many graves containing

[1] Charles Peabody and Warren K. Moorehead, Exploration of Jacobs Cavern, McDonald County, Mo., *Bull. 1, Dept. Archæol., Phillips Academy*, 1904.

[2] Reprinted in *Bangor Historical Magazine*, vol. IV, no. 8, Feb., 1889.

[3] Moses Greenleaf, Indian Place Names, etc., *First Ann. Rep. American Society*, pp. 49–53.

curious gouges and hatchet-blades, as well as considerable quantities of brilliant red ochre, and fire-stones and other objects. These observations are set forth in Mr Willoughby's excellent paper on the subject.[1] In a brief report the present writer cannot go farther than point out the more interesting and important features of the discoveries referred to. Although the party covered several hun-



FIG. 8.—"The point" in Lake Alamoosook where Mr Frank Pierce's cottage is situated. This is the Emerson cemetery site.

dred miles of waterways and dug in a hundred different places, only five cemeteries of the Red-paint People were found. One of these lay beneath a large summer cottage, hence could not be examined; but the others were excavated completely, resulting in the opening of 170 graves, from which was taken a large number of stone artifacts. It may be said that this work was undertaken at the point where Mr Willoughby's investigation ceased. He had found evidences of the Red-paint People, but we continued the

[1] C. C. Willoughby, Prehistoric Burial Places in Maine, *Peabody Museum Papers*, vol. 1, no. 6, Cambridge, 1898.

research in the lower Penobscot, and extended it as far north as Moosehead lake, thence down the west branch of the Penobscot to the main stream as far as Passadumkeag.

Although the cemeteries of the Red-paint People are readily distinguishable from those of recent Algonquian tribes, the identification of their village sites is no easy matter. With reference to the latter, nothing may now be said, as it will be necessary to devote



FIG. 9.—Grave 79, the Emerson cemetery.

two or more seasons of additional exploration before the villages or camp sites of these particular people can be determined, and even then a clear line of demarcation may be difficult to draw. While, therefore, we are not yet prepared to offer definite conclusions or to present the results of complete observations, it is probable that the culture of the Red-paint People extended as far north as Passadumkeag, about 30 miles north of Bangor.

Most of the cemeteries thus far discovered are near tidewater, and range from the valley of the Kennebec eastward as far as Bar Harbor. We have a list of several unexplored or partially explored sites, and these are to be examined during the approaching summer.



FIG. 10.—Grave 64, the Emerson cemetery. This grave contained twenty-one gouges and celts, or thin blades.

Professor George H. Perkins, of the University of Vermont, kindly invited the writer's attention to the fact that some graves containing large quantities of red ochre were discovered near Swanton in northern Vermont. It has also been said that similar graves are found on St John river on the Canadian side, a few miles above St Francis, Maine, but this has not been verified.

Cemeteries were explored at Orland, Maine, on the estate of Captain S. M. Hartford; on Lake Alamoosook, near the outlet, on land owned by Frank Pierce, Esq., and known as Emerson point; on the south side of Lake Alamoosook, on the estate of the Messrs Mason; and at Passadumkeag, on the farm of Mr S. H. Hathaway. Sketch maps of all these places were prepared, numerous photographs were taken, and the usual field records made.

The graves varied from a foot to three feet in depth. Some of them have been much disturbed by previous excavators who had dug here and there merely to satisfy idle curiosity. Arthur E. Marks, Esq., of Yarmouth, who had been interested in the archeology of Maine for many years, obtained nearly all the specimens found at the Hartford, Emerson, and Mason sites previous to our exploration, and these have been acquired recently by the trustees of the Department of Archæology of Phillips Academy, so that all the specimens gathered from these cemeteries, with the exception of 99 which were destroyed when the Bangor Historical Society's building burned some years ago, and a few others in the hands of



FIG. 11.—Interior of Captain Hartford's barn where several graves were found.

a Mr Johnson, whose address is unknown, are now in the collections of the Academy.

The illustrations accompanying this paper will give an idea of the character of the objects, the position in which they were found, and other details.

Figure 8 shows the Emerson site, owned by Frank Pierce, Esq.

Figure 9 illustrates grave 79 at Emerson's. The discoloration caused by the red ochre is apparent.

Figure 10 exhibits the large deposit of 21 gouges and thin blades found about a foot beneath the surface at the Emerson's site.

Figure 11 shows the interior of the barn of Captain Hartford, at Orland. The cemetery here had been greatly disturbed. About a hundred years ago two large barns were built, one on the cemetery and the other just north of it, the angle between these buildings forming a barnyard. For many years manure and loam were taken from this yard, consequently most of the surface soil had disappeared. Rough blue clay was deposited in front of each barn in order to give a more substantial surface over which teams might pass. Although on the map of the Hartford cemetery 39 graves are indicated, the original number was probably at least a hundred. There is an open or barren space more than fifty feet in diameter and flanked by graves on either side, hence it is reasonable to suppose that the graves extended throughout this area. After uncovering all the graves near the barns and flanking the yard, we obtained permission to remove the contents and take up the floor of one of the barns. In the underlying soil about fifteen graves were found.

Figure 12 is typical of the disturbed graves. This lay near the surface and contained but three implements. With very few exceptions all graves more than 18 inches in depth produced from five to seventeen objects. Graves lying near the surface and containing from one to four objects were considered as having been previously disturbed.

Figure 13 illustrates two interesting gouges, and another on which are eight pronounced knobs. These are shown about one-fifth size.

Figure 14 is a typical grave at the Mason cemetery on the shore of Lake Alamoosook.

Figure 15 illustrates the graves at Hathaway's and shows the character of the implements found—gouges, long pendants, "plummets," and celt blades. The dark mass in which these are lying is brilliant red ochre.

Figure 16 shows grave 141 at Hathaway's, similar to the graves illustrated in figure 15.

Figure 17 illustrates grave 142 at the Hathaway cemetery. In this grave a number of implements were massed in nearly half a bushel of brilliant red ochre. The photograph does not show all the implements found in this deposit.

Although many of the graves had been disturbed, as previously stated, a sufficient number of the 170 uncovered were in their



FIG. 12.—Grave 2, the Hartford cemetery, Orland, Maine.

original state so that we were enabled to make accurate observations respecting them. These have resulted in the following conclusions:

First. Our studies warrant agreement with practically all the results of the observations presented by Mr Willoughby in the able paper on his explorations in the same region.

Second. It is our conviction that the graves represent an ancient and exceedingly primitive culture, totally different from that of the later Algonquian tribes inhabiting the region.

Third. The absence of human remains from these graves, and the disintegration of fully a fifth of the stone implements, point to considerable antiquity. This condition resulted from the fact that the burials were all in sand or gravel or gravelly loam. The water percolated beneath the implements, leaving them dry. Under such conditions in the Middle West, where the writer has made extensive explorations, the skeletons are usually fairly well preserved and disintegrated stone implements never occur.

Fourth. There is a total absence of the following well-known Penobscot or Abnaki types: The grooved axe; grooved hammer; pottery; soapstone dishes and ornaments; pierced tablets of the common forms; few, if any, thick celts; mortars and pestles; pipes; beads; bone implements. There are very few of the small, ordinary, chipped arrowheads. Chipped spearpoints and an occasional arrowhead are found, but most of the projectile points are of polished slate.

Fifth. The presence of problematical forms of the winged class brings up the interesting question, Was the winged problematical form first made by the Red-paint People and from them spread westward?

Sixth. The interments are characterized not by the usual small quantity of pigment found elsewhere in graves, but by generous quantities of iron oxide, usually red and occasionally yellow. This occurs in such large masses as frequently to discolor the soil for several inches above and below the implements and throughout a diameter of as much as three feet; indeed in some of the graves at least half a bushel of pigment was placed.

Seventh. The existence of wide variation in the form of the "plummets," which range from the rough, natural, ovoid pebble, grooved at the top, to effigies probably representing the whale or the porpoise. Occasionally these objects are grooved at each end, and often they are polished. They are slender, or thick, or tapering; sometimes they are flattened on one side, occasionally on both sides. They range in size from an inch in length to one seven inches long and weighing about four pounds. When Mr Blodgett excavated for the foundation of his cottage at Alamoosook, he dug out of a grave a "plummet" weighing at least five or six pounds.

Eighth. It would appear from the position in which the implements are found that they were buried when attached to their handles, but there is no absolute evidence of this. No discoloration



FIG. 13.—The knobbed gouge was found in grave 68 of the Emerson cemetery, as was the beveled gouge to the left. The long slender gouge to the right is from the Mason site. (1/5.)

of the soil due to decay of wood is observable. Where the objects are massed, there is a slight space between them. By turning the handles outward it would have been possible to bury the objects with their original fastenings.

We may now consider the cemeteries as a whole. More than half of the implements found therein are colored brown, crimson, or bright red, because of long contact with the ochre. The gouges are of metamorphic slate, limestone, and granite, and their edges are exceptionally fine. The top, or poll, is not always worked out

carefully, but the edge is very sharp; indeed, it would be difficult to grind stone to a finer edge. Some of the gouges are fluted; some have an ordinary concave cutting edge; others are angular. The finest gouges have a V-shaped groove extending about a third of the distance from the edge toward the top. Several are as much as 15 inches in length, and two are 15¾ inches and 15½ inches long, respectively.



FIG. 14.—Grave 128, the Mason cemetery.

Most remarkable of all are the slender, flat, perforated, ornamental stones, of which seventeen were found in the Passadumkeag cemetery. These would appear at first glance to be too heavy for use as personal ornaments. One of them measures 15¾ inches in length. The perforations are polished or worn smooth by the abrasion of thongs. There are some paddle-shaped problematical forms a foot or more in length.

The common thick celt is almost entirely absent, while on the other hand adze or celt blades occur in profusion. After careful study of the specimens from the Red-paint graves no difficulty is encountered in distinguishing them from the Algonquian types.

Regarding the presence of iron pyrites, fire-stones, pebbles used as paint grinders, and so-called "lucky stones," much might be

said. In every case the pyrites was much disintegrated and oftentimes was reduced to powder. The paint grinders consist of ordinary pebbles, but the small, lighter ones are interesting. In most of the graves we found yellow, or bright red, or gray pebbles from half an inch to an inch in diameter, apparently too small for use as paint grinders. We never found more than one in a grave, and frequently none. Their purpose is a mystery, and the term "lucky stones" applied to them by our workmen may not be inappropriate.

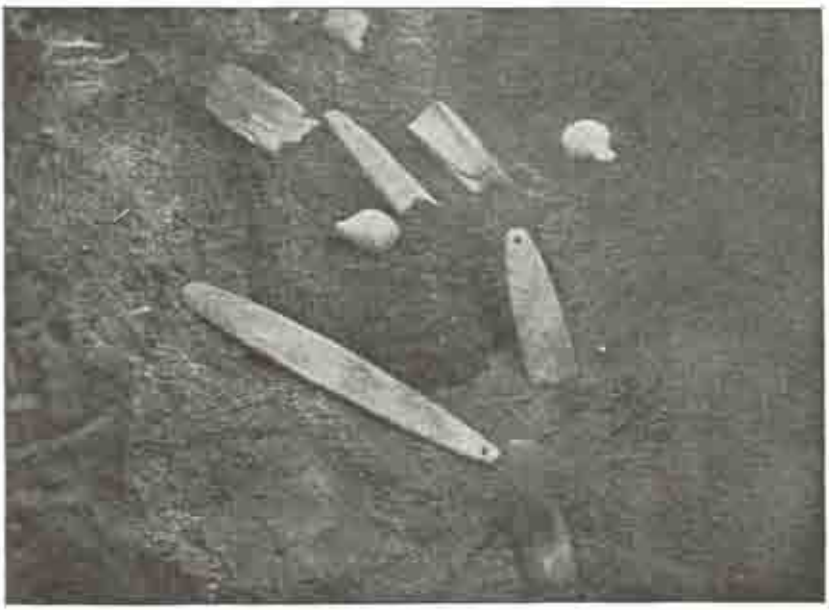


FIG. 15.—Grave 141, the Hathaway cemetery.

Mr Willoughby was fortunate in his exploration of the little mound on Lake Alamoosook. It was covered by a growth of timber, and thus was well preserved. Above many of the graves were fire-pits. All the cemeteries explored by us, save that at Passadumkeag, were on gently sloping ridges or on ground that had been plowed. We found but three or four fire-pits, and it was impossible to trace the outlines of the graves; indeed even most careful work with a trowel failed to reveal where the disturbed

area ended and the natural or undisturbed soil began—another indication that these graves are by no means modern.

All implements were noted with reference to the position in which they lay, and it was found that no rule was followed by the aborigines in the matter of uniform placement by the cardinal directions, since as many were found pointing southward as eastward. Sometimes the specimens were a foot apart, but usually they lay within a few inches of one another.

The Mason cemetery occupies a low, sandy ridge along the shore of the lake. Sixty years ago lumbermen built a dam which raised the level of the water five feet; therefore if any graves lay on the slope of the Mason site they could not be satisfactorily explored. We dug numerous pits (although the water entered after we had penetrated to a depth of two feet) and felt about in the muck, but could discover no graves save those located on our map.

At Mason's we found three interesting interments. These were placed at an unusual depth, being more than three feet below the surface. Two and a half feet down, a thick layer of charcoal and charred sticks was observed, but no trace of red ochre. From two of the graves we exhumed bits of deerskin, small pieces of decayed copper beads, and two cylinders of fine-grained sandstone about five inches in length, the opening large at one end and quite small at the other. In the third grave, or fire-pit, we found a fragment of a human femur six inches in length, a great deal of deerskin, and numerous disintegrated copper beads. Although the work was very carefully done, no trace of skeletal remains, excepting the fragment of femur referred to, was discovered. These three interments may or may not be intrusive.

From an extended examination of the literature of the subject, based on a bibliography of about 360 titles relating to the Indians of Maine, it is safe to assert that the part taken by this territory in the prehistoric life of the country has been underestimated. The facility with which one can travel by canoe in Maine, even at this late date, is surprising. In no other section of the country is it possible to go farther or more conveniently by means of a small craft. It is practicable to ascend the Penobscot from the ocean to

Lake Chesuncook, a distance by water exceeding 200 miles, and after making two or three short portages, reach the headwaters of



FIG. 16.—Grave 147, the Hathaway cemetery. Three "plummets," found near by, are included in the illustration.

the Allegash and descend to the mouth of the St John. One may ascend the Kennebec to Moosehead lake, proceed to its head, cross the Northwest carry, and reach the headwaters of the St John more than 100 miles northwest or west of the mouth of the Allegash. The numerous lakes, ponds, and streams carry sufficient water for the average twenty-foot canoe. Accompanied by Frank Capino, an experienced Penobscot Indian guide, the writer journeyed in such a canoe, with 250 pounds of luggage, from Northeast carry, Moosehead lake, through a chain of lakes and streams and down the Allegash to Fort Kent on the St John, a distance of more than 200 miles.

The older guides and settlers of Maine say that fifty or sixty years ago the state was well-stocked with moose and bear, and that caribou were found in many places. Even at the present time, although the moose are well-nigh exterminated, there are un-

numbered thousands of deer, and I myself have seen as many as twenty-two in a single afternoon. The beaver have been protected for some years, and we observed on the Allegash trip upward of a hundred beaver houses. Naturally Maine was the great hunting preserve not only of the Red-paint People but also of the natives from the coast and possibly from New Hampshire and Massachusetts. No other State is better adapted to the propagation of species of game. Taking these things into consideration, and the



FIG. 17.—Grave 142, the Hathaway cemetery.

fact that there are hundreds of large shell-heaps along the coast,[1] the region must have supported a considerable aboriginal population. There is evidence that the cliff of flint at Kineo, Moosehead

[1] Professor Arlo Bates, of the Massachusetts Institute of Technology, has already mapped four hundred of these.

lake, was worked for a considerable time and that blocks of the material were transported in quantities to various parts of the State. The natives who went north to hunt naturally brought down to the coast not only Kineo flint in their canoes, but quantities of moose, caribou, and deer skins, and dried meat. The character of the implements found in the cemeteries of the Red-paint People indicates that hunting and not agriculture was their chief occupation.

I have covered, in somewhat desultory manner, the essential facts with reference to the discoveries last summer. Rev. Moses Greenleaf, in his narrative above cited, says that "Olamman stream" was known as the "place where paint is found." We understand that near the headwaters of this stream are quantities of iron oxide, soft hematite, or ochre, and plan to explore the region next summer. Whether the quantities of red paint used by the ancient people came from the upper waters of Olamman stream, I am not yet prepared to say, but analysis may determine this point. Nor has our research proceeded far enough to warrant comparison of the Red-paint People with the extinct Beothuk of Newfoundland, who in 1497 were reported by Cabot to observe the custom of painting themselves with red ochre.

It is planned to continue the archeological researches in Maine during the next three years, bearing in mind the need of extending the work northward and eastward from our operations of last summer. The study will be carried on more intensively than was possible during the first season, much of which was necessarily devoted to reconnoissance. The writer will appreciate any suggestions from students of archeology respecting the possible origin of the ancient inhabitants whom for want of a better name we have designated the "Red-paint People."

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NOTES ON MISKUTO GRAMMAR AND ON OTHER INDIAN LANGUAGES OF EASTERN NICARAGUA

By G. R. HEATH

1. The Origin of the Miskuto Tribe

THE eastern half of Nicaragua contains three main tribes of native Indians: the Miskuto, the Sumu, and the Rama. The Sumu must at one time have been very numerous and important, tradition telling of great "kings" who ruled over them; but in any case they certainly occupied an immense tract of country. A Sumu tribe has been discovered by Dr Walter Lehmann, of the Royal Ethnographical Museum in Munich, in the eastern part of Salvador; and another, the remnant of the ancient Yusku Sumu, near Matagalpa, Nicaragua. The Twahka Sumu are now found on the Rio Butuk (Patuca) in Honduras, and on the Waspuk, Wawa, Kukallaya, Banbana, and Prinsapolka rivers in Nicaragua; the kindred Panamaka on the Bocay, and the Ohlwa (Wulwa) on the Rio Grande and the Escondido with their tributaries. The Ulua river in western Honduras seems to be named from the tribe last mentioned; and the now extinct tribes of Kukra and Prinsu appear to have been members of the great Sumu family. The dialects of these tribes are so similar as to be almost mutually intelligible. A Sumu tradition, as told by a Twahka man from the Prinsapolka, represents all the tribes as having sprung from a pair of semi-divine ancestors, Maisahana ("He who begot us") and Itwana ("Our Mother"), who lived at Kounapa, a mountain situated between the Butuk and Wangki rivers. The first-born tribe was that of the Miskuto. Disobedient and headstrong, then as now, the Miskuto ran away to the seacoast. The next born, the Twahka, consider themselves to this day to be the nobility among the Sumu; while the youngest, the Ohlwa, being according to Indian custom the favorites, were taught the secrets of medicine and incantation by the "Mother". Now the greater part of the

Miskuto vocabulary shows very close connection indeed with the Sumu dialects; and the grammar, although much simpler, certainly presents some similarity. Yet anthropologists, on grounds that are not very apparent, invariably group the Sumu among the Lenca peoples and the Miskuto among the Carib. Columbus, who discovered the country in 1502, seems to have known the Miskuto under the name of Caribisi. The discovery, by Dr Lehmann, of a tribe of Rama living on the Kurubisi river in Costa Rica, and the fact that the Rama of Nicaragua have always claimed connection with Costa Rica, seem somewhat to invalidate this apparent testimony to the connection of the Miskuto with the Carib. Neither does the language show any connection. A legend which has been given out as authentic by Señor Eduardo Pereira, a descendant of the late Miskuto ruling family, claims that the Miskuto originally lived in the country around Rivas, on the Great Lake, and were called Kiribi. After many years' fighting with Indian invaders from the north (apparently Nahuatl), they were driven around the lake and eastward, until they came to the sea. Under their great chief Wakna, and his son Lakya the Great (Lakya means "Evening Star"), they subjugated the Sumu tribes who at that time inhabited the coast. Believing that they had now found a safe home, they gave themselves the name of Dis Kitwras Nani,[1] "they who cannot be dislodged," which was corrupted into Miskuto, Miskito, Mosquito, and even Mosco. The present writer has no means of telling whether this story is a genuine tradition of the ruling family or not. The suggested connection between the names Kiribi, Caribisi, and Kurubisi is probably merely fortuitous; for there is nothing whatever in the Rama language to suggest any vital connection with the Miskuto, although the two languages very possibly influenced one another, the Rama of Nicaragua having been for many years the slaves of the Miskuto, who brought many of them up from the south to the neighborhood of Bluefields and treated them with great cruelty.

[1] The word *dis* does not occur in present-day Miskuto, except as an apparent corruption of the English adverb "just". It is barely possible, however, that some ancient word has been confused with the corrupted adverb.

One thing, however, is clear: that the Indian traditions do not point to a Carib origin of the Miskuto people and language.

On the other hand, the physique and the habits and character of the Miskuto differ considerably from those of the Sumu or Rama. The staple food of the Miskuto is the sweet cassava, or yuca; while the Sumu seem to live almost exclusively on bananas, and the Nahuatl of the interior are maize-eaters. The Rama nowadays eat both cassava and bananas. Now the Carib are the greatest cassava-eating people in this part of the world. Again, the Sumu rarely intermarry with strangers of another race, and are fast diminishing in numbers, while the Miskuto assimilate all races. The children always speak the language of the mother, and grow up as Miskuto Indians, whether the father be English, Swedish, German, "Creole," Carib, Spaniard, Sumu, Rama, or Chinaman. The villages between Wounta and the Hawson river (Sanawala) show this phenomenon to perfection. If the tradition be genuine that long before Columbus a tribe of cannibal invaders spent some time on this coast, one can see the possibility of an original Sumu tribe having been modified by an influx of Carib blood. Moreover, it is well known that when the Carib went on their expeditions of conquest, they killed only the males among their enemies, and took the females to be their wives. So, when the Spaniards first came to some of the Lesser Antilles, they found that the men had one language and the women another; and this special language of the women appears to have been Arawak. The so-called Carib of the neighborhood of Trujillo, Honduras, who call themselves Garif, were brought there, or rather to the adjacent island of Roatan, by the British Government at the close of the eighteenth century, as they had caused so much trouble in their former island homes of Dominica and St Vincent. Their language has incorporated a number of French words, just as the Miskuto has incorporated a considerable number of English names for articles which the tribe did not originally possess. But some of the most obviously original parts of the language, such as the first three numerals, are pure Arawak. Hence Professor Finck, in his *Die Sprachstämme des Erdkreises*, classes both Miskuto and Garif as "isolated languages."

The Garif language appears to have been investigated but slightly. The Gospels of St Mark and St John represent the only attempt to reduce it to writing that the present writer has been able to discover; and the translator of these has not published a grammar. The small settlements of these "Carib" on Pearl lagoon in Nicaragua are of very recent date, and can be left entirely out of account in estimating the relationship or otherwise between the Carib and Miskuto peoples and tongues.

Another influence, however, has been brought to bear on the Miskuto people which has differentiated them very strongly from the other Indians. In the days of the bucaneers a slave-ship coming from Africa (Dutch according to some; Spanish and bound for Cuba according to others) was wrecked a little south of Cape Gracias. The Africans, after considerable fighting, became assimilated with the original Indians; and the resultant "Sambos," a people of strong physique, numerous progeny, and considerable arrogance, and who speak Miskuto with certain curious dialectic variations, have had great influence in the country. Through the importation of slaves by former British settlers (who afterward removed to Belize), and through more recent immigration of negroes of more or less pure African blood, chiefly from Jamaica, the Miskuto people have come to present Sambo characteristics in nearly all their villages. May it not be that the much-discussed name "Miskuto" has originated in the phrase "Indios Mixtos," used perhaps at first of the Sambos?[1] For the pure Indians often call themselves "Tāwira" ("heavy-haired"); and at least one part of the tribe seems formerly to have had the name "Waika," which simply means "men". In any case, one can scarcely deny the African influence on the language. The vowel scale is exactly the same as in the Jamaican Creole dialect. Several of the peculiar phrases of everyday life are found literally translated into English in Jamaica. The style of thought, while resembling Sumu, also resembles closely the Takitaki, or "Negro-English" of Surinam, the only Creole dialect which has become, for the time being, a real literary language. The Creole-Dutch of St Thomas has died out;

[1] This suggestion is as yet scarcely more than a conjecture.

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books printed in it are very rare;[1] while French Creole is represented only by a translation of the Gospel of St Mark. The anancy stories of Jamaica bear such a resemblance to the stories of kyaki and limi (agouti and jaguar) of the Miskuto that one can scarcely doubt a common origin; and these stories are certainly African. Westermann has shown conclusively that in Takitaki a corrupted English vocabulary has been fixed into purely African grammatical, and especially syntactical, forms.

In studying the Miskuto language, therefore, due consideration must be given not only to that large element which is obviously related to Sumu, but also to the possibility of influences on the part of Rama, Carib, or Arawak, and some West African language or languages. It would be well if some philologist could make a special comparative study of Miskuto, Sumu, Garif, Arawak, Guiana Carib, the West Indian Creole dialects, and the tongues of the Guinea coast. The African part of the investigation would, however, prove disproportionately wide. For it is not known from what part those slaves came who helped to form the Nicaraguan Sambos; and even in Jamaica at the present time there is still a considerable difference between the Congo, Ibo, and Mandingo types, both in features and in the build of the body, although the linguistic differences are perhaps no longer traceable.

2. Notation and Phonology

To represent the sounds of the Indian languages under consideration, the Roman alphabet will be used in these notes, with the following special features:

The vowels *a*, *e*, *i*, *o*, *u* correspond almost exactly to the sound of these letters in German.

The letters *g*, *j*, *s*, *w*, *y* represent the sounds heard in the English words get, jet, set, wet, yet; and the combination *ch* stands for the sound heard in the word chest. *C* by itself will not be used. The other letters have the same power as in English, except that the aspirate *h* is always to be pronounced, even at the end of a syllable

[1] *Note:* Compare, however, the recent researches of Dr Hesseling of Leiden.—J. Dyneley Prince.

(e. g. in the tribal name Ohlwa the *h* must be distinctly heard as an aspirate; but must not, on the other hand, be pronounced as strongly as either the palatal or the guttural German *ch*).

Long vowels will be distinguished by the grave accent (ˋ).

The stress accent in Miskuto is almost invariably on the first syllable. Any variations from this rule will be marked by the acute accent, as in Spanish (ˊ).

When the grave and acute accents occur on the same vowel, they combine to form the circumflex (ˆ).

Nasalized vowels are sometimes met with: they resemble the ordinary vowels followed by a sound corresponding to the French *n* in *mon*. But as this nasal sound seems to be pronounced not after, but simultaneously with, the vowels, it seems better to mark the vowels with the tilde (˜), to indicate that the vowels themselves are nasalized. Such nasalized vowels are always long, thus: $\tilde{a}$, $\tilde{e}$, $\tilde{i}$, $\tilde{o}$, $\tilde{u}$.

The combination *ng* is, of course, a single sound: the double sound in the English word "longer" will be represented by *ngg*.

It is believed that this system of notation will suffice to denote phonetically and consistently every word that will be met with in these languages of eastern Nicaragua. The orthography in the printed Miskuto grammars, Biblical translations, hymn-books, and so forth, has been the subject of much controversy, and can scarcely be regarded as settled yet. It is to be hoped that when it is finally settled it will be consistent and scientific, both in the interests of philology and also in the still more important interests of the scholars in the reading-classes of the mission stations.

The form *Miskuto*, for the name of the language and of the tribe, has been used in preference to the more common form *Miskito*, as the observations of the writer in many villages and for a number of years have shown that those Indians who speak most carefully and grammatically invariably use the short *u* for the middle vowel, making it, however, so short and unaccentuated that the difference between the two forms is not very marked. The Sumu call the Miskuto "Weiya"; the Rama call them "Pakba".

Consonants.—In Miskuto, Sumu, and Rama alike the spirants

f and *v* are entirely lacking. In words which have been adopted from foreign languages, *f* is changed into *p*, and *v* into *b*. Thus *bìp* (ox or cow), from "beef"; *heben*, from "heaven". The English sounds written *th*, both the hard and the soft, are likewise absent, being transliterated in adopted words into *t* and *d* respectively. Ordinarily, the spirants *ch*, *j*, and *sh* are also absent; but now and then one hears *j* for a strongly pronounced *y* (as in some forms of Spanish), and *sh* for *s*: these occasional deviations seem to arise from individual idiosyncrasy. Where there has not been much contact with foreigners, *j* at the beginning of a foreign word is changed to *y*, as in *Yòsep*, from "Joseph". Otherwise *ch*, *j*, and *sh* alike tend to change to *s* or *ts*, sometimes with alteration of the preceding consonant, as in *Sùbat*, from "Schubert"; *sèngs*, from "change" (used of money); *Yàts*, for "George". Really careful speakers sometimes substitute *sy* for *sh*, and *dy* for *j*; others, less careful, substitute *d* only for *j*, as in *Dirùsa*, for "Jerusha". The combinations *sp* and *st* are not permissible at the beginning of words: the *s* is simply dropped.[1]

Originally *b* and *p* could not stand at the end of a word, and there was no *g* at all. (The single sound represented by the double character *ng* was always present.) But many words which originally had *k* now have *g*, as *gunggung*, sometimes still called *kungkung* (the howling monkey); and foreign influence has modified the strictness of other phonetic rules.

Z (or the soft *s*) does not occur at all.

Q will not be used in these notes: the deep, hard, guttural corresponding to *k* which might be represented by *q*, and which occurs in Eskimo, is practically never found in these languages of eastern Nicaragua. The common combination *qu* is more correctly written *kw*. It should always be remembered that in combinations such as "ky," *y* is a consonant.

Mouth Position.—The fundamental position of the mouth in speaking Miskuto is approximately that of the long vowel *ä*, with a tendency toward the nasalized *ã*. As in all other languages, this fundamental mouth-position should be carefully noted, as it is a key to a genuine native pronunciation.

[1] Only at the ends of words can the *s* of these combinations be pronounced.

In Sumu the fundamental position seems to be that of the short *e*; and in Rama to be somewhere between short *a* and long *ȯ*.

Vowels.—Whereas in Sumu and Rama the five vowels, *a*, *e*, *i*, *o*, *u*, are all well represented, in Miskuto *e* and *o* scarcely exist at all; and it would seem that originally only the three fundamental vowels, *a*, *i*, and *u*, were present in the language (compare Arabic). The long *ȅ*, where, as in English, it has any after-sound of *y*, invariably is sounded as long *ɨ:* in the very few native words in which it occurs, it is sounded very broad, like the German *ae* (*ä*). So, too, even in an apparently true native word like *dòri* (a keeled canoe), the *o* is very often pronounced as *u* ("*dùri*"). The short *o*, where it occurs in Sumu and Rama, is equivalent to the English *o* in "obey".

In foreign words the English short *o* in "not," and also, as a rule, the English short *u* in "but," are changed to the Miskuto short *a*. The English *au* in "Paul" goes into long *â*. The English *oi* goes into *ui*. The combination *iu* found in Miskuto books is not genuine: it should always be either *yù* or *ɨw*, the *y* or *w* respectively being consonantal. So, too, the so-called "very short, unaccentuated *u*" before *l* or *r* at the beginning of words is really the consonant *w*, used exactly as in Anglo-Saxon (thus, *wli*, green turtle, is one syllable; *wrɨhka*, fever, is only two).

Tone and Accent.—The stress-accent in Miskuto is very nearly invariably on the first syllable: the word *umpira*, "pitiable," is the most common exception. In Sumu and Rama, however, there is very little stress-accent at all, the syllables being almost equally emphasized. In Miskuto the ordinarily accentuated syllable is about a musical third or fourth higher in pitch than the other syllables; but the Miskuto people try to make up for the poverty of their language in abstract expressions by varying the tone very greatly. When very special emphasis is called for, the accentuated syllable is often pitched a whole octave higher. When a whole word is specially emphasized, the accentuated syllable is first pitched about an octave higher, then slightly dropped about a fourth, then the second syllable follows on the octave. Sometimes when an adjective follows a noun, but the noun is very emphatic, the first

syllable is pitched on the high octave, and all the rest of both words follow on the low octave without any special accentuation. Sometimes for emphasis the vowel accentuated is lengthened and drawled, the voice first rising to about a ninth above the ordinary, and then descending two or three semitones in a drawl. Thus:

waikná tárá 'a tall man.' Simple statement; voice raised a little on each accented syllable.

waiknátárá 'a great strong man.' Emphasis on the word *waikna*, 'man'; voice raised about an octave; other syllables short.

waikná tárá 'an unusually tall man.' The a lengthened; voice raised about a ninth, and then drawled down.

waikná tá-rá 'a surprisingly tall man.' For the first a in *tára* (great, tall) voice raised about an octave, then slightly dropped, then raised again for the second a.

(The musical intervals given are, of course, quite inexact; but are as approximate as possible.)

Miskuto Inflections.—Miskuto words are not inflected for gender, number, or case, except that the first and second personal pronouns have separate forms for the nominative and the objective:

yang, I; *ai*, me; *man*, thou; *mai*, thee.

The word *nani*, placed after its noun or adjective, is the sign of the plural: verbs do not need any such sign.

To express possession, the noun has, besides its absolute form, a construct state, and a first, second, and third personal. The third personal state is formed from the construct by the prefix *ai*; the other states by inflections which are either suffixed or inserted.

Absolute:	*yul* (dog),	*lûpa* (offspring),	*mûla* (grandchild).
Construct:	*yûla* (dog of),	*lûpya* (child of),	*mûla* (grandchild of).
1st pers.:	*yûli* (my dog),	*lûpi* (my child),	*mûli* (my grandchild).
2d pers.:	*yûlam* (your dog),	*lûpyam* (your child),	*mûlam* (your grandchild).
3d pers.:	*aiyula* (his dog),	*ailûpya* (his child),	*aimûla* (his grandchild).

Absolute:	*nâkra* (eye),	*aisa* (father).
Construct:	*nâkra* (eye of),	*aisika* (father of).
1st pers.:	*naikra* (my eye),	*aisiki* (my father).
2d pers.:	*namkra* (your eye),	*aisikam* (your father).
3d pers.:	*aindkra* (his eye),	*aiaisika* (his father).

Euphony is the chief consideration in deciding how a noun is to be inflected. Some may be inflected in either of two ways; some are mixed.

THE VERB presents very few variations from the regular type. The most typical example is here given.

Smalkaia (to teach). Present participle, *smalkì*.
Transgressive participle (compare Slavonic languages), *smalkisi*.
Past participle, *smalkan*.

	Present Indefinite	Present Absolute	Past Indefinite
1st pers.	*smalkisni*	*smalkuni*	*smalkri*
2d pers.	*smalkisma*	*smalkuma*	*smalkram*
3d pers.	*smalkisa*	*smalkuya*	*smalkan*

	Past Absolute	Future	Conditional	Connectional
1st pers.	*smalkatni*	*smalkamni*	*smalkaina*	*smalkrika*
2d pers.	*smalkatma*	*smalkma*	*smalkaima*	*smalkrika*
3d pers.	*smalkata*	*smalkbia*	*smalkaiya*	*smalka* (*lk-ka*)

Imperative: 2d person, *smalks*, *smalkram*, *smalka*; also *smalksi*.
1st person plural, *smalkpi*.

Compound tenses are expressed by a circumlocution.

There is no special inflection for the passive, strictly speaking; the active third person is used impersonally with the objective of the pronoun: Thus, from *ikaia*, to kill:

ai ikisa—one is (they are) killing me: I am being killed.
ai ikata—one (they) killed me: I was killed, or, I had been killed.
ai ikan sa (*sa* = "it is"), it is that they killed me: I am killed (in the sense of "I am dead").

Verbal nouns:

smalkra, teaching in the abstract, doctrine.
smalkan, the act of teaching. (Construct, *smalkanka*.)

Continuous forms:

yang smalki katni, etc., I was teaching (as in English).

One of the most remarkable features of the Miskuto language, which occurs also in Sumu and Rama, is that the negative form of the verb is expressed by means of a special inflection. The

Miskuto for "not" is "*apya*"; but this word is used only in the future: *yang smalkamna apya*, generally shortened to *yang smalkamn' apya*. *A* and *i* are commonly interchangeable in these endings, according to euphony.

For all the other tenses, the termination *-ras* is used. This is, strictly speaking, an adjective, formed from the verbal noun *smalkra* with *s* privative, and thus means "without a teaching." So:

yang smalkras, or, *yang smalkras sni*—I do not teach; literally, "I am without a teaching."
yang smalkras katni—I did not teach.
yang smalkras kaina—I should not teach.

In each case the termination *-ras* is used with the parts of *kaia*, to be.

But this negative form in *-ras*, though originally an adjective, has come to be used as if it were a verb, and can take an object. Thus:

yang mai smalkras katni, I did not teach you.

The explanation of this may be that the objective case in Miskuto probably in its origin denoted direction, that is, the direction of an action; for even now, when clearness demands it, the direct object of nearly all verbs may (and of many must) be expressed by placing the post-position *ra* ("to") after the noun in question, thus:

waikna ba mairinra prûkan, the man hit the woman.
waikna ba mairinra prûkras, the man did not hit the woman.

Therefore the passive negative is expressed in the same way as the passive positive, that is, impersonally:

ai ikras, they do (did) not kill me: I am (was) not being killed.
ai smalkras, they do (did) not teach me: I am (was) not taught.

But here, as the form in *-ras* cannot be inflected for tense, this is expressed by the parts of the verb to be:

ai smalkras sa, I am not taught.
ai smalkras kata, *ai smalkras kan* } I was not taught.
ai smalkras kabia, I shall not be taught.

and also (see above) *ai smalkbia apya*, I shall not be taught.

The Verb IKAIA, *kill, with Direct Object*[1]

	ME	THEE	HIM
I		*yang mai ikisni*	*yang witin (ba) ikisni*
Thou	*man ai ikisma*		*man witin (ba) ikisma*
He	*witin ai ikisa*	*witin mai ikisa*	
We (excl.)		*yang nani mai ikisni*	*yang nani witin (ba) ikisni*
We (incl.)		*yawon mai ikisa*	*yang witin (ba) ikisa*
You	*man nani ai ikisma*		*man nani witin (ba) ikisma*
They	*witin nani ai ikisa*	*witin nani mai ikisa*	*witin nani witin (ba) ikisa*

	US (excl.)	US (incl.)	YOU
I			*yang (man nani) mai ikisni*
Thou	*man (yang nani) ai ikisma*	*man won ikisma*	
He	*witin (yang nani) ai ikisa*	*witin won ikisa*	*witin (man nani) mai ikisa*
We (excl.)			*yang nani (man nani) mai ikisni*
We (incl.)			*yang (man nani) mai ikisa*
You	*man nani (yang nani) ai ikisma*	*man nani won ikisma*	
They	*witin nani (yang nani) ai ikisma*	*witin nani won ikisa*	*witin nani (man nani) mai ikisa*

	THEM
I	*yang witin nani (ba) ikisni*
Thou	*man witin nani (ba) ikisma*
He	*witin witin nani (ba) ikisa*
We (excl.)	*yang nani witin nani (ba) ikisni*
We (incl.)	*yang witin nani (ba) ikisa*
You	*man nani witin nani (ba) ikisma*
They	*witin nani witin nani (ba) ikisa*

SOME MISKUTO WORDS

upla	human being	*ùsì*	yam
waikna	man	*ùwa*	sweet potato; also, hair
mairin	woman	*yùlà*	mahogany
tukta	child	*yàlam*	cedar
aisa	father	*auas*	pine (conifer)
yapti	mother	*pìto*	pineapple (fruit)

[1] The forms in parentheses are inserted when otherwise there would be ambiguity. The subject need not be expressed. The nominative may always be inserted before the object for emphasis; cf. above, thou—me.

lùpa	offspring
dâma	grandfather
kuka	grandmother
mûla	grandchild
mòini	brother of a male; sister of a female
làkra	brother or sister of the opposite sex
wìna	flesh
wìna làra	body
lal	head
nâkra	eye
kyàma	ear
kâkma	nose
bìla	mouth; also, word; opening
twìsa	tongue
klâkla	arm
mìta	hand
mìta sirpi	finger
hûpya	heart
byâra	bowels
kuma	leg
mìna	foot
limì	puma, jaguar
pyùta	snake
kàrus	alligator
inska	fish
raua	parrot
butku	pigeon
sûla	roebuck
tilba	tapir
kyâki	agouti
ibìna	paca
wârì	wild boar
bìp	ox, cow
àras	horse
palpa	manatee
ilili	shark
kwaina	saw-fish
kiski	opossum
kakamuk	iguana
ûsus	johncrow
tairi	mosquito
tasu	rubber
kûkù	cocoanut
dus	tree, stick, wood
mâ	seed, fruit
inma	grass
insla	plantation
unta	hole; also, bush, forest
pyahka	swamp
laulu	red mangrove
ùwala	river
kàbo	sea
auya	sand; also, liver
tasba	ground, land, country
li	water
aikaia	to give me
maikaia	to give you
yaia	to give to a third person
imalkaia	to teach
aisaia	to speak
wìaia	to say
sunaia	to draw up
prùkaia	to beat
sipaia	to sew
lûkaia	to consider, to cross over
brìaia	to have, to take
waia	to go
balaia	to come
yauaia	to swim
sâkaia	to bring out
takaia	to come out
daukaia	to make, to do
inaia	to cry, roar
langkaia	to loosen
langwaia	to get loose
tàra	great
sìrpi	small
yamni	good
saura	bad
yeri	long
prâni	short
pìni	white
pauni	red, bright and ruddy
sangni	blue, clear
siksa	black, dark

àya	corn	*karna*	strong
siksa	banana	*swapni*	weak
plàtò	plantain	*maia*	sharp
utla	house	*damni*	sweet
kwàla	cloth	*ingni*	light (in every sense)
yaura	cassava	*àà*	yes
duswa	tania, eddoe	*apya*	no

Some Rules of Miskuto Syntax

1. The adjective comes after its noun; except *baha* (that) and *naha* (this). The shortened forms *ba* and *na*, which serve as articles, follow the general rule, but are placed after other adjectives.

2. The sign of the plural, the word *nani*, comes after ordinary adjectives, but before the article.

3. Instead of prepositions, there are postpositions, some of which are enclitic, as *ra*, to, at. These follow the adjective or article.

4. Verbs, as a rule, come last in the sentence.

Some Examples of Miskuto Sentences

Upla nani ban aisisa, People say so.
Man Miskuto bila aisisma? Do you speak Miskuto?
Witin a iwin, He told me.
Aras ba langks, Untie the horse.
Aras ba langwan, The horse has got loose.
Baha waikna pini nani aras pauni ba brin, Those white men took the red horse.
Yang nani Prinsawalara watni, We went to Prinsapolka.
Rasa kumi baha mairin aisikara yas, Give a parrot to the father of that woman.
Dus ba yang klaiklara prùkan, The tree struck my arm.
Ilili daiwan saura sa } The shark is a bad creature.
Ilili ba daiwan saura }
Yang man nani wol wamni, I will go with you (plural).
Twaina ba kàrus làmara yauisa, The saw-fish is swimming near the alligator.
Aiauya tiwan, His liver is lost: He has forgotten.
Aman kaikaia, To see burnt: To take care.
Yang daira wàlisni, I hear my secret: I perceive.
Kàti aiskura alkan, The moon has caught his mother-in-law: The moon is eclipsed.
Kùpi krauisa, My heart is being bored: I remember.
Kùpi baiwisa, My heart is bursting: I am angry.
Kùpya pini, White heart: Kindness.
Kùpya siksa, Black heart: Stinginess.

Pùri sunisni, I draw up above me: I pray.
Wingka pùbaia, To blow breath: To rest.
Kûpya wlakaia, To turn the heart: To repent.

The Miskuto Numerals

Kumi, one. *wol*, two. *yumpa*, three. All others are expressed by circumlocutions.
Wolwol, two-two: four. *Matsip*, full hand: five.
Matlalkàbi, laying hand on head (*i. e.*, on head of thumb of other hand): six.
Matlalkàbi pura kumi, one above six: seven.
Matlalkabi pura wol, eight.
Matlalkàbi pura yumpa, nine.
Matawolsip, two full hands: ten.
Matawolsip pura kumi (etc.), eleven (etc.).
Matawolsip pura matlalkàbi pura kumi, one above six above ten: seventeen.
Yawonaiska, our all: hands and feet complete: twenty.
Yawonaiska kumi pura kumi, One above one score: twenty-one.
Yawonaiska wol, two score: forty.
Yawonaiska wolwol pura matawolsip pura matlalkàbi pura yumpa, ninety-nine.
Andat (corruption for "hundred"). *andat kumi*, one hundred.

Bluefields, Nicaragua

NOTE

In the above paper Mr Heath should have mentioned H. Zlock, *Dictionary of the English and Miskito Languages*, Herrnhut, 1894 (Gustav Winter), and also H. Berckenhagen, *Grammar of the Miskito Language*, Bluefields, 1894 (printed by Gustav Winter, Stolpen, Saxony), both of which works contain valuable material.

I note in connection with the interchange between *ch* and *s* in Miskuto, a similar variation between Cuna (Darien) and San Blas (Panamá; cf. Prince, Prolegomena to the Study of the San Blas Language of Panamá, *American Anthropologist*, XIV, p. 113, 1912). So far as Mr Heath goes with reference to the composite character of the Miskuto, his conclusions are most interesting. I believe, however, that there are a few, possibly not many, similarities between the Miskuto and the Cuna-San Blas—cf. M. *li*, C. *ti* 'water'; M. *dama*, C. *pap-tamat* 'grandfather'; M. *aikaia*, SB. *eokey* 'give' (?). These analogies might be multiplied by a closer examination and seem only to illustrate still more satisfactorily the mongrel nature of the present Miskuto idiom. —J. Dyneley Prince.

NOTES ON THE FLORIDA SEMINOLE

By ALANSON SKINNER

IN the latter part of the summer of 1910 the writer went to southern Florida in the interest of the American Museum of Natural History of New York, for the purpose of visiting the Seminole bands residing in the Everglades and to obtain specimens illustrating their ethnology. With two white companions he set forth from Fort Myers on the west coast, during the first week of August, proceeding by ox-team eastward through the Pine Barrens until the Everglades were reached; here the oxen were left, and, securing canoes, the party pushed on down into the Big Cypress, thence up again into the Everglades proper, and, eventually crossing them, came out on the east coast, at Miami, about the 10th of September.

In the course of our journey we visited a number of Seminole villages, all but one of which, according to the natives, had never before been visited by white men. The natives greatly resent the intrusion of whites, but we were able to gain admission almost everywhere through our guide, Frank Brown of Immokalee, whose father had been an Indian trader for more than thirty years. Father and son bear a most unusual reputation for honesty among both Indians and whites.

In spite of the fact that the villages of the Everglades and Big Cypress Seminole are so little known to outsiders, the Indians themselves are quite familiar with the towns of the white men, for the men, and a few of the women, often go to Miami, Fort Lauderdale, Jupiter, and other towns to trade. Not more than two or three members of all the several bands can speak English well, but all the men make use of a trade jargon composed of Seminole, Spanish, and English, and this nondescript speech has a wide vogue among the white settlers, or "crackers," who dwell in the pinelands.

The number of Indians in all the bands, according to the

best native informant, was not more than 325, despite the exaggerated reports that have been circulated. A few years ago the Indians suffered a loss of about fifteen of their number during an epidemic of measles; up to that time they had been slowly increasing. They are exceedingly conservative, dress habitually in native costume, and live in lodges of approximately the same type as those which they built before their exile from their homes in Georgia and northern Florida. They eke out an existence by raising corn and various kinds of pumpkins and squashes, and by hunting. They have a ready sale for egrets and alligator skins at the trading posts and they also secure a large number of deerskins and otter pelts. There is practically no fishing except along the rivers, where they shoot fish with the bow and arrow, or spear them; but turtles, which are abundant, are speared in considerable numbers.



Photo. by Julian A. Dimock.

FIG. 18.—Charley Cypress and children.

The following notes were obtained largely through observation rather than conversation, since none of our party understood the language, except the jargon, and the Indians strongly objected to the taking of written notes. One or two particular friends among

the natives, however, gave some information on such subjects as religion and the disposal of the dead, and presumably another visit would not be fruitless, since the Seminole must be convinced ere now that the writer is neither a Government spy nor a missionary, their two greatest bugbears. The following fragmentary data are presented for what they are worth.

Costume.—The regular everyday dress of the Seminole man consists of a bright, varicolored, calico shirt, narrow at the waist and wrists, with the expanding skirt reaching to the knees. Around the neck are usually worn a number of bandana handkerchiefs. The older men wear a shirt much more like the corresponding garment of civilization, which is not gathered at the waist. The elders also usually wear a turban made of a shawl or a series of bandanas wound together and held in place with a broad band of beaten silver. On special occasions, egrets or other plumes are thrust under the band at the sides.



Photo. by Julian A. Dimock.

FIG. 19.—Widow of one of the old Tigertails.

The ceremonial costume consists of a turban, a shirt of the everyday sort, though silk is used for gala apparel, a calico coat with designs in appliqué, deerskin leggings dyed a rich reddish brown, and moccasins that often have a round flap at the toe, which, except that it is soft, reminds one of the protectors on Apache moccasins.

To this costume is added an array of woven bead or yarn belts. The beaded belts are woven in angular figures, in contradistinction

to the otherwise similar circular designs of the Creeks, and usually symbolizing some life form (see pl. II).

Owing to the subtropical heat and the great moisture of their swampy habitat, the skin clothing is never worn except for some ceremony, although "Littly Billy" (Billy Koniphadjo) gave assurance that in his boyhood the Seminole still wore leggings and moccasins at their daily tasks, discarding them eventually because they were "hot too much." He had no recollection of any upper garment except the calico shirt.

The women wear a full-length skirt girt about the waist, and a cape with sleeves attached. As the waist or cape does not connect with the skirt, a broad band of copper-colored skin is always visible between the upper and lower garments of the older women. Around their necks they carry enormous necklaces, weighing often from ten to fifteen pounds, and even more. The heavy beads are coiled about their shoulders and throats until their chins are sometimes fairly forced skyward, and causing them to look as if they were being choked (pl. II).

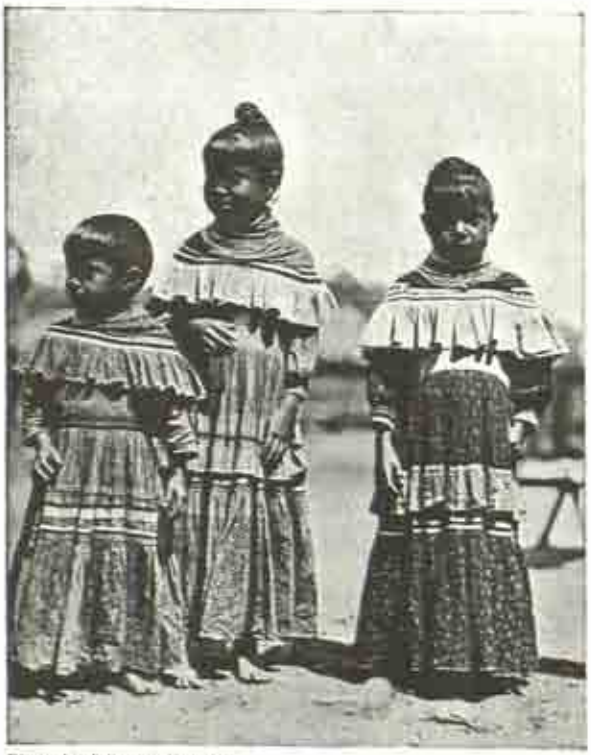


Photo. by Julian A. Dimock.

FIG. 20.—Seminole girls.



GEORGE OSCEOLA AND WIFE

For ceremonial purposes their garments are the same, except that then they wear capes that are bedecked with hammered silver bangles and brooches, and, in the dance, knee leggings to which tortoise-shell rattles are attached, are worn. The costumes of the children are invariably the same as those of their elders, save that little girls sometimes wear a single-piece gown with an appliqué collar on festival occasions. The accompanying illustrations will suffice to show the details.

Method of Wearing Hair.—The men now cut their hair short after the fashion of the whites, except that they are prone to leave a lock before the ears. It is only a short time since they have ceased to wear a double scalp-lock; indeed a few conservatives still maintain the custom.

The women usually wear their hair coiled on the top of their heads (pl. II), but one widow, still in mourning, allowed hers to hang loose on her shoulders.

Village Life.—Owing to the scarcity of dry land the Seminole are usually compelled to build their villages on "hammocks," or meadow islands, in the swamps, although in some cases their camps are pitched in the pinelands.

The moment guests arrive in camp, if they are allowed to land at all,—for there is usually a long and searching inquiry before white men are admitted,—they are taken to the dining hall. Women or graceful sloe-eyed girls timidly fetch up pots of steaming sofki, turtle meat, or venison, and set them on the platform upon which hosts and guests alike squat on their heels. First the guest and next the oldest man in the camp partake of the viands. If there is a company of guests, the chief among them eats first, then the oldest Indian, and so on, alternately, each one dipping into the common kettle with the common spoon, usually a huge wooden ladle. When meat is served, it is often dished out in tin plates obtained from the traders. Once fed, the pipes are brought forth, and the place of the newcomers as guests in the camp is irrevocably established.

Life in the camps is cool, clean, and pleasant. The breezes sweep through the lodges beneath the thatched roofs, and the camps

are usually as neat as possible. Often in the morning the Indians may be seen raking the village square clean. Little refuse is to be seen about, for while the Seminole throw the bones and scraps from their meals about promiscuously, the wandering dogs and pigs soon make away with them. It is not always pleasant, however, to have several litters of pigs lying at night beneath the sleeping platform, making indescribable noises. Even the Indians seem never to have become accustomed to it.



Photo. by Julian A. Dimock.

FIG. 21.—Littly Tiger.

Early in the morning one is usually awakened by the thump, thump, thump of the women pounding corn, the squealing of pigs, and the crowing of roosters. After a hearty breakfast the men take their rifles and depart, some to hunt, some to cultivate their cornfields, and others to spear turtles and fish. Thus the camps are deserted by the older males during most of the daytime.

In our journal there is a description of the first village visited, which is typical of all that were afterward seen. "As we traveled through the cypress . . . we came upon a well-marked trail, about three feet broad, and here dug out for the easier passage of canoes.

After a short journey we saw the yellow glint of the palmetto-thatched lodges of an Indian village. As we drew near, the effect was charming. On a little "hammock," or meadow island, surrounded by dark cypress trees that stood in the glass-clear water, were clustered eight or ten Seminole lodges. The palmetto fans with which they were thatched had faded from green to old gold in color, and above them the sky formed a soft background. Some naked Indian children, who had been playing and bathing in the water near the trail, saw us and splashed screaming into the camp at our approach. One little girl carried on her brown back a baby



FIG. 22.—Seminole house.

brother nearly as large as herself. Several great gaunt dogs came bounding to the water's edge to greet us with their hoarse barking.

"We halted our canoes, and Brown, our guide, pushed ahead in case of trouble, since he was personally acquainted with all the Indians in the neighborhood.[1] We were expected here, however, for this was Little Billy's camp, and the home of Charlie Cypress, a Seminole we had seen at Godden's Landing a few days before.

[1] At some of the camps we were met by armed warriors who were decidedly menacing until Brown, who had their confidence, was able to persuade them that we were neither of their most dreaded enemies—Government spies and missionaries.

"No sooner had we landed than we were invited to come over to the guest house, the largest lodge in the village, and partake of 'sofki,' a sign that we were welcome. Brown explained that it was the invariable custom of the Indians to offer food to strangers whom they approved, and that, once we had tasted it, we would be considered as the guests of the camp.

"This village [like all the others that we saw during our sojourn in the Big Cypress and the Everglades] is situated on a hammock, or meadow island. As the hammocks are never very large, the village is of no great size. The houses are built around the edge of the land, not far from the water, with an open area, in this case roughly rectangular in shape, in the middle. In the center of this space is the cook-house (fig. 23), in which a fire is constantly burning. It is kept up in a curious way. Large cypress logs are cut and laid under the cook-house, radiating from a common center like the spokes of a wheel. At the 'hub' the fire is lighted, and as the wood burns it is constantly shoved inward and hence never needs to be cut into short lengths. At this fire, the only one in the camp, the women cook for the entire village.

"One of the houses of the village (usually the largest one) is reserved for eating, and here food, generally sofki, venison, biscuits or corn-bread, and coffee, is always ready for the hungry. Twice a day, in the morning and evening, the Seminole have regular meals, but eating between times is a constant practice.

"At meal-time the men and boys enter this common lodge. Under the pent roof of thatch are arranged several platforms, raised a few feet from the floor by means of stakes driven in the ground, and entirely independent of the supporting beams of the house. The largest of these scaffolds is the dining table, and on it squat the Indians about the sofki bowl. A huge wooden ladle projects from the steaming brew, and one by one, beginning with the chief or oldest man of the camp, they dip out a ladleful. An ordinary Seminole spoon contains enough to satisfy a white man, and it usually forces the Indian to sip several times before he replaces the ladle and lets the next man have his inning. . . . After the men and boys have eaten, the women and girls take their share.

"Every eating-house is also used as a guest house. Strangers or visitors arriving at a camp go directly to this lodge, and food is brought them at once by the women. When they have eaten, or while they are doing so, the men come over and question them, if they are strangers, as to their purpose in coming to the camp. If they appear to be friendly, they are allowed to remain in the eating-house as long as they stay in camp."



FIG. 23.—Seminole cook-house.

Beadwork.—Beads are woven into belts, fobs, and garters None sewn on skin or cloth were seen. The belts are of two kinds—those worn around the waist, which are furnished with a set of long, trailing tassels at the ends and middle, and those worn over the shoulders, which have tassels only at the ends. They are woven either entirely of beads on a thread foundation, or largely of yarn with a few beads mixed in. The designs are often symbolic, but the only meanings that could be obtained were: (1) diamond-back rattlesnake, (2) "ground" rattlesnake, (3) everglade terrapin, (4) terrapin spear-point. The beads are woven on small plain heddles, made of split palmetto ribs. The beaded garters are

similar to those of the more northerly tribes and are worn bound around the outside of the leggings below the knee. A photograph of one pair was seen in possession of Charlie Tigertail, but no others were heard of.

Tanning.—In preparing deerskin leather, the hide is first dried in the sun until it is stiff and hard; it is then thoroughly soaked in water and wrung out by passing it about a tree, tying the ends

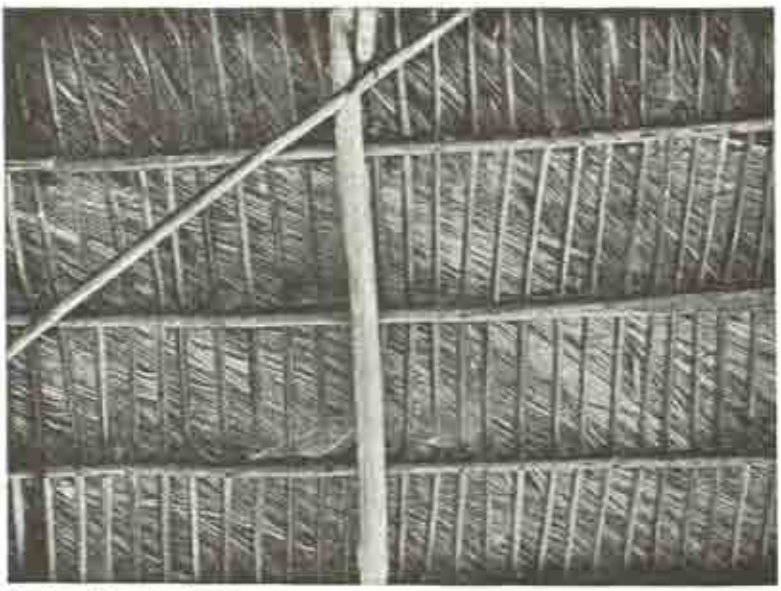


Photo. by Julian A. Dimock.

FIG. 24.—Palmetto thatch, from within.

together, and running a stick through the knot to afford better leverage while wringing. While the skin is still damp it is thrown over the smooth upper end of an inclined log set in the ground, and the hair is scraped off with a beaming tool. While the skin is drying, it is rendered pliable by rubbing it over the edge of a spatula-like stick set up in the ground. Next deer brains are mixed with water until the liquid is thick and soapy, and the skin is then soaked therein. Great pains are taken to saturate the hide thoroughly; it is then wrung, soaked again and again, and dried. Sometimes this ends the process, when the skin is dyed a deep reddish

brown by the use of oak-bark and is used without further preparation. Usually, however, the leather is finished by smoking. The skin is sewed up in bag-like form and suspended, bottom up, from an inclined stick. The edges are pegged down about a small hole in which a smoldering fire burns. The smoke and fumes are allowed to impregnate the hide thoroughly, and then the tanning is completed.

The Seminole prepare brains for preservation by smearing them over long wisps of Spanish moss, and allowing them to dry. These brain-cakes, which are molded in circular form, with a hole in the center, are suspended in quantities from every cook-house, and have the quaint appearance of festoons of doughnuts. Deer and pig brains are most commonly used for tanning, but bear brains are considered the most valuable.

Religion.—The Seminole believe that the souls of the worthy dead go to an abode where existence is ideal, where social dances, feasts, and ball games are held uninterruptedly; but those whose earthly existence has not been above reproach are doomed to destruction. The souls must pass over a long trail from the world to the sky country. This journey requires four days, and a number of tests, consisting of tempting food placed at intervals beside the path, are encountered. If the ghost partakes of any of this food, some unknown misfortune will overwhelm it. At length the wanderer arrives at a river, over which a slippery log gives access to the village of the blessed. The bridge is guarded by a dog, and if the wayfarer has led an evil life, the animal shakes the log and hurls the unfortunate being into the stream, where it is devoured by an alligator or a great fish. The writer has collected data similar in almost every detail from the Menomini of northern Wisconsin and the Seneca of New York.

The Seminole carefully secrete their cemeteries in places remote from intruders. So far as could be learned there are no cemeteries of considerable size, only a few isolated graves on scattered hammocks. Perhaps two or three graves may be grouped together occasionally, but this is not the rule.

In disposing of the dead, the corpse is laid on the ground with its head toward the west. It is covered with a rude pile of cypress

logs crossed over it. Food, and kettles, weapons, and other objects are placed beside the body, and the whole is roofed over with palmetto thatch. A fire is kept beside the cairn for four nights after the burial, in order to provide light and warmth for the spirit of the deceased on its sky journey. If a death occurs in a village, the camp is deserted, and clusters of abandoned shacks may sometimes be found, lonely witnesses to this costly custom. Often the Indians return after six months or a year and burn the village. The white "crackers" say that when the Indians residing in a permanent village believe a man is dying, they carry him outside the village to die in a lodge hastily erected for the purpose, and thus avoid the necessity of moving camp to escape misfortune. Because the dead are buried with their heads to the west, the Seminole always sleep heading in the opposite direction, for fear of ill luck. The writer was repeatedly warned by Indian friends to turn around, when lying with his head to the west.



FIG. 25.—Dugout canoe, showing peculiar bow so made to pass through the sawgrass.

Silversmiths and their Work.—In common with all the Eastern tribes, the Seminole are very fond of silver ornaments, most of which they make for themselves. This jewelry is neither as elaborate nor as handsome as that made by more northerly tribes, nor does it have much variety in form. Head or turban bands, spangles, crescents, earrings, and finger-rings are the forms observed and collected. The process of manufacture and the tools employed are simple. To make a spangle, a coin is heated in a small fire;

it is then removed with a pair of pincers and hammered out with an ordinary commercial hammer. The poll of an axe driven into a log serves the purpose of an anvil. The process of alternate heating and pounding are repeated again and again until the coin has been flattened out considerably and the design effaced. One smith observed at work greased the coin from time to time as he heated it. After it has been heated and hammered to the satisfaction of the smith, the spangle is pared down with a butcher-knife or a razor-blade until it has been reduced to the desired degree of thinness.



Photo. by Julian A. Dimock.

FIG. 26.—Pounding corn with pestle and mortar.

In this state the blank form is sometimes decorated with a design incised with a file or a knife-blade. Any irregularities are filed off and the trinket is polished on a whetstone. Sometimes the designs are cut out with a cold-chisel and finished with a knife. Holes for sewing the bangle to a garment are made by driving a nail through the metal and smoothing the edges with a knife.

This process of silverworking was observed on two occasions, and there was but little difference in the tools or in the manipulation of the smiths. Antler prongs are used as punches to make raised lines and bosses, and the only other tool which was seen or collected,

besides those described, was a crude blow-pipe used in the manufacture of the plain finger-rings which are much worn by the Indians.

Houses.—The typical Seminole lodge is a pent roof of palmetto thatch raised over several platforms on which the occupants sit or recline. There are no sides, since the Everglades and the Big Cypress are so far below the frost-line that the atmosphere is rarely cold, and the protection from the rain afforded by the closely thatched roofs with their wide projecting eaves is all that is necessary.

The lodges average fifteen feet by twelve, but they vary greatly in size. They are made of cypress logs nailed or lashed together. A few houses have a raised floor throughout, giving the appearance of a pile-dwelling.



Photo. by Julian A. Dimock.

FIG. 27.—Wooden ball-sticks in use.

Food.—Those bands of Seminole residing on or near the edge of the upland and in the Big Cypress depend very largely on game, principally deer and wild turkey, for meat. The Everglades bands, on the other hand, utilize turtles almost entirely. Corn, squashes, sugar-cane, and a few bananas are raised. Usually the home hammock is not big enough to accommodate both village and cornfield, hence the crops must be produced on some other island, often a day's journey or more distant. The method of cultivation followed is primitive. The trees are killed by girdling, so that the sun shines through when the leaves have fallen. Then the ground is broken with a hoe and the crops planted. These are casually tended from time to time thereafter.

Most meats are boiled, but turtles are not infrequently roasted before the fire. The Indians seldom take the trouble to kill the unfortunate reptiles before commencing to prepare them

for food—they merely cut off the plastron and butcher the animal alive and kicking, when it is set up before the fire and roasted in its own oven. Corn is eaten green, or boiled or roasted on the cob, or else dried and pounded into meal with mortar and pestle. The meal is first sifted through an open-mesh basket and then winnowed by being tossed into the air, the breeze carrying away the chaff, while the heavier, edible portion of the corn falls back into the flat receiving basket. In this condition the meal is mixed with water and boiled to make sofki. This is the name applied primarily to this corn soup, of which, in addition to the kind mentioned, there is fermented or sour sofki, and soup made from parched corn, which is by far the most savory of the three. In parching corn, the kernels are placed in a kettle, the bottom of which is covered thickly with sand. The grains are stirred in the sand to keep them from burning. When sufficiently parched, the corn is crushed in a mortar, and, with the occasional addition of sugar, makes a delicious food. A little of the meal is sometimes added to water for use as a cooling drink.

Social Organization.—Very little was learned about the present social organization of the Seminole, except that there are still a number of exogamous clans with female descent. After marriage the man always goes to live in his wife's house. There are no longer any regular chiefs; the oldest man in each camp usually has the most authority. It is said that all births take place in shelters erected for the purpose, away from the village. The Seminole preserve the taboo against telling their names to strangers, and this, it is said, accounts for the fact that so many of these Indians are known by nicknames given them by traders. Negro slaves are still held by some of the Indians.

A considerable body of information might still be gathered from this primitive band, especially in regard to their material culture, but it is probable that for the details of their religion, tribal and social organization, mythology, government, and indeed all the subjective phases of their life, the more civilized Seminole now residing in Oklahoma would prove more easy of approach.

American Museum of Natural History
New York City

NOTES ON THE CHATINO LANGUAGE OF MEXICO

By FRANZ BOAS

WHILE engaged in an investigation of the Mexican dialect of Pochutla, Oaxaca, Mexico, for the International School of American Archæology and Ethnology, I had the opportunity to spend a few hours with a Chatino, and collected a little material which may be of interest, because it shows definitely that Chatino is a remote branch of the Zapotecan family and partakes of the very remarkable phonetics of that group of languages. I have not sufficient material to elucidate any one point of the phonetics or morphology of the language fully, and therefore must confine myself to a few disconnected remarks.

The language is spoken only in the district of Juquila. It is called by the people themselves Ča^{t}tinyo$^{n'}$. It is spoken, according to my informant, Ezéquiel Vásquez, in the following villages:[1]

First Dialect

*Juquila
*Yaitepec
*Temaxcaltepec
Teotepec
*Cuixtla
*Tiltepec
*Nopala
*San Gabriel Mixtepec
*Lachao (San Juan)
*Yolotepec (Santa María Yolotepec)
*Mialtepec (Santa María)
*Ixpantepec (San Francisco)
*Quiahije (San Juan)
*Ixtapan (Santa María)
*Zacatepec
*Panixtlahuaca (San Miguel)
Tepenixtlahuaca

Second Dialect

Tataltepec

Third Dialect

*Tlapanalquiahuil
Tlacotepec
Zenzontepec

[1] In the lists of places I follow the orthography of Dr Antonio Peñafiel, *División Territorial de la República Mexicana*, México, Secretaría de Fomento, 1904.

According to Eutimio Perez,[1] who bases his statements on the reports of the priests of the various villages, Chatino is spoken in the districts of Juquila, Juxtlahuaca, Teojomulco, and Yaitepec, in the following villages:

Juquila	Juxtlahuaca
*San Miguel Panixtlahuaca	Apaluapan
*Santa María Ixtapan	San Martín
*San Juan Quiahije	San Pedro
*San Francisco Ixpantepec	Santiago Jicayan
*Santa María Mialtepec	San Miguel Elotepec
*Santa María Yolotepec	San Cristóbal
*San Juan Lachao	San Juan
San Pedro Juchatengo	
Trapiche de Santa Ana	
Trapiche de Soledad	

Teojomulco	Yaitepec
San Lorenzo	*Nopala
Santiago	*Cuixtla
Santiago Minas	*Tiltepec
San Jacinto (Tlacotepec?)	*San Gabriel (Mixtepec)
Santa María	San Pedro
*Tlapanalquiahuil	*Tamaxcaltepec
	*Yaitepec
	*Zacatepec

The villages of the two lists that could be ascertained as identical are marked with asterisks.

The system of vowels of the Chatino is very rich. Every vowel is pronounced either with a full oral breath or with nasal breath with accompanying palato-lingual stricture, which produces a weak nasal twang. It closes with a free escape of breath or with a glottal stop. Furthermore, the vowels are long and short. It seems that *e* and *o* are always open. All these vowels have one of three pitch accents—either the low pitch, which is left here without diacritical mark; or the raised pitch, which I have indicated by ˊ; or, finally, the

[1] *Recuerdos Historicos del Episcopado Oaxaqueño*. Oaxaca, 1888.

rising pitch, which I have indicated by ¯. We have, therefore, a system of vowels which may be illustrated by the following scheme:



This series has been observed partially for the *a*, *e*, *i*, *o*, *u* series, but it is possible that the nasalized *a* group does not occur.

Besides these, vowels with whispered intonation occur, which are indicated here by superior position.

The system of consonants is marked by the rarity of labials. All voiced stops, particularly in initial position, tend to begin with the corresponding voiced nasal. The labial *b* has been found only in the exclusive first person plural pronoun *ᵐbare'*. Long consonants (expressed here by :) are quite frequent.

	Stops		Contin.	Affric.	Nasals	Trill	Laterals	
	Voiced	*Unvoiced*	*Unvoiced*	*Unvoiced*	*Voiced*	*Voiced*	*Voiced*	*Unvoiced*
Labials	*b*	—	—	—	—	—	—	—
Dentals	*d*	*t*	*s*	*š*, *č*	*n*	*r*	*l*	*ł*
Palatized dentals	*d·*	*t·*	—	—	*n·*	—	—	*l·*
Palatals	*g*	*k*	*x*	—	—	—	—	—
Labialized palatals	*gw*	*kw*	—	—	—	—	—	—
Palatized palatals	*g*	*k·*	*x·*	—	—	—	—	—
	y, *w*, *h*							

All the words in my list terminate in vowels.

The pronominal forms include singular and plural; and in the plural, inclusive and exclusive. The personal pronouns are in Chatino and Zapotec of Oaxaca.

	Chatino	Zapotec
I	*na²*	*na²*
thou	*nᵊuᵊrᵊi²*	*lii*
he	*nākuna²*	*la²we*
we, incl.	*nā²*	*la²no*
we, excl.	*ᵐbare²*	*la²do*
ye	*nąᵊ²*	*la²to*
they	*nᵊ²kwa²*	*la²kawe*

Possessive and predicative forms of the singular and inclusive plural are derived from the stem by modifications of the terminal vowel. The third person has the low pitch; the second person, raised pitch; the first person singular has the vowel nasalized, with low pitch; the inclusive, the vowel long and nasalized, with rising pitch. The terminal vowel always retains its quality as breathed or stopped vowel. The exclusive plural has the vowel long, with raised pitch and the ending *-wa*; the second person plural, the vowel long, with deep pitch and the ending *-ᵗwaⁿ'*; the third person plural, the same kind of vowel and the ending *-neᵗ*.

The nasalization of the first person changes *a* to *oⁿ*.

The pronouns may be emphasized by repetition of the independent pronoun, following the stem. In this case the exclusive takes the ending *-re*, the third person plural *-kwa*, thus completing the respective pronominal forms.

Examples of the possessive are the following:

	wife	father	brother	wife	heart	hand	house
my	*xᵃõⁿ'* (*naᵗ*)	*sĩ̄ⁿ'*	*tᵉᵗõⁿ'ᵗ*	*kuɬyoⁿ'ᵗ*	*tg·iⁿ'*	*yoⁿᵗ*	*naaᵗ'kiⁿ'*
thy	*xᵃõⁿ'* (*nᵉuⁿ'i*)	*stì'*	*tᵉᵗâᵗ*	*kuɬyõᵗ*	*tg·ì'*	*yâᵗ*	*naaᵗ'kì'*
his	*x·ᵒoⁿ'* (*nukwa'*)	*siᵗ*	*tᵉᵒaᵗ'*	*kuɬyoᵗ'*	*tg·iᵗ*	*yaᵗ*	*naaᵗ'kiᵗ*
our incl.	*xᵃȭⁿ'* (*naⁱ*)	*sĩ̄ⁿ*	*tᵉᵗȭⁿ'*	*kuɬyȭⁿ'ᵗ*	*tgɪ̄ⁿ'*	*yȭⁿᵗ*	*naaᵗ'kĩ̄ⁿ'*
our excl.	*xᵃõⁿ'ᵉwa(re)*	*sĩ̄'wa'*	*tᵉᵗᵉ'ɪ̂wa'*	*kuɬyõ̂'wa'*	*tg·ɪ̂wa'*	*yâ̂'wa'*	*naaᵗ'kĩ̂wa'*
your	*xᵃõⁿ'ᵗwaⁿ'*	*sĩ̄'ᵗwaⁿ'*	*tᵉᵗã̄'ᵗwaⁿ'*	*kuɬyõ'ᵗwaⁿ'*	*tg·ĩ'ᵗwaⁿ'*	*yã̄'ᵗwaⁿ'*	*naaᵗ'kĩ̄ᵗwaⁿ'*
their	*xᵃõⁿneᵗ* (*kwa*)	*sĩ̄'neᵗ*	*tᵉã'neᵗ*	*kuɬyõ'neᵗ*	*tg·ĩ'neᵗ*	*yã̄'ᵗneᵗ*	*naaᵗ'kineᵗ*

Examples of verbs are the following:

	sick	good	strong	to sit down	to see[1]	to speak	to go
I	*tᵉɪ̄ⁿ'*	*ɪ̄ᵗwɛⁿ'*	*tg·ilɔⁿ'ᵗ*	*tᵉkwɔⁿ'ᵗ*	*naaⁿ'ᵗ*	*kwɪⁿ'ᵗ*	*yᵉoⁿ'*
thou	*tᵉĩ'*	*ɪ̄ᵗwɛ̀'*	*tg·ilâ'ᵗ*	*tᵉkwâ'ᵗ*	*naâ'ᵗ*	*kwɛ̀ᵗ*	*yâ'*
he	*tᵉɪᵗ*	*ɪ̄ᵗwɛᵗ*	*tg·ilaᵗ'ᵗ*	*tᵉkwaᵗ'*	*naaᵗ'ᵗ*	*kwɪᵗ*	*yaᵗ*
we incl.	*tᵉɪ̄ⁿ'*	*ɪ̄ᵗwɛ̄ⁿ'*	*tg·ilõ'ᵗ*	*tᵉkwõ'ᵗ*	*naã'ᵗ*	*kwɪ̄ᵗ*	*yõ'*
we excl.	*tᵉɪ̄'wa'*	*ɪ̄ᵗwɛ̂'wa'*	*tg·ilõ'wa'*	*tᵉkwâ'wa'*	*naâ'wa'*	*kwɛ̂'wa'*	*yâwa'*
ye	*tᵉɪ̄'ᵗwaⁿ'*	*ɪ̄ᵗwɛ̂'ᵗwaⁿ'*	*tg·illã'ᵗwaⁿ'*	*tᵉkwã'ᵗwaⁿ'*	*naã'ᵗwaⁿ'*	*kwɪ̄'ᵗwaⁿ'*	*yã'ᵗwaⁿ'*
they	*tᵉɪ̄'neᵗ*	*ɪ̄ᵗwɛ̂'neᵗ*	*tg·illã'neᵗ*	*tᵉkwã'neᵗ*	*naã'neᵗ*	*kwɪ̄'ᵗneᵗ*	*yã'neᵗ*

[1] Here *a* does not change to *o*.

There is another form of the possessive, of which the following are examples.

na^{t}yo$^{n'1}$	mine (my property)	*na^{t}yə̃$^{n'1}$*	ours, incl.
na^{q}$^{n'1}$	thine	*na^{t}^{s}wa^{1}*	ours, excl.
na^{t}^{s}$^{n'1}$	his	*na^{tq}$^{n'1}$wa$^{n'}$*	yours
		na^{t}i$^{n'}$ne^{k}	theirs

It will be noticed that the only differences are in the first person singular and in the inclusive.

I have, according to the same type, the following nouns expressing parts of the body:

kwina'^{t}yo$^{n'}$	my meat, my flesh
klčo$^{n'}$yo$^{n'}$	my hair
i^{t}neyo$^{n'1}$	my blood
tx·u^{n}yo$^{n'1}$	my bone
klhi^{n}yo$^{n'1}$	my skin

This form is evidently identical with that of the object of the transitive verb, as is suggested by the following examples:

koho'i (nukwa') io$^{n'1}$	he will kill me	*^{s}y^{n}ho'i (nukwa') šə̃$^{n'1}$*	he will kill us, incl.
koho'i (nukwa') i$^{n'}$	he will kill thee	*^{s}y^{n}ho'i (nukwa') i^{n}bare'*	he will kill us, excl.
^{s}y^{n}ho$^{n'}$i i$^{n'}$	I shall kill thee	*^{s}y^{n}ho'i (nukwa') i^{nq}wa'$^{n'}$*	he will kill you
^{s}y^{n}ho'i (nukwa') i$^{n'}$	he will kill him	*^{s}y^{n}ho'i (nukwa') i^{n}ne^{k}kwa$^{n'1}$*	he will kill them

In the two transitive verbs *^{s}u'i* to have, *ho'i* to kill, the first persons have the first vowel nasalized, not the terminal *-i*.

In the compound verbs *ku^{s}ni'^{1}* to make some one eat *i^{t}ikltə̃$^{n'2}$* my nail is sore, only the terminal stem is inflected.

In the verb, classes may be distinguished like those of the Zapotec. I found the following prefixes of tenses:

		Present	Past	Future (to go to—)	Future (to come to —)
da^{1}	to do, to be	*n-*	*nga-*	*ša-*	
in·o$^{n'}$	to make	*di-*	*ga-*	*ša-, ku-*	—
š^{s}ne'	good	—	*nga-*	?	*ka-*
t·ka^{1}	well	—	*gwa n*	?	?

naã'tĩ²	weak	(*nt'ga-*)	*ngu-*	—	*ka-*
tn:yo^{n3}	tired	(*nt·ga-*)	*gwa ngwa*	—	*ka-*
tgila'	strong, hard	(*nt·ga-*)	*ngwa*	—	*ka-*
(nga)ta^{n1}	black	—	*ngwa*	—	*ka-*
ko²	dirty	—	*ngwa-*	—	*ka-, ntgka-*
t'e^{n}	heavy	—	*ngwa-*	—	*ka-*
kwo^{n3}	high	—	?	—	*ka-*
i^{4}i²	sick	—	*ngwa-*	—	*ka-*
ha²	to sleep	*l-*	*gway^{4}-*	*šay^{4}-*	*ka-*
lõ¹	to send	*nd-*	*gwa-, nga-*	*ša-*	—
l^{4}x·i²	it is lacking	—	*ngu*	*ša-, ku-*	—
t^{n}kwa¹	to be seated	*n-*	?	*?, ku-*	—
naa^{n1}	to see	?	*gwa-*	*ša-, ku-*	—
o¹	to drink	*nd-*	?	*?, ko-*	—
na¹	to hear	*nd-*	?	*šay^{4}-*	—
kwi²	to speak	*nd-*	*gway^{4}-*	*šay^{4}-*	—
ku¹	to eat	*nd-*	*gway^{4}-*	*šay^{4}-*	
kwi^{4}	to hang	*nd-*	?	?	
lõkwe^{n1}	to tremble	*nd-*	*g-*	?	
ha¹	to die	*ndi-*	?	—	*ka-*
			nkhwi he is dead		
ka'ti	to wish	*nd-*	?	?	?
škwa¹	to lie down	*n-*	*gwan-*	*ša-, ka-*	—
a¹	to go	?	*y^{4}-, y-*	*š^{4}-, š-*	— (see p. 81)
^{4}u'i	to have	*nd-*	*y-*	?	?
ho'i	to kill (see: to die)	?	*y^{4}-*	*šay^{4}-, ko-*	

Some adjectives (only those designating colors?) have the prefix *ng-*:

ngata^{n1}	black	*ng^{n}à¹*	red
ngatè^{n3}	white	*ng^{n}sĩ¹*	yellow

The prefix *nt'ga-* entered in the preceding list with some adjectives means "to become."

VOCABULARY

all men *kiliga'^{n}k·yu¹*
alligator *kwi²na'^{n}*
animal *ni^{n3}*
arm, shoulder *sku^{n3}*
banana *x·o^{n}wa'^{n}*
to be *nda¹*
black, I am *ngato^{n1}* (Zap. *naga'ɨ*)
blood *i^{n}ne* (Zap. *ɨn*)
bone *tx·u^{n}* (Zap. *njɨ'ɨa*)
boy *čũ¹* (Zap. *čaap¹*)
brain *tx·kwaki^{n3}*
to break (stick breaks) *k^{w}ča¹*
broom *kwã¹*
brother *i^{n3}a* (see also: sister)

care, take—*! n·a²d¹tu*^{n}
Chatino *ča³tinyo*^{n}
church *lā*^{3}
corn, Indian *nškwa*^{4} (Zap. *cũuba*^{4})
coyote *wo*^{n} (borrowed from Zap. *we'u*^{4})
deer *kwin·o*^{4} (Zap. *vĩjl'n*)
to defecate *čũ*^{n3}
to die *ka*^{3}
dirty *ku*^{3}
dog *cũni*^{n4} (Zap. *vũik'*)
to drink *o*^{3}
ear, my *nčgo*^{n} (Zap. *dia'ɣa*^{4}, my —)
to eat *ku*^{4}
  to make some one eat *ku³ni*^{n}
extended *ča*, in *čal·u'*, extended soil, i. e. country.
eye, my (*ki*)*lo*^{n4} (Zap. *lo*^{n})
  face, my *t¹lo*^{n4} (Zap. *lo*^{n})
father *sti*^{3}
female *k·e*^{3}
  female animal *ni*^{n4} *k·e*^{3}
finger *cini ya*^{4}, i. e., fingers of hand (Zap. *bikwā'ni*)
  toes *cini ki'ya*^{n4}, i. e. fingers of foot
fire *kī*^{3}
fish *kwila*^{n} (Zap. *mbel, velt'*)
flesh, meat *kwina*^{n4} (Zap. *bi²là*)
flower *kè*^{3} (Zap. *yi*^{n4}, Tehuano *ng iē*^{3})
fog *kè*^{4}
food *ca³nt·ku*^{n4} (see: to eat *ku*^{4})
foot (*ki*)*yo*^{n4} (Zap. *nio*^{n} my—)
girl *cgwa*^{4}
to give *da*^{3}
to go *a*^{3}
good *Fwe*^{4}
hair, my (*ki*)*čo*^{n4} (Zap. *yīč*^{4})
  hair of my head *klčo*^{n4} *kè*^{4}
hand *ya*^{4} (Zap. *na'ya*^{4}, my —)
to hang *nd²kwi*^{4}
to have *y²u'i*, future *kaka*^{n}
head *kè*^{3} (Zap. *íg·a*^{n4} my —)
to hear *na*^{4}
heart *lg·i*^{n}
heavy *t¹e*^{n} (Zap. *na'an*)
hen *ktu*^{4}
  — laying *ktu'ina*^{n}
  — hens *ktu'kũtc*^{4}
high *kwo*^{n3}
house *nuà*^{n} (Zap. *yā*^{n}; *lĩja*^{4} my —)
  — *naà*^{n}*ki*^{n} house in which one lives
infant *kwi*^{4} (Zap. *vado'*^{n})
to kill (*yo*)*ko'i* see: to die *ka*^{3} (Zap. *ru³ti*)
knife *cil·u'* (borrowed from Spanish)
to be lacking *l²x·i*^{n}
land *yū*^{3} (Zap. *yu*^{4})
leaf *l:ku*^{4} (Zap. *valda'k*^{3})
to lie down *škwa*^{4}
light of weight *lša*
to live *ki*^{3}
to be lost *guna*^{n4}
to make *tn·o*^{n3}
male *kila*^{n}
  male animals *ni*^{n4} *kila*^{n}
man *ki²yu*^{n} (Zap. *nig·i'u*)
many houses *k·i'nda' naà*^{n}
meat *kwina*^{n4}
message, word *tlnyò*^{n}
moon *ko*^{4} (Zap. *veo*^{3})
mouse *tlnyo*^{n4} (Zap. *ⁿbisi'n·a*)
mouth, my *tu²co*^{n4} (Zap. *ru'a*^{4} my)
nail (of finger or toe), my (*ki*)*tò*^{n4}
neck *ini*^{n}
no *a*^{3}
nose *si*^{n}*ye*^{n} (Zap. *ci²ni, ci*^{4})
numerals:
  1 *ska*^{4} (Zap. for flat objects *čaga*)
  2 *tkwa*^{4} (Zap. *t·ōp*^{4})
  3 *šũna*^{4} (Zap. *čon:*^{n})
  4 *hakwa*^{4} (Zap. *tap*^{4})
  5 *ka²yu'* (Zap. *ɣa²y*^{n})
  6 *sũkwa*^{n4} (Zap. *çō*^{n}*p'*)[1]

[1] *ç* is *c* with medial palatal stricture, resulting in the phonetic impression of a *c* and accompanying medial palatal continuant, as in Mexican *x*.

7 *kati'* (Zap. *ɣaa'č*)
8 *sunú'*^{n} (Zap. *ɕon:*)
9 *ka'* (Zap. *ɣa'*)
10 *ii*^{n} (Zap. *ǐi*^{n})
11 *iička'*
12 *iiix·kwa'*
13 *iičúna'*
14 *iix·úkwa'*
15 *ii*^{n}*yu*^{n}' (Zap. *činy*^{n})
16 *ii*^{n}*yu*^{n}*cka'*
17 *ii*^{n}*yu*^{n}*čkwa'*
18 *ii*^{n}*yu*^{n}*čuna'*
19 *ii*^{n}*yu*^{n}*x·akwa'*
20 *kala'* (Zap. *kale*)
Patricio *ti'ču* (first syllable probably dropped out on account of rarity of labials)
people *ne*^{n}
assembly of men *ne*^{n}*k·u'*
assembly of women *ne*^{n}*k*^{n}*naà*^{n}'
pineapple *ču*^{n}
prairie, plain *n*^{n}*ti*^{n}
property (*na*^{n}) *i*^{n}'
prostitute *koe'*^{n}
rain *i·ō*^{n}
red (*ng*^{n})*à*^{n}
reverential *n:i* that lady or gentleman
rooster *lakwe'*
sea *tũxoo*^{n}
to see *naa*^{n} (Zap. *gwe*)
to send *lō'*
sick *ti'*, *tat'i*^{n}
sickness *k·ča*^{n} (Zap. *k*^{n}*cu*)
sister, my *i*^{n}*ona'*^{n} *nok*^{n}*naà*^{n}'^{n}, i. e. my female brother
to sit *i*^{n}*kwa*^{n}
skin (*ki*)*hi*^{n}
to sleep (*y*^{n})*ha*^{n}
sleepiness *skaìà*^{n}
snake *kwina*^{n} (Zap. *te*^{n}*li'*, Tehuano *mbe*^{n}*nda*)
soil *i·u*^{n} (Zap. *k·ǐ*^{n}*i·n*^{n} land)
son *sin:ye'*^{n} (Zap. *ĩ*^{n}*ngã'na* my—)
daughter *sin:ye'*^{n}*sk*^{n}*naà*^{n}'^{n} i. e. female son
soon *b*^{n}*ra* (Spanish *ora*)
sour *ĩù*^{n}
to speak *kwi*^{n}
to stand *ndu*^{n}'
star *kwllakwĩ*^{n}'
stick *x·kà'* (Zap. *yãg'*)
stone *ke'* (Zap. *g·ĩ'e*)
strong *tgila*^{n}'
sugar cane *lx·ga* (see: stick)
sun *k*^{n}*ĩà'* (Zap. *gubĩ'*^{n}*ĩ*)
to talk *ča*^{n} (*ča*^{n}*tinyu*^{n}^{n} Chatino language, perhaps from *ča*^{n} to talk, *tinyu'*^{n}^{n} words)
tejón (?) *tiłu'*^{n}
then *kwà*
tired *in·u*^{n}^{n} (Zap. *ñĭuɣa*)
to *i*^{n}'
tomb *kwã*
tongue *łle*^{n}
tooth *i*^{n}*yu*^{n}
to tremble *łõkwe*^{n}^{n}
tzopilote *cu*^{n}
very *tu*^{n}*a*^{n}
water *tia*^{n} (Zap. *ni'*^{n}*za*)
weak *naa'*^{n}*li*^{n} (person)
(*ng*^{n})*naa*^{n} (objects)
well *i·ka*^{n}
white (*nga*)*łù*^{n}' (Zap. *nigĩ'ĩ*)
wife *kuł·o*^{n}'
— *x·u*^{n}*e*^{n}'
wind *kwe*^{n}*é*^{n}' (Zap. *mbĩ*)
to wish *ka'ti*^{n}
with *i*^{n}*o*^{n}' (treated as noun)
wolf *kwà*^{n}
woman *kunaà*^{n}^{n} (Zap. *ngã'na*^{n})
yellow (*ng*^{n})*łi*^{n}' (Zap. *nuɣa'*^{n}*ĩe*)

Following is a short text with interlinear translation:

Šõ^{n}	*ngatn·o*$^{n'}$	*ndio'si'*	*čal'u''*	*ngada''n:i*	*ča*^{x}	*nd·ku''*	*i*^{n}	*kiligа'*^{s}
When	made	God	the world	he gave (reverence)	to	eat	to	every

ni$^{n'}$	*nĩ*^{x}*u'i*	*čal·u''*,	PERO	*ngul*^{i}*x·i'*^{s}	*nekĩ*^{x}*yu''*.	*Bra*	*ko*$^{n'}$^{t}	*nekĩ*^{x}*yu''*
animal	had (existing in)	the world,	but (Spanish)	was absent	the man.	Then	when (Sp. *ere*)	the man

ya'	*x·kwi*^{x}*ne'*^{t}	*ɪɒ'ndio'si'*	*ča*^{x}	*k*^{n}*da''n:i*	*ča*^{x}	*nd·ku''*	*i*^{n}*nc'*^{t}.	*ndio'si'*
went	to speak	with God	that he should give (reverence)		to	eat	to them.	God

bra ko$^{n'}$^{t}	*ngalõ''*	*tinyo*$^{n''}$	*ča*^{x}	*nekĩ*^{x}*yu''*	*ku'ne*^{x}	*lo'*	*ča*^{x}*i'u'*.
then	sent	the order	that	man	should eat	in	this world

i^{nx}*ane*^{t}.
his brothers.

COLUMBIA UNIVERSITY
NEW YORK CITY

ANTHROPOLOGY AT THE CLEVELAND MEETING, WITH PROCEEDINGS OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION FOR 1912

By GEORGE GRANT MACCURDY

THE annual meeting of the American Anthropological Association was held at the Case School of Applied Science, Cleveland, Ohio, December 30, 1912, to January 2, 1913, in affiliation with Section H of the American Association for the Advancement of Science and the American Folk-Lore Society. In the absence of President Fewkes, Drs Dorsey, Wissler, and MacCurdy each presided at the various sessions. President Lomax of the Folk-Lore Society was also absent, his place being taken by Dr Charles Peabody, who read the presidential address.

Section H

Members of the sectional committee present: G. T. Ladd, E. L. Thorndike, W. V. Bingham, G. G. MacCurdy.

Officers for the Cleveland meeting were named as follows: Member of the Council, Dr Clark Wissler; Member of the General Committee, Dr Charles Peabody. Sectional offices were filled by the nomination, and election by the General Committee, of Professor W. B. Pillsbury, University of Michigan, as Vice-President for the ensuing year; Professor George Grant MacCurdy, Yale University, Secretary, to serve five years; and Professor R. S. Woodworth, Columbia University, Member of the Sectional Committee, to serve five years.

The question of a change of name from Section H, Anthropology and Psychology, to read "Section H, Anthropology," raised at the Washington meeting, came up for discussion, and the Sectional Committee recommended that the name remain unchanged for the present.

American Anthropological Association

Members of the Council present were: G. A. Dorsey, G. G. MacCurdy, C. Wissler, R. H. Lowie, C. Peabody, E. Sapir, and B. Laufer.

Report of the Secretary.—There has been no meeting of the Association or of the Council since the annual meeting in Washington, the report of which was published in the *American Anthropologist* for January–March,

1912. The President, however, called a meeting of the Executive Committee which was held in the office of Dr Clark Wissler, American Museum of Natural History, New York, October 31, 1912, President Fewkes presiding.

Members present: Fewkes, MacCurdy, Hyde, and Hodge (ex officio), and Goddard; also by invitation the local members of the Council: Boas, Wissler, Lowie, Spinden, Heye, and Pepper.

The Secretary presented a communication from the organizing committee of the International Congress of Historical Studies, inviting our Association to nominate a delegate or delegates to attend the Congress; and was instructed to write to our British members, Miss Breton and Mr E. Sidney Hartland, asking if they would be willing to serve.

The Chair appointed a committee of three (with power to add to its numbers) to ascertain the best agencies and to suggest what part, if any, the Association should take in the preparation of a complete Americanist Anthropological Bibliography, the committee to report to the Council. Boas, Hodge, and Lowie constitute this committee.

On motion of Boas it was voted that the Association contribute the sum of $25 toward clerical expenses that may be incurred by Mr Marett as secretary of the organizing committee of the prospective International Congress of the Anthropological Sciences, provided this can be done without creating a deficit for the year 1912.

Voted that the President call a special meeting of the Council in 1913 to be convened before the first of May.

GEORGE GRANT MACCURDY, *Secretary*.

The annual loss by death is a serious one, including as it does Henry W. Haynes and W J McGee. The death of A. T. Sinclair occurred in 1911, but was reported to the Secretary too late for insertion in the last report.

Henry W. Haynes died at Boston on February 16, 1912. Professor Haynes early became interested in the greater antiquity of man in Europe and Egypt as well as his own country. His important prehistoric collections were bequeathed to the Peabody Museum of American Archæology and Ethnology, Cambridge, Mass.

The obituary of W J McGee was published in the last issue of the *American Anthropologist*.

The annual growth of the Association has been substantial, but not so satisfactory as it would be were all our members to coöperate by send-

ing new names to the Secretary. Applications for membership,[1] twenty-eight in number, are herewith submitted for your action, as follows: Dr T. Barbour, Theodoor de Booy, C. E. Brown, D. I. Bushnell, Sr, A. S. Cale, G. Engerrand, E. C. Erdis, J. S. Faulkner, R. D. Ferron, G. H. Fountain, Miss B. Freire-Marreco, Dr A. A. Giesecke, Dr F. A. Glasgow, E. Ralston Goldsborough, E. W. Hawkes, P. Henning, W. E. Kane, G. S. Mepham, W. H. Miner, Missouri Historical Society, F. Neumann, M. Parmelee, A. J. Read, C. Scudder, Jr, Miss C. van Steenwyk, R. F. Walker, R. T. Weitlauer, G. F. Will.

The Secretary has represented the Association at the annual meeting of the American Year Book Corporation, and has been a contributor to the *Year Book* for two years (1911 and 1912). Although not regularly accredited as a delegate from this Association to the International Congress of Americanists held in London May 27–June 1, and the International Congress of Prehistoric Anthropology and Archæology held in Geneva, September 9–14, the Secretary attended both of these congresses and has sent official reports of them to our journal, the *American Anthropologist*.

The report of the Secretary was accepted and ordered printed.

Report of the Treasurer.—In the absence of Mr B. T. B. Hyde, Treasurer, his report was read by Professor MacCurdy. It was accepted and referred to an auditing committee (Wissler and Lowie).

RECEIPTS

Balance from 1911		$ 366.25
From Anthropological Society of Washington, for *American Anthropologist:*		
Vol. XII, no. 4	$ 65.79	
Vol. XIII, " 1	59.97	
Vol. XIII, " 2	66.36	
Vol. XIII, " 3	70.09	
Vol. XIII, " 4	71.71	
Vol. XIV, " 1	54.79	
Vol. XIV, " 2	57.76	
Extra copies	27.61	474.08
From American Ethnological Society, for *American Anthropologist:*		
Vol. XIII, no. 3	$ 61.04	
Vol. XIII, " 4	61.04	
Vol. XIV, " 1	36.55	
Vol. XIV, " 2	32.16	
Extra copies	9.74	200.53

[1] Full addresses are given in the list of members printed elsewhere in this issue.

From American Folk-Lore Society:			
One-half cost of Periodical Literature for *American Anthropologist* and *Journal of American Folk-Lore* for 1911	93.67		
Seven-twelfths cost of *Current Anthropological Literature*, published by American Anthropological Association and American Folk-Lore Society, Vol. I, no. 1	167.45	261.12	
Annual dues		1,430.68	
Annual subscriptions to *American Anthropologist*		594.69	
Sale of back numbers and extra copies of *American Anthropologist*		145.88	
Authors' reprints (at cost)		76.17	
Sale of *Memoirs*		16.32	
Publication fund		219.00	
Special fund for Editor's expenses		1,875.00	
Subscriptions to *Current Anthropological Literature*		27.70	
TOTAL			$5,687.42

EXPENDITURES

For printing, binding, and mailing *American Anthropologist:*			
Vol. XIII, no. 3	$376.71		
Vol. XIII, " 4	520.55		
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CLARK WISSLER,
ROBERT H. LOWIE,
Auditing Committee.

January 11, 1913.

Report of the Editor

Three numbers of Volume 14 of the *American Anthropologist*, for 1912, have been published, and the fourth number is in the hands of the printers. The completed volume will contain thirty-one general articles, in addition to the usual discussion and correspondence, anthropologic miscellanea, the proceedings of the American Anthropological Association, etc. The aggregate number of pages will be 719. The volume will contain thirty-eight plates and sixty-nine figures.

No parts of the *Memoirs* have been issued during the year, but it is expected that a way may be found to publish at least one number during 1913, thus completing Volume 2 of this series.

The editorial work has been made far less arduous than during previous years owing to the generosity of our Treasurer, Mr B. T. B. Hyde, who, in accordance with his liberal offer to the Association at the Washington meeting, has enabled the editor to employ a proofreader, to bear the cost of preparing certain drawings and photographs for illustration, and to meet the incidental expenses of the editorial work, such as stationery, postage, clerical assistance, expressage, etc., without direct charge to the treasury of the Association.

The editor wishes to express his appreciation of the constant and ready aid afforded by his associates, Dr John R. Swanton and Dr Robert H. Lowie, which has added so materially to the success of our journal.

F. W. Hodge,
Editor

Report of the Editors of "Current Anthropological Literature"

From the time of its foundation at last year's annual meeting there have appeared two numbers of *Current Anthropological Literature*, representing a total of 176 pages. The third issue is in galley proof, and the sheets will soon be returned to the printers for paging.

According to agreement between the two editors appointed at the Washington meeting, "Periodical Literature" remained under the supervision of Professor Chamberlain, while the section on Reviews and the general management of the new journal were entrusted to Dr Lowie. The managing editor wishes to express his appreciation of the help repeatedly and ungrudgingly given by Mr F. W. Hodge, whose long experience in editorial matters enabled him to give advice on many practical difficulties that stood in the way of the success of the new publication.

Acknowledgment is also due to the writers of reviews and especially to those who have generously sent in voluntary contributions on works that had not been received by the editors but were too important to be ignored in a review publication.

Unfortunately the managing editor has not yet succeeded in bringing to terms reviewers who accept works for review and then do not furnish the promised notice, sometimes for years. The editor has followed Dr Swanton's advice and kept a check-list of works sent in. He feels very keenly his responsibilities to the publishers and authors who furnish books for review, and has in some instances written three times to the would-be reviewers. Nevertheless, there does not seem to be any remedy beyond that of furnishing double reviews of the same work—one to be written by editors or some one directly under their control and giving a superficial notice that shall satisfy the publisher, and a second thoroughgoing account to be penned, if possible, by a specialist in the field dealt with. The editors invite discussion and advice on this important question and on the suggestion just made.

So far as the scientific conduct of *Current Anthropological Literature* is concerned, the aim of the editors has been to secure absolutely fair and at the same time fearless expression of opinion on new works from the modern scientific point of view. This is especially desirable in a relatively new science like anthropology, where the principles of scientific method have not yet permeated all collaborators and need to be constantly emphasized, not only for the benefit of professional students, but also for the large body of outsiders who often enough make noteworthy contributions but are hampered by the popular fallacies of what might be called "folk-anthropology," to expose which seems one of the worthiest aims of *Current Anthropological Literature*. A specific recommendation which the managing editor would like to make is that properly qualified students should furnish reviews not merely of individual books but of the progress made in certain large fields during a certain period, say the last two or three years. Such résumés are common in the German psychological journals, and the articles contributed to the *American Anthropologist* by Professor MacCurdy and dealing with progress in European archeology indicate the type of contribution here suggested. Corresponding summaries of what has been achieved in physical anthropology, in the wider problems of linguistics, in the study of social organization and of the several large ethnographic areas, would do much to break down the bulkheads that confine the individual worker under the present pressure of specialist work.

Finally, a few words should be devoted to the financial side of our publication. From an unofficial statement by the Treasurer of the American Anthropological Association it would appear that the cost of issuing *Current Anthropological Literature* as a joint publication of the Association and the American Folk-Lore Society is considerably greater than the cost of publishing the review and periodical literature section of the *American Anthropologist* and the *Journal of American Folk-Lore* separately. The reason for this difference, however, is not at all clear. Taking the last three years' issues of the *American Anthropologist* preceding the foundation of *Current Anthropological Literature*, we find an average yearly output of 765 pages, of which about 164 pages were devoted to book reviews, lists of new publications, and periodical literature. During the same years the average output of the *Journal of American Folk-Lore* was 470 pages, but as in 1909 Periodical Literature was omitted, we can consider only the output for 1910 and 1911, which averages 479 pages, and 129 pages for review matter. The total amount of this matter in both journals was thus 293 pages. This, however, includes material duplicated in both journals by arrangement between the two publishing organizations, so that the actual output of original material is reduced to 164 pages. The total number of pages in the two numbers of *Current Anthropological Literature* is 176 pages, on which basis the annual size would be 352 pages. The difference is thus 188 pages annually, and it should be noted that had the publication of reviews remained under the old system a considerable increase of the space to be devoted to reviews would have been imperative. Moreover, the Editor of the *Journal of American Folk-Lore* has decreased the size of that publication by 76 pages in view of the fact that "Periodical Literature" is now provided for in the new joint publication.

Respectfully submitted,

ROBERT H. LOWIE,

ALEXANDER F. CHAMBERLAIN.

On motion of Dr Sapir it was voted to appoint a committee to prepare a scheme of phonetic representation which will have the official sanction of this Association. The Chair appointed Boas (chairman), Sapir, J. P. Harrington, Kroeber, and Goddard.

The Secretary was instructed to prepare a list of names of persons eminent in anthropology to be submitted with the view of election to honorary membership at the next meeting of the Association.

At a joint meeting of the American Anthropological Association and

the American Folk-Lore Society it was voted to refer two important questions to a joint council meeting of the two societies to be held in New York before April 1, 1913: (1) the naming of a place for the next annual meeting, and (2) whether or not the joint publication, *Current Anthropological Literature*, is to be continued for another year.

An invitation from James A. Barr, Manager of the Panama-Pacific International Exposition, 1915, to hold the annual meeting of our Association in San Francisco during the Exposition, was accepted provisionally ... that the Association voted to recommend to the next annual meeting that a meeting be held in San Francisco in 1915 during the Exposition period, the date to be agreed upon later.

Miss Adela C. Breton was designated as a delegate to the International Congress of Historical Studies to be held in London, April 3–9, 1913.

Drs G. A. Dorsey and Berthold Laufer were appointed to represent the American Anthropological Association on the Council of the American Association for the Advancement of Science.

Dr Dorsey appointed a Committee on Nominations, consisting of G. G. MacCurdy (ex-officio, chairman), C. Wissler, R. H. Lowie, and B. Laufer. The report of this committee was accepted, the election resulting as follows:

President: Roland B. Dixon, Harvard University.

Vice-President, 1913: George B. Gordon, University of Pennsylvania.

Vice-President, 1914: George A. Dorsey, Field Museum of Natural History.

Vice-President, 1915: Alexander F. Chamberlain, Clark University.

Vice-President, 1916: A. L. Kroeber, University of California.

Secretary: George Grant MacCurdy, Yale University.

Treasurer: B. T. B. Hyde, New York.

Editor: F. W. Hodge, Bureau of American Ethnology.

Associate Editors: John R. Swanton and Robert H. Lowie.

Editors of "Current Anthropological Literature": Alexander F. Chamberlain and Robert H. Lowie.

Executive Committee: The President, Secretary, Treasurer, Editor (ex-officio), and W. H. Holmes, Charles Peabody, and Pliny E. Goddard.

Council: F. W. Putnam, F. Boas, W. H. Holmes, J. W. Fewkes, A. F. Chamberlain, R. B. Dixon, G. B. Gordon, G. A. Dorsey, G. G. MacCurdy, B. T. B. Hyde, F. W. Hodge (ex-officio); W. C. Mills, H. Montgomery, C. B. Moore, W. K. Moorehead; C. Peabody, C. C. Willoughby, P. E. Goddard, T. Michelson (1913); Alice C. Fletcher, C. P. Bowditch, S. Culin, R. H. Lowie, C. Wissler, C. H. Hawes, E. Sapir, N. C. Nelson (1914); A. E. Jenks, S. A. Barrett, W. Hough, A. Hrdlička, A. L. Kroeber, A. M. Tozzer, F. G. Speck, A. A. Goldenweiser (1915), H. I. Smith, G. H. Pepper, W. C. Farabee, J. R. Swanton, G. G. Heye, H. J. Spinden, T. T. Waterman, B. Laufer (1916).

In the absence of the incoming President, Professor Roland B. Dixon, the following committees hold over:

Committee on Meetings and Program: G. G. MacCurdy (chairman), W. H. Holmes, Alice C. Fletcher, R. B. Dixon, A. M. Tozzer, F. W. Hodge, W. C. Mills, R. H. Lowie, A. Hrdlička, E. Sapir.

Committee on Finance: B. T. B. Hyde (chairman), G. G. MacCurdy, W. H. Furness, 3d, George G. Heye, Clarence B. Moore, C. P. Bowditch.

Committee on Publication: The names of the members of this committee appear on the third page of the cover of this number of the *American Anthropologist*.

Committee on Policy: Alice C. Fletcher (chairman), F. W. Putnam, F. Boas, W. H. Holmes, A. L. Kroeber, G. B. Gordon, J. W. Fewkes.

Committee on American Archeological Nomenclature: C. Peabody (chairman), W. K. Moorehead, H. I. Smith, Walter Hough.

Committee on the Preservation of American Antiquities: W. H. Holmes (chairman), E. L. Hewett (secretary), F. W. Putnam, J. W. Fewkes, Alice C. Fletcher, F. W. Hodge, G. B. Gordon, G. G. MacCurdy, S. Culin, W. C. Mills, S. Hagar.

Addresses and Papers

The address of the retiring Vice-President of Section H, Professor George Trumbull Ladd, on The Study of Man, is printed in *Science* of February 21, 1913. In the absence of President John A. Lomax of the American Folk-Lore Society, his address on Stories of an African Prince was read by Dr Charles Peabody. Some of the important papers read at the joint meeting are represented in this report by abstracts:

The Ceremonial Schemes of Certain Plains Indian Tribes: Clark Wissler

Anthropology being essentially a science of culture, one of its necessary concerns is the distribution of cultural traits. In the distribution of such traits we have a complex problem one of the first steps in whose solution is the description of each culture as found. The next and most interesting step is a comparative examination of these cultures. Were cultural traits all objective, this would be fairly simple, as is the case in many aspects of material culture; but many important traits are not very objective, especially those of a religious, ethical, and social nature. When we come to compare religious conceptions of certain Plains tribes, we find a peculiar difficulty. First we are struck by the apparent absolute differences and the absence of all exact parallels. On closer inspection, however, we do find many units or subordinate traits that are exact parallels. It became necessary, therefore, to develop methods of handling this comparative problem.

It was noted that some tribes seem to have definite ceremonial

schemes. The particular schemes for the Dakota, Blackfoot, and Menominee were outlined and characterized as general patterns according to which almost every ceremony was fashioned. The inference here is that if a tribe should take over a new ceremony the tendency would be to work it over into the tribal pattern. Examples of such making-over of borrowed ceremonies were cited. The suggestion, then, is that in the comparative study of these tribal ceremonies, allowance must be made for the deliberate change of pattern and evidences of contact sought in parallel units of a more detailed character.

Notes on Eastern Sioux Dances: Robert H. Lowie

The Santee, Wahpeton, and Sisseton, though differing somewhat among themselves, shared a number of dances with the Plains tribes to the west, where these dances are usually practised by military societies. Among the eastern Sioux, however, it is exceedingly difficult to determine whether the dances are performed by definite organizations or merely by a congregation of membership varying from dance to dance. The idea is prominent that some one individual, who has had a corresponding vision, must see to the performance of his particular dance, on pain of being struck by lightning if he failed.

Plate Armor in America, a Sinological Contribution to an American Problem: Berthold Laufer

The paper is chiefly intended as a contribution to the much-ventilated question of historical methods applied to ethnology. Plate armor in northwestern America and northeastern Asia was hitherto believed to be due to contact with Japan, and interpreted as having been made in imitation of iron plate armor. From two important passages occurring in the Chinese Annals it becomes evident that bone plate-armor existed among the Su-shên, a tribe of presumably Tungusian stock, in the first centuries of our era, and the conclusion is reached that such armor cannot have been made in imitation of Japanese plate-mail, which did not exist at that time. Also in China, Siberia, and Korea, iron armor is not very ancient and develops almost contemporaneously with bone armor, which, however, is older than iron plate armor. It is pointed out that plate armor occurred also in western Asia and other ancient culture-groups, contrary to previous opinions, so that the problem is not truly historical but rather amounts only to a technical question. The imitation theory, therefore, is highly improbable, and the independent origin of plate armor in the North-Pacific culture-group must be maintained. Japan has

never had any influence on the latter nor on American cultures, and American-Asiatic culture relations and exchanges must be studied in the light of the ancient ethnology and archeology of that region,—particularly northern Manchuria and Korea,—which remains to be reconstructed in the future.

The Development of Ancestral Images in China: Berthold Laufer

The object of this paper is to show that the so-called ancestral wooden tablets serving at the present time in China for the worship of ancestors have developed from a former and very ancient concept of anthropomorphic ancestral images. The present mode of worship is briefly described, and the coëxistence of tablets, conventional paper images, and portraits is pointed out. The development of family ancestral worship is traced to the times of antiquity and explained as having its origin in hero and clan-ancestor worship, in the cult of which stone and wooden images were employed. These were, in course of time, transferred to the individual family ancestors. After a clear distinction between gods and ancestors had been reached, the images were reserved for the gods, the conventional tablets for the ancestors who, under the influence of the growing democratic tendency of this institution, themselves became more and more conventionalized.

The Separate Origins of Magic and of Religion: James H. Leuba

Three types of behavior have been developed by man:

1. The Mechanical Behavior is the method of dealing with things. It implies a quantitative relation between cause and effect.

2. The Anthropopathic Behavior includes (*a*) the common relations of men and animals with each other, and (*b*) those of men with unseen beings. When these beings are gods, we have Religion. The desired results depend upon an agent endowed with intelligence and feeling.

3. The Magical or Coercitive Mode of Behavior, in which neither quantitative nor anthropopathic relations are involved. But Magic may be used upon a personal agent. In that case the agent is neither prayed to nor conciliated by offerings, but coerced.

Most of the varieties of Magic may be accounted for by the following principles of explanation:

(*a*) Playful prohibitions. "If you do *this*," say our children, "*that* will happen to you." The "this" and "that" have usually no logical connection. Playful prohibitions may be taken in earnest and acquire a magical significance.

(*b*) Threats of untoward happenings made for the purpose of preserving things vital to the life and prosperity of the tribe.

(*c*) The motive which leads people to make vows.

(*d*) The spontaneous response of the organism to specific situations. The magical dances probably had this origin.

(*e*) The deliberate treatment of certain situations according to magical principles, for instance, that like produces like. This source of magic is, of course, relatively a late one, since it presupposes that a principle of magical procedure has been disengaged from magical practices.

With regard to *the origin of science*, Leuba maintains against Frazer, that the ancestor of science is not the magical but the mechanical behavior. The essential presupposition of science is that definite and constant *quantitative* relations exist. The clear recognition of that proposition means, whenever it appears, the death of Magic and the birth of Science. This fact indicates the opposition of the magical to the scientific attitude.[1]

Man and the Glacial Period in Kansas: N. H. Winchell

The paper describes the topographic features of northeastern Kansas, relation of the continental moraine of the Kansan epoch, distribution of human stone implements with respect to the moraine and the terraces. It specially bears on the patination of the artifacts, as indicative of the glacial age of the agent that formed them, calling attention to the similarity of these specimens to European paleoliths, and enumerating the kinds of implements that carry the distinctive patination, pointing out the succession of cultural stages that preceded the Neolithic and illustrating the contrasts which they present when compared with the Neolithic.

Evidences of Man's Great Antiquity: George Grant MacCurdy

A brief summary of the author's work in Europe during last season and of the most important recent discoveries: the human remains of a very early type from Sussex; a Mousterian industry associated with a warm fauna (*Elephas antiquus, Rhinoceros merckii, Hippopotamus*) in the low (fourth) valley terrace at Montières, near Amiens; Torralba, an old camp site near the crest of the Sierra Ministra, Spain, where eolithic and paleolithic implements have been found intimately associated with the remains of *Elephas antiquus* (perhaps also *Elephas meridionalis*),

[1] See, for developments, parts I and II of Leuba's book. *A Psychological Study of Religion; its Origin, Function and Future*, Macmillan, 1912.

Rhinoceros etruscus, *Equus stenonis*, and two species of deer; the cavern of Castillo near Puente Viesgo, Spain, with its twelve relic-bearing horizons; Mousterian caves on the Island of Jersey; La Ferrassie, La Combe, and Laussel (Dordogne); and the newly discovered cavern of Tuc d'Audoubert (Ariège), with its wall engravings and figures of the bison modeled in clay. The paper was illustrated by numerous lantern slides, chiefly in color.

The Carayan, Caririan, Chavantean, and Guatoan Linguistic Stocks of South America: Alexander F. Chamberlain

Among the less well-known linguistic stocks of the South American Indians are the Carayan, Caririan, Chavantean, and Guatoan, the first three of which are entirely, and the last partially, within the area of modern Brazil.

1. Carayan. The present center of the territory of the Carayan linguistic stock is on the Rio Araguaya and its affluents in the Goyaz country, south central Brazil. The chief "tribes," or rather local divisions, of the Carayá are the Chambioa, the Javahé, and the Carayá proper, the last consisting of two "hordes," a northern and a southern. Our best authorities on the Carayan stock are Coudreau, Ehrenreich, von den Steinen, Kissenberth, and F. Krause, the most valuable material (a long Carayá vocabulary and one of over 100 words in Javahé) being found in Krause's *In den Wildnissen Braziliens* (Leipzig, 1911). Coudreau, in his *Voyage au Tocantins-Araguaya* (Paris, 1897), gives a Carayá vocabulary of 380 words. Older vocabularies are given in de Castelnau, von Martius, etc. The family name, Carayan, is derived from Carayá, an appellation by which these Indians have long been known. Krause (p. 187) says that the Carayá proper call themselves "kărăjá', kărădjá, and also krădjá."

2. Caririan. The territory of the Caririan linguistic stock originally included a considerable portion of eastern Brazil, in the provinces of Bahia, Pernambuco, and Piauhý, north, south, and west of Rio São Francisco. These Indians were Christianized in the middle of the seventeenth century, but at most a few hundreds now survive in the valley of the lower São Francisco. With the Cariri proper belong also the Sabuyá, who dwelt somewhat farther south. Our chief sources of information concerning the Carayan language, besides the older missionaries (Mamiami, de Nantes, et al.), are von der Gabelentz, Galvão, Platzmann (who have all republished or edited catechisms and grammars of the missionaries), Adam, Ehrenreich, and von den Steinen. A Sabuyá

vocabulary of more than 100 words is given by von Martius. The family name, Caririan, comes from the appellation of the northern section of this stock, which appears variously as Cariri, Caririí, Cayriry, Kiriri, etc. The etymology is unknown.

3. Chavantean. The territory of the Chavantean linguistic stock lies in the region of the upper Paraná and lower Parapanema (about 20° s. lat., 52° w. long.), in São Paulo, Matto Grosso, and Paraná (Brazil). These "Chavantes" (v. Ihering seeks to call them "Eo-Chavantes") are not to be confused with the Tapuyan "Chavantes," or "Akua," of Goyaz and Matto Grosso. The linguistic material of the Chavantean stock consists of two short vocabularies by T. M. Borba and F. R. Ewerton-Quadros, both of which are reprinted by Prof. H. von Ihering, our chief authority, in *The Anthropology of the State of S. Paulo, Brazil* (2d ed., S. Paulo, 1906). The family name, Chavantean, comes from "Chavantes" (the etymology of the word is uncertain), a term applied to several Indian peoples of this region.

4. Guatoan. The territory of the Guatoan linguistic stock includes part of the northern Chaco and the region about the confluence of the Paraguay and the São Lourenço, particularly the country about Lakes Gaiba and Uberabá. The Guiba have been visited and described by Kowslowsky (1894), Monoyer (1905), Schmidt (1900–1901 and 1910). Our chief authority is M. Schmidt, whose interesting book, *Indianerstudien in Zentralbrasilien* (Berlin, 1905), contains a section on word-formation, a long classified vocabulary, some sentences, etc. An older vocabulary of 160 words is reproduced in von Martius from de Castelnau. Schmidt's résumé of his expedition of 1910 is to be found in *Zeitschrift für Ethnologie* for 1912. The family name, Guatoan, comes from Guató (Vuató, Quató, etc.), the name by which these Indians have long been known. No satisfactory etymology is on record.

Material Relating to Californian Indians in E. Teza's Saggi Inediti di Lingue Americane (Pisa, 1868): Alexander F. Chamberlain

Professor Emilio Teza's *Saggi Inediti di Lingue Americane*[1] is so largely taken up with the consideration of South American Indian languages that the material therein relating to certain Indian peoples of North America seems to have been rather overlooked. Pilling, who, in his *Proof Sheets*,[2] cites Teza, observes (p. 754): "Mainly devoted to South

[1] *Saggi Inediti di Lingue Americane. Appunti Bibliografici.* In Pisa. Dalla Tipografia Nistri . . . MDCCCLXVIII (pp. 91).

[2] *Proof Sheets of a Bibliography of the Languages of the North American Indians.* Washington, 1885.

American languages; but contains a brief discussion and a few examples of Algonkin and Iroquois, pp. 14–22. Our Father in Tarasco, pp. 60–62." Through the courtesy of the Library of the University of Pennsylvania, Chamberlain has been enabled to consult the copy of Teza belonging to the Brinton collection, once the personal property of that great Americanist. A colophon informs us that "the 'Appunti' were published in the *Annali della Università di Pisa*, MDCCCLXVIII. Vol. X," and that "of this edition in octavo, to which has been added an Appendix, only LXX copies were printed, and they are not for sale." It is the "Appendice," occupying pages 77–91 (pages 77 and 78 are blank) of the octavo edition of 1868 that interests us here, for it contains ethnological and linguistic information concerning some of the Indian tribes of California. On pages 80–86, under the heading "Balli de' Californesi," is printed the Spanish text of an account by "P. Jak" of ball-games and dances of certain Californian Indians. Those mentioned are: "Jumos, apaches, dieguinos christianos, sanluisenos, que somos nosotros, sanjuanenos, gabrielenos, fernandionos; y los de Monte Rey." The Luiseños are said to play well the ball-game of *uauquis*. One game is termed general, and "nostros llamamos tannis, bailar, o mejor dar patadas." On pages 81–84, 84–85, 85–86, are given, respectively, descriptions of the "Primer baile," "Segundo baile," "Tercero baile." A number of Indian words are scattered through these descriptions. On pages 87–91 are given the native texts and Spanish versions of "Versi Californesi," two poems composed by P. Jak in the Indian language (the translations are also by him). The dialect represented is probably Luiseño.

Pages 22–30 of the *Saggi Inediti* are also concerned with Californian Indian languages, and on pages 24–26 P. Jak discusses the grammar of Luiseño. On page 23 we are informed that P. Jak had composed a *Prima lingua Californiensis rudimenta* of about 50 pages, and containing "a little of everything." The chief source of information was "a Californian of S. Luis, converted to Christianity," and the thing was done "to please Cardinal Mezzofanti." Teza's whole book, of course, owes its existence to Mezzofanti's linguistic collections.

A Note on Child-Invention: Alexander F. Chamberlain

That invention (conscious or unconscious) by children, with subsequent adoption by adults of the community, has played a not unimportant rôle sometimes in the development of human culture is a theory known in ethnological literature, especially in connection with the evolution of language (von Martius, Peschel, Farrar, Newell, Hale, Krauss, Sartori,

Lasch, et al.). The inventiveness of children in plays and games has also had some influence on primitive society and even on its civilized successors. Chamberlain has already discussed some aspects of "child-invention."[1] Seldom, however, is one fortunate enough to be present when such an addition to the stock of human knowledge is actually being made. The chronicling of such events by travelers and ethnologists among the more or less primitive peoples still in existence is a matter of interest to the historian of human civilization. A curious example of "child-invention" is reported by A. de Calonne Beaufaict, in his recent book of African studies,[2] in writing about the people of the islands of the Uelé, above the Mokwangu rapids, in the northern Congo country.

After calling attention to the fact that the mentality of these Bakango negroes is not at all of such a stagnant and passive sort, as, for example, M. Goffin attributes to them in his *Pêcheries et Poissons du Congo*, by virtue of which they "must be incapable of taking advantage of and permanently acquiring for themselves the thousand and one little accidental inventions, which, in normal times, pass unnoticed, but to which every critical period gives a special value," and stating that he has often had the opportunity to observe just such cultural acquisitions, the author says (p. 56, footnote):

"One of the most amusing was the invention by a young Mobengé of a bolas to catch fowl. He was gravely imitating angling, with a stick and a *liana*, to which was attached a corn-ear serving for a fish. One of his brothers came running along, in pursuit of the fowl that had to be safely shut up away from the little carnivora. The boy held out his stick, to cut off the retreat of the frightened fowl, which got entangled in the *liana*, fell down, and was captured. Put into good humor by this grotesque accident, the inventor made a second successful attempt. The next evening, the family were supplied with the apparatus; and my *boys* imitated it. And, perhaps, in a few years, some descriptive ethnologist will report that the Mobengé used the bolas, and, from that fact, will infer some ethnological theory as to the origin of the tribe."

This example is of more than ordinary interest, since it involves not merely "child-invention," but likewise transference from one form of culture-activity to another—from fishing to bird-catching.

Description of the Tsantsa: H. Newell Wardle

A macroscopic description of one of the rare mummified heads of the Jibaros of Ecuador, with considerable detail as to color, form, size, and ornamentation, together with the weave of the suspension cord.[3]

[1] See *The Child and Childhood in Folk-Thought* (N. Y., 1896), pp. 249–269 and 273–275.

[2] *Etudes Bakango* (Liège, 1912). See p. 56, and footnote.

[3] To be printed in *Proceedings of the Academy of Natural Sciences of Philadelphia.*

The Principles of Limited Possibilities in Ethnology: A. A. Goldenweiser

In the present state of ethnological inquiry the reality of convergent developments can no longer be doubted. The actual demonstration of such convergence on general theoretical grounds therefore seems highly desirable.

The principle of limited possibilities implies that whereas the origins of cultural processes are innumerable, the processes soon become reduced to a relatively smaller number of types, while the relatively stable products of these processes are strictly limited in number owing to the play of certain objective and psychological factors. If that be so, there must be convergence. The principle of limited possibilities is thus constituted an *a priori* argument for convergent development.[1]

Three Forms of the Human Nose: Robert Bennett Bean

The three most distinct forms of the human nose appear characteristically in different parts of the earth, and the forms are clearly geographical, evolutional, and developmental. The first of the three is the underdeveloped nose resembling that of the infant, and this form has been called by Dr Bean the hypo-phylo-morph; the second is a massive nose, the meso-phylo-morph; and the third is the thin, long, narrow nose, the hyper-phylo-morph.

The hypo-phylo-morph nose is flat, broad, and short, with flat depressed bridge, upturned tip, and the nostrils open forward rather than downward. The nostrils flare and are wide open, and the extremity of the nose is uplifted or tilted back so that an instrument may be inserted horizontally along the floor of the nasal fossa without interference by the alæ. The nasal ridge, or the bridge of the nose, is flat, because the nasal bones do not form a steep roof over the nasal passages by their apposition along the median line. The articulation of the nasal bones with the frontal bone is a gentle curve and not an abrupt transition. The supraorbital ridges and glabella are not prominent, nor the frontal sinuses large in association with this form of nose, but the cheeks are full, and the eyes prominent, therefore the front of the entire face is somewhat flat, although the lips project from a small mouth. The hypo-phylo-morph nose is essentially the nose of the infant.

The hypo-phylo-morph nose is found especially among the Malays and Negritos as they exist today in the Malay peninsula, Java, Sumatra, Borneo, Celebes, and the Philippine archipelago, as well as among the Pigmies, Bushmen, and Hottentots of Africa. It is also found in a

[1] The paper will appear in full in *Journal of American Folk-Lore*, 1913.

modified form in Burma, Siam, Cambodia, Tonkin, Annam, in India, China, Japan, Mongolia, and among the true Negroes of Africa and America. The form dwindles away through Siberia, Lapland, Finland, and Russia into Europe, where the hyper-phylo-morph nose appears. The form also dwindles away through the Eskimos and Indians of the Americas, among the Polynesians and the other inhabitants of the Pacific islands, and among the pseudo-negroes of north and east Africa, in all of which peoples the meso-phylo-morph nose appears. It is most emphatic among the women of all the countries where it appears, but is also to be seen among the men.

The meso-phylo-morph nose is massive, long and broad, not very high, with apparently depressed root due to overhanging brows and glabella; it has a straight bridge, and nostrils that open downward and slightly forward. The outlines of the nose are usually straight. Looked at from in front the lines of contact of the nose with the face on each side are straight, and slant away widely from the inner angles of the eyes to the alæ of the nose. Looked at from the side the bridge of the nose is straight or very slightly aquiline from root to tip, and the lower border (base) of the nose is straight from a point just over the akanthion to the tip of the nose, although sometimes the tip may dip below this straight line. This line is not long in relation to the breadth of the nose, but it is absolutely as long as the same line in the hyper-phylo-morph nose, and may even be longer when the nose is unusually large. The nose looks flat, due to its great breadth, when it is actually a high nose. The alæ flare little, although the apertures of the nostrils are large, owing to the great width of the nose. The nasal bones form a more acute angle at their apposition than in the hypo-phylo-morph nose, and they pass abruptly above into the frontal bone, where the overhanging brows and glabella give the root of the nose a depressed appearance. The malar and zygomatic bones are large and project, and the jaws are prominent both in front and at the sides of the face. The orbits are large, the bony sinuses about the nose are of great size, and the lips are thick. The result is that the whole face is large, and the nose conforms with its surroundings.

The distribution of the primary forms of the meso-phylo-morph nose centers among the inhabitants of the Deccan and Ceylon, among the Polynesians, and the inland tribes of the Philippine islands, Java, Sumatra, Borneo, and Celebes, and it assumes its most exaggerated form among the Tasmanians, Australians, Melanesians, pure Negritos, and true Negroes. The form exists somewhat modified among the peoples

who have the hypo-phylo-morph nose, and is especially emphatic among the men, although it appears among the women. It fades away through northern Asia, in central Europe, through southern Asia toward the Mediterranean basin, and in eastern and northern Africa, at all of which points it merges into the nose of the hyper-phylo-morph.

The hyper-phylo-morph nose is long, high, and narrow, with high root, bridge, and tip; the nostrils flare but little, and open almost directly downward. The nostrils may even open somewhat backward in the exaggerated forms, as in the Jew, for instance. The nose appears prominent and may seem larger than it really is, inasmuch as the jaws are not prognathous, and the brows and glabella do not overhang the nose; the forehead and chin may even recede, leaving the nose projecting from the middle of the face. The nose may be retroussé, straight, sinuous, or aquiline. The retroussé, seen chiefly among women, is the underdeveloped, whereas the aquiline, seen chiefly among men, is the exaggerated form of the hyper-phylo-morph nose. Associated with this form of nose is the long, narrow face, and the long, high, narrow head. The distance from the external auditory meatus to the tip of the nose is greater in this form than in either of the others, and this projection of the nose to a pointed tip in association with the high, narrow forehead and pointed chin gives the characteristic appearance called by the Australians in derision, "the hatchet-faced Englishman."

The most representative types of the hyper-phylo-morph nose in its primary form are found in northern Europe, Great Britain, and America among the tall blond Nordics, and this form of nose has been modified around the Mediterranean, where it is extremely fine and thin. Its most exaggerated forms are to be seen among the Jews, Arabs, and Gypsies. It is found more or less modified in Asia and Africa along the course of four streams of infiltration. The most intense forms (the most perfect) are in southern Asia and northern Africa, the least intense in northern Asia and eastern Africa. The American Indians present a hyper-phylo-morph nose of an intermediate form between that of the extreme meso-phylo-morph and the primary hyper-phylo-morph. The characteristic hyper-phylo-morph nose dwindles in purity and frequency through southern Asia and northward through the hearts of the large islands of the Pacific among the inland tribes, except among the Tasmanians, Australians, and Melanesians, to the inland tribes of the Philippine islands, and eastward into Polynesia; through northern Asia into China and Japan, where in the latter place the nose is similar to that of the Mediterranean peoples; through northern Africa into the Sudan to the

Guinea coast; and through eastern Africa to the Congo and along the south and east coasts up to the Guinea coast and the Congo again. The peoples who have this form of nose in greatest purity may be enumerated as follows: Danes and Scandinavians, North Germans, British, American whites in the United States and Canada, Spanish, Portuguese, some southern French and Italians, Greeks, Turks, Arabs, Jews, and Gypsies. Those peoples among whom modified, yet fairly typical, forms are frequent are: East Indians, Iranians and Turanians, North and East Africans, Europeans other than those previously mentioned, Chinese, Japanese, and Tibetans, Polynesians and Micronesians, and the inland tribes of the great islands of the Pacific, Java, Sumatra, Borneo, Celebes, and the Philippines.

The three forms of the nose may appear pure among any people, and in differentiating the three forms in any locality the terms hypo-onto-morph, meso-onto-morph, and hyper-onto-morph, are used because in every individual it may not be clear that the form of the nose is due to evolution—it may be developmental. The -onto-morph noses are not so strikingly different as the -phylo-morph forms, but in any case the hypo-onto-morph resembles the hypo-phylo-morph, the meso-onto-morph resembles the meso-phylo-morph, and the hyper-onto-morph resembles the hyper-phylo-morph.

The Nose of the Jew and the Quadratus Labii Superioris Muscle: Robert Bennett Bean

The peculiar position of the Jew for centuries may account for the origin of the Jewish nose. The shape of the nose depends upon inherent and extraneous influences. The latter do not concern us at present. Of the inherent influences alterations in the bones of the head and face cause changes in the shape of the nose; increased vascularization of the nasal mucus membrane and the erectile tissues of the nose, as in continued excessive sexual indulgence, may alter the shape of the nose; and the muscles attached to the nose may change its form.

The *quadratus labii superioris* muscle has four parts, all of which center around the alæ of the nose and the base of the upper lip, and from there they radiate toward the eyes in the shape of an imperfect fan. The two extremities of the fan are attached, the one at the root of the nose, the other to the ventral surface of the malar bone. The part of the quadratus muscle attached to the nose is called the angular head, which has two slips, one rising from the nasal bone and inserting into the cartilage and tissues about the ala of the nose; the other rising from

the upper part of the nasal process of the maxilla near the inner canthus of the eye and inserting into the skin and fascia at the base of the upper lip midway between the center and the side of the mouth. The angular head has been called the *levator labii superioris et alæque nasi* muscle, a term that expresses its action. The muscle slips pull the ala of the nose upward and backward, depress the extremity of the nose, and help to elevate the upper lip and deepen the naso-labial groove. The two remaining portions of the quadratus muscle are called the *levator labii superioris* and the *zygomaticus minor*, which form the infraorbital and zygomatic heads, respectively. They rise from the maxilla and malar bone beneath the orbicular muscle and are inserted into the skin and fleshy part of the upper lip near the corner of the mouth. They pull the upper lip upward and backward and deepen the naso-labial groove. Deepening of this groove gives an expression of sadness, which is intensified by sorrow or grief. Assisted by the great zygomatic muscle and the caninus, the quadratus draws the tissues covering the chin upward and backward, pulls the corner of the mouth in the same direction and deepens the naso-labial groove. This sharpens the chin and makes it appear to tilt upward in the form of a beak. The depression of the point of the nose tilts this member downward and gives it the appearance of an inverted beak. The mouth is at the same time drawn back, and the double beak becomes more emphatic.

The quadratus muscle is said to produce expressions of the face that indicate a great variety of emotions, all of which may be grouped as related to indignation. It is essentially the muscle of disgust, contempt, and disdain, which lead to scorn, acknowledging guilt. Discontent follows, with a snarl, sneer, and defiance; after which come bitterness, and a menacing attitude, with pride. Indignation, anger, rage, and hatred rapidly succeed one another. This complex of emotions may be superseded by sadness, grief, or sorrow. That one small muscle group can express so many emotions is almost inconceivable, but on intimate analysis the nineteen words used to enumerate the emotions expressed by the quadratus muscle are related, or proceed the one from the other in natural sequence.

The expression of the Jew is that which would result from very strong contraction of the quadratus muscle. The nose is depressed, and this is so marked that often an obtuse angle is made at the junction of the cartilage and nasal bones, which leaves the cartilage slanting very little and at times vertical. The nose of the Jew is large, and the depression of the tip increases the prominence of the bridge and adds to its apparent size.

The ala looks pulled upward and backward, a furrow is seen around the ala, and the naso-labial groove is deep. The upper lip and the corner of the mouth appear pulled upward and backward, and the tissues of the chin are drawn, giving the beaked look. This characteristic is not well marked on all Jews, being more emphatic on some than on others; it is also to be seen on those who are not Jews, but it is more pronounced on Jews than on other peoples, and that it is a Jewish feature cannot be doubted. Having become a recognizable characteristic, it was used in sexual selection. Those who showed it most strongly would be selected in marriage by the most orthodox, and would transmit a natural endowment to their offspring. Those who gave less evidence of it might marry outside of the race. In this way the feature became fixed, and it is as much an inheritance as any other characteristic. The peculiar position of the Jew for centuries may account for the origin of the Jewish nose.

The papers read by title were:

Abnormal Types of Speech in Nootka: Edward Sapir. (To be published by the Geological Survey of Canada.)

Paiute and Nahuatl: A Study in Uto-Aztekan: Edward Sapir. (To appear in the *Journal de la Société des Américanistes de Paris.*)

The Individual Totem Among the Interior Salish: C. M. Barbeau.

Some Comparative Aspects of the Wyandot Language: C. M. Barbeau.

Magical and Religious Factors in the Development of the Human Will: Felix Krueger.

Fallacious Estimates of Prehistoric Time: G. Frederick Wright.

The Father and Son Combat in British Balladry: Phillips Barry.

Social Organization of the Menominee: Alanson Skinner.

An Archeological Survey of New Jersey: Alanson Skinner.

Pigmentation and Longevity: William C. Farabee.

Numeral Systems of Campa and Pano: William C. Farabee.

The Japanese New Year: Mock Joya.

What is the American View of Totemism? Charles Hill-Tout.

Preliminary Report on Excavations in Southern France: Charles Peabody. (Dr Peabody preferred to give his time to the reading of Dr Lomax's Presidential address; his own paper will appear in a forthcoming issue of this journal.)

YALE UNIVERSITY MUSEUM
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DISCUSSION AND CORRESPONDENCE

NOTES ON AUSTRALIAN SOCIAL ORGANIZATION

I. The Intermarriage Regulation of the Arunta and the Urabunna

The Urabunna, living immediately to the south and contiguous with the Arunta of central Australia, are supposed by some writers to represent in their social organization a more primitive condition than that of their neighbors to the north. One argument is that advocated by Spencer and Gillen, who believe that the increasing simplicity of the marriage classes as we pass from the Arunta southward represent an influence that has not yet affected the Urabunna. Their reasons are, partly, the borrowing of names from the north—which may or may not have occurred—and, no doubt in large part the implied acceptance of an hypothesis that the development has proceeded from less to more complex. Of course, such complexity need not and may not actually represent advance either culturally or historically. Carried to its logical conclusion, with further advance should come further subdivision—from eight to sixteen, from sixteen to thirty-two sub-classes, and so on. In fact, why posit a limit? Here, as elsewhere, advance may be from complex to simple and not vice versa.

Durkheim[1] attempts to show that the present social arrangement of the Arunta prove them to have been matrilineal, the rule of descent still prevailing among the Urabunna. Since progress is (with almost no exception) from matrilineal to patrilineal, the Arunta may be taken as having passed beyond the social stage represented by the Urabunna. He summarizes his arguments under four heads, and we shall answer each in turn as it occurs.

(1) The traditions of the tribe point to a time when women played a much more important rôle in tribal affairs, participating in initiation ceremonies, instituting rites, and founding totemic groups.[2]

Answer: The implied assumption that matrilineal descent is more or less synonymous with matriarchal rule is false and wholly unwarranted

[1] In *L'Année Sociologique*, v, Sur le Totémisme.

[2] Spencer and Gillen entertain a similar view as to the value of the myths. See, for example, *Native Tribes of Central Australia*, pp. 195–196.

by ethnological facts. Even granting this implied assumption, the historical value of events portrayed in Australian myths is highly dubious. Why single out these particular ones as representing the truth?

(2) The father and the mother have, respectively, different names for their children, the father referring to them as *allira*, and the mother as *umba*. The Dieyeries, Kolor-Kurndits, Mopor-Kurndits of southeastern Australia, which have female descent, have similar separate names; the Kurnai, Narringeri, Turra, with male descent, hold to no such distinction.

Answer: The explanation that Durkheim offers, namely, that this double naming points to a time when the husband went over to the clan of the mother, though only at intervals, and for more or less prolonged periods, can scarcely be applied here, since it is not proven that the class systems grew out of such supposedly previous conditions. The explanation is more simple: the father uses toward his child the term which all his tribal class-brothers use toward it, and the mother uses the same word when speaking of her own child as all her tribal class-sisters use when speaking of it. *Umba* applies not only to her own child but equally to any child of any of her tribal class-sisters. In the social organization, the mother and the father stand in different relationship to the child, and it is merely this class relationship that is involved in the use of different words by the two parents when referring to the child. This can occur equally well in a patrilineal as in a matrilineal system of descent. It does indeed occur in both, as the instances adduced by Durkheim show. As many instances (take, for example, the tribes of the north central area) can be adduced to disprove as he has gathered to prove his supposition. But multiplicity of examples can never merely by virtue of their numbers be taken as satisfactory evidence of the truth of a supposition.

(3) The husband is, all his life, under certain obligations to supply food to the relatives of his wife. The portions of the chase go to (1) his father-in-law, (2) himself, wife, and children, (3) his wife's brothers' children, (4) his mother-in-law, (5) father of his mother-in-law, (6) sisters of his mother-in-law's father. Nor is he allowed to eat the flesh of an animal caught, killed, or touched by any of the above mentioned people. These obligations to the wife and relations of the wife, Durkheim argues, point to previous matriarchal conditions when they could be demanded of the man.

Answer: This shows, as Spencer and Gillen point out,[1] a condition

[1] *Native Tribes of Central Australia.*

in which the husband is under certain obligations to the group to which his wife belongs. They do not, by any means, in themselves justify the supposition that matriarchy or matrilineal descent prevailed.

The regulation seems to amount to this: After provision for the old, who usually get the choice morsels, comes provision for the wife and children who are now of his phratry and complementary sub-class. Next come the children of the brothers of his wife who, under the prevailing paternal system of descent, are of her phratry and complementary sub-class, but under a maternal system of descent would be of the phratry of the husband. Moreover, while by the present patrilineal descent, the father of his mother-in-law is of the husband's phratry, if maternal descent prevailed he would also be of the husband's phratry: hence no rights of the wife under a maternal system of descent could explain this obligation to provide for the father of one's mother-in-law. To make this plain: If a male of B phratry marries a female of A phratry, by paternal descent the wife's mother is of the husband's phratry B, and the father of the wife's mother is likewise a B man. In maternal descent the wife's mother is of A, and her father is of B. The sisters of the mother-in-law's father belong to the same phratry as the mother-in-law's father himself; that is, by either paternal or maternal descent they are of the husband's phratry. The father-in-law is of the wife's phratry by the existing paternal descent, but by maternal descent would be of the phratry of the husband. So that only in the case of the mother-in-law who is of the wife's phratry by maternal descent and of the husband's phratry by paternal descent do we have a fitting of the facts to the theory. This one correspondence out of the six chosen cases might, it seems, be a mere chance one or have some other explanation; especially since in at least two instances, that of the father-in-law and of the wife's brothers' children, the facts flatly contradict Durkheim's view and cannot be brought into harmony with it.

(4) "*Mais voici une preuve encore plus decisive:*" the arrangement of the classes with respect to intertribal marriages shows the previous existence of matrilineal descent.

In the accompanying diagram, I represents the organization of the Arunta for marriages within the tribe, or with tribes having patrilineal descent; II shows the arrangement of classes for marriages with the Urabunna, where matrilineal descent prevails. Here, it will be seen, we have the classes arranged as they would be under matrilineal descent, thus showing, Durkheim infers, that the Arunta were previously matrilineal.

	I	II	
A	Kumara Purula	Kumara Panunga	= Kirarawa
B	Bulthara Panunga	Bulthara Purula	= Mathurie

By this arrangement, if a *Kumara* man marries a Urabunna woman he must take one from the *Mathurie* phratry and she will be treated as belonging to the Bulthara class, which is the one with which a *Kumara* has the right to assume marital relations, the children being *Mathurie* as regards the mother and *Purula* as regards the father. Similarly, if an Arunta man goes over to the Urabunna, and be, for example, a *Bulthara*, he will be treated as belonging to the *Mathurie* phratry and must marry a woman of the *Kirarawa* phratry, his children being *Kirarawa* counted by the Urabunna system of descent, and *Purula* as counted by the Arunta system.

The fact that this arrangement is reciprocal and is employed by both tribes alike suggests a similar reason for its adoption in each case. The reason may be found in the fact that *it preserves for each tribe its own prevailing system of descent and does not violate the marriage system of the reciprocal tribe.* In no other way than that adopted could this result be achieved.

A glance at the above diagram will make this clear. Suppose the classes of the Arunta were arranged as under I, that is, as they are normally, for marriage relations with the Urabunna. Then a man of A must marry in the *Mathurie* phratry and his children will be B if we count by Urabunna descent, and will be *Kirarawa* if we count by Arunta descent, the children going to the complementary sub-class of the father. But to count them as B is a violation of the Arunta rules of descent, while to count them as *Kirarawa* is a violation of the Urabunna rule, which requires that the children belong to the same phratry as the mother. Hence, to suit both tribal regulations the child of a *Kumara-Mathurie* marriage must be both *Purula* and *Mathurie*; this is what we have in II, the actual system of relationship that is used. Again, the children of a *Purula* man by Arunta descent belong to *Kumara*, the complementary class in the father's phratry. But a *Purula* man has already been assigned to the *Mathurie* phratry of the Urabunna. Hence he must marry a *Kirarawa* woman and his children will be both *Kirarawa* and *Kumara*, thus preserving the rules of descent of both tribes.

If this arrangement were not adopted, one or other of the rules of

descent must break down. As it is, the proper respective descent counted in both tribes can be kept generation after generation, so that no amount of intermarriage will violate either of these rules of descent, which without this arrangement could not possibly be kept intact. Therefore, if the descendants of such an intertribal marriage should at any time return to the other tribe they can at once be assigned to their proper class and phratry with as much ease and accuracy as though they had never left it.

The same holds true when Urabunna men marry Arunta women. For example, a *Mathurie* man marries a *Kumara* woman, their children are *Kirarawa-Panunga*, matrilineal for the Urabunna, patrilineal for the Arunta. But *the present working scheme would not apply to matrilineal descent among the Arunta*. For example, if the Arunta were matrilineal when a *Mathurie* man marries a *Kumara* woman the children should be *Purula-Kirarawa* to suit both systems of matrilineal descent. This, however, is not what happens. Hence, it seems that the present arrangement could not have arisen out of a previous matrilineal descent among the Arunta, since such an arrangement as we now find would not be consonant with it. No change would be necessary where both tribes had the same system of descent.

The simple and sufficient explanation for this reciprocal arrangement seems to be that it suits the social system of both the Arunta and the Urabunna, whereas no other arrangement possibly could. Nor does it seem improbable that the natives are capable of making an arrangement of this kind to suit their common needs. In both of these tribes the class of a stranger is carefully determined by the old men, and in every instance the attempt is made to determine his class in such a way as to suit the prevailing social system in the new tribal domicile. Nor is this arrangement peculiar to these two tribes. Between the Wakelbura and the tribe at the Annandale river we find a marriage arrangement similar to that outlined above: the classes are so arranged as to bring out descent in the male line in the Annandale tribe where patrilineal descent prevails, and descent in the female lines in the Wakelbura tribe, which is matrilineal.[1] The Arunta-Urabunna arrangement is, therefore, not an anomaly, neither is there any reason to suppose it above the ability of the natives to arrange. Indeed, it seems quite probable that we create whatever difficulty there is in the situation and that we do so simply because we choose to approach it solely through our categories without even attempting to see things from the natives' point of

[1] Howitt, *Native Tribes of South Eastern Australia*, chapter on Social Organization.

view. In reality the new arrangement represents no effort at all. Each man and woman preserves in his children the proper class regulation; this is as simple in intertribal marriage as in tribal marriage, the child merely getting an additional class or phratry name from one parent. This involves no difficulty for parent, child, or tribe. It is actually as simple as Mary Jones becoming Mary Jones Smith when she gets married.

Perhaps, after all, Australia is not one of those areas where matrilineal descent has been followed by patrilineal. Should we not remain open-minded and make our inductions impartially from a study of all of the evidence, rather than hunt, sometimes too eagerly, for the facts that can be made to fit our theory? It were well to remember the warning given by Howitt many years ago: The class systems of relationship form a progressive series, he says, but the "progression is not on all fours with the advanced status of the tribe. . . . It does not prove on examination that the most advanced system of relationship is used by the most socially advanced tribe. The general result is so, but cases occur where a tribe will be found which has lost its class-system, which has only traces of the sexual license of the Dieri, and which has individual marriage completely established with descent through the male line, but which yet uses a system of relationship which is one of the most simple and archaic type."[1]

NOTE.—Durkheim's subsequent treatment of Australian data, both in the later numbers of *L'Année Sociologique* and in his more recent *Les Formes Élémentaires de la Vie Religieuse le Systeme Totémique en Australie* (1912), suggests no dissatisfaction with his former solution.

II. THE TOTEM-CENTERS AND SOME POSSIBLE RELATIONSHIPS

Writers on Australian sociology have generally looked upon the totem centers of the Central tribes as peculiar to that area and without analogues in all the rest of the continent. To the writer it seems that they are nearly analogous to the burial grounds of the Eastern and Southeastern tribes—so similar in function, that it is rather a matter of surprise that no sociologist has attempted to trace their definite relationship and certain evolution. So far as the present writer is informed, it may be well within the bounds of possibility—even probable—that the totem centers of the Arunta represent the burial sites of the Eastern or Southeastern tribes and that the returning of the souls of the dead to these centers may be the result of an attempt to preserve the old custom in a

[1] *Journal of the Anthropological Institute of Great Britain and Ireland*, XX, p. 43.

new country less adapted to it. But he has no theory to propound, no probable evolution to trace, merely hoping to point out possible analogues that may be a clue to the true relationship between the areas of the Center and of the Southeast and lead to further investigation in the field.

Before pointing out these analogues—if such they be—the reader may recall that the totem center determines the totem of the child when first alive in the womb; that these centers are definitely localized and do not shift; that, though sex and class change with each successive reincarnation, the spirit always returns to its proper totem center and that thus the totemic identity is never lost.

The customs referred to, which, it is believed, may be analogous to the totemic customs of the Arunta, are as follows:

In western Victoria, "dying persons, especially those dying from old age, generally express an earnest desire to be taken to their birthplace, that they may die and be buried there. If possible, these wishes are always complied with by the relatives and friends. Parents will point out the spot where they were born, so that when they become old and infirm their children may know where they wish their bodies to be disposed." Accordingly, we are told, when the sorceress, White Lady, died, her head and portions of her legs and arms were buried in a cave near Mount Kolar, where she was born.[1]

In regard to the natives on Herbert river, northern Queensland, Lumholtz[2] writes:

> In several tribes it is customary to bury the body where the person was born. I know of a case where a dying man was transported fifty miles in order to be buried in the place of his nativity. It has even happened that the natives have begun digging outside a white man's kitchen door, because they wanted to bury an old man born there.

Observers have reported burial sites in central Queensland, New South Wales, and Victoria, which seem to have been in use from time immemorial and which are looked upon as sacred by the present natives. Those in the north of Queensland are said to show an accumulation of many skulls. Mitchell speaks of a burial-place on Darling river, and certain burial sites on the upper Murray are described as containing about three hundred graves, said to be well-kept and surrounded by an oval footpath. The Kamilaroi had cemeteries, in some of which were

[1] Dawson, *Australian Aborigines*, pp. 56, 62.

[2] *Among Cannibals*, p. 278.

as many as a hundred graves. Burial sites containing a large number of graves were found at a place near Lake Condale and also near Croxton, not far from Lake Gorrie.[1] Mounds of stones covering what are supposed to be native burying places are found near the coast along Hanover bay, and on Booby island. "The blacks of Clarence River place a number of stones in a circle, and in the center they erect an upright slab of stone. They give no reason for this custom, but only say that 'black-fella make it so,' or 'it belong to black-fella,' the former reply signifying that the custom has always prevailed among the tribes and the second that the upright slab shows that a native is buried beneath."[2]

The Dieri believe that the ghosts of the dead can take up their abode in ancient trees and therefore speak with reverence of these trees, and are careful that they shall not be cut down or burned.[3] Gason speaks of places covered by trees which the Dieyerie hold very sacred, the natives never disturbing these trees.[4] In this connection it is interesting to note that among the Euahlayi a man's totem may sometimes be a spirit-haunted tree.[5] Warsnop states that "it has always been the custom amongst the aborigines of Australia to carve the trees surrounding the grave with marks indicating the actions of the dead man through life,"[6] but this statement is certainly too general.

A black fellow of Burburgate told Ridley[7] it was the custom for a native of that locality to get his name from the place where his father was buried. Moreover, the Kamilaroi and neighboring tribes believe that the spirit of a man may enter some other body. This in connection with their cemeteries referred to above gives us a condition strikingly analogous to Arunta totemic phenomena with its philosophy of life and death. So, too, the Arunta custom of burying the dead so that the face of the deceased looks toward his or her camping ground in the *Alcheringa*, the previous abode of the spirit, and of leaving a low depression on one side of the mound so that the spirit can pass in and out to visit the body[8] suggests the cemeteries of the East and Southeast whether or not

[1] See T. Warsnop, pp. 105–06, 71; Ridley, p. 159; J. Mathew, *Eaglehawk and Crow*, p. 123; Lumholtz, op. cit., p. 278. See also Mitchell, I, 251, 260, 274, 295; II, 112–13; Stokes, I, 395–96, and Gould in *Birds of Australia*.

[2] T. Warsnop, pp. 63–64, 78.

[3] Howitt in *Journal Anthropological Institute*, XX, p. 89.

[4] Howitt in *Native Tribes of South Eastern Australia*, p. 280; see also p. 283 where Gason speaks of a group of 74 graves situated on the top of a sand-hill.

[5] K. L. Parker, *The Euahlayi*, pp. 20–21, 24, 29–30.

[6] *Aborigines of Australia*, p. 72.

[7] *Kamilaroi and other Australian Languages*, pp. 138, 140.

[8] Spencer and Gillen, *Native Tribes of Central Australia*, p. 497; *Northern Tribes of Central Australia*, p. 506.

there be any real historical connection. So, too, the Wotjobaluk plan of totemic orientation of the deceased may have reference to the direction of the home of the deceased's ancestral spirit.[1]

That the Arunta totemic centers and the Arunta philosophy represent a modification of the practices and beliefs found to prevail in the other Australian tribes referred to may be suggested. It is not intimated that one or the other represents degeneration. It is not possible to suppose for all of these separate tribes a separate development in the sense of a development originating wholly from within, and between these analogues it seems there must be some historical connection. What is it?

III. The Sociological Significance of Myths

Dr Rivers shows a fondness for attacking the difficult problems of ethnology, whether of a practical or of a theoretical nature. In attempting to determine the sociological significance of myths[2] he has approached one of the most difficult problems that could have been singled out.

As a matter of fact, however, the author is concerned almost exclusively with one ethnographic area—Australia. His conclusions can be briefly expressed in his own words:

> From a study of myths having natural phenomena as their subject I was led to formulate the principle that man does not make myths about the familiar and the uniform, but rather about that which is exceptional and inconstant. Then, applying this principle to myths having social conditions as their subject, I have tried to show that in so far as such social conditions are the subject of myth in Australia, they can only be fully explained on the assumption that Australian society is complex and has arisen through the mixtures of peoples possessing different forms of social organisation. I suppose it to have been the sense of mystery aroused in one people by the social practices of another which acted as the seed and fertiliser of the mythic fancy [p. 328]. If then, the Australian narratives are myths, they possess definite sociological significance. Whether the narratives be historical traditions or myths, they lead to the same conclusion, the complexity of Australian culture [p. 329].

Without taking up the points one by one, as made by Dr Rivers, we may say that we do not agree with him, in the main, particularly as to the unusual or unique character of the phenomena which form the subject of myths. Of course if all stones were alike, no one of them would be singled

[1] See Howitt, *Native Tribes of South Eastern Australia*, and Durkheim and Mauss in *L'Année Sociologique*, VI. De quelques formes primitives de classification.

[2] *Folk-lore*, XXIII, Sept., 1912.

out as the subject of a myth nor stones as such, until they were thought of as a class, and differentiated from other terrestrial things. The greater the difference which separates the class from other classes, or the individual from other individuals of the class the more will it appeal to the native imagination and the more probable does it become that we shall find some superstition or story associated with it. To say that its uniqueness appeals to the native imagination is to state only one side of a process, the complement being that it has already, for some reason, appealed strongly to native imagination—otherwise, for him, it could possess no uniqueness, no unusual quality. The rocks in Australia about which superstitions or stories have grown up possess this character. So do the animals. We recall no myth in which any characteristic of the dingo appeared; but in some part of Australia there will be found a story with regard to some peculiar characteristic of almost all the more important species of animals. (W. E. Roth's collection from northwest central Queensland is the best representative.)

Natural features and animals are the subjects of the myths; why not, according to Dr Rivers' principle, social institutions also? He agrees that a contact with different social *regimens* brings the uniqueness of the various social arrangements into a focus of attention that they otherwise might not enjoy. We fail to see, then, why this principle, if it be taken to account for some of the myths, must not be considered an adequate—not necessarily the correct—explanation of them all. Some of them may, of course, be history; the more important problem is whether *all* of them may with equal probability be myths without historical foundation.

History, so far as history is the preserved record of events, plays queer pranks, having, in the most civilized and advanced societies, a tendency to align itself in close intimacy with fiction. The student of modern history is constantly beset with these difficulties. All over America there are beliefs current among the various tribes with respect to the early visits of the white man and the treatment of the natives that we know to be wholly false, a mere myth founded on fact but selling its birthright of attachment to accuracy for the more palatable seasoning of irresponsible fancy, or,—shall we say?— failing in its attempt to transmit the truth of a narrative. The writer has recorded a number of such instances from the Micmac tribe in the Canadian maritime provinces and an abundance from other American tribes are already on record.

Again, the native mind does not preserve in tradition the strikingly important things which we might expect them to preserve. The Eskimo

on Smith sound, northwest Greenland, though they spoke a language and possessed a culture similar to the rest of their people, when they were first visited by white men, had believed themselves to be the only people in the world. The Western mind can scarcely conceive of certain myths and forms of speech persisting while the knowledge and even all tradition of the existence of other people are allowed to die out. I do not know how far Dr Rivers' more recent investigations in the Melanesian area corroborate the findings of Bishop Codrington, who seems in the main reliable, but if Codrington is correct the natives of the South seas furnish surprising testimony to the fact that what impresses the native mightily and what, so far as we can judge, must excite great interest and discussion, may soon be lost to his traditions. For example: The Spanish *voyageur*, Quiros, visited the Banks islands and the New Hebrides in 1606, Mendana having preceded him. "In the interval between the discoveries of Mendana and Quiros and the visits of whalers and missionaries in the present century, there is every reason to believe that all memory and tradition of white men had died away in the Solomon islands and Santa Cruz; Europeans appeared again as perfect strangers."[1] This seems remarkable, especially in view of the fact that the natives had hostile relations with the Spaniards. In another passage[2] he speaks of the crater of an inactive volcano which the natives approach very reluctantly, and which, Codrington believes, "no doubt was active when Quiros discovered the island [Merlava]: there is now no recollection of activity." One need but refer to the extraordinary myths current among certain of the Indians of the United States with respect to the horse, of whose introduction by the white man they had no idea whatever, nor do some of these myths contain even a grain of truth as to the way in which the Indian tribe in question acquired them.[3] This shows also that there are exceptions—many of them—to the generalization made by Dr Rivers that primitive peoples do not have myths with regard to their domesticated animals.

We would tentatively maintain the thesis that each and all of these Australian stories may be sufficiently accounted for on Dr Rivers' own principle, as creations of native fancy or philosophy. He probably does not believe—what the natives believe—that half-formed, half-men-and-half-animal creatures went about the country initiating certain rites;

[1] Codrington, *Melanesians*, p. 10.

[2] Ibid., p. 14.

[3] See, for example, Russell, Pima Indians, *Twenty-Sixth Ann. Rep. Bur. Amer. Ethnology*.

nor that the totem centers were established at the time the natural features of the country were given their present shape; nor that the *churinga* were laid by as the native account states; nor in that way invested with their sanctity. How, then, from the nature of the testimony itself, will Dr Rivers discriminate? The native does not so distinguish, and it is only when we can point to some connection between fact and traditions which, for reasons given, makes the tradition seem a history of the fact, that we can take the tradition out of the realm of pure creativeness. We may be allowed to doubt whether, in Australia, such a connection can ever be established, since the history of its social institutions can never be reconstructed except by those same traditions or myths whose historical value is the very problem in point. We shall look forward with eagerness to Dr Rivers' confirmation, by means of these myths, of his promised ethnological analysis of Australian culture; to us, however, it seems clear that he is proceeding on a presupposition that is either false or incapable of taking him any nearer the desired solution.

It is strange that Dr Rivers should have left out of account entirely the question of the distribution of myths. He seems to have considered only the question of separate origins giving similar products, and has omitted all mention of the possibility that these various similar myths may have had a common source. Surely, he could not have had in mind Professor Boas' contribution to this problem of the distribution of myths, as regards the American continent. Dr Rivers observes:

> All the narratives of central Australia with which I have been dealing have a remarkable similarity of content. All of them give an account of beings, coming from the north, who introduced certain elements of the material and magico-religious culture and modified the social institutions. It is a remarkable fact that the content of the narratives should thus point unmistakably to just such a mixture of cultures as I have been led to postulate on the assumption that the narratives are myths. . . . These narratives are either historical or mythical, and, whichever alternative be chosen, we are led to the complexity of Australian culture [p. 329].

Again (p. 330):

> It is possible that widely different forms of social organisation may have evolved in different parts of Australia, and that, when one of these was carried from one part of the continent to another by a movement of people, it seemed sufficiently strange to strike the imagination and become the subject of myth.

I imagine that Dr Rivers, if he had found a remarkable similarity in the languages of these adjacent tribes, would have appealed to a

common source as a plausible explanation; had he noticed the almost identical nature of certain songs in widely separated tribes having no immediate contact and speaking mutually unintelligible dialects if not, indeed, different languages,[1] he would have thought of transmission. Yet, in an attempt to "formulate a principle to guide us in the study of social myth in general," there is no reference to this possibility of explaining similarities, much less any pointing-out of the sociological significance of such borrowing. The similarity of myths prevailing throughout the Algonquian area over an immense stretch of territory can scarcely be explained except on the supposition of borrowing; so of the stories of the Plains culture, which give a similarity in details and *motive* that can be accounted for only by historical contiguity.

The bearing of this consideration on Dr Rivers' problem is obvious. If the possibility of borrowing be admitted as a no less probable event than the possibility "that widely different forms of social organization may have evolved in different parts of Australia," then the specific tradition which is the actual or mythical history of one tribe will have its counterpart in the similar tradition which is really the appropriated actual or mythical history of a tribe other than that in which it is found. Only one, then, of these similar traditions would express the actual history, or be the native myth of the tribe in which it is found. Admitting this possibility, as Dr Rivers admitted one part of it, can the original historical record which traveled off into other tribes to misrepresent their several pasts be traced back to its starting-point?

In such an undertaking as Dr Rivers has set for himself, the best motto seems to be that in which Professor Boas some years ago expressed the conclusion to which a study of North American mythology had led him:

> From mythologies in their present form it is impossible to derive the conclusion that they are mythological explanations of phenomena of nature [or, we might add, of social organization] observed by the people to whom the myths belong. . . . We understand that for an explanation of myths we need, first of all, a careful study of their component parts, and of their mode of dissemination, which must be followed by a study of the psychology of dissemination and amalgamation. Only after these have been done shall we be able to attack the problem of an explanation of myths with the hope of success.

We would not, of course, suggest the limits of the possibility of solution to one who has shown himself so fruitful of resource in time of need. Dr Rivers will doubtless solve the Australian problems on

[1] W. E. Roth, *North West Central Queensland*.

their own merits and in his own way. When he does so in a way satisfactory to himself which takes into account only the principles of interpretation which he has announced at the beginning of the task, he will have contributed to ethnology an essentially new method of myth interpretation.

IV. Dr Goldenweiser's Contribution to Ethnological Method

Dr Goldenweiser's "Totemism: An Analytical Study:"[1] is still occupying the field of attention. Dr Lowie[2] has called it a new conception of totemism; Mr Lang[3] seemed inclined to consider it no theory at all, and to him theory was all-important. More recently there has been a scholarly review of the same by Dr Sapir,[4] who is in substantial agreement with the point of view taken by Dr Lowie. One thing seems clear: Dr Goldenweiser has set the student of ethnology thinking. To some this will seem a greater achievement than any mountain-mass of facts he might have presented.

There seems to be general agreement that Dr Goldenweiser's achievement does not lie in the definition of totemism to which his examination of totemic phenomena led him. This view he himself seems to share.[5] It is true, indeed, that though superficially the series of approximating or adaptive definitions seems to be the summary and climax of the study, a close reading of the thesis leaves no doubt that this is, after all, but a subsidiary part of the main task—a mere codicil to the more important document in which he bestowed upon ethnology a new sociological method. Read in the light of Dr Goldenweiser's attitude to the methods which have hitherto triumphed in dealing with totemic institutions, it has something of the appearance of an epitaph fitted for the tombstones of ethnological methods that ought to be deceased. It has just the measure of truth and inadequacy that such an epitaph should contain.

However that may be, there seems no doubt that we can no longer proceed to our conclusions after the manner of Mr Lang, whose method he himself has enunciated in a paragraph that ought to become famous as a type of the older reasoning. We certainly do not need to hope that it will persist as a vestigial reminder of the halcyon days of irresponsible method. Thus teaches—or thus taught—Mr Lang:

[1] *Journal of American Folk-Lore*, 1910, pp. 179–293.

[2] *American Anthropologist*, n. s., 1911, vol. 13, pp. 189–207.

[3] Ibid., 1912, vol. 14, pp. 368–382.

[4] *Psychological Bulletin*, Dec., 1912.

[5] See his Rejoinder to Lowie in *American Anthropologist*, 1911, pp. 589–597.

When you want to understand an old meaningless custom or belief, found in the middle of civilisation you try to discover the belief or custom in some region where it possesses intelligible life. Then you may reckon that, where you now find it without meaning, it once meant what it now does where it is full of vitality, or meant something analogous.[1]

We may be allowed to agree that the achievement is not in the definition. It does not delimit; it applies to a vast aggregate of things which, we may be sure, neither Dr Goldenweiser nor anyone else would for a moment call totemism. Hence, though true, it fails conspicuously in the very pretentions which a definition must make. Even so, be it added, it may stand as a challenge to the old interpretations.

This shortcoming is of little consequence in a work that is entitled to be called—as we believe it is entitled—one of the most important, perhaps the most important, contribution to ethnological method yet made by the American school of ethnologists. In what exactly does that contribution consist, and what is its bearing on ethnological investigation generally? Dr Goldenweiser attends strictly to the business in hand and does not concern himself with the methods of investigating other institutions. Perhaps just for this reason the result of his inquiry must stand out as a silent and eloquent challenge to the whole trend of sociological investigation.

It is interesting to observe Dr Goldenweiser's procedure: He is out to analyze totemism. From Australia he brings a totemic complex, or several of them. From the northwest coast of America he gathers other totemic complexes. These go into his analytical laboratory for a thoroughgoing investigation. The complexes as a whole are doubtless too truly complexes to be dealt with as synthetic unities, the essence of totemism being too well protected to be gotten hold of in this way. Accordingly, these complexes are subjected to a painstaking dissection by which means, it appears, the analyst hopes to discover the totemic quintessence. He cuts out the exogamic features where they exist and lays them side by side for comparison; he does the same with clan organization, taboos, etc. The result is that there appears to be no one thing in common—there is no inevitable component element of totemism. Hence, "any attempt at dealing with totemism without due realization of the essential independence of its constituent parts must result in grave misconceptions."[2] "Exogamy, taboo, religious regard, totemic names, descent from the totem,—all fail as invariable characteristics

[1] *Magic and Religion*, p. 244.

[2] *Totemism*, p. 5, reprint.

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[1] *Magic and Religion*, p. 244.

[2] *Totemism*, p. 5, reprint.

of totemism" (p. 81). Whatever its program may be, totemism seems to require no one thing for the accomplishment of its purpose beyond a group, an emotional attitude, and a thing or symbol toward which the group maintains this emotional attitude. For "totemism is the process of specific socialization of objects and symbols of emotional values" (p. 97).

There is no totemic entity of recognized attributes that is to be found wherever totemic phenomena are recognized. Dr Goldenweiser makes that very clear. We are not sure that anyone ever supposed it to be otherwise. There are, however, certain social complexes which, because of some resemblance answering to objective description, or perhaps, because of a chance association in the mind of the observer, have in various areas been called totemism—the word having, in the first place, been borrowed to denote a particular complex in a particular social group. It is enough to know how variously social phenomena appeal to the variety of minds that have observed and described them; in view of this diversity we should scarcely expect to find any one thing in common in these various totemisms unless some one thing had been selected as characteristic by those who designated these institutions totemic. Perhaps, generally, the test applied has not been essentially different in implication from that supplied by Dr Goldenweiser in his definition.

What, then, does this admirable analysis of these elaborate totemic complexes give us? Just what it would give in the case of an analysis of any sociological concept: complexes of almost every variety of complication and complexion containing nothing more in common, very probably, than those same characteristics which we used—and were compelled to use—as a test in selecting our material for comparative analysis. It is a principle stated more than a decade ago by Hubert and Mauss in their study of magic.[1] They gave with regard to magic almost the same warning that Dr Goldenweiser has so well sounded with regard to totemism: "La magie," they said, "est une masse vivante, informe, inorganique," the component parts having no common fixed function. "On les voit même se confondre." Observer after observer has written about a tribe without attributing to it any concrete content previously given from some other tribe, and apparently quite untroubled by any question of identity of component elements. Even Frazer's treatment of totemic phenomena gives straightforward description of

[1] Hubert et Mauss, Théorie générale de la magie, *L'Année Sociologique*, VII, 1902–03.

totemisms without implying any organic dependence of elements in these various systems. The whole controversy over the meaning and evolution of totemism seems to be due to an appreciation of the varying component elements of the totemic system, and Dr Goldenweiser is only one of the many writers on this theme who have appreciated this fact. His divergence from preceding theorists lies elsewhere.

"But let us return to the component elements of the totemic complex," and if we mistake not, to the passage that furnishes the key to the author's philosophy of totemism.

> It will be admitted that these elements are highly heterogeneous in character. Their psychological complexity and variability, as well as the many possibilities of origins and historic developments, have been at least indicated above. The various totemic complexes as we now find them in Australia, America, Africa, reveal, in comparison, a considerable degree of similarity. Totemic phenomena may thus be regarded as the product of convergent evolution.[1]

With all of this we are in active agreement. We do not understand by what logic we could deny that totemic phenomena may be regarded as the product of convergent evolution.

Fortunately Dr Goldenweiser gives an estimate of the methods hitherto used in investigating totemism. The conclusion, after a review of these methods, is worth quoting (pp. 102–103):

> Not one step in the above mode of attacking the problem of totemism is methodologically justifiable. There is no warrant for assuming a feature now prominent to be the original feature of the system. We have no more right to assume that the *intichiuma* ceremonies or the conception beliefs of the Arunta were the source of even Aranda totemisms, than we should have to regard the decorative art of the Indians of British Columbia as the primary element of the totemism of those Indians. True, animal names are common in totemic groups; but why is the question, "How did the early groups come to be named after the plants and animals?" the real problem? Would not Lang admit that other features may also have been the starting-point; such as animal taboos, or a belief in descent from an animal, or primitive limiting-regulations, or what not? I am sure that Lang, who is such an adept in following the *logos*, could without much effort construct a theory of totemism with any one of these elements to start with, —a theory as consistent with facts, logic, and the mind of primitive man, as is the theory of names "accepted from without."
>
> The next step in the reasoning—that, namely, of a rigid deduction of the other features from the original one—is not any more justifiable; for it involves the assumption of an organic unity of the features of totemism, an assumption which I hope I have shown to be untenable. It also involves the assumption of a uniform law of development.

[1] Page 95. See also *American Anthropologist*, 1911, p. 506, and again 1912.

Surely such treatment as Dr Goldenweiser deprecates has now been relegated to the past.

But the author himself speculates as to origins. With respect to Australia:

> In regard to two points . . . we may be tolerably certain. The totem clans have not originated from village communities through a process of fusion and splitting; for it is more than improbable that a development of the required complexity and duration should have left no traces. The second point refers to the greater antiquity of the phratries as compared to the totem clans. The occurrence of the phratry over almost the whole of the Australian continent; the fact that many phratric names and the meaning of many more have been forgotten; the importance of the phratry in connection with exogamy and the ceremonies,—all these point toward a great antiquity of that institution (p. 11).

If "tolerably certain" means a certainty that will be tolerated, we are not so sure that we must agree with the author. We can conceive that the development has been in the very reverse direction from which he has conceived it. To speak of the "more than improbable" seems to refer to excluded possibility of the opposite. But it is not difficult to suppose that in course of time institutions should bear no perceptible trait of their origin. If change continues, however slowly, we may conceive that in process of time no traces of the earlier form will be found. If biology furnishes only analogies, history will furnish ample illustrations to the point, and we are agreed that the history of primitive Australians is not yet on record. We must confess to the same doubt with regard to the second point. Does the author think that the occurrence of the phratry over almost the whole of the Australian continent can be interpreted only as antiquity, or is it only one of the explanations open to us? As a matter of fact I believe we find that there is a rather thoroughgoing correlation between totemic institutions and phratric divisions. Why does the author's *logos* rigidly exclude all possibilities save one? Just why "the matrimonal classes could hardly have developed from the phratries by a process of subdivision, but there seems little doubt that the totemic clans have so developed" (p. 48) is a proposition not clear to us. Certainly the cross-sectioning of the phratries by the totems and the constant limitation of the matrimonial classes to one or the other phratry—as the classification seems to warrant in central Australia—seems, superficially, to argue the very reverse of the above inference. Argument can be offset by argument, logic by logic; but to what purpose? We are disposed to think that the deeper logic of the situation is to the effect that no man's logic can reconstruct the history of Australian social

organization as we now know it. To attempt to do so in any serious spirit seems to go against the whole logic of the *Totemism*—a logic that is forever telling us that any association of social units is conceivable and no historic organic unity is to be argued. The interpretation of certain phases as survivals, of others as innovations, may itself be fraught with dangers. The author himself sounds "a note of warning against the seductiveness of superficial resemblances in ethnic data. Back of the objective analogy may lie a different historical process and a different psychological setting. . . . . Unless those other factors be taken into consideration, we may come to view the facts in a totally wrong perspective" (p. 52). If this be true, it is perhaps improbable that Dr Goldenweiser can tell us the history of the evolution of Australian totem clans and marriage rules (p. 67). If we mistake not, the facts will equally well fit another scheme of logical development—barring the tinge of personal bias that taints the *logos*. The author himself gives this caution in no doubtful terminology in another passage (pp. 88, 93).

In the concluding pages of the treatise (pp. 103–109) we have another example of the application of the author's *logos*, this time to the tribes of British Columbia. Here again, it seems to us, there is a failure to apply the very principle which the author is making. He has "tolerably reliable information on a number of curious historic processes" (p. 103). "No amount of insight into psychological probabilities, into the constitution of the human mind in general and that of the primitive man in particular, would in the least assist us to reconstruct the development of these tribes, unless we also possessed the knowledge above indicated" (p. 109). We are not questioning the author's sufficient grasp of the ethnographic situations, but his alleged "curious historical processes" do, indeed, to some seem curious. The information may be nothing lacking in reliability, and yet we may be allowed to doubt whether this knowledge of the facts is sufficient to warrant a reconstruction of the history of these social institutions. Some who are more familiar with that area than is the present writer do doubt it, being fully assured that the author's reconstruction as regards certain phases is a perversion of probabilities. With regard to the degrees of plausibility, we have as little to do as the author has had to do with the theories of uniform development—it remains to be shown that reconstruction is justifiable.

This is where Dr Goldenweiser stays his theoretical considerations, whereas, having demolished the old methods of approach, it is just here that he should start out afresh. In a word, he has shown that historical processes are to be inferred, if at all, not in detached areas (the old way)

but only in culturally similar and culturally if not geographically contiguous groups. He then hastens to apply this to separate areas with the resulting reconstruction that gives us little satisfaction. This is much the method of the famous Scotch preacher who summed up the situation by saying "Now, brethren, we will face the difficulty fairly and pass on."

The crucial point is, Can we reconstruct at all by inference, and if we can, what principles shall guide us in our respective cultural areas? Dr Goldenweiser does not give us the principles which enables his *logos* to make these reconstructions but offers us the reconstructions instead. Is it not just these principles of particular application that will furnish the key to the interpretation of the origin of social forms if any key is to be had? But just when may we confidently—not confidentially—assert that such a key exists and we have it?

It may not be inappropriate to raise the question of the bearing of this analysis and similar analyses upon the problem of convergent and divergent evolution. Such a treatment as Dr Goldenweiser gives the question seems to leave us no preference for either one of these theories. His treatment of related cultural areas, such as Australia on the one hand, and British Columbia on the other, shows that a similarity of development has taken place, though the processes may be borrowed and not necessarily worked out in each individual tribe. This is certainly a divergent evolution of totemic institutions—it is not the result of convergent evolution in the tribes, if we consider each of these respective cultural areas as an independent unit. When we go into the prehistoric past we leave the realm of possible interpretation. Any attempt to explain the historic relation of Australian totemism to that of the northwest coast of America, or to correlate previous social status with totemism, must project us into that unknown. We can only say that either line of development is possible. One attitude may be more profitable because it lends itself to more concrete treatment, but that does not make its ultimate truth more probable. Indeed, the writer is troubled as to how the most thoroughgoing analysis of any social institution in any group of tribes can give an answer to these problems. For it is essentially history that we demand and history can never, we believe, be reconstructed by the analysis of an institution which is believed to have evolved differently or in the same way in different areas. What we find are various situations or social complexes in different tribes. Dr Goldenweiser has performed an inestimable service in making these situations more clear to us and in presenting them through the perspectives of the respective cultures of which they are a part. It does not

prejudice the question of divergent or convergent evolution. "In other words, to establish that convergent evolution of an institution exists in two different tribes, one would have to prove that, even in the remote past, they never have had, historically, anything to do with one another, directly or indirectly."

W. D. WALLIS

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ONE OF THE RAREST AMERICAN BOOKS

THE history of the printing press and its output at the famous Jesuit mission settlements in Paraguay among the Guaraní Indians is explained in all its details by the Chilean bibliographer Don José Toribio Medina, in his great *Historia y Bibliografía de la Imprenta en la América Española*.[1] Medina cites the following printed works bearing on the Guaraní language:

I. De la diferencia entre lo temporal y eterno crisol de engaños, con la memoria de la eternidad, postrimerias hvmanas, y principales misterios divinos por el P. Evsebio Nieremberg de la Compañia de Iesvs y tradvcido en lengva gvarani por el Padre Ioseph Serrano, de la misma Compañia, [etc.].

Impresso en las Doctrinas Año de M.D.CC.V. Folio.

II. Manuale Ad vsum Patrum Societatis Iesv Qui in Reductionibus Paraqvariae versantur Ex Rituali Romano ac Teletano [*sic*, for Toletano] decerptum Anno Domini MDCCXXI. Superiorum permisu(!) Laureti typis P.P. Societatis Iesv.

III. Vocabulario de La Lengva Gvarani compvesto Por el Padre Antonio Ruiz de la Compañia de Jesvs Revisto, y Augmentado Por otro Religioso de la misma Compañia. Enel Pveblo de S. Maria La Mayor. El Año de MDCCXXII.

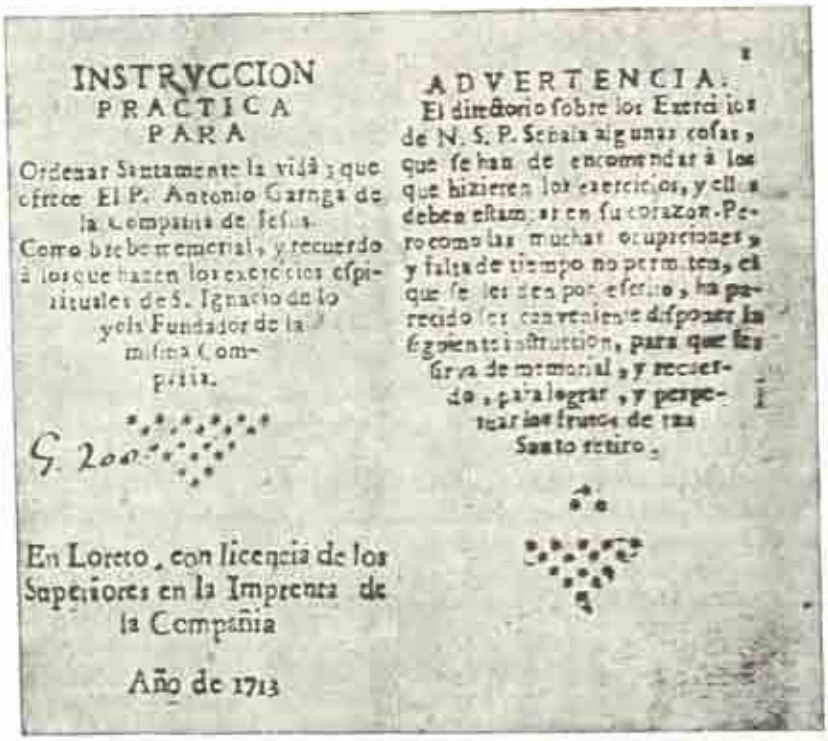
IV. Arte dela Lengua Guarani por el P. Antonio Ruiz de Montoya dela Compañia de Jesus Con los Escolios Anotaciones y Apendices del P. Paulo Restivo de la misma Compañia Sacados de los papeles Del P. Simon Bandini y de otros. En el Pueblo de S. Maria La Mayor. El Año de el Señor MDCCXXIV

V. Explicacion de el Catechismo en Lengua Guarani por Nicolas Yapuguai con direccion del P. Paulo Restivo dela Compañia de Jesus. En el Pueblo de S. Maria La Mayor. Año de MDCCXXIV

VI. Sermones y Exemplos en Lengva Gvarani Por Nicolas Yapuguay Con direction de vn religioso dela Compañia de Iesvs. En el Pueblo de S. Francisco Xavier Año de MDCCXXVII.

[1] La Plata, Taller de Publicaciones del Museo, 1892, folio.

In 1907 the writer had the good fortune to discover in the private library of his learned Chilean friend Don Luis Montt, at that time Director of the National Library in Santiago de Chile, a further mission print, unknown to bibliographers who had written on the subject up to



INSTRVCCION
PRACTICA
PARA

Ordenar Santamente la vida; que ofrece El P. Antonio Garriga de la Compañia de Iesus.

Como breue memorial, y recuerdo à los que hazen los exercicios espirituales de S. Ignacio de Loyola Fundador de la misma Compañia.

S. 200

En Loreto, con licencia de los Superiores en la Imprenta de la Compañia

Año de 1713

ADVERTENCIA.

El directorio sobre los Exercicios de N. S. P. Señala algunas cosas, que se han de encomendar à los que hizieren los exercicios, y ellas deben estampar en su corazon. Pero como las muchas ocupaciones, y falta de tiempo no permiten, el que se les den por escrito, ha parecido los conveniente disponer la siguiente instruction, para que les sirva de memorial, y recuerdo, para alegrar, y perpetuarles frutos de tan Santo retiro.

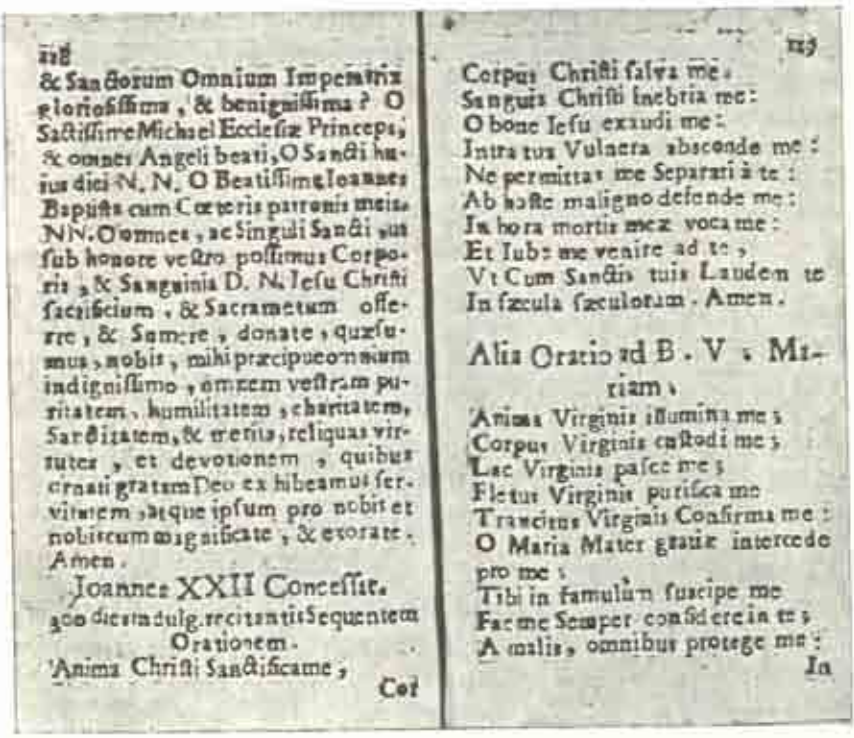
FIG. 28.—The title page and the first page of the text of Garriga's *Instruccion Practica*. (Reduced.)

that time. The first bibliographical notice of this rarest American book was given by the writer in a pamphlet[1] published by Dr Jacques Huber, Director of the Pará Museum. Misled by a French bibliographer, the writer erroneously cited Father Garriga's tract as the first book printed at the Jesuit missions in Paraguay; in reality it was the second known work printed by the Guaraní Indians. Pursuant to my instructions, this mistake was rectified by Dr Wilhelm Kissenberth in the *Revista*

[1] *Um livro americano unico. O primeiro impresso nas Missões Guarani da S. J. Pelo Dr. R. R. Schuller.* Pará (Brazil), 1910. 8°.

Americana[1] several weeks before Dr Martiniano Leguizamón[2] published his critical article on the subject in the newspaper *La Nación* of Buenos Aires.

The author of the mission's second print is Father Antonio Garriga,[3]



& Sanctorum Omnium Imperatrix gloriosissima, & benignissima? O Sactissime Michael Ecclesiæ Princeps, & omnes Angeli beati, O Sancti huius diei N. N. O Beatissime Ioannes Baptista cum Cæteris patronis meis N N. Omnes, ac Singuli Sancti, vos sub honore vestro possimus Corporis, & Sanguinis D. N. Iesu Christi sacrificium, & Sacramentum offerre, & Sumere, donate, quæsumus, nobis, mihi præcipue omnium indignissimo, omnem vestram puritatem, humilitatem, charitatem, Sanctitatem, & merita, reliquas virtutes, et devotionem, quibus digni gratam Deo exhibeamus servitutem, atque ipsum pro nobis et nobiscum magnificate, & exorate. Amen.

Ioannes XXII Concessit.

Quo dicta dulg. recitantis Sequentem Orationem.

Anima Christi Sanctificame,

Cor

Corpus Christi salva me.
Sanguis Christi inebria me:
O bone Iesu exaudi me:
Intra tua Vulnera absconde me:
Ne permittas me Separari à te:
Ab hoste maligno defende me:
In hora mortis meæ voca me:
Et Iube me venire ad te,
Vt Cum Sanctis tuis Laudem te
In sæcula sæculorum. Amen.

Alia Oratio ad B. V. Mariam.

Anima Virginis illumina me;
Corpus Virginis custodi me;
Lac Virginis pasce me;
Fletus Virginis purifica me
Tranctus Virginis Confirma me:
O Maria Mater gratiæ intercede pro me;
Tibi in famulum suscipe me
Face me Semper confidere in te;
A malis, omnibus protege me:

In

FIG. 29.—Two of the last pages of Garriga's *Instruccion Practica*.

the well-known Jesuit missionary to the Moxo Indians. He had been several times Superior of the Peruvian Jesuit Province, and gave the

[1] Vol. II, Rio de Janeiro, 1910, edited by Dr George Araujo of the Foreign Office.

[2] A distinguished member of the Junta de Historia y Numismática Americanas in Buenos Aires.

[3] See *Bibliothèque de la Compagnie de Jésus*, Nouv. édit., par Carlos Sommervogel, S.J., III, 1892, cols. 1236–1237, which quotes a manuscript in the Moxa language by Marban, corrected by Garriga, and cites an *Arte, Bocabulario, Cartilla, y Catecismo y Confessionario de la lengua Cayubaba de la Provincia de los Moxos*, MS., n.d., by Father Garriga.

"Approbation" for printing Father Pedro Marban's *Arte de la lengua Moxa*.[1]

This *Instruccion Practica*, printed in the Guaraní settlement of Loreto, perhaps the only copy in existence, was sold by Don Luis Montt to Professor A. C. Coolidge, of Harvard University, from whom it passed to the John Carter Brown Library of Providence, Rhode Island, and today undoubtedly constitutes one of the rarest and most valuable books of that famous American library, of which Mr George Parker Winship,[2] the noted bibliographer, is librarian.

RUDOLPH SCHULLER

WASHINGTON, D. C.

A NOTE ON RECIPROCAL TERMS OF RELATIONSHIP IN AMERICA

AN interesting feature in the systems of relationship found in various parts of the world is the tendency to use the same term to apply to both members of a pair of related individuals relatively to each other. This type of relationship term may be called "reciprocal." In English pure reciprocal terms are not found except in the case of "cousin." On the other hand, "brother" and "sister" are reciprocal only in the case of identity of sex of the two individuals; the "brother" of a woman calls her "sister," whereas a reciprocal relationship would demand that they call each other by the same name. Such reciprocal types of brother–sister relationship naturally occur in other languages. A reciprocal relationship may subsist between those related by blood or by marriage; in either case the pair of individuals may be related in the direct or collateral lines. A good example of reciprocal relationship among blood relatives in the direct line is afforded by the Takelma terms for "grandparents" and "grandchildren." Thus, *wi-gamdî*[3] denotes both "my (male's or female's) paternal grandparent (father's mother, father's father)" and "my (male's or female's) son's child (male or female)":[4]

[1] The second "Approbation" was signed by the Superior Father Garriga, Lima, Dec. 26, 1701. Therefore it is impossible that the above mentioned *Arte* by Marban could have been printed the same year. See also page 145 of Marban's *Arte*, where it is distinctly recorded: "*Cartilla y Doctrina Cristiana en Lengua Moxa, impresso con licencia de los Superiores en la Ciudad de los Reyes por Joseph de Contreras Impressor Real Año de 1702.*"

[2] See *The Printing Press in South America*, by George Parker Winship, Providence, 1912 (200 copies reprinted from *The Academy*, London, November 25, 1911), pp. 8–10. Mr Winship was not aware of my bibliographical notice which appeared at Pará, Brazil, in 1910.

[3] See phonetic note at end.

[4] See Sapir, Notes on the Takelma Indians of Southwestern Oregon, *American Anthropologist*, n. s., 9, 1907, p. 268.

wi-kłdsi denotes both "my (male's or female's) maternal grandparent (mother's mother, mother's father)" and "my (male's or female's) daughter's child (male or female)."

Another widespread tendency in systems of relationship is the use of diminutive suffixes to express tender years, relative juniority, or, most commonly perhaps, endearment. Terms so modified may either remain essentially unchanged in meaning or take on a specialized significance. The former is the case with German *Mütterchen* as compared with *Mutter;* the latter with Latin *avunculus* as compared with *avus.*

The reciprocal classification of terms of relationship may become associated with the use of the diminutive suffix, the most intelligible form of the association being the restriction of diminutive forms to the younger individual or later generation of a reciprocally related pair. This is what takes place in Tewa, where, according to J. P. Harrington,[1] the diminutive element *'ɛ* (also used as independent noun, "offspring, son, daughter"), when "postjoined to any term denoting blood-relationship . . . , gives what the younger of two relatives by descent calls the elder by descent." The reciprocal sets of terms found in Tewa are: grandfather—grandchild of male; grandmother—grandchild of female; great-grandfather—great-grandchild of male; great-grandmother—great-grandchild of female; uncle—nephew or niece of male; aunt—nephew or niece of female; stepfather—stepchild of male; stepmother—stepchild of female; and step-relationships of types corresponding to preceding pairs. It is instructive to note that the Tewa *'ɛ* may also be used with the terms for "father" and "mother" to denote endearment, not the reciprocally related "father's child" and "mother's child"; further, the diminutive form of "male first cousin" has the meaning of "male cousin second removed."[2] These examples indicate that the association in Tewa of the reciprocal system with the use of the diminutive is indeed secondary.

In regard to the Tewa use of *'ɛ* in reciprocal terms, Harrington states: "It appears that nothing like it has been discovered in any other Southwestern language."[3] If the Shoshonean languages of the Ute-Chemehuevi group, spoken by tribes inhabiting large territories in Colorado, Utah, Nevada, California, Arizona, and New Mexico, are to be considered Southwestern, this statement needs to be qualified, for material obtained by the writer in 1909 from the Uintah Ute of northern

[1] See Harrington, Tewa Relationship Terms, *American Anthropologist*, n. s., 14, 1912, pp. 472–498.

[2] Ibid., pp. 479, 480, 488. The term *sa'ɛ* "daughter-in-law" is perhaps an irregular diminutive of *sa'ɨ́* "bride" (p. 489).

[3] Ibid., p. 472.

Utah[1] and from the Kaibab Paiute of southwestern Utah and northwestern Arizona,[2] shows that these tribes make use of a group of reciprocal terms strikingly similar in plan to those recorded by Harrington for the Tewa. The Kaibab Paiute terms here concerned may be conveniently arranged in the form of a table. The suffixed *-tsi-* (as absolute ending, *-ts·*) is the regular diminutive ending, which, however, unlike the parallel Tewa element *'e*, does not occur as an independent word.[3] The ending *-n'i* is the first person singular possessive, "my."

Term	Meaning	Reciprocal Term	Meaning
toXó-n'i	male's or female's paternal or maternal grandfather	*toXó-t·si-n'i*	male's grandchild (son's or daughter's child of either sex)
qāXú-n'i	male's or female's paternal or maternal grandmother	*qāXú-t·si-n'i*	female's grandchild (son's or daughter's child of either sex)
qunú-n'i	male's or female's great-grandfather	*qunú-t·si-n'i*	male's great-grandchild
'e'tsí-n'i	male's or female's great-grandmother	*'e'tsí-t·si-n'i*	female's great-grandchild
dí-n'i	male's or female's paternal or maternal uncle	*dí-t·si-n'i*	male's fraternal or sororal nephew or niece
pāá-n'i	male's or female's paternal or maternal aunt	*pāá-t·si-n'i*	female's fraternal or sororal nephew or niece
cínú-n'i	male's older[4] male cousin (perhaps also: female's older female cousin)	*cínú-t·si-n'i*	male's younger male cousin (perhaps also: female's younger female cousin)
mānuÚ'i-n'i	male's older[4] female cousin (perhaps also: female's older male cousin)	*mānuÚ'i-t·si-n'i*	female's younger male cousin (perhaps also: male's younger female cousin)

In the case of the first five pairs of terms of relationship the range of meaning covered by each term was determined by reference to the genealogy of the informant; in the case of the sixth pair (*pāa-*), the genealogical data had reference only to the paternal (reciprocally,

[1] Informant, Charlie Mack.

[2] Informant, Tony Tillohash.

[3] More strictly parallel in this regard to Tewa *'e* is the Paiute noun-stem *towa-* "son, daughter, young (of animal)," which, as the second member of a compound noun, often plays the part of a diminutive suffix.

[4] Individually older, no reference being had to relative ages of cousins' parents.

fraternal) type of relationship involved, though the true range of usage can be safely inferred from analogy. It will be observed that the first six pairs of Kaibab Paiute terms correspond in every way to the first six Tewa pairs given above—in reciprocity, use of diminutive suffix, and range of usage of each term. Obviously the Kaibab Paiute and Tewa systems of relationship are cast in the same mold.

The corresponding Uintah Ute terms follow, on the whole, the same lines, but exhibit significant differences. They are given in tabulated form.

Term	Meaning	Reciprocal Term	Meaning
toγú-n'i	male's or female's maternal grandfather	*toγú-t·ci-n'i*	male's daughter's child
qönú-n'i	male's or female's paternal grandfather	*qönú-ntci-n'i*	male's son's child
qaγú-n'i	male's or female's maternal grandmother	*qaγú-t·ci-n'i*	female's daughter's child
'ʷi'tcí-n'i	male's or female's paternal grandmother	*'ʷi'tcí-t·ci-n'i*	female's son's child
ái-t·ci-n'i	male's or female's father's younger brother	*ái-t·ci-n'i*	male's older brother's child
qún'-'ni	male's or female's father's older brother	*qún'-tci-n'i*	male's younger brother's child
cinú-ntci-n'i	male's or female's mothers' younger brother	*cinú-ntci-n'i*	male's older sister's child
'ni=qúi-n'i	male's or female's mother's older brother	*'ni=qú-t·ci-n'i*	male's younger sister's child
pá'-n'i	male's or female's father's (older or younger) sister	*pá'-t·ci-n'i*	female's (older or younger) brother's child
máwún'-'ni	male's or female's mother's older sister	*máwún'-tci-n'i*	female's younger sister's child
nimbúia-n'i	male's or female's mother's younger sister	*nimbúia-t·ci-n'i*	female's older sister's child

In comparing the Uintah Ute and Kaibab Paiute systems, we find that the former, like so many American Indian languages, distinguishes, in contrast to the latter, between maternal and paternal grandparents (reciprocally, son's and daughter's children); the Paiute terms for "grandfather" and "grandmother" (reciprocally, "male's grandchild"

and "female's grandchild") are identical with the Ute "maternal grandfather" and "maternal grandmother" respectively (reciprocally, "male's daughter's child" and "female's daughter's child"). On the other hand, the Ute terms for "paternal grandfather" and "paternal grandmother" (reciprocally, "male's son's child" and "female's son's child") are identical with the Paiute terms for "great-grandfather" and "great-grandmother" respectively (reciprocally, "male's great-grandchild" and "female's great-grandchild"). Unfortunately the Ute terms for great-grandparents and great-grandchildren are not available for further comparison.

The Ute terms for "uncle" and "aunt" (reciprocally, "nephew *or* niece") are far more explicit than the corresponding terms of Paiute, which number only two, *ni-* "uncle" and *pâa-* "aunt." Ute has a distinct term for each of the four possible kinds of "uncle," regard being had to whether the "uncle" is related through the mother's or the father's side and whether he is older or younger than the parent. For "aunt" Ute has only three terms, the distinction between father's older and younger sister not being made. Thus, Ute has seven distinct terms corresponding to the two of Paiute. As far as the element of reciprocity is concerned, however, Ute and Paiute are strictly parallel: to each term for "uncle" or "aunt" there is a corresponding one for "nephew *or* niece."

It is worth noting that the diminutive suffix (*-t·ci-*, *-ntci-*) is present in the Ute terms for "father's younger brother" and "mother's younger brother" as well as in the corresponding reciprocal terms "male's older brother's child" and "male's older sister's child." This is evidence for the only secondary character of the association between the diminutive suffix and the younger of two reciprocal relationships, just as we have seen evidence of the same sort to exist in Tewa. In the case of non-reciprocal terms of relationship the diminutive suffix is often used in Ute and Paiute to indicate youth or affection. Thus, in Ute, *patci-* "daughter" is apt to be more used in reference to a grown-up daughter; *patci-t·ci-* to a young child, though not exclusively so. It seems reasonable, then, to suppose that originally the two members of a reciprocally related pair of individuals were referred to by exactly the same term, as in the case of the Takelma examples cited at the beginning of this note, but that the tendency to use the diminutive element with such terms led to a specialization of usage.

Comparing the seven Ute terms for "uncle" or "aunt" with cognate Paiute terms, we find that Ute *ai-t·ci-* "father's younger brother"

is identical in stem with Paiute *ai-* "uncle (in general)," and that Ute *pā-* "father's sister" is identical with Paiute *pāa-* "aunt (in general)." Ute *cinʌ-ntci-* "mother's younger brother, male's older sister's child" and *māwu'-* "mother's older sister" (reciprocally, *māwun'-tci-* "female's younger sister's child") are respectively cognate with Paiute *cina(-t·si)-* "male cousin of male" and *māŋwu'i(-t·si)-* "male's older female cousin" (reciprocally, "female's younger male cousin"). Charlie Mack, the Ute informant, stated that cousins called each other brother and sister. If this is strictly accurate, it is interesting to observe in Paiute the use of terms for the cousin relationship which in Ute are set aside for certain uncle (aunt)-nephew *or* niece relationships (compare German *Vetter* "cousin" with its Judeo-German use for "uncle").

The significance of the resemblances in relationship-scheme between Tewa and Southern Paiute where the latter differs from Ute is heightened by the correspondence, in the case of the grandparent–grandchild relationships, of Ute with Shoshone (the Shoshone forms here given were obtained from Charlie Mack, who speaks both Ute and Shoshone). The cognate Ute-Shoshone terms are as follows:

Term	Ute	Shoshone
mother's father	*toγú-n'*[1]	*ni-ɾǫ́γǫ'*[1]
father's father	*qónú-n'*[1]	*ne-gónu'*
mother's mother	*qaγú-n'*[1]	*ni-gá'gu'*
father's mother	*'ʷi'tci-n'*[1]	*na-út·ci'*

The Shoshone pronominal prefix *ni-* (*ne-*, *na-*) "my" corresponds to the Ute suffix *-n'*[1]. It is interesting that in this matter of relationship terms two such closely related dialects as Ute and Southern Paiute differ on a point on which they respectively agree with a neighboring Shoshonean and with a non-Shoshonean language. Here, as so often, a cultural dividing line runs clear across a homogeneous linguistic group.

A very peculiar system of reciprocal relationships associated with the use of a diminutivizing process is found in Wishram (Upper Chinookan). The cases in point are:

Term	Meaning	Reciprocal Term	Meaning
-klacu-c	paternal grandfather	*-qc-ɛn* (vocative *qácu*)	male's son's child
-gakʟu-c	maternal grandfather	*-gak-an* (vocative *gágu*)	male's daughter's child
-klɪ-c	paternal grandmother	*-gi-an*	female's son's child

[1] *-ɾǫγo'* from *-toγǫ'*.

The suffixed elements *-e* and *-an* (*-En*) are evidently characteristic of the terms for the older and younger generations. Eliminating these elements, we find that the stems for the pairs of reciprocal relationship terms are in every case identical (in the first two pairs the vocative forms give a clearer point of departure), except for the fact that the *q* (g) or *k* (g) of the terms for the younger generations is replaced by *k!* in the terms for the older. This change is characteristic in Wishram of diminutive forms.[1] What is so peculiar about these forms is the fact that the diminutive consonantism is found in the terms for the older generation, not, as analogy with Tewa and Ute and Paiute would lead one to expect, in those for the younger.

Phonetic Note

o, short and open; *o*, short and close; *i* and *u*, short and open; *ö* (Ute), short, about as in German *Götter; ü* (Ute), rather obscure, about as in German *Mütze; ā*, long as in German *Kahn; ū*, long as in German *Gruss; ʊ*, high back wide, very slightly inner-rounded (Sweet's terminology); *ʌ*, as in English *but; ɛ*, obscure vowel of undefined quality; *ɐ* (Tewa), short and open, as in English *met;* superior vowels and *w*, *n*, preceded by ' (sign of aspiration) are voiceless; other superior vowels are glides (after ', murmured); ˛ indicates nasalization.

', glottal stop; *ŋ*, ng of English *sing; q*, voiceless velar stop; *g*, voiced velar stop; *γ*, voiced velar spirant; *r*, frontal and slightly trilled; *c*, as in English *she; tc*, as in English *church; k!*, "fortis" or glottalized *k; g* and *d* are intermediate (as to voice) in Takelma, elsewhere sonant; · indicates long consonant.

', main stress; ' (Takelma), raised pitch on short vowels.

E. SAPIR

GEOLOGICAL SURVEY OF CANADA
OTTAWA, ONTARIO

ESKIMO LONG-DISTANCE VOYAGES

PERHAPS there may be reason to credit the Eskimo with more extensive sea-travel than has hitherto generally been believed. Rev. James Wallace,[2] writing of the Orkney islands in 1693, says:

Sometime about this country are seen those men who are called Finnmen. In the year 1682, one was seen sometime sailing, sometime rowing up and down

[1] See Sapir, Diminutive and Augmentative Consonantism in Wishram, in Boas, *Chinook* (Handbook of American Indian Languages, *Bureau of American Ethnology, Bulletin 40*, pt. 1, 1911), p. 639.

[2] *Description of the Isles of Orkney* (1693), edited by J. Small, 1883, pp. 33, 34.

in his little boat, at the south end of the Isle of Eda. Most of the people of the Isle flocked to see him and when they advanced to put out a Boat with men to see if they could apprehend him he presently fled most swiftly: and in the year 1684 another was seen from Westra and for a while after they got few or no Fishes: for they have the Remark here that these Finnmen drive away the fishes from the place to which they come.

These Finnmen seem to be some of these people that dwell about the Fretum Davis, a full account of whom may be seen in the natural and moral History of the Antilles, Chap. 18. One of their boats sent from Orkney to Edinburgh is to be seen in the Physicians' hall with the Oar and Dart he makes use of for killing Fish.

A note by the editor states that this boat was afterward presented to the University Museum, now incorporated with the Museum of Science and Art, Edinburgh.

James Wallace, M.D., the original author's son, brought out in 1700 a second edition with notes of his own. One of these affirms: "There is another of their boats in the Church of Burra in Orkney." Another of his notes discusses the question as follows:

I must acknowledge it seems a little unaccountable how these Finn men should come on this coast, but they must probably be driven by storms from home and cannot tell when they are any way at sea how to make their way home again. They have this advantage that be the seas never so boisterous their boats being made of Fish Skins are so contrived that he can never sink, but is like a Sea-gull swimming on top of the water. His shirt he has so fastened to the boat that no water can come into his boat to do him damage except when he pleases to untye it, which he never does but to ease nature or when he comes ashore.

Alexander von Humboldt, referring to the appearance of strange men in boatloads among the Azores, says:

L'histoire nous en fournit plusieurs exemples entièrement semblables. James Wallace rapporte dans son Histoire des îles Orcades, que des Groenlandais appellés Finn-men par les Orcadiens ont eté poussés quelquefois par les parages.[1]

A statement of Wallace's two special instances follows, with mention of the boat in the church of Burra and a calculation of distance and time.

In a note (p. 261) Humboldt quotes from Bembo's *History of Venice* as to the finding of unknown men in a boat near the English coast by a French vessel in 1508, and says: "Il est facile de reconnaître la race des Esquimaux," in the description given.

His only indication of doubt is in another note, under the Wallace quotation. This mentions the testimony of a resident of Greenland

[1] *Examen Critique*, t. II, p. 260.

that "ces remollissent lorsqu'ils sont long-temps exposés a l'eau de mer"; also that the Eskimo do not cross from Labrador to Greenland.

But perhaps they did so formerly, for on pages 259 and 260 of Professor A. S. Packard's *The Coast of Labrador* we find the following:

In 1811 two Moravian missionaries explored the northern coast of Labrador from Okkak to Ungava Bay, making an excellent map of this part of the coast. The expedition arose from their desire to establish missions where the Eskimo were abundant, as farther down the coast they were regarded as "mere stragglers."

An Eskimo tradition of interest is mentioned in this book as follows: "July 24th Amitok lies N.W. from Kummatorvik, is of an oblong shape and stretches out pretty far towards the sea. The hills are of moderate height, the land is in many places flat, but in general destitute of grass. On the other side are some ruins of Greenland (Eskimo) houses.

The Esquimaux have a tradition that the Greenlanders (i. e., Greenland Eskimos) came originally from Canada and settled on the outermost islands of the coast, but never penetrated into the country *before they were driven eastward to Greenland*. The report gains some credit from the state in which the above-mentioned ruins are found. They consist in remains of walls and a grave, with a low stone enclosure around the tomb covered with a slab of the same material. They have been discovered on islands near Nain *and though sparingly all along the eastern coast*, but we saw none in Ungava Bay.

Packard adds, on page 274:

It is interesting to note that Reichel [1871, in a German pamphlet on the Labrador missions] gives some facts showing the former (perhaps temporary) occupation by Greenland Eskimos of some of the outer islands of the northern part of the coast. At Kernertulik on Okkak island is a cave, where traces of a Greenlander's house are still to be seen. Javranat on the mainland near Okkak is so called from the Greenlander's word Javra, meaning "frightful," in allusion to a tragedy in which many Eskimo perished, having been beaten by the strategy of their Greenland assailants. Reichel also states that in early times the Eskimo were feared on account of their robberies, which were often accompanied by murder and manslaughter as far down in general as Newfoundland.

In view of these extracts, is it unreasonable to conjecture that the Eskimo who destroyed or absorbed the Norse settlements in Greenland may have come in great part directly across from northern Labrador? This hypothesis readily accounts for some differences in arts and customs between Rasmussen's People of the Polar North and the Greenland Eskimo south of the glaciers, who seem (until recently) to have had little or no intercommunication for a long time. Independent though allied streams of humanity, hardly ever touching and subjected to different conditions, would naturally vary.

If individual Eskimo could repeatedly cross the Atlantic in their kayaks, even with the aid of storms, the comparatively easy voyage from Labrador to Greenland would surely be feasible. The papal letter of 1448 speaks of a fleet of heathen coming (about 1418) to lay waste the greater part of the Greenland colony and carry off many of its people, but it does not say whence the fleet came. In present conditions, or any past conditions that we know of, this point of departure could hardly be in northern Greenland, where sleds take the place of water-craft. The most probable starting point for any Eskimo fifteenth century invasion would be on some fairly open and relatively well populated coast. Labrador fulfils these conditions better than any region above Davis strait, and the suggestion seems in accord with the most natural understanding of the traditions preserved by Packard. It is well known that the Labrador Eskimo were regarded as belligerent and dangerous by the early explorers, and the long struggle of the former against the neighboring Algonquian tribes and their heavy losses, for example on Esquimaux island, are matters less of legend than of history. Moreover, they sharply attacked Davis in Greenland. So we cannot gauge their past capabilities of aggression and enterprise by their present very docile temper.

WILLIAM H. BABCOCK

WASHINGTON, D. C.

COONTI

IN the *Handbook of American Indians* Professor Chamberlain states that this word refers to "a cycadaceous plant (*Zamia integrifolia*), or the breadstuff obtained from it by the Seminole of Florida." He adds that "*kunti* is the name of the 'flour' in the Seminole dialect." This information is evidently drawn from MacCauley's paper on The Seminole Indians of Florida in the *Fifth Annual Report of the Bureau of Ethnology*, where the method of making coonti flour is described at some length. In the course of my investigations among the Alabama (Alibamu) of Texas, I heard much of this plant, called by them *kā'nta*, and obtained a specimen of it, which Mr Paul Standley of the National Museum has identified as *Smilax lanceolata*. It was evidently a smilax that had been previously described to me as coonti by an old Creek Indian born in Alabama before the removal of the Creeks, "a brier that climbed up on trees like a vine." William Bartram, in his *Travels through North and South Carolina*, speaks of "a very agreeable cooling sort of jelly, which they call conte." "This," he goes on to say, "is prepared

from the root of the China briar (Smilax pseudo-China; Smilax aspera, fructu negro, radice nodosa, magna, lævi, farinacea; Sloan, tom. I, p. 31. t. 143. f. i. habit. Jamaica, Virginia, Carolina, and Florida): they chop the roots in pieces, which are afterwards well pounded in a wooden mortar, then being mixed with clean water, in a tray or trough, they strain it through baskets; the sediment, which settles to the bottom of the second vessel, is afterwards dried in the open air: and is then a very fine reddish flour or meal: a small quantity of this mixed with warm water and sweetened with honey, when cool, becomes a beautiful, delicious jelly, very nourishing and wholesome. They also mix it with fine corn flour, which being fried in fresh bear's oil makes very good hot cakes or fritters." Hawkins also says the China briar "is called Coonte," and he describes the way in which flour was extracted from it. It is therefore evident that at least two species of smilax were known as coonti by the ancient Creeks, and, since the cycadaceous plant which now bears that name among the Florida Seminole is confined to southern Florida, it is evident that it could have been used only after the Seminole reached that country from the north. Originally it is evident that the term must have been applied to several species of smilax having large reddish roots. It is not a little curious that Dr Havard, in his paper on "Food Plants of the North American Indians,"[1] refers to the *Zamia integrifolia* as coonti and also quotes Bartram regarding the use of the China briar without noting that Bartram applies the same native name to the latter.

That the *Zamia integrifolia* was used by those Indians who occupied southern Florida before the Seminole is indicated by Fontaneda (about the middle of the sixteenth century), who says of the Indians around Lake Mayaimi (presumably Lake Okechobee) that they "live on bread made from roots during most of the year. They can not procure it, however, when the waters of the lake rise very high. They have roots which resemble the truffles of this country [Spain]."[2]

JOHN R. SWANTON

BUREAU OF AMERICAN ETHNOLOGY
WASHINGTON, D. C.

[1] *Bulletin of the Torrey Botanical Club*, vol. XXII.

[2] French, *Historical Collections of Louisiana*, 2d ser., vol. II, pp. 248–249, 1875.

ANTHROPOLOGIC MISCELLANEA

Joint Council Meeting of the American Anthropological Association and the American Folk-Lore Society.—A joint council meeting of the American Anthropological Association and the American Folk-Lore Society was held at the American Museum of Natural History, New York, on March 29, 1913. The members in attendance were: Boas, Chamberlain (chairman), Culin, Alice C. Fletcher, Goddard, Hodge, Hyde, Lowie, MacCurdy, Michelson, Nelson, Peabody, Skinner, Spinden, Tozzer, and Wissler. It was voted to hold the next annual joint meeting in New York City, December 29–31, 1913. A proposal to amend section 5 of Article III of the Constitution, by changing the sum "$1,000" to "$500," was referred to the Council; and notice is hereby given that this proposed amendment will be presented at the next annual meeting for approval and adoption. It was voted to furnish to authors fifty copies of each article published in the *American Anthropologist*, with printed paper cover gratis, and additional copies at cost. Professor Boas, Chairman of the Committee on Americanistic Anthropological Literature, reported progress. He spoke especially of the willingness of the Library of Congress and the Smithsonian Institution to coöperate in the preparation of Americanistic bibliographies. Mr F. W. Hodge was designated to formulate and submit a plan of coöperation among institutions in ethnological and archeological work. A committee consisting of the editors of the *American Anthropologist*, the *Journal of American Folk-Lore*, and *Current Anthropological Literature*, and Dr A. A. Goldenweiser, was appointed to consider the advisability of devoting one number of the journals to recent progress in the field of American Anthropology in connection with the International Congress of Americanists to be held at Washington in 1914. By action of the Joint Council, the agreement entered into at the Washington meeting with respect to financing *Current Anthropological Literature* is to be continued until eight numbers shall have been published. During the afternoon there was an informal discussion of practical as well as theoretical problems in the field of archeology, ethnology, linguistics, and somatology. After the dinner, at which the New York members of the Council were hosts and the out-of-town members guests, there was a joint meeting of the American Ethnological Society, the Section of Anthropology and Psychology of the New York

Academy of Sciences, and the American Folk-Lore Society (New York Branch), at which the following papers were read: Characteristics of Tewa Mythology, by Herbert J. Spinden; The Galisteo Pueblos, by Nels C. Nelson; Notes on Menomini Folklore, by Alanson Skinner.

GEORGE GRANT MACCURDY

Anthropological Work by the Geological Survey of Canada. — Three rather extended ethnological field researches have recently been concluded. One of these is the Wyandot work undertaken by Mr C. M. Barbeau, which has resulted in the accumulation of a large and valuable body of material on all phases of Wyandot ethnology, as well as of linguistic material. It is planned to publish a series of monographs presenting this material in systematized form, beginning, in all probability, with the mythology of the tribe. The second field research referred to is that undertaken by Mr F. W. Waugh on the material culture of the Iroquois. After an extended period spent at Six Nations Reserve on Grand River, Ontario, Mr Waugh proceeded to Caughnawaga, Tonawanda, Onondaga Castle, and Oneidatown, at all of which reserves extensive supplementary material was gathered. The monographs based on Mr Waugh's research will probably begin with a full study of the foods and medicines of the Iroquois. Mr W. H. Mechling's researches on Malecite ethnology have been continued in the summer of 1912 and completed in the course of a short trip during the following winter. The mythological material collected will probably be the first phase of Malecite ethnology to be prepared for publication.

Dr A. A. Goldenweiser has made notable progress in his studies of Iroquois social organization and religion during the summer of 1912. It is fortunate that he succeeded in obtaining from the late Seneca chief, John Gibson, a very complete account in text of the Deganawida legend, which is of great importance for the study of the history and organization of the Iroquois League. Dr P. Radin visited several Ojibwa reserves of southeastern Ontario (Sarnia, Kettle Point, Walpole Island, Rice Lake, Chemung Lake, Garden River, Manitoulin Island, North Bay, Rama, Snake and Georgina Islands in Lake Simcoe, the Chippewas of the Credit, and the Chippewas of the Thames) during the summer of 1912. The material obtained bears chiefly on social organization, mythology, and religion, the larger part of the mythology having been obtained in text. Full materials were also obtained on Ojibwa linguistics. Mr J. A. Teit, of Spences Bridge, spent a large part of the summer of 1912 among the Tahltan Indians of upper Stikine river on ethnological

research. A feature of this, as of most of the ethnological work undertaken for the Survey, has been the collection of considerable phonographic material. It is planned to undertake a systematic survey of the Athabascan tribes of the Dominion, and it is intended to continue Mr Teit on the western tribes of this stock from year to year.

It is planned to continue the research in physical anthropology begun in the summer of 1912 by Mr Francis H. S. Knowles among the Iroquois of Six Nations reserve, Ontario. Valuable data of an anthroponetric character, including specimens of hair, have been obtained. At the same time Mr Knowles was fortunate enough to obtain from an ossuary situated near the reserve some interesting skeletal material, doubtless of Iroquois origin.

Archeological field work was carried on in the vicinity of Ottawa and in Manitoba. A reconnaissance was made along the Ottawa river in Quebec and Ontario. An intensive piece of field work was completed, under the immediate direction of Mr W. J. Wintemberg, in a village site and burial place about forty miles south of Ottawa, probably the most extensive archeological work carried on in Canada east of the Rocky mountains. One hundred and thirty-five boxes of material were obtained, including fifty-one human skeletons. It will doubtless take some time to prepare the specimens secured and to issue a report on the site and its culture. The reconnaissance in Manitoba was carried on by Mr W. B. Nickerson, and it is planned to continue this work by intensive exploration in one of the sites visited.

Mr Wintemberg is carrying on exhaustive research work on the birdstone ceremonial objects. It is planned to issue his report on this subject when the work is completed. Mr George E. Laidlaw has been doing volunteer work in Victoria county, Ontario, and has handed in manuscript on the archeology of that county, which it is planned to publish in connection with the result of his future work. A brief bulletin resulting from Mr Wintemberg's reconnaissance of Blandford township, carried on during 1911, is about to be issued from the Government press.

Congrès d'ethnologie Religieuse.—The recently organized congress of Catholic ethnologists, already noticed in this journal as founded largely through the effort of Reverend P. W. Schmidt, editor of *Anthropos*, and consisting chiefly of representatives of the various Catholic missionary orders throughout the world, held its initial meeting at Louvain, Belgium, in September last. The meeting was unanimously voted a complete success. A special feature of the program was the discussion

of a series of practical papers in which missionaries of scientific training and long experience among uncivilized peoples undertook to explain the method of properly putting questions to natives, to point out faults to be avoided in the procedure, and particularly to show how to take notes and to make observations on questions of linguistics, sociology, and the science of religion. Notable among these was the paper read by Father A. de Clercq, on Practical Hints for Gathering Information on Religious Matters among Uncivilized People. The missionary points out that from the numerous differences which characterize individuals "there results in the first place that the traditional knowledge, proper to the tribe, is as a matter of fact unequally distributed. One tribesman will have a better knowledge than another: he is gifted with a better memory and a clearer judgment and expresses himself in more precise and exact terms. Far from plying any firstcomer, therefore, with questions, it will above all be necessary to be sure of the character of the source from which you desire to draw your data: you must know the individual whom you are interrogating; you must know his origin and rank (in the tribe), his intellectual and moral worth." He also sounds a warning against accepting unreservedly the statements of an informant whose point of view has been modified by contact with civilization through city life, or garrison or other service. The paper is published in the original French in *Anthropos*, VIII, January–February, 1913. Other subjects treated are: Egyptian Totemism, by Dr Capart; History and Method of the Science of Religion, by Rev. P. H. Pinard, S.J.; Magic and Magic Rites, by Fr Bouvier; Totemism, by Fr Schmidt, S.V.D.; History and Method of Ethnology, by the same author; and the Religion of Annam, by Fr P. Cadière, Soc. For. Missions, recognized as a leading authority on that country. Fr Cadière also read a paper along the lines elaborated by Fr de Clercq. The Congress will hold its next session, to continue two weeks, in Louvain in August–September, 1913. Among the subjects selected for special discussion are Astral Mythology from the dawn of history, and Islam in its historical, doctrinal, and cultural aspects. The secretary expresses the hope that many "will profit by this occasion to perfect themselves in the knowledge of the present condition of the science of religion and its related disciplines, to learn reliable methods of investigation, and thus be prepared to take up wider scientific research." In recognition of his work in advancing the science of Mankind as editor of *Anthropos*, Father Schmidt has recently been elected an Honorary Fellow of the Royal Anthropological Institute of Great Britain and Ireland.

JAMES MOONEY

Lectures on Culture and Environment.—With the consent of the council of the New York Academy of Sciences, the American Ethnological Society invited Professors MacCurdy, Keller, Bishop, Huntington, and Bowman, all of Yale University, to attend a joint meeting of the Society and the Section of Anthropology and Psychology on January 27, 1913, for the purpose of exchanging views on the problem of the influence of geographical environment on human culture. Owing to the number of papers offered, an afternoon meeting was arranged for in addition to the customary evening session, General James Grant Wilson presiding at the former, and Professor Boas at the latter. In the afternoon Professor A. G. Keller read a paper on The Natural Sciences as the Basis of the Social Sciences, which was followed by a lecture, illustrated with lantern slides, on Pre-neolithic Environment in Europe, by Professor George Grant MacCurdy. After a recess for dinner the discussion was resumed by Professor Bishop, who read a paper on Race Characteristics versus Natural Environment in Commercial Success, while Professor Ellsworth Huntington presented his views on Climatic Influences in Human Activity, and Professor Isaiah Bowman spoke on The Physiographic Environment of the Machiganga Indians of Peru. Finally, Dr Clark Wissler, as the representative of the American Ethnological Society, dealt with the subject of Culture and Environment. Though the meeting was protracted beyond the customary hour, there remained unfortunately too little time for discussion, and in February the gentlemen from Yale invited several New York ethnologists to come to New Haven for a second meeting to be devoted to the same subject. Accordingly, Professor Franz Boas, Dr A. A. Goldenweiser, and Mr Carl W. Bishop of Columbia University, Drs Clark Wissler, H. J. Spinden, and Robert H. Lowie of the American Museum of Natural History, and Mr Stansbury Hagar went to New Haven on February 19th. After an informal dinner the discussion was taken up at the Anthropology Club, with Professor A. G. Keller in the chair. Dr Goldenweiser spoke on Some Theoretical Aspects of the Culture-Environment Problem, Dr Spinden read a paper on Geographical Environment and the Southwestern Culture Area, Dr Lowie treated Geographical Environment and the Plains Indians, and Professor Boas presented his views on Arctic Environment and Arctic Culture. Professors Huntington and Bowman then expounded, with reference to these ethnological papers, the point of view assumed by modern geographers. According to the unanimous opinion of all who attended the two meetings, the discussion had proved very stimulating, and the hope was expressed that similar meetings might be arranged in the near future.

South American Works.—The description given by Skottsberg[1] of the Indians encountered among the islands on the southwest coast of Patagonia is disappointing and almost useless for the ethnologist, though it may appeal to the casual reader.[2] Dalton[3] devotes a chapter (VII) to the aborigines of Venezuela, being concerned principally with the Goajiros, Warraus, and Banibas, but little of his information seems to be first-hand, notwithstanding his acquaintance with the country. The treatment by Koebel[4] in his chapter on Aboriginal Tribes (XI) is less satisfactory, a mixture of uncritical reading of untrustworthy Spanish authorities and an unsympathetic attitude toward a people whose culture is very different from the types with which the author is familiar. Rodway's chapters (II, X, XI)[5] are more illuminating and more satisfactory as regards race intermixture and the necessities of adaptation to climatic conditions, but give little ethnographical information.

W. D. W.

Mummification in Papua.—The Queensland Museum has issued the first volume of a series of memoirs which promises to supply a valuable addition to our knowledge of the natural sciences and ethnology of Australia. The present issue opens with a paper on Papuan mummification by the director, Dr R. Hamlyn-Harris, in which he describes two specimens from Torres straits. The body was placed on a platform with a fire beside it, partly for the comfort of the spirit and partly to aid in dispelling the noxious fumes arising during the process of desiccation. The corpse was then removed to the sea and cleaned, the interior being filled with pieces of dried sago palm. It was hung up to dry, and adorned by the insertion of pieces of nautilus shell for eyes; the body was smeared with ochre and oil, and various ornaments were attached to it. When dried, it was fixed to the central pole of the hut, and after some years the head was given to the widow, and the mummified corpse was taken to one of the gardens of the deceased and allowed to decay, or in some cases it was buried inside the hut.

German-South American Institute.—There was founded on December 29, 1912, in Bonn, Germany, by representative men of science, commerce, and industry, a "Deutsch Süd-Amerikanisches Institut" for the purpose

[1] Carl Skottsberg, *Wilds of Patagonia*, New York, 1911.

[2] Dr Skottsberg, however, will treat of the natives of the Patagonian channel region in a forthcoming issue of the *American Anthropologist*.—EDITOR.

[3] Leonard V. Dalton, *Venezuela*, New York, 1912.

[4] W. H. Koebel, *Uruguay*, London, 1911.

[5] Rodway, *Guiana: British, Dutch, and French*, New York, 1912.

of systematically organizing the numerous scientific and commercial relations subsisting between Germany and Latin America. As president and vice-president of the Institute, respectively, were elected Professor Gustav Steinmann of the University of Bonn, and Professor Paul Gast of the Technical Institute at Aachen. Professor Steinmann, who holds the chair of geology and paleontology, has traveled extensively in North America and South America, especially investigating in 1903, 1904, and 1908 the geological and glacial phenomena of South America. Professor Gast is professor of geodetics. The Rheinische Gesellschaft für Wissenschaftliche Forschung was instrumental in the foundation of the new Institute. F. N.

Dr Otto Schoetensack died at Ospidaletto, Italy, December 29, 1912. Dr Schoetensack was born in 1850 and entered professional life as a chemist, but afterward chose anthropology as his vocation. Of independent means, he lived the retired life of a private scholar until 1904, when he accepted an instructorship in anthropology at the University of Heidelberg and was soon promoted to the position of assistant professor. Dr Schoetensack is remembered chiefly by his discovery in 1908 of the fossil lower jaw of a human being, imbedded in sand, in the immediate vicinity of Heidelberg, which at that time was regarded as the oldest human fossil known. The species to which this bone pertained was named *Homo heidelbergensis* by its finder, who described it in a monograph bearing the title "Der Unterkiefer des *Homo heidelbergensis* aus den Sanden von Mauer bei Heidelberg, ein Beitrag zur Palaeontologie des Menschen" (Leipzig, 1908). F. N.

Louis Akin.—By the death of the artist, Louis Akin, at Flagstaff, Arizona, on January 2, the plans of the American Museum of Natural History for mural decorations for its Southwest Indian hall have received a check. Mr Akin had been commissioned to prepare tentative sketches for sixteen panels and had made a number of preliminary figure studies with that end in view. He expected to have finished the sketches during the present year. The Museum authorities hope that it may be possible to exhibit Mr Akin's studies during the spring months when there is proposed a special exhibit of material and paintings illustrating the life of the Indians of the Pueblo region. Mr Akin is best known to the world by his paintings of Hopi Indians. His work is a faithful portrayal of the tribe, with which he lived during the years of his study and of which he was made a member.

Spolia Zeylanica, vol. VIII, part 31, is devoted to the first part of "A Guide to the Collections of the Colombo Museum," this section dealing with archeology and ethnology. It is illustrated with forty-four well-executed plates of objects of special interest. Among these attention may be directed to sculptures (pl. I) and designs on flags (pl. XX), which appear undoubtedly to represent lions, some of the former dating from about 320 B. C. (p. 167). As most if not all of the other animals represented in native Sinhalese art are indigenous to Ceylon, the question naturally arises as to the source of the concept of the lion; but in a paper by Dr Pearson, contributed to *Nature* (London) for February 20, it is explained that the invaders from northern India, who afterward came to be known as Sinhalese, were led by a chief whose father was reputed to be the offspring of a lion. This myth Dr Pearson explains by stating that the leader's grandfather was probably an outlaw named Sihala or Sinhala. The name was afterward given to the kingdom which his grandson founded, and subsequently to the people. This case is of considerable interest to totemists.

The Rudolf Virchow plaque, founded by Georg Minden, was conferred for the first time by the Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte on Professor Karl von den Steinen, director of the Königliches Museum für Völkerkunde in Berlin. The president of the Society, Professor Hans Virchow, son of Rudolf, especially emphasized the fact that the award was made unanimously. Professor von den Steinen is best known for his Schingu expeditions in central Brazil (1884 and 1887–1888), his studies of the Bakairi language, and his important researches in Mexican and Central American archeology. Like many ethnologists and explorers, Professor von den Steinen was first a physician, specializing in psychology, which eminently fitted him for his observations amongst primitive people. F. N.

The Deutsche Anthropologische Gesellschaft will hold its forty-fourth general congress in Nuremberg, August 3–9. Those intending to participate are invited by Professor Thilenius, the Secretary General, to announce their titles before June 1st to the presidents of the respective sections: Professor von Luschan (Berlin SW. 11, Königgrätzerstrasse 120) for physical anthropology; Professor Krämer (Stuttgart, Lindenmuseum) for ethnology; Professor Beltz (Schwerin i. M.) for prehistoric archeology. There will be excursions to Erlangen, the Fränkische Schweiz, and Munich. In addition, a three days' trip is planned for the purpose of inspecting archeological remains in southern Bavaria.

THE Peabody Museum of American Archæology and Ethnology of Harvard University has recently received two important acquisitions. The first is a valuable collection of prehistoric pottery from the mounds of the Red River region, Arkansas. This pottery, which is the gift of Mr Clarence B. Moore, of Philadelphia, came to the museum in several hundred fragments. They have now been cemented together and added to the regular exhibit. The other acquisition is a large collection of stone implements from the Island of Grenada, W. I., the gift of Dr Thomas Barbour.

IN an interesting note in *L'Anthropologie* for November–December, 1912, G. Guénot calls attention to certain customs of the Sedang of Indo-China as possibly throwing light on those rock-paintings of southern France which represent animals pierced by weapons. He states that just before going to war or to the chase the Sedang are in the habit of drawing, on sand or earth, images of men or the beasts they desire to kill, which they afterward pierce with lances, a proceeding supposed to have a favorable influence on the outcome of the expedition.

PROFESSOR GEORGE GRANT MACCURDY, of Yale University, recently completed a lecture tour of two weeks in the middle west, the subject being "Ancient Man, His Environment and his Art." He spoke at the Art Museum, Toledo; at Alma College, Michigan; at the Field Museum of Natural History, Chicago; at the University of Missouri, Columbia, and before the Anthropological Society of Washington; also for the Archæological Institute of America at St Louis, Kansas City, Topeka, Cedar Rapids, and Davenport.

THE will of Alfred Samson, who died recently at Brussels, provides for an endowment of $500,000 for the Prussian Academy of Sciences at Berlin and $100,000 for the Bavarian Academy of Sciences at Munich. The endowments are stated to be for investigations which afford a prospect of raising the morality and well-being of the individual and of social life, including the history and prehistory of ethics, and anthropologic, ethnologic, geographic, geologic, and meteorologic influences as they have affected the mode of life, character, and morals of man.

IT is announced that the Canadian government will grant Mr Vilhjálmur Stefánsson the sum of $75,000 toward his expedition into unexplored territory north of the Canadian mainland. Mr Stefánsson will take with him Canadian students with scientific knowledge, and the expedition will be directly under the Canadian Geological Survey.

He expects to be absent three winters and four summers. As ethnographers have been selected D. Jenness of New Zealand and H. Beuchat of Paris. It is planned also to obtain the services of a linguist to make a thorough comparative study of the Eskimo dialects spoken in the region covered by the expedition.

THE Society of Antiquaries in London has founded a studentship in archeology in memory of Sir A. Wollaston Franks, K.C.B., sometime president of the society. The object of this studentship is to enable the holder to carry on some research or preparation for research (as distinct from professional training) in the archeology of the British Isles in its comparative aspects. It is of the value of £50 and is tenable for one year.

BY invitation of the scientific faculty, Professor George Grant MacCurdy, of Yale University, gave a public lecture at Dartmouth College on the evening of February 10, his subject being the Antiquity of Man. On March 3 Professor MacCurdy lectured before the Science Club of Amherst and the Massachusetts Agricultural College, the address being based on his last summer's work in the European prehistoric field.

DR ANNIE H. ABEL, Associate Professor of History at Goucher College, Baltimore, has recently been appointed to superintend the classification of the old files in the United States Indian Office and to prepare historical material for publication. The first work is to be connected with the history of the Southwest; later, documents dealing with the second Seminole war and with the history of the Northwest will be edited.

ON March 19 the one-hundredth anniversary of the birth of the famous African explorer, Dr Livingston, was celebrated in England and many eloquent tributes were paid to his memory. Particularly noteworthy was an address on the Monday preceding by Sir Harry Johnston before the Royal Geographical Society and many friends and associates of the explorer.

IN the list of papers presented at the Fourteenth International Congress of Prehistoric Anthropology at Geneva, which appears in the last number of the *American Anthropologist*, the title "Linguistic concepts in prehistoric America," by William E. Gates, should have been included. Mr Gates' paper will be published in the *Compte Rendu* of the Congress.

PROFESSOR A. M. TOZZER, of Harvard University, during the mid-year period, gave lectures before the various societies of the Archæological

Institute of America in the following places: St John, Halifax, Quebec, Montreal, Ottawa, Toronto, Hamilton, Buffalo, Rochester, Auburn, and Syracuse.

IN the *American Year Book* for 1912, recently issued by D. Appleton and Company, the article on Anthropology and Ethnology was contributed by Professor George Grant MacCurdy, of Yale University, who is also a member of the supervisory board of the American Year Book Corporation.

PROFESSOR A. KEITH has been elected president of the Royal Anthropological Institute of Great Britain and Ireland, in succession to Mr A. P. Maudslay. Mr T. C. Hodson has been elected secretary of the Institute in succession to Mr T. A. Joyce, who has become a vice-president.

DR CARL LUMHOLTZ is to undertake an expedition to Borneo and New Guinea under the auspices of the London and Dutch (Amsterdam) Geographical Societies for the purpose of collecting ethnological, zoological, botanical, and geological specimens.

THE Ninth Session of the Congrès Préhistorique de France will be held at Lons-le-Saunier (Jura) from July 27 to August 2, under the presidency of M. Léon Coutil. The general secretary of the Congress is Dr Marcel Baudouin, 21 rue Linné, Paris.

DR A. HRDLIČKA, of the United States National Museum, has sailed for Peru and Bolivia, with the object of extending his former work in those countries and securing further anthropological collections. He expects to return in April.

DR ALBERT ERNEST JENKS, Professor of Anthropology in the University of Minnesota, delivered five illustrated lectures on the Philippine Peoples, in New York City, for the Board of Education during the recent inter-semester recess.

AT THE semi-annual meeting of the American Antiquarian Society held in the Massachusetts Historical Society building, Boston, on April 9, Dr Alexander F. Chamberlain, of Clark University, read a paper on "Wisdom of the North American Indian in Speech and Legend."

DR HUTTON WEBSTER, Professor of Social Anthropology in the University of Nebraska, will give courses in Primitive Culture and Folklore at the summer school of the University of California, session of 1913.

SIR RICHARD TEMPLE has been appointed president of Section H (Anthropology) of the British Association for the Advancement of Science, which is to hold its next meeting at Birmingham, September 10–17.

DR GEORGE A. DORSEY, Curator of Anthropology in the Field Museum of Natural History, lectured before the Geographical Society of Chicago on March 14, his subject being "An Ethnologist Abroad."

PROFESSOR W. M. DAVIS, of Harvard University, has been elected a foreign member of the Swedish Anthropological and Geographical Society at Stockholm.

DR ROBERT H. LOWIE, of the department of anthropology of the American Museum of Natural History, has been promoted to the rank of associate curator.

PROFESSOR FRANZ BOAS, of Columbia University, has been appointed lecturer in anthropology at Harvard University for the second half year of 1912–13.

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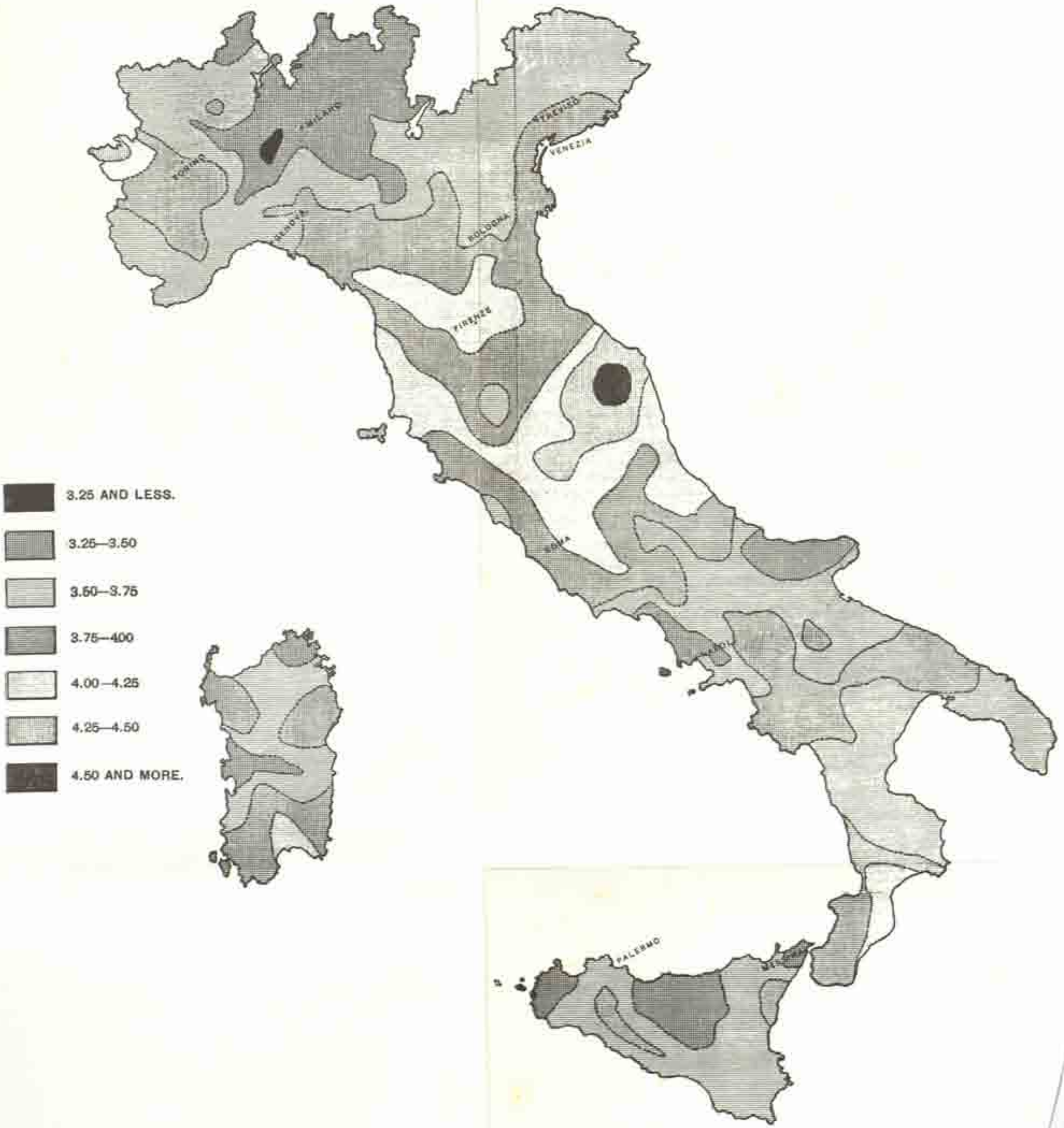
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MAP OF ITALY SHOWING THE MEAN SQUARE VARIABILITY OF THE CEPHALIC INDEX. BY FRANZ BOAS AND HELENE M. BOAS

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THE HEAD-FORMS OF THE ITALIANS AS INFLUENCED BY HEREDITY AND ENVIRONMENT

BY FRANZ BOAS AND HELENE M. BOAS

THE investigation of the head-forms of immigrants who come to the United States has shown that the head-forms of man are not quite stable when individuals belonging to a certain type are brought into a new environment. On the other hand, there is also evidence of a great stability of types and of the occurrence of several distinct types in the same area and in the same environment. Although these two observations are apparently contradictory, the phenomena may very well exist side by side, since the modification of types under environmental influences does not necessarily imply that distinct types will converge to a uniform type in the same environment.

Lack of stability of types has been observed by Ammon in Baden[1] and by Livi[2] in Italy, in their comparisons of urban and rural types. It has been brought forward recently by Johannes Ranke as explaining the differences between the population of the Alps and of southern Germany—differences which have continued through a long period. In all these cases it is conceivable that the populations compared may have a different composition, owing either to migration or to selective causes. The observations on American immigrants, however, show that there is also a difference

[1] *Natürliche Auslese beim Menschen*, 1893. *Zur Anthropologie der Badener*, 1899.
[2] *Antropometria Militare*, 1896.

between parents who have grown up in one environment and their children who were born in another environment.

The tendency of racial types to revert to their ancestral types, and not to form a new intermediate type, was first observed by Felix von Luschan[1] in his studies on the types of Asia Minor. His later studies have corroborated these observations. Since the mixture in Asia Minor has extended over a very long period, this observation is particularly important. Among the Jews of America it has been found that the variability of head-index of children of a family increases considerably with increasing difference of type of parents.[2] Whether or not these observations can be explained as conforming to some type of Mendelian inheritance cannot be stated. Various observations relating to color, which have been interpreted as expressing Mendelian inheritance in man, may also be adduced as proving the permanence of certain types.[3] For the first generation of hybrids a similar phenomenon was observed among American Indian half-bloods, whose width of face tends to revert to a type similar either to the European or to the American Indian type.[4]

It has seemed desirable to extend this study over new material; and we have investigated for this purpose the extended anthropometric tables in Ridolfo Livi's *Antropometria Militare*.

It so happens that in Italy two types quite distinct in head-form inhabit the extreme northern and the extreme southern part of the country. In the region of central Italy the two types have been in long-continued contact, and have consequently intermingled.

[1] Die Tachtadschy und andere Ueberreste der alten Bevölkerung Lykiens. *Archiv für Anthropologie*, vol. XIX, pp. 1–23; Petersen und von Luschan, *Reisen in Lykien, Milyas und Kibyratis*, Vienna, 1889.

[2] Franz Boas, *Changes in Bodily Form of Descendants of Immigrants*, New York, Columbia University Press, 1912.

[3] See, for instance, G. and Ch. Davenport, Heredity of Hair Colour in Man, *American Naturalist*, vol. 43, pp. 193–211; W. Weinberg, Ueber Vererbungsgesetze beim Menschen, *Zeitschrift für induktive Abstammungs- und Vererbungslehre*, vol. 1, 1909, pp. 377–392, 440–460; vol. II, pp. 276–330; E. Fischer, Rassen und Rassenbildung, *Handwörterbuch der Naturwissenschaften*, vol. VIII, pp. 78 et seq.

[4] Franz Boas, Zur Anthropologie der nordamerikanischen Indianer, *Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte*, vol. 27, 1895, p. 406 et seq.

It seemed plausible, therefore, that if the head-forms of mixed types tend to revert to the ancestral forms, in the north and south of Italy the variabilities of head-form should be low, in the central area high, because here both distinct types would be represented in the population.

We have therefore calculated the variability (standard or mean square variation) for each *circondario*, and have plotted the results on the accompanying map (pl. III), in which areas of equal variability are represented by the same tint. It will be seen at once that, on the whole, the highest variabilities are found in the central parts of Italy, and the lowest in the north and south; so that the theory with which we started appears to be borne out by the facts.

This result may also be expressed as follows: We find in central Italy two types of head-form represented, both with moderate variabilities, but with different averages,—that of southern Italy with a low average, that of northern Italy with a high average. The variabilities of these two types bring it about that we find in the population of the district in question very low values which belong to the South Italian type, and very high values which belong to the North Italian type; so that the whole area has a wide range of variation, which is expressed by a high variability. If a uniform intermediate type should develop through mixture, we should expect a lesser range of variation than we actually find.[1]

The determination of the variability could not be made directly from the series of *circondari* given in Livi's lists (pp. 205–229), because most of these districts are so large that the average index

[1] The effect of a purely mechanical mixture has been discussed by Livi (*Archivio per l'Antropologia e la Etnologia*, vol. XVI, pp. 254 et seq.; and *Antropometria Militare*, p. 29). He has shown that by mechanical mixture of two distinct types the variability would be increased, and has utilized this observation in the discussion of the amount of spreading of the curves of various *circondari*, without, however, stating in detail the variabilities and discussing the effects of intermarriage.

After the present paper was in type, we received Professor Corrado Gini's paper *Variabilità e Mutabilità* (Bologna, 1912), in which he calls attention to the greater variabilities found in the central parts of Italy as compared with the southern and northern parts of the peninsula (p. 31). He treats, however, only the larger units, the variabilities of which are increased on account of the differences of local types contained in them.

CIRCONDARIO	CEPHALIC INDEX	VARIABILITY	CORRECTED VARIABILITY	NUMBER OF CASES
Acqui	84.4	±3.66	±3.56	1191
Alessandria	85.1	±3.48	±3.42	1647
Asti	86.1	±3.97	±3.94	2063
Casale	86.2	±3.70	±3.64	1664
Novi	82.2	±3.75	±3.68	1038
Tortona	83.7	±3.69	±3.58	756
Alba	85.8	±3.78	±3.76	1438
Cuneo	86.6	±3.73	±3.66	1849
Mondovì	85.2	±4.14	±3.86	1696
Saluzzo	85.6	±3.97	±3.85	1724
Biella	86.6	±3.85	±3.81	1725
Domodossola	86.1	±3.35	±3.34	414
Novara	86.5	±3.61	±3.47	2528
Pallanza	86.5	±3.64	±3.62	767
Varallo	86.3	±3.63	±3.62	337
Vercelli	85.4	±3.50	±3.39	1671
Aosta	87.6	±3.54	±3.52	843
Ivrea	87.7	±3.56	±3.54	2051
Pinerolo	86.2	±4.09	±3.94	1521
Susa	85.8	±4.42	±4.36	948
Torino	86.1	±3.79	±3.72	4919
Albenga	81.9	±3.77	±3.68	543
Chiavari	82.6	±4.03	±3.95	1178
Genova	82.4	±3.73	±3.69	3337
Savona	83.0	±3.64	±3.62	946
Spezia	81.3	±3.88	±3.81	768
Porto Maurizio	82.1	±3.57	±3.47	531
San Remo	82.2	±3.82	±3.77	648
Bergamo	84.4	±3.45	±3.41	2407
Clusone	84.8	±3.28	±3.24	557
Treviglio	84.0	±3.25	±3.24	1116
Breno	84.5	±3.36	±3.31	555
Brescia	82.9	±3.57	±3.55	1895
Chiari	83.4	±3.33	±3.31	713
Salò	82.4	±3.44	±3.42	489
Verolanuova	84.0	±3.57	±3.57	580
Como	84.5	±3.46	±3.44	2791
Lecco	84.1	±3.56	±3.52	1367
Varese	85.3	±3.34	±3.25	1739
Casalmaggiore	85.5	±3.26	±3.26	440
Crema	84.2	±3.44	±3.43	730
Cremona	85.0	±3.49	±3.43	1726
Mantova	85.3	±3.78	±3.74	2802
Abbiategrasso	84.3	±3.27	±3.24	1168
Gallarate	83.8	±3.34	±3.31	1847
Lodi	85.3	±3.45	±3.42	1771
Milano	84.1	±3.34	±3.32	3550
Monza	84.4	±3.57	±3.55	1960
Bobbio	84.1	±3.88	±3.85	500

CIRCONDARIO	CEPHALIC INDEX	VARIABILITY	CORRECTED VARIABILITY	NUMBER OF CASES
Mortara	84.2	±3.18	±3.17	1574
Pavia	84.7	±3.62	±3.59	1480
Voghera	83.4	±3.79	±3.70	1357
Sondrio	85.7	±3.56	±3.48	1088
Belluno	85.2	±3.61	±3.59	2258
Padova	85.3	±3.72	±3.70	3921
Rovigo	84.6	±3.74	±3.72	2042
Treviso	85.2	±3.70	±3.69	3983
Udine	85.0	±3.69	±3.66	5289
Venezia	85.0	±3.86	±3.86	3094
Verona	84.4	±3.79	±3.67	3759
Vicenza	85.0	±3.59	±3.58	3833
Bologna	84.4	±3.75	±3.72	3576
Imola	86.1	±4.09	±4.08	772
Vergato	83.2	±3.91	±3.91	604
Cento	84.6	±3.71	±3.68	379
Comacchio	85.0	±3.84	±3.84	355
Ferrara	84.7	±3.51	±3.48	1654
Cesena	86.1	±3.76	±3.75	1030
Forlì	86.1	±4.00	±4.00	820
Rimini	85.7	±3.85	±3.84	1046
Mirandola	85.4	±3.83	±3.83	797
Modena	84.7	±3.91	±3.89	1513
Pavullo	85.2	±3.91	±3.91	867
Borgo S. Donnino	85.8	±3.76	±3.75	863
Borgotaro	84.7	±3.94	±3.93	409
Parma	84.6	±3.90	±3.79	1499
Fiorenzuola	85.6	±3.63	±3.63	881
Piacenza	84.6	±3.79	±3.68	1529
Faenza	86.8	±3.98	±3.98	917
Lugo	86.5	±3.87	±3.87	870
Ravenna	86.6	±3.86	±3.84	1019
Guastalla	86.0	±3.60	±3.59	774
Reggio Emilia	85.1	±3.84	±3.78	2057
Arezzo	83.9	±3.92	±3.90	2206
Firenze	82.9	±4.29	±4.17	4788
Pistoia	83.1	±4.24	±4.24	1262
Rocca San Casciano	85.5	±4.16	±4.10	557
San Miniato	83.0	±4.05	±3.83	1183
Grosseto	83.0	±4.02	±3.97	1089
Livorno	79.9	±4.09	±4.09	941
Portoferraio	78.4	±3.73	±3.67	199
Lucca	79.7	±4.32	±3.95	3475
Castelnuovo Garfagnana	78.2	±4.13	±4.11	574
Massa	80.3	±4.33	±4.11	1057
Pontremoli	83.3	±3.83	±3.75	394
Pisa	82.5	±4.11	±4.01	2480
Volterra	83.5	±4.18	±4.09	702
Montepulciano	83.4	±3.72	±3.59	755

CIRCONDARIO	CEPHALIC INDEX	VARIABILITY	CORRECTED VARIABILITY	NUMBER OF CASES
Siena	84.0	±4.08	±4.01	1360
Ancona	84.0	±4.53	±4.40	2953
Ascoli Piceno	81.8	±4.55	±4.30	1086
Fermo	84.2	±4.29	±4.11	1209
Camerino	81.5	±4.47	±4.44	590
Macerata	83.7	±4.75	±4.68	2207
Pesaro	85.4	±4.13	±4.02	1154
Urbino	85.8	±3.89	±3.88	1410
Foligno	84.2	±4.37	±4.35	742
Orvieto	83.8	±3.91	±3.91	588
Perugia	84.7	±4.04	±4.01	2315
Rieti	83.4	±4.27	±4.19	914
Spoleto	83.4	±4.31	±4.25	867
Terni	84.5	±4.37	±4.35	783
Civitavecchia	81.5	±3.71	±3.70	204
Frosinone	81.9	±4.22	±4.04	1677
Roma	80.2	±4.10	±4.01	3275
Velletri	80.2	±3.96	±3.86	823
Viterbo	81.7	±4.29	±4.11	1919
Aquila	81.2	±4.06	±3.95	1301
Avezzano	80.3	±3.69	±3.64	1188
Cittaducale	81.7	±4.25	±4.09	645
Sulmona	81.0	±3.84	±3.72	1025
Campobasso	81.3	±3.76	±3.62	1326
Isernia	82.0	±3.74	±3.69	1498
Larino	81.5	±3.52	±3.46	1002
Chieti	83.5	±4.40	±4.33	1175
Lanciano	83.5	±4.26	±3.93	1237
Vasto	82.8	±4.08	±3.99	1348
Penne	82.3	±4.29	±4.12	1008
Teramo	81.2	±3.97	±3.91	1621
Ariano	81.2	±4.01	±3.89	920
Avellino	81.9	±3.90	±3.85	1860
Sant' Angelo de' Lombardi	80.7	±4.01	±4.00	1315
Benevento	81.7	±4.03	±3.86	970
Cerreto Sannita	80.7	±3.94	±3.71	737
San Bartolomeo in Galdo	80.7	±3.75	±3.66	609
Caserta	81.6	±3.56	±3.53	2903
Gaeta	80.2	±3.50	±3.48	1476
Nola	82.4	±3.42	±3.40	947
Piedimonte d'Alife	81.6	±3.68	±3.65	503
Sora	83.2	±4.22	±3.87	1578
Casoria	82.0	±3.37	±3.36	1544
Castellamare di Stabia	82.9	±3.58	±3.54	1480
Napoli	82.6	±3.55	±3.55	5543
Pozzuoli	83.4	±3.50	±3.39	542
Campagna	81.9	±3.82	±3.74	1142
Sala Consilina	82.7	±3.89	±3.73	923
Salerno	83.4	±3.62	±3.59	2588

CIRCONDARIO	CEPHALIC INDEX	VARIABILITY	CORRECTED VARIABILITY	NUMBER OF CASES
Vallo Lucania	81.8	±4.02	±3.91	1034
Altamura	81.1	±4.11	±3.93	1118
Bari	81.0	±4.15	±3.96	3076
Barletta	80.2	±3.79	±3.54	3091
Bovino	80.2	±3.55	±3.51	527
Foggia	80.3	±3.71	±3.67	1443
Sansevero	80.2	±3.48	±3.35	1308
Brindisi	79.3	±3.83	±3.70	1250
Gallipoli	77.9	±3.71	±3.67	1457
Lecce	77.5	±3.71	±3.65	1395
Taranto	79.2	±3.98	±3.91	1412
Lagonegro	79.4	±4.06	±3.76	1518
Matera	81.5	±3.70	±3.56	957
Melfi	80.4	±3.57	±3.45	1315
Potenza	81.7	±4.01	±3.75	2108
Catanzaro	78.7	±4.22	±4.15	1135
Cotrone	78.2	±3.64	±3.55	516
Monteleone	77.9	±4.07	±3.93	1100
Nicastro	79.0	±4.21	±4.05	921
Castrovillari	78.1	±3.59	±3.53	1364
Cosenza	77.5	±3.58	±3.57	2239
Paola	78.2	±3.75	±3.70	1220
Rossano	78.2	±3.67	±3.59	763
Gerace	79.0	±4.05	±4.00	1186
Palmi	78.2	±3.81	±3.79	1273
Reggio Calabria	79.8	±3.94	±3.88	1395
Caltanissetta	79.7	±3.55	±3.51	1328
Piazza Armerina	78.9	±3.33	±3.30	1069
Terranova	79.8	±3.72	±3.72	818
Acireale	80.4	±4.10	±3.95	1306
Caltagirone	79.9	±3.74	±3.70	1248
Catania	79.6	±3.77	±3.63	2384
Nicosia	79.0	±3.48	±3.44	1088
Bivona	79.6	±3.66	±3.61	737
Girgenti	80.3	±3.85	±3.78	2259
Sciacca	80.0	±3.77	±3.72	623
Castroreale	78.7	±3.76	±3.71	1071
Messina	79.6	±3.45	±3.42	2215
Mistretta	78.2	±3.48	±3.46	627
Patti	77.9	±3.68	±3.66	1104
Cefalù	79.2	±3.62	±3.47	1158
Corleone	78.8	±3.81	±3.80	661
Palermo	79.3	±3.77	±3.73	4504
Termini	78.5	±3.44	±3.42	1437
Modica	80.8	±3.60	±3.56	1846
Noto	80.5	±3.67	±3.61	803
Siracusa	80.3	±3.73	±3.67	1092
Alcamo	79.1	±3.52	±3.49	870
Mazzara del Vallo	79.8	±3.59	±3.57	913

CIRCONDARIO	CEPHALIC INDEX	VARIABILITY	CORRECTED VARIABILITY	NUMBER OF CASES
Trapani	80.6	±3.26	±3.24	1365
Cagliari	77.5	±4.32	±4.11	1533
Iglesias	77.2	±3.98	±3.79	590
Lanusei	76.4	±3.56	±3.46	648
Oristano	77.2	±3.74	±3.56	1330
Alghero	78.6	±3.96	±3.89	390
Nuoro	77.2	±3.97	±3.92	558
Ozieri	77.4	±3.71	±3.64	405
Sassari	78.4	±3.79	±3.73	826
Tempio	79.0	±3.49	±3.47	299

shows considerable differences in various parts of each *circondario*. For this reason we have assumed the variability to be the same in all the *mandamenti* of the *circondario*, and then reduced the total variability accordingly. If the average cephalic indices of the *mandamento* and *circondario* are respectively i_m and i_c, and the unreduced standard deviation of the whole *circondario* is σ_1, the reduced variability of the cephalic indices of the *circondario* σ, then

$$\sigma^2 = \sigma_1^2 - [(i_m - i_c)^2],$$

where brackets indicate the process of averaging.

In this way the foregoing values have been obtained.

The map (pl. III) has been constructed by assuming the variability here given for the center of each *circondario* and interpolating between neighboring *circondari* in the same way as is done in meteorological maps, in maps of density of population,—a method that has been applied to anthropological data by Dr Jan Czekanowski. Of course, the lines are only approximate, particularly where the *circondari* are large.

Before taking up the discussion of the observed distribution of variabilities, it is necessary to discuss the accuracy of the values obtained by the method just described.

Owing to the inaccuracies of the measurements on which this study is based, it seems necessary to investigate in how far these inaccuracies exert a uniform influence over the variabilities given in Dr Livi's tables, particularly whether there are regions in which unusual accuracy or inaccuracy unduly decreases or increases the

Cephalic Index	Piemonte		Liguria		Lombardia		Veneto		Emilia		Toscana		Marche		Umbria	
	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed
72	—	—	—	—	—	—	—	—	—	—	0.5	0.7	—	—	—	—
73	—	—	—	—	—	—	—	—	—	—	0.9	0.9	—	—	—	—
74	—	—	1.8	1.1	0.2	0.2	—	—	—	—	1.4	1.9	0.7	1.0	0.5	0.5
75	0.4	0.3	2.8	1.3	0.3	0.3	0.3	0.3	0.3	0.3	2.1	2.5	1.2	1.2	0.9	0.7
76	0.4	0.5	4.0	2.7	0.7	0.7	0.6	0.6	0.7	0.6	3.1	3.5	1.8	2.1	1.4	1.5
77	0.8	0.8	5.7	3.9	1.3	1.2	1.1	1.0	1.1	1.0	4.4	4.8	2.6	2.6	2.3	2.4
78	1.3	1.3	7.0	4.8	2.2	2.0	1.8	1.6	1.8	1.8	5.5	5.0	3.5	3.7	3.3	3.0
79	2.2	2.6	8.7	9.1	3.6	4.0	2.9	3.5	2.9	3.1	7.1	8.8	4.9	6.0	4.6	6.0
80	3.3	2.5	9.8	7.7	5.2	4.0	4.4	3.5	4.2	3.4	7.9	6.2	5.9	4.6	5.9	4.8
81	4.5	3.8	9.9	8.7	7.0	6.2	6.1	5.1	5.8	5.0	9.1	7.5	7.3	6.3	7.3	6.3
82	6.3	6.2	10.2	11.8	8.9	9.9	7.7	8.4	7.1	7.8	9.5	9.6	7.9	8.7	8.4	8.9
83	7.9	7.6	9.0	9.5	10.6	10.5	9.4	9.4	8.8	8.4	9.0	8.3	8.9	8.3	9.2	9.2
84	8.8	10.7	8.2	11.8	11.1	14.3	10.3	13.0	9.9	12.3	8.8	10.3	8.8	9.9	9.6	11.6
85	10.1	7.7	6.4	6.9	11.0	9.4	10.4	8.7	10.3	8.6	7.8	5.6	8.9	6.0	8.9	7.3
86	10.0	12.7	5.0	7.2	10.0	11.7	10.3	12.4	10.1	11.9	6.3	7.3	7.9	10.8	8.7	9.8
87	9.9	8.3	3.6	4.0	8.6	7.0	9.4	7.7	8.9	7.5	5.2	4.3	7.3	5.4	7.5	5.9
88	9.0	7.3	2.3	2.4	6.7	5.0	7.7	6.1	8.0	6.1	3.8	3.1	5.9	4.3	6.2	5.1
89	7.2	11.6	1.5	3.2	5.0	7.0	6.1	8.5	6.5	9.4	2.6	4.4	4.9	7.6	4.8	7.2
90	6.0	4.0	0.9	0.9	3.2	2.1	4.4	2.9	4.8	3.4	1.9	1.5	3.5	2.4	3.6	2.4
91	4.3	4.4	0.4	0.9	2.0	1.9	2.9	2.8	3.2	3.3	1.1	1.4	2.6	2.9	2.4	2.5
92	3.0	3.1	0.5	0.6	1.2	1.1	1.8	1.9	2.3	2.5	—	—	1.8	1.9	1.7	1.8
93	2.0	1.4	—	—	0.6	0.5	1.1	0.7	1.4	1.0	—	—	1.2	0.8	1.0	0.9
94	1.2	2.0	—	—	0.3	0.6	0.6	1.1	0.8	1.4	—	—	0.7	1.6	0.6	0.4
95	0.7	0.4	—	—	—	—	0.3	0.3	0.4	0.3	—	—	—	—	—	—
96	0.4	0.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
97	0.3	0.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—

CIRCONDARIO	CEPHALIC INDEX	VARIABILITY	CORRECTED VARIABILITY	NUMBER OF CASES
Trapani	80.6	±3.26	±3.24	1365
Cagliari	77.5	±4.32	±4.11	1533
Iglesias	77.2	±3.98	±3.79	590
Lanusei	76.4	±3.56	±3.46	648
Oristano	77.2	±3.74	±3.56	1330
Alghero	78.6	±3.96	±3.89	390
Nuoro	77.2	±3.97	±3.92	558
Ozieri	77.4	±3.71	±3.64	405
Sassari	78.4	±3.79	±3.73	826
Tempio	79.0	±3.49	±3.47	299

shows considerable differences in various parts of each *circondario*. For this reason we have assumed the variability to be the same in all the *mandamenti* of the *circondario*, and then reduced the total variability accordingly. If the average cephalic indices of the *mandamento* and *circondario* are respectively i_m and i_c, and the unreduced standard deviation of the whole *circondario* is σ_1, the reduced variability of the cephalic indices of the *circondario* σ, then

$$\sigma^2 = \sigma_1^2 - [(i_m - i_c)^2],$$

where brackets indicate the process of averaging.

In this way the foregoing values have been obtained.

The map (pl. III) has been constructed by assuming the variability here given for the center of each *circondario* and interpolating between neighboring *circondari* in the same way as is done in meteorological maps, in maps of density of population,—a method that has been applied to anthropological data by Dr Jan Czekanowski. Of course, the lines are only approximate, particularly where the *circondari* are large.

Before taking up the discussion of the observed distribution of variabilities, it is necessary to discuss the accuracy of the values obtained by the method just described.

Owing to the inaccuracies of the measurements on which this study is based, it seems necessary to investigate in how far these inaccuracies exert a uniform influence over the variabilities given in Dr Livi's tables, particularly whether there are regions in which unusual accuracy or inaccuracy unduly decreases or increases the

Cephalic Index	Piemonte		Liguria		Lombardia		Veneto		Emilia		Toscana		Marche		Umbria	
	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed
72	—	—	—	—	—	—	—	—	—	—	0.5	0.7	—	—	—	—
73	—	—	—	—	—	—	—	—	—	—	0.9	0.9	—	—	—	—
74	—	—	1.8	1.1	0.2	0.2	—	—	—	—	1.4	1.9	0.7	1.0	0.5	0.5
75	0.4	0.3	2.8	1.3	0.3	0.3	0.3	0.3	0.3	0.3	2.1	2.5	1.2	1.2	0.9	0.7
76	0.4	0.5	4.0	2.7	0.7	0.7	0.6	0.6	0.7	0.6	3.1	3.5	1.8	2.1	1.4	1.5
77	0.8	0.8	5.7	3.9	1.3	1.2	1.1	1.0	1.1	1.0	4.4	4.8	2.6	2.6	2.3	2.4
78	1.3	1.3	7.0	4.8	2.2	2.0	1.8	1.6	1.8	1.8	5.5	5.0	3.5	3.7	3.3	3.0
79	2.2	2.6	8.7	9.1	3.6	4.0	2.9	3.5	2.9	3.1	7.1	8.8	4.9	6.0	4.6	6.0
80	3.3	2.5	9.8	7.7	5.2	4.0	4.4	3.5	4.2	3.4	7.9	6.2	5.9	4.6	5.9	4.8
81	4.5	3.8	9.9	8.7	7.0	6.2	6.1	5.1	5.8	5.0	9.1	7.5	7.3	6.3	7.3	6.3
82	6.3	6.2	10.2	11.8	8.9	9.9	7.7	8.4	7.1	7.8	9.5	9.6	7.9	8.7	8.4	8.9
83	7.9	7.6	9.0	9.5	10.6	10.5	9.4	9.4	8.8	8.4	9.0	8.3	8.9	8.3	9.2	9.2
84	8.8	10.7	8.2	11.8	11.1	14.3	10.3	13.0	9.9	12.3	8.8	10.3	8.8	9.9	9.6	11.6
85	10.1	7.7	6.4	6.9	11.0	9.4	10.4	8.7	10.3	8.6	7.8	5.6	8.9	6.0	8.9	7.3
86	10.0	12.7	5.0	7.2	10.0	11.7	10.3	12.4	10.1	11.9	6.3	7.3	7.9	10.8	8.7	9.8
87	9.9	8.3	3.6	4.0	8.6	7.0	9.4	7.7	8.9	7.5	5.2	4.3	7.3	5.4	7.5	5.9
88	9.0	7.3	2.3	2.4	6.7	5.0	7.7	6.1	8.0	6.1	3.8	3.1	5.9	4.3	6.2	5.1
89	7.2	11.6	1.5	3.2	5.0	7.0	6.1	8.5	6.5	9.4	2.6	4.4	4.9	7.6	4.8	7.2
90	6.0	4.0	0.9	0.9	3.2	2.1	4.4	2.9	4.8	3.4	1.9	1.5	3.5	2.4	3.6	2.4
91	4.3	4.4	0.4	0.9	2.0	1.9	2.9	2.8	3.2	3.3	1.1	1.4	2.6	2.9	2.4	2.5
92	3.0	3.1	0.5	0.6	1.2	1.1	1.8	1.9	2.3	2.5	—	—	1.8	1.9	1.7	1.8
93	2.0	1.4	—	—	0.6	0.5	1.1	0.7	1.4	1.0	—	—	1.2	0.8	1.0	0.9
94	1.2	2.0	—	—	0.3	0.6	0.6	1.1	0.8	1.4	—	—	0.7	1.6	0.6	0.4
95	0.7	0.4	—	—	—	—	0.3	0.3	0.4	0.3	—	—	—	—	—	—
96	0.4	0.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
97	0.3	0.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Cephalic Index	Lazio		Abruzzi		Campania		Puglie		Basilicata		Calabrie		Sicilia		Sardegna	
	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed	Theoretical	Observed
68	—	—	—	—	—	—	—	—	—	—	0.3	0.1	—	—	0.6	0.4
69	—	—	—	—	—	—	—	—	—	—	0.5	0.3	—	—	1.0	0.7
70	—	—	—	—	—	—	0.5	0.3	—	—	1.1	0.6	0.4	0.3	1.6	1.3
71	0.5	1.0	—	—	—	—	1.0	0.7	0.5	0.3	1.7	1.3	0.8	0.5	2.6	2.1
72	1.0	0.7	0.6	0.4	0.3	0.3	1.6	1.5	1.9	0.8	2.7	2.6	1.4	1.2	4.0	3.7
73	1.5	1.0	1.0	0.7	0.6	0.4	2.4	1.7	1.5	1.1	4.0	3.5	2.2	1.5	5.2	5.0
74	2.3	2.6	1.5	1.6	1.1	1.1	3.6	4.1	2.3	2.5	5.3	6.5	3.4	4.1	6.8	9.6
75	3.4	3.7	2.5	2.2	1.9	1.5	4.8	4.2	3.5	2.7	7.1	7.3	5.1	4.6	8.1	8.3
76	4.7	5.3	3.6	3.6	2.9	2.9	6.4	7.6	4.8	5.3	8.2	10.6	6.7	7.8	9.6	12.1
77	6.0	6.7	4.8	5.1	4.2	4.1	7.5	8.3	6.3	6.3	10.1	10.3	8.5	8.9	9.9	9.1
78	7.4	7.7	6.2	6.5	5.8	6.0	9.0	8.8	7.8	8.5	9.9	10.9	9.8	10.8	9.9	10.8
79	8.5	11.6	7.5	9.6	7.7	9.5	9.8	13.0	9.0	10.7	9.8	12.2	10.2	13.4	9.6	10.5
80	9.3	7.4	8.7	7.2	8.9	7.4	9.5	7.9	9.7	7.9	9.5	6.8	10.7	8.4	8.1	5.4
81	9.6	9.2	8.9	9.5	9.9	9.6	9.6	9.3	10.3	10.9	8.0	6.9	10.0	9.4	6.8	5.7
82	9.3	9.0	9.6	10.9	10.8	11.6	8.2	8.6	9.5	9.6	6.8	5.9	8.7	8.2	5.2	4.5
83	8.5	7.9	9.2	8.9	10.0	10.7	7.4	6.6	8.6	8.5	5.0	4.4	7.1	6.5	4.1	3.6
84	7.4	7.8	8.4	9.2	9.2	10.8	5.6	5.8	7.2	7.8	3.8	3.2	5.2	5.5	2.5	2.3
85	6.0	4.0	7.3	5.0	7.7	5.5	4.4	2.8	5.7	4.4	2.5	1.6	3.8	2.4	1.6	1.2
86	4.7	5.3	5.9	6.9	6.4	6.9	3.2	3.4	4.3	4.4	1.5	1.8	2.5	2.6	1.0	1.2
87	3.4	2.3	4.6	3.3	4.5	3.3	2.0	1.6	3.0	2.6	0.9	0.8	1.5	1.1	0.6	0.6
88	2.3	1.9	3.2	2.1	3.2	2.3	1.3	1.0	1.9	1.8	0.5	0.5	0.9	0.8	—	—
89	1.5	2.6	2.3	3.7	2.0	3.2	0.7	1.3	1.2	1.7	—	—	0.4	1.0	—	—
90	1.0	0.7	1.5	1.1	1.2	0.9	0.5	0.4	0.7	0.4	—	—	0.2	0.2	—	—
91	0.5	0.7	0.9	0.9	0.7	0.8	—	—	0.4	0.5	—	—	—	—	—	—
92	—	—	0.5	0.5	0.4	0.6	—	—	—	—	—	—	—	—	—	—

variability of the index. Dr Livi has called attention to these inaccuracies and to the fact that in many cases the measurements of length and width of head have been rounded off to the nearest half-centimeter,[1] and that, owing to this procedure, certain indices occur rarely or not at all. This phenomenon is expressed clearly in all the graphical representations of the distribution of cephalic indices. In order to obtain a clearer insight into the process of rounding off, we have assumed that the true distribution for every *circondario* follows the exponential law—an assumption which, of course, is only an approximation. We then determined the ratio between the value found in the theoretical distribution and that in the observed distribution. The foregoing table gives the results of our study.

From this table we have calculated the ratio between the observed frequencies and the theoretical frequencies (the observed divided by the theoretical frequencies). Livi has shown that, when the cephalic index is calculated from diameters given in half-centimeters, the indices 90, 88, 87, 85, and 80 must be rare, while 86 and 79 must be frequent. This phenomenon appears very clearly in the following table, and it may be observed that the tendencies are quite evenly distributed over all the provinces, so

Cephalic Index	73	74	75	76	77	78	79	80	81
Liguria	—	—	—	—	—	0.68	1.05	0.78	0.87
Lombardia	—	—	—	—	—	—	—	—	0.89
Veneto	—	—	—	—	—	—	—	—	0.89
Emilia	—	—	—	—	—	—	—	—	0.86
Toscana	—	—	—	—	—	0.91	1.25	0.79	0.82
Marche	—	—	—	—	—	—	—	0.78	0.86
Umbria	—	—	—	—	—	—	—	0.82	0.86
Lazio	—	—	—	—	1.12	1.04	1.37	0.79	0.96
Abruzzi	—	—	—	—	—	1.05	1.28	0.83	1.07
Campania	—	—	—	—	—	1.04	1.23	0.81	0.97
Puglie	—	—	—	1.19	1.11	0.98	1.33	0.83	0.96
Basilicata	—	—	—	—	1.00	1.09	1.19	0.81	1.06
Calabrie	—	1.23	1.03	1.29	1.02	1.11	1.24	0.72	0.84
Sicilia	—	—	0.90	1.16	1.04	1.10	1.31	0.79	0.94
Sardegna	0.96	1.41	1.02	1.26	0.91	1.09	1.09	0.67	0.84

[1] L'indice cefalico degli Italiani, *Archivio per l'Antropologia e la Etnologia*, vol. XVI (1886), p. 253; *Antropometria Militare*, pp. 80 et seq.

Cephalic Index	82	83	84	85	86	87	88	89	90
Piemonte	0.98	0.96	1.22	0.76	1.27	0.84	0.81	1.61	0.67
Liguria	1.16	1.06	1.44	1.08	1.44	—	—	—	—
Lombardia	1.11	0.99	1.29	0.85	1.17	0.82	0.79	1.40	—
Veneto	1.09	1.00	1.26	0.84	1.21	0.82	0.79	1.40	—
Emilia	1.01	0.95	1.24	0.83	1.18	0.84	0.76	1.45	—
Toscana	1.01	0.92	1.16	0.72	1.11	0.83	—	—	—
Marche	1.10	0.93	1.13	0.67	1.37	0.74	0.73	—	—
Umbria	1.06	1.00	1.21	0.82	1.13	0.79	0.82	—	—
Lazio	0.97	0.93	1.05	0.67	1.13	—	—	—	—
Abruzzi	1.14	0.97	1.09	0.68	1.19	—	—	—	—
Campania	1.07	1.07	1.17	0.71	1.09	—	—	—	—
Puglie	1.05	0.89	1.04	—	—	—	—	—	—
Basilicata	1.01	0.99	1.08	0.77	—	—	—	—	—
Calabrie	0.87	0.88	—	—	—	—	—	—	—
Sicilia	0.94	0.92	1.06	—	—	—	—	—	—

that we have no reason to suppose that the method of observation was materially different in different areas.

The unweighted averages of this series give the following results, which indicate, in connection with the preceding table, that approximately the same errors are found in all the different parts of the country.

Cephalic index	Ratio between observed and theoretical frequency
73	0.96
74	1.32
75	0.98
76	1.22
77	1.03
78	1.00
79	1.23
80	0.78
81	0.91
82	1.04
83	0.96
84	1.17
85	0.78
86	1.21
87	0.81
88	0.78
89	1.46
90	0.67

The question then presents itself, what the relation may be between the true variability and the one derived from Livi's material. In order to examine this point we may compare the general data for Reggio Emilia obtained by Livi himself with an exact instrument[1] and the observations in his *Antropometria Militare* (p. 237).

1. Livi's own observations, $\sigma^2 = 12.61$, 1145 cases.
2. General statistics, $\sigma^2 = 15.89$, 2831 cases.

The difference in σ^2 is therefore 3.28, which indicates the amount of inaccuracy introduced by the process of rounding off and by errors of measurement.[2]

	Livi		Boas		Diff.	Error
	σ^2	Cases	σ^2	Cases		
Caserta	14.44	7407	11.40	119	−3.04	±1.7
Chieti	18.01	3760	12.13	63	−5.88	±2.6
Campobasso	13.61	3826	14.76	82	+1.15	±2.2
Avellino	15.61	4095	12.89	163	−2.72	±1.6
Napoli	12.35	9109	8.06	210	−4.29	±1.0
Salerno	14.89	5687	13.50	441	−1.39	±1.0
Bari	15.78	7285	9.42	147	−6.36	±1.5
Potenza	16.00	5898	13.25	544	−2.75	±0.9
Cosenza	13.48	5586	14.88	244	+1.40	±1.3
Messina	12.85	5017	11.26	431	−1.59	±0.8
Palermo	13.33	7760	9.27	1240	−4.06	±0.4
Trapani	12.07	3148	10.95	90	−1.12	±1.7
Caltanisetta	11.67	3215	9.17	65	−2.50	±1.8
Girgenti	14.53	3619	9.68	175	−4.85	±1.3
Catania	14.77	6026	10.31	170	−4.36	±1.3

We have also investigated this question by comparing Livi's observations with those taken on American immigrants. The material thus discussed consists of the family observations included in the study of American immigrants and their descendants.[3] In the comparison of these data it must be borne in mind that the place of birth of the immigrants is not as accurately determined as

[1] L'indice cefalico degli Italiani. *Archivio per l'Antropologia e la Etnologia*, vol. XVI, p. 252.

[2] We do not know whether Livi's own observations are contained in the larger series. If they are contained in it, the inaccuracy would be a little larger; the difference in σ^2 would be about 5.

[3] Franz Boas, *Changes in Bodily Form of Descendants of Immigrants*.

that of the individuals recorded in Livi's military statistics, and that certain errors may have been introduced by lack of accurate information bearing on this point. The foregoing table contains the results of this comparison.

The average difference resulting from these series, taking into consideration the errors, is 2.91 in favor of the series measured in America. If we disregard the effect of rounding off, which it is not quite easy to take into account, since we have no data indicating how many measurements in each series have been rounded off, we may determine the inaccuracy of the measurement on this basis. If we call breadth and length of head b and l respectively, the individual's variations x and y, the errors v and w, the head-index c, then

$$c = 100\frac{b + x + v}{l + y + w};$$

and with sufficient accuracy,

$$c = 100\frac{b}{l} + 100\frac{b}{l}\left(\frac{x}{b} - \frac{y}{l} + \frac{v}{b} - \frac{w}{l}\right).$$

$$\sigma_1^2 = 10{,}000\frac{b^2}{l^2}\left[\left(\frac{x}{b} - \frac{y}{l}\right)^2\right] + 10{,}000\frac{b^2}{l^2}\left[\left(\frac{v}{b} - \frac{w}{l}\right)^2\right].$$

Here $10{,}000\frac{b^2}{l^2}\left[\left(\frac{x}{b} - \frac{y}{l}\right)^2\right] = \sigma^2$, the variability of the head-index unaffected by errors of observation. We may write, therefore,

$$\sigma_1^2 - \sigma^2 = 10{,}000\frac{b^2}{l^2}\left(\frac{[v^2]}{b^2} + \frac{[w^2]}{l^2}\right).$$

We have, of course, no means of determining the errors in b and l separately, and may assume that errors in the two measurements are approximately equal. We will call the mean square error in these measurements s^2. Then

$$\sigma_1^2 - \sigma^2 = 10{,}000s^2\frac{b^2}{l^2}\left(\frac{1}{b^2} + \frac{1}{l^2}\right).$$

If we assume b and l as approximately 150 mm. and 190 mm., the values characteristic of southern Italy, we find

$$\sigma_1^2 - \sigma^2 = .52s^2$$
$$s^2 = 5.6$$
$$s = \pm 2.4 \text{ mm.}$$

In other words, the mean square error, including the effect of rounding off, of length of head and width of head in the general statistics of the *Antropometria Militare*, must be about ± 2.4 mm.

The difference between the variability obtained by Livi and that obtained from the series of immigrants is fairly uniform. There are only two regions where the variabilities obtained by Livi are less than those obtained from the study of the immigrants. These regions are Campobasso and Cosenza. The series of mean square errors of the differences shows clearly that the variations in our results are, on the whole, unimportant. The differences for Palermo, however, suggest an exceptionally great inaccuracy.

We have also compared the averages obtained by Livi and those obtained by the measurements of immigrants. The results of this comparison are given in the following table.

	Livi		Boas		Diff.	Error
		Cases		Cases		
Caserta	81.8 ± 3.80	7407	80.3 ± 3.38	119	−1.5	±0.3
Chieti	83.3 ± 4.24	3760	81.9 ± 3.48	63	−1.4	±0.4
Campobasso	81.6 ± 3.69	3826	82.0 ± 3.84	82	+0.4	±0.4
Avellino	81.4 ± 3.95	4095	80.6 ± 3.59	163	−0.8	±0.3
Napoli	82.6 ± 3.51	9109	80.9 ± 2.84	210	−1.7	±0.2
Salerno	82.7 ± 3.86	5687	81.0 ± 3.67	441	−1.7	±0.2
Bari	80.7 ± 3.97	7285	79.6 ± 3.07	147	−1.1	±0.3
Potenza	80.8 ± 4.00	5898	81.3 ± 3.64	344	+0.5	±0.2
Cosenza	77.9 ± 3.68	5586	77.6 ± 3.86	244	−0.3	±0.2
Messina	78.8 ± 3.58	5017	77.8 ± 3.36	431	−1.0	±0.2
Palermo	79.1 ± 3.66	7760	77.6 ± 3.04	1240	−1.5	±0.1
Trapani	80.0 ± 3.47	3148	78.7 ± 3.30	90	−1.3	±0.4
Caltanisetta	79.4 ± 3.42	3215	78.3 ± 3.03	65	−1.1	±0.4
Girgenti	80.1 ± 3.81	3619	78.8 ± 3.10	175	−1.3	±0.3
Catania	79.7 ± 3.85	6026	77.8 ± 3.20	170	−1.9	±0.3

It will be seen that almost everywhere the cephalic index obtained in America is less than the cephalic index obtained in Italy, the difference being, on the average, 1.03 units. Here, again, there are only two regions where the average index in America exceeds the index found in Europe. These regions are Campobasso and Potenza. It does not seem improbable that the average value in America may be affected in some cases by the uneven representation

of different parts of the same province, which would naturally result in an index different from the one found in Italy. We think, however, that the regular difference is due to differences in the method of measuring. It is a well-known fact that in hasty observations errors in the length of the head must almost always result in values which are a little below the true value, because a change in the point on which the compasses are placed in front, and a deviation from the medial line on the occiput, will both result in a shortening of the line measured. The only cause of excessive measurements in the length of head is found in the slipping of the compasses when they are taken off, and this is usually one of the first errors that observers guard against.

On the other hand, rapid measurement of the width of the head is liable to result in increased values, when the measurement is not taken in an accurately transversal direction; in other words, if one of the points of the compasses is a little more forward than the other one. In this case the diagonal measurements are always greater than the true measurements. On the other hand, inexperienced observers are quite liable to obtain too small results in cases where they do not move the compasses far enough back. On the whole, we might therefore expect, in measurements taken by observers without a great deal of experience in anthropometric work, and necessarily very rapidly, that the length of the head would be too small and the width of the head approximately accurate.

We have calculated from the data contained in the preceding table the error which would result in the observed difference, provided that an equal error, but in opposite directions, were made in the length of the head and the width of the head. This error (in other words, the average personal equation of the observers) would be −1.03 mm. If the error is calculated on the assumption that the width of the head is correctly given and an error made in the length of the head, the latter error would be −2.48 mm.

We may, therefore, infer that the material presented by Livi gives, on the whole, an adequate basis of a discussion of the variability of the cephalic index, provided we confine ourselves to the material collected according to Dr Livi's methods. We have no

means of determining whether the values of Emilia should not be slightly increased, since Dr Livi's accurate measurements may be contained in them.

A glance at the map shows that, on the whole, the largest variabilities are found in central Italy where the two distinct types of northern Italy and of southern Italy have intermingled.

Before we discuss this distribution in greater detail, it remains to be shown that the amount of increase of variability of the cephalic index due to the mixture of two types like the South Italian and North Italian is large enough to account for the increase that has been observed. The maximum variability is found in Macerata, and is ± 4.68; its square 21.90. The average index for this *circondario* is 83.7. If we imagine this type composed of one type of an index of about 86 representing northern Italy and one of an index of about 79 representing southern Italy, we must assume that the latter occurs with a frequency of 0.5 of the former. If we assume the variabilities of the component elements as ± 3, then the square of the total standard variability would be 22.3, approximately the value found in Macerata.[1] This, of course, is intended only as an indication that the increases of variability *may* be produced by such mixture, not as an analysis of the series, which would be quite arbitrary on the basis of available observations.

It seems to us, therefore, that the distribution of the amounts of the observed differences in the variability of the cephalic indices agrees, on the whole, with the theory with which we started. Since, furthermore, the theory is in accord with observations quoted before, it seems to be a plausible explanation of the observed facts.

We are not inclined, however, to claim that mixture is necessarily the sole reason for the distribution of variabilities. It might

[1] If the frequency of the type with average index 86 is called 1, that of the type with average index 79 is called n.

$$\frac{86 + 79n}{1 + n} = 83.7;$$

and the variability of the whole series, 9 being the square of the component series, and their distances from the general average 2.3 and 4.7 respectively.

$$\sigma^2 = 9 + \frac{2.3^2 + n4.7^2}{1 + n}$$

very well be that certain local causes increase or decrease the variability of the cephalic index. We shall revert to this subject later. It would seem, however, a curious coincidence if the region of increased variability due to environmental causes should be the same as the one where we should expect increased variability due to mixture.

One objection that might be raised against our interpretation of the observed facts deserves mention. If the population were very mobile, it might be that people of adjoining parts of the country lived in any particular district, and that therefore without any intermarriage the variability might be increased wherever there are considerable changes in the cephalic index over short distances. The census of the country districts shows, however, that this is not the case. Even if we admit a very extended migration over a radius of about 60 miles, so that there should be an even distribution of types over such an area, a simple calculation shows that the increase of the variability due to this cause, considering only individuals of one generation, would be so small that it could not account for the differences in variability in different parts of the country. For instance, in one of the districts where extreme values of the cephalic index come near together, in Camarino, in the Province of Macerata, the square of the standard variability, with an even distribution of all the types occurring in the adjoining *circondari*, would be increased by about 1.5 units, while in reality it exceeds the lowest values found in Italy by 9 units. It appears, therefore, that if the increased variability is to be explained as due to mixture of types, it must be an old and much more extended mixture.

A few regions of Italy offer points of special interest when considered from these points of view. While in the greater part of the valley of the Po a uniformly low variability prevails, there is a very rapid increase westward toward the French border. In this region the long-headed Ligurian type comes into close contact with the short-headed Alpine type; and in those areas where the variability is great, the transition from long-headed to short-headed areas is very rapid. In Tuscany, particularly on the western coast,

the conditions are similar, the type of the region of Lucca contrasting strongly with the type of the interior. It is rather interesting to note that in both these areas the increase of variability is in the interior, as though the influence of the mountain people on the coast type had been very slight, the reverse influence strong. All along the western coast of Italy the variabilities remain rather low, although between Tuscany and the region south of Rome they are relatively high. By far the highest values are found on the Adriatic side, in the Apennine region. It is conceivable that the fact that Italy faces here the Balkan peninsula, the northern parts of which are occupied by round-headed people, may have exerted an influence upon the head-forms. If South Italians, types of the Po valley, types of the Balkan peninsula, and Ligurians intermingled here and retained their types, high variabilities like those found here would result. It is noteworthy, however, that in Larino and Sansevero the variability is low, although Slavic and Albanese colonies have existed there for a long period.[1] Farther to the south there is a minimum of variability in the district crossing Italy between points near Naples and Foggia, while farther south the values are rather low and quite uniform. They vary around ± 3.75, one of the dividing-lines of groups selected for our map; so that the uniformity is somewhat obscured by the occurrence of two zones in this area, which, however, represent values very much alike. Higher values are found in a small district inland, east of Naples, where the variability is almost ± 4. Another district of higher variability is situated in southern Calabria, where a considerable infusion of Albanese blood has occurred. Livi has shown that there is no appreciable difference in type between the inhabitants of Italian and Albanese villages of Calabria; but it is quite possible that the whole area may be affected by the infusion of Albanese blood which has continued for more than four hundred years. There is no trace of a disturbing influence in the ancient Illyrian territory in southern Italy.

Notwithstanding all the irregularities of distribution of varia-

[1] F. L. Pullé, Profilo Antropologico dell' Italia. *Archivio per l'Antropologia*, 1898, XXVIII, pp. 110 et seq., pl. II.

bility of the cephalic index, the fact remains that in a broad strip occupying the middle portion of the country,—roughly speaking, between Ravenna and Chieti on the Adriatic side, Lucca and Rome on the Ligurian and Tirrenian side,—the bulk of high variabilities are found.

Before we turn to the consideration of these data from another standpoint, we desire to call attention to the fact that the mixture which has taken place in central Italy extends over very long periods, so that opportunity for Mendelian segregation would present itself. The conditions are the same among the Lycian Greeks whom Dr von Luschan discusses. In that area the difference between the component types is so great that the very high variability of ± 6.8 results,—a value which is not equaled in any territory where a fairly homogeneous population resides.

It would seem that similar increases of variability occur in other areas where a long-continued mixture of types may be proved to exist. Thus the Alaskan Eskimo, who are undoubtedly a mixture of long-headed eastern Eskimo and of short-headed northwestern Indians, have the high variability of ± 4.3,[1] while the Indians have a variability of only about ± 3.[1] In California, where the long-headed Yuki, who have an average index of 77.4, adjoin shorter-headed tribes, the former have a variability of ± 2.9 (48 cases); the neighboring Pomo, an average index of 81.0 ± 3.8 (28 cases); the Maidu and Pit River jointly, of 80.5 ± 3.7 (68 cases).[2]

In British Columbia, Washington, and Oregon similar phenomena seem to occur, although they are not so clear.

The anthropometric and ethnological evidence indicate that a mixture of several types has occurred in the area of the Lower Fraser river and in the Lillooet valley, and here the highest variabilities are found. In Oregon, where we approach the types of

[1] These data have been computed from the materials published in F. Boas, Zur Anthropologie der nordamerikanischen Indianer, *Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte*, XXVII [1895], p. 391; and Physical Characteristics of the Tribes of British Columbia, *Twelfth and Final Report on the North-Western Tribes of Canada* [1898], pp. 628 et seq.

[2] See F. Boas, Anthropometry of Central California, *Bulletin of the American Museum of Natural History*, XVII [1905], pp. 347–380.

California with more elongated heads, the variability of the cephalic index rises again. The numbers of cases at our disposal are, however, so small that these values must be taken as indications only, not as the true expression of the actual conditions.

	Cephalic Index	Cases
Haida, Nass, Tsimshian	82.7 ± 3.1	110
Bellacoola, Kwakiutl	84.3 ± 3.1	61
Delta and Canyon of Fraser River	86.0 ± 3.5	134
Harrison Lake	88.7 ± 4.0	35
Lillooet	86.0 ± 3.7	103
Upper Thompson	83.2 ± 3.6	135
Shuswap	84.5 ± 3.1	213
Coast of Washington	84.2 ± 3.3	40
Tinneh of Oregon	84.0 ± 3.7	37

The values of these variabilities are throughout higher than those found in areas of uniform populations. Thus we find for some of the provinces of Sweden[1] variabilities of less than ± 3. For Denmark, not divided into provinces, it is ± 3.29 for males, ± 3.26 for females,[2] which probably indicates a value of ± 3 or less for the separate districts.

A few other cases of increase of variability due to mixture have been described.[3] Among immigrants who come to America from various parts of Europe the variability of the cephalic index of children of one family is the greater, the greater the difference between the parents. This observation has been made among Jews and Italians. Only families are considered here in which father and mother belong to the same nationality. Evidently this may be explained in accordance with Mendelian principles by assuming the head-index to be determined by a number of unit characters, and each individual to represent a combination that may be expressed by the complex $a_1a, b_1b, c_1c \ldots ll, mm, nn \ldots$, in which group the characters without index express the unit characters common to father and mother, while those with index

[1] Gustaf Retzius and Carl M. Fürst, *Anthropologia Suecica*, pp. 90–91.

[2] Carl Burrau, Om Hovedets Formog Størrelse, *Meddelelser om Danmarks Antropologi*, I, p. 245.

[3] Franz Boas, *Changes in Bodily Form of Descendants of Immigrants (Final Report)*, pp. 77, 153–154.

express those that belong to father or mother alone. Then a massing of the values of the head-index around the racial type, with secondary maxima for the paternal and maternal values, may result.

We have also data for the width of face of half-bloods, the children of American Indian mothers and white fathers.[1] The observed distributions give the following widths of face:

Indians	149.8	± 5.36	(3018 cases)
Half-bloods	145.8	± 5.70	(594 cases)
Whites	(140.0)	± (5.20)	

Since the descent of the white fathers is not accurately known, we have introduced an approximate value. The increase of the variability of the half-bloods of the first generation is so small that we may say that the series, so far as its variability is concerned, seems to behave like a blend of two homozygous types. The increase in variability, due to the difference of distinct parental types that has been observed in intraracial marriages, does not appear here. Nevertheless the distributions observed among the half-bloods indicate a massing of observations near the Indian type and near the European type. In Mendelian terms this would have to be expressed in the same manner as the preceding case, namely, by the assumption that, in regard to width of face, both Indian and white are heterozygous, and contain certain elements in common, without appreciable dominance of any of the unit characters concerned.

The Mendelian formula, however, seems to involve an hypothesis that does not seem quite plausible, and we prefer to express the observed phenomena in another manner. Considering the observed similarities of members of fraternities and the similarities between individuals and their ancestors, we may say that the variability in fraternities is due to the varying intensity of transmission from individuals of the ancestral series, and that the intensity of hereditary transmission decreases with the remoteness of the ancestral relations. If we assume, then, that the hereditary feature is due

[1] Franz Boas, Zur Anthropologie der nordamerikanischen Indianer, *Verhandlungen der Berliner anthropologischen Gesellschaft*, 1895, pp. 404–408.

to the reappearance of ancestral types, and that there is always part of the paternal and part of the maternal line present, then the observed facts of segregation would be due to the presence of the same types of ancestors (or of the same ancestors) in the two lines. It will readily be seen that when we express the phenomena of heredity in these terms, the observations among Jews and among Indian half-bloods would be adequately covered. In the former case we should say that both father and mother have to a great extent the same ancestors which will reappear in the series; that, however, since both parents differ very much, similar differences may have occurred also among their more immediate ancestors. Therefore, on account of the stronger recurrence of the types of near ancestors, there will be a certain amount of massing at or near the paternal and maternal types.

In the case of the Indian half-bloods we should say that whenever characters of equidistant ancestral groups appear in the two lines, and neither is dominant, there will be a massing around the mixed type; whenever the characters of ancestral groups appear that are not equidistant in the two lines, the paternal or the maternal type will have the greater influence, according to which line is represented by the nearer, and therefore more potent, ancestors.

If we express the phenomena of inheritance in this manner, the observations showing the purity of the segregated recessive lines compel us to say that, when there has been a reversion to a certain ancestral trait in one line, then the later generations of ancestors in that line will have no influence on the descendants of the individual in question.

While the distribution of the variabilities of the cephalic index thus favors the theory of the permanence of the two fundamental types of northern and southern Italy throughout the period of their intermixture, the study of the variabilities found in cities indicates that environmental causes modify the values of the cephalic index. For many years all the large cities of Italy have had a considerable influx of a population born at great distances. This is true particularly of Rome, and the complex character of the descent of its population has been set forth by Livi. The relative

frequency of the native and foreign-born element of a number of large cities is contained in the following table, which has been extracted from the Census for 1901.

INHABITANTS ACCORDING TO PLACE OF BIRTH OF ELEVEN CITIES (HUNDREDS)

BORN IN	TORINO	GENOVA	MILANO	TREVISO	VERONA	BOLOGNA	FIRENZE	ROMA	NAPOLI	MESSINA	PALERMO
City	865	579	1027	100	508	406	542	1089	1921	615	1117
Rest of province	321	175	539	33	44	174	182	258	250	56	180
Piemonte	235	92	95	1	7	10	15	55	12	3	4
Liguria	19	11	17	—	5	3	5	13	6	1	5
Lombardia	51	48	441	2	14	12	12	38	16	3	7
Veneto	21	36	76	21	33	14	16	30	10	1	7
Emilia	21	59	84	3	12	64	28	77	13	2	3
Toscana	20	38	30	1	7	12	97	87	15	2	6
Marche	5	10	11	1	7	9	10	210	8	1	1
Umbria	2	3	5	—	1	2	7	110	6	—	1
Lazio	6	7	10	—	3	3	10	—	16	3	3
Abruzzi	4	10	6	—	3	4	5	184	40	1	3
Campania	8	19	18	1	6	5	15	114	264	10	12
Puglie	5	6	10	1	7	3	5	23	47	2	2
Basilicata	1	2	1	—	1	—	1	5	16	1	1
Calabria	2	7	3	—	2	1	2	15	39	17	5
Sicilia	12	18	13	3	7	3	7	31	44	24	187
Sardegna	5	6	3	—	1	1	2	7	3	1	2

Unfortunately the earlier census, which would express accurately the composition of the population for the parents of the men measured, is not available. Still it is quite certain that the influx of outsiders in cities like Genoa, Milan, and Rome must have continued for very long periods.

In the following table we give the values of the cephalic index and its variabilities for each of these eleven cities, and for the rest of the *circondario* in which they are situated. The values for the *circondari* were calculated from the data given in the full table for all the *mandamenti*, by excluding the *mandamento* representing the city, and by assuming again that all the *mandamenti* except the city had the same variabilities. The values for the cities were obtained directly from Livi's tables given on pp. 230–247. The table contains, furthermore, the theoretical averages which would

be obtained if all the values of the measurements according to the nativity of the people and their numbers as given in the census of 1901 were used, under the assumption that they would be preserved unchanged in the city.

	Cephalic Index			Variabilities			Number of Cases		Differences between Cephalic Index of City and Circondario without City	
	City		Circondario without City	City		Circondario without City	City	Circondario without City		
	Theoretical Value	Observed Value		Theoretical Value	Observed Value				Theoretical	Observed
Torino	85.5	85.6	86.3	±4.08	±3.85	±3.67	1391	3528	−0.8	−0.7
Venezia	83.7	83.8	85.7	±3.83	±3.62	±4.02	1101	1993	−2.0	−1.9
Treviso	85.1	85.4	85.1	±3.88	±3.77	±3.66	1098	2885	±0.0	+0.3
Bologna	84.2	83.9	84.7	±3.95	±3.84	±3.65	1380	2196	−0.5	−0.8
Milano	84.1	83.8	84.4	±3.61	±3.35	±3.32	1890	1660	−0.3	−0.6
Firenze	82.3	81.7	83.3	±4.30	±4.17	±4.15	1163	3625	−1.0	−1.6
Genova	82.7	82.1	82.7	±4.10	±3.77	±3.62	1552	1785	±0.0	−0.6
Napoli	82.4	82.6	82.6	±3.73	±3.66	±3.54	4623	920	−0.2	±0.0
Roma	81.4	79.9	80.4	±4.50	±4.04	±3.99	1384	1891	+1.0	−0.5
Messina	79.6	79.8	79.3	±3.56	±3.41	±3.43	1405	810	+0.3	+0.5
Palermo	79.6	79.5	79.0	±3.75	±3.64	±3.84	2524	1980	+0.6	+0.5

It will be noted that these theoretical values for the variabilities are very much larger than the observed values for the cities, and that the observed differences between the cities and the surrounding country for the variability of the cephalic index are trifling, in fact so trifling that a very large reduction of the foreign-born population would be necessary in order to make it possible to explain the changes without assuming coincident changes of types, due to city life. For Rome, for instance, it would be necessary to assume an immigration of less than one-twelfth of what it was in 1901 to obtain values at all comparable in regard to variability for the observed and the computed city values—provided the relative amount of influx has remained the same from all parts of the country. Furthermore, the values for the averages of the cephalic index in city and country contradict the results obtained from the variabilities alone. In short, considering the long-continued influx of foreigners into the cities, and the close agreement between the observed variabilities of city and of the country in which they are

situated, it seems necessary to assume that the head-index undergoes changes in the city. It is plausible that in Venice, which differs so much in environment from the surrounding country, the depression of the variability may be due to the strong influence of the environment.

It would seem, therefore, that the observations of the city-born population necessitate the assumption of a direct influence of city life on the cephalic type. This agrees with the conclusion reached from a study of the European immigrants in New York. It may be inferred from the New York observations that under the influence of city life the short-headed North Italians would become a little more long-headed, and the long-headed South Italians a little more short-headed. The theoretical values for averages obtained in Italy neither confirm nor contradict this assumption, while the theoretical values for variabilities that would be obtained under this assumption would show a much better agreement with the observed values than those resulting under the assumption of absolute stability of the component types.

The claim that the changes that do occur are due to natural selection cannot be proved, and does not seem to us favored by the American observations referred to before. The numerical values found for the Italian cities would also require an intensity of selection much greater than seems plausible. On the other hand, the manner of action and cause of a direct influence of city life on head-form remains so far entirely obscure.

Attention may also be called to the apparent massing of high variabilities in mountainous areas. This may perhaps be due to the fact that such areas have been for long periods places of refuge for individuals from different parts of the country who had to seek shelter from political or ecclesiastical persecution. However, the fact itself does not seem quite sufficiently established, and other explanations of the observed distribution seem possible.

COLUMBIA UNIVERSITY
NEW YORK CITY

RACIAL DIFFERENCES IN PALM AND SOLE CONFIGURATIONS

II.—Palm and Sole Prints of Liberian Natives

By HARRIS HAWTHORNE WILDER

I. Introduction

WHEN, about ten years ago, my early studies of human palm and sole prints began to reveal the great individual differences in the configuration of the palmar and plantar friction ridges, there naturally suggested itself the hope that differences, sufficiently distinctive to serve as racial criteria, could be found in the representatives of the different human races. My first observations along this line were made, naturally, upon American negroes, by the help of a set of prints collected at Providence, R. I., by Miss Inez Whipple (Mrs H. H. Wilder); soon after which came the unusual opportunity of studying prints of the Maya-Quichis, afforded me through the kindness of Dr A. M. Tozzer of Harvard University, who collected them during his first visit to Yucatan. The results of those studies, which, to a very limited extent, afforded an opportunity for the comparison of three distinct human varieties, were published in the *American Anthropologist* for April–June, 1904, and yielded fairly satisfactory results. The next work on this subject was that of Schlaginhaufen,[1] on the people of Farther India, and this was followed by a paper by Loth[2] on Poles from the vicinity of Warsaw. So far as I am able to learn, this completes the literature on the subject.

In my first paper, even with the small collection of prints at my disposal, certain rather definite results were obtained, such as the high percentage of occurrence of the thenar pattern in Maya

[1] Schlaginhaufen, O., Zur Morphologie der Palma und Planta der Vorderinder und Ceyloner. *Zeitschr. für Ethnologie*. Hefte 3–4, 1906.

[2] Loth, Edouard, Anthropologische Untersuchungen über das Hautleistensystem der Polen. *Zeitschr. für Morph. u. Anthropol.*, Bd. XIII, 1911.

hands, together with a low percentage of the hypothenar, when compared with the whites. The frequency of certain palmar formulæ in a given race, such as the formula 7.5.5.5 among the negroes, was also noted. It thus seemed that racial distinctions were certainly shown in the palm and sole markings, yet that the individual variation was so great in each race that only the averages of large numbers of individuals were of value as racial criteria. This view concerning the wide range of individual variations in all races became further corroborated as the St Louis Exposition furnished the opportunity of collecting prints from a number of human races not yet examined in this particular, and gave me the opportunity of studying and comparing both palm and sole prints of Ainus, Igorrotes, Patagonians, and Batua pigmies. These prints were taken for me by Mr Charles Hurlbut, and when added to my collection, which already contained the prints of negroes, Mayas, and Chinese, in addition to those of several hundred white Americans, presented material of sufficient breadth racially to allow of some generalization. Taken individually, there was nothing racially specific in either of these; not a palm or sole print but could be closely matched in its general features, except, of course, in the details of the ridges (Galton's *minutiæ*), by prints taken from Smith College students; yet, there still remained indications of definite racial differences in the percentage of occurrence of the several features, when compiled from a sufficiently large collection (at least 25 individuals).

There has just now come to my hand an unusually good opportunity for continuing these studies. Professor Frederick Starr, in his recent expedition to Liberia (1912), collected the palm and sole prints of 100 native soldiers, and, upon his return, presented the entire set to me. If, to appreciate this gift, one should take the complete set of prints of a single individual, and then multiply this effort by 100, he would estimate the work involved only in part, and should consider, in addition to this, the personal whims and caprices of each one of the hundred, and the task and skill required on the part of the collector in persuading them to submit to the process. Only thus may one appreciate the value of this gift, and

it is largely for him who has thus labored in my behalf that I am pleased, in presenting these data, that they show definite and positive results, of real value to anthropology.

The 100 individuals in this set are members of 13 different tribes, of which three are in Sierra Leone, the remaining ten Liberian. These, with their distribution among the hundred, which are numbered consecutively and are thus indicated in Tables I and II, are as follows:

Liberia

Buzi.....Nos. 2, 3, 5, 6, 7, 8, 9, 10, 12, 13, 15, 16, 18, 19, 20, 24, 25, 26, 29, 31, 33, 34, 36, 37, 38, 47, 52, 54, 59, 61, 62, 66, 67, 70, 74, 81, 85, 86, 87, 88, 90, 93, 97; = 43.

Mpessi (= Kpwesi).....Nos. 21, 72; = 2.

Bele (= Mbele).....Nos. 11, 22, 40, 84, 89, 94; = 6.

Mandingo.....Nos. 1, 4, 55, 58; = 4.

Bande (= Komende).....Nos. 23, 39, 45, 49, 60, 71, 75, 78, 79, 80, 91, 92, 95, 98; = 14.

Gola (= Gora).....Nos. 41, 63; = 2.

Bassa.....Nos. 17, 82; = 2.

Kisi.....Nos. 56, 57; = 2.

Grebo.....No. 83; = 1.

Lemba.....No. 27; = 1.

Sierra Leone

Mende.....Nos. 14, 30, 32, 35, 42, 43, 44, 46, 48, 50, 51; 53, 64, 68, 69, 73, 76, 77, 96, 99, 100, = 21.

Temne.....No. 63; = 1.

Susu.....No. 28; = 1.

II. Hands

The first cursory inspection of the prints of the hands showed an astonishing percentage of occurrence of the formula 7.5.5.5, with the slight variations 7.5.5.3 and 7.5.5.4, a condition previously observed in the prints of American negroes, and of so frequent an appearance that I had come to regard it as the "negro formula." In this type (fig. 30) line D makes an abrupt upward curve, almost from its origin, and terminates between the little and ring fingers in the position designated by the figure 7. By this course the line in question necessarily embraces, and assists in the formation of, a definite looped or whorled pattern, morphologically the fourth

TABLE I

HAND FORMULÆ OF LIBERIAN NATIVES (MALES) COLLECTED BY FREDERICK STARR, 1912

No.	Left		Right		No.	Left		Right	
1	**7.5.5.3**	th.o	—.—.5.5	o.o	51	—.—.5.5	th.o	—.—.—.—	o.o
2	**7.5.5.5**	o.o	**7.9.5.5**	o.o	52	**7.5.5.5**	o.o	**8.6.5.5**	o.o
3	7(3).5.5	—.o	**7.5.5.5**	th.h	53	T¹.**7.5.5**	th.o	**10.9.6.5**	th.o
4	**7.5.5.5**	th.o	—.—.—.5	th.o	54	**7.5.5.3**	o.o	**7.5.5.5**	o.o
5	**7.5.5.3**	o.o	**7.5.5.3**	o.o	55	**7.5.5.5**	o.o	**7.5.5.5**	o.o
6	—.—.—.5	o.h	—.—.5.5	o.o	56	**7.5.5.3**	o.o	**7.5.5.5**	o.o
7	**7.5.5.4**	o.h	7.—.5.4	o.h	57	**7.5.5.3**	o.o	**7.7.5.5**	o.o
8	7.5.5.3	o.o	9.—.5.5	o.o	58	**7.5.5.4**	o.h	**11.8.7.5**	o.h
9	7.—.5.5	o.o	—.—.—.5	o.o	59	**7.5.5.5**	o.h	**7.5.5.5**	o.o′
10	**9.7.5.5**	o.o	**11.9.7.5**	o.o	60	—.—.—.5	th.o	11.9.7.3	th.o
11	**7.7.5.5**	th.o	**7.9.5.5**	th.o	61	7.—.5.3	o.o	**7.9.5.5**	o.o
12	9.8.5.5	th.o	11.9.7.5	th.h	62	**7.7.5.5**	o.o	**7.9.5.5**	o.o
13	**9.7.5.4**	o.h	**9.7.5.5**	o.o′	63	**7.5.5.5**	o′.o	—.—.5.5	o.o
14	**7.5.5.3**	o.o	—.—.5.5	o.o	64	**9.7.5.5**	o.o′	**9.8.5.5**	o.o′
15	7.—.—.5	o.h	11.—.—.5	o.h	65	**9.7.5.5**	o.o	11.9.—.5	o.h
16	**7.5.5.3**	o′.o	**8.6.5.5**	o.o	66	T¹.**8.5.5**	o.o	7.9.5.5	o.o
17	9.8.5.5	o.o	—.—.—.—	o.o	67	T¹.**7.5.5**	o.h	—.—.—.5	o.h
18	7.5.5.3	o.o	**7.5.5.3**	o.o	68	**7.5.5.5**	o.o	—.—.5.5	o.o
19	**9.8.7.5**	o.h	11.9.7.5	o.h	69	7.—.5.5	o.o	7.—.5.5	o.o
20	**9.7.5.5**	o.o	9.—.5.5	o.o	70	T¹.**7.5.5**	o.o	9.7.5.5	o.o
21	**7.5.5.5**	o.o	—.—.5.5	o.o	71	**7.9.5.5**	th.o	T¹.**9.5.5**	th.o
22	**7.5.5.3**	th.o	**8.6.5.5**	o.o	72	—.—.5.3	o.o	—.—.—.5	o.o
23	**9.7.5.5**	o.o	**11.9.7.5**	o.o	73	**7.5.5.3**	o′.o	—.—.—.5	o.o
24	**7.8.5.5**	o.o	—.—.—.—	o.o	74	**7.5.5.5**	o.o	—.—.—.4	o.h
25	—.—.5.5	o.o	—.—.5.5	o.o	75	**9.8.5.5**	o.o	**7.7.5.5**	o.o
26	**9.7.5.5**	o.o	—.—.—.5	o.o	76	—.—.—.—	o.o	—.—.—.5	o.o
27	**7.5.5.3**	th.o	**7.5.5.5**	o.h	77	7.—.5.5	th.h	**11.9.7.5**	o.o
28	**7.5.5.3**	o.o	**7.5.5.5**	o.o′	78	T¹.**7.5.3**	o.o	11.9.7.5	o.o
29	T¹.**9.5.5**	th.o	—.—.—.—	o.h	79	**7.5.5.3**	o.h	**7.5.5.5**	o.o
30	**7.5.5.3**	o.h	—.—.5.5	o.o	80	7.5.5.5	o.o	—.—.5.3	o.o
31	**9.7.5.5**	o.o	—.—.—.5	o.o	81	7.—.—.5	o.o	7.—.—.5	o.o
32	**7.5.5.5**	th.o	**7.5.5.5**	o.o	82	**7.7.5.5**	o.o	**11.9.7.5**	o.o
33	**7.5.5.5**	o.o	—.—.5.5	th.o	83	**7.5.5.3**	o.o	10.—.6.5	o.h
34	—.—.—.—	o.—	—.—.—.—	o.—	84	7.5.5.3	o.o	—.—.—.5	o.o
35	**7.7.5.5**	th.h	T¹.**9.5.5**	th.h	85	—.—.5.4	o.h	7.—.—.5	o.h
36	T¹⁰.**9.6.5**	th.o	**7.9.5.5**	o.o	86	—.—.—.5	th.o	11.—.7.5	o.o
37	**11.8.7.5**	o.o	**11.8.7.5**	o.o	87	7.—.5.5	o.o	**9.9.5.5**	o.o
38	**7.5.5.5**	o.o	—.—.—.—	o.o	88	**7.5.5.5**	o.o	**7.5.5.5**	o.o
39	9.—.5.5	th.h	—.—.5.5	o.o	89	**7.5.5.3**	o.o	—.—.5.5	o.o
40	**7.9.5.5**	th.o	—.—.5.5	o.h	90	**7.5.5.3**	o.o	—.—.5.3	o.o
41	**7.5.5.5**	o.o	—.—.5.5	o.h	91	**7.5.5.3**	o.o	—.—.5.5	o.o
42	**7.5.5.5**	o.o′	—.—.—.5	o.o	92	7.—.5.5	o.o	—.—.—.5	o.o
43	—.—.5.5	o.o	11.—.—.5	o.o	93	—.—.5.5	th.o	—.—.5.5	o.o
44	—.—.5.5	o.o′	—.—.—.5	o.o	94	—.—.—.3	o.o′	—.—.—.5	o.h
45	**7.5.5.5**	o.o′	**7.5.5.5**	o.o	95	**7.5.5.5**	o.o	—.—.5.5	o.o
46	T¹.—.5.3	o.o	—.—.5.5	o.o	96	7.—.5.3	o.o′	—.—.5.5	o.o
47	—.5.5.5	th.o	—.—.5.5	th.o	97	**7.5.5.5**	o.o	7.—.5.5	o.o
48	**9.7.5.5**	o.o	**11.9.7.5**	o.o	98	7.—.5.5	o.o	**7.5.5.3**	o.o
49	7.—.5.5	o.h	—.—.—.—	o.o	99	**7.5.5.3**	o.o	7.—.—.3	o.o
50	11.9.7.5	o.o	11.9.7.5	o.o	100	—.—.5.4	o.h	—.—.5.5	o.o

Only the formulæ in bold-faced type are complete and beyond doubt correct, and the conclusions given in this paper are based on these alone. The others, 99 in num-

interdigital of Miss Whipple.[1] The three other main lines open upon the outer margin, sometimes with line A terminating along the upper two-thirds of this margin, position 5, or within the lower, or proximal third, position 3. Occasionally, too, line A becomes involved in a hypothenar pattern, and is thus prevented from attaining the margin at all; position 4. Thus these three closely related formulæ are practically the same, the sole difference being in the course of line A. The finding of this "negro formula" so common in the Liberian prints, after having already established its frequency among North American negroes, is of especial significance, since the source of these new prints is geographically so near the place of origin of the majority of the North American slaves.

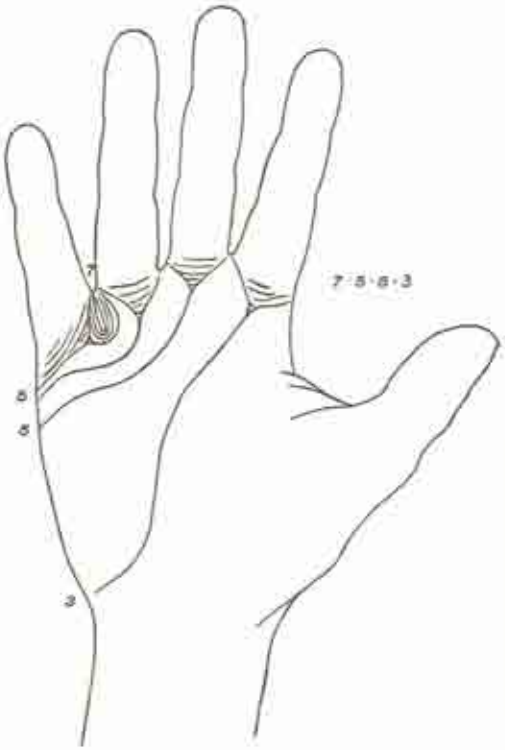


FIG. 30.—Typical print, showing the *negro formula*, 7·5·5·3. *No. 5, Buzi tribe.*

The next step in the examination consisted naturally of making

ber, are either defective or, when complete, are more or less uncertain, owing to the condition of the print. The two last figures, those following the palmar formula, indicate the presence of a thenar pattern by *th*, an hypothenar by *h*, and the absence of a pattern by an *o*. An accented *o*, thus, *o'*, denotes a rudiment of the pattern in question.

[1] Whipple, Inez L., The Ventral Surface of the Mammalian Chiridium with special reference to the conditions found in Man, *Zeitschr. für Morphol. u. Anthropol.*, Bd. VII, 1904.

a definite formulation of the individual palms, and presenting the results in the form of a table (Table I). Unfortunately many of the prints were deficient in certain essential areas, especially along the bases of the fingers where the triradii of origin of the main lines are situated, and thus of the entire set I could be positive of the complete formulæ of but 64 left hands and 37 rights, 101 in all. These appear in the table in bold-faced type; in the other cases only the parts which could be definitely known are given.

As a basis for comparison 100 sets of hands from native whites from the United States were formulated in the same way and placed in a second table (Table II), but here, as I could select these from a collection of more than 400, it was possible to take only those that could be wholly formulated, and there are thus 200 complete formulæ, 100 from each side.[1] Although there has yet been found absolutely no difference between the sexes in respect to palm and sole marking, it may be noted that the Liberian prints were all males, and the prints of whites from my collection all females.

A mere glance at these two tables (I and II) will suffice to show certain distinct and well-marked differences, such as (1) that the great preponderance of the "negro formula" in the Liberians is a fact, and (2) that the amount of individual variation, as shown in the number of different formulæ represented in each set, is far greater in the whites than in the Liberians.

[1] These formulæ follow the method first proposed by me in a popular article in 1903 (*Pop. Sci. Monthly*, Sept.) and afterward brought to general use. It was explained in the paper just quoted, and again more thoroughly in 1904, in the paper in the *American Anthropologist* on racial differences. As in those papers, I still use the numeral 8 for cases of total suppression of line c, as well as for those in which there is a very short line that ends in a loop, although for the first of these cases Loth has proposed the sign x, which may prove convenient. This condition Loth considers a Polish character, but I have found this, as well as the very short line, in many races. These cases represent respectively the "arch" and the "tented arch" of Galton, and simply show the two final stages in the degeneracy of the pattern as shown by Miss Whipple (1904, loc. cit., fig. 44, p. 345, c. II, and II. III). These figures are cited by Loth, and the two conditions are figured by him in his Tafel IV, figs. 1 and 2. I am sorry that I have nowhere explained these cases, or my expressions for them in the written formulæ, for the omission has misled Loth; but the frequent use of the numeral 8 as the position of line c, as seen in my former papers, indicates the frequency of these conditions.

TABLE II

HAND FORMULÆ OF WHITE INHABITANTS OF THE UNITED STATES (FEMALES) COLLECTED BY HARRIS HAWTHORNE WILDER

No.	Left		Right		No.	Left		Right	
1	8.6.5.1	o.o	9.9.5.5	o.o	51	T[11].9.7.5	o.h	11.10.8.5	o.h
2	10.7.6.2	o.o	11.9.7.5	o.o	52	11.8.7.5	o.h	11.9.7.5	o.o
3	9.7.5.3	o.o	10.9.6.4	o.h	53	9.8.5.5	th.o	10.7.6.5	o.o
4	10.9.6.2	o.o	11.9.7.2	o.o	54	T[3].8.5.5	th.o	11.9.7.5	o'.o
5	11.10.8.5	o.h	11.10.8.5	o.h	55	10.7.8.3	o.o	9.7.5.5	o.o
6	10.9.6.5	o.h	10.7.6.5	o.o'	56	10.8.6.5	o.h	11.9.7.3	o.h
7	8.6.5.3	o.o	9.7.5.4	o.h	57	7.5.5.3	o.o	9.8.5.3	o.o
8	7.5.5.5	th.o	9.7.5.5	o'.o	58	11.7.7.5	o.o	11.9.7.5	o.o
9	10.7.6.3	o.o	11.9.7.5	o.o	59	11.8.7.5	o'.o	11.9.7.3	o.o
10	11.7.7.3	o.o	9.7.5.5	o.o	60	11.9.7.5	o.o	11.8.7.3	o.o
11	11.9.7.4	th.h	11.9.7.5	th.h	61	10.8.6.5	o.h	10.7.6.4	o.h
12	11.7.7.4	o.h	10.7.6.5	o.o	62	9.8.5.5	th.o	10.7.6.5	o'.o
13	9.8.5.5	th.o	11.10.8.5	o.o	63	9.7.5.3	o.h	11.9.7.4	o'.h
14	9.7.5.5	o.o	9.8.5.5	o.h	64	11.9.7.5	th.o'	11.9.7.5	th.o
15	9.7.7.5	o.o	11.8.7.5	o.o	65	11.8.7.5	o.o	11.9.7.5	o.o
16	9.7.7.5	th.o	11.9.7.5	o'.o	66	11.8.7.5	o.o	11.8.7.5	o.o
17	10.9.6.2	o.h	10.9.6.5	o.o	67	8.6.5.5	o.o	9.7.5.5	o.o
18	7.7.5.5	o.o	7.5.5.5	o.o	68	11.9.7.5	o.o	11.9.7.5	o.o
19	10.7.6.5	o.o	11.9.7.5	o.o	69	11.8.7.5	th.o	11.9.7.5	th.h
20	7.5.5.3	o.o	9.7.5.5	o.o	70	9.7.5.3	o.o	9.7.5.4	o.h
21	10.7.6.5	o'.o	10.7.6.5	o.o	71	11.9.7.5	th.h	11.9.7.5	o.h
22	9.7.5.5	o.h	11.9.7.5	o.h	72	10.7.6.5	o.o	11.9.7.5	o.h
23	11.9.7.5	th.o	11.10.8.5	th.o	73	9.7.5.3	o.o	9.7.5.5	o.h
24	7.5.5.4	o.h	11.7.7.5	o.o	74	11.9.7.5	o.o	11.9.7.5	o.h
25	7.5.5.2	o.h	8.6.5.5	o.h	75	11.9.7.5	th.o	11.9.7.5	o.o
26	8.6.5.3	o.o	7.5.5.3	o.o	76	10.9.6.3	o.o	9.7.5.5	o.o
27	9.7.5.4	o.h	9.7.5.4	o.h	77	9.9.5.5	o.o	10.8.6.5	o.o
28	7.5.5.4	o.h	7.5.5.4	o.h	78	9.7.7.5	o.h	11.9.7.5	o.h
29	9.7.5.5	o.o	9.7.5.5	o.o	79	9.7.5.3	o.h	10.9.6.5	o.h
30	9.7.7.4	o.h	10.7.6.5	o.o	80	11.8.7.5	th.o	11.9.7.5	th.o
31	10.7.6.2	o.h	11.9.7.4	o.h	81	10.7.6.5	o.o	7.5.5.5	o.o
32	7.5.5.3	o.o'	9.7.5.2	o.h	82	7.5.5.3	o.h	9.7.5.3	o.h
33	10.7.6.2	o'.h	9.7.5.3	o.o	83	11.9.7.5	o.o	11.9.7.5	o.o
34	T[3].8.7.5	th.o	T[11].10.8.5	o.o	84	11.7.7.5	o.h	11.7.7.5	o.h
35	9.7.5.5	o.o	9.7.5.5	o.o	85	11.9.7.5	o.o	11.9.7.5	o.o
36	11.7.7.3	o.h	11.7.7.5	o.o	86	10.9.6.5	o.h	10.9.6.5	o.o
37	11.9.7.5	o.h	11.9.7.5	o.o'	87	9.7.5.5	o.o	10.9.6.5	o.o
38	8.6.5.3	o.o'	8.6.5.4	o.h	88	9.7.5.5	th.o	7.5.5.5	o.h
39	7.8.5.3	o.h	7.9.5.4	o.h	89	11.9.7.5	o.o	T[11].9.7.5	o.o
40	9.8.7.5	o.h	11.9.7.5	o.o	90	9.9.5.5	o.h	11.9.7.5	o.h
41	9.7.5.3	o.o	7.5.5.5	o.h	91	7.9.5.4	o.h	11.10.8.5	o.o
42	11.8.7.5	o.o	10.9.6.5	o.o	92	7.5.5.5	o'.o	11.9.7.5	o.o
43	11.7.7.5	o.o	11.9.7.5	o.h	93	7.5.5.5	o.o	7.5.5.5	o.o
44	9.7.5.2	o.h	9.7.5.5	o.h	94	T[11].9.7.5	o.o	7.9.5.5	o.o
45	11.9.7.5	th.o	11.8.7.5	th.o	95	11.9.7.5	o'.o	11.9.7.5	o.o
46	7.5.3.2	o.o	8.6.5.3	o.o	96	10.9.6.1	o.o	9.7.5.3	o.o
47	9.9.5.5	o'.o	9.7.5.5	o.o	97	9.7.5.3	o.o	11.7.7.3	o.o
48	7.5.5.3	o.o	8.6.5.5	o.o	98	11.8.7.5	o.o	11.10.8.5	o.o
49	10.9.6.3	o.h	9.7.5.5	o.h	99	11.7.7.5	o.h	11.9.7.5	o.o
50	7.5.5.2	o.o'	7.5.5.4	o.h	100	9.9.5.5	o.o	11.9.7.3	o.o

As this table has been made up from selected prints, in which all the designations are clear and definite, the use of bold-faced type, as in Table I, is not necessary.

To study these and other points in detail a table may be compiled, as in Table III, in which all the formulæ represented by both sets are collected and placed in numerical order, and followed

TABLE III

OCCURRENCE OF FORMULÆ IN THE TWO SETS OF PALM PRINTS

Formulæ	Whites			Negroes		
	Left	Right	Total	Left	Right	Total
7.5.3.2	1	—	1	—	—	—
7.5.5.2	2	—	2	—	—	—
7.5.5.3	5	1	6	18	3	21
7.5.5.4	2	2	4	2	—	2
7.5.5.5	3	5	8	18	11	29
7.7.5.5	1	—	1	4	2	6
7.8.5.5	1	—	1	1	—	1
7.9.5.4	1	1	2	—	—	—
7.9.5.5	—	1	1	2	5	7
8.6.5.1	1	—	1	—	—	—
8.6.5.3	3	1	4	—	—	—
8.6.5.4	—	1	1	—	—	—
8.6.5.5	1	2	3	—	3	3
9.7.5.2	1	1	2	—	—	—
9.7.5.3	7	2	9	1	—	1
9.7.5.4	1	3	4	1	—	1
9.7.5.5	6	13	19	11	1	12
9.7.7.4	1	—	1	—	—	—
9.7.7.5	3	—	3	—	—	—
9.8.5.3	—	1	1	—	—	—
9.8.5.5	4	1	5	2	—	2
9.8.7.5	2	—	2	1	1	2
9.9.5.5	4	1	5	1	3	4
10.7.6.2	3	—	3	—	—	—
10.7.6.3	1	—	1	—	—	—
10.7.6.4	—	1	1	—	—	—
10.7.6.5	4	6	10	—	—	—
10.7.8.3	1	—	1	—	—	—
10.8.6.5	2	1	3	—	—	—
10.9.6.1	1	—	1	—	—	—
10.9.6.2	2	—	2	—	—	—
10.9.6.3	2	—	2	—	—	—
10.9.6.4	—	1	1	—	—	—
10.9.6.5	2	5	7	1	1	2
11.7.7.3	2	1	3	—	—	—
11.7.7.4	1	—	1	—	—	—
11.7.7.5	4	3	7	—	—	—
11.8.7.3	—	1	1	—	—	—
11.8.7.5	8	3	11	1	2	3
11.9.7.2	—	1	1	—	—	—
11.9.7.3	—	3	3	—	—	—
11.9.7.4	1	2	3	—	—	—
11.9.7.5	15	29	44	—	5	5
11.10.8.5	1	7	8	—	—	—
Totals	100	100	200	64	37	101

each by the number of times it occurs in the two sets. In the whites, with exactly 200 hands, the percentage of occurrence of each formula is easily obtained by dividing the third, or "total," column by 2; in the negroes the corresponding third column gives practically the percentage without division, since the number of prints used happened to be 101 in number.

By the help of this table we are now ready to draw the following definite conclusions:

I. In the negro hands 52 per cent. show the typical "negro formula," 7-5-5-3-5. In the white hands this appears in only 10 per cent.

In the white hands 63 per cent. show the formula 11-9-7-2-5 (with the slight variation of 8 for 9 in the second place), a formula which may be called provisionally the "white formula." In the negro hands this appears in only 8 per cent.

II. The white hands exhibit no fewer than 44 different formulæ, while the negro hands show but 16. It must be admitted that the negro hands used here were but 101 in number against 200 of the whites, yet this would hardly account for the extraordinary difference. Furthermore, the 99 remaining formulæ, rejected because incomplete or indistinct, seem, so far as indicated, to be about like the others.

III. If we compare the first figure of the formulæ, which expresses the course of line D, *it is found that in the negro hands this line terminates at 7, that is, in the interval between the little and ring fingers, in no less than 66 per cent. of the cases, practically two-thirds; while in the 200 white hands this course is seen in only 26 cases, or 13 per cent. This is shown in another way by noting that in Table III nearly all of the negro hands occur in the first third of the list, while the majority of the white hands are found in the last third. That these represent fundamental morphological differences, and*

TABLE IV

PERCENTAGES OF THE VARIOUS TERMINAL POSITIONS OF LINE D

Terminal position of D	7	8	9	10	11	Total
Negroes	66	3	22	2	8	101[1]
Whites	13	4.3	25.5	16	41	100

[1] Here, as elsewhere, the number of cases out of a total of 101 is employed instead of the exact percentage, as the two are practically the same.

undoubtedly also physiological ones, i. e., difference in the use of the hands, in the two races considered, is evident.

This difference in the course of line D *may be shown in still another way, and perhaps more strikingly, by tabulating the terminal position of the line in question in all the cases here considered.* (Table IV.)

IV. In the negro hands a fourth interdigital pattern is present, not only in the 66 cases where line D *terminates at position 7, but in 21 other cases out of the 101, that is, in 87 per cent. In the white hands this pattern is not especially common, 55 cases in 200, or 27.5 per cent. This condition will be seen to be mainly a concomitant of the other features, closely correlated, for instance, with position 7 for line* D, *and is thus of minor importance as a distinctive character, yet serving to emphasize the differences previously noted.*

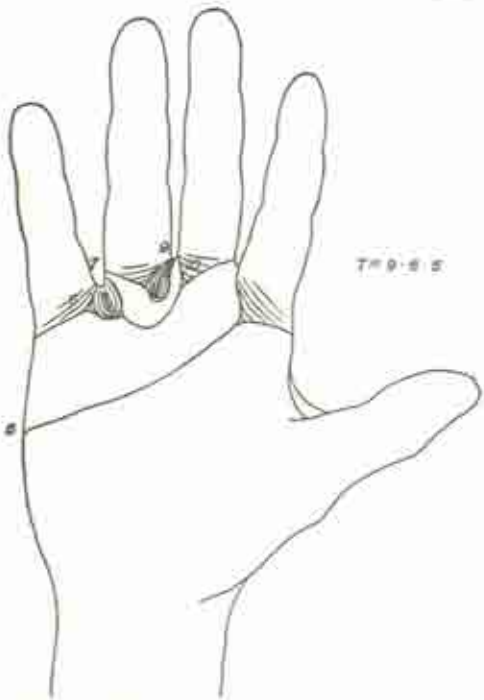


FIG. 31.—Print with a lower triradius present, and intercepting line D. This line is continued as the inner lower radiant of the triradius, and curves upward to position 10, cutting off line C from the outer margin. *No. 56, Buni tribe.*

In counting the fourth interdigital pattern great care must be taken not to confound it with the "false pattern" (Miss Whipple) often found in the interval between the triradii of origin of lines C and D, and caused by the bending back of line C in a short curve to its ulnar rather than to its more usual radial side, in order to get out of the way either of the D line, when it reaches to termination 9 or beyond, or of a similar curve formed by the radiants of a lower triradius [cf. figs. 31 and 32]. The false pattern seen in the latter of

the two figures occupies nearly the same position as the true fourth interdigital, but the two often occur simultaneously (figs. 32 and 33) and are thus distinct. Occasionally, too, the true fourth interdigital has disappeared, and in such a case a large false pattern may greatly resemble the other. Various stages in this gradual reduction of the fourth interdigital pattern may be followed through figures 33, 32, and 34, in the order given, and in the last is seen a curious forking of the ridges which represents the last vestige of the pattern.

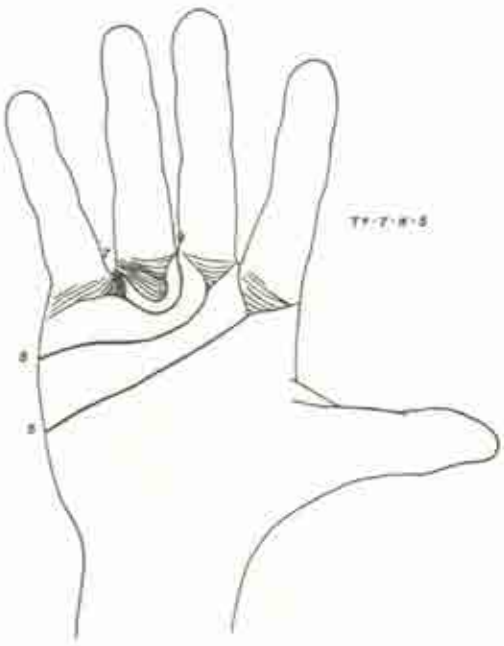


FIG. 32.—Case similar to fig. 31, but with line C curving around to the outer instead of the more normal inner side, forming a false pattern. *No. 64, Mende tribe.*

The lower triradius, too, which in the negro hands, in correlationwith the fourth interdigital pattern, is of especially frequent occurrence, proves often a disturbing element, and is illustrated in some of its phases in the figures. Often, as in figure 31, it intercepts line D directly, so that the latter may be said to terminate in it. It is also possible to consider line D as continuing along one of the other radiants of the triradius, in this case either continued along the most natural direction to 10, or curving sharply up to position 7. Here in all such cases the practice has been to indicate the terminus of line D by a capital T, indicating the direct collision with the triradius, and to indicate further the continuance on the other side of the triradius by an exponent, here T^{10}. In figure 32 the same relation to the triradius, but with a different ultimate termination, gives the figure T^{9}. It is plain

that these two cases, and others like them, might with an almost equal right be designated with simply the number 7; but while this is usually obvious, as in figure 31, in the rarer case shown in figure 32, the small size of the pattern and the direct continuance of the radiant to terminus 9 renders this latter the more obvious designation to use. In the conclusions given above, these cases with an interrupting triradius have not been included in the formulæ beginning with a 7, but if they had they might have made a slight difference in the percentages of the positions of line D.

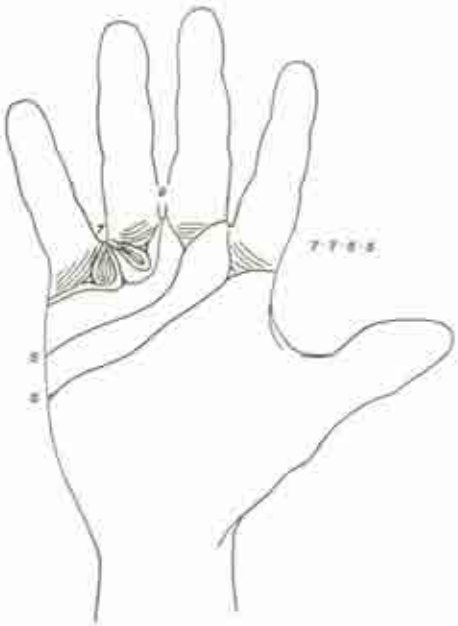


FIG. 33.—Case with the lower triradius below the D line, and so enclosing both this and line C that they make short curves and terminate interdigitally. The pattern formed by line C is false, as in fig. 32. *No. 35, Mende tribe.*

In the 200 white hands are found 16 thenar patterns in the lefts and 6 in the rights, 22 in all, which give for this pattern a percentage of occurrence of 11 per cent. In the same number of negro hands, for these portions were decipherable in practically all the prints, there are 20 lefts and 10 rights, or 30 in all, which give a percentage of 15 per cent. In this feature, then, there is but a slight advantage in favor of the negro, but it is to be noted that in this set of 100 whites the percentage is considerably larger than in the one previously investigated.

As for hypothenar patterns the whites give 33 lefts and 34 rights, or 33.5 per cent., while in the negroes the corresponding figures are 16 and 17, or 16.5 per cent. These figures show, then, a real racial difference in the occurrence of this pattern, and corroborate the feeling expressed tentatively in my previous paper that the

hypothenar was especially characteristic of the whites. It may also be noted that in each of the two cases the occurrence of this pattern was the same on the two sides, while in each the thenar occurs at least twice as frequently upon left hands.

Both hands of No. 71, a Bele negro, present strongly developed thenars, of a more primitive type than any I have ever seen. They consist of large whorls, with a slight tendency to form spirals, occupying the larger part of the thenar eminence. The one on the right hand (fig. 35), in which the print is more complete, shows also, above the thenar, the first interdigital pattern generally associated with the thenar, and between the two are the two triradii commonly found. The large triradius below the thenar pattern is seldom as definite as here, but has more usually disappeared within the core of the pattern, converting the whole into an open loop. Here its completeness, together with its distance from the center of the pattern, define for the latter a large area, within which the ridges become disposed in the typical primitive form of a concentric whorl. How primitive this case really is may be seen by comparing it with figure 36, which exhibits an extremely primitive thenar of the kind hitherto known.

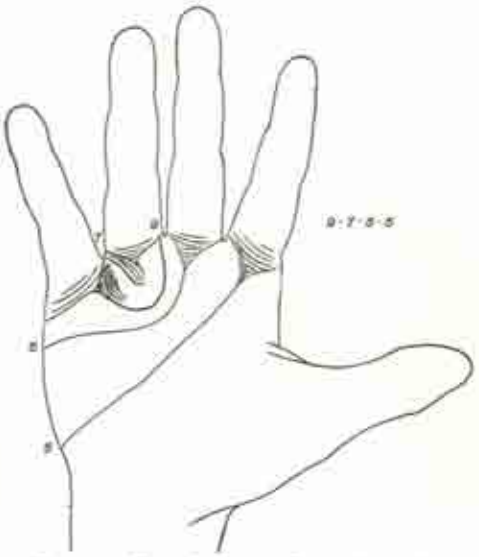


FIG. 34.—Case similar to fig. 32, but with the true fourth interdigital patterns reduced to a few vestiges. *No. 65, Golah tribe.*

A cursory examination of the finger-tips (apical patterns) show a considerable proportion of very large patterns, either loops or whorls, in which so many ridges enter into the formation of the pattern that the two triradii characteristic of these patterns are pushed very far around the sides of the finger and may in

some cases have been extralimital, that is, beyond the limits of the friction skin. Thus in the case of a loop the appearance is given at first glance of a finger ball covered with an unbroken series of longitudinal lines, somewhat resembling the typical lemurine condition, but of course in reality not so. The whorl, on the other hand, is really simian, and when of oval form and covering the whole of the finger, presents a true primitive condition. A few of the best of these, illustrating both principles, are given here for general study (fig. 37), but no detailed investigation of these parts has been attempted.



FIG. 35.—Primitive thenar pattern, combined with the first interdigital. *No. 71, Bande tribe.*

III. FEET

The sole prints have as yet been submitted to merely a cursory examination, in which a few points only have been noted. Naturally the first attention was directed to the hallucal pattern, which is by far the most conspicuous feature and is very variable. Everywhere the two commonest main types, or classes, are those previously designated as types A and W, the one a



FIG. 36.—Well-developed thenar pattern, combined with the first interdigital, from a white woman from the United States. This represents about the highest development of the thenar pattern yet reported from the white race. For comparison with fig. 35. H. H. W. Coll., No. 8.

simple loop opening upward between hallux and second toe, the other a whorl or a complex figure closely approaching it. Aside from these are the loop opening to the inner margin, type B, and the large spiral, denoted as S, together with certain forms hard to define, and expressed by such combinations as AB, etc.

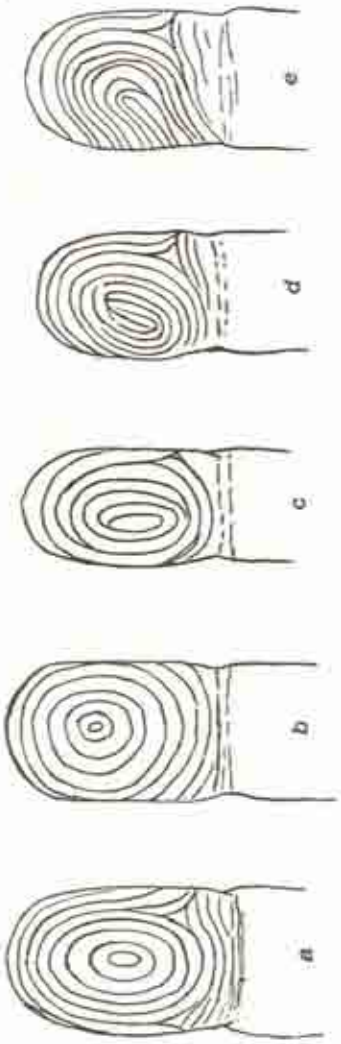


FIG. 37.—A number of primitive apical patterns from the Liberian prints. (*a*) Right annularis of No. 40, *Bele*. (*b*) Left medius of No. 43, *Mende*. (*c*) Left annularis of No. 75, *Bande*. (*d*) Left minimus of No. 43, *Bande*. (*e*) Left minimus of No. 64, *Mende*.

The A-type of hallucal pattern, especially when joined with a sole otherwise patternless, and covered by ridges that run across the entire ball obliquely from this base of the lesser digits toward the inner side below the ball, seems especially characteristic of the white race. On the other hand, the whorl, combined with several other well-defined patterns, especially the outer one (fourth interdigital), and with a large and pronounced lower triradius at about the meeting place of the three outer interdigital patterns, seems to be more common among primitive races. The frequency of this type of sole among the Maya has been already noted, and is figured in my previous paper on this subject.[1] While, now, the presence of either the A-type or the W-type in a given foot does not necessarily indicate that the

[1] Loc. cit., 1904, fig. 5, p. 267.

foot is typical throughout, the A without patterns, and the W well supplied, such is usually the case, and thus a comparison of the percentage of occurrence of the two in whites and Liberians will be of interest. For comparison I have used the sole prints of 84 white individuals from the United States (168 separate soles); of the Liberians I have the complete set (100 individuals, 200 sole prints), as all are sufficiently legible for use.

In the whites the A-type of hallucal pattern appears in 39 lefts and 46 rights, in all 85, which gives a percentage of 50.5. In the Liberians the corresponding figures are but 21, 27, and 48, or 24 per cent. less than half that of the whites. On the other hand the W-type occurs in the white feet in only 32 lefts and 26 rights, or 58 in all, giving a percentage of 34.5; while in the blacks the figures are 54 for each side, or 108 in all; that is, 54 per cent. This, then, is a further corroboration of the previous statements concerning these types, that type A is especially characteristic of the white race, and the type W is more frequent elsewhere.



FIG. 38.—Right sole of No. 88, Buzi, with suggestions of simian characteristics.

In hallucal patterns other than these two frequent types the blacks considerably surpass the whites, showing 22 per cent. of such as against 14.9 per cent. Of these forms the B-type appears in excess in both races, as is natural, while, again in both races, certain individual soles are occasionally found which are difficult to explain, and hence to classify.[1] Thus, the hallucal pattern

[1] Even in the small number of cases then at my disposal I had noted these variations of the hallucal pattern in the negro in my paper of 1904, and there figured two of them (pl. XI), one a case in which the pattern had practically disappeared, the other the B-type. These two are frequent and noticeable in the Liberians.

may entirely disappear, and the surface be covered by a course of nearly parallel ridges, usually with a single triradius in some part of it to mark the former condition.

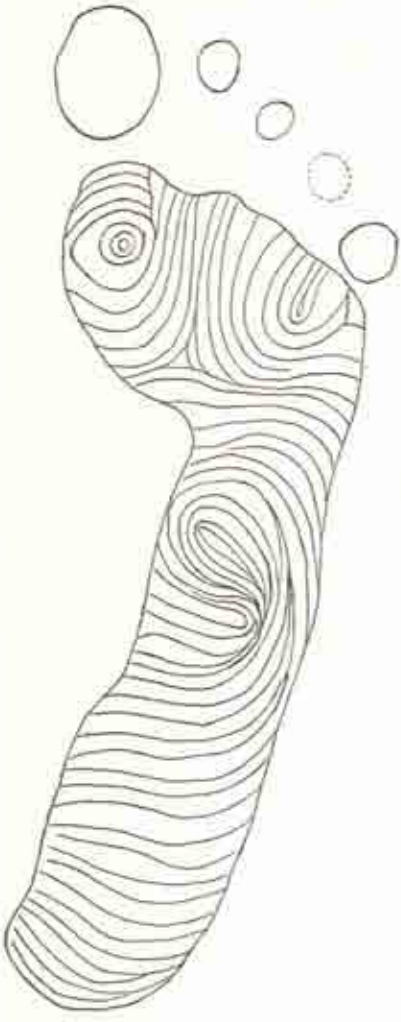


FIG. 39.—Right sole of No. 85, Buzi, showing a large S-shaped pattern of unknown morphological significance in the middle third.

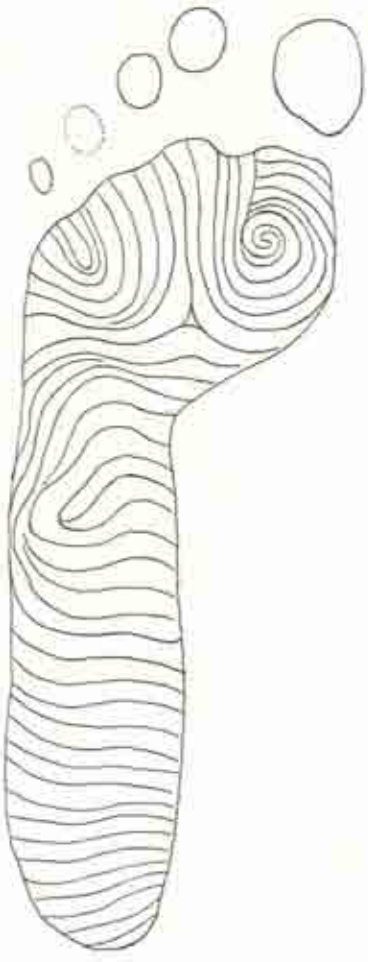


FIG. 40.—Left sole of the same, with a similar pattern, although less complicated.

In general it may be said that among the Liberian set occur several very unusual prints, that give unexpected arrangements, not previously noted anywhere. Two or three, for example, exhibit an almost longitudinal course of the ridges over an extent equal to at least the distal third of the entire sole, like the one shown in figure 38; yet a similar condition has been noted in whites, the main difference being in the proportionate length of the area thus occupied, a character hard to determine. This character is, however, an extremely important one morphologically, since a similar but more extensive longitudinal course of the ridges is the rule among the large simians, probably to counteract the tendency of the foot to slip sideways when applied to the side of a horizontally placed limb.

Altogether the most singular pair of feet belong to a Buzi by the name of Kasugua, No. 85 of the Starr collection, and, for their very unlikeness to anything I have ever seen, are reproduced here (figs. 39 and 40). In this an enormous loop, or more probably, as better indicated in the right foot, a widely extended S, occupies the entire middle third of the foot. Whether this may prove to be a true thenar, usually suppressed, or whether it may be eventually brought into line with the single hypothenar loop, which is of frequent occurrence everywhere, especially in the whites, or perhaps with the rare calcar loop noted in a few whites (Miss Whipple, 1904, loc. cit., pl. VI), cannot yet be even speculated upon; but these ideas may here be suggested, while hoping and waiting for points that may some day furnish a clue to the matter.

In this connection is it too much to hope for the discovery of prints, both of hands and feet, in the clay of European caverns which have been the site of prehistoric activity? Neolithic fingerprints on shards have often been reported, although, I think, never studied by an expert on the subject, and very recently there has been mention of the discovery of footprints in the clay in association with paleolithic wall paintings of the Pyrenees and adjacent territories (*L'Anthropologie*). As we have now many careful studies of the palm and sole prints of our large anthropoids, and are continually increasing our knowledge of the subject in the

case of numerous human types, even a slight indication of such a print, made by paleolithic man, might give invaluable data concerning the evolution of this portion of our anatomy.

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A PRELIMINARY SKETCH OF LENÁPE CULTURE

By M. R. HARRINGTON

IN concluding a previous article in this journal, setting forth a few facts gathered from the Delaware or Lenáape Indians now living in Canada,[1] I called attention to the possibility of obtaining further information from their brethren in Oklahoma. The first opportunity came in 1908 in connection with my work for the University of Pennsylvania Museum Expedition, supported by George G. Heye, Esq., after which for several years I was enabled to make numerous visits to the Oklahoma bands. It is proposed to publish the complete results as one of the Anthropological Publications of the University of Pennsylvania Museum, but in the meantime a brief sketch of the material at hand, derived almost entirely from Indian sources, may prove of interest.

The Delaware Indians, or, as they call themselves, the Lenáape, are variously regarded as a tribe, composed of three bands, or as a confederacy, embracing three closely related tribes. For the present, at least, as being nearest in line with the known facts, I have adopted the latter view. Most writers agree that, at the time of the settlement of New Jersey and Pennsylvania, there were three great geographical divisions or tribes of the Delaware people: the Unámi, or Delawares proper; the Unalachtigo (now pronounced Unala"tko), and the Mínsi, or Munceys: a classification which has been verified by several of the older Lenáape in Canada. These Indians informed me that the people who went "west to Kansas" were mainly Unámi, with a few Mínsi; while the band brought to Canada by the Moravian missionaries and settled on Thames river were also largely of Unámi extraction. The Minsi coming to Canada settled farther up the Thames, while another group, mainly Unámi, became known as the Delawares of Grand river.

[1] Vestiges of Material Culture among the Canadian Delawares, *American Anthropologist*, n. s., vol. 10, no. 3, 1908.

I have thus far been unable to locate the survivors of the Unala"tko —they seem to have lost their tribal identity. Yet the names of two other tribes, the One"tko, or Nanticoke, and the Mahikanī, or Mohican, are not only still remembered as those of affiliated peoples, but their descendants are pointed out even to this day.

The geographical divisions of the Lenápe today, with population figures taken from the *Handbook of American Indians*, are approximately as follows:

1. Delawares of Caney River, near Dewey, Oklahoma. Unámi dialect	870
2. Delawares of Washita River, near Anadarko, Oklahoma. Dialect slightly different from above, but not yet identified	95
3. Delawares of Grand River, near Hagersville, Ontario. Mínsi dialect; some Unámi remembered	150
4. Moravians of the Thames, near Bothwell, Ontario. Mínsi dialect, but some can speak Unámi	347
5. Munceys of the Thames, near Muncey, Ontario. Mínsi dialect	122
6. "Munsee" with Stockbridge in Wisconsin	260
7. "Munsee" with Chippewa in Kansas	45
Total population, about	1,889

While I have visited all the above groups except the last two, the information here presented was derived mainly from the Delawares of Caney river and the Munceys of the Thames, which may be considered successors respectively of the old Unámi and Mínsi.

Social and Political Organization.—The Unámi, as represented by the Delawares of Caney River, are divided into three totemic groups or phratries, each named after an animal—Wolf, Turtle, and Turkey. The widely accepted view that these groups represented the three geographical divisions, Mínsi, Unámi, and Unala"tko, finds no confirmation among the Indians today, who assert that they have always had the three divisions. Nor is there any special attempt to connect the persons known to be of Mínsi descent with the Wolf totem, which might well be the case had the Wolf been the exclusive totem of the Mínsi. In the same way the surviving Mínsi in Canada, having two such groups, the Wolf and the Turkey, claim that they never heard of the time when the

Wolf was the sole totem of their people. It is said, however, that in former times the phratries occupied different villages.

Attributes of the animals in question are used as names for the phratries instead of the colloquial names of the creatures themselves. Thus the Wolf phratry is called *Tûk'sīt*, or Round-foot; the Turkey, *Pelē'*, or Don't Chew, while the Turtle is called *Po'kaun'go*, said to mean "Crawling" or "Dragging along."

Each of the three phratries is composed of a number of smaller groups or clans, the names of which are not totemic. In the Turtle the following clans were remembered by my informants: *O kē hó kī*, Bark Country; *Ē ko on gwē ta*, Under the Hill; *Ol ha ka mī' ka' so*, Hollow where a Lodge has Stood; *Wī la nong' sī*, Beggars; in the Turkey phratry: *Lī'' lī wai yo* (not interpreted); *Muk wīng gwē ho' kī*, Rubbing the Eye; *O pīng' ho kī*, Opossum Country; *MuX ho wī Xa' kon* (not interpreted); *MuX am hok' si*, Blood Red Land; *Kū wē ha' kī*, Pine Country; *Mun' hat ko wī*, Eccentric, "Cranky"; and in the Wolf phratry: *Mung' sīt*, Big Feet; *Wī sao het' ko*, Yellow Tree; *Pa sa' kwa nu ma*, Snapping Corn; *Ola' ma ne*, Red Paint; *Mün ha ta' ne*, Scratching Ground; *MaX so' ta* (not interpreted); *A lī' ke*, Stepping Down. All but two of these, Mun'hatkowī and Alī'ke, may be recognized, masked under differences of notation and interpretation, in the list given in Morgan's *Ancient Society* (p. 172). Some of the other clan names given by Morgan were recognized as words, but not as clan names, while still others were not recognized at all. My informants stated, however, that many clans had died out and their names were forgotten.

The names of the clans are said to have had their origin in some traditional peculiarity of their ancestors or from some locality once frequented by them. Thus, the Snapping Corn clan, the members of other clans say, received its name from the tradition that its members were accustomed to pay moonlight visits to their neighbor's cornfields and snap off "roasting ears" for their own use; while the Pine Country and Blood Red Land clans were named for localities.

The Canadian Mĺnsĭ, while retaining some remembrance of

clans of this kind, were unable to tell me their names; but these may possibly be obtained later from their tribesmen in Kansas or Wisconsin.

Members of any clan always regarded each other as near relatives, and strict clan exogamy prevailed. This, for many years at least, has not applied to the totemic group, marriages between members of the same phratry being of frequent occurrence. Membership in both clan and phratry was inherited in the female line only, the children of a couple belonging always to the clan and consequently to the phratry of the mother, whatever their father's phratry. However, a child whose parents belonged to different phratries was allowed to sit with either at the Annual Ceremony.

The old political organization has so broken down since the Delawares became scattered that a really satisfactory account can not now be obtained from the Indians. It is evident, however, that each phratry had a chief, *sakī'ma* (cf. "sagamore"), whose powers seem to have been rather limited. He managed to a certain extent the affairs of his group, and spoke for them in the councils and at the Annual Ceremony. It is said that his office was hereditary, falling to the nearest male relative within the phratry in event of his death or removal; for a chief might be deposed if the people became dissatisfied, and a new one chosen. Each chief had a counselor, or second chief, who aided him and took charge in his absence; and there was also an ī'*la*, or "brave," in each phratry who acted as war-chief, recruiting and leading war-parties. He, too, was provided with an assistant.

There was also, the Indians say, a head chief, who controlled the affairs of the entire tribe, and to whom the phratry chiefs acted as advisors; but no very definite information has yet been obtained on this subject.

Life of the Individual.—The glorious freedom of Indian life, of which the poet sings, turns out to be very much of a myth when we look beneath the surface and view in any tribe the daily round of existence as it really was, and still is in many cases. It is true that the Lenâpe was seldom compelled to subject his personality and the labor of his hands to the will of another, an employer

or a master, as do the great majority of modern civilized men; neither were his actions so trammeled by police, law courts, and other human authority as ours are today. Instead he was bound by tradition, by the thousand and one rules and formulas handed down from the past. Bold indeed was the Indian who dared to turn his feet from the trail worn deep by departed generations: it seemed as if the dead hands of a hundred ancestors would reach forth to pull him back. His thought was something like this: "My grandfather was a great man; he lived thus and so, and left an honored name. Who am I, that I should presume to do things differently?" The old culture was more or less static, that of today, kinetic.

The chain of beliefs and observances began even before the birth of a Lenâpe child. The Mínsi say that the husband of an expectant mother was often accompanied on his hunting trips by the spirit of the unborn child, whose romping and playing about the bushes, invisible to mortal eye, would nevertheless frighten away the deer and send the hunter home empty-handed. To prevent this a little bow and arrow were made and attached to the prospective father's garments, in the hope that the little spirit would play with them and stay quietly with his parent. Should this precaution fail, the child was thought to be a girl, and a little corn mortar and pestle were substituted for the miniature bow and arrow.

A new-born child, in Lenâpe belief, did not obtain a firm hold on this world for some time after its arrival, its little spirit being easily coaxed away by the ever-present ghosts of the dead. For this reason it was wrapped as soon as possible in adult's clothing, by way of disguise, so that the ghosts would not notice it was newborn. Similarly deerskin strings or strips of corn-husk were tied on the wrists of children so that the ghosts would think they were tied fast to earth; and holes were cut in their little moccasins so that they could not follow the spirit trail. If the child's mother died shortly after its birth, these precautions were redoubled.

The umbilical cord was considered closely connected with the child's disposition, so care was taken to bury it in the woods to make the child fond of hunting if a boy, or, if a girl, near the lodge or in

the garden to make her fond of domestic duties. If an animal found and devoured the cord, the child was likely to resemble that animal in disposition.

Names were received most frequently from dreams. If one of the prospective parents or some friend dreamed, for instance, that someone named "Walking-with-the-trees" was coming, that name was given to the child, if a boy. If a girl, a suffix denoting "woman" was added. A name of this sort is "Finished-wings Woman." Among the Minsi, at least, the name was formally announced to the tribe at the Annual Ceremony. Nicknames were common.



FIG. 41.—Lenape father and son. WI ta naX koX' w'e (Walking-with-the-trees).

From the time children began to notice things about them, their education commenced. Their elders took great pains to instruct the boys as they grew in the principles and practice of hunting and warfare, the names and habits of living things, the different trees and herbs and their uses—in short, the art of woodcraft complete. The traditions, rituals, and songs of the native religion, the numerous magic formulas for the various occasions of everyday use, the iron-bound rules of tribal etiquette, the stirring tales of warlike deeds and long migrations which formed

the unwritten history of the people—all found place in the Lenápe curriculum.

Girls were taught the manifold duties and arts of the household, how to tan hides, and to plant and cultivate the garden. Like the boys, they, too, received instruction in the tradition and rituals of religion, and in the rules of life laid down by the elders. Even in such a matter as the loss of the first teeth the child was taught how to blacken the inside of each tooth with charcoal as it came out, then throw it away to the east before sunrise in the morning, repeating: "Come back quick, I want to eat sweet-beans!" This was said to insure a quick growth of strong new teeth.



FIG. 42.—Lenápe woman with ceremonial hat. KI cI lûng o neX'kwe (Finished-wings Woman).

When the Delaware boy was about ten years of age his parents began to treat him roughly and seemingly to abuse him; and finally, despite his protests, they painted his face black and drove him away from home, to wander about all day without food. Then they would take him back and treat him well for a time, only to drive him away again later. Sometimes the boys would become so inured to this treatment that they could fast for several days at a time. But the hardening process was only an incidental result of

this apparent cruel treatment—the real object was to induce some supernatural being to take pity on the suffering child and in a dream or vision offer to become his guardian spirit, at the same time giving him some "blessing" or power that would be his reliance through life. Anyone fortunate enough to obtain such a vision was always held in high esteem and was much respected by his fellows.

When the first physical signs of womanhood appeared the girl was compelled to sojourn alone in a little hut far from other habitations; and always thereafter during the time of her periodic illness she was obliged to camp by herself in a little outhouse or shelter removed some distance from the family lodge. No girl or woman in that condition was allowed to enter a family dwelling nor to touch the food or cooking utensils used by others, nor could she enter the "big house" or temple where the Annual Ceremony was enacted. Birth, the Minsi relate, was supposed to take place in the little outhouse, and the mother was not permitted to rejoin the family for a certain number of days after the event. When the young man began to think of marriage, he told his parents, who arranged matters, if possible, with the parents of the girl of his choice. Certain formal presents were made, the acceptance of which meant a favorable decision, after which the couple began to live together without further ceremony. While such unions were frequently permanent, the parties concerned did not hesitate to separate if they failed to agree, and were then free to make new alliances. Polygyny was sometimes practised, but not within recent years.

When death visited a Lenape home, two shots were fired at nightfall to the west of the lodge, to warn away the hovering spirit of the dead. All through the night, while the body lay in state, the watchers played the moccasin game, not in the ordinary way, but with certain songs and practices used only on such occasions. When morning dawned two more shots were fired, this time to the east, and preparations were immediately begun for the burial. Dressed in his best clothing, with painted cheeks, the corpse was laid in his shallow grave, head toward the east, and covered with sheets of bark. After the grave had been filled, a low covered pen

of logs was built above it. Often some of the belongings of the deceased were enclosed in the grave.

Public Activities.—Among the activities dear to the hearts of the old-time Lenâpe, war took a prominent place. When it was decided to go on the warpath, an *ï'la*, or brave, appointed for the purpose, announced that he was about to go out "hunting men," and called for volunteers. Rarely did he call in vain, for there were always warriors who craved excitement and the chance to win renown, even when patriotic motives were insufficient to make them enlist. So they sang their war-songs and danced one by one about the war fire, as a sign that they would join the party.

After the expedition had fairly started the leader gave each of his band a little of the "brave medicine" which he carried and which was supposed to protect them from injury if they followed the regulations. A successful war-party, returning with scalps, was received with great rejoicing at the village, and a war-dance of two days' duration, with social dances every night, was arranged in honor of the victors. The dancers did not circle about in this form of war-dance, but danced eastward a little way, carrying the scalps, then back to the western side of the dance-ground where the singers sat. Sometimes these war-dances were held in obedience to visions, even in times of peace, in which case scalps were not carried.

Dearly as the Delaware loved the glory and excitement of war, the milder diversions of sports and games found a warm place in his affections. A form of lacrosse; the game of "snow-snake," in which polished wooden wands were thrown for great distances across the snow; an amusing football game, in which women contended with men, the men kicking and the women throwing the ball; the moccasin game, in which a bullet was hidden under one of a row of moccasins and the opponent required to guess which—all were popular, whole communities attending and betting against one another. Besides these three was the game of bowl and dice; the "scatter game," resembling jackstraws; a game played with a hoop and javelins, and another with bows and arrows. While not now remembered, it is possible that the phratries formerly took sides against each other in games, as the Iroquois phratries still do.

Seldom did the people gather for games or ceremonies, the Annual Ceremony excepted, without enjoying a night of social dances around a blazing fire. Among such, all different, were the Leader, Buffalo, Raccoon, Turkey, Duck, Fish, and Snake dances; also, palpably of modern origin, the Horse, Drunk, and Stirrup dances. Music was furnished by a few picked singers, who marked their rhythm with rattle and drum.

Special organizations or societies within the group were apparently not so frequent among the Lenape as among the Iroquois, for I obtained accounts of only two, both in the Mínsi tribe. One of these was the Witches, an order composed of twelve malevolent conjurors, all holders of the "bad medicine," while the other, comprising twelve benevolent shamans, was known as the Masks, and was quite similar to the False-face Company of the Iroquois. Both had stated meetings and rites.

Among the public activities of a people is usually included the punishment of crime, but among the Lenápe, as with most Indian tribes, such matters were left largely to private agreement (or disagreement) among the interested parties. For murder the relatives of the victim usually demanded a heavy payment from the family of the slayer, but sometimes nothing would satisfy them but the death of the guilty man. In particularly atrocious cases of rape the offender frequently met death at the hands of the victim's kinsmen; but for theft, whipping, in addition to the return of the stolen property or its equivalent, was the only punishment. While the chiefs of the phratries concerned acted to a certain extent as judges or referees, there was no regular judicial system, so far as could be discovered.

Houses.—Within a few years there have been lodges still standing which the Lenápe say represent the type used by their ancestors in their fairly permanent villages. These were rectangular in ground-plan, and were constructed with a gable like a modern wall-tent, but with a hole in the top to let out the smoke. The framework was of stout poles tied together with bark withes and covered with sheets of elm-bark, the whole structure very closely resembling the type once commonly used by the Iroquois, and sometimes seen

even today among the Kickapoo, Sauk and Fox, and other Central Algonquian tribes. It is quite possible, of course, that other types also were used but have been forgotten. Within, the people spread their mats, skins, and other bedding along the walls on the bare, hard-beaten ground, or on raised sleeping platforms of poles. The fire burned in the center, while from the rafters above hung dried venison and pumpkins cut in strips, braided strings of corn



FIG. 43.—Lenâpe ceremonial house.

on the cob, and numerous bundles and bags containing ceremonial articles, medicinal herbs, and other treasures. Bark-covered arbors for use during hot weather were frequently erected near the family lodge.

The outhouses used by the women ranged from the crudest kind of a brush shelter to a small but comfortable bark lodge, while little tents covered with mats, skins, or any available material were sometimes provided for boys fasting in the woods. Sweat-houses were low, dome-shaped structures of poles covered with hides, mats, or anything that would retain the steam.

By far the largest buildings erected by the Lenâpe were the

ceremonial houses or "temples," called in Unámi *Xing'wī kaon* and in Mínsī *w' a' lē kan*, both meaning "big-house". The last remaining "Temple", a long, low building, stands in a lonely grove of post-oak on Little Caney river, in Oklahoma, far from any human habitation. Built of rough logs, it is now provided with a roof of hand-split shingles pierced by two great smoke-holes, as shown in the illustration (fig. 43), but in former days the roof was of bark. The length is about 40 feet from east to west, with a height at the eaves of about 6 feet, at the ridge 14 feet, and a width of 24.5 feet. Aside from certain ingenuities of construction which can not be discussed here, its chief interest lies in the two large carvings of the human face, one facing east and one west, which adorn the great central post supporting the ridge-pole. Similar carvings, but smaller, may be seen upon each of the six posts which support the logs forming the sides (fig. 44), and still smaller ones, one upon each of the four door-posts. All twelve faces are painted, the right side of each red, the left black. The building is used only for the Annual Ceremony.

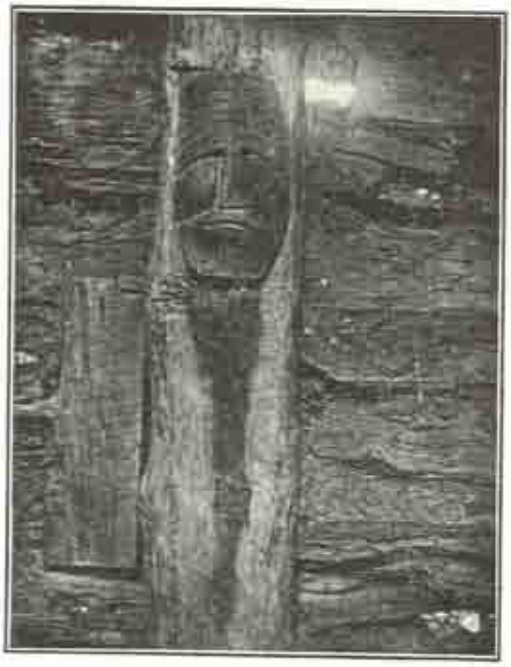


FIG. 44.—Carved post in Lenâpe ceremonial house.

Clothing.—From colonial times until recent years when the Lenâpe took up modern clothing, the dress of the men consisted of a shirt of calico or deerskin, a robe, usually of strouding or broadcloth, a breechcloth of the same material, leggings of deerskin or cloth, and deerskin moccasins, made in one piece and puckered to a

single seam down the instep—a familiar type in the central, eastern, and southern portions of the Eastern Woodland area (fig. 41). Many shaved their heads, leaving a short bristling crest, or roach, of hair running from a point just back of the forehead to the nape of the neck. At the crown, a part of this hair, allowed to grow long, was braided into a slender queue or scalplock, upon which an eagle-feather or two was tied. Others let their hair grow and hang loose. Sometimes head-bands of fur were worn, or caps decorated with bunches of loosely attached feathers, resembling somewhat the Iroquois style. Facial painting was universal, and tattooing was frequently practised.

For many years the costume of the Lenápe women, while Indian in style, has been made almost entirely from materials obtained from the whites. This consisted of a short calico waist with wide round collar heavy with brooches and a robe-like rectangular piece of broadcloth wrapped and belted about the waist in the form of a skirt, together with short cloth leggings and deerskin moccasins, both tastefully worked (fig. 42). A robe of broadcloth or strouding was worn over the shoulders, often beautifully decorated with ribbon appliqué, beadwork, and silver or German silver brooches, largely of Indian make.

After considerable trouble I succeeded in gaining some information from Indian sources as to the kind of clothing worn before the arrival of the whites. The robe-like piece used as a skirt, the Indians say, was formerly of deerskin or woven Indian hemp, and was worn very short. In summer the women left their upper parts uncovered, or at most tied on a piece of deerskin, over one shoulder and under the other; but in winter fur was substituted for the deerskin. In those days leggings were made of deerskin instead of cloth, and fancy embroidery in porcupine-quills and moosehair, dyed in different colors, took the place of the ribbon appliqué and beadwork seen today. Blankets made of Indian hemp and corn-husk are still remembered by some of the older Lenápe.

The tall hat shown in figure 42, a style used for many years by the women in their dances, is certainly a remarkable creation,

based on an old beaver hat of the "stovepipe" variety, decked with nodding ostrich plumes from the trader's store, encircled with silver bands and trimmed with bright ribbons. Another head-ornament was a highly decorated flat piece of wood, stiff hide, or slate, which was tied to the woman's braid of hair at the back of her head.

Means of Livelihood.—Like most Eastern Indians the Delawares sustained life by agriculture as well as by hunting, fishing, and the gathering of berries, nuts, and other natural food products. Six native varieties of Indian corn or maize—three soft and three hard—have been handed down from the old days and are still grown, while at least three varieties of squash and pumpkin, and beans in considerable variety, were cultivated. Land was prepared for planting by girdling the bark of the trees in such a way that the tops died out, letting the sunshine in, burning the brush, then scratching up the earth among the still-standing but naked trunks into rude hills, where the women proceeded to plant their corn, squashes, and beans. They were kept clean of weeds all summer, and after the harvest the corn was braided into strings and hung, protected with bark, on poles out-doors, or suspended from the rafters of the lodge; beans were put away in bags and baskets, while some kinds of squashes or pumpkins were cut into strips and dried.

For making corn bread of several kinds, soup, mush, and hominy, the corn, often previously hulled by boiling with ashes, was crushed in a wooden mortar with a heavy pestle, usually of wood, then passed through sieve baskets of varying degrees of fineness, depending on the use. Parched corn pounded fine and mixed with maple sugar sustained the warriors and hunters on their long marches, while greens, fresh and dried berries, nuts, roots, and maple sugar were welcome additions to the Lenâpe family's bill of fare.

To the men fell the very important task of supplying the tribe with meat and most of their materials for clothing. All animals valuable for their flesh or skins were hunted with bow and arrow, the blowgun being sometimes used for the smaller mammals and birds. Ingenious calls were constructed to reproduce the cry of

the fawn, or the voice of the turkey, while game could also be attracted, so the Indians believed, by certain charms and medicines, some of which were also used to make the hunter invisible to his victim, or to add effectiveness to his weapons. The deadfall and the "twitch-up" snare seem to have been the most popular varieties of traps. Venison was cut in flakes, dried in the sun, and hung away for future use; while bear's grease, used much as the whites use butter and lard, was kept in bags made of deer-hides taken off whole.

Many of the old Lenápe fishing methods must have fallen into disuse when the tribes left the coast, but the Indians still recall spearing fish and shooting them with bow and arrow, both of which methods may be used on inland waters. A fishing party armed with such implements often set forth with torches at night, when the fish were in the shallows. Sometimes large quantities of green walnuts were crushed and thrown into pools to stupefy the fish, which soon came floating to the top and were easily landed. The most primitive method of all, perhaps, was employed when lakes or ponds were very low by reason of drought. For this, bushes of dense growth were cut and tied together, forming a rude seine of considerable length, composed of matted leaves and twigs, which could be pushed and pulled through the shallow water in such a way that the fish were surrounded and dragged to the shore.

The Minsī tell of making fish-traps in rivers by running a close fence of poles driven firmly into the bottom from bank to bank, but leaving a narrow aperture in the center with a net behind so arranged that the fish could enter but not escape when driven downstream by beaters above.

Since the migration westward the only shellfish available for food have been freshwater mussels of different species, which were collected in considerable numbers and cooked on heated stones.

Transportation by water was of great importance while the tribes lived on the coast, and was but little less so during a large part of the slow migration westward. But when the people reached Kansas and Oklahoma, where waterways are scarce, the art of canoe building was lost, although the memory of it still lingers.

The dugout seems to have been the most popular form among the Lenápe, but lighter canoes of elm and hickory bark were also made. All were propelled in the usual way, with poles and paddles. For temporary use six or more logs lashed together in the form of a raft with bark withes carried people and baggage across waters or down streams as required. Pack-baskets of various sizes, carried with the aid of a burden strap across the chest, were used by everyone.

Industries.—The old native arts and industries are today for the greater part abandoned, but many are still remembered by the older Lenápe. In woodworking, the use of fire for hollowing out mortars, bowls, and canoes is the most primitive process that has survived until recent years. The workman merely laid hot coals on the spot he wished to hollow out, then after these had lost their heat he scraped out the charcoal with a musselshell or other suitable implement; then repeated the process.

Bowls, buckets, canoes, twine, and rope were manufactured from different kinds of bark, which was also used to cover lodges, while the ubiquitous basket was here made of splints and of certain tough roots which were boiled and split, then woven together, usually in the "twined" technique. A good account of the tanning of hides was obtained, but the processes of pottery making, stonework, the working of bone, horn, antler, and shell are now largely forgotten. Several native silversmiths still work at their trade among the Delawares of the Washita: their bracelets, brooches and other ornaments are made by the same processes of hammering-out, cutting, stamping, and engraving, all with the crudest of home-made tools, as were noticed among the Iroquois.[1]

For many years decoration with beadwork and ribbon appliqué has superseded the ancient art of embroidery with colored hair and porcupine quills, now nearly forgotten. Skillful enough in beadwork, the Delaware women are experts in ribbon appliqué, seen as decoration on moccasins, leggings, robes, and the like (pl. VI, *b*). Different colored ribbons are cut into patterns, mainly

[1] Harrington, Iroquois Silverwork, *Anthr. Papers American Museum of Natural History*, vol. I, pt. VI, 1908.

angular, some curved, then sewed together in strips so deftly that the stitches can hardly be seen. These strips can then be sewed upon the garment in such a way as to be removable at pleasure. The art is of singularly wide distribution, being seen at its best among the Miami, Peoria, Delaware, Shawnee, Potawatomi, Sauk and Fox, and Kickapoo; while it may also be found among the Alibamu, Koasati, Seminole, Osage, Iowa, Oto, Kansa, Quapaw, Winnebago, Eastern Ojibwa, the Iroquois tribes, Penobscot, Micmac and other peoples.

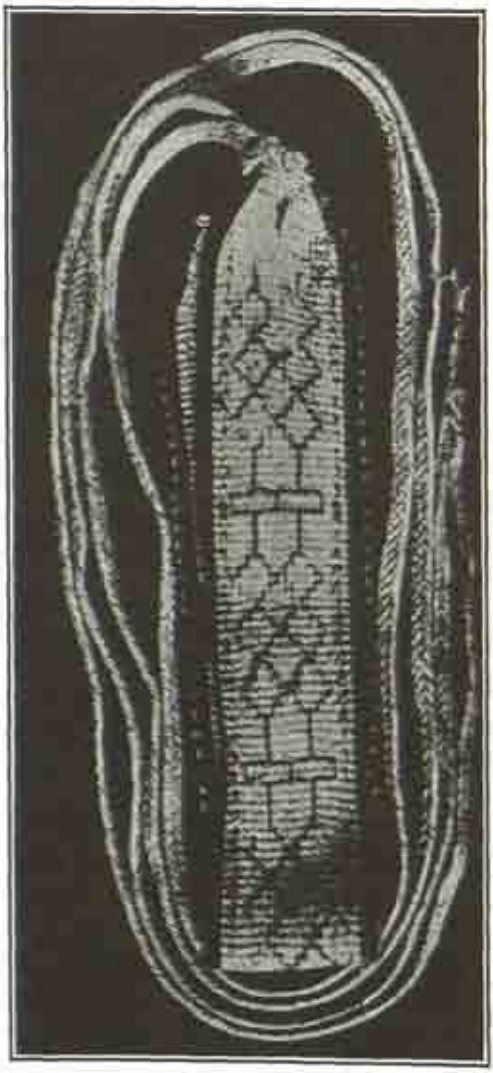


FIG. 45.—Lenape woven pack-strap.

Much was heard about the old textiles of the Delawares, but nothing was actually found in the way of specimens except two remarkable medicine-bags and a few burden-straps (fig. 45). The different bands reported the former use of Indian hemp robes and robe-skirts woven in patterns, the wide use of corn-husks woven or coiled into sacks, mats, and even robes, and the use of rushes for mats and sacks.

The two medicine-bags seen in figure 46 have been in use, the Indians say, ever since the Lenápe lived by the Great Water, and

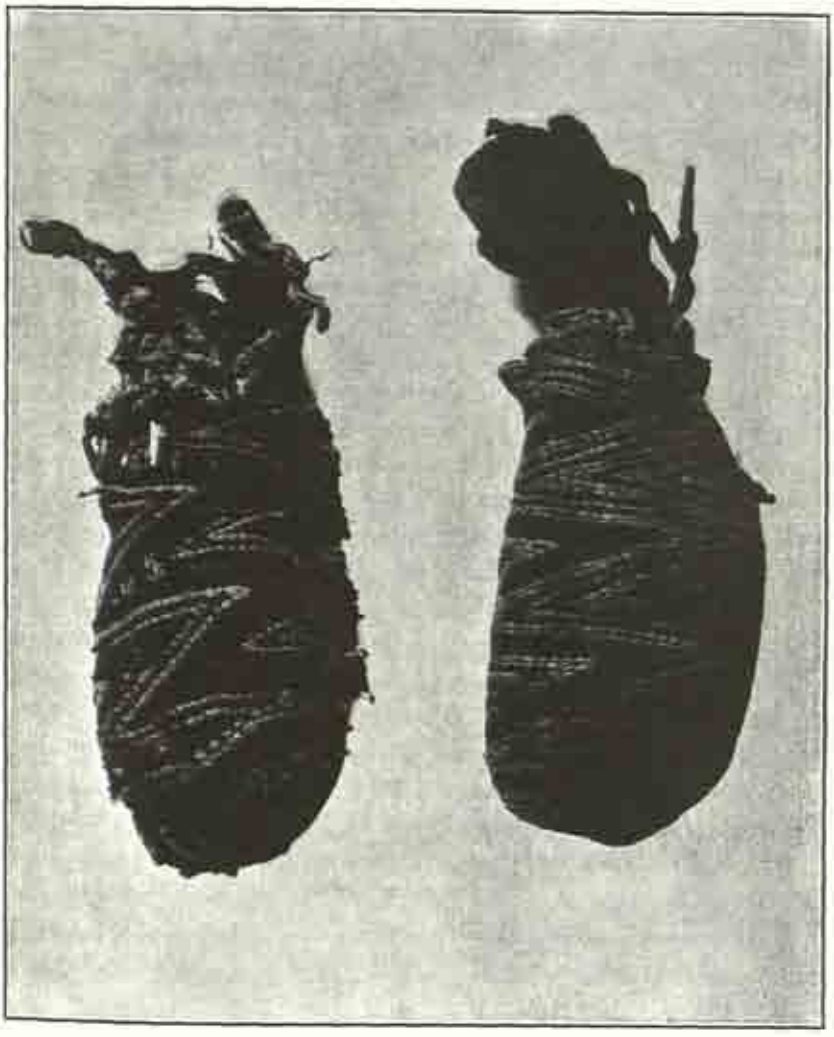


FIG. 46.—Lenápe woven medicine-bags.

have been carried by them on all their migrations. Certainly they bear every mark of antiquity, and seem to be unique. Fine examples of purely aboriginal textile art, they are the only pieces

of Lenâpe weaving, with the exception of the burden-straps and a corn-husk mat, ever seen by the writer. The material seems to be Indian hemp, the lining deerskin. Both are decorated with zigzag lines of symbolic lightning, worked out in dark brown and white. They contain, in smaller deerskin bags, a finely divided shining substance resembling mica, which was, according to Indian belief, taken from the scales of the great mythical Horned Serpent, and constitutes a very powerful "rain medicine." They say it is necessary only to expose a few of the "scales" on a rock beside some stream to make the black thunder-clouds rise and refresh the thirsty corn-fields with rain. The explanation is found among the legends of the Lenâpe, which relate the violent hatred between the Thunder Beings and the water monsters. If a Horned Serpent as much as shows his head above the water, clouds will arise bearing the Thunder Beings to attack him. Hence the belief that even part of a Horned Serpent will draw the thunder-clouds.

Beliefs and Ceremonies.—Perhaps the most interesting phase of Delaware life is expressed in their religious beliefs and ceremonies, of which only a brief account, unfortunately, can be given here.

At the head of their Pantheon stands Gĭcĕlamû'kaong', usually translated "Great Spirit," who is also called, in the Minsĭ dialect, Pa"tumawas, rendered "He who must be petitioned." This being is the great chief of all, and dwells in the twelfth, or highest, heaven above the earth. He created everything, either with his own hands or through agents sent by him, and all the great powers of nature were assigned to their duties by his word.

He gave the four quarters of the earth and the winds that come from them to four powerful beings, or Manit'towuk, namely, Our Grandfather where daylight begins, Our Grandmother where it is warm, Our Grandfather where the sun goes down, and Our Grandfather where it is winter. To the Sun and the Moon, regarded as persons and addressed as Elder Brothers by the Indians, he gave the duty of providing light, and to our Elder Brothers the Thunders, man-like beings with wings, the task of watering the crops, and of protecting the people against the Great Horned Serpents and other water monsters. To the Living Solid-face, or Mask-being, was

given charge of all the wild animals; while Our Mother, the Earth, received the task of carrying and feeding the people.

Besides these powerful personages were many lesser ones, such as the Small People, the Doll Being, the Snow Boy, and the Great Bear. Certain localities, moreover, were the abode of supernatural beings, while animals and plants were thought to have spirits of their own. Besides these there were, of course, the countless spirits of the human dead.

This, then, was the supernatural world which, to the mind of the Lenâpe, controlled all things—on which they must depend for health, for success in all their undertakings, even the daily task of deer hunting or corn-raising. Benevolent beings must be pleased, and bad spirits combated and overcome, or at least placated.

The main channel of communication between the supernatural world and man was the dream or vision, obtained, as before described, by fasting and consequent purification in youth. Through the vision the young man obtained his guardian spirit or supernatural helper, who gave him some power or blessing that was his main dependence through life, his aid in time of trouble, the secret of his success. No wonder, then, that visions and helpers form the basis of Lenâpe belief and worship. I heard of one man, a Mínsi, who claimed the Sun as his protector. Sometimes, it is said, he would hold his bare hands up toward the flaming face of his guardian, then would press them against his own cheeks. When he removed his hands, it was seen that his face, clean before, was now painted in brilliant colors! "Surely," the people cried, "this man is in league with the Sun!" Another old warrior used to seem strangely excited when the black clouds began to gather on the horizon and spread themselves over the land. Stripping himself to the breechclout he was ready to go out when the storm broke. He loved to expose his body to the driving gusts of wind and rain—the dazzling lightning flashes were his delight, the appalling roar was music to his ears—he was "in league with the Thunders." Others claimed such helpers as the "Living Solid-face," the Spirits of the Dead, the Owl, the Wolf, or the Wild Duck.

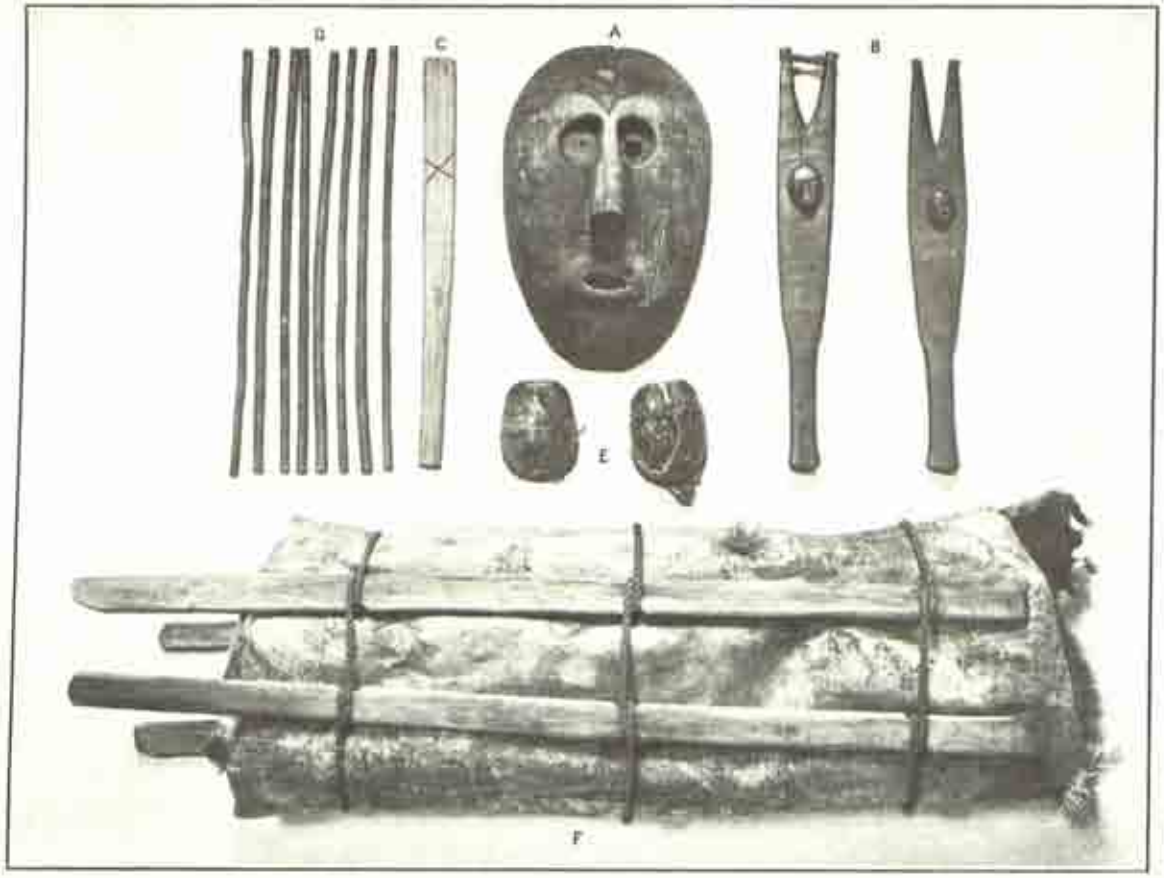
Those favored by such visions were considered the leading people

of their community. They usually composed rhythmic chants referring to their visions, and appropriate dance songs to go with them, to recite at the Annual Ceremony.

Belief in a soul or spirit surviving the death of the body formed an integral part of Lenâpe philosophy. It is supposed to linger near for eleven days after death, and is addressed and offered food by the surviving relatives, sometimes in a formal "Feast of the Dead;" but on the twelfth day, they say, it leaves the earth and finally makes its way to the twelfth or highest heaven, the home of the Great Spirit, where it leads a happy life in a land where work and worry are unknown. Some persons are thought to have the power of communicating with the departed. The Indians say that the blood in the dead body draws up into globular form and floats about in the air as a luminous ball, but this is not the real spirit.

The greatest religious event of the Delaware year, which remains the best expression of the old tribal life, is the Annual Ceremony, held in the specially constructed "temple" or "big house" before mentioned (fig. 43). About this quaint old structure, when the October leaves are yellow, the people pitch their camps, to renew again their ancient rites for twelve consecutive nights, while within the building, the twelve grim, carved, painted faces, frowning from the wooden pillars, watch and see that all is well. These represent the twelve messengers of the Great Spirit.

Dry grass is spread around the sides of the house, and where the people sit, each phratry in its appointed place, the center being left free except for two great fires which furnish light and heat. Three men and three women are appointed as caretakers, to guard and sweep the building, cook and serve the feasts, and tend the fires. When the people have gathered, some time after dark, one of the chiefs makes a speech in which he addresses the Great Spirit and the Manit'towuk, his helpers, giving thanks for past benefits and praying for future ones. Then after he has set forth the rules of the ceremony and delivered some moral homilies, he gives the floor to the leader of the meeting, who, standing by the great central post with its weird carved faces, begins to shake a little rattle of



LENAPE CEREMONIAL OBJECTS

A, Mask. B, C, Drumsticks. D, Prayer wands. E, Turtle-shell rattle. F, Drum.

box-turtle shell (pl. IV, *e*) and chant, in a high monotone, the story of his vision. Meanwhile two drummers have taken their places before a peculiar drum made by rolling up a dry deer-hide and stuffing it with grass (pl. IV, *f*). As the chanter utters each word the drummers repeat it in the same tone, producing a very peculiar effect. Finally the recital is finished, and he starts his dance-song, which the drummers take up, beating time with flat drumsticks (pl. IV, *c*), and dances about the fires, still shaking his rattle, followed by as many of the people as care to join. When he has finished all his verses, after a short intermission, the turtle-rattle is passed from hand to hand until it reaches the next man blessed by a vision, who, in his turn, takes up the exercises, and the whole performance is repeated, with the exception that the songs are different, to conform with the new leader's supernatural experience.

When the turtle-rattle has made the circuit of the "big house," usually along toward morning, the people raise their left hands and repeat the cry "*Hooooo*" twelve times. The twelfth cry, they say, reaches the twelfth or highest heaven and is heard, as a prayer, by the Great Spirit. A morning feast is next in order—corn-meal mush, called *súppan*, eaten with musselshells for spoons. Then the participants disperse until the next night.

On the fourth day a band of hunters set out to obtain venison for the feasts in the "big house," returning the seventh day. Before leaving, they beseech the Misíng'w', or Solid-face, the guardian of game, to give them good luck. This being is impersonated by a man wearing a bear-skin costume and a wooden mask painted half red and half black (pl. IV, *a*), and carrying in his hands a staff and a turtle-shell rattle. Solid-face is seen about the camps from time to time as the ceremony progresses, frightening the children into good behavior, and occasionally entering the "big house."

Each night the same performance is repeated until the ninth, when the ashes in the fireplaces are carried out of the western door, used only for this purpose, and a new fire is lighted with fire-sticks, operated, like those of the Iroquois, on the pump-drill plan. Prayer-sticks, to hold up when the cry of "*Hooooo*" is raised, are distributed this night (pl. IV, *d*), and a pair of very old forked drum-sticks, each

bearing the carving of a human face (pl. IV, *b*), take the place of the plain sticks used before. One of the old sticks bears carved breasts to represent a female, and the two are said to symbolize worship by both men and women. The sticks are somewhat similar to those I found among the Grand River Delawares in Ontario, now in the American Museum of Natural History. The pair obtained in Oklahoma for the University of Pennsylvania Museum were, the Delawares say, brought from their eastern home when the tribe migrated.

The twelfth night is given up to the women to recite their visions. The day after, about noon, the worshippers file out, and forming a line facing the east, raise their hands and cry twelve times to the Great Spirit, the prayer word "*Hooooo*". This ends the ceremony; but before they leave, the care-takers, the drummers, the speaker—everyone who has been of service to the meeting—is paid with wampum, which is afterward redeemed with money at the rate of one cent per bead, and is saved to use again the next time.

Another form of this worship, now obsolete, was noted, lasting only eight days, and differing in some other particulars. The Mínsī Annual Ceremony, as related to me by the late James Wolf of Munceytown, Ontario, differed from the above in only a few minor details, one of which was the absence of a Solid-face, none being allowed in the Mínsī "big house." Their twelve mask-holders had a meeting-house of their own—in fact, like those of the Iroquois, they formed a society of shamans whose chief function it was to expel disease.

The Unámi Solid-face, on the other hand, was the chief patron of the chase, and was supposed to have the power of bringing back lost or stolen cattle and horses, the doctoring function being called into play only rarely, if at all. His special ceremony, a dance with a feast, was held in the open air in the spring, but can not be described in detail here. To offset any notion that the Unámi Solid-face might have been borrowed from the Iroquois in comparatively modern times, I will quote a few lines written by Rev. David Brainerd, a missionary to the Delawares,[1] September 21,

[1] *Memoirs of the Rev. David Brainerd, Chiefly Taken from his Own Diary*, by Rev. Jonathan Edwards (including his Journal). New Haven, 1822, pp. 237–238.

1745, relating an occurrence of the previous May. Speaking of a "devout and zealous Reformer, or rather restorer of what he supposed was the ancient religion of the Indians," whom he met a hundred and thirty miles up the Susquehanna, above the English settlements, he said: "His . . . garb . . . was a coat of boar [bear?] skins, dressed with the hair on, . . . a pair of bear skin stockings; and a great wooden face painted, the one half black, the other half tawny; . . . the face fastened to a bear skin cap. . . . The instrument he had in his hand, . . . which he used for music . . . was a dry tortoise shell with some corn in it." This is an accurate description of the Solid-face in recent use among the Oklahoma Lenâpe.[1]

Little wooden images, in human form, some male, some female, are still kept by certain Delaware families who, regarding them as mystic protectors of their health, give them a dance and feast every year, together with a fresh supply of clothing. These are similar to the little Nahneetis figure, once the property of the Canadian Mínsi, now in the American Museum of Natural History.[2]

One family maintained an otter cult, with an annual ceremony called "Feeding the Otter," in which a man, wearing an otter-skin, impersonated that mysterious animal, whose advice, given in a dream, had originated the cult many years before. Similarly a bear cult was kept up by another family. For the ceremony entailed by this belief, enacted every two years, a special lodge was built of brush, in which the head of a bear (later that of a hog) was carried about the fire in time to certain chants, and portions of the animal were burned as a sacrifice.

Within the last twenty or thirty years two new religions have been introduced among the Oklahoma Delawares by the Caddo—the Ghost Dance and the Peyote (or Mescal) Rite. The former belief soon died out, but the latter still persists, and at last accounts was even growing in favor.

[1] Brainerd also says, speaking of the same man: "He had a house consecrated to religious uses, with divers images cut upon the several parts of it"—undoubtedly a "big house" such as I have here described.

[2] Illustrated and described by Harrington, Vestiges of Material Culture among the Canadian Delawares, *American Anthropologist*, N. S., vol. 10, no. 3, pp. 417–418.

Charms, Medicine, and Witchcraft.—Besides the "rain medicine" contained in the woven bags before described, I succeeded in obtaining the charm known as "giant bear's tooth," used for wounds or other injuries. A little of the tooth is scraped off and given to the patient in water, with appropriate incantations. Many other charms, for good luck, gambling, hunting, love, and war were used.

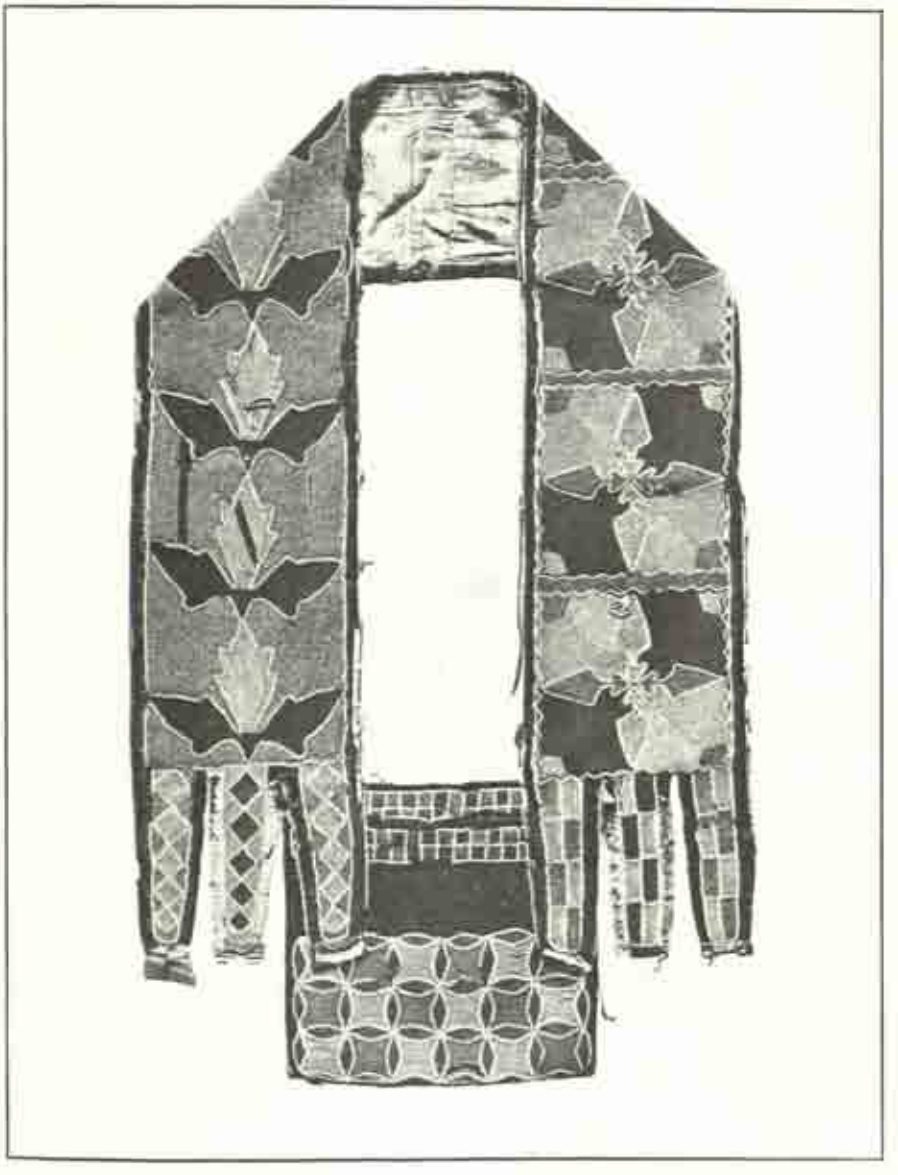
Herbs and roots, the sweat or steam bath, and the various magic arts of the medicine-man or shaman, all figured in the treatment of the sick.

A tradition is still current among the Lenâpe which attributes the origin of witchcraft to the Nanticoke (One"tko), who seem to have borne this evil reputation a long time, for Heckewelder noted the same tradition concerning them a hundred years ago.[1] Witches, it was thought, could fly through the air at night with the aid of the "bad medicine," or might take the form of certain animals, in which guise they could go about unobserved to work their magic arts, to give their enemies bad luck, or to make them sicken and die. As before noticed, there was said to be an organized society of witches among the Mínsi.

Cosmology.—The subject of Lenâpe cosmology is very difficult to master at the present day, for the spread of Christianity and book-learning have almost put an end to native ideas. The cosmic myth was nowhere found in satisfactory entirety, but the bare outlines, so far as obtained from strictly Indian sources, without reference to published accounts, are as follows: Some time after Gĭcĕlamû'kaong had created the world it became flooded with water, and it seemed to be a difficult matter to find earth with which to commence a new one. The Great Spirit (some Mínsi say Nâ'napûsh,[2] an agent delegated by him) began to send down the various water animals which still survived to try to bring earth up from the bottom, but one by one they failed, and floated up to the surface dead. At last the muskrat was sent, and he succeeded

[1] *An account of the History, Manners and Customs of the Indian Nations who once Inhabited Pennsylvania and the Neighboring States*, by Rev. John Heckewelder, p. 76.

[2] Other Mínsi claim that the introduction of Nâ'napûsh into this myth is due to Eastern Ojibwa (Mississauga) influence.



LENAPE BEADED SHOULDER-POUCH

in bringing up a little dirt in his paws. This was placed on the back of a turtle, which, with the mud upon it, immediately began to increase in size, until the "great island upon which we live" was formed, round and flat, floating upon the waters.

The Sun, as before mentioned, was regarded as a person, or rather a manit'to, or spirit, and it was thought that he stopped in his course for a little while at midday, then went on. The Moon was a person also, and the stars were variously regarded as persons and animals. The heaven is twelve-fold, and in the twelfth or highest lives the Great Spirit. The four directions are respectively known as "Where the daylight appears" or east, "Warm place" or south, "Where it (the Sun) goes down" or west, and "Winter place" or north. As before noted, each direction is in charge of a powerful manit'to, or spirit, each one causing the wind from his own particular quarter. When the alternate cold blasts and warm winds are felt in winter, the Manit'towuk of the North and the South are playing the game of bowl and dice, first one winning, then the other. The tornado is a gigantic and powerful spirit walking on his hands, his long hair trailing the ground and wiping out forests and villages. Man-like beings with wings produce the thunder and bring the storms; the lightning-flashes are their arrows.

Measures of Time and Space.—Time was divided into years, each having four seasons and approximately twelve moons, appropriately named. One of the spring moons was known as "Frog Moon," while another, about July, was "Real Summer Moon," and still another, about January, "Dreaded Moon."

The divisions of the day were: morning, near-noon, noon (where the sun stands still), past noon, evening (going-down-quick time), sunset, dark, and midnight. The time of day was defined more exactly by pointing with the finger to the position of the sun at the time referred to—"sun about so high."

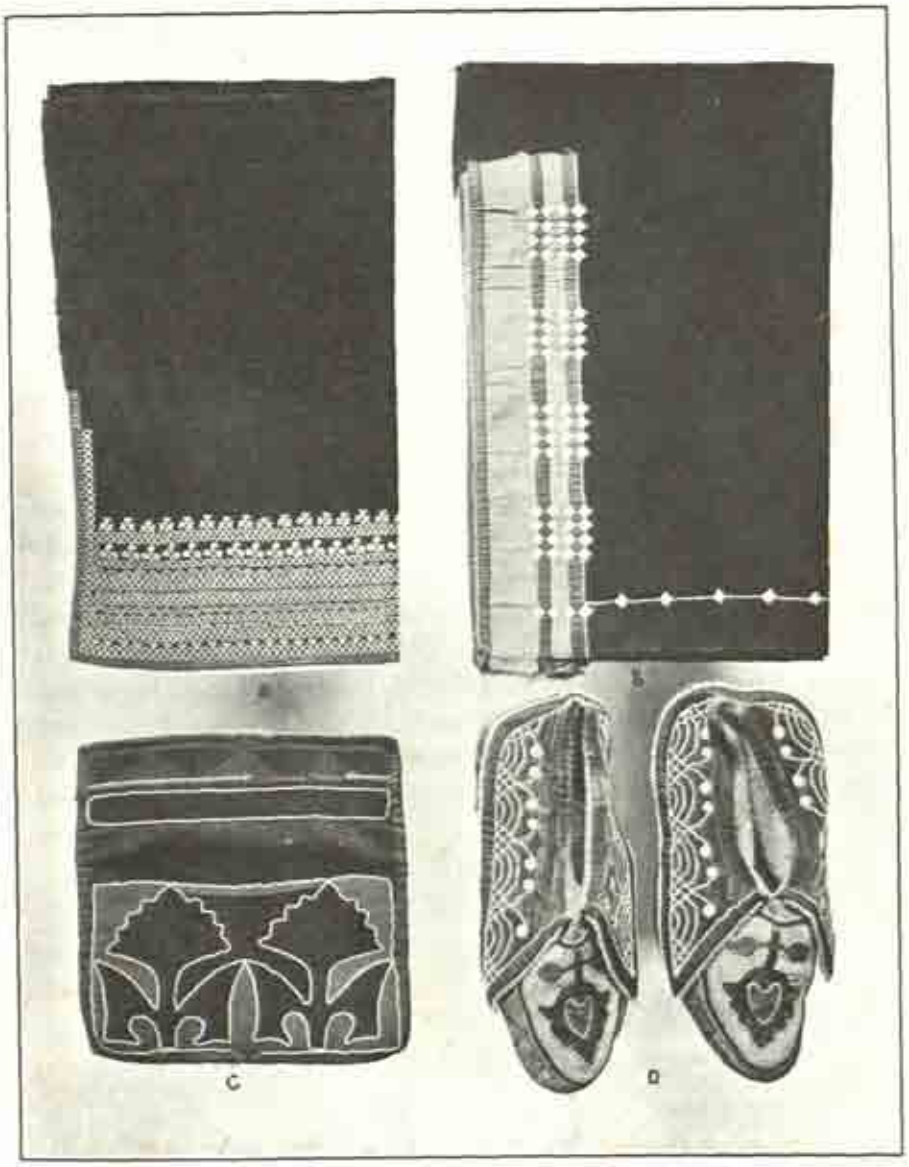
Two linear measures have so far been found, the "step," about two feet, and the "long as the back," somewhat less than a yard, the first used for measuring ground, the latter for wampum. One hundred beads of wampum are supposed to equal the "long as the back."

Records.—Little was found in Oklahoma regarding the recording or communication of ideas by artificial means, but the Canadian Lenâpe reported the use of pictures painted or scratched on flat pieces of wood, peeled trees, or other suitable surfaces, which could be read by any Indian. For preserving rituals and sometimes other records, wampum was often strung into strings and belts in different combinations of the white and purple beads which could be easily read, but only by the initiated.

However, the sacred myths, historical traditions, and the vast aggregation of songs, tales, and anecdotes, forming what might be called the unwritten literature of the people, were handed down for the most part by word of mouth. It is noticeable that the wonder stories of the dealings of mankind with the mysterious spirits and animals were never told except in winter, when everything is frozen up and no little insect or reptile could hear and report what was said. "Culture hero" myths of undoubted Lenâpe origin have not been encountered as yet.

Art.—The esthetic instinct of the Lenâpe is today restricted in its expression to patterns worked in beads, ribbons (pl. v, vi), and on silver; but in former years the field of art was, of course, much wider. Very tasteful patterns and combinations of colors are evolved, curved designs, in the main conventionalized plant forms, predominating in the beadwork, and geometrical combinations of triangles, squares, and elongated hexagons in the ribbon work (pl. vi, *b*). The decorations on silver articles consist mainly of straight lines, curved lines, dots, and circles, arranged in various combinations, mainly geometric, but animal forms and highly conventional floral patterns are sometimes seen. True symbolism is seen only in the shape or decoration of certain ceremonial objects, as in the case of the lightning symbols used in decorating the bags for the rain-medicine (fig. 46).

Music.—While resembling that of other Eastern tribes, the music of the Lenâpe seems to possess certain peculiarities of its own, which a competent musician might work out. It is almost entirely vocal, the only true musical instrument on which tunes can be played being the native flageolet of cedar. The dry hide drum



LENAPE BEADWORK AND RIBBONWORK

A. Women's beaded leggings. B. Women's ribbonwork leggings. C. Beaded pouch. D. Beaded moccasins.

(pl. IV, *f*), the water drum, and the hoop drum were also used, together with rattles of turtle-shell (pl. IV, *e*), horn, and gourd.

Conclusion.—It will be seen from the foregoing sketch of Lenápe culture, that while resembling other Eastern and Central Algonquian tribes in many points, and the Iroquois in a few, these people show considerable individuality, especially in matters ceremonial and religious. Even the Shawnee, with whom they have been long associated, possess a distinctly different system. The influence of other tribes in these matters is not very apparent except in the Mínsi division, where considerable Iroquois influence may be seen. But even here the foreign influence does not seem to have reached the Annual Ceremony. To what extent Lenápe religion, as here described, has been modified by European contact would be difficult to determine.

It must be understood, in conclusion, that the Delawares now live in frame and log houses fully as well appointed, as a rule, as those of the surrounding whites, and engage in the modern form of farming and in other occupations like their neighbors; that the daily use of Indian costume has long since been abandoned; that many of the ceremonies are no longer performed; that the native political and social organization is rapidly breaking down; that even the language is falling into disuse among the younger generation. In short, the greater part of the people are ignorant of the things of the past, and one must search diligently to find anyone able to give detailed information.

UNIVERSITY OF PENNSYLVANIA MUSEUM
PHILADELPHIA

LINGUISTIC STOCKS OF SOUTH AMERICAN INDIANS, WITH DISTRIBUTION-MAP

By ALEXANDER F. CHAMBERLAIN

IN 1906[1] the writer published a tentative list of the linguistic stocks of the South American Indians and announced the preparation of a colored distribution-map to accompany the same. Since that time his own investigations have led to some modifications, as have also the recent extensive studies of such philologists and ethnologists as Rivet, Beuchat, Koch-Grünberg, and M. Schmidt, both by reason of the accumulation of new and the revision of old material. Preliminary to the final revision of the distribution-map in colors, it may serve some good purpose to publish this list of stocks with the outline-map accompanying it. It will be noticed that not all the conclusions aimed at by Drs Rivet and Beuchat are accepted, a number of them requiring more proof than is yet forthcoming. This is particularly true of some of the larger relationships suggested by these excellent authorities. The list of stocks is as follows, references being given to comprehensive discussions or recent articles where possible:

1. **Alikulufan.** See A. F. Chamberlain in *Amer. Anthr.*, 1911, n. s., XIII, 89–92.
2. **Allentiacan.** See Chamberlain, ibid., 1912, n. s., XIV, 499–500.
3. **Andaquian.** See P. Rivet in *l'Année Linguistique*, 1908–1910 [Paris, 1912], IV, 126, 145–148.
4. **Apolistan.** See Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 179.
5. **Araucanian.** See B. Mitre, *Catálogo Razonado de la Sección Lenguas Americanas*, I (Buenos Aires, 1909), pp. 311–338; R. Lenz, *Estudios Araucanos* (Santiago de Chile, 1895–1897); R. R. Schuller, *El Vocabulario Araucano de 1642–1643*, etc. (Santiago, 1907).
6. **Arawakan.** See Dr T. Koch-Grünberg in *Mitt. d. Anthr. Ges. in*

[1] *C. R. Congr. Internat. d. Amér.*, XVe Sess., Québec, 1906 [1907], t. II, pp. 187–204.

Wien, 1911, XLI, 33–153, 203–256; Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1913, n. s., X.

7. **Ardan.** Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, p. 180; Rivet, in *l'Année Linguistique*, 1908–1910 [1912], IV, 134. Dr Rivet has come into possession of, and intends soon to publish, an extended catechism in the Arda language. The other material known consists solely of the *Pater Noster* and *Ave Maria*.

8. **Atacameñan (Atacaman).** See Chamberlain in *Amer. Anthr.*, 1911, n. s., XIII, 465–467.

9. **Aymaran.** See E. W. Middendorf, *Die Aimará-Sprache* (Leipzig, 1891); J. J. v. Tschudi, Culturhistorische und sprachliche Beiträge zur Kenntnis des alten Perú, in *Denkschr. d. K. Akad. d. Wiss.*, Wien, 1891, XXXIX, 1–220; D. G. Brinton, *Studies in South American Native Languages* (Phila., 1892); G. A. Dorsey, *A Bibliography of the Anthropology of Peru* (Chicago, 1898); Mitre, *Catálogo*, II (Buenos Aires, 1910), 236–262.

10. **Barbacoan.** See Beuchat and Rivet in *Affinités des Langues du Sud de la Colombie et du Nord de l'Équateur* (Louvain, 1910. Extr. du *Muséon*). These authors recognize a "Barbacoa group" (Cuaiquer, Cayapá, Colorado), which, together with their "Paniquita group" and "Coconuco group," they seek to attach to the Chibchan stock. But some further proof of this is needed.

11. **Betoyan.** See Brinton, *Studies in South American Native Languages* (Phila., 1892), and in *Proc. Amer. Philos. Soc.*, 1892, XXX, 100–105, 271–278; Koch-Grünberg in *Ztschr. f. Ethnologie*, 1906, XXXVIII, 166–205, *Anthropos*, 1912, VII, 429–462, and *Zwei Jahre unter den Indianern Nordwestbrasiliens* (Berlin, 1909–1910); Beuchat and Rivet, *La famille betoya ou tucano* (Paris, 1911. Extr. *Mém. de la Soc. de Ling. de Paris*, XVII). Beuchat and Rivet, believing that the Betoya language proper, from which the stock has hitherto been named, has Chibchan affinities, propose to term the Betoyan stock "Tucano," after a prominent language of its eastern division. But it is perhaps best to continue the older name.

12. **Bororoan.** See Chamberlain in *Amer. Anthr.*, 1912, n. s., XIV, 501–503.

13. **Calchaquian.** See Chamberlain, ibid., 503–507.

14. **Cañarian.** See Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 181; Rivet in *l'Année Linguistique*, 1908–1910 [1912], IV, 132.

15. **Canichanan.** See Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 181.

16. **Carayan.** See H. Coudreau, *Voyage au Tocantins-Araguaya* (Paris, 1897); P. Ehrenreich in *Zeitschrift f. Ethnologie*, 1894, XXVI, 20–37, 49–60; Krause, *In den Wildnissen Brasiliens* (Leipzig, 1911); Chamberlain in *Science*, 1913, n. s., XXXVII, 344.

17. **Cariban.** See L. Adam, *Mat. p. servir à l'établ. d'une gramm. comp. des dialectes de la famille Caribe* (Paris, 1893); de Goeje in *Int. Arch. f. Ethnogr.*, 1906, XVII, Suppl. Bd., 1–177, and ibid., 1908, XIX, 1–34; Koch-Grünberg in *Zeitschrift f. Ethnol.*, 1906, XXXVIII, 166–205, and *Anthropos*, 1908, III, 83–104, also *Zwei Jahre unter den Indianern*; J. N. Rat in *J. Roy. Anthr. Inst.* (Lond.), 1897–98, XXVII, 293–315; K. v. den Steinen, *Die Bakaïrí-Sprache* (Leipzig, 1893). Dr Koch-Grünberg gives, in his article in *Anthropos* (pp. 90–95), a useful list of grammars and dictionaries in various dialects of the Cariban stock. See also Mitre, *Catálogo*, II (1910), 280–296, 299–314, and Rivet in *l'Année Linguistique*, 1908–1910 [1912], IV, 138–140.

18. **Caririan.** See L. Adam, *Mat. p. servir à l'etabl. d'une gramm. comp. des dialectes de la famille Kariri* (Paris, 1897); Mitre, *Catálogo*, II (1910), 297–299; Chamberlain in *Science*, 1913, XXXVII, 344.

19. **Cayubaban.** See Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 182.

20. **Changoan.** See Chamberlain, ibid., 183.

21. **Chapacuran.** See Chamberlain in *Amer. Anthr.*, 1912, n. s., XIII, 632–635; G. de Créqui-Montfort and P. Rivet in *Journ. de la Soc. d. Amér. de Paris*, 1913, n. s., X, 119–171. G. de Créqui-Montfort and P. Rivet, and A. F. Chamberlain have recognized the kinship of Ité, Chapacura, Quitemoca, and Pawumwa (the last on the basis of Haseman's vocabulary in *Amer. Anthr.*, 1912), Chamberlain suggesting, provisionally, Pawumwan as a name for the whole family. This abolishes the *Itenean* as a separate stock. Another dialect of this stock, as these authors show, is the Napeka, which, like Quitemoca, is very close to Chapacura, as is also Pawumwa. Ité is more remotely related. De Créqui-Montfort and Rivet (p. 146) think that to the Chapacuran family belong, in all probability also, the languages of the "Sansimonianos" (Mission of Simon) Indians, known as Chapacuraca, Mure, Rocorona, Orocotoma, Rotorôño, Ocoróno, as well as the Herisobocono or Hericebocóno. More proof of this, however, is needed, perhaps.

22. **Charruan.** See Chamberlain in *Amer. Anthr.*, 1911, n. s., XIII, 469–471; Schuller, *Sobre el Origen de los Charrúas* (Santiago, 1906).

23. **Chavantean.** See H. v. Ihering, *The Anthropology of the State of S. Paulo, Brazil* (2d ed., S. Paulo, 1906); Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 185; Chamberlain in *Science*, 1913, XXXVII, 344.

24. **Chibchan.** See R. de la Grasserie in *Journ. de la Soc. d. Amér. de Paris*, 1904, n. s., I; Pittier de Fábrega in *Mem. Amer. Anthr. Asso.*, 1907, I, 301–356; K. Sapper in *Arch. f. Anthr.*, 1903, N. F., III, 1–38; W. Lehmann in *Zeitschrift f. Ethnologie*, 1910, XLII, 687–749; C. Thomas and J. R. Swanton, *Ind. Lang. of Mex. and C. Amer.* (Washington, 1911); Beuchat and Rivet, *Affinités des Langues du Sud de la Colombie*, etc. (Louvain, 1910).

25. **Chiquitan.** See L. Adam, *Arte y Vocabulario de la lengua Chiquita* (Paris, 1880); J. Cardús, *Las Misiones Franciscanas entre los Infieles de Bolivia* (Barcelona, 1886); Mitre, *Catálogo*, II (1910), 279–280.

26. **Chocoan.** See Brinton in *Proc. Amer. Philos. Soc.*, 1896, XXXV, 202–204, and ibid., 1897, XXVI; A. L. Pinart, *Vocabulario Castellano-Chocóe* (Paris, 1897); Rivet in *l'Année Linguistique*, 1908–1910 [1912], IV, 123–126.

27. **Cholonan.** See Brinton, *Studies in S. Amer. Nat. Lang.* (Phila., 1892), pp. 30–36; Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 185.

28. **Chonoan.** See Chamberlain in *Amer. Anthr.*, 1911, n. s., XIII, 467–468.

29. **Coconucan.** See Beuchat and Rivet, *Affinités des Langues du Sud de la Colombie*, etc. (Louvain, 1910).

30. **Corabecan.** See Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 186.

31. **Cunan.** See F. P. de Llisa, *Pequeño Catecismo Cristiano* [ed. Pinart and Carranza] (Paris, 1890); Pinart, *Vocabulario Castellano-Cuna* (Paris, 1890); Pinart, *Notes sur les tribus indiennes de famille guarano-guaymie de l'isthme de Panamá*, etc. (Chartres, 1900); J. D. Prince in *Amer. Anthr.*, 1912, N. S., XIV, 109–126.

32. **Curucanecan.** See Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 187.

33. **Enimagan.** See Brinton, *The Linguistic Cartography of the Chaco Region* (Phila., 1898); P. A. Huonder in *Globus*, 1902, LXXVIII, 387–391; L. Kersten in *Int. Arch. f. Ethnogr.*, 1904, XVII, 1–75;

Koch-Grünberg in *Mitt. d. Anthr. Ges. in Wien*, 1902, XXIII, 130–148. The Enimagan corresponds, more or less, to the Maskoi of Koch-Grünberg, the Machicui (or Muscovi) of Ehrenreich.

34. **Esmeraldan.** See E. Seler, Die Sprache der Indianer von Esmeraldas, in *Gesammelte Abh. z. amer. Sprach- u. Altertumsk.*, I (Berlin, 1902), 49–64; Rivet in *l'Année Linguistique*, 1908–1910 [1912], IV, 131.

35. **Goyatacan.** See K. von den Steinen, *Durch Central Brasilien* (Leipzig, 1886); G. v. Koenigswald in *Globus*, 1908, XCIV, 27–32, 45–49; Ehrenreich in *Arch. f. Anthr.*, 1905, N. F., III, 39–75.

36. **Guahiban.** See M. Fernandez y M. Bartolomé, *Ensayo de gramática hispano-goahiva* (Bogota, 1895); B. Tavero-Acosta, *En el Sur* (Ciudad-Bolivar, 1907); A. Ernst in *Ztschr. f. Ethnologie*, 1891, XXXIII, 1–13; Rivet in *l'Année Linguistique*, 1908–1910 [1912], IV, 128–131. The affinity between the Churoya and Guahiba languages, suggested by Ernst in 1891, seems confirmed by Rivet, and in consequence the former disappears as an independent family, to become a dialect of the Guahiban stock. According to Rivet (p. 130), the Guahiban occupies all the territory between the Orinoco, the Meta, and the Vichada.

37. **Guaraunan.** See Adam in *C.-R. Congr. Int. d. Amér.*, Stockholm, 1894, X; E. F. Im Thurn, *Among the Indians of Guiana* (London, 1883); Tavera-Acosta, *En el Sur* (Ciudad-Bolivar, 1907).

38. **Guatoan.** See J. Koslowsky in *Rev. d. Mus. de la Plata*, 1895, VII, 221–250; E. Monoyer in *Journ. de la Soc. d. Amér. de Paris*, 1905, N. S., II, 155–158; Schmidt in *Verh. d. Berl. Ges. f. Anthr.*, 1902, 77–89, *Zeitschrift f. Ethnologie*, 1912, XLIV, 130–174, and *Indianer-Studien in Zentralbrasilien* (Berlin, 1905); Chamberlain in *Science*, 1913, XXXVII, 344.

39. **Guaycuruan.** See Brinton, *Ling. Cartogr. of Chaco Region* (Phila., 1898); Huonder in *Globus*, 1902, LXXXI, 387–391; Kersten in *Int. Arch. f. Ethnogr.*, 1904, XVII, 1–75; Koch-Grünberg in *Globus*, 1902, LXXXI, 1–7, 39–46, 69–78, 105–112 (also *Mitt. d. Anthr. Ges. in Wien*, 1903); Schuller, *Sobre el Orijen de los Charruás* (Santiago, 1906).

40. **Itonaman.** See Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, N. S., VII, 189.

41. **Itucalean.** See Chamberlain, ibid., 189; Beuchat and Rivet (*Ztschr. f. Ethnol.*, 1909, 621) suggest that the Itucale may be Panoan.

42. **Jivaran.** See Beuchat and Rivet in *Anthropos*, 1909, IV, 805–822;

1910, v, 1053–1064, 1109–1124. These authors show that the "Jivaro" of Brinton (*Studies in S. Amer. Nat. Lang.*, 1892) is really Jébero or Xébero, and belongs to what they term the "Cahuapana" = Mainan (q. v.) family or stock.

43. **Jurian.** See Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 190.

44. **Lecan.** See Brinton, *Studies in S. Amer. Nat. Lang.* (Phila., 1892), 36–38; S. A. Lafone-Quevedo, *La lengua Leca* (Buenos Aires, 1905); Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 190.

45. **Lorenzan.** See Chamberlain, ibid., 191.

46. **Lulean.** See Brinton, *Ling. Cartogr. of Chaco Region* (Phila., 1898); Huonder in *Globus*, 1902, LXXXI, 387–391; Kersten in *Int. Arch. f. Ethnogr.*, 1904, XVII, 1–75; Lafone-Quevedo in *Bol. Inst. Geogr. Argent.*, 1895, XVI, 42–84, and ibid., 1894, XV, 185–246.

47. **Mainan.** See Brinton, *Studies in S. Amer. Nat. Lang.* (Phila., 1892), under "Jivaro"; Beuchat and Rivet in *Zeitschrift f. Ethnol.*, 1909, XLI, 616–634. The Mainan of the present writer corresponds, more or less, with the "Cahuapana," by which name Beuchat and Rivet seek to baptize this stock, after a prominent member thereof. Included in Mainan is probably the Laman, formerly listed as a separate stock.

48. **Makuan.** See Koch-Grünberg in *Anthropos*, 1906, I, 877–906, and *Zwei Jahre unter den Indianern* (Berlin, 1909–1910).

49. **Matacan.** See Brinton, *Ling. Cartogr. Chaco Region* (Phila., 1898); Huonder in *Globus*, 1902, LXXXI, 387–391; Kersten in *Int. Arch. f. Ethnogr.*, 1904, XVII, 1–75; Lafone-Quevedo in *Bol. Inst. Geogr. Argent.*, 1896, 1897; Schuller, *Sobre el Orijen de los Charruas* (Santiago, 1906); J. Remedi in *Bol. Inst. Geogr. Argent.*, 1896, and *An. de la Soc. Cientif. Argent.*, 1904.

50. **Miranhan.** See A. Mochi in *Arch. p. l'Antrop.*, 1902, XXXII, 437–541, 1903, XXXIII, 97–130; Koch-Grünberg in *Zeitschrift f. Ethnol.*, 1906, XXXVIII, 166–205, and *Zwei Jahre unter den Indianern* (Berlin, 1909–1910); Rivet in *Journ. de la Soc. d. Amér. de Paris*, 1911, n. s., VIII, 117–152. Rivet (p. 33) believes that the Miranha is "a very much modified and differentiated Tupi-Guarani dialect." Here, again, more evidence is needed.

51. **Mocoan.** See Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 191; Rivet in *l'Année Linguistique*, 1908–1910 [1912], IV, 126–128.

52. **Mosatenan.** See N. Armentia, *Los Indios Mosetenes y su Lengua* (Buenos Aires, 1903); Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 192.

53. **Moviman.** See Chamberlain, ibid., 192.

54. **Muran.** See Chamberlain, ibid., 193. The Mura here listed is not to be confused with the Bolivian Mure, which Rivet believes related to Chapacuran.

55. **Ocoronan.** See Chamberlain, ibid., 193; Rivet, ibid., 1913, n. s., X, 122–123. Rivet is of opinion that the Ocoróna language (identical, probably, with Roçorona, Rocotona, Orocotona, Rotorôño) may belong in the Chapacuran family.

56. **Onan.** See Chamberlain in *Amer. Anthr.*, 1911, n. s., XIII, 92–95.

57. **Otomacan.** See Tavera-Acosta, *En el Sur* (Ciudad-Bolivar, 1907); Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 194.

58. **Otuquian.** See Chamberlain, ibid.; G. de Créqui-Montfort and P. Rivet, ibid., 1912, n. s., IX, 317–337. These two authors, adducing further evidence from manuscript data of d'Orbigny, show the Covareca and Curuminaca to belong to the Otuquian stock, thus removing the Covarecan and Curuminacan from the list of independent linguistic families, and think that the Curaveca and the Curucaneca possibly belong also to the Otuquian.

59. **Paniquitan.** See H. Pittier de Fábrega in *Mem. Amer. Anthr. Assoc.*, 1907, I, 301–356; Beuchat and Rivet, *Affinités des Langues du Sud de la Colombie, etc.* (Louvain, 1910). Beuchat and Rivet consider Paniquita to belong to the Chibchan stock.

60. **Panoan.** See M. Navarro, *Vocabulario Castellano-Quichua-Pano*, etc. (Lima, 1903); von den Steinen, *Diccionario Sipibo* (Berlin, 1901); F. Hestermann in *Int. Amerik.-Kongr.*, 17te Tag., Wien, 1908 [1910], 645–650; Rivet in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 221–242; Mitre, *Catálogo*, II (1910), 316–317.

61. **Peban.** See Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 195; Rivet, ibid., 1911, VIII, 173–206. According to Rivet, the languages of the Peban group are "much mixed and corrupted dialects of the Cariban stock"; this, however, awaits more proof. Rivet is right, however, in removing Yaguan from the list of independent stocks and making it a dialect of Peban. To the Peban group he also assigns Yameo.

62. **Piaroan.** See Ernst in *Amer. Anthr.*, 1895, VIII, 393–401; Tavera-Acosta, *En el Sur* (Ciudad-Bolivar, 1907); Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 195.

63. **Puelchean.** Brinton, *Studies in S. Amer. Nat. Lang.* (Phila., 1892); Chamberlain in *Amer. Anthr.*, 1911, n. s., XIII, 458–460.

64. **Puinavian.** See Ernst in *Amer. Anthr.*, 1895, VIII, 393–401; Tavera-Acosta, *En el Sur* (Ciudad-Bolivar, 1907); Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 196.

65. **Puquinan.** See Brinton in *Proc. Amer. Philos. Soc.*, 1890, XXVIII, 242–248; R. de la Grasserie, *Langue Puquina* (Leipzig, 1894); J. T. Polo in *Bol. de la Soc. Geogr. de Lima*, 1901, X, 456; Chamberlain in *Amer. Anthr.*, 1910, n. s., XII, 417–419, and *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 196.

66. **Quechuan.** See Brinton, *Stud. in S. Amer. Nat. Lang.* (Phila., 1892), 52–58; Dorsey, *A Bibliography of the Anthropology of Peru* (Chicago, 1898); Middendorf, *Das Ruma Simi, oder die Keshua-Sprache* (Leipzig, 1890); v. Tschudi, *Organismus der Khetšua-Sprache* (Leipzig, 1884).

67. **Salivan.** See Tavera-Acosta, *En el Sur* (Ciudad-Bolivar, 1907); Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 197; R. R. Schuller in *Anthropos*, 1912, VII, 761–764. The manuscripts recently discovered at Madrid by Dr Schuller, and soon to be published, include an *Arte*, a *Doctrina Cristiana*, and a *Diccionario*.

68. **Samucan.** See Boggiani, *I Ciamacoco* (Roma, 1894); Brinton, *Ling. Cartogr. Chaco Region* (Phila., 1898); Huonder in *Globus*, 1902, LXXXI, 387–391; Kersten in *Int. Arch. f. Ethnogr.*, 1904, XVII, 1–75.

69. **Sanavironan.** See Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 198.

70. **Tacanan.** See Armentia, *Tacana*, etc. (La Plata, 1902); Brinton, *Studies in S. Amer. Nat. Lang.* (Phila., 1892), 7–21; A. Groeteken in *Anthropos*, 1907, II, 730–734.

71. **Tapuyan.** See Ehrenreich in *Ztschr. f. Ethnol.*, 1895, XXVII, 149 ff.; H. Gensch, ibid., 1908, XL, 744–759, also *Die Erziehung eines Indianer-Kindes* (Wien, 1908); v. Koenigswald in *Globus*, 1908, XCIII, 37–43; R. R. Schuller in *Int. Arch. f. Ethnogr.*, 1912, XXI, 78–98.

72. **Ticunan.** See Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 198; Rivet, ibid., 1912, n. s., IX, 83–110. Rivet (p. 87) considers Ticuna "a very corrupt dialect of Arawak."

73. **Timotean.** See Brinton, *Studies in S. Amer. Nat. Lang.* (Phila., 1892); Tavera-Acosta, *En el Sur* (Ciudad-Bolivar, 1907); Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 198.

74. **Trumaian.** See K. v. den Steinen, *Unter den Naturvölker Zentral-Brasiliens* (Berlin, 1894), 540–542; Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 199.

75. **Tsonekan (Tehuelchean).** See Chamberlain in *Amer. Anthr.*, 1911, n. s., XIII, 460–464.

76. **Tupian.** See Adam, *Mat. p. servir à l'établ. d'une gramm. comp. des dialectes de la famille Tupi* (Paris, 1896); Brinton, *Ling. Cartogr. Chaco Region* (Phila., 1898); D. del Campana in *Arch. p. l'Antr.*, 1902, XXXII, 17–144, 283–289; H. D. Garraux, *Bibliographie Brésilienne* (Paris, 1898); H. v. Ihering, *The Anthropology of the State of S. Paulo, Brazil* (2d ed., S. Paulo, 1906); F. Pierini in *Anthropos*, 1908, III, 875–880; C. Tatevin, ibid., 905–915; A. do Valle Cabral, *Bibliographia da lingua tupi ou guarani* (Rio de Janeiro, 1880); Rivet in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 149–178.

77. **Uitotan.** See Koch-Grünberg in *Ztschr. f. Ethnol.*, 1906, XXXVIII, 166–205; *Journ. de la Soc. d. Amér. de Paris*, 1906, n. s., III, 157–189; and *Zwei Jahre unter den Indianern* (Berlin, 1909–1910).

77a. **Uran.** See J. T. Polo in *Bol. de la Soc. Geogr. de Lima*, 1901, X, 445–482; Chamberlain in *Amer. Anthr.*, 1910, n. s., XII, 417–424.

78. **Yahganan.** See Chamberlain, ibid., 1911, n. s., XIII, 95–98.

79. **Yaruran.** See Tavera-Acosta, *En el Sur* (Ciudad-Bolivar, 1907); L. R. Oramas in *An. de la Univ. Central de Venez.* (Caracas), 1909, X, 144–155; Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 201.

80. **Ypurinan (Hypurinan).** See Ehrenreich in *Ztschr. f. Ethnol.*, 1897, XXIX, 59–71; J. B. Steere in *Rep. U. S. Nat. Mus. 1901* [1903], 359–393; Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 188.

81. **Yuncan.** See Middendorf, *Das Muchik oder die Chimu-Sprache* (Leipzig, 1892); v. Tschudi, *Organismus der Kechua-Sprache* (Leipzig, 1884); Dorsey, *Bibl. of the Anthr. of Peru* (Chicago, 1898).

82. **Yurucarean.** See Adam, *Principes et dictionnaire de la langue Yurucaré ou Yurujuré* (Paris, 1892); H. v. Holter in *Ztschr. f. Ethnol.*, 1877, IX, 105–115; Chamberlain in *Journ. de la Soc. d. Amér. de Paris*, 1910, n. s., VII, 201.

83. **Zaparan.** See Beuchat and Rivet in *Journ. de la Soc. d. Amér. de Paris*, 1908, n. s., V, 236–249.

LIST OF STOCKS SHOWN ON THE MAP

1. Alikulufan
2. Allentiacan
3. Andaquian
4. Apolistan
5. Araucanian
6. Arawakan
7. Ardan
8. Atacameñan
9. Aymaran
10. Barbacoan
11. Betoyan
12. Bororoan
13. Calchaquian
14. Cañarian
15. Canichanan
16. Carayan
17. Cariban
18. Caririan
19. Cayubaban
20. Changoan
21. Chapacuran
22. Charruan
23. Chavantean
24. Chibchan
25. Chiquitan
26. Chocoan
27. Cholonan
28. Chonoan
29. Coconucan
30. Corabecan
31. Cunan
32. Curucanecan
33. Enimagan
34. Esmeraldan
35. Goyatacan
36. Guahiban
37. Guaraunan
38. Guatoan
39. Guaycuruan
40. Itonaman
41. Itucalean
42. Jivaran
43. Jurian
44. Lecan
45. Lorenzan
46. Lulean
47. Mainan
48. Makuan
49. Matacan
50. Miranhan
51. Mocoan
52. Mosatenan
53. Moviman
54. Muran
55. Ocoronan
56. Onan
57. Otomacan
58. Otuquian
59. Paniquitan
60. Panoan
61. Peban
62. Piaroan
63. Puelchean
64. Puinavian
65. Puquinan
66. Quechuan
67. Salivan
68. Samucan
69. Sanavironan
70. Tacanan
71. Tapuyan
72. Ticunan
73. Timotean
74. Trumaian
75. Tsonekan
76. Tupian
77. Uitotan
77a. Uran
78. Yahganan
79. Yaruran
80. Ypurinan
81. Yuncan
82. Yurucarean
83. Zaparan

The accompanying map is modeled after the Powell map of North American stocks and aims to give a similar general conspectus of the distribution of families of speech. By reason of the large number of small stocks within the area now or formerly occupied by others, the real extent of such stocks as the Chibchan, Betoyan, Cariban, Arawakan, Tupian, Tapuyan, Aymaran, Quechuan, Panoan, etc., does not exactly appear as at the point of greatest expansion. In the Ecuador region, the Esmeraldan, Barbacoan, Quechuan, Cañarian, etc., do not exhaust the possibilities—several other stocks (perhaps, e. g., the Caran) may have existed in the region between the equator and S. lat. 5°. There is the likelihood of one or more other stocks having existed south of the Straits of Magellan; and the region of northwestern Brazil may yet furnish

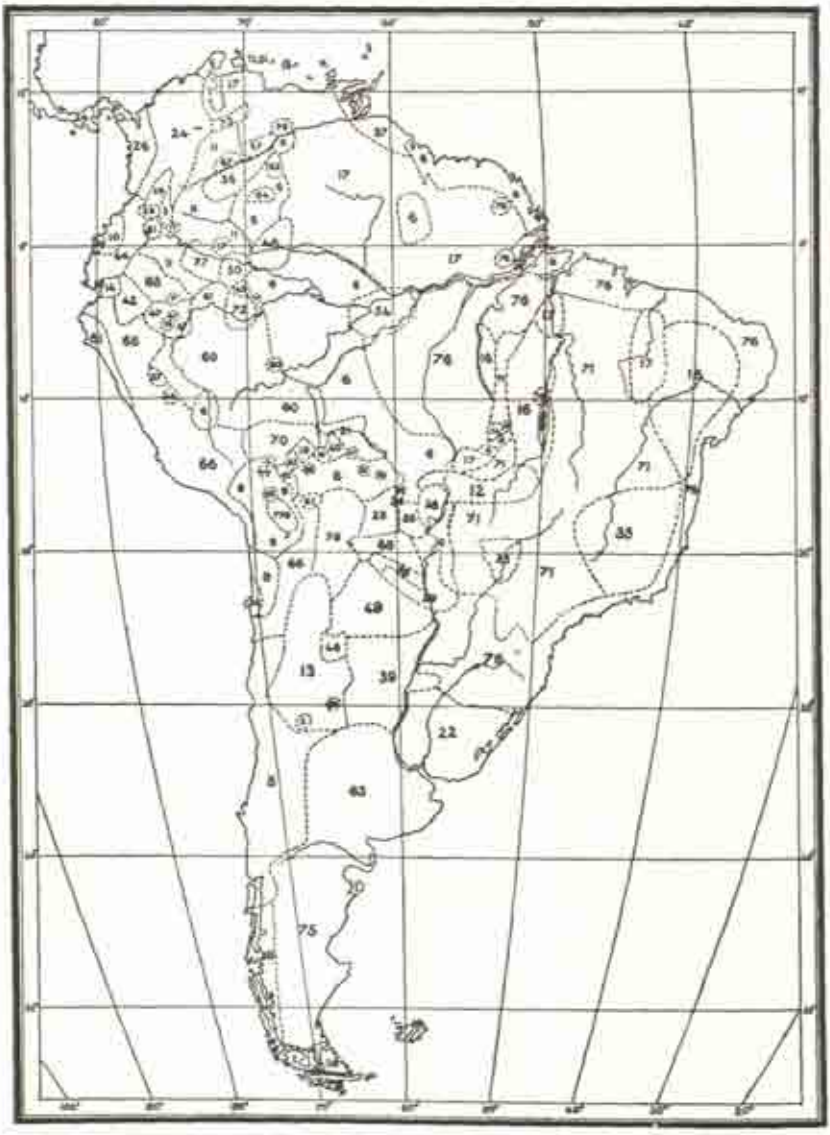


FIG. 47.—Map of South American linguistic stocks, by Alexander F. Chamberlain.

another or two. On the other hand, the crowded territory of the Colombia-Venezuela border and parts of Peru-Bolivia may see reductions by affiliation of some of the small stocks with one an-

other or with some of the larger stocks represented in this region or elsewhere. As the map shows only the mainland, and not the West Indian islands or the regions of Central America, the extensions in the form of the Arawakan and Cariban stocks, and in the latter of the Chibchan, are not indicated.

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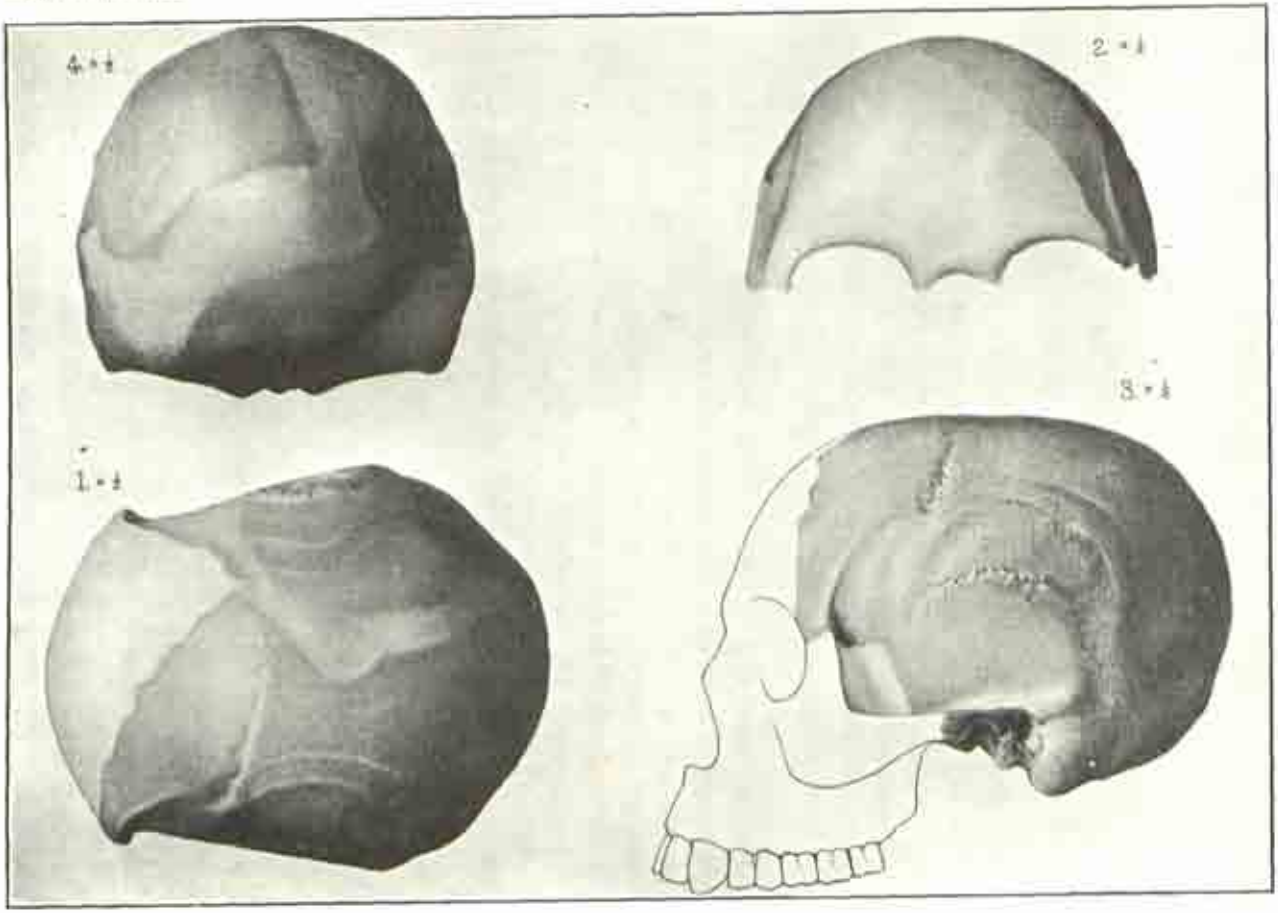
ANCESTOR HUNTING: THE SIGNIFICANCE OF THE PILTDOWN SKULL

By GEORGE GRANT MACCURDY

ARE we proud of our remote ancestors? Would they be willing to acknowledge us as lineal descendants? Be this as it may, we pay them, perhaps unwittingly, the high compliment of a perennial quest for their portraits, a quest which quite recently has taken us back, especially in England, much farther than that estimable institution, the College of Heraldry, had ever dreamed of going.

In many of its aspects the latest discovery is perhaps the most remarkable of all. When attending the International Congress of Prehistoric Anthropology and Archeology in Geneva last September I was given to understand that the next great event in the prehistoric field would be reported from the south of England. As the matter was being kept a profound secret there was nothing to do but to wait for details until official announcement should be made. This came at a meeting of the Geological Society in London on December 18.

Briefly the facts are these. Several years ago in passing up the Ouse valley from his home in Lewes (Sussex) into the Weald, Mr Charles Dawson, Fellow of the Society of Antiquaries and of the Geological Society, noted that the roadway had been mended recently with flints of a kind that he had not seen before in that region. These were traced to their source, which proved to be a pit near Piltdown Common, Fletching (Sussex). Nothing was found that day, but on a subsequent visit to the pit, one of the men handed to Mr Dawson a part of an "unusually thick human parietal bone." A portion of the frontal bone of the same skull including part of the left brow ridge was picked up by Mr Dawson himself in 1911 from one of the refuse heaps. He took this piece to Dr A. Smith Woodward of the Natural History Museum, Lon-



EOANTHROPUS DAWSONI FROM A GRAVEL PIT NEAR PILTDOWN COMMON, FLETCHING (SUSSEX). RESTORATION

After Dawson and Woodward, Quar. Jour. Geol. Soc., LXIX, pl. XVIII, 1913.

don, who thereafter took part in the search. Other fragments of the skull were recovered from the refuse heaps; the right half of a lower jaw with first and second molars in situ was dug out of the undisturbed gravel by Mr Dawson. At precisely the same level, some four feet below the surface, and within a yard of the point where the jaw was found, Dr Woodward dug up a piece of the occipital bone of the cranium. By reason of their proximity as well as in point of size, the cranium and lower jaw may be "referred to the same individual without any hesitation." The bones are mineralized and stained to a ruddy-brown color, as are the sands and flints among which they were found.

The most diligent search has failed to reveal other parts of this human skeleton. But the finding of fossil animal remains in the same pit and stratum, both associated with rudely worked flints, makes Piltdown one of the most extraordinary prehistoric stations ever uncovered. The fossils include broken pieces of a molar of a Pliocene type of elephant, a cusp of the molar of a mastodon, and teeth of *Hippopotamus*, and *Castor*. On the surface of an adjacent field, they found the tooth of *Equus*, and fragments of an antler of *Cervus elaphus*. These were all in the same mineralized condition and of the same color as the human bones.

When the pieces of the cranium were put together it was possible to estimate the cranial capacity, which Dr A. Smith Woodward gives as not less than 1070 c.c. The bones are tough and hard, and the walls of the brain-case exceedingly thick, the average thickness of the frontal and parietal being at least one centimeter. The face and the greater part of the forehead are missing. The length of the cranium from glabella to inion is about 190 mm., while the greatest parietal width is 150 mm. The forehead is steeper and the brow ridge feebler than in the later Neandertal type. The cranium is low and broad, with a marked flatness on top, and the mastoid processes are relatively small.

The lower jaw is in some respects more primitive than the cranium. The horizontal ramus is rather slender, resembling in shape that of a young chimpanzee, especially in the region of the symphysis. Only two teeth, the first and second molars, were found,

and these were in their sockets. They are distinctly human, although relatively of large size and narrow, thus requiring more linear space for their setting in the jaw. Each has a fifth cusp. The crowns are worn flat by mastication, indicating that the canines were not so prominent as to interfere with essentially human proc-

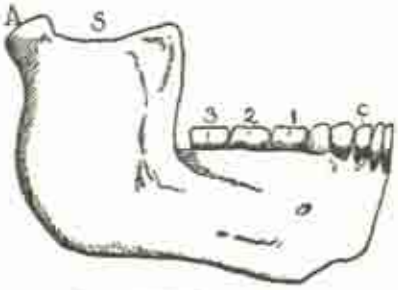


FIG. 1. Heidelberg man.



FIG. 2. Chimpanzee.

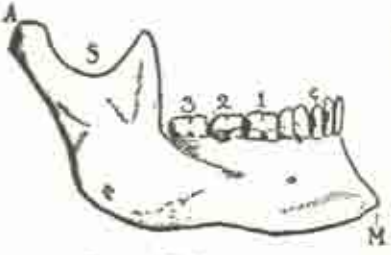


FIG. 3. Modern man.

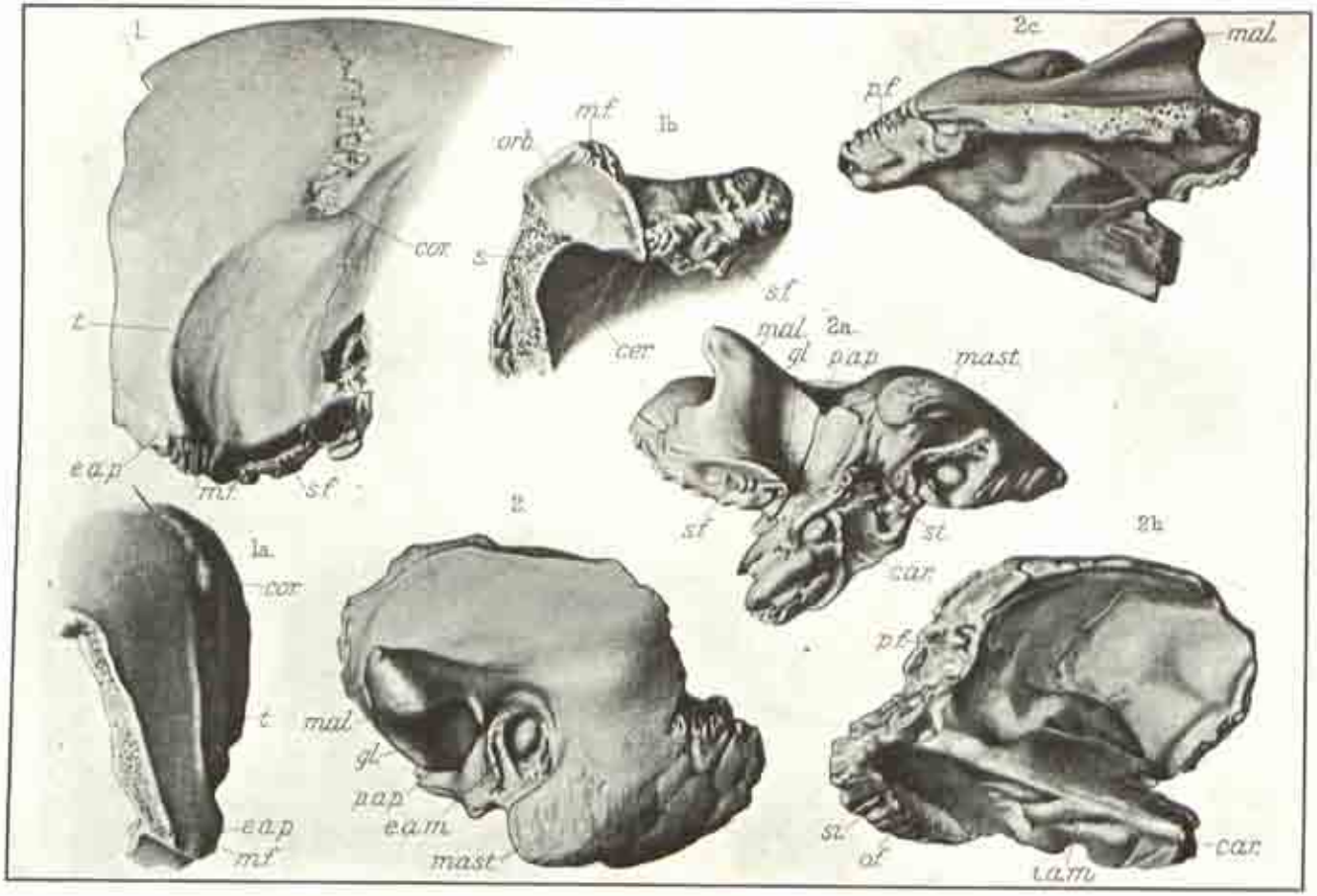


FIG. 4. Piltdown man.

FIG. 48.—*A*, Articular process or condyle (broken in the Piltdown jaw). *S*, Sigmoid notch. *c*, Canine tooth. 1, 2, 3, First, second, and third molars. (From a sketch by Sir Ray Lankester in *The Daily Telegraph*.)

esses of trituration; also that the individual was of adult age. The ascending ramus is broad, and the sigmoid notch at the top in front of the articular process is shallow. In these respects the Sussex lower jaw approaches that found near Heidelberg. The feeble brow ridges, the small area for the insertion of the temporal muscles, the rather insignificant mastoid processes, and the slender lower jaw point to a member of the female sex. Dr Woodward regards the skull as belonging to a hitherto unknown species of *Homo*, for which he proposes the name *Eoanthropus dawsoni*.

A study of the cast of the cranial cavity would seem to justify



EOANTHROPUS DAWSONI

Fig. 1. Frontal from left side; (1a) from the front and (1b) from below. *cer* = cerebral surface; *cor* = coronal suture; *e. a. p.* = external angular process; *m. f.* = facette for malar; *orb.* = roof of orbit; *s.* = broken section of frontal bone; *s. f.* = facette for sphenoid; *t.* = temporal ridge.

Fig. 2. Left temporal, lacking the upper part of the squamous wing, outer view; (2a) lower view, (2b) innerview, and (2c) upper view. *car.* = openings of carotid canal; *e. a. m.* = external auditory meatus, blocked by a pebble; *gl.* = glenoid fossa; *i. a. m.* = internal auditory meatus; *mal.* = process for malar; *mast.* = mastoid process; *o. f.* = suture for occipital; *p. a. p.* = post-articular process; *p. f.* = suture for parietal; *s. f.* = suture for sphenoid; *t.* = tympanic groove for lateral sinus; *st.* = base of styloid process. About two-thirds natural size. Q. J. G. S., 1878, pl. 818, 1913.

the appellation. This has been done thoroughly by Professor G. Elliot Smith, one of the highest authorities on the human brain, who finds that while it bears a similarity to the brain-cases of Gibraltar and La Quina, both paleolithic and supposedly feminine, the Piltdown brain-case is smaller and more primitive in

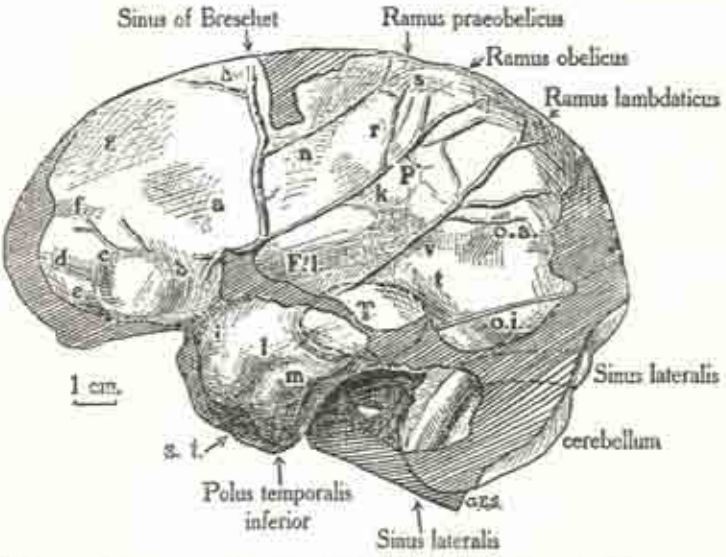


FIG. 49.—Left norma lateralis of the internal cast of the skull from Piltdown. The parallel shading shows the extent of the missing cranial wall. After Prof. G. Elliott Smith in *Q. J. G. S.*, LXIX, 1913.

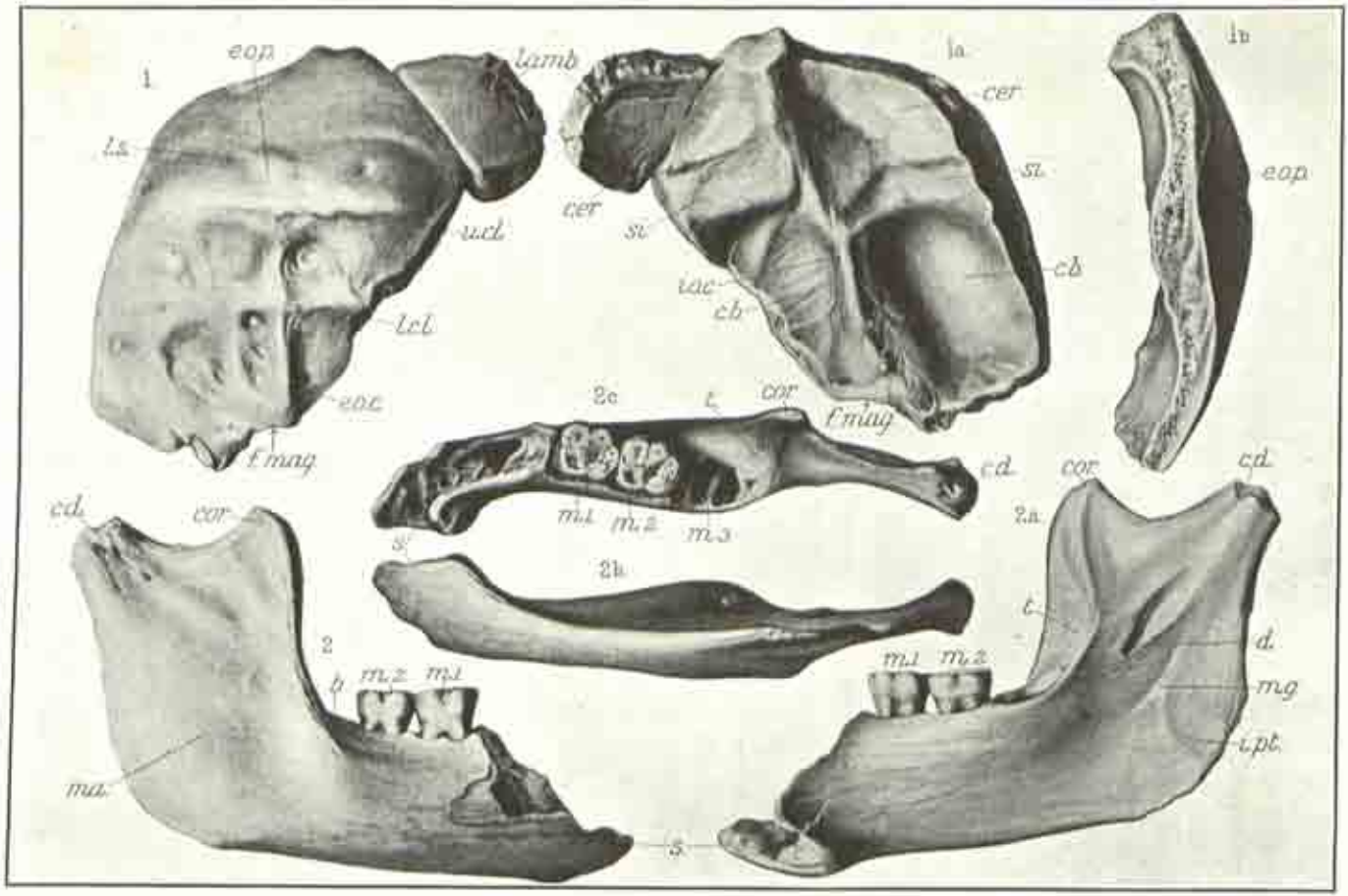
form than these. The most striking feature is the "pronounced gorilla-like drooping of the temporal region, due to the extreme narrowing of its posterior part, which causes a deep excavation of its under surface." This feeble development of that portion of the brain which is known to control the power of articulate speech is most significant. To Professor Smith the association of a simian jaw with a cranium more distinctly human is not surprising. The evolution of the human brain from the simian type involves a tripling of the superficial area of the cerebral cortex; and "this expansion was not like the mere growth of a muscle with exercise, but the gradual building-up of the most complex mechanism in existence. The growth of the brain preceded the refinement of the features and the somatic characters in general."

The associated worked flints have been compared with the so-called eoliths from the North and South Downs. According to Sir Ray Lankester, "many of the flints in this Piltdown gravel have been worked by early man into rough implements. They are of flat shape, often triangular in area and show a coarse but unmistakable flaking of human workmanship." He considers them ruder and earlier than any flint implements that can be rightly called Chellean.

Scientists have often remarked on the paucity of human remains that could with certainty be referred to a very early epoch, a condition which more than anything else has kept in check the science of prehistoric anthropology. After all there is no evidence quite so incontrovertible as the presence of man's own skeletal remains. We may justly differ on the question as to whether or not a given flint is an artifact; not so in case of a human skull. When the skull is found associated with rudely flaked flints the nature of which might be questioned if occurring alone, the burden of proof is at once shifted from those who believe them to have been utilized by man to those who would call them the work of Nature. On the other hand this does not by any means let down the bars to indiscriminate claims for the artifact nature of all primitive-looking flints. If a great majority of all the so-called eoliths or pre-Chellean types were thrown away, there would still be left enough to do business with, as the case of Piltdown proves.

Personally I have for years been a believer in the prehistoric possibilities of southern England because of the outcrops of flint-bearing Chalk stretching from Dorset and Sussex on the south to Caddington and the Cromer Forest Beds on the north.[1] Of all raw materials flint is perhaps the best suited to tempt nascent *Homo* to become a tool-user. It is the most utilizable of all stones, because of its hardness and mode of fracture, leaving a sharp, straight edge. Flint flakes can be produced by purely natural means. The accidental stepping on one of these would suffice, after repetition at least, to prove their efficiency. Thus the oldest and most primitive implements that have come down to us are utilized flint chips. Once the flint-using habit was formed, it spread; and when the

[1] *American Anthropologist*, vol. 7, p. 442, 1905.



ΣOANTHROPUS DAWSONI

Fig. 1. Imperfect occipital in outer view; (1a) inner view, and (1b) broken vertical section, left side. *cb.* = cerebellar fossa; *cer.* = cerebral fossa; *e. o. c.* = external occipital crest; *e. o. p.* = external occipital protuberance; *f. mag.* = foramen magnum; *i. o. c.* = internal occipital crest; *lamb.* = portion of lambdoid suture; *l. c. l.* = lower curved line; *l. s.* = linea suprema; *si.* = groove for lateral sinus; *u. c. l.* = upper curved line.

Fig. 2. Right mandibular ramus in outer view, imperfect at the symphysis; (2a) inner view, (2b) lower view, and (2c) upper view. *b.* = ridge below origin of buccinator muscle; *cd.* = neck of condyle; *cor.* = coronoid process; *d.* = inferior dental foramen; *i. pt.* = insertion of internal pterygoid muscle; *m. 1, m. 2* = first and second molars; *m. 3* = socket for third molar; *m. g.* = mylohyoid groove; *ma.* = insertion of masseter muscle; *s.* = incurved bony flange of symphysis; *t.* = insertion of temporal muscle. About two-thirds natural size. *Q. J. G. S.*, LXIX, pl. XX, 1913.

natural supply became scarce it was supplemented by artificially produced chips. The chief sources of flint are the chalk deposits of Cretaceous age that occur so plentifully in western Europe—as seen for example in the white cliffs along the southern coast of England. Approaching one of these cliffs, one finds it studded with parallel beds of flint nodules. Wherever flint occurs, stone-age relics are apt to be abundant.

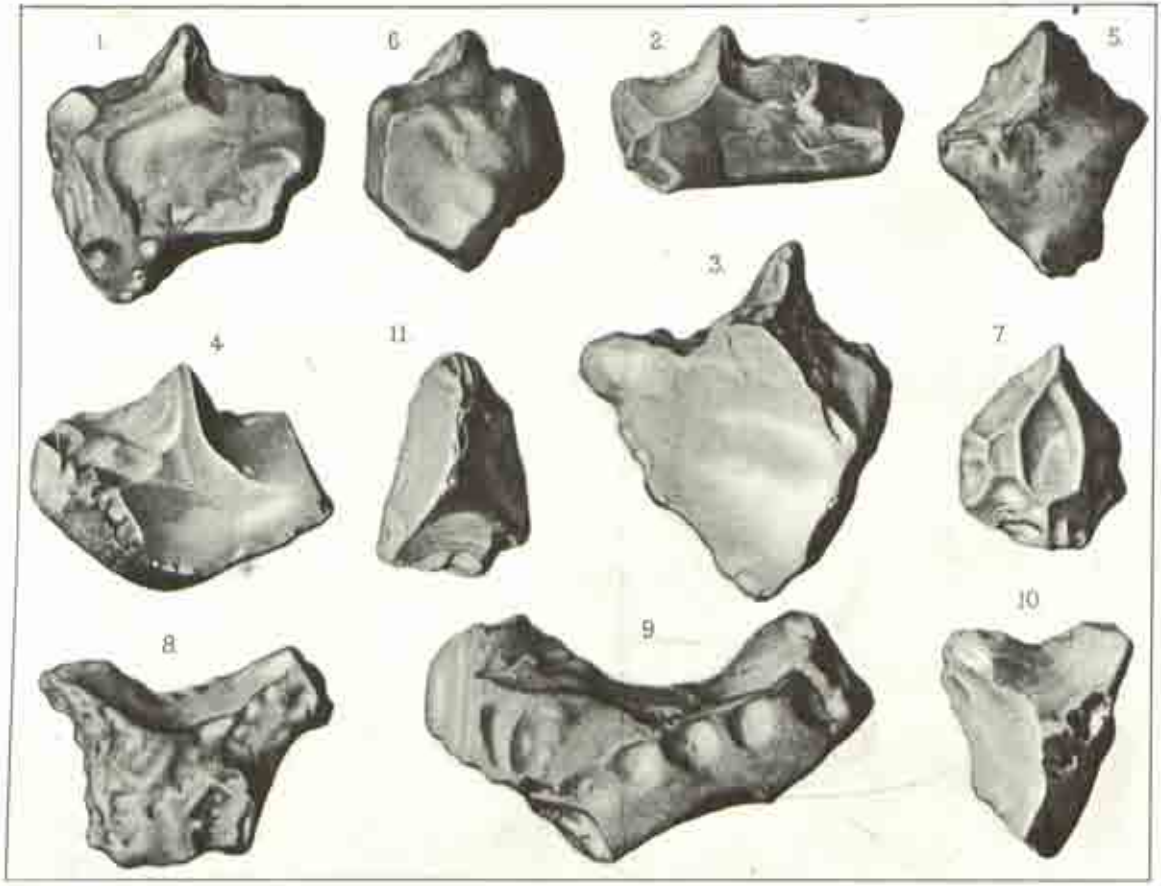
It is not generally known to Channel voyagers that the white cliffs at Beachy Head and again more than 50 miles farther east at Dover are the bases of a great anticlinal fold whose axis passes from Dungeness in a westerly direction through Hampshire. The crest of the fold which once towered high over what is now the Weald disappeared ages ago, leaving two slender tongues from the great Chalk plain of Dorset, Wiltshire, and Hampshire, the tip of one (the North Downs) being at Dover and that of the other (the South Downs) at Beachy Head. The scene of Dawson's epoch-making discovery is almost due north of Beachy Head, just beyond the South Downs plateau and hence near the southern limits of the Weald. The Ouse takes its rise in the Weald, flows southward, cutting through the South Downs and emptying into the Channel at New Haven.

The Piltdown gravels are 80 feet higher than, and nearly a mile distant from the present stream-bed of the Ouse. This signifies a great age for the deposit. While it may not be so old as the patches of red clay with rude flints on the Downs north of Ightham as well as on the South Downs at Beachy Head and Eastbourne, some at least of the materials composing it may once have been a part of older deposits. The broken edges of all the bones, human as well as animal, show more or less wear. The remains of the Pliocene elephant (*Stegodon*) and especially *Mastodon* are most worn, and are evidently derived from some older deposit as they are typical Pliocene forms. The teeth of *Hippopotamus* might be either upper Pliocene or Pleistocene; but the beaver teeth are probably Pleistocene. The gravel bed is probably early Pleistocene. That rude implements of the eolithic type were found associated with these human remains would seem to give to such implements a stand-

ing hitherto denied them by some authorities; unless it can be proved that they were derived from a deposit antedating that which originally contained the human remains. Their pedigree was needed in order to make industrial genealogy complete, just as the skull itself was needed to fill a gap in man's physical evolution. When the two sets of evidence are found intimately associated, they will serve as a solid basis for further advances in the domain of prehistoric anthropology. It remains for the geologists to determine whether in Piltdown the prehistorian's "Rosetta stone" has at last been found.

In the *Smithsonian Report* for 1909 (p. 581) I called attention to valley deposits as being the well-nigh inexhaustible storehouse of archeology; I was therefore prepared for such a striking confirmation as Piltdown affords. The one great drawback about valley deposit finds is that in the very nature of the case they must ever be in a large measure fortuitous. Cave deposits are so circumscribed that all one has to do is to find his cave and set his men to work. An expert can even afford to be on the spot almost continuously until the work is completed. On the other hand, untutored workmen are constantly digging in hundreds of sand, gravel, and clay pits over wide areas. Continuous expert control is out of the question without an international subsidy on a large scale. The result is that important data are overlooked and valuable specimens are smashed by pick and shovel and irretrievably lost to view. When by chance a find is made its authenticity is often open to grave question.

When the man of Sussex hunted in the valley of the Ouse was there an English Channel? The present Channel dates from the very close of the paleolithic. Raised beaches near Calais and on the south coast of England testify to the existence of an earlier channel, possibly during the Chellean epoch. At any rate the man of Sussex must have had neighbors to the south on what is now French soil. If there was no Channel the Ouse and the Somme were tributaries of the same large stream that flowed westward emptying into the Atlantic Ocean somewhere south of the Scilly islands, and the same race would have made common hunting ground of this great valley



EOLITHS FROM THE PILTDOWN GRAVEL BED

Figs. 4 and 5 are from Fairlight, near Hastings. Fig. 2 was found in the middle stratum. The borer and hollow scraper are the dominant types. After Dawson and Woodward in *Q. J. G. S.*, LXIX, 1913.

system, for in a gravel terrace at Abbeville, d'Ault du Mesnil years ago found remains of practically the same fauna; and in a very old high-level gravel terrace at Amiens, Commont has noted the presence of a rude pre-Chellean flint industry akin to that at Piltdown. We may therefore reasonably expect to find in the Somme valley the osseous remains of this old race.

In Spain, at Torralba, near the crest of the Sierra Ministra east of Madrid, the Marquis of Cerralbo has recently uncovered a very ancient camp site that has yielded a pre-Chellean and Chellean industry mingled with the bones of *Elephas* (*E. antiquus* and perhaps *E. meridionalis*), *Rhinoceros etruscus*, *Equus*, and *Cervus elaphus*. Both bones and implements occur so plentifully that the Marquis may yet be so fortunate as to turn out a human skull, for the site was not yet half exhausted on the occasion of my visit to Torralba last summer.

Twenty years elapsed between the finding of *Pithecanthropus* and *Eoanthropus*. During the intervening period only one discovery of human osseous remains approaching these in importance was made: the lower jaw from the Mauer sands near Heidelberg, found in 1907. It is too early to say just what ethnic relations existed among these three ancestral forms; they probably represent sections, not of one branch but of different branches of the same family tree. In point of age the Piltdown skull probably belongs to an intermediate stage. All three are older by far than *Homo neandertalensis*, which in turn is older than the artistically inclined cavemen who decorated their haunts with engravings and frescoes of their favorite game animals: the bison, horse, mammoth, and reindeer.

The form of the Heidelberg cranium can only be conjectured. The English scientists were more fortunate in that they recovered portions of both cranium and lower jaw. Comparing the parts in common, the Piltdown lower jaw is seen to be intermediate between the lower jaw of Heidelberg and that of a young chimpanzee. The height of the ascending ramus is somewhat greater, its breadth less, and the sigmoid notch deeper in *Eoanthropus* than in the specimen from Mauer. The ascending ramus is remarkable for the thickening of its antero-interior margin, thus affording

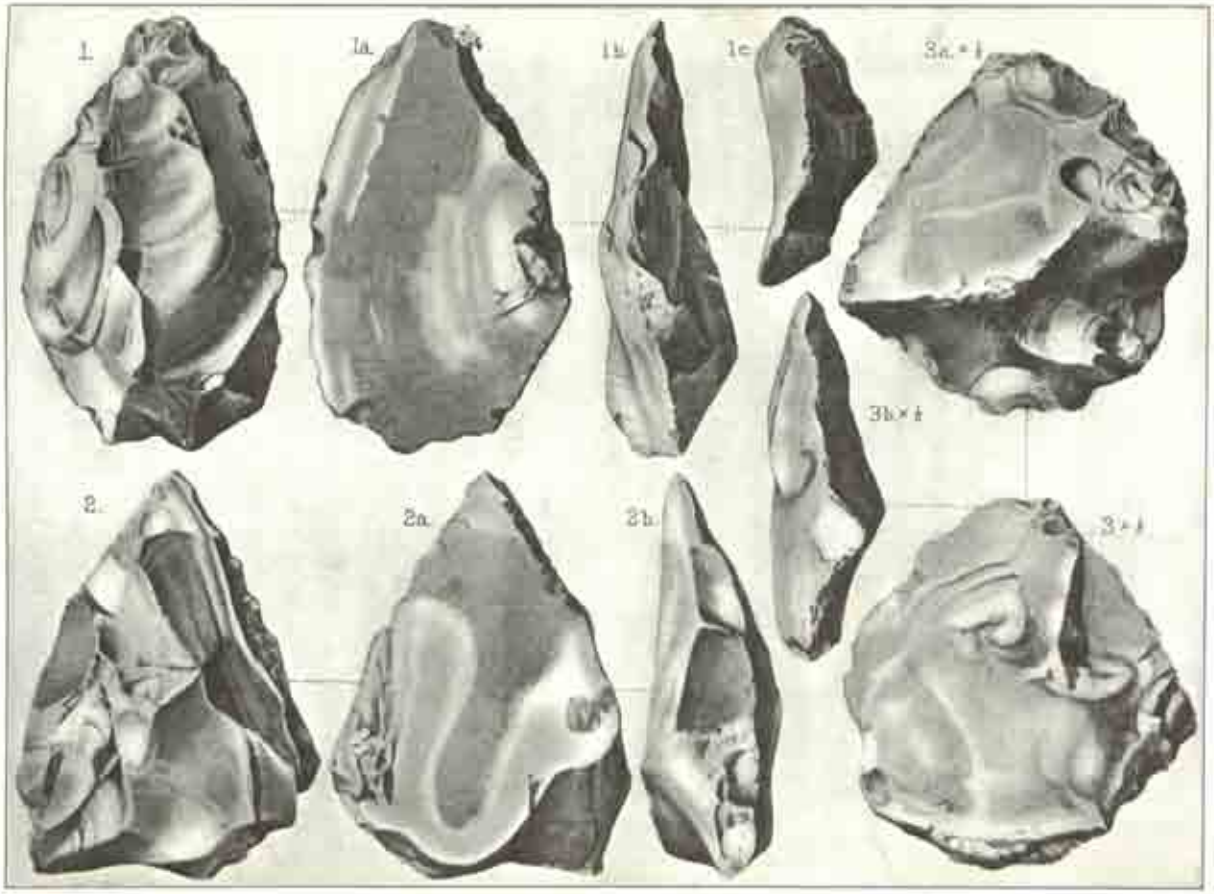
ample space for the insertion of the temporal muscle. The mylohyoid groove (m.g.) is behind rather than in line with the mandibular foramen. These and the complete absence of the mylohyoid ridge are characteristic of the apes rather than of man.

The transverse diameters of the first and second molars are less than in *Homo heidelbergensis*. While the antero-posterior diameters are identical in the two mandibles, the configuration of the horizontal ramus and the symphysis is such as to require a space of some 60 mm. for the setting of the anterior teeth in *Eoanthropus;* or 20 mm. more than in the Heidelberg mandible.

A comparison of the cranium with other ancient human skulls throws new light on the anatomical makeup of the earliest races of man. *Eoanthropus* has not the low sloping forehead and prominent brow ridge of even so late a type as Mousterian man; and yet according to Professor Elliott Smith its brain was the most primitive and most simian human brain thus far recorded. The Piltdown remains therefore tend to prove that in the lower Quaternary the differentiation among the Hominidæ had already progressed much farther than has been generally supposed; and that we shall have to go a long way back in the past to find the parting of the ways between the ancestor of man and that of his nearest of kin among the apes.

Mr Dawson and his associates are to be commended for the exercise of a diligent patience worthy of Darwin himself. The first piece was found about the time Schoetensack announced his discovery of the Heidelberg jaw. Mr Dawson simply kept quiet and continued his search for more evidence. Years elapsed between the finding of two pieces that would fit together, and only last summer were enough found to meet the requirements set for themselves by the discoverer and his associates. Thus have they quietly but none the less thoroughly built one more pier for the bridge that is to connect the present with the shores where the infancy of the race was cradled and its childhood played.

YALE UNIVERSITY MUSEUM
NEW HAVEN, CONNECTICUT



FLINT IMPLEMENTS OF RUDE CHELLEAN OR PRE-CHELLEAN FORMS

Fig. 2 came from a slightly higher stratum than the human and animal remains. After Dawson and Woodward in *Q. J. G. S.*, LXIX. 1913.

EXCAVATION OF A PREHISTORIC SITE AT TARRIN, DEPARTMENT OF THE HAUTES ALPES, FRANCE

By CHARLES PEABODY

THREE years ago, through the kindness of Mr Hippolyte Müller, librarian of the École de Médecine et de Pharmacie of Grenoble, the writer was informed of the existence of prehistoric sites in the Department of the Hautes Alpes, France. On inquiry of the informant of Mr Müller, Mr Paul Plat, the feasibility of excavation for a foreigner was established, and after a brief visit to the region in September, 1911, work was determined upon, and commenced October 22, 1912.

The exact site is at Tarrin, six kilometers west of the station "Eyguians-Orpierre" on the "Route des Alpes" of the Paris, Lyons, and Mediterranean Railway.

The village of Orpierre, three kilometers to the westward of the site of excavation, was the base of operations. This is a commune of the Department of the "Hautes Alpes" (capital Gap), and lies about 14 kilometers north of the departmental boundary line. This brings it at present about the same distance within the borders of Dauphiné, northward of the limits of Provence. Nevertheless the traditions and folk-lore of the people are very largely Provençal, the language of everyday life is Provençal, and there seems to be a lack of the eagerness to do away with a native speech, other than French, that strikes one in the Dordogne region. Nearly everyone can speak French, though with some accent; sermons and speeches are made in that language, though almanacs and newspapers in Provençal have some circulation. There is a noticeable absence of the enthusiastic manner and manners characteristic among us no less than among the French of the more southerly districts; also during my stay there was hardly any folk-song in a land otherwise peculiarly rich in folk-lore.

Mr Plat has put together some of the sayings and proverbs of

the country and it is hoped to publish them, partly in French and partly in Provençal, with annotations by the present writer, in the not very distant future.

There is no reason to suppose that in prehistoric times the region was not occupied by the long-headed, dark Mediterraneans, though in classical days the Celtic Vocontii were the inhabitants. These remained undisturbed by the Romans, and there seems to have been a continuous occupancy from then until now.

The Hautes Alpes is one of the most sparsely populated of the departments, and neither exports nor imports very much. The inhabitants, agriculturists, live to a great extent on the animals and produce they raise themselves, and it must be said that these are very good.

The native red wine is excellent, and the vintage, as it was my privilege to see it, an interesting occasion. Game is not plentiful, but there is some. Truffles are abundant and very highly appreciated; they are found by the help of dogs. The place of large shops is taken by the innumerable *foires*, especially abundant in the autumn. To these the farmers take their stock and wares, and numerous peddlers and agents may be seen going about from fair to fair—real "going-about bodies," as they are called in New England.

Geologically the region is largely of limestone formation, which has been in great part glaciated. The various lateral glaciers make an interesting and complicated study, which has been a large part of the life-work of Mr David Martin, curator at the new Departmental Museum at Gap.

Topographically, Tarrin rests on a bank to the south, about 10 meters above the bed of the Céans stream, a distance of about 150 meters. The Céans flows into the Buech near the Eyguians-Orpierre Railway station, and the Buech in turn into the Durance, famous in Hannibal's time, while the Durance flows through a broad valley southwest into the Rhône.

Tarrin lies at the foot of the Montagne de Chabre (1,311 meters) to the south, a ridge 14 kilometers long without a break, and Le Suillet, a much more picturesque and irregular range to the north (1,326 meters). The watershed to the west between the

Buech and the Rhône is formed by a ridge of more than 1,300 meters altitude, the nearest pass to the Rhône valley being the Col de Perty, about 15 kilometers from Orpierre. The altitude of Orpierre is 680 meters. The climate is temperate enough to attract a few summer visitors from Marseille, though it is little known to tourists



FIG. 50.—Church at Orpierre.

otherwise. The good roads of the department deserve more motor-travel.

The people are hospitable, and both Roman Catholics and Protestants made my stay one of a friend and comrade rather than that of a stranger. Particular acknowledgment of a formal character should here be made to my host of the inn, Mr Debeaux, and his son, to Mr and Mme Plat and their children, to the parish priest, the *pasteur* and the *réceveur*.

No obstacles were put in the way of excavation by a foreigner. In the light of recent circumstances in a department not very distant, it is somewhat remarkable that the French have left the

freedom of excavation to him who seriously wills—all honor to them. Work was carried on by a force of four men: Mr Plat; the owner of the particular farm, Mr Maigre; the latter's son, and a young man named Achard. The hours were short, as in November the days are short; work was discontinued on November 20. Of the thirty-one days, fifteen were freezing days (that is with a minimum temperature of zero Centigrade or below); the absolute minimum was — 4 on each of four days; rain fell on six days and snow on four; the latter reached a depth of three centimeters on November 15. This registered a cold fall for the region in spite of its latitude, 44.20. On October 28 we observed a solar fog halo, at half-past seven, opposite the sun; some colors were visible; this was for me a unique observation.

Tarrin slopes to the north, hence the ground was slow in softening in the morning, and the snow long in melting. The spectacle was presented of the entire opposite side of the valley to the summit of Le Suillet presenting an autumnal aspect,—clear of snow and retaining the brown leaves of the scrub-oaks,—while the immediate foreground looking toward the sun and the entire Chabre range were wintry and almost unbroken white.

The soil is of a clay resembling the "black waxy" of Texas and the "gumbo" and "buck-shot" of Mississippi, which makes excavation tedious and surface-hunting laborious. Add to this the probability of everything to be found being of minute dimensions, it will be seen why digging had to be so careful and progress so slow. The men used picks about half the size of an ordinary pick-ax; this could be wielded best with one hand. The two older men understood perfectly what we were in search of, and their quick eyes were far in advance of the slower sight of myself.

The ground selected for excavation is a natural ridge sloping down toward the Céans stream and is contained between two brooks, dry most of the time. The brook to the east is one meter 70 centimeters below the center stake of the excavation, and that to the west three meters 70 centimeters below the same point.

On the little plateau stakes were set out at intervals of two meters, and numbered during the course of the work, from north

to south: — 2, — 1, 0, 1, 2, 3, 4, 5; and from east to west, O, I, II, III, IV. Stakes 2 and II occupied the same spot (see the plan).

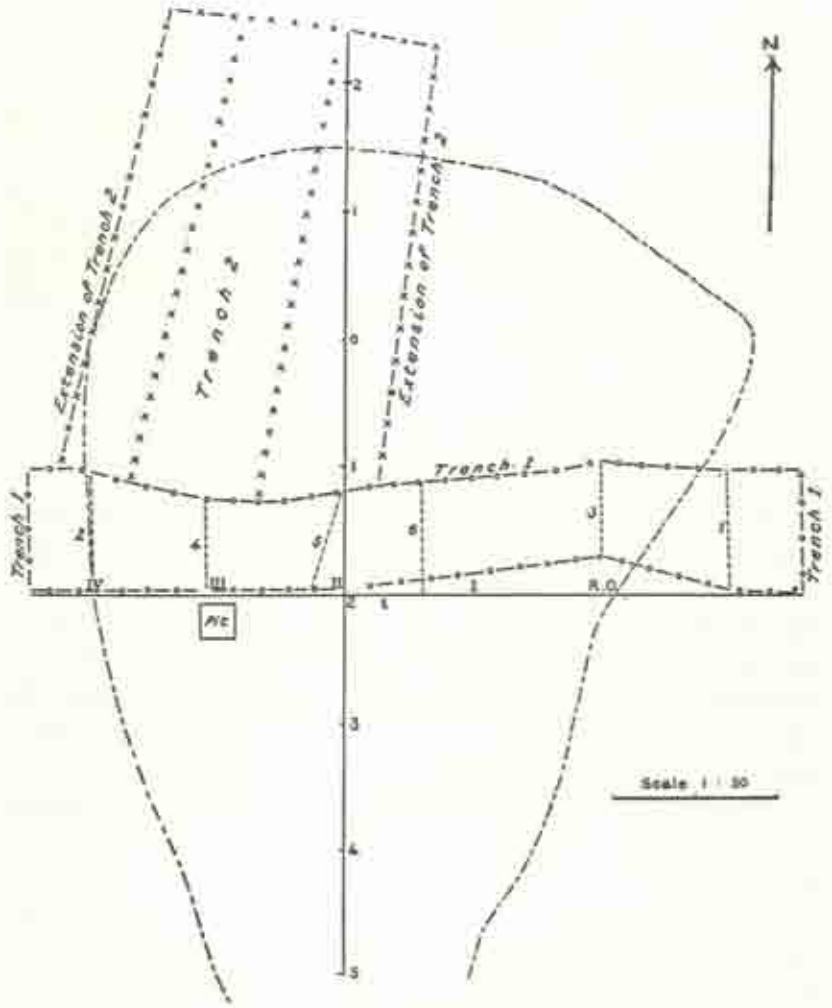


FIG. 51.—Plan of excavation at Tarrin.

But two trenches were cut in this ground: trench 1 from three meters east of Roman O to one meter west of IV, and trench 2 from a little south of the line of stake 2 north to one meter north of — 2. Trench I was from one meter and a half to two meters wide, and from one meter 25 centimeters to two meters deep.

Trench 2 was about two meters or less wide and from one meter 75 centimeters to two meters 30 centimeters deep.

Trench 2 was later extended by widening about one meter to the west and two meters to the east.

The greatest depths reached were west and south of stake 2—II, where, at a distance of three meters and 35 centimeters, the charcoal, which had been visible to within 10 centimeters, seemed definitely to disappear, and in a pit in trench 2, near the line of stake I. Here the accompanying cross-section was presented.

1	Yellow clay	90 centimeters.
2	Blue clay	1 meter.
3	Soft yellow clay	50 centimeters.
4	Hard blue clay	40 centimeters.
5	Soft yellow clay	50 centimeters.
6	Light-colored clay	50 centimeters.
7	Gravel	

No evidences of human occupancy were seen below the hard blue clay (4); the gravel is like that of the brook-bed at the site to the west, and not improbably the same as that of the larger Céans stream. This gravel is four meters 60 centimeters below the top of the higher bank of trench 2, and represents the greatest depth reached by the men with their primitive picks. Even the traces of roots, frequent enough in the upper strata, become infrequent after three meters' depth is reached.

The industry met with was much the same throughout. From near the surface to the depth at which human evidences ceased it seemed fairly homogeneous. Pottery, flint, pebbles whole and broken, animal bones, clay, hard earth, fragments of limestone and an arkose-like sandstone, and an abundance of charcoal were met at nearly all depths and places. Many of the stones and their fragments, a small proportion of the chipped flints, and numerous masses of burnt clay testify to the action of fire. In one case the limestone has been so altered and cracked that the degree of heat must have been great.

Even localization of the industry was not easy. There was comparatively little in the eastern end of trench 1, and there were

comparatively many animal bones at the extreme northern end of trench 2. There was absolutely no indication of progression of industry through stratification, nor even of length or succession of occupancies.

For a space of about one-meter radius from stake III, on the line of stake 2, reaching to a depth of one meter and a half, there were found more remains indicating man than anywhere else in a



FIG. 32.—Trench 1, looking west.

similar area. There were also two rude horizontal strata of pebbles, or small bowlders, which gave us some justification for the title "Fond de Cabane." This we denominated No. 1, while a somewhat similar appearance at the extreme northern end of trench 2 we called "Fond de Cabane 2."

Nearly under stake III, on the line of stake 2, and again at one meter west of stake III and one meter north of stake 1 were pockets or deposits of sand differentiating themselves sharply from the compact clay of the remainder of the digging. These may be of

water formation; charcoal and other remains of man's work may readily have trickled in from the side.

Of course the whole bank is of comparatively recent geological formation. Much of it must be a talus or wash from the mountain to the south whose upper few hundred feet are a precipice of entirely naked rock. It is not unlikely that even the two brooks at either side of the excavation were not in existence at the time most of the prehistoric inhabitants were there. Notwithstanding the many chances of disturbance and the complete absence of archeological or geological stratigraphy, it is not likely that any culture later than the neolithic had anything to do with the interior deposits.

On the surface were large quantities of glass, probably Roman, and some bronze. As we did not find these beneath the surface, it is not unreasonable to suppose that what we did find was earlier and fairly well in place.

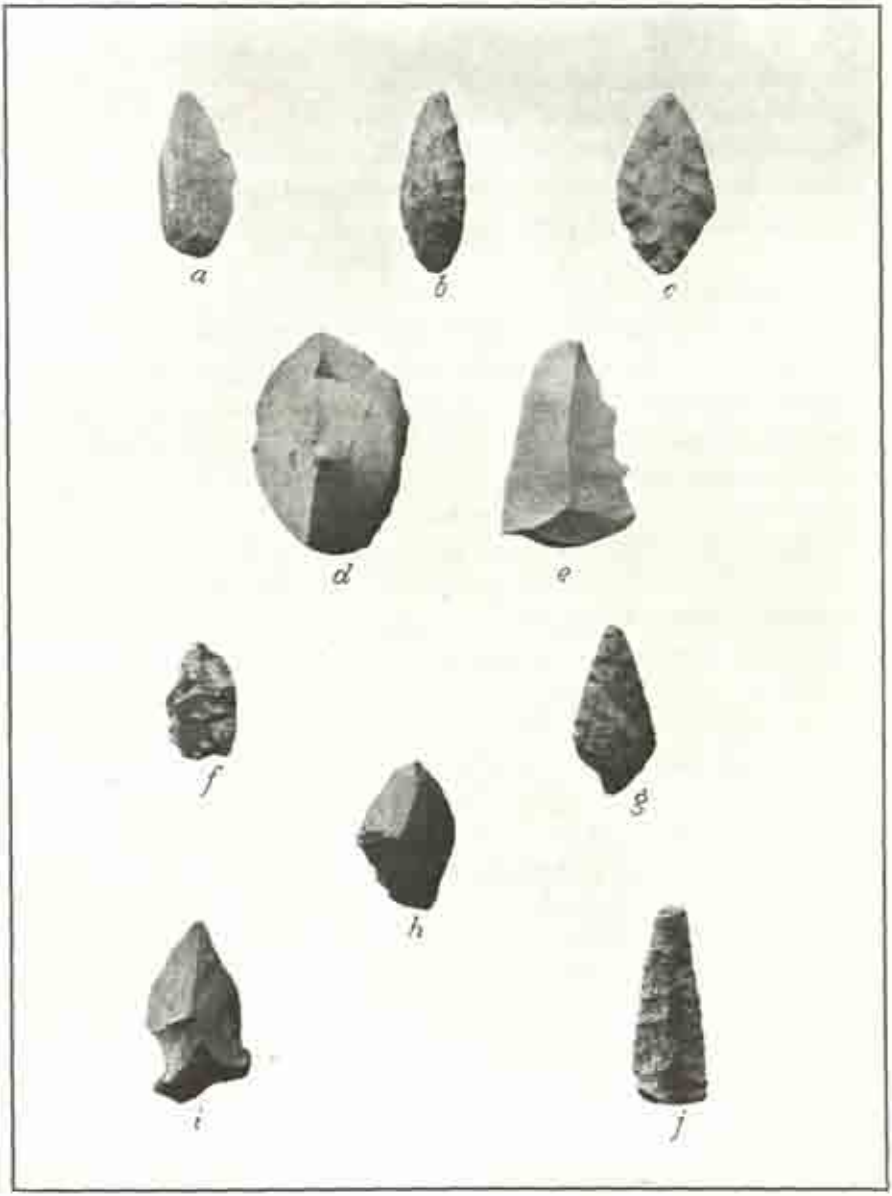
The results of the digging in pottery, flint, and bone may be briefly commented on and then summarized.

Pottery.—No complete vase was found; not even two or more pieces that could with certainty be attributed to the same vase.

At an excavation carried on previously by Dr de Vésignié and Mr Plat, a short distance to the southeast, a number of fragments belonging to a single vase were found; it is to the writer a case of maximum fracturing of pottery. Not only were our fragments unrelated to each other, but they are small; the maximum length is 10 centimeters and the maximum thickness 14 millimeters. With the exception of a single fragment, which carries a rude finger-nail jabbing, the pottery is undecorated as to line, form, or paint. Of course paint may have been used and washed away; but at least 99 per cent. never had any.

A few of the vases had a ridge, possibly of service for suspension, extending along the outside at about the same position as the placing of the handles. When present at all, the handles are almost exclusively of the conical nipple-shape; a number bear vertical perforation. (This will interest Dr Guebhard.[1]) One of the vertically perforated handles has a double perforation. There are two instances of horizontal perforation.

[1] Cf. *Mém. Soc. Préh. Française*, II, 1, 1912, Sur L'Anse Funiculaire.



VARIOUS TYPES OF PROJECTILE POINTS FROM TARRIN

a, *b*, *c*, *d*, *e*, *g*, from the surface; *f*, *h*, *i*, *j*, from beneath the surface. *d* is 32 mm. in length.

The form of the vases, so far as can be surely made out, was generally bowl-shaped. There seem to be a few square corners, as of some plate or angularly formed object.

The pottery from beneath the surface was in a poor state of preservation. That from the surface is much harder; in spite of this the anomaly presents itself of the overwhelming proportion of the fragments found being from beneath the surface. Indeed not more than 10 per cent. is surface material, while in the case of the flints the proportion is very much the other way.

Owing to long burial in the damp ground many of the fragments are covered by an incrustation which completely hides the clay and at times attains a thickness of three millimeters.

The tempering is very abundant and obvious; it seems to be composed practically entirely of minute crystals of calcite. As the calcite is more resistant than the clay, in many instances the fragments present a rough, grater-like surface.[1] Calcite is found in some abundance on the surface; whether naturally or artificially it would be difficult to say.

Two types of pottery may be distinguished: the thicker, rougher variety, and a thinner, smoother kind; these, however, tend to blend into each other.

Flint.—Of the fragments of flint in the collection from Tarrin and its immediate vicinity, from on and under the surface, about 25 per cent. only comes from beneath.

The whole industry is distinguished by what may be termed "the way of least resistance." A proportion so small as almost to be negligible is composed of finely chipped, complete points, scrapers, knives, and perforators, such as one would expect to find on a neolithic site. The number of rough chips and masses is enormous, yet of these the examples that bear some sign of use, retouching, or secondary chipping are very numerous.

There are a few well-chipped arrowpoints and other small implements both from under the surface and upon it. Until the excavations of last fall, no chipped point had been found there

[1] The identification was kindly made by Professor C. Palache of Harvard University.

beneath the surface, but a sufficient number of such chipped forms were found to show that the inhabitants could and did make them when desired—it was not a lack of knowledge or skill, but simply a lack of the necessity for labor that accounts for the rude character of the whole industry.

When a chip or rough mass would serve the purpose of an implement, it was undoubtedly used forthwith. In the case of projectile points the results of such use would hardly be apparent on the flint; in scrapers of the *grattoir* type (those with the scraping edge at right angles to the axis of the lower arm) in most cases some fine chipping would be apparent, though in other instances the form of the piece of flint alone would include it in the scraper class. The *grattoir* is the type represented by the great majority of American aboriginal scrapers.

In the case of the *racloir* type (where the scraping edge is parallel with the axis of the lower arm) marks of use are practically necessary to distinguish them from flakes used or to be used as knives.

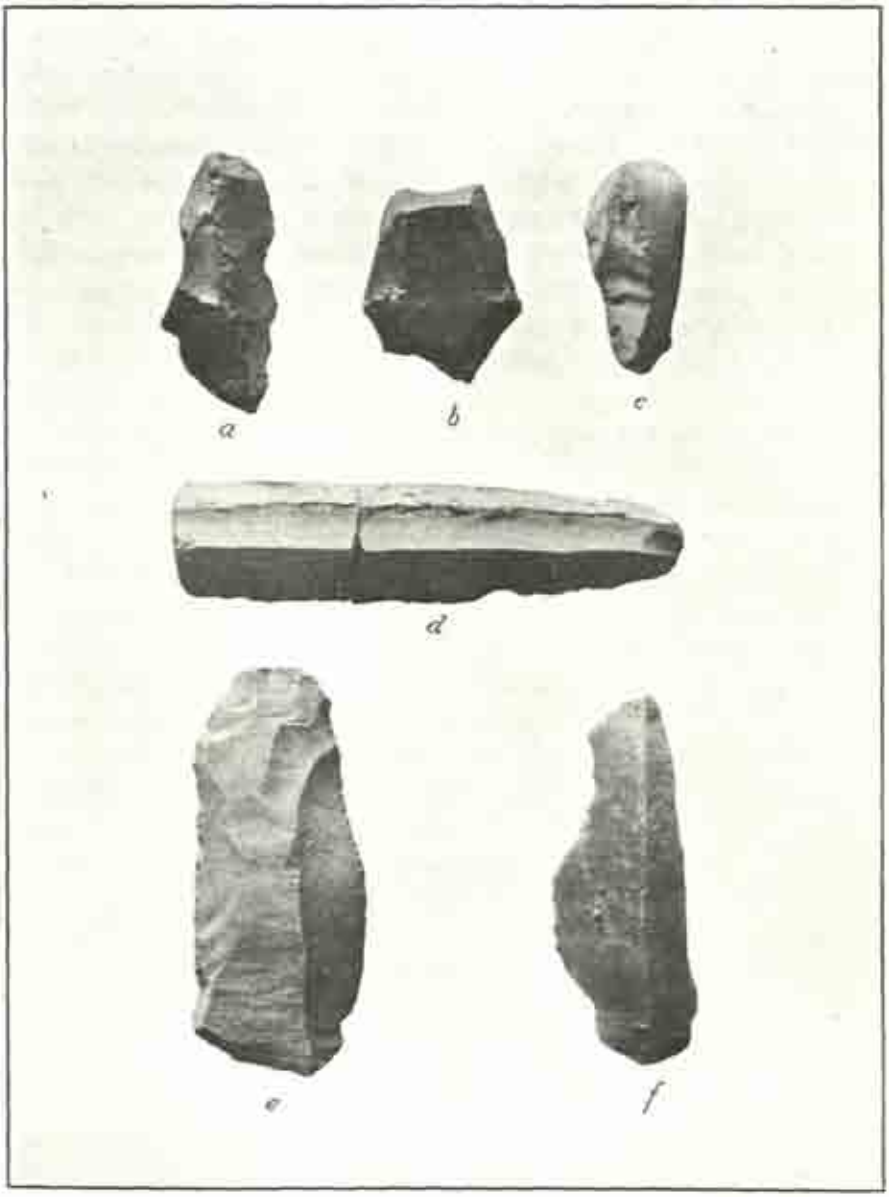
A number of scrapers of both types have a circular scraping edge (small spokeshaves or *encoches*); often this is also only a result of use.

A number of fine, thin flakes have been classified as knives, where their use as such was fairly to be assumed.

Perforators were proportionally very numerous. In some cases the point is finely chipped on one side for a few millimeters. The inhabitants took as much care in the manufacture of their perforators as they went without in fashioning their arrowpoints.

Besides perforators of the ordinary type, differing little from the corresponding American forms, there is a long series of "gravers" or "burins" with the stubby point characteristic of the Magdalenian burin. Not even in the latter case is secondary chipping at the point necessary to the recognition of the implement. It is needless to say that there is nothing paleolithic about the burins from Tarrin.

So far as the writer is aware, there are no paleolithic sites in the department, or even in the neighborhood. The ingenuity of the flint-knapper of neolithic times at Tarrin was largely transferred to the manufacture of fine, long blades of the finer varieties of flint.



THREE GRATTOIRS, ONE RACLOIR, AND TWO KNIVES FROM TARRIN

a, *b*, *c*, *d*, *e*, from the surface; *f*, from beneath the surface. *d* is 68 mm. in length.

Of these blades (*lames*) hundreds of fragments exist. It is impossible to suggest uses for them; whether, when hafted, they may be useful as knives, hooks, currying tools, or harpoons, is a more or less futile inquiry. With two, three, or four longitudinal planes, the fragments, especially when looked through toward the filtering light, are exceedingly beautiful—to us, though hardly to their neolithic manufacturers, they justify their own existence.

How small some of the fragments are may be seen; in a box containing one hundred and fifty of them they range upward from a length of 9 millimeters and a width of 6 millimeters. There is one fragment in two planes measuring 23 millimeters by 17 millimeters with a thickness of the median ridge at the break of only 1.5 millimeter.

As might be expected, nuclei are abundant and good. Many of them would make excellent sling-stones, but this is a use which one hesitates to assume. Also a number of them may be *grattoirs Tarté*.

The flint from which the implements were made is of many appearances. The dark or black variety is probably from the slopes of the mountain above, where it occurs amalgamated with the limestone in considerable quantities. A number of interesting nuclei have as a base the native limestone.

The white, brown, pink, and yellow flints are mostly imported, and some of them may have come from the Department of Vaucluse, by way of that of the Basses Alpes.

Fifty fragments at random give the following:

Dark flint	11
Dark gray	15
Light gray	5
Pink	4
Yellowish white	15
	50

Some localities, for example, on a terrace a few decameters to the east, provided a larger proportion of native, dark, unpatinated flint than others where the greatest variety of color and patination could be observed. The latter may be white, pink, or blue, with all grades of stippling and dappling.

The present discussion as to patination leads one to keep silence failing further and very far-reaching experiments. It is, however, highly probable that both under and upon the surface patination goes on; that it is an uncertain index of age, and that by reason of wash and rains the most capricious results on similar materials and in spots of very limited area may be expected.[1]

Upon and under the surface were a great many small fragments of polished neolithic celts; but not one whole polished neolithic implement was found beneath the surface; the breaking was so constant as to suggest a purpose.

Animal Bones.—Through the kindness of Dr Glover M. Allen, of the Museum of Comparative Zoology, Harvard University, the following animal bones have been identified:

Helix hortensis.
Helix (Tachea) nemoralis (?).
Sus scrofa, wild or domestic.
Bos taurus, or its wild ancestor the *Aurochs*.
Capra hircus.
Ovis aries (?).
Cervus elaphus.
Bison bonasus.

Ox-bones are particularly numerous, possibly on account of their large size. Game is surprisingly absent.

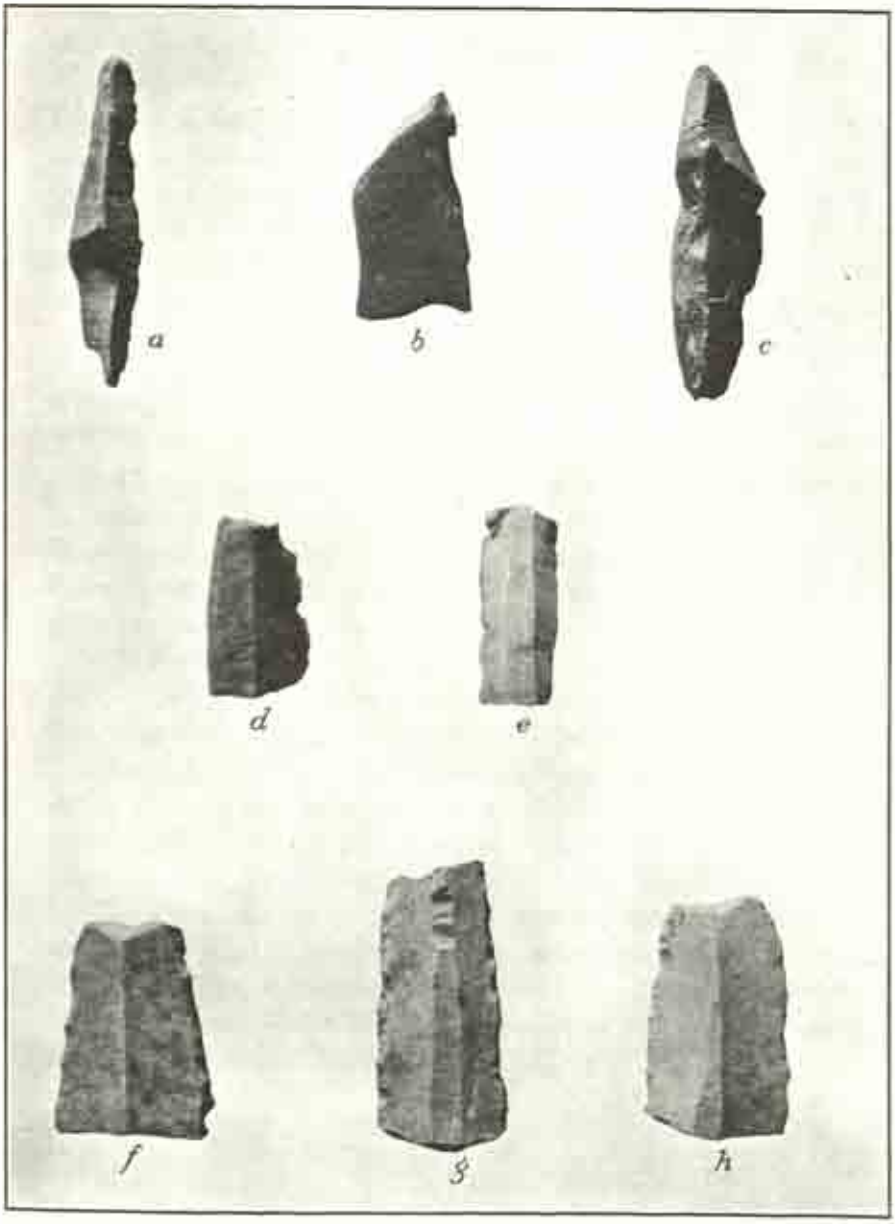
The finding of the European bison is surprising; one tooth apparently of this animal was found near "Fond de Cabane 1" at a depth of 1 meter 50 centimeters.

Minute snail-shells from the trenches were identified by Mr Martin on the ground as those of *Succinea pfeifferi*.

With the exception of the bison no faunal species not now native to the region were found, though some differences of relative frequency could be observed.

The following classification, especially in the case of the flints, is quite arbitrary. Few of the points have any secondary chipping,

[1] Dr David Martin, of the Musée Départemental at Gap, has observed limestone differently patinated according to the stratum in which it has been held; cf. also Dr Allen Sturge's articles in *Proc. Prehist. Soc. East Anglia*, 1908–1909, and 1909–1910, I, 1, pp. 43 ff.



THREE PERFORATORS AND FIVE FRAGMENTS OF BLADES

a, *b*, *c*, from the surface; *d*, *e*, *f*, *g*, *h*, from beneath the surface. *a* is 32 mm. in length.

yet it seemed impossible to classify them as mere chips, and if they are not such the only alternative is to put them under the heading of their supposititious use.

Apropos of the use of unretouched points I was informed that a brother of the Dr de Vésignié who had excavated at Tarrin discovered at the Grotte de Sigottier, Hautes Alpes, a human femur containing a broken point without retouching. On my writing to Captain de Vésignié for information and permission to use it, I received a most courteous letter giving very full details. The fragment of the point he describes as follows:

> Il est certain que la pointe en silex d'où provient l'éclat resté dans l'os n'était pas une pointe bien travaillée, comme la plupart de celles qui constituaient le mobilier de la grotte. D'autre part la forme ovalaire de la section de cassure ne semble pas indiquer une pointe absolument fruste et sans retouches.

An instance among the flints found at Tarrin presents a flake in the form of a point, with a few millimeters of secondary chipping. With the intermediate steps thus represented, albeit sparsely, it is not unreasonable to classify a certain number of unretouched flints as points, for lack of anything better to do with them.

A few meters to the southeast of the larger excavation, a trial excavation was made, known in distinction to the former (Excavation 1) as Excavation 2. Not very much was found here.

That a general rule of its being advisable to dig, other things equal, where the surface finds are numerous may be proven, the specimens found on the ground on the plateau excavated have been listed separately. The rest of the classification explains itself.

There was also found in trench 2, at a depth of 2.30 meters, a fragment of what appears to have been a limestone bracelet. The nearest analogy to this that I could find at St. Germain is of date later than the neolithic; if the fragment is of like date, it would indicate much disturbing of the soil.

Pottery Fragments from the Tarrin Excavations

	RIMS	HANDLES	RIDGES	BASES	OTHER	TOTAL	THIN WARE
INTERIOR							
Excavation 1	83	30	30	2	803	948	64
Excavation 2	0	0	1	1	10	12	0
Total interior	83	30	31	3	813	960	64
SURFACE							
Excavation 1	2	1	0	0	48	51	
Surface in general	4	1	0	2	29	36	2
Total surface	6	2	0	2	77	87	
Grand total	89	32	31	5	890	1,047	

Flints Found Under the Surface

	TRENCH 1	TRENCH 2	FOND DE CABANE 1	TOTAL
POINTS, sharp	4	3	2	9
Dull	2	3	2	7
Leaf-shaped	0	3	3	6
Sides more or less straight	0	0	0	0
Tanged	1	1	0	2
Unclassified	0	1	0	1
Total	7	11	7	25
"GRATTOIRS," high, or "CARÉNÉS"	0	2	0	2
Long, blunt	0	1	0	1
Tanged	0	0	1	1
Unclassified	3	5	0	8
Total	3	8	1	12
"RACLOIRS," simple	1	1	0	2
Double	0	2	0	2
Total	1	3	0	4
Round flakes (suitable for scrapers)	3	4	5	12
Perforators	1	1	0	2
Fragments of blades	10	18	12	40
Masses and chips	98	190	92	380
Nuclei	4	4	4	12
Fragments of celt	4	7	5	16
Knives (flakes)	0	4	5	9
Saw (?)	0	2	0	2

Flints Found under the Surface—Continued

	TRENCH 1	TRENCH 2	FOND DE CABANE 1	TOTAL
ADDITIONAL				
Paint-stones	1	2	2	5
Hammer-stones	2	1	0	3
Quartz	1	0	0	1
Chalk	0	0	1	1

Flints Found on the Surface

	EXCAVATION 1	GENERAL	TOTAL
POINTS, with one edge bulging	0	27	27
Oval	0	3	3
Leaf-shaped	1	4	5
Sides more or less straight	0	17	17
Tanged	2	13	15
Round in section	0	12	12
Unclassified	12	22	34
Total	15	98	113
GRATTOIRS, high	0	7	7
Carénés	0	5	5
Long and blunt	0	9	9
Flat	0	34	34
Encoche	0	6	6
Triangular	1	4	5
Tanged	0	8	8
Unclassified	1	16	17
Total	2	89	91
RACLOIRS, simple	3	12	15
Double	2	2	4
Oblong with a scraping edge all round	0	3	3
Encoche	0	1	1
Tangée	0	4	4
Unclassified	0	5	5
Total	5	27	32
GRATTOIRS-RACLOIRS	0	2	2
PERFORATORS, ordinary	2	46	48
Perforators, ordinary	0	6	6
Winged (?)	0	1	1
Flattened back	0	1	1
Gravers	2	18	20
Unclassified	2	8	10
Total perforators	6	80	86

Flints Found on the Surface—Continued

	EXCAVATION 1	GENERAL	TOTAL
Blades, fragments	16	180	196
Blades with encoche	0	10	10
Total	16	190	206
Masses and chips	193	1,176	1,369
Ditto, small	0	160	160
Total chips	193	1,336	1,529
Nuclei	5	92	97
Sickle-shapes	0	1	3
Knives	0	3	1
Fragments of diorite celts	13	41	54

As a whole, then, judging from the work of Mr Plat and Dr de Vésignié previous to our own, and from what we found, Tarrin seems to have been a site for a more or less constant occupancy in neolithic times. The inhabitants were quiet rather than hunters, and possibly may be designated as a grazing people.

There must have been many inhabitants, for the slopes of the mountains up to an altitude of 1,000 meters carry the flints and bone fragments of these prehistoric peoples.

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THE SOCIAL POSITION OF MEN AND WOMEN AMONG THE NATIVES OF EAST MALEKULA, NEW HEBRIDES

By GERDA SEBBELOV

THE following information regarding some interesting phases of social life in East Malekula was received from Rev. F. H. L. Paton during a recent visit. Mr Paton, who was born in the New Hebrides, has devoted most of his life to intelligent and valuable missionary work among the natives of these islands, and through his sympathetic interest and intelligent understanding he has accumulated a detailed knowledge of the culture and customs of the people among whom he has worked.

For a man in Malekula, caste is a very important thing. Both religious life and social position are inextricably bound up with it; and as a man's caste depends upon the number of large tusk-pigs he has killed at the sacred ceremonies, tusk-pigs come to play a prominent part in each man's life.

A child is born without caste. Immediately after birth at least one large pig is killed, and a feast is held at which conch-shells are blown, calling the attention of the ancestral spirits to the occasion and invoking their blessing. Then a name is given to the child. The name may be an old family name, or may have reference to some recent event, as Reman Nech, Laughing Fish, which owed its origin to a nightmare experienced by the father. When the child is one month old, the mother takes it down for its first swim. All the women relatives attend, and the occasion becomes a feast for mother and baby. The child is taken into the sea and bathed. Afterward it is placed in a tiny canoe made for this special purpose, and a small paddle is put in its hand. The ceremony is an invocation to the deity and the ancestral spirits asking their protection in canoeing and swimming during the years to come. If the baby is a boy it is then taken ashore and a small bow and arrow are held to its fingers. A male relation is the target, and if the tiny arrow

hits the mark, the infant will become a great warrior, while if it misses it will become adept in dodging the arrows of the enemy.

All this while, however, the boy has no rank or caste, and it is not until his father kills a tusk-pig at one of the sacred ceremonies, Mangke or Nahonan Pwin Pwin, or at a dead man's grave, that the child becomes of any importance. This may happen shortly after birth, or it may be deferred till he is twelve, thirteen, or fourteen years of age. But as soon as a tusk-pig has been killed for him at a ceremony, he becomes a Merib. Hitherto he has eaten with the women and casteless ones; now he can eat only with those of his own caste, and his name is changed. The pig is killed for the men of the caste the boy is going to enter; they eat its flesh, and several smaller pigs are usually furnished so as to eke out the feast. The spirit of the pig goes to the dead men of the caste the boy enters.

As each large tusk-pig is killed the boy rises in rank. The castes are six in number. Only very few people reach the fifth rank, which is the rank of the chiefs; but should two or more men reach this rank they are of equal importance, unless one of them has other favorable qualities, such as being a good song-maker, or being a good tradesman, or particularly clever. He then will rank as high chief.

The names of the castes are: (1) Merib; (2) Dang-ov, two grades; (3) Barang, ten grades; (4) Gurn Gurn, ten grades; (5) Namar, ten or more grades; (6) Mara, high chief.

Each caste is again graded. Dang-ov has two grades, and a pig has to be killed at the entrance into each. Barang has ten grades and demands an equal number of pigs, and so on until the honor of Mara, or high chief, is reached. The men of each caste eat together. A woman may cook the food for men of rank, but she may not take it off the fire, nor must she touch it after it is cooked; neither can she eat of it, not even of the scraps which the men have left. Each caste has its own fire, and Mr Paton relates that one evening he saw a woman who had cooked three meals for her husband and two sons of different rank lean back and declare that she was too tired to prepare anything for herself: she would eat nothing till the next day. If a man of lower caste eats of the

food belonging to the caste above, all men belonging to the higher caste must kill a pig. A man of rank must not be touched on the head; if a man of lower rank touches one of higher caste on the head, trouble will ensue. If a man breaks the rules of his caste he must kill a pig before he can again assume his rights; as, for instance, if a man eats with men who are not of his own rank. No man of caste will eat a female pig.

As social position and finally chieftainship depend on caste, and caste depends on the number of pigs killed, this grading seems to become a strong incentive to thrift. A chief's son, being the son of a man with many tusk-pigs, will probably rise in rank much more quickly than a poor man's son, but any man can acquire tusk-pigs through thrift and care. He can trade for tusk-pigs, he can work to acquire them, and a song-maker, of whom we shall hear more, receives his pay in them. In this manner a premium is really set on thrift, and the basis seems to be entirely democratic.

The ceremonies at which men may kill pigs and rise in rank are: (1) Mangke, (2) Nahonan Pwin Pwin, (3) At a man's grave. Only one grade can be acquired at a time, but the Mangke and Nahonan Pwin Pwin ceremonies last for several weeks, during which time several pigs might be killed, admitting the killer to a new rank each time. One grade at a time, however, is the most usual. At the entrance into each new rank the man changes name, so a man may have from eight to ten names during his lifetime.

Each village has a Mangke ground. In a sheltered spot of this ground two or three lodges are built, one for the Meribs and casteless ones, one for the Barangs, and one for the chiefs. In these lodges ceremonial implements, such as the *ndêtêr*, or ax for killing pigs, are kept. Sometimes the chief is the only person in the tribe who owns a *ndêtêr;* he then lends it to the others.

A Mangke can be held any time a sufficient number of men want to rise in rank and have a sufficient number of pigs to kill. Sometimes a Mangke may be only for chiefs; then they alone kill pigs. Other Mangkes may be for Barangs exclusively, and later one may be held for the next rank. Sometimes when the number of aspirants for rank is small, different tribes combine for the festivity; then

Meribs kill pigs one day, Barangs another, and so forth. Each tribe makes the most elaborate ceremony of which it is capable. Pigs are killed, conch-shells are blown to call the ancestral spirits to the feast, songs are sung, and dances that last all night are performed.

The dances are mostly dramatic performances. The natives have some set dances, but each tribe strives to have a new dance to introduce at each feast. Recent events, such as fights, elopements, or accidents, are taken up and dramatized. In these dances the performers sometimes ridicule persons in a way that leads to disastrous consequences. Thus, in one instance an elopement had failed, and when the topic was taken up at a Mangke, the man concerned killed the song-maker. The participants are thoroughly trained for the dances. The training is usually supervised by the song-maker, who creates the new dances and instructs the performers. A song-maker is considered a great man, and it is the natives' desire to vary their performances as much as possible. During the dances the men are smeared with soot and cocoanut oil; they wear head-dresses of sticks and spiderweb, and use masks of animals or anything that will further the representation. The dances are tribal rather than by separate castes. A great many visitors attend, and these freely express their opinion of the manner in which a dance is conducted and as to the importance of the feast. Drums of bamboo and wood are used during the dances. The rhythm of their songs is usually good, while the tune is poor.

When a man dies who is either a Barang or belongs to a higher caste, a special ceremony and an all-night dance are held for him. Immediately after death a stick is put in his right hand, and the body is wrapped in a mat so as to leave exposed only the hand and the stick. The stick is symbolic of a killed pig. At the grave tusk-pigs may be killed in order that men should rise in rank. Sometimes one tusk-pig is thrown into the grave of the dead man. He is then supposed to go to the spirit-land driving the soul of the dead pig before him as an entrance fee. The ceremony is held thirty days after the death, and if the man was prominent it may be repeated at intervals until the hundredth day after death.

Pigs are sacrificed, general mourning songs as well as songs praising his virtues are sung, and all-night dances are performed. These ceremonies are regarded as farewell parties and as helping to send the dead in proper fashion to the next world, where his ancestors live. The people of East Malekula believe in the immortality of the soul, which they conceive of as a vague, shadowy thing.

Mr Paton's knowledge of the life of the women was not so definite as his knowledge of the life of the men. He knew that they, too, had castes, but not whether these castes had names or definite rules. He knew that a man without caste could eat with a woman of caste; however, he said that women of high rank ate by themselves. He did not know whether the women changed names when they changed caste. Nevertheless, with all its deficiencies, the following material is interesting and suggestive of investigations needed in the field.

At the birth of a girl conch-shells are blown, a tusk-pig is killed, and a name is given as at the birth of a boy. That is to say, this takes place if the child is to be kept, for it sometimes happens that a father thinks he has too many daughters and throws away the baby. This happened to a girl who was later called Thrown-Away. After having thrown the child out, the father departed for a sacred ceremony and the mother saved the little one, who at the father's return pleased him so much with her bright eyes that he decided to keep her. If the mother dies shortly after a baby is born and no one is found willing to nurse it, it is thrown into the grave with the mother.

The girl, like the boy, goes through the swimming and canoeing ceremony, after which she is taken ashore. A piece of matting made from the inside of the pandanus leaf is brought, and her baby fingers are helped to weave a few strands in order that she may become a proficient weaver in days to come. The baby girl is kept mostly with her mother and sister, though boys and men make good nurses. The women carry their babies on their backs or at their sides in mats six to seven feet long. The little one sits in the mat with the arms round the mother's neck and the legs sticking out at either side. When a girl grows a little older she plays with dolls

made of stone or banana stalks. She plays with the boys until she is about eight years of age. They play a great deal in the water. A group of children go in a line, splash the water with their hands, and sing: "*Hase teng-o, teng-o teng-o?* So-and-so [name of a child who walks alone behind them] *teng-o, teng-o teng-o.*" The child behind then gives chase and tries to catch them. There is a great deal of laughter. The song means: "Who is crying, crying, crying? So-and-so is crying, crying, crying."

Mothers often bathe their children in the sea, and teach them to swim. Sometimes a woman goes to the plantation for food a day or two after childbirth. She takes good care of the little one and is usually kind in her treatment.

At the age of five or six a girl begins to weed in the yam plantation. At from eight to twelve years, when the second teeth come, the two upper front teeth are knocked out, and at twelve she is usually married. The marriage is arranged by her father, who offers her to the highest bidder and receives for her ten pigs at least. The evening before the wedding the bride calls together her childhood friends, and they play together on the beach. The marriage ceremony is held at the village of the bridegroom, and the bride's relatives and friends attend. The bride's face is painted bright red. She is seated on a log in an open square where everyone can see her. The relatives of the bridegroom first carry across the square beautiful *Dracæna* leaves and poisoned arrows, and hand them over to the relatives of the bride as a token of peace between the two villages. Then ceremonial mats are trailed across, and after each mat a tusk-pig is led by a rope tied to its leg. Each pig is tied to a post till the full price has been paid. A return present, consisting of one tusk-pig, is made to the bridegroom's friends, conch-shells are blown and the bridegroom goes over to claim his bride. He sticks a poisoned arrow into the mat she has about her shoulders. This action signifies that he has the power of life and death over her, and also that he must defend her with his life.

Sometimes a girl's preference is taken into consideration in regard to the choice of her husband, but such instances are rare. If a girl objects to a husband chosen for her, she is beaten and the

marriage takes place. If after marriage she keeps running away and is beaten without effect, she may have her legs burned behind the knees with red-hot stones. Should a woman elope and be caught, she is beaten or killed. Sometimes she is tied and burned alive, but if she is the daughter of a man of high rank her relatives will protect and defend her. A man may have two wives, who are often sisters. At the death of a husband his brother has first claim to the widow, who is paid for again with pigs, but there is no second marriage ceremony. A woman without a husband is rare. A young woman married a man who died a few days after the wedding. She was claimed by his brother, who also died, and she had her third husband within the same month. Such cases, however, are rare.

After her first marriage, at twelve years of age, a girl's friends gather. They clear ground and plant yams for her, and she is fairly started on her life of work. The men make the fences and do the heavier work, but they do not labor as steadily as the women, who perform most of the labor in the plantations and carry the yams long distances to sell them, go fishing, carry water and firewood, cook, make mats, etc. The women own the plantations, and land is inherited through the mother. When a woman marries into another tribe she loses her right in the old tribe, though a child sometimes inherits land in the old tribe through the mother. The women, as well as the men, own tusk-pigs and fowls, and they have a right to these even against their own husbands. A man may have two wives, but each wife must have her own hut. Some women attain high enough rank to have club houses or sacred lodges of their own. To each hut belongs a storehouse built on piles, in which the women keep their yams, vegetables, cocoanuts, and bananas.

The women, as well as the men, attend the sacred ceremonies, and sometimes kill pigs and rise in rank. At all dances the women are spectators, and sometimes they take part. The women's dance follows that of the men of the village to which they belong. The women conduct the mourning ceremonies. They paint their faces bright red, or smear them with ashes, and wail. After the

burial they lament that the dead has gone to his long home. "He has no father, no mother; he has gone, and we are left in sorrow," they sing. At mourning ceremonies they have their set dances. Though the women rise in rank, their rank does not seem to set them off by themselves as do the ranks of the men. Women of different ranks often eat together. A white man can receive food from a storehouse belonging to a woman of rank, but not from one belonging to a man of rank. A man may marry a woman belonging to a higher rank among women than he holds among men. In the late afternoon the men segregate and go to their various sacred lodges, the women cook together, and in the evenings they sit in groups and chat of family affairs, babies, and current news. They wear waist-cloths woven of pandanus leaves, dyed with vegetal dye. The women of high rank use a red waist-cloth.

When a woman dies, she is wrapped up in a mat. Her right hand is made to protrude, and in it a stick is placed, symbolic of a tusk-pig killed at her grave as an entrance fee to the next world, where she dwells in an abode lower than that of the men. No woman has the mourning ceremony (thirty to one hundred days after burial) performed for her. At times old women are buried alive, and there are women for whom not a single tusk-pig has been killed.

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REMARKS ON THE SOCIAL ORGANIZATION OF THE CROW INDIANS

By A. A. GOLDENWEISER

DR LOWIE'S recent paper on the social life of the Crow[1] brings valuable contributions to our knowledge of the organization and customs of these Indians. The interesting chapter on "War Customs" (pp. 230–238) is stated to be an advance sheet of a more elaborate exposition of the subject, which is to follow. The section on "Joking Relationship" (pp. 204–206), its brevity notwithstanding, constitutes the first systematic treatment of these highly curious and little-understood practices. The major part of the paper, however, is devoted to the study of the Crow clan system and relationship terms (pp. 189–212). While the data there presented are of considerable intrinsic value and interest, the method of presenting the material adopted by Dr Lowie also requires a word of comment.

The Crow are organized in exogamous clans with maternal descent. At the present time breaches of the exogamous rule are known to occur. Dr Lowie mentions some six examples, but as these infractions of the ancient custom have all been committed by very young people, we may perhaps follow the author (p. 189) by discarding them. The list of clans given by Dr Lowie (p. 190) embraces thirteen clans grouped into larger units, five of which contain two clans each, and one, three clans. Had Dr Lowie numbered the clans, as he has the "phratries," say I_1, I_2, etc., the succeeding discussion would have proved more easily intelligible. As it is, the list of intermarriages, expressed in terms of thirteen clans of native name, is somewhat confusing. This list, by the way, contains two clan names, *ɨcirete* and *tsi'pawāɨtse*, not included in the thirteen clans. Of these, *ɨcirète* seems to be identical with *ɨ́sawatsɨ̀e*

[1] Lowie, Robert H., Social Life of the Crow Indians, *Anthropological Papers of the American Museum of Natural History*, vol. IX, pt. II, New York, 1912.

(III_1 in the table given below), whereas the identity of *tsi'pawāhitse* remains doubtful. I have disregarded both in my table.

Before we turn to Dr Lowie's interesting discussion of the clan groups with reference to exogamy, a terminological question deserves a word of comment. Dr Lowie writes (p. 193):

> Mr Curtis is obviously of the opinion that the prohibition extended to the larger units, which he accordingly calls "phratries."

Dr Lowie, as we shall see, reaches a negative conclusion as to the exogamy of the "phratries" and accordingly prefers to call them clan associations. Is this identification of a phratry with its exogamous function wise? True, dual divisions most commonly designated as phratries are usually, although not invariably, exogamous. But a phratry, once exogamous, may lose its exogamy while preserving its other functions. This certainly happened among the Iroquois, and probably among the Winnebago. Should the dual divisions in these tribes therefore forfeit their claim to the term phratry? Should we above all permit the application of the term to hinge upon a trait that the phratry shares with clans, village communities, and a number of other social and local groupings? Clan exogamy, in particular, is certainly not less common than phratric exogamy. While ethnological inquiry has shown that certain functions are more commonly associated with certain social groups than with others, it remains no less true that almost any social group may become associated with almost any function. Therefore it seems advisable not to permit a term applied to a social group to depend upon its functions but upon some more general as well as more vague characteristic. I should propose that the term phratry be applied to any subdivision of a tribe that itself embraces at least two smaller social units. The clan associations of the Crow, whether exogamous or not, would then be phratries.

In a rather careful analysis of his data Dr Lowie tries to weigh the evidence for and against the former exogamy of the Crow phratry. He writes:

> Had this been the case [prohibition of marriage within the phratry] clan exogamy might follow as a necessary consequence of phratric

exogamy, and a special investigation would be required to determine whether the exogamous rule applied originally to the lesser or the larger social unit. "If, on the other hand, the second statement is accepted ["marriage within the phratry was rare"], we might regard the tendency to eschew marriage with a member of a sister-clan as merely an extension of what must then be viewed as fundamentally a characteristic of the *clan* (p. 194).[1]

While fully endorsing this statement of Dr Lowie's, I cannot subscribe to the passage immediately following, which reads as follows:

> Assuming provisionally the latter alternative, we shall be prepared to find different rules for the several clan-associations inasmuch as it is quite conceivable that a prohibition originally confined to one clan may in some cases be extended to the linked clan, while in other associations no such extension takes place [ibid.].

But "different rules for the several clan-associations" would be just as plausible on the assumption that the phratries once exogamous had lost that function in favor of the clans, but that the phratric exogamy, thoroughly superseded in some instances by the exogamy of the clan, lingered on in some other cases on a par with the more recent clan regulation. Such as it stands, Dr Lowie's case does not carry conviction.[2] We shall presently see, moreover, that an entirely different interpretation of the data may deserve consideration. When Dr Lowie, on the other hand, refers to Crow accounts of overgrown clans separating into smaller divisions and of clans reduced in numbers merging to form one whole, both processes seem credible enough, the latter process having in fact been described among the Kwakiutl, while the former must certainly have taken place more than once among the Iroquois.

[1] *Cf.* "Totemism, An Analytical Study," *Journal of American Folk-Lore*, 1910, section on "Exogamy and Endogamy," pp. 231–243; "Andrew Lang on Method in the Study of Totemism," *American Anthropologist*, n. s., XIV, 1912, pp. 385–386.

[2] In another place (*American Anthropologist*, vol. XIV, 1912, p. 66) Dr Lowie writes: "The fact that the large groups have no names is significant, but cannot be considered as more than presumptive evidence against the hypothesis of exogamy." Even that, however, is saying too much, as exogamous groups without names certainly occur. The dual divisions of the five Iroquois tribes constitute a case in point. They certainly were exogamous, but seem never to have had any names. Or, if a breach of geographical continuity be permitted, we may instance the case of Australia, where nameless exogamous phratries are by no means uncommon.

In an effort to ascertain the rules, if any, guiding intermarriages in recent times, Dr Lowie has recorded some one hundred and fifty marriages. He, however, fails to present his results in tangible statistical form on the ground that "with a limited number of recorded marriages and the large number of combinations possible in a community of thirteen clans, it is, of course, impossible to draw any valuable statistical conclusions" (p. 196). But Dr Lowie entirely underestimates the value of negative results. I therefore append a table (I) prepared on the basis of Dr Lowie's data, which shows at a glance that marriages between clans are at the present time quite random: no clans are preferred as marriage companions, nor is there any regard for phratric limits. The clans given in Dr Lowie's list (p. 190) are represented in the table by I_1, I_2, II_1, etc. Each marriage is recorded twice, namely, in the vertical as well as in the horizontal columns. The series of diagonal lines stands for clan exogamy. In column A are given the total numbers of marriages recorded in each clan. Each figure of column B stands for the number of those marriages in a clan of the vertical column which have not been recorded in the preceding clans of the column. The total of column B is the total number of

TABLE I

	I_1	I_2	II_1	II_2	III_1	III_2	III_3	IV_1	IV_2	V_1	V_2	VI_1	VI_2	A	B
I_1	///	6	9	4	5	4	—	4	7	6	—	5	—	50	50
I_2	6	///	10	1	2	4	2	1	3	7	—	3	—	39	33
II_1	9	10	///	4	5	3	—	1	5	2	—	6	—	45	26
II_2	4	1	4	///	3	4	2	—	1	4	—	1	1	25	16
III_1	5	2	5	3	///	1	1	—	2	2	2	3	—	26	11
III_2	4	4	3	4	1	///	—	—	—	7	1	5	—	29	13
III_3	—	2	—	2	1	—	///	1	1	1	—	—	—	8	3
IV_1	4	1	1	—	—	—	1	///	1	2	—	—	—	10	3
IV_2	7	3	5	1	2	—	1	1	///	1	—	1	—	22	2
V_1	6	7	2	4	2	7	1	2	1	///	—	1	1	34	2
V_2	—	—	—	—	2	1	—	—	—	—	///	—	—	3	
VI_1	5	3	6	1	3	5	—	—	1	1	—	///	—	25	
VI_2	—	—	—	1	—	—	—	—	—	1	—	—	///	2	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	159

marriages recorded, while column A may be of service whenever the total number of marriages in each clan is of importance. In addition to giving an instantaneous résumé of an otherwise unwieldy mass of data, a table such as this may serve as a convenient foundation of work among the same people by the author or others. As new marriage records accumulate, they can readily be added to the tabulated figures and the totals changed accordingly.

While there seems to be no doubt as to the former historical unity of the Crow and the Hidatsa,[1] Dr Lowie insists on the fundamental differences in the social organizations of the two tribes, as described in more recent times. In his article on "Some Problems in the Ethnology of the Crow and Village Indians,"[2] Dr Lowie writes:

> We may conclude that the system of exogamous groups with matrilineal descent is a Crow-Hidatsa peculiarity. At the same time we must remember that the resemblance between the social organization of these two tribes is limited to this one rather general feature. Indeed, the common possession of this single feature gains significance only through its absence in other tribes.

In the concluding remarks on the social organization of the Crow, Dr Lowie returns to this point in the following passage:

> Among the Crow there is no suggestion of a dual division, while the Hidatsa clans are assembled in two moieties distinguished by the number of their constituent units as the Three-Clans and the Four-Clans. Obviously, these definite social groups cannot be considered the equivalents of the six nameless Crow clan-associations.
>
> It thus appears that not only are the Crow and Hidatsa quite different from the surrounding Plains tribes of both the Siouan and other stocks, but even between the Crow and Hidatsa there are far-reaching differences. Accordingly, we cannot advance in any positive way the theory that their social systems are but differentiations from an older system that existed prior to their separation [p. 207].

In view of the former unity of the Crow and the Hidatsa, the last statement must not be understood literally, but must be taken to mean that Dr Lowie regards the traits of social organization now

[1] See, e. g., *Handbook of American Indians*, I, p. 367.

[2] *American Anthropologist*, n. s., XIV, 1912, p. 66.

characteristic of the Crow and the Hidatsa as of later origin than the separation of the two tribes. Now, the Hidatsa are still organized in two moieties, the names of which, Three-Clans and Four-Clans, must have been suggested by a preëxisting clan system. But whereas the names are young, the social divisions may be old. This becomes highly probable in view of the great prevalence and antiquity of such dual divisions among Indian tribes in general and many Siouan tribes in particular, among whom, as among the Hidatsa, the dual divisions coëxist with a clan system. Thus there can scarcely be any doubt that the phratries of the Hidatsa antedate the separation of the Crow, some two hundred years ago.[1]

If so, the Crow, before their separation, must have shared with the Hidatsa this trait of their social organization. Here a serious difficulty confronts us: granted the former existence of Crow dual divisions, how is it that Dr Lowie's investigations failed to reveal any survivals of the ancient system? The only plausible explanation would lie in some feature of the later transformations of the Crow that may have tended to obscure or even completely to obliterate the preceding organization. That the source of such a development may have been supplied by the clan-associations or phratries of the Crow, is suggested by Dr Radin's researches among the Winnebago.[2] Dr Radin found among this people a division into two phratries, one consisting of eight clans, the other of four. These clans were associated in groups of two and three in such a way that one clan of one phratry was linked to one or two clans of the other phratry. Between such linked clans there was considerable intimacy of relations, and reciprocal functions were exercised by them. Now, if we assume that a dual division among the Crow, which on general grounds we found to be highly probable, actually existed, may not the clans of the Crow also have formed associations across phratry limits? In time, exogamy, presumably

[1] I feel bound to adduce here Dr Lowie's opinion that Matthews' chronological estimate as to the separation of the Crow is somewhat in the nature of a guess. For all we know, the separation may have taken place long before that date. Now, it is, of course, obvious that the longer the period since the separation, the greater the general possibility of the development of Hidatsa phratries after the separation. Thus, the argument in the text would to that extent be weakened.

[2] Manuscript.

associated with the dual divisions, lost its hold on the large units and became a clan characteristic. As the clan associations became more firmly consolidated, the dual divisions thus cut up and redistributed became obscured, and, in the course of time, obliterated, whereas the clan associations developed into the present phratries. That the phratries of such origin should have remained nameless seems highly plausible. In the light of the above hypothesis certain facts about clan contests adduced by Dr Lowie (pp. 202–204) suggest an interpretation different from the one given by the author. Crow informants do not seem to be agreed as to the social units that figure in such contests. In fact, four different explanations are given in which the contestants are described as the sons of men of two clans, or as men of two clans, or as the sons of men of two linked clans, or as any two groups of men without relation to the clans. Granted the two ancient exogamous divisions, it may well be assumed that they constituted the social units which originally figured in such contests. Without being inherently improbable, this hypothesis would also help us reconcile the statements of Dr Lowie's informants. With the weakening of phratric bonds, the functions at contests would be transferred to the clans without abandoning *de facto* the phratric principle. Clansmen of one phratry would contest with clansmen of the other; or the sons of clansmen of one phratry would line up against the sons of clansmen of the other, which arrangement, with phratric exogamy, would still preserve the phratric division. If linked clans originally belonged to two opposite sides, then the sons of clansmen in contesting against the sons of men of the linked clan would also conform to the ancient rule of phratric contests. If, on the other hand, one of the rival groups in the last two instances is examined with reference to its composition, it may well be described as amorphous in so far as it embraces men of different clans.[1]

I was prompted to present the above arguments by the realization of the great probability, on historical grounds, of the former

[1] I encountered a situation analogous to the above among the Iroquois, where certain functions commonly ascribed by observers to the father's clan seem to have originally belonged to the opposite phratry.

existence of dual divisions among the Crow. The several hypotheses, however, are suggested with the greatest diffidence, less in the expectation of their ultimate verification by fact than in the hope that Dr. Lowie and other investigators may thereby be stimulated toward further efforts in their search for traces of ancient dual divisions among the Crow.

Dr Lowie takes pains not to have his list of terms of relationship appear as final. He writes:

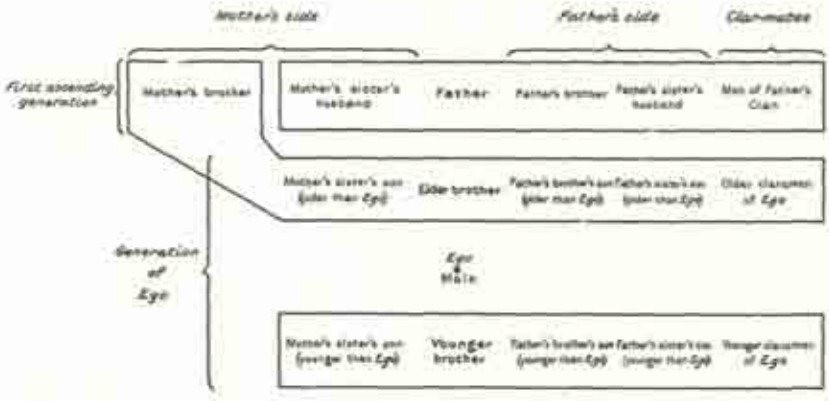
> The following list must not be regarded as exhaustive nor the translations as more than tentative. After repeated revision I came to the conclusion that nothing short of a perfect knowledge of the Crow language would suffice for a perfect list of terms of consanguinity and affinity. For [as Dr Lowie curiously puts it] in addition to the common enough multiplicity of meanings for any one term when translated into English, the student of Crow has to deal with distinct native terms expressing delicate shades of meanings that are fully known only to the older Indians [p. 208].

The experience of investigators with primitive terminologies certainly justifies the author's remarks. It remains nevertheless true that a system of relationship is not merely a terminology but a system, a system based on some definite principle of classification of individuals. The study of terminologies of relationship among many peoples has shown that the principles of classification on which such systems rest always prove exceedingly simple and, as soon as revealed, serve to coördinate the apparently complex series of terms. There seems, therefore, no justification for ethnographers to limit themselves to an objective enumeration of the terms of relationship without attempting to explain the underlying system. Dr Lowie has attempted no such analysis, wherefore his list of terms strikes one as exceedingly complex, in fact, bewildering. I have analyzed and represented in tabular form part of the Crow terms contained in Dr Lowie's list, and offer my results here as a supplement to his investigations.

First of all we must eliminate from the list a number of terms that are not terms of relationship and ought to have been treated separately. I mean such terms as *bĭwatkucè*, "my joking relative";

barâke, "my child"; *bacik·âake*, "my boy"; *bacbatsé*, "my man"; *bacbi'e*, "my woman"; etc. The remaining terms on pages 208–210 are, in part, represented in the following tables. As my aim is rather to elucidate the underlying principles of the system than to give an exhaustive treatment of it, I have included in the tables only two generations, that of the *ego* and the first ascending generation. From these the first descending generation can readily be constructed. The terms used by a woman, which are in part the same as, and in part different from, those used by a man, reveal no new principle; therefore I have limited the tables to the terms used by a man. To achieve greater clearness, the terms applied to male relatives are grouped in Table II; those applied to female relatives in Table III.

TABLE II



A still further extension of the terms must be suggested here. If "father's brother" is equivalent to "father" and "mother's sister" to "mother," then "father's mother's sister's son" and "father's father's brother's son" are also equivalent to "father." Theoretically there is no reason to stop at the second ascending generation, and the principle may thus be expressed in the following terms: Two men who are the descendants, no matter how remote, of two brothers or of two sisters, are "brothers"; similarly, two women who are descendants, no matter how remote, of two brothers or of two sisters, are "sisters." The same principle would, of course, apply to "father's sister's husbands" and to "mother's sister's husbands," etc. Thus, the number of individuals to whom the terms "father," "mother," etc., would apply, would be vastly increased. Nor is this all. For, if "father's sister's husband" is equivalent to "father" and "father's brother's wife" to "mother," then "father's sister's husband's father's sister's husband" should be equivalent to "grandfather" and "father's sister's husband's father's brother's wife" to "grandmother," and so on. A large number of

other logical possibilities could be similarly constructed on the basis of the fundamental principles of the system.

This argument must not be regarded in the light of a formal logical exercise; for it has been repeatedly shown that Indians, or for that matter Australians, are fully able to see the logical corollaries of their relationship systems and, when occasion arises, do consciously apply them. It has also been shown, in a number of concrete instances, just how far the logical extension of the system was carried. Dr Radin, for instance, tells me that among the Winnebago, relationships beyond the second ascending generation are not taken cognizance of.

The question arises: How far beyond the limits of the tables here adduced do the Crow permit their logic to extend their system of relationship? Further information from Dr Lowie on this point would be highly desirable.

TABLE III

	Clan-mates	*Mother's Side*		*Father's Side*	
First ascending generation	women of mother's clan	mother's sister	**mother**	father's brother's wife	[father's sister]
Generation of ego	elder clanswomen of *ego*	mother's sister's daughter (older than *ego*)	**elder sister**	father's brother's daughter (older than *ego*)	father's sister's daughter (older than *ego*)
			ego male		
	younger clanswomen of *ego*	mother's sister's daughter (younger than *ego*)	**younger sister**	father's brother's daughter (younger than *ego*)	father's sister's daughter (younger) than *ego*)

It seems that not all "women of mother's clan" are "mothers" but only those of her clan and generation. Similarly, the terms "elder or younger sisters" are not applied to *all* elder or younger clanswomen of *ego* but only to those of the generation of *ego*. While Dr Lowie does not feel absolutely positive as to this fact, it must be provisionally accepted as the more plausible development. For, if *all* women of the mother's clan were called "mothers" and all women of the clan of *ego*, which is identical with the mother's clan, were called "elder or younger sisters," we should face the highly improbable situation, even in a classificatory system of relationship, of a woman being called "mother" as well as "sister."

In addition to the uses indicated in the tables, the terms "father" and "mother" are also applied by the Crow to wife's father and mother and to husband's father and mother. In the second

ascending generation only two terms are used, "grandfather" and "grandmother," which are applied to the parents of all individuals in the first ascending generation. The first descending generation embraces the children of all individuals of the generation of *ego;* the only terms used are "son" and "daughter." The same terms are also applied to grandchildren.

Additional terms applied to relatives by marriage are given by Dr Lowie on pages 210–212. I shall not here analyze these terms.

The characteristic features of the Crow system of relationship may now be summarized as follows:

1. The application of the terms "father" and "mother" (and of corresponding terms in other generations) is exceedingly wide: the terms cover certain relatives on the father's as well as on the mother's side, parents-in-law, and father's or mother's clan-mates (regardless of generation. See 4).

2. In the generation of *ego* separate terms are used for individuals older and younger than *ego*.

3. The mother's brother, regardless of age, is included in the class of individuals older than *ego* of the generation of *ego*.[1]

4. The differentiation of generations beyond the first ascending and the first descending generations appears very weak, in so far, at least, as it is reflected in the terminology of relationship. The last two points (3 and 4) indicate a tendency in the Crow system to disregard the limits of generations. Whereas, on the one hand, the lateral application of terms follows, in the main, the lines of a generation; on the other hand, the generations are disregarded in a number of ways: the terms "father," "mother,"[2] "sister,"[2] "brother," etc., are applied to corresponding clan-mates without regard to generation; one highly important individual ("mother's

[1] In society organized on a maternal basis the position of the mother's brother is altogether exceptional. His authority in the family is usually greater than that of the father, and he also appears as the main figure, if not in the ownership, at least in the transfer of property by inheritance. These psychological conditions might be deemed sufficient to account for the terminological phenomenon noted above, if not for the fact that in most, if not all, groups other than the Crow identical psychological situations are not reflected in the system of relationship. Perhaps some special economic or ceremonial relations account for the peculiarity?

[2] Compare, however, the legend of Table III.

brother") of the first ascending generation is classed with one age group of the generation of *ego;* no separate terms seem to exist for the second ascending generation, the terms used being derived from those for "father" and "mother"; the second descending generation is altogether merged in the first descending generation.

5. Separate terms are used for male and for female relatives.

6. Part of the terms used by a man for relatives of a given degree of blood relationship are different from those used by a woman.

7. Whereas the terms for "father" in direct address and indirect reference are quite different, the distinction in case of most other terms consists in the common Siouan change of the terminal *a* to a terminal *e*.

The Crow system of relationship is particularly suggestive in so far as it reveals with unusual clearness the process of its own development. It seems highly improbable that the terms originally used for one's own father and mother should have been the same as those used for a number of relatives on the father's and mother's side as well as for parents-in-law. But here the individuals concerned belong at least to one generation. The probability of the situation becomes quite negligible when we consider that the same terms are also used for father's clan-mates and mother's clan-mates. That a term applied to a number of individuals of one generation and to a group of clan-mates should include accidentally, as it were, one's own mother or father, is altogether incredible. Moreover, why should the same term have been applied to the individuals of one generation and to the clan-mates? If, on the other hand, one assumes the terms for "father" and "mother," in the descriptive sense, to have been primary, the entire process becomes perfectly plausible, in fact obvious as a gradual extension of the original meaning of the terms so as to include classes of people united by the principles of generation or of clanship.[1]

[1] Assuming the former existence of dual divisions among the Crow, this process of extension in the application of relationship terms gains in plausibility; for all the individuals to whom the terms "father" and "mother" are applied would then belong to one phratry. The extension would then have to be conceived of as following different lines within the phratry, the line of relations on the father's and mother's side, of one generation; the line of wife's or husband's relations, of the same generation; and the line of clanship, regardless of generation (in case of "father" at least).

Applying the same reasoning to the other terms of relationship, we arrive at a reconstruction of the *Ur*-Crow system of relationship consisting of a small number of descriptive terms. They may be represented in the following table.

TABLE IV

English equivalents	ego male	ego male or female	ego female
2nd ascending generation: grandmother		*masa'kâare*	
2nd ascending generation: grandfather	*axé isâ'ke*		*masâ'k-isâ'ka*
1st ascending generation: mother		*i'g'-é*	
1st ascending generation: father	*axé*		*masâka*
1st ascending generation: father's sister		*basbâxte*[1]	
Generation of *ego*: elder sister		*bâsa'kâata*	
Generation of *ego*: younger sister	*bâsa'tsîita*[2]		*basôoka*
Generation of *ego*: elder brother (mother's brother)	*bîik'a*		*basâ'are*
Generation of *ego*: younger brother		*matsâka*	
1st and 2nd descending generations: daughter (granddaughter)		*irôoce*[3]	
1st and 2nd descending generations: son (grandson)		*xâutse*	

The table suggests a number of queries. We find that a man and a woman use different terms for "father"; for "mother," on the other hand, there exists only one term. Again, the male and female terms for "grandfather" are derived from the respective terms for "father"; while there is only one term for "grandmother." The latter term seems to be derived from a female term for "mother," and it seems exceedingly improbable that it should also have been the original male term for "grandmother." The situation suggests an old female term for "mother," *masa'ká*, of which *masa'ké* (given by Dr Lowie, p. 209) would be the vocative form, and of which *masa'kâare* would be a derivative. It may also be

[1] The existence of a separate term for "father's sister" suggests a possible former term for "brother's son or daughter" applied by the father's sister to his children. Did such a term exist?

[2] Did not the terms for "elder sister" or "younger sister" extend to brother's wife?

[3] Did not this term extend to (male speaking) wife's brother's son and daughter's husband, and (female speaking) to husband's brother's son?

worth while to look for an old male term for "grandmother," perhaps derived from *i'g·a'*, which term, before the loss of the female term for "mother," may have been a male term. Again *basbâxiè* seems to be a derivative of *axé*, suggesting the former existence of a separate female term for "father's sister." This is the more probable as two terms are used for "mother's brother." However plausible may seem the identification of "mother's brother" with "elder brother," it scarcely could have been primary, and old terms for "mother's brother" may be looked for, or, if *bîik'a* and *basâare* were the original terms for "mother's brother," other terms may have existed for "elder brother" which were lost subsequent to the reclassification. The former existence of separate male and female terms for "elder sister" and "younger brother" also seems highly probable.[1]

[1] Mention must be made here of a recent elaborate attempt to represent a system of relationship diagrammatically. I refer to John P. Harrington's article on "Tewa Relationship Terms" (*American Anthropologist*, July–September, 1912) which contains four highly complicated diagrams (pp. 483–486), the preparation of which must have consumed much time and labor. This notwithstanding, the diagrams are no less perplexing than L. H. Morgan's brain-wrecking lists or Dr Lowie's objective enumeration of terms. The reason of the failure of these authors lies in the fact that they have not attempted to base their presentation of systems of relationship on the native principle of classification of individuals. Whenever this is done, the system always reduces itself to a few simple principles and can readily be represented in tabular form. The two tables of Crow relationships presented in this review may serve to substantiate the above statement. A similar attempt to present a system of relationship from the native point of view has been successfully carried out by Professor Boas in John R. Swanton's monograph on the Haida (*Publications of the Jesup North Pacific Expedition*, vol. 5, p. 64).

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A TUTELO VOCABULARY[1]

By EDWARD SAPIR

WHILE on Six Nations Reserve, Ontario, in August, 1911, I was told of a Cayuga Indian named Andrew Sprague who had had opportunity during his childhood to hear Tutelo spoken fluently and who was supposed to remember considerable of it. As Tutelo is an extinct language, I thought it imperative to rescue from oblivion what was still to be obtained and thus add, if only a mite, to what had already been put on record. As a matter of fact, it turned out that Andrew remembered only very little indeed of Tutelo, and what small amount of material could be obtained from him was extorted with some difficulty. No attempt will here be made to discuss the data. They are given for what they are worth in the hope that they may at some future time prove of use to the student of comparative Siouan linguistics. If in nothing else, perhaps the words listed are of value because they have been recorded with greater phonetic accuracy than is generally attained in mere vocabularies.

PERSONS

mįhą̊(ĭ)sṭį̄k' man
wārẹ̄wā' woman
maŋgidā' my cousin
uŋgidā' his cousin
nįsḳā' child, children
kụkā̊k' grandfather

ANIMALS

mā̊p'ayeŋk' cow, ox, cattle
ts'uŋk' dog
māsgōlǫ́' pig
hē̊mǭ frog
dalúsgik' cat
babō̊sgǫ' deer buck
ts'uŋgidḗ' horse (literally, "big dog")
ts'uŋgįwe' wolf (literally, "like a dog")

OBJECTS

mā̊ksāpā' bread
māθḗ' knife

[1] Published by permission of the Geological Survey of Canada.

matsigóyo salt
bĕbahé'[1] pepper
wădĕwĭ sugar
wăhé'[2] soup
wăsaksé'[3] shorts in grinding corn
găk'sagínagǫ'[4] silver armlet
yąhé'[5] lacrosse stick
wahǫk'mé'[6] false face
meni'igăt'ĕ'ą'[7] kettle (evidently contains *meni-* "water")
meni'igŏdǫ jug, jar, glass, bottle (dit.)
kc'embáĭ'[8] pipe
kcémbăi nǫní' tobacco

ADVERBS, ADJECTIVES

dăbadă'[9] down river
ădaphái'[10] up river
bĭwă good
nyAgutsgăhgk' dizzy woman
nĭhĕtsgahgk' dizzy man
mą'ganą'ga'[11] white
mihą mą'ganą'ga'[12] white man
mą'ganą'kasĭt' negro

PRONOUN

henîgu I

VERBS

wălŭt' măksăpă'[13] eat bread
wăgĕtsĭ'[14] to dance
kadĭt'gîlêda he's gone home
wet'gilida let's go home
gwA'gilîda I must go home
wăk'nĭendabĕwă I'm going to bed
bĭlăhuk' thank you!
hgh̆ gĭdăya k'ĕk'ųk'arĕwaya surely, everything is all right

NUMERALS

1, *blgs*
2, *nĕs*
3, *nă*
4, *ĭ̆ă*
5, *bĭ*
6, *agăs*
7, *sakĕ́*
8, *pelĕ̂k'*
9, *sgk'*
10, *bitskắ'*

PHONETIC NOTE

Short vowels

a, as in German *Mann*
ă, as in English *hat*
e, as in English *met*
ĕ, as in French *été*
i, as in English *bit*
ĭ, as in French *fini*
ǫ, as in French *beau*
u, as in English *put*

Long Vowels

ā, as in German *Kahn*
ē, as in German *See*
ī, as in German *Sie*
ō, as in German *Sohn*
ū, as in German *gut*

Nasalized vowels

$\tilde{a}$, as in French *quand*
$\tilde{e}$, as in French *vin*
$\tilde{\varepsilon}$, nasalized open *e* (not as open as in French *vin*)
$\tilde{o}$, nasalized close *o* ($\tilde{\varrho}$), not open as in French *bon*
$\tilde{u}$, nasalized open *u*
$\tilde{\bar{a}}$, long $\tilde{a}$
$\tilde{\bar{o}}$, long $\tilde{o}$

Diphthong

ai, as in German *mein*

Stopped Consonants

b, *d*, *g*, sonant stops as in English
p, *t*, *k*, *ts*, "intermediate" stops
p, —, *k*, *ts*, unaspirated surds
p', *t'*, *k'*, *ts'*, aspirated surds
tš', aspirated *tš* (midway between *ts* and *tc* of English *church*)

Continuants

w, as in English
y, as in English
h, as in English
s, as in English
c, as in English *she*
θ, interdental spirant, as in English *thick*
l, (approximately) as in English
r, trilled *r* (alveolar?). In *k'ɕh'ɥk'arɸwaya r* sounded much like *l*
m, as in English
n, as in English
ŋ, as in English *sing*

Miscellaneous

', glottal stop
-a'ᵃ (and similarly for other vowels), broken vowel, second part of which is murmured ("echoed")
', final breath release
ᵉ, occurs once as glide vowel from *c* to *e*
ˈ, main stress
ˌ, secondary stress

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A TEXT IN THE INDIAN LANGUAGE OF PANAMÁ–DARIEN

By J. DYNELEY PRINCE

THE Isthmian aboriginal family known to the Spaniards as Cunas[1] (*Tule*, 'people'; the same name as that used by the San Blas) embraces the so-called San Blas stock of the Colon region.[2] According to A. L. Pinart,[3] at the time of the Spanish conquest the limit of the tribes speaking these dialects appears to have been, on the west, a line from the Chagres river extending to Chorrera. On the east and south the Cunas extended to the river Cacarica, the Espirito Santo mountains, and the river Sambu, which separated the Cunas from the Chocos. Cunas were also found across the Gulf of Darien (Uraba) on the north, and they had villages on its eastern shore. At present, and in fact since their last rising in 1772, they have retired to the mountains and to the unhealthful river regions of the Isthmus, and are noted for their intense hostility to foreigners, whom they refuse to allow within their territories.[4] These Indians are quite distinct linguistically from the other Isthmian families, the Guaymies and the Chocos.

Pinart[4] gives the number of Cunas as 8,000, but he seems to refer only to the southern stock. On the other hand, my San Blas informant, Îna Mákchia,[5] thought that all the Tule numbered some 50,000. The actual census, no doubt, lies between these widely discrepant figures.

The accessible material on the Tule language is as follows: (1) A word-list in the *Journal of the Royal Geographical Society* (XXXVIII, pp. 100–105), by De Puydt; (2) Prince, *Prolegomena to the*

[1] Prince, Prolegomena to the Study of the San Blas, *American Anthropologist*, n. s., XIV, pp. 109–126, 1912.

[2] *Vocabulario Castellano-Cuna*, pp. 1–2.

[3] Prince, op. cit., p. 109.

[4] Op. cit., p. 1.

[5] Prince, op. cit., p. 110.

San Blas Language of Panamá, cited above; (3) a brief manuscript word-list of San Blas in my possession by the late Moravian Bishop Berckenhagen; (4) Pinart's *Vocabulario Castellano-Cuna;* an incomplete list, containing a very brief and poorly stated grammatical sketch; (5) the following Catechism: *Pequeño Catecismo Cristiano, traducido en la lengua Cuna, ò de los Indios de Darien, por el R. P. Pedro de Llisa, Mis°. Cap°. y revisto por los SS. Dr. A. L. Pinart y Dr. F. y Carranza* (Documentos sobre Panamá; Chiriqui-Veraguez-Darien, No. 3). This is the only connected text in Tule.

The Catechism is published in a badly hectographed form from the original handwriting of de Llisa. The text is in places indistinct and has to be read with a magnifying glass. There is no attempt made to explain the Tule text, the writer having contented himself with merely placing the highly idiomatic Indian translation opposite the conventional Spanish phrases. In many instances, the Indian words are evidently wrongly combined, so that the analysis was not easy and could be effected only after every Tule word in this and the other material mentioned above was carefully indexed. The conventional translation of the Catechism is given in the following exposition, in English instead of Spanish, while under each Indian word or combination the corresponding English equivalent is shown. The phonetic system of the Tule is Spanish.

This important Tule text will shortly be supplemented in a separate article by a grammatical sketch and a complete glossary of all the words and analogies in the extant Tule material. For this reason, in the present paper little or no grammatical analysis has been set forth, the commentary being intended chiefly as an exposition of the difficult sentence-structure of the Tule, now illustrated for the first time.

Since the United States Government has established its authority permanently in Panamá, scientific attention must necessarily turn to the dominant Isthmian aboriginal idiom. If this paper and its sequel, although possibly here and there erroneous in conclusions, should prove of service to students of this interesting linguistic family, I shall feel amply repaid for the labor which I have devoted to the collation and analysis of the Tule.

DIOS ONAMAQUE CARTA CHENICUA GOD'S DOCTRINE BOOK LITTLE	LITTLE CHRISTIAN CATECHISM
1. *Dios-din tegua?* God he is who?	Who is God?
2. *Dios e Pacalmal.* God of the Three.	The Most Holy Trinity.
3. *Dios e Pacalmal tegua?* God of the Three who?	Who is the most Holy Trinity?
4. *Dios Pap, Dios e Nuchu,* God Father, God his son. *Dios Espiritu Santo.* God Holy Spirit.	God the Father, God the Son, and God the Holy Ghost.
5. *Dios Pap ati Dios?* God Father he God?	Is the Father God?
6. *Ee, Patir.* Yes, Father (= priest).	Yes, Father.
7. *Dios e Nuchu Dios moga?* God his Son God and (= also)?	Is the Son God?
8. *Ee, Patir.* Yes, Father.	Yes, Father.
9. *Dios Espiritu Santo Dios* God Holy Spirit God *moga?* and (=also)?	Is the Holy Ghost God?
10. *Ee, Patir.* Yes, Father.	Yes, Father.
11. *Dios pagua teguil nica?* God(s) three perhaps there are?	Then there are three Gods?
12. *Dios e pagua-mal cuend guilubu* God of the Three one exists *chun choque-te.* true saying-the.	The Three are only one true God.
13. *Piti e pagua-mal mastol-guin* Which of theThree man *guja-te?* was-made-the?	Which of the Three Persons was made Man?
14. *Dios e Nuchu.* God his Son	God the Son.
15. *Piaje mastol-guin guja-te?* How man was-made-the?	How was he made Man?
16. *Dios Nan S. Maria e abogan.* God's Mother Holy Mary her womb (in).	In the womb of the Blessed Virgin Mary.
17. *Ibi-ga?* What for?	For what purpose?
18. *Mele-gue nen Niya chugal-te,* So-not us Devil getting-the,	To save us from the Devil and

ibi istar.
something bad.

from sin.

19. *Nuet-mala piaje nao?*
Good ones whither go?

Where do the good people go?

20. *Nitalal-neca.*
(To) Heaven.

To Heaven.

21. *Tegua bul nepri apincha-mal?*
Who] most good think-the-ones?

Who are the good people?

22. *Dios choquer-guine nepri apin-*
God's saying-about good think-

cha-mal.
the-ones.

Those who keep God's Commandments.

23. *Istar apincha-mal piaje nao?*
Bad think-the-ones whither go?

Where do the bad people go?

24. *Niya-neca.*
(To) Hell.

To Hell.

25. *Istar apincha-mal tegua?*
Bad think-the-ones who?

Who are the bad people?

26. *Dios choquer-guine iti chul-*
God's saying-respecting, those with-

mal.
out the-ones.

Those who do not fulfill God's Commandments.

27. *Unigua Dios e Nuchu nen at*
How God his Son us he

aqueti?
holds?

How did the Son of God save us?

28. *Apurco ulguine.*
Death by-means-of.

By his death.

29. *Piaje Dios purcuis-degua?*
Where God died-perhaps?

How did God die?

30. *Na-crus-guine.*
The-cross-on.

On the Holy Cross.

31. *Quilulele tegua?*
Christ who?

Who is Christ?

32. *Dios mastol chun choque-te.*
God man true say-the.

True God and true man.

33. *Unigua Dios?*
How God?

How is he God?

34. *Te-nal Dios tula e Nuchu.*
This-for God living his Son.

Because he is the Son of the living God.

35. *Unigua mastol?*
How (is he) man?

How is he man?

36. *Te-nal Dios e Nan Maria*
This-for God his Mother M.

Sa. e Nuchu moga.
Sa. her son and (= also).

Because he is also the Son of the Virgin Mary.

37. *Quilulele (Jesus) igui choque?*
Christ (Jesus) what says?

What does the word Jesus mean?

38. *Unilagua.* — Saviour.
Saviour.

39. *Ibi-gua unilagua?* — From what did he save us?
How Saviour?

40. *Ibi istar nen chuja-te* — From sin and from the captivity of the Devil.
(From) something bad us saved-the,
Niya-neca moga.
Hell and.

41. *Igi nen oturta?* — What doctrine did he teach?
What us he teaches?

42. *Dios onamague-ta.* — The Christian Doctrine.
God's teaching-the.

43. *Onamague picua?* — How many parts has it?
Teaching how many?

44. *Paquegua guilubu.* — Four.
Four exist.

45. *Piti ati?* — What are they?
What this?

46. *Itogue-te, Dios palmie, nan* — The Creed, Commandments, Prayers and Sacraments.
Faith-the, God's making, the
neca palmie, Dios cuichi
Church's making, God's holy
guilubu.
being.

47. *Dios onamaque uni machi* — What is the sign of a Christian?
God's doctrine how man
itogue?
believes?

48. *Na-crus guilubu.* — The Holy Cross.
The cross it-is.

49. *Unica be-epuo?* — How do you use it?
How you-use?

50. *An-guacal guiluse-gal.* — Signing myself and blessing myself.
Myself blessing.

51. *Ta une mala,* — Let us see how.
Show how these.

52. *Guiluse-gal santa na-crus* — By the sign of the Holy Cross, free us from our enemies O Lord our God, in the name of the Father, and of the Son, and of the Holy Ghost. Amen.
Blessing of Holy Cross
nen-mal-guine, nanaya-chuli
us-on our friend-not
nen-gua abogan cujale Dios
our body save-from God
ulguine, Patir ulguine,
by-means-of. Father by-means-of
e Nuchu ulguine, Espiritu
his Son by-means-of the Holy
Santo ulguine. Te yopi.
Ghost by-means-of. This be.

53. *Ibi-gua mastol o-tule-diba?* — To what end was man created?
What-for man was-made-alive?

54. *Dios taque-gal uiseu-gal guel-gu-gal-e.* — To know and to serve God and to enjoy him.
God to-perceive to-desire to-please-the.

55. *Dios-din ibi-ga nen oguelgu-gal-e.* — With what works does one serve God?
God-he-is what-for we please-him-the?

56. *Epinchet, Apintaquet, Pen-guil-uquet-e.* — Faith, Hope and Charity.
Faith, Hope, Vow-paying-the.

57. *Epinchet ogui oturtaque?* — What does Faith teach?
Faith what it-teaches?

58. *Dios-guin epincha-malo chuna-chuna.* — To believe in God as an infinite truth.
God-in believing true-true.

59. *Apintaquet ogui oturtaque?* — What does Hope teach?
Hope what it-teaches?

59a. *Apintaque-malo a neut chuna ulguine.* — That we should hope in him as good and all powerful (*sic*?).
Receiving him good true as.

60. *Penguil-uquet ogui oturtaque?* — What does Charity teach?
Vow paying what it-teaches?

61. *Nue-ti nen chabu-malo.* — To love him above all things.
Well we love (him).

62. *Uni nue-ti nen epincha-malo?* — How shall we know how to believe rightly?
How well we believe?

63. *Ne-guiscugal itogue-te.* — I shall learn well the Creed.
The learning Faith-the.

64. *Uni actacuelo equisoe-te?* — How will you hope and pray?
How waiting praying-the?

65. *Pap nen-gati-te guiscugal-e.* — I shall learn well the Pater Noster.
Father-for-us learning-the.

66. *Unicar nuet chet?* — How will you act well?
How well act?

67. *Itogue-te guiscugal oturtaquet Dios onamaguet.* — I shall learn well the Commandments and Sacraments.
Faith-the learn teaching of God's doctrine.

68. *Itogue-te tegua pinchaja-te?* — Who made the Creed?
Faith-the who thought-it?

69. *Dios e mastol-mala-te.* — The Apostles.
God his-men-the.

70. *Ibi-ga?* — To what end?
What for?

71. *Nen cuequi oturta-cal.* — To instruct us in the faith.
Our heart it-teaches.

72. *Dios piaje chi?* — Where is God?
God where also?

73. *Nitalal-nacguine calguibi chi tule gue-atac.* — In Heaven, on earth, and everywhere.
(In) Heaven eternal (on) earth (?) also people not-see. (=but he is invisible.)

74. *Quilule piaje chi mastol?* — Where is Christ as man?
Christ where also man?

75. *Nitalal-te-guine Dios nan-neca chi.* — In Heaven and in the most Holy Sacrament.
Heaven-the-in God's Church also.

76. *Nan-neca cku ibi-te guilubu?* — What is the Most Holy Sacrament?
(In) Church also what this is?

77. *Matu ologua patir nusaja-te, ina achigua patir nusaja-te maga.* — The Host and the Consecrated Wine.
Bread round priest blessed-the, wine mild priest blessed-the and.

78. *Matu ologua nusaja-te ibi chi?* — What is the Consecrated Host?
Bread round blessed-the what also?

79. *Quilulele abogan, ape, purpa, pela agati chi.* — The body, blood, soul, and divinity of Jesus.
Christ's body, blood, soul, all belonging also.

80. *Tegua nen apinchuo caca iabal?* — Whom do we receive when we eat it?
Whom we receive mouth into?

81. *Quilulele mastol chuna-te e abogan, ape, purpa, pel chuna-te.* — Jesus Christ, God and true man in body, blood, soul, and divinity.
Christ man true-the his body, blood, soul, all true-the.

82. *Nusae-ti.* — Baptism.
Naming-the.

83. *Nusae-ti ibi-te ne-guilubu?* — What is Baptism?
Naming-the what this is?

84. *Ti, cualu, pel guilusaja-te.* — The Sacrament of water, oil, and Chrism.
Water, oil, all blessed-the.

85. *Ti igui ne-guilubu?* — What does the water signify?
Water what this is?

86. *Ti ulguinepela nen istar nica chuli pe-malo.* — That by Baptism we become pure from all sin.
Water by all our evil having without you (become).

87. *Patir e mola acalyogue igui ne-guilubu?* — What does the cap signify?
Priest his cap what this is?

88. *Nen cuegui nuet chicue-gal.* — The purity of life which we must observe.
Our heart(s) well setting.

89. *Cualu nusale-ti igui ne-guilubu?* — And the oil?
Oil blessed-the what this is?

90. *Espiritu Santo nuet gue(l)gu-gal.* — The plenitude of Grace of the Holy Ghost.
Holy Spirit well pleasing.

91. *E guilubu-se igui ne-guilubu?* — And the Chrism?
That which is blessed what this is?

92. *Nacquine nue nan edi-te.* — The odor of the good example which we must present.
Eternal good of our offering-the.

93. *Canel ocaet igui ne-guilubu?* — And what does the lighted candle signify?
Candle lighted what this is?

94. *Nuet nen pincha-malo otale-gal.* — The light of the good example which we must present.
(The) good we think it makes clear.

95. *Nusa-guine iguinen-di ocoe?* — What do we promise in Baptism?
Baptism-in what we promise?

96. *Quilule a-choquet chiet.* — To follow the faith and law of Jesus Christ.
Christ his-saying do.

97. *Ila pocua nusa-te-mal.* — Confirmation.
Time(s) two Baptism.

98. *Ila pocua nusa-te-mal igui ne-guilubu?* — What is Confirmation?
Time(s) two Baptism what this is?

99. *Patri epirquinet tule-ga-bal nusaet.* — The Sacrament which the Bishop gives to those whom he confirms.
Priest lord people-to (he) names.

100. *Unigua-te apiro chumat?* — How must one receive it?
How receive say?

101. *Nue guelgugala.* — In a state of Grace.
Well pleasing.

102. *Patir-mal pel abchoco.* — Confession.
(To) priests all tell.

103. *Patir-mal pei abchoco igui nec-guilubu?* — What is the Sacrament of Confession?
(To) priests all tell what this is?

104. *Ina nue-ti tue-ga nu-taque-ti* — A medicine for sin committed.
Wine good sin-for healing-the.

105. *Chanaje apinchao?* — When must one receive it?
When receive?

106. *Pirca-impa-bali tule oguí(gu)-tani moga.* — Once a year and *in articulo mortis.*
Year-once-in person about-to-die and.

107. *Unigua-te choco?* — How does one confess?
How it say?

108. *Patir-mal pel istar tule chaja-te acpeneguja abchoco-que-gal.* — Telling the father Confessor all mortal sins with repentance and intention to sin no more.
(To) priests all evil person having-done-the having repented tell-will.

109. *Ibi nacpigu choque?* — What is sorrow?
What sorrow says?

110. *Epinchet imal istar tule chaja-te,* — The feeling of having sinned.
Feeling something bad person having done.

111. *Contricion numaque igui-te nec-guilubu?* — What is the grief of Contrition?
Contrition's pain what this is?

112. *Pogúe imal istar an-chaja-te Dios nue-ti.* — Sorrow for having offended a God so good.
Weeping for something bad I-have-done-the (to) God good.

113. *Atricion nacpigu ibi-ga?* — What is the grief of Attrition?
Attrition's grief what for?

114. *Imal istar-ga an-bal-chao chuli.* — A resolution to sin no more.
Something bad I-again-do-not.

115. *Penitencia unigua chao degua?* — How does one complete a penance?
Penitence how make perhaps?

116. *Patir-mal be-ga chao che-gal.* — By doing that which the Confessor orders.
Priests to you to do do it.

117. *Extrema Uncion.* — Extreme Unction.
Extreme Unction.

118. *Estrema Uncion nusale-ti igui*
Extreme Unction blessing-the what
nec-guilubuseet?
this is?
What is the Sacrament of Extreme Unction?

119. *Matu alogua nusacale-ti patir*
Bread round blessed-the priests
ucue-mal purque-taniqui.
give (to) those-about-to-die.
The Sacrament which the priest gives to those about to die.

120. *Unicar nen apincha-malo?*
How we receive?
How must one receive it?

121. *Nue guelgu-gala.*
Well pleasing.
In a state of grace.

122. *Ibi guelgu nen palmi-mala?*
What joy we make?
What grace does it cause us?

123. *Nue nan-ga, ataqueli nen*
Good us-for it awakens our
abogan; ulucus epe-malo.
body; restful (we) stay.
It pardons venial sins and brings back the health of the body, if such is proper.

124. *Ome-mal ibuja-te.*
Women marriage-the.
Matrimony.

125. *Puna ibujale nusale-ti igui*
Woman marry blessed-the what
nec-guilubu?
this is?
What is the Sacrament of Matrimony?

126. *Ancal ucse mastol puna moga,*
Hand hold man woman and,
patir e guacal-guine.
priest himself-at (= before the priest).
The Sacrament which the man and woman receive when they marry.

127. *Te-mala igui nec-guilubu?*
These what (they) are?
What does this Sacrament signify?

128. *Quilulcle Dios-nan-neca tar-re*
Christ Church with (?)
mai.
it is.
The Union of Christ with the Church.

129. *Unicar nen apincha-malo?*
How we receive it?
How must one receive it?

130. *Nue purte-que-gala Dios-*
(With) good confessing God-
guine e nue epinche moga.
in the good thought and.
With reverence, good intention, and in a state of grace.

131. *Dios Carta Narmacale-ti*
God's Book Order-the
Palmie.
Make.
The Commandments of God.

132. *Carta narmacale-ti palmie e*
Book order-the make the
cuenagua tegua chao?
first who does?
Who complies with the first Commandment?

133. *Uiv itogue-te apintaguelo pen-*
Desire faith hope vow-
guil-uco adi-te chao.
giving that-one does.

Who practises acts of faith, hope, and charity.

134. *Carta narmacale-ti palmie e*
Book order-the make the
pocua igui chao?
second what does?

What does the second Commandment prohibit?

135. *Tule cacanche abchoque apin-*
Person lie tell of-
apin Niya colo.
ten Devil shout.

Swearing falsely of a bad matter and blasphemy.

136. *Dios nan-cal-ba chumaque*
God's mother-against speak
igui nec-guilubu?
what this is?

What is swearing?

137. *Ibi acalacala nen chumaque*
Something dishonest we say
Dios gui-chuli.
(which) God knows-not.

Taking God as a witness.

138. *Istar chumaque igui nec-guilu-*
Evil speaking what this
bu?
is?

What is blasphemy?

139. *Istar imal chet acalacala*
Bad something do evil
Dios e-mal moga.
(to) God his (people) and.

Doing anything against the name of God and the Saints.

140. *Carta narmacale-ti palmie e*
Book order-the make the
pagua tegua iti?
third what this?

Who complies with the third Commandment?

141. *Duminguin tule arpa-chuli iti*
Sunday person work-not this
mai.
is.

He who keeps Sundays and Feast-days.

142. *Duminguin itogue unicar nue*
Sunday obey how well
chapo-gal?
keep it?

How does one keep Sundays?

143. *Ito mai; mele-gue arpago te*
To hear it is; not work this
hoipis,
day.

By hearing Mass and not working on them.

144. *Tule e papa-mal igui nec-*
People the parents what it
guilubu e machi-mal-gati?
is their children for?

What are parents obliged to do?

145. *Ocune-mal oturtaque Dios mai-guine-te choco e nuchu-mal.*
They feed teach God's existence-about tell (their) children.
To feed their children and instruct them in religion.

146. *Nurcana-mal igui e pap penguile-ti?*
Children what the parents owing-the?
What are children obliged to do?

147. *Papa-mal choque-te chao; uis penchu-gal; arpa-gal cho-galile.*
Parents saying-the to do; desire to help (them); they work as they say.
To obey, respect, and help their parents.

148. *Carta narmacale-ti palmie e atale igui nec-guilubu?*
Book order-the make the fifth what this is?
What does the fifth Commandment prohibit?

149. *Tule mele mecho; tegue mele istar imal chet tule abogan e purpa.*
People not kill; anyone not something bad do (to) people's body or soul.
To kill and to do evil to neighbors with respect to their bodies or their souls.

150. *Carta narmacale-ti palmie e nercua igui choque?*
Book order-the make the sixth what it says?
What does the sixth Commandment prohibit?

151. *Be-che, be-choque, be-pinche, be-tagua, istar-mal.*
You-do, you-say, you-think, you-see, evil-things.
Doing, saying, thinking, looking at wrong things.

152. *Carta narmacale-ti palmie e cubleque igui choque?*
Book order-the make the seventh what it says?
What does the seventh Commandment prohibit?

153. *Aturze-gal imala amel-gati.*
Stealing anything belonging to others.
Plundering or doing injury to one's neighbors.

154. *Carta narmacale-ti palmie e pabaga igui choque?*
Book order-the make the eighth what it says?
What does the eighth Commandment prohibit?

155. *Tule mele cacanche chumaque; mele istar ibchae-ga.*
Person not lie tell; not evil do-for.
Lying and slandering.

156. *Carta narmacale-ti palmie e*
Book order-the make the
paquebague igui choque e
ninth what it says the
ambegui moga.
tenth and.
What do the ninth and tenth Commandments prohibit?

157. *Tule imal-gati mele-gue*
People things-belonging not
epuo.
use.
Desiring improper things and the property of neighbors.

158. *Dios e-nan-neca carta narma-*
God's Church book order-
cale-ti.
the.
The Commandments of the Church.

159. *E cuenagua Dios e-nan-neca*
The first God's Church
carta narmacale-ti igui nec-
book order-the what this
guilubu?
is?
What does the first Commandment of the Church order?

160. *Misa itogue-te pel domi(n)-*
Mass hearing-the every Sun-
guin Dios nan guilubu.
day God's festivals.
To hear Mass Sundays and festivals.

161. *Dios e-nan-neca carta narma-*
God's Church book order-
cale-ti e pocuagua igui nec-
the the second what this
guilubu?
is?
What does the second Commandment order?

162. *Pirca-guini-l cuena acalacala*
Year-in once evil
imal chet patir be-ga
something do priest you-to
chocal.
says.
To confess once a year.

163. *Dios e-nan-neca carta narma-*
God's Church book order-
cale-ti e pagua igui nec-
the the third what this
guilubu?
is?
What does the third Commandment order?

164. *Dios apino ib cuena-ga*
God receive something eat-for
Dios nuckn e-guilubu.
God's son his-being.
To communicate through Lent and on Easter.

165. *Dios e-nan-neca carta narma-*
God's Church book order-
What does the fourth Commandment order?

cale-ti e paquegua igui nec-
the the fourth what this
guilubu?
is?

166. *Dios purcuet guilubu mele-gue* — To fast on prescribed days and not to eat meat on prohibited days.
God's death being not
chana cuno.
meat eat.

167. *Dios e-nan-neca carta narma-* — What does the fifth Commandment order?
God's Church book order-
cale-ti e atale igui nec-
the the fifth what this
guilubu?
is?

168. *Dios e nan neca penucal* — To pay the tithes and first fruits to the Church of God.
God's Church owed
ticsa-jale e puquet.
taxes their payment.

169. *Guil Pap nen-gati-te.* — The Pater Noster.
Eternal Father us-belonging-the.

Pap nen-guine pe-chigui — Our Father, who art in Heaven. Hallowed be thy name. Thy kingdom come; thy will be done, on earth as it is in Heaven. Give us this day our daily bread and forgive us our trespasses, as we forgive those who trespass against us. And deliver us from evil. Amen.
Father us-for you sit
nitalal-neca; cuichi chi pe-
(in) heaven; holy also your
nuca-guine; an-che
name with-respect-to; I do
be-tague-guine;
you care for (see) with-respect-to;
pe-pincha-guin napa-guine
you-think-respecting earth-in
mepa ayopi. Matu nan-
heaven let it be. Bread us-
guine uco; pe-amal choco-
for give; you-otherwise say-
te moga nen penguil-mal,
it and (as to) our debts.
nen-di-te-yo chao nen
we-indeed-as do (to) our
penguil-mala; melegue nen
debtors; not that we
arcuano niya imal nan-
go down (to) devil something us-
ga chao, señor, ibi istar.
for do, Lord. (with respect to) what is evil.

Te-yopi.
Amen.

170. *Dios e Nana Onamaguet.* — Hail Mary.
God his Mother's Prayer.

Dios imiso Maria imele; pe-
God now O Mary (?); thou-
din-guelgu; e pap pe-
indeed art joyful; the father with
bal chinu-guine; pe-guin
thee is; you with-respect-to
pe-yo pun-mal impa-guine
you indeed women among
nusale-guin; pe ibi
blessed-for; you something
nuhue-ti pe-abogan
good your body (-in)
Quilulele noali. Nusae
Christ bring. Holy
Maria Dios e nan
Mary God's Mother
onamague nau-gati istar nan
pray us-for evil we
pincha; imis yo nan-purco
think; now indeed we dying
moga. Te-yopi-te.
and. Let it be thus.

Hail Mary, full of grace. The Lord is with thee. Blessed art thou among women. Blessed is the fruit of thy womb Jesus. Holy Mary, Mother of God, pray for us sinners now and in the hour of our death. Amen.

171. *Itogue chuma-te.*
Faith saying-the.

The Creed.

Pap cherret itogo a-bul-
Father ancient (I)believe more
enena chuli; nitalal nen-
than he is not; heaven us-
guine napsa ne(n)-guin
for earth us-for
moga Quilulele a-nuchu
also (he made); Christ his son
ueaca nan epir-guine otur-
only(?) our lord-for teach-
tacal Dios e nan e nuchu
ing God's Mother's son
ulguine; Espiritu Santo
by-means-of; (from)the Holy Ghost
abchoja-te; Iuleja Dios
commanded-the; from life of God's
nan pule-ti guilubu; pal-
mother virgin-the he is; tor-
itos Poncio Pilato choque-
tures (?) of P. P. confess-
guine; na-cruz-guine tar-na-
ing-as-to; cross-on they put
chis-mala-te; purcuis Iula-
him on it; dead life-

I believe in God the Father Almighty, the Maker of Heaven and Earth. And in Jesus Christ his only Son our Lord who was conceived by the Holy Ghost; born of the Virgin Mary; suffered under Pontius Pilate; was crucified dead and buried. He descended into Hell. The third day he rose again from the dead, ascended into Heaven and sitteth on the right hand of God the Father Almighty, from whence he shall come to judge the quick and the dead. I believe in the Holy Ghost, the Holy Catholic Church, the Communion of Saints, the forgiveness of sinners, the resurrection of the dead and the life everlasting

ja-te; te acar niya-neca
from-the; he then (to) Hell
arpi; ipa pagua-ti-bal
goes down; day third-the-on
ataquet purcue-na-matale
he wakens the dead ones
(= -mala-te) impa-guine;
among;
nicpa-bal na-cuisa-te;
above-to his-going up-the;
te-bal chi neca ito
there-in (with) also house of hearing
mai a-pap choque-te;
is his-father what he commands;
te-bal acar nonico taque-gal
there then sending he sees
oguigus-mala-te tulejal-
of the dead (and) the
mala-te. Ito-guine Espiritu
living. Belief-for Holy
Santo ul-guine; nan neca
Ghost in; Church
catolica; matu ologua nusa-
Catholic; bread round of holy
jala-te; patir nan-ga nue-ti
ones-the; priest us-for good thing
abchoco; e oguigujal-bal
telling; the dead-for
ataque; guilubu nacguine-
awakening; existence everlast-
ki. Te yopi.
ing. This be so.

Amen.

172. *Dios carta narmacale-ti palmie.*
God's book order-the make.

The Commandments of God.

Dios carta narcamale-ti
God's book order-the
ambegui guilubu.
ten are.
Pagua Dios-gati; e cuplegue
Three God belong; the seven
nenmal-gati.
us-belong.

The Commandments of God are ten. The three first pertain to the love of God and the other seven to the care of one's neighbor.

173. *E cuena-ti. Dios nan-ga*
The first. God us-for
chabu-bu-gal.
must be loved.

The first. One shall love God above all things.

174. *E pocua. Dios e nuie mele*
The second. God's name not

The second. Not to swear the name of God in vain.

penguil choque-ga.
(in) oath say.

175. *E pagua. Dios nan-neca pali nane.*
The third. (To) God's Church often go.
The third. To keep holy the festivals.

176. *E paquegua. Nen pap nen nana-gati nue chabu.*
The fourth. Our father our mother-for well love.
The fourth. To honor one's father and mother.

177. *E atule. Mele tule mechoe.*
The fifth. Not people kill.
The fifth. Not to slay.

178. *E nercua. Pali-pali mele nen puna epuo.*
The sixth. Promiscuously not we woman use.
The sixth. Not to fornicate.

179. *E cublegue. Mele-gue ibi-naal atursao.*
The seventh. Not anything steal.
The seventh. Not to steal.

180. *E pabaca. Mele-gue cacanche chumaque.*
The eighth. Not a lie tell.
The eighth. Not to bear false witness, nor to lie.

181. *E paquebague. Puna amal-gati mele-gue apuo.*
The ninth. Woman others-belonging not use.
The ninth. Not to desire the wife of your neighbor.

182. *E ambegui. Imal pe-gati-chuli mele pinche chugal.*
The tenth. Things you-belonging-not not think (to) get.
The tenth. Not to covet the goods of others.

183. *Iti ambegui carta narcamale-ti (= narmacale-ti) palmie pocua-guin gu(i)lulseet; Dios an-ga imal choco, chao; nue chabu-gal nen-mal-e-te. Te yopi-te.*
These ten book order-the make two-in are; God us-to something says, (to) do; well (we) love our neighbor-the. This be so.
These ten Commandments are comprised in two; to serve and love God above all other things and thy neighbor as thyself. Amen.

184. *Dios nan-neca carta narca-male-ti palmie atale guilubu.*
God's Church book order-the make five are.
The Commandments of the Holy Mother Church are five.

185. I. *E cuenagua. Pel dominguin*
The first. Every Sunday
misa ilogue-te.
Mass hearing-the.
To hear Mass on Sundays and festivals.

186. II. *E pocua. Pirca-bali*
The second. Year-in
impa-guin purtacal.
among confess.
To confess at least once a year.

187. III. *E pagua. Dios nan*
The third. God's for us
toto guilubu, matu ologua
feast (when) it is, bread round
apingue-gal.
(we) receive.
To communicate on Easter.

188. IV. *E paquegue. Dios purcue*
The fourth. God's death
guilubu, omoe ipa-guena
(when) it is, promise days-in
mele ib cune.
not anything eat.
To fast in Lent and on other prescribed days.

189. V. *E atale. Penuque-gal*
The fifth. What is owing
imal ticsal puquet.
something tax pay.
Te yopi-te.
Amen.
To pay the tithes and first fruits. Amen.

190. *Dios e-nan-neca iguen*
God's Church someone
guilubuset.
blessed.
The Sacraments of the Holy Mother Church.

191. I. *E cuenag(u)a. Nuse-gal.*
The first. Naming.
Baptism.

192. II. *E pocua. Patir*
The second. Priest
epir-guine-ti nusane.
lord-the naming.
Confirmation (= Bishop's naming).

193. III. *E paqua. Matu ologua*
The third. Bread round
apinguile-ti.
receiving-the.
The Eucharist.

194. IV. *E paquegua. Patir*
The fourth. Priest
imal nan-ga choque, chao.
something us-to saying, to do.
Penance.

195. V. *E atale. Oguigu-dani*
The fifth. He about to die
patir secolo.
priest calls.
Extreme Unction.

196. VI. *E nercua. Patir-mal* Holy Orders.
The sixth. Priests
ocua nane-gal.
(to) promise go.

197. VII. *E cublegue. Ome-mal* Matrimony.
The seventh. Women
nue-ti-huet.
properly love.

198. *Patir abchocal.* The *Confiteor.*
(To) priest confess.

An yopi-te pel an-choco
I indeed all I tell
Dios-guine e tumali-te-guine,
God-unto the great-one-unto,
Dios nan Maria-te-guine,
God's Mother Mary-the-unto,
Miguel Alcanjel-te-guine,
Michael Archangel-the-unto,
Juan Baptista, e mejal-
John the Baptist, the re-
mala-te amal moga, Pedro
lations neighbors and, Peter
Pablo-te-guil-guine, amal
Paul-the-eternal-unto, the
e pacalmal, pe
neighbors of the Trinity, you
patir moga pel istar an-
father and, all evil I
chaje am-be-ga-choco;
have done I you-unto-tell;
an-bal-chao chuli; ne
I again (will) do not; the
epincha-chul-bali-te, caca-
thought-not-by, mouth-
guin, absogue-te
by, saying-the (=intending)
chao; an nacpoe, an nacpoe,
to do; my fault, my fault,
an nue nacpoe-te ulguine;
my good (I) fault-the by;
Dios nan Maria tergui
God's mother Mary virgin(?)
tar-ga choco; Miguel
with her(?) (I) tell; Michael
Alcanjel, J. Bta, e
Archangel, J. Bta, the
mejal-mala-te Pedro Pablo
relations Peter Paul

I, a sinner, confess to God Almighty, to the ever blessed Virgin Mary, to the blessed St. Michael Archangel, to St. John the Baptist, to the most holy Apostles, St. Peter and St. Paul, and to all the Saints and to you father, to whom I tell my fault, that I have grievously sinned in thought, word and deed, through my fault, through my fault, through my grievous fault, and, therefore, I pray the Blessed ever-Virgin Mary, the blessed St. Michael Archangel, St. John the Baptist, and the Apostles St Peter and St Paul, and thee father, that you pray for me to God our Lord. Amen.

an-pe-chuna-te *patir*
I-you-invoke father

pe-an-ga *Dios icar-*
you-for-me (pray) God's way-

bali *nue* *te-yopi.*
on well let it be.

199. *Contricion* *ito* *guilubu.*
Contrition hearing it-is.

Act of Contrition.

Dios *angati* *ibi* *istar*
God me-for something bad

an-chaja-te *istar* *an-*
I have done-the evil I

chumaque; *pe* *yancal-ba* *pe*
say; you because-of you

Dios *unilagua* *nueti*
(are a) God saviour good

cuenagua-ti; *an* *peli* *purcua*
only-the; I all confess(?)

chaja-te; *pe-an-ga-oturtaque*
what (I) did; you to me punish

Niya-neca *ul-guine;* *imis*
Hell by-means-of; now

acar *an-bal-chao* *chuli,* *patir*
then I again do not, priest

pela *choco* *nue* *itogal*
all (he) says well obeying

igui *an-che* *palmie-mala.*
as to what I must do.

Te *yopi-te.*
This be so.

It grieves me, my God, to have sinned, to have offended thee, for that thou alone art so good a God and because thou couldst punish me with Hell. I intend to sin no more, to confess myself and to perform the penance which the Father Confessor may impose upon me. Amen.

200. *Itogue-te* *apintaque* *pelguil-*
Faith hope Vow-

uquet.
paying.

Act of Faith, Hope, and Charity.

Dios *epinche;* *Dios* *e*
God (I) receive; God I

an-ataco; *Dios* *e* *an-chabu;*
hope; God I love;

yer *an-nacpigu* *ibi*
because I grieve something

istar *chaja-te.* *Te* *yopi-te.*
evil having done. This be so.

I believe in God, I hope in God, I love God above all things and I repent in my soul for having sinned. Amen.

201. *Dios* *guilubu;*
God it-is;

Holy God;

Dios *guilubu;*
God it-is;

Holy God;

Dios *canti* *guili;*
God strong eternal;

Holy Mighty One;

Dios que purgue-te;
God not dying-thee;
Imal an-ga unir-gal
Something me-for save it
pel ibi istar.
(from) all that is evil.

Holy Immortal One;
Save us, O Lord
from all evil.

202. *Patir nen chumaque; nen*
Father we tell; we
apin pocuagua.
receive absolution(?).

Confession: relating one's sins to the Father Confessor.

203. *Inacua pe pur-mutaque?*
How long ago you confess?

How long since you confessed?

204. *Pirca guena. Que cuena.*
Year one. Not once.
Chultenal.
A long time.

A year. Never. A long time.

205. *Patir be-ga ib choquegal*
Priest you-to something says it
pechaja?
you did it?
Ee, chuli, patir.
Yes, no, Father.

Hast thou prayed for penitence?

Yes, no, Father.

206. *Ibi istar pe pinchaja;*
Something bad you receive;
ibi istar pe
something bad you
abchoque-gal?
say?
Ee, chuli, patir.
Yes, no, Father.

Have you believed in the Devil or evil things?

Yes, no, Father.

207. *Ila picua?*
Times how many?

How many times?

208. *Il cuena, ila pocua, untar*
Time one, time two, much-
impa-g-am-bali.
among.

Once, twice, many, or several times.

209. *Acus pe-chumague be cacan*
Falsehood you say you lie
chaja-te?
have done?
Eto, chuli.
Yes, no.

Have you sworn falsely, or with a lie?

Yes, no.

210 *Penguil pe-chumague tule*
Oath you say person (to)
mecho?
kill?
Eto, chuli.
Yes, no.

Have you sworn to slay?

Yes, no.

211. *Ila picua.* — How many times?
Time(s) how many?

212. *Il cuena, etc.* — Once, etc.
One time, etc.

213. *Pe istar chumaja-te chuli degua?* — Have you not spoken blasphemy?
You evil having spoken not perhaps?
Eto, chuli. — Yes, no.
Yes, no.

214. *Duminguin-mal nequin pe iti mai?* — Have you kept holy Sundays and Holidays?
Sundays present(?) you here are?
Eto, chuli. — Yes, no.
Yes, no.

215. *Pe papa-mal chuman-mala-te (= -mala-te) impa-guine pe-secole?* — Have you failed to your parents, or to your elders?
Your parents once a week you-call?
Eto, chuli. — Yes, no.
Yes, no.

216. *Dios onamaque carta pe-nuscanaje otartaje?* — Have you taught the doctrine to your children?
God's teaching book your children you instruct?
Eto, chuli. — Yes, no.
Yes, no.

217. *Tule-mal pe cuen mecha; tule-mal pi-chigli-leja-te?* — Have you slain or wounded anyone?
People you one kill; people you have cut?
Eto, chuli. — Yes, no.
Yes, no.

218. *Echa-guin pe-calitoja tule-mal-ga?* — Have you fought with weapons?
Weapons-with you-fought people-with?
Eto, chuli. — Yes, no.
Yes, no.

219. *Pe mumurgus chu choquegua?* — Have you been drunk?
You drunk perhaps say?
Eto, chuli. — Yes, no.
Yes, no.

220. *Pundol-mal pe-atursa choquegua?* — Have you sinned with a woman?
Women you-steal say?

Eto, chuli. Yes, no.
Yes, no.

221. *Pe-dina nue puna ibgua* Are you married?
You-indeed good woman something
Dios nan neca choque-te?
(in) Church say?
Eto, chuli. Yes, no.
Yes, no.

222. *Pe ibuja-te pe-mejar-mal de-* Was she related to you?
You married your relations per-
gua?
haps?
Eto, chuli. Yes, no.
Yes, no.

223. *Pe pundol pibioja choquegua?* Have you beaten your wife?
You wife beaten say?
Eto, chuli. Yes, no.
Yes, no.

224. *Iguena pe-aturza chu choque-* Have you robbed anyone?
Anyone you-rob perhaps-
gua?
say?
Eto, chuli. Yes, no.
Yes, no.

225. *Tule yancalbal istar imal* Have you slandered anyone?
People against evil something
pe-chaja?
you-have-done?
Eto, chuli. Yes, no.
Yes, no.

226. *Dios purquet guilubu chana cu* Have you eaten meat on forbidden
God's death when-it-is meat eat days?
chu choquegua?
perhaps say?
Eto, chuli. Yes, no.
Yes, no.

227. *Duminguin-mal patir onama-* Have you heard Mass on Sundays?
Sundays priest's teach-
gue pe-itoja?
ing you-heard?
Eto, chuli. Yes, no.
Yes, no.

228. *Ticsal puquet pe-napos choque-* Have you paid the tithes and the
Taxes payment you-pay say? first-fruits?
gua?
Eto, chuli. Yes, no.
Yes, no.

229. *Guiscugale.* Advice.
Advice.

Nue be-che; Dios be-cha-
Well you-do; God you-
bu-gal; mele-gue tua-tar
love-him; not for sin
mumuru; mele-gue ibi-mala
drunk; not anything
atursao; pane-pane pe-ona-
steal; often you-
maque; mele-gue bel istar
pray; not all bad
chao.
do.

Be a good Christian; love God; do not be a drunkard; do not be a thief; pray every day; never sin dishonestly.

Nue ulucuja Pap neu-
Well resting Father us-
guine ila nercua pe-ona-
for times six you-
maque chuli; Dios e Nana
pray not; God's Mother's
onamaque pagua pe-onama-
prayer three you
que. Dios an-gati ibi istar
pray. God me-for what evil
an-chaja-te an-chumaque; pe
I have done I tell; you
yancalba pe Dios unilagua
because-of you (are) God Saviour
nue-ti cuenagua-ti an pel
good only-the I all
i-purcua chaja-te; Pe an-ga
confession have made; You me-to
oturtaque Niya-neca
punish Hell
ulguine, imis acar an-bal-
by-means-of, now then I again
chao chuli; patir pela an-ga
do not; priest all me-to
choco nue itogal igui
says well (I) obey as to what
an-che palmi-mala. Te yopi.
I must do. This be so.

And for a penance you shall pray six *Pater Nosters* and three *Ave Marias*. I repent, my God, for having sinned, for having offended thee, only for that Thou art a God so good and also because Thou could'st punish me with Hell; I intend to sin no more, to confess myself and to fulfill the penance, which the Father Confessor may impose upon me, Amen.

230. *Ocus.*
End.

The End.

COMMENTARY

Title. *onamaque* 'doctrine,' 47; 'pray' *onamaguet*, 170; 'prayer,' 229.

1. *-din* definite element *di* + *n*; n. 53: 55. Cf. *pe-din*, 170.

2, 3, 4. *e-* demonstr. particle; sometimes article, sometimes possessive.

7. *moga* = 'and, also'; follows the noun which it connects, passim.

11. *teguil* interr. *te* demonstr. + *gui* + *l*, as in *nitala-l*, 20; *pircaguini-l*, 162.

12. *-te* demonstr. sfx. passim. Sense: 'The saying is true that God of the Three exists as One.'

13. *mastol-guin* 'for man (he was made'). *guin* appears as: 'in, by, through, about.' etc.

16. *e abogan;* lit. 'with respect to the womb'; locative understood; cf. 24, et passim.

18. *mele-gue,* passim; *mele* and *gue* (*gue*, 73) both mean 'not.' *ibi istar* '(with respect to) something bad.'

19. *-t* in *nuet* demonstr.: *-mala* = ordinary pl. ending; cf. *mala* 'these,' 119.

21. 'Who are those who think most good?'

23. 'Who are those who think bad?'

24. Implied loc. in *Niya-neca;* cf. 16.

25. *tegua* ordinarily 'who'?, but sometimes plain interrogative, as *degua* 11, 27, 115, 213.

26. 'Those who are without (= have not) God's saying.' *chul, chuli* = common suffixed neg., 76.

27. *at-aque-ti: ati* 'he' + *aque* 'hold' + demonstr. *-ti;* or perhaps *a-taquet* 'he wakens,' 104, 171. *-gua* in *unigua* (*unica*, 49) = *-gua* in *ibigua*, 53.

30. *na* seems demonstr. like *ne* in *ne-guiscugal*, 63; *ne-quin*, 214.

31. *Quilulele* 'eternal (*quil*) one.'

32. Cf. 12.

34. *te-nal* 'for this,' same element as 179, *ibi-naal* (cf. 204).

40. *chuja-te* 'the-having-saved' = 'he saved.' The idea 'from' is in the *-ja* which also = past, as *an-chaja-te* 'the-my-having-done,' passim. Cf. 168, where *-ja* = 'of.'

42. Note *-ta* = *-te*.

43. *picua*, 27. *pi* interr. as in *piti*, 45.

45. *piti* = *pi* interr. + *iti* demonstr.

46. *itogue-te* lit. 'the hearing'; *ito* 'hear,' hence 'believe, obey,' and even 'have.'

Dios palmie; passim: 'what God makes' = 'Commandment,' 131.

nan-neca or *e-nan-neca* = 'mother-house' = 'Church,' passim.

guilubu 'existence' or, 'to be'; noun or verb, passim.

47. *uni* 'how,' 47; *une*, 51.

49. *unica;* cf. 27.

50. *an-guacal*, lit: 'my skull,' 126.

51. *mala*, cf. 19.

52. *aya-chuli* 'friend-not' = 'unfriend;' note absence of pl. sign.

53. *ibi-gua*, 27. *o-tule-di-ba*, incorporation of *tule* 'live, alive, people.' For *-di*, cf. 1.

54. Note the def. *e-* as in 56 and as in (*i*)*e*, 40. The *-gal* (*-cal*, 71) makes the verb active, 121.

55. *-din*, 1.

56. *apintaquet* really = 'receiving' (*apintaquelo*, 133). The proper word for hope is *actacuelo*, 64.

57. *ogui;* by-form of *igui*, 60.

59. 'We receive (pl.) him as the good and true one.'

61. Note def. *nue-ti*, used as adverb.

63. *guiscugal* (67); cf. 229 = 'advice' (64).

64. *actacuelo*, 56; 200. *equisoe* seems to contain the root *guis-guis*, as in *guiscugal*, 63.

67. '(Through) faith I learn,' etc.

73. *nacguine*, cf. 92 and 171 *nacguineki*. *calguibi* 'earth' (?). The usual word is *nabsa*, 171. *gue* = not, 18.

75. Note how *-guine* 'in' is carried over to the second element, i. e., 'in heaven and in God's church.'

76. *chu* (219) additional dubitative like *chi;* same element as in *chu-li* not, 26. Cf. 224; 226.

77. 'Bread round' = the consecrated wafer.

80. *ia-bal* 'into' (?); contains frequent preposition *-bal* 'with, together with.' Cf. 114: *-bal-* 'again.'

82. Close connection between *nusa* 'name' and 'bless'; cf. *guilusa*, 84: 'eternally named' (note *-se* in *guilubu-se*, 91; *guilubu-seet*, 118; 183; *guilul-seet*, 190.

86. 'You (pl.) become not (*chuli*) having (*nica*) all our evil by means of water' = 'divested of all evil,' etc.

89. *nusale-ti*, 82.

92. *nacguine*, 73; 171. *edi-te*, I cannot place.

95. *ocoe* 'promise'; really = 'give'; *uco*, 169; *ucue-mal*, 119; *ocua*, 196.

99. *epir-quin;* lit: 'for (*quin-guin*) lord' + def. *-et*. 'Priest-lord' = Bishop.

104. *tue* 'sin'; cf. *tua-tar*, 229. *nu-taquet*, 171: = 'good wakening' = 'healing'; cf. 27.

106. *pirca-impa-bali;* lit. 'year-among-in'; seems to be used idiomatically for 'once a year.' Cf. *impa-g-ambali*, 208; *impa-guine*, 170.

ogui(gu)-tani; cf. oguigu-dani, 195. *oguigu* 'die' + *tani* 'come'; i. e., 'going to die.'

108. '(To) the priests, the person having done all the evil will tell it.'

110. Note lack of conjunction: 'feeling that one has done,' etc. Cf. 112: 'I-have-done-the' = 'the-my-having-done' = 'which I have done.'

114. Note *-bal-* again, passim and 80.

116. The word 'say' has been omitted: 'what the priest says to you to do, do it.'

118. *guilubuseet;* lit. 'what this is as a blessing,' 82.

119. *patir ucue-mal* 'the priests give.' Note one ending *-mal*, pl. for both noun and verb, 19.

121. *guelgu-gala, v. a.*, 54. Note the use of *guelgu*, as verb in 121 and as noun in 122.

123. 'Good-us-for' implies conditional clause = 'if good for us.'

126. 'The hand-holding of man and woman before the priest.'

guacal 'self,' 50 = 'skull.'

128. *tar-re*, cf. 229 and 171.

130. *purteque-gala; cf. purta-cal*, 186.

131. *narmacale-ti* contains *narma* 'order,' cf. 46. The book which makes the order = Commandment.

133. *apintaquelo*, 56.

136. *nan-cal-ba;* element *cal* same as in *yancal-ba*, 199; 225 'against;' 229.

139. Note the redundancy with *istar* and *acalacala;* 'to do something bad (and) evil to God,' etc. *e-mal* = 'his ones' (pl.).

141. *arpa*, 147, and *arpago*, 143; not to be confused with *arpi* 'descend,' in 171.

142. The *-r* in *unicar* is probably factitious = *unigua* (*-ca*, 49).

143. The word *misa* 'Mass' omitted; cf. 160.

146. Dative expressed by the construct relation: 'the parents' debt' = 'debt to the parents.'

147. *arpa*, 141.

153. *amel* 'the other, another'; cf. *amal* 'otherwise,' 169: *amal-gati*, 181.

155. *ib chae;* lit. 'anything do' (*ib* = *ibi*, passim); cf. 206 *abchoque.*

160. *Dios nan guilubu* seems to mean: 'God's Mother's existence!' Probably *neca* omitted; i. e., *nan neca guilubu* = 'God's Church's existence' = 'festival' (?).

162. *pirca-guini-l* (for *l* cf. 11).

164. 'To receive God as food when is the existence of his Son' = 'Easter'; cf. 160.

166. 'At the time of God's death' = Lent.

168. The *-jale* in *ticsa* = 'of taxes their payment.' Cf. 40.

169. 'Father who art for us (= ours): you sit in Heaven, holy also with respect to your name; I do in accordance with what you see (= care for); Regarding what you think, may it be on earth and in Heaven. Bread for us give; and do you say it otherwise (= forgive, 153) with respect to our debts, as we indeed do to our debtors; so that not we go down to the Devil, do thou do something for us, O Lord, with respect to what is evil. Amen.'

170. I cannot explain *imele* or *chinu-guine*, except to indicate that *-guine* seems to be the verbal complement. Note participial *istar nan pinche* 'evil we-who think.'

171. *a-bul-enena* seems to mean 'there is no one more (*bul*) than he.' *ueaca* must be a scribal error for *cuenchagua* 'only.' *abchoja-te* 'the one commanded by the Holy Ghost.' The first person must be understood again with *choque-guine* 'I confess.' *tar* seems to mean 'with,' 128; 198; 229; here, however, it may mean 'also.' See 198. *Na-chis-mala-te* = *na* the demonstr. + *chis* 'put' (?). *Purcuis tulaja-te;* lit. 'dead from life.' *Arpi* not to be confused with *arpa, arpago* 'work,' 141; 143; 147. *nicpa-bal na-cuisa-te* 'this is the going up to above;' *neco ito* 'house of hearing' means 'judgment' as to what his Father commands. *nonico* 'sending.' 'To see a sending of the dead and living' indicates the proper disposition of the nations. *Ito-guine* 'belief-for' again must be rendered 'I believe.' *Patir nan-ga nue-ti abchoco* 'the priest telling us a good thing' = the forgiveness of sinners. *Naeguineki;* cf. 73; 92.

172. *narcamale-ti;* 'error' for *narmacale-ti.*

173. *chabu-bu-gal* must be loved. *-bu* seems to = *-bie* 'wish, desire, ought' in phrases such as *mar cumbie* 'he would like to eat something'; cf. 197.

178. *pali-pali* 'promiscuously'; cf. 175 and *panepane*, 229. *epuo* cf. 181.

179. *naal* same element as in *te-nal*, 34.

181. *amal-gati*, 153 and 169. *apuo;* note change of vowel from *epuo*, 178.

183. 'These ten order-books are holily comprised (*guilul-seet*, 82) in two.'

188. *ipa-guena* = *ipa-guine* 'in those days' = 'at that time.'

190. *guilubuseet* 'blessed,' 82.

192. *epir-guine*, 99.

195. *oguigu-dani*, 106.

196. *ocua* 'promise' = 'give,' 95.

197. *-bu* + def. *-et*. Cf. *bu* in *chabu* and *bu* = *bie* 'wish, ought,' 173.

198. *e mejal-mala-te amal moga* 'the relations and neighbors'; a strange equivalent for 'the Holy Apostles.' *epincha-chul-bali-te* 'thought-not-with' = 'not with thought (word or deed),' the latter idea being expressed by *absogue-te chao* which seems to mean 'the saying (= intention) to do.' Note the *s* in *absogue* for *abchogue*. Strange to find *an nue nacpoe* 'my good fault' for 'my grievous fault;' why did not the translator use *istar nacpoe* 'bad fault?' On *nacpoe*, see 200. *iergui* may mean 'virgin' (?). *tar-ga* perhaps 'with her' = 'to her.' Note on the *tar*, 171. *an-pe-chuna-te;* lit. 'I tell you true' = 'invoke.' The word 'pray' = *onamaque* seems to be omitted, possibly by error of the copyist.

199. 'O my God that which I have done evil I tell.' *yancal-ba*, 136, 225, 229. *purcua* 'confess' (202); cogn. with *pur-mutaque* 'confess,' 203. *itogal* 'I obey all the priest says as to what I must do.'

200. *an-ataco* 'I hope;' same element as in *actacuela*, 64 (56).

an-nacpigu 'I grieve'; cogn. with *nacpoe* 'fault,' 198.

202. *pocuagua* must surely be an error, as it means 'twice,' but the context requires 'absolution.' This should perhaps be *purcua-gua;* cf. *i-purcua* 'confession,' 229. See note 199, and *pur-mutaque*, 203.

204. *chul-te-nal* 'a long time = *chul* 'not' + *te-nal* 'for this'; probably = 'now'; i. e., 'not now, not at present.' Cf. 34; 179.

206. *ab-cho-que-gal; ab* demonstr., for a similar combination, cf. *ibchae*, 155.

208. *impa-g-am-bali* 'often'; cf. 106.

214. *ne-quin* 'in this' = *ne-guin* 'here, present,' 30.

215. *chuman* 'week' = Span. *semana*.

217. *pi*, for *pe* 2 p.

219. Here and in 220, 221, 223, 224, 226, 228, *choque-gua* 'say' seems to be used like a past sign; in this case = 'have you?' *mumurgus*, 229.

225. *yancal-bal*, 136, 199, 225, 229.

229. *guiscugale*, 63; 64. *tua-tar* 'with sin,' 104. *tar*, 128. *mumuru* = *mumurgus*, 219. *pane-pane* is probably equivalent to *pali-pali* 'promiscuously,' 178. Note the *bel*-form with *b* for the usual *pel* 'all.' *nue ulucuja* 'well resting' seems to mean 'for a penance'; i. e., 'a means of rest' or 'peace.' *ila nercua pe onamaque chuli* = 'will you not pray it six times?' *i-purcua* 'confession'; cf. 202, *pocuagua*.

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SOME INDIAN STREAM NAMES

By GEORGE BIRD GRINNELL

Gros Ventres of the Prairie

THE Gros Ventres of the Prairie, a branch of the Arapaho, now live for the most part on the Fort Belknap reservation in northern Montana. They are known to the Blackfeet as *At-sē'-na*, which is translated Gut People. This name in the books is more commonly written Atsina, but as I have heard the name pronounced by the Blackfeet the *e* is long like *ay* in "hay." No one apparently has been able to account for their name Gros Ventres, but the addition of the words "of the Prairie" always distinguishes them from those Gros Ventres commonly spoken of as "of the Village," or "of the Missouri," otherwise called Hidatsa and Minitari, or Minnetaree.

They call themselves *Ah-āh'-nī-nī'*, meaning "clay people." Why they are so designated I do not know, but it possibly refers to their extensive use of white clay in painting themselves and in whitening the buffalo-robes which they tanned. The sign commonly given for them is the one interpreted to mean "big bellies," which Mr James Mooney explains as meaning "beggars" or "spongers."

Many years ago the late Hugh Monroe, who reached Fort Edmonton in the year 1814, told me that the Atsē'na had come into the plains country near the mountains not long before his arrival in the country, but General Hugh L. Scott[1] cites Legardeur de Saint Pierre as implying that the Gros Ventres were in the Blackfeet country in 1751.

The traditions of the tribe, so far as I have been able to learn them, are vague enough. They say that they separated from the Arapaho somewhere in the north, and that they themselves came

[1] The Early History and the Names of the Arapaho. *American Anthropologist*, N. S., vol. 9, p. 545.

from the north or the northwest. The Gros Ventres have the widely spread story of a division of the tribe by the breaking up of a frozen river, and believe that today, off somewhere in the northwest, a section of the tribe still exists. Some intelligent mixed-bloods declare that this story of breaking up of the ice in the river must refer to some ancient crossing of Bering strait. This story is told also by the Sarsi, Blackfeet, Bloods, Piegan, Cheyenne, Arapaho, and Crows, and very likely by still other peoples.

With the assistance of Charles Buckmann, of St Pauls, Montana, I recently recorded a few Gros Ventres stream names, which I here offer.

SASKATCHEWAN RIVER, north branch: *Ą̃ yāh' tā nō''*, 'Tall Trees' (river). (*ā yāh'*, 'tall', + *tā nō''*, 'trees or timber'.) So named because along that stream were many large cottonwoods.

SASKATCHEWAN RIVER, south branch: *Nūt' nī tsēh'*, 'Belly river' (*nūt*, 'belly', + *nītsēh'*, 'river').

MAIN SASKATCHEWAN RIVER: *I wās' sī' nī tsēh'*, 'Elk river' (*ī wās' sī*, 'elk', + *nī tsēh'*). Because many elk were found along this stream.

MILK RIVER: *Ẽt sēr' ē nī tsēh'*, 'Little river' (*ẽt sēr'*, 'small', + *nī tsēh'*). Because on the prairie at its head it is a small stream.

CUTBANK RIVER: *Wās ī' nī tsēh'*, 'Bear river' (*wās ī'*, 'bear', + *nī tsēh'*).

MARIAS RIVER: Same as the preceding.

BADGER RIVER: *Bāh' ū nī tsēh'*, 'Badger' (*bāh' ū*, 'badger', + *nī tsēh'*).

TETON RIVER: *Ĩts tsī' tsī yā*, 'The Knees'. Named from a neighboring butte, which is so called from its supposed resemblance to a pair of bent knees.

SUN RIVER: *Tsīn' ī nā āh' wā wā āh'*, 'Still Water' (*tsīn' ī*, 'no', + *nā āh' wā*, 'moving', + *wā āh'*, 'water').

MISSOURI RIVER: *Bāās nī tsēh'*, 'Big River' (*bē nā thī' ū*, 'big', + *nī tsēh'*).

BELT RIVER: *Kā yā' tī hī nī tsēh'* (*kā yā' tī hē'*, 'belt', + *nī tsēh'*). The stream is named from the Belt mountains, which in turn are perhaps named from a butte standing among them which rises to a point, and part way up is encircled by a band of white rock—a belt about the butte.

JUDITH RIVER: *Nāhts nī tsēh'*, 'White river' (*nāhts ū'*, 'white', + *nī tsēh'*). It is related that in very early times a party of people who

were traveling came to this stream to cross it. It was high,—bank full,—and the water, colored by clay, was white; hence the name.

ARMELLS CREEK: *Ā́thḗ' ī hāh' wū' ka' auhk'*, 'Medicine Lodge creek' (*āh' thē' ī hāh'*, 'sacrifice or offering', + *wūh'*, 'lodge', + *ka' auhk'*, 'creek'). Because on the head of this stream was often held the ceremony of the Medicine Lodge.

MUSSELSHELL RIVER: *Wī' ī nī tsēh'*, 'Moonshell river' (*wī' ī*, 'moonshell', + *nī tsēh'*). It is not known how the river received this name. The moonshell is a polished marine shell received in trade and worn at the throat or on the head. It is possible that before the traders came, and before they knew the moonshell, they may have polished the shells of freshwater mussels (*Unio*), and used these in the same way that they afterward used the trade shells.

YELLOWSTONE RIVER: *Ī wās' sī' nī tsēh'*, 'Elk river' (see Main Saskatchewan river, above).

BIG MUDDY: Flows into the Missouri river from the north, near Culbertson. *Sāāb ūd yūh'*, 'muddy', because so miry to cross.

OWL CREEK, tributary of Big Horn river from the west below Big Horn hot springs: *Byā' tē nī tsēh'*, 'Owls' river' (*byā' tē*, 'owls', + *nī tsēh'*).

PRYOR CREEK, tributary to Yellowstone river from the south: *Ot' sū nī tsēh'*, 'Arrow river' (*ōt' sū*, 'arrow', + *nī tsēh'*). Near the head of this stream, close to the mountains, is a little butte, and once when the Gros Ventres were passing this butte they saw many arrows stuck in the crevices of the rock; hence the name.

PLATTE RIVER—the main Platte and the North Platte rivers bear the same name as Musselshell river, but with the prefix "large": *Ab' ĭts wī' ī nī tsēh'* (*db'ĭts*, 'big', + *wī' ī*, 'moonshell', + *nī tsēh'*).

SOUTH PLATTE, Little Moonshell river: *Ĕts wī' ī nī tsēh'*, (*ētsĕr'*, 'small', + *wī' ī* + *nī tsēh'*).

PEOPLES CREEK: *Ī nīt' ē ī kā' āuhk''*, 'Person's creek' (*ī nīt' ē ī*, 'a person', + *kā' āuhk''*, 'creek'). Long ago, on this stream, a mare had a colt which had the head of a human being. The people used to speak of this colt as a person, and from the fact that it ranged on the stream they called this Person's creek. Previous to that time it had been called Grove creek: *Jā' ā ā kā' āuhk''* (*jā' ā ā*, 'group of shrubs or small trees', + *kā' auhk''*).

LODGE POLE CREEK: *Bā āh ĭn' ī nī tsēh'*, 'Red Mountain river' (*bā ī'*, 'red' + *āh ĭn' ī*, 'mountain', + *nī tsēh'*). So called because it comes down from a red hill in the Little Rocky mountains.

ROSEBUD RIVER: *Yā' nī nī tsēh'*, 'Roseberry river' (*yā' nī*, 'roseberry', + *nī tsēh'*). Named from the abundance of rose-bushes growing in the stream bottom.

TONGUE RIVER: *Ĭn nī tūn' ĭ nī tsēh'* (*ĭn nī tūn' ĭ*, 'tongues', + *nī tsēh'*).

POWDER RIVER: *Ĭ' tē nī tsēh'* (*ĭ' tā*, 'powder', + *nī tsēh'*). *Ĭ' tā'* is any fine powder that is black or dark-colored, and has been burned or in any way has had to do with fire (*ĭt' tē*, 'blaze, of fire'). The name no doubt refers to the black dust from the seams of lignite found along this stream.

BIG HORN RIVER: *Ŏt tē' ĭ nī tsēh'*, 'Wild Sheep river' (*ŏt tē' ĭ*, 'wild sheep' + *nī tsēh'*).

LITTLE BIG HORN RIVER: *Ĕts ŏt' tē ĭ nī tsēh'*, 'Little Sheep river' (*ĕts ĕt'*, 'small or little', + *ŏt tē' ĭ*, 'wild sheep', + *nī tsēh'*).

STINKING WATER: *Nī tsēh' wā sⁱ bya* (*nī tsēh'*, 'river', + *wā sī'*, 'bad', + *bya*, 'smell'). This name is usually explained as referring to the odor of sulphuretted hydrogen gas emitted by the hot springs on the river. The Gros Ventres, however, have another story which says that long, long ago, a great party of Gros Ventres on the warpath fought with the Shoshoni on the head of the Stinking Water and about sixty people were killed. The Gros Ventres kept on their way south, and on their return, when they passed the place where the bodies of the dead lay, the odor of decaying flesh was so offensive that they called the stream by this name.

GRAY BULL, tributary of Big Horn river from the west: *Ī nāt' sī nī tsēh'*, 'Bulls' river' (*ī nāt' sī*, 'buffalo bulls', + *nī tsēh'*).

PAWNEE

Many years ago I made a few notes on some Pawnee stream names, chiefly of those in the country inhabited by the Pawnee previous to their removal to Indian Territory in 1874. At the time Mr J. B. Dunbar and Capt. L. H. North assisted me with the etymology of some of these names, kindnesses which I wish to acknowledge, although so tardily.

Very little seems to be known about the Pawnee language, though many years ago Mr Dunbar prepared a dictionary and grammar of this tongue, which, however, have never been printed, while the grammar, most unhappily, has been lost.

LOUP RIVER: *Īts' kā rĭ*, 'Many Potatoes', or 'Potatoes Plenty' (*īts*,

'potato', + *tĭ' kûr ĭ*, 'it is abundant'). From the abundance of the root known as wild potato, or *pomme blanche* (*Psoralea*), which was found growing near its banks. Possibly this is a Skidi name. Mr Dunbar says that "the orthodox name of the Loup" is that which I know as applied to the Niobrara river.

NIOBRARA RIVER: *Kĭts kût ûr' ĭ*, 'Swift Water' (*kĭts' ŭ*, 'water', + *tĭ' kût ûr ĭ*, 'it is swift, it is rapid'). Commonly called Running Water by some Indian tribes.

CANADIAN RIVER: *Kĭts pâ' kût*, 'Red Water' (*kĭts' u*, 'water', + *tĭ' po kût*, 'it is red'). From the color of the water.

SOLOMON RIVER: *Kĭts ĭ wĭts' ûk*, 'Water over it' (*kĭts' ŭ* + *tĭ' kĭt ûk*, 'it is above'). Named from the Sacred Spring situated on its banks; described in *Pawnee Hero Stories and Folk Tales*, p. 358.

SMOKY HILL RIVER: *Ăh kau' ĭ ra ra kût a*, 'Yellow Banks' (*a kău' ĭ ŭ*, 'bank', *ra*, 'sign of plural', + *tĭ' rûk ût a*, 'it is yellow'). From the color of the soil through which it flows.

SALT FORK OF CANADIAN RIVER: *Kĭts' kă ĭt*, 'Salt river' (*kĭt'sŭ*, 'water', + *kaĭ' ĭt ŭ*, 'salt'). From the taste of its water.

REPUBLICAN RIVER: *Kĭ' rā rŭ tăh*, 'Manure river' (*kĭts' ŭ* + *ŭt' ăt ŭ*, 'dung', or perhaps '*rā rŭ tăh*, 'it is filthy'). So called because of the enormous numbers of buffalo which resorted to it, polluting the waters.

PLATTE RIVER: *Kĭts' ka tûsh*, 'Broad river' (*kĭts' ŭ* + *tĭ' kăt ûs*, 'it is flat, shallow or broad').

ARKANSAS RIVER: *Kĭts kăk'*, or *Kĭts' kē ŭts*, 'Long river' (*kĭts' ŭ* and *tĭ' kē ŭts*, 'it is long').

MISSOURI RIVER: *Kĭts wăr' ŭks tĭ*, 'Mysterious water' (*kĭts' ŭ* + *tĭ wăr' ŭks tĭ*, 'it is wonderful'). The Pawnee greatly reverenced the Missouri river, which they called Medicine Water. See *The Story of the Indian*, p. 186.

SHELL CREEK: *Skā pĭr 'ĭ ŭs kĭts' ŭ*, 'Shell water' (*skā' pĭ rŭs*, 'clam-shell', + *kĭts' ŭ*). From the abundance of fresh water clams or mussels (*Unio*) found in it.

BEAVER CREEK: *Kĭt' ŭks kĭts' ŭ*, 'Beaver water' (*kĭt' ŭks*, 'beaver', + *kĭts' ŭ*).

WOOD RIVER: *Kĭts' ŭ lŭk' ĭs*, 'Wood water,' or 'Timber water' (*kĭts' ŭ*, + *lŭk' ĭs ŭ*, 'wood', 'timber').

LOOKING GLASS CREEK: *O ka tah' wĭ rĭk kĭt'sŭ*, 'Looking Glass water' (*o ka tah wĭ' rĭk*, 'a small hand-mirror', + *kĭt' sŭ*). From the reflection in its still water.

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KICKAPOO ETHNOLOGICAL NOTES[1]

By WILLIAM JONES

MARRIAGE CUSTOMS

WHEN a man has made his acquaintance with a woman and is received by her with favor, he seeks entrance to her lodge. He goes there at night at an hour when the inmates are all asleep. He departs any time before the break of day. These visits last till the pair decide that they will become man and wife. Each will tell the parents at home the object of desire. The mother is usually the first to be told. The dialogue between mother and daughter may be something like this:

"My Mother, so-and-so has been coming to see me."

"That is good, my daughter. He is a good young man. He behaves himself. He comes of good family." The father and other near relatives, usually those advanced in years, will have a good word to put in.

The young man can say, "My mother, so-and-so has looked upon me with favor."

"That is good to hear, my son. Her parents are good. She obeys and does what she is told." The father and other near relatives of advanced age will add their say of approval.

The young man goes to the woman's lodge at evening and spends the night with her. This he does for two or three or more evenings and nights, leaving each time at morning. This marks the beginning of their career as man and wife. The next stage in the ceremony is a visit to the bride by a woman who stands in relation to the husband as a sister's daughter. She might be called his niece in English; she certainly would be if she was really the daughter of

[1] These ethnological notes on the Kickapoo Indians were found among the papers of the late Dr William Jones, and although brief are here published because of their intrinsic value. The belief that they should be printed exactly as given by Dr Jones and without comment has led me to confine myself strictly to editorial supervision. —TRUMAN MICHELSON, Bureau of American Ethnology, Washington.

a sister. She takes to the bride a horse and all kinds of presents. The horse can be given to an older or to a younger brother, and the presents must go to relatives who are to her as mother's brothers and as sister's sons. The bride then gives presents to the woman who brought the presents from the husband. Often more than one has brought the presents, but whatever the number of women they shall be to the husband as daughters of a sister. The presents given by the bride belong to the women only who came from the husband. No horse is given in return by the bride. Then the man and woman are married. They can live a while with the family of one or the other, but they go into their own lodge as soon as they can put it up.

MANITOUS

The name of the culture hero, the son of the manitou above, is *Wīza'kāa* (z = θ); his younger brother is *Pāpā'tāa*. The manitou of night is *tepe'kinenīa*. The term for death, manitou of death, disease, is *apanāeni*. The designation of a shadow, soul, is *nōgānāa*.

TERMS OF RELATIONSHIP

The terms of relationship are:

nōza = my father; *ōzāni* = his father; *ozwawa'į* = their fathers.
negya = my mother; *ugyāni* = his mother; *ugiwāwa'į* = their mothers.
nemecō'a, *nemecōmeza* = my grandfather; *omeco'wāwa'į* = their grandfathers.
nō'komeza = my grandmother.
negī'ą = my aunt, i. e., my mother's sister; *ugī'āni* = his aunt.
nezegwiza = my aunt, i. e., my father's sister.
nōza = my uncle, i. e., my father's brother.
neciza'ą = my uncle, i. e., my mother's brother.
nezezāa = my elder brother.
nezīmā'ą = my younger brother, younger sister.
nemizāa = my elder sister.
nete'kwāmą = my sister, said by masculine speaker.
netawāmāą = my brother, said by feminine speaker.
nenegwā'ą = my nephew, i. e., my sister's son.
necemīą = my niece, i. e., my sister's daughter.
negwizą = my son.

negwiẓą = my nephew, i. e., my brother's son.
neläneząą = my daughter.
neläneząą = my niece, i. e., my brother's daughter.
nīnemwa = my sister-in-law, my brother-in-law.
nenegwäna = my son-in-law.
nahägane'kwäa = my son's wife.
nahägana = my daughter's husband.
nemecōma = my father-in-law.
nō'komą = my mother-in-law.
nōcizema = my grandchild.
äne'kai nemecō'a = my great grandfather.
ane'kai nōcizemą = my great grandchild.
äne'kai = second.
nemezotäna = my father, my mother, my mother's younger sister, my father's younger brother.
netōtäma = my brother, my sister.
pecegwä'a = divorced husband or wife.

The following are terms of direct address:

äwäze = O father.
nägye = O mother.
negwähi = O my son.
neläha = O my daughter.
nō'ko = O my grandmother.
nemecą = O my grandfather.
negĭhe = O my aunt.
necĭze = O my uncle.
necémi = O my niece.
nenégwa = O my nephew.
nīnemwe = O my sister-in-law.
nōcĭhi = O my grandchild.
nenegwane = O my son-in-law.
nō'kome = O my mother-in-law.
nĭ'ka = intimate term of address between men.
iskwä'e = intimate term of address between women.
päniа = he or she is out of mourning for a dead spouse.
nenäpäma = my husband.
nĭwa = my wife.

To the above the following expressions may be added:

netcĭnawämäa = I am related to him.
nena'änwänemäa = I am closely related to him, i. e., by blood.

nahāgāpia = he goes to live with his wife's people.
nahāgane'kwāiǫ = she goes to live with her husband's people.
uce'kihādgi = they adopted him (to take the place of a dead relative).
anōna'i'ādgi = they adopted him (to take the place of a dead relative).
cīgāia = she is in mourning for her dead husband.
cīgāia = he is in mourning for his dead wife.
ināgōtiāgi = they are related.

THE TRIBAL TWO-FOLD DIVISION

The tribe has a two-fold division. A member of the phratry that paints with charcoal (*ma'katāī*) is called *uskacą;* a member of the phratry that paints with white clay (*āpyāni*) is called *kīckō'ą*.

A child does not enter a phratry till after it has been given a name. The name comes from the father's name unless the right of naming the child is handed over to the mother by the father. If the father is *uskacą* then the offspring will be *uskacą*. If the mother is *kīckō'ą* and she has the right of giving the name, then the child is a *kīckō'ą*. Again, the child can become a *kīckō'ą* if he is given to a grandmother, grandfather, sister's son, or a sister's daughter; the child gets his name from the one in whose hands he falls and if the namer is a *kīckō'ą* the child will be a *kīckō'ą*. The division is for rivalry in athletics only.

CLANS

The clans are:

nāpīzotcigi = they who are named from water.
mā'kwisotcigi = they who are named from the bear.
mācāizotcigi = they who are named from the elk.
māgezīizutcigi = they who are named from the bald eagle.
mā'tegwizutcigi = they who are named from the tree.
mīnizutcigi = they who are named from the berry.
pāpāgāmōizutcigi = they who are named from the fox.
mā'wāizutcigi = they who are named from the wolf.
ānenuswizutcigi = they who are named from the buffalo.
mā'tuzāneniizutcigi = they who are named from the man.
penāizutcigi = they who are named from the turkey.
nāneme'kīizutcigi = they who are named from the thunder.

Henry Williamson Haynes

HENRY WILLIAMSON HAYNES died in Boston on February 16, 1912. He was an only son of Nathaniel and Caroline Jemima (Williamson) Haynes, and was born in Bangor, Maine, September 20, 1831. He prepared himself for Harvard College at the Boston Latin School and was graduated from Harvard with the class of 1851.

After teaching for one or two years he studied law and was admitted to the bar in Boston on September 26, 1856.

He became Professor of Greek and Latin in the University of Vermont in 1867, and in 1869 was made librarian of the same University; these positions he held until 1873, when he returned to Boston.

On August 1, 1867, he married Helen Weld Blanchard, daughter of John Adams and of Sarah (Harding) Blanchard; the wedding took place at the American Legation in Paris.

In intellectual life, among the positions held by Professor Haynes were the following: Membership in the board of trustees of the Public Library of the City of Boston, and the Boston School Board; a membership in the Massachusetts Historical Society and for some years in its council; in the Boston Society of Natural History, of which he had been vice-president; in the American Anthropological Association, the American Folk-Lore Society, and the Anthropological Society of Washington; in the Archæological Institute of America, of which he had been a member from its beginning and on whose executive committee he had served. These activities in the learned societies point plainly to his interests in life. Professor Haynes was primarily, in the old-fashioned sense, a man of "the humanities," i. e., "Grammar, rhetoric, poetry, and a study of the Greek and Latin classics," with—added to this—"humanity," which is Anthropology in its broadest acceptation. Professor Putnam defines the last as "man and his works"; possibly in this sense Anthropology may be considered to cover all the reading, writing, and work of this rich lover of mankind.

Of Professor Haynes' work in the broader field of literary activity, an interesting scrap-book gives a varied insight.

In re the future archeologist, mulling over the fallen civilizations of the present, Professor Haynes in the *Boston Courier* in 1860 quotes



Henry W. Haynes.

Kirke White's *Time* (1803): "Where now is Britain, etc." In 1861 we find him publishing a critique of Dean Milman's *History of Latin Christianity*. This includes a "Scholium" on "Mæcenas . . . qui uxorem millies ducit," exculpating Mæcenas, not without salt.

In the column of "Notes and Queries" in the public prints Professor Haynes was frequently present; his wide reading and exceedingly retentive memory made him an invaluable correspondent for those whose lack of knowledge leads them to seek such hebdomadal aids to the injured.

The classical knowledge of Professor Haynes was, strangely, both broad and deep; a student of literature rather than a philologist he preferred exegesis to etymology; of him could well be said the Terentian "Humani nihil a me alienum puto."

In the old days the test of classical learning was the composition of Latin verse. The following poem written on the occasion of the inauguration of the Memorial Statue of the Latin School Association may show how skillful a master of this art he was; the meter is the Asclepiadean Minor:

Heroum juvenum pro patria mori
Optantes animae! quale decus damus
Dignum pro meritis? Prosequimur quibus
Votis et lacrymis piis?

Hoc marmor vovimus, discipuli tui
Sculptum, cara parens, artificis manu,
Fraternis animis, cordibus aemulis
Grates testificans opus.
Immortalis honos, Famaque nobilis,
Mansurumque virens tempus in ultimum
Nomen, commemorans Gloria laudibus
Ornabunt statuam sacram.

O Natale Solum! numina dent tibi
Duris temporibus pectora fortia,
Prolem magnanimam, talia perpeti
Caris his Laribus satam.

Professor Haynes was a lecturer on Greek literature, and in 1873 wrote an account of the Westminster play for that year which happened to be the "Phormio."

With all Professor Haynes' appreciation of the value of the old-fashioned classical training for university students, he was no mere "Laudator Temporis Acti," teste the following quotation from the report presented by him to the board of overseers of Harvard College from the

"Committee on Greek" in 1893. The change from recitations to the lecture system was in process of fulfilment and at the time was considered a great innovation.

"How was it possible for any high standard of scholarship, anything better than bare mediocrity, to be expected of the student, when the whole class was held in check by the dead weight of all its dull and lazy members? . . . In the judgment of my classmate, Professor Goodwin, in which I fully concur, in our time fully three-quarters of the recitation hour was wasted, for the better scholars, in hearing those who knew nothing of a subject attempt to talk about it."

From Greek and Latin philology it is but a step to the archeology of classical lands, and nowadays it is but a step farther to the study of paleolithic and neolithic archeology on the one hand and to the archeology of America on the other.

Not so was it in the earlier times of Professor Haynes. King Minos had not yet erected the bridge over which one might pass from Phocis of the polished stones to Delphi of the Sun-god;[1] nor did men recognize the same beauty in the pottery of the White river in Arkansas as in that of the pre-Hellenic Mycenean layers. All the more honor, then, to those who could look at more than one stone at the same time, and look forward to the time when all things should take their own orderly place in a line determined not by time but by industries.

In American archeology his interest lay largely in the Southwest and the Mexican fields. This is proved by the long excerpts from the reports of the executive committee of the Archæological Institute of America found in his scrap-book. These are a report on Bandelier's work in Mexico in 1881, of Bandelier's researches in New Mexico in 1882 and 1883, and a report (1885) on the contributions of Lewis H. Morgan and the general published work of Bandelier.

The most important of the general articles by Professor Haynes are: "Progress of American Archæology during the years 1889–1899,"[2] and the chapters in Winsor's *Narrative and Critical History of America* on the "Prehistoric Archæology of North America" and "Early Explorations of New Mexico."[3]

In regard to the question of the antiquity of man in America his interest never flagged; he took a middle ground between those who acclaim each skull dug from the deeper depths and each culture not squaring

[1] *Cf. Amer. Jour. Archæol.*, Jan.–Mar., 1913, p. 107, quoting G. Soteriades, Πρακτικά, 1911, pp. 205–235.

[2] *Amer. Jour. Archæol.*, 2d ser., vol. IV, pp. 17 ff.

[3] Winsor's *History*, vol. I, pt. 2, pp. 329 ff., and vol. II, pp. 473–504.

at first sight with that of the red Indian as evidences of a plurality of races if not of ages of stone on this continent, and those on the other hand who "make all things new" and will not be persuaded though one rose from the dead.

Professor Haynes' conclusions at the end of his chapter on Prehistoric Archæology in Winsor may have been changed during twenty years of research, but as expressed by himself they are still capable of the support of a large circle of students: "That the so-called Indians, with their many divisions into numerous linguistic families, were later comers to our shores than the primitive population . . . that the so-called 'moundbuilders' were the ancestors of tribes found in the occupation of the soil; and that the Pueblos and the Aztecs were only peoples relatively farther advanced than the others."

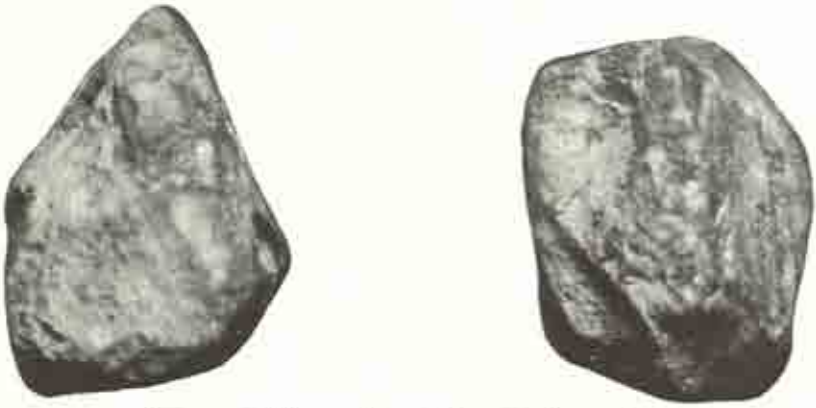


FIG. 53.—A "chopper" from Ridgefield, Connecticut.

An original contribution of Professor Haynes to the material bearing on early man in America was the discovery by him in New England of a primitive type of stone chopper.[1] This he brought out before the Boston Society of Natural History in the eighties, and he continued to hold much interest and faith in them until his death. These specimens are described in the catalogue which the present writer had the privilege of making in the presence of Professor Haynes, as: "Specimens representing a culture in America possibly more primitive than the paleolithic; they were collected in the majority by Professor Haynes from 1880 to 1890, and, often of white crystalline quartz, are of two types; they may

[1] Cf. *Proc. Boston Soc. Nat. Hist.*, vol. XXI, pp. 382 ff. (Feb. 1, 1882); also *Boston Transcript*, Feb. 2, 1882.

show a prepared cutting edge or a prepared point; the latter class resemble somewhat an Acheuléen '*coup de poing*' of the triangular type: they are found in northern Maine, New Hampshire, and Vermont, as well as in Connecticut, and in Massachusetts in the vicinity of Boston."

Professor Haynes was one of the very few Americans to take an active and a scientific interest in the congresses, discussions, collections, and researches in the field of prehistoric archæology abroad.

During his trip of 1877–1878 he found in Egypt a large number of stone implements of paleolithic type which he exhibited at the Paris Exposition of 1878, receiving a medal in recognition of the researches. Placing these on exhibition he made the following mention of the event in his diary: "Sept. 20, 1878: My forty-seventh birthday; up to anthropological exhibition at nine A.M.; met M. de Mortillet there and put my Egyptian flints into a case." This was Gabriel de Mortillet, perhaps the greatest of the "*préhistoriens*."

Professor Haynes was very fond of meeting people of similar tastes and during his earlier trips abroad, beginning in 1873, he learned to know Dr Blackmore of the famous Blackmore Museum in Salisbury, John Evans, William Ransom, W. Boyd-Dawkins, Reboux, Laville, Baron de Baye, Abbé Ducrost, Perrin (Chambé-y), Bonfils (Menton), Bellucci (Perugia), Giglioli, and many others. Visiting sites in company with these men he gathered a great deal of first-hand knowledge that stood him in good stead for nearly forty years.

His social gifts led him to enjoy scientific congresses, and it is worthy of note that he was present at the first Congress of Americanists, held in 1875 in Nancy. The appositeness of this inauguration of the international series of congresses is seen in the proximity of St Dié, whose recent festivities recall that the name "America" first came forth from the little town.

Professor Haynes was an indefatigable reader, and his command of many tongues, ancient and modern, prompted him to form a large library. Many of the books on prehistoric archeology are extremely rare in this country, and Harvard University is fortunate in having received these. They not only illustrate the progress of the science during fifty years, but are not by any means all put on the shelf as to constructive contribution.

It was in his capacity as a lover of specimens that Professor Haynes granted me the privilege of first knowing him well.

At the instance of Professor F. W. Putnam and myself, he consented to pass many hours, delightful for me, in assisting me to write a catalogue

of his European stone specimens as well as some of his trophies from America.

A short analysis of some of his specimens follows: Representing the so-called Eolithic period there are specimens from Alderbury, Stoke Pogis, Bradford on Avon, Windsor Park, Bath, Canterbury, and the vicinity of London. Also there are some of the Thenay flints, so far as is known the only ones in this country. These famous flints, though now discredited, are interesting as illustrating the Eolithic controversy and as representing the oldest claimed human industry until the discovery of the Boncelles specimens by Rutot and the Ameghino "discoveries" in South America.

In the paleolithic field England is represented by specimens from Bedford, Hitchin, and a good collection from the Creswell caves; France provided specimens from the classic station of St Acheul (a station apparently inexhaustible), from the valley of the Somme, and from the great caverns and rock-shelters of the Dordogne. He himself found the eponymous Éclats Levallois in and around Paris. Then there are the remarkable Egyptian paleoliths mentioned above.

His neolithic collection was exceedingly numerous and from widespread sites: Salisbury, Reculver, Torquay, Dunstable, Bath, Derby, the Thames valley, and other English places; Cæsar's Camp near Dieppe, and the famous Grand Pressigny; Scandinavia (Helsingborg and Lake Mälaren in Sweden, and Valsgard, Solager, and Kjørsjør in Denmark); Italian sites such as Perugia, Verona, Lake Trasimene, Bologna, Orvieto, Umbria, the Campagna, Albano, Sicily, and Gargano; Greece, Switzerland, and Germany, as well as later Egyptian sites—all these contribute a collection of stone implements that is equaled by not more than one or two expositions in the United States.

The set of beautiful pygmy flints from Egypt is only one of the elements worth particular notice in the collection. There are in all sixty-seven sections in the collection, and many minor subdivisions. In the Egyptian material there are forty-one trays; in addition there are some bronzes and considerable pottery.

These objects constitute only a part of what Professor Haynes gathered during his wanderings. Four beneficiaries received his collections: the prehistoric objects and all the books relating to them he left to the Peabody Museum of Harvard University; the Etruscan, Greek, and Roman vases, with the ancient coins and medals, to the Classical Department of Harvard University; the Egyptian collection, excluding the prehistoric flints, to the Museum of Fine Arts in Boston, and the

fossils, minerals, and numerous other specimens to the Boston Society of Natural History.

In spite of his wide interests abroad, Professor Haynes by no means neglected his own immediate neighborhood, as witness the hundreds of archeological specimens from New England included in the collections in the Peabody Museum. He was a man whose mind and heart were everywhere at home and with whom every man's mind and heart might find a home, if so be that they were wise, sound, and of good report.

Of my personal relations with him I can only say that there is but one thing for me to regret: that I wasted so much time before my short acquaintance with him began; the year that followed was one of increasingly intensive admiration and affection.

CHARLES PEABODY

CAMBRIDGE, MASSACHUSETTS

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PROCEEDINGS OF THE ANTHROPOLOGICAL SOCIETY OF WASHINGTON

Meeting of October 15, 1912

THE 462d regular meeting of the Society was held in the new National Museum building on October 15, 1912, the president, Mr George R. Stetson, in the chair.

MAJOR RICHARD SYLVESTER, superintendent of police for the District of Columbia, read an interesting practical paper concerning *Criminal Characteristics*. It began with a brief review of the history of crime and the succession of different kinds of crimes prevalent at different periods, beginning with the cruder, such as homicide, and tending toward the subtler, so that quite recently the "green-goods man" has become less conspicuous than the forger or the embezzler. The General Government, it continued, has been urged to establish a national bureau of criminal identification, but such cooperative work has been left to the heads of American police departments.

Major Sylvester pointed out the practical difficulties of establishing a standard of the normal human being, and the imperfection of our distinction of criminals therefrom, since the police tests are applied only to those who have broken the law and many are non-criminal simply from lack of opportunity; also, we are learning that many cases of apparent criminality are only cases of mental defect or disease.

The popular impression of the criminal as a hungry, shifty individual is erroneous. The average man who makes crime a business in large cities is a fairly prosperous individual, with no fear of arrest. Some of the anatomical characteristics which Lombroso thought decisive of criminality are common in the lower races of man, whether criminal or not. Measurements in general would give racial characteristics rather than criminal. A number of criminals charged with murder were compared in detail, with the result of showing many varieties of human appearance bracketed together.

Some special kinds of crime call for physical peculiarities and develop them, but with these exceptions the criminal does not usually have a different aspect from that of other people, though both criminal and non-criminal persons of the police classification differ among themselves. Stress was laid on conditions as largely determining the category to which a man would belong.

Major Sylvester condemned the evil influence of politics in preventing the police of some large cities from bringing criminals to justice.

The paper was discussed by Drs Hrdlička, Frank Baker, Hough, Glueck, and others. The first two gentlemen chiefly emphasized the unreliability of external peculiarities relied on by Lombroso and of every sort of test which has been devised for general distinctions. Dr Hrdlička insisted that crime is a matter of the nerves and brain or the mentality, and criminal characteristics may be due more to organs and parts which are hidden than to the obvious and chiefly irrelevant external ones which Lombroso depended on for his diagnosis. Dr Hough chiefly explained tattooing as devoid of significance in primitive conditions, but in civilization a survival ordinarily indicating some weakness which might predispose to crime. Dr Glueck stated his practical experience in charge of the criminal branch of the Government Hospital for the Insane and the necessity which was felt of learning all about a man's past and conditions and his behavior at every stage of his life rather than trusting to his behavior or condition at the time of any one act as a proof of criminality.

Meeting of October 29, 1912

A SPECIAL meeting of the Society was held at 4:30 P.M., October 29, 1912, in Room 43 of the new National Museum building, the president, Mr Stetson, in the chair.

DR I. M. CASANOWICZ read a careful, thorough, and interesting paper on *The Mithra Cult*, explaining it as a religion of redemption, which was the most important competitor of Christianity during several centuries. He stated that it was Aryan in origin, antedating the separation of the Aryan people of India from the Iranians, that it was transferred westward by stages, accumulating elements in the Mesopotamian valley and the Mediterranean basin, but preserving an Iranian nucleus, and that it entered Rome as the religion of the poor and lowly, but was taken up by society when found helpful to imperial policy and made its first convert of an emperor in Commodus. Mithra was essentially the god of light, hence of truth and benevolence; and from the antithesis of light and darkness grew the conception of his war against the powers of evil. Zoroaster built his system on this dualism and conflict, though relegating Mithra to a lower place. Later he came to be regarded as occupying a middle place (on earth) between the powers of Heaven and the evil powers of the underworld, serving also as a mediator between man and the unapproachable supreme deity. The cult of Mithra, he said, had influenced Christianity, especially in the conceptions of the

powers of evil, the resurrection of the body, and the efficacy of sacraments, also as to the procedures of the church.

Meeting of November 19, 1912

THE 463d regular meeting of the Society was held in Room 43 of the new building of the National Museum at 4:30 P.M., November 19, President George R. Stetson in the chair.

MR JAMES MOONEY, of the Bureau of American Ethnology, lectured on *The Gaelic Language of Ireland*. The lecturer outlined the history of the Keltic nations, of whom the Gael of Ireland and Scotland are a part, from their first acquaintance with the Greeks about 600 B.C., down to the storming of Rome in 390 B.C.—the earliest authenticated date in Roman history—their alliance with Alexander the Great, their invasion of Asia Minor and colonization of Galatia in 278 B.C., and the final subjugation and Latinization of the continental Kelts by the Romans about the beginning of the Christian era.

Gaelic is the oldest living language in Europe, unless we except modern Greek, and it closely resembles Latin in many of its roots.

The Gaelic colonization of Ireland probably dated as far back as 1000 B.C. The island was known to the Greeks under a form of its native Gaelic name of Eire as early as four centuries before Christ. The ancient annals mention several earlier races or colonizations, the most important being the Firbolg, probably a part of the Belgæ of the continent. They continued to exist as a distinct people under their own chiefs up to the sixth century or later.

The alphabet of pre-Christian Ireland was the Ogam (Ogum), a system of straight lines or dots ranged along either side of a base line, and somewhat resembling a cross between the Morse alphabet and the cuneiform inscriptions. It was used chiefly for monumental inscriptions, and continued in use to some extent up to the tenth century. The modern Gaelic alphabet, consisting of seventeen letters, is an adaptation from the Roman.

Mention was made of some of the most ancient manuscripts, some of which have been already translated and others of which are now under translation by the Irish Texts Society. Under the Penal Laws, from 1691 until about 1800, the whole native population was practically debarred from education. Under the so-called National School System, established in 1831, the national language continued to be proscribed, resulting in its rapid decline. The great famine of 1845-47 with the ensuing wholesale emigration reduced the Gaelic-speaking population

by nearly one-half within twenty years, the great majority of those remaining being entirely illiterate. In 1878 the first concession to the native language was made by the national schools. In 1893 the Gaelic League, under the presidency of Dr Douglas Hyde, began an active propaganda for the restoration of the language to its proper status, with the result that it is now taught in 3,000 of the 8,000 governmental "national" schools, as well as in a large number of private and denominational schools; a whole flood of modern Gaelic literature covering every subject of intellectual interest is coming from the press, and the Gaelic language has been made an essential for matriculation in the new National University of Ireland beginning with 1913. Out of its own funds the league also maintains ten normal colleges for the training of teachers in the language, in several of which schools the entire course of instruction is through the Gaelic. The census just completed shows that Gaelic is still the home language of nearly 600,000 persons in Ireland above the age of three years.

Outside of Ireland the Gaelic speakers in Scotland, England, the United States, Canada, and elsewhere probably number considerably more than a million. Prince Edward Island and adjacent parts of Nova Scotia have a compact body of about 100,000, mostly descendants of emigrants from the Hebrides. In this country Gaelic instruction is now conducted in several universities, and a translation of the Rubaiyat, in Gaelic language and type, was recently published in Chicago.

Meeting of December 3, 1912

A SPECIAL meeting of the Society was held December 3, 1912, at 4:30 P.M., in the new National Museum building, Mr Stetson, the president, in the chair.

MR WM. H. BABCOCK read a paper on *The Islands of Antillia*, illustrated with lantern-slide maps, taking the above title from Peter Martyr's "Decades of the New World," where that author, in view of "the cosmographers," states that he believes these islands were what his contemporary, Columbus, had discovered. Peter Martyr's own sketch-map of 1511 was exhibited, showing Florida as one of them under the name of Beimeni; also the maps of Beccaria, Bianco, Pareto, and Benincasa, from 1435 to 1487, who may be among "the cosmographers" referred to. They show a group of four large islands (as do also the maps of Roselli, 1468, and Bertran, 1489) roughly corresponding in size, arrangement, and other respects with Cuba, Jamaica, Florida, or Beimeni, and Andros of the Bahamas, and bear on Beccaria's map

the names Antillia, Reylla, Salvagio, and Insula in Mar (Opposite Island or Island out Before, King Island, Savage Island, and Island in the Sea). These are nearly as far west of the Azores as the latter are west of Europe, and in such a location must be either the creatures of mere fancy or appurtenances of America. But it is not likely that mere guesswork could produce the remarkable correspondences of these great map islands with the reality, such an island group being altogether unique in the Atlantic.

Behaim's globe of 1492 contains an inscription to the effect that a Spanish vessel visited Antillia in 1414, more vaguely endorsed by another on the map of Ruysch (1508) which credits the Spaniards with finding Antillia long ago. That something of the kind happened in the first quarter of the fifteenth century may be inferred from the fact that Beccaria (1535) names the group collectively "The Newly Reported Islands," most likely borrowing this title legend from an earlier map, although the fourteenth-century maps contain no delineations of Antillia and her consorts.

The other fifteenth-century maps named corroborate Beccaria, being very consistent in outline and arrangement so far as they go, although two of them give but three islands, and Bianco shows only Antillia and a part of Salvagio, which he calls La Man de Satanaxio, but this last seems to be a case of mutilation or limitation by the western border of the parchment. However, the Laon globe of 1493 shows only these two main islands.

A current map showed how naturally any craft entering and continuing in the great sea current which sweeps from the Azores and the other eastern islands westward to the Antilles would be carried to Cuba and her neighbors.

The Catalan map of 1375 and the Pizigani map of 1367 with its picture of St Brandan blessing his Fortunate Islands of Porto Santo and Madeira and the figures of a dragon and a dentapod, each carrying off a seaman from his ship as a warning against westward exploration, were also exhibited. They show the circular island of Brazil west of Ireland and the more southerly crescent-form Man or Brazir, both being important and persistent legendary islands; and the Catalan map in particular shows all the Azores approximately in their real grouping, but neither of them presents any insular forms like those of the Islands of Antillia.

Dr Philip Newton read a paper on the *Negritos of the Philippines*, estimating their total number (full-bloods) at 5,000, though by counting mixed-blood tribes and individuals the estimate is sometimes carried up

to 25,000. They are distributed through numerous islands, though not reported from Mindoro. The greater number are on Luzon. There is no difference in them, except as their blood is mingled with that of neighboring races. They are not fishermen, but hunt and gather natural products, using in some districts poisoned arrows, the symptoms of poisoning being like those of strychnine. Their houses are made of upright poles connected by horizontal poles having crosspieces and leaf thatching. The dead are buried under or near these homes. They rarely bathe, and their clothes (which are breech-clouts or aprons) are apparently never washed. Usually these are of cloth obtained in trade, but in some islands, for example Palawan, bark is used. Negritos do not regularly practise agriculture, but will sometimes plant rice—and perhaps move away before it ripens. A skin disease is the most prevalent among them, but malaria also prevails. Three incipient cases of tuberculosis were noted. Some other diseases are derived from their neighbors.

Meeting of December 17, 1912

THE 464th regular meeting of the Society was held at 4:30 P.M., December 17, 1912, in Room 43 of the new building of the National Museum, the president, Mr Stetson, in the chair.

PROF. C. V. PIPER read a paper on *The Filipinos and the Problem of their Government*, beginning by a general résumé of the insular conditions and various peoples dwelling in the Philippines, of whom he said the Negritos, now found mainly in four islands but once in nearly all, are generally regarded as the original inhabitants, the Igorrotes and other wild tribes being the next to arrive, the Filipinos next (perhaps about 500 A.D.), and the Moros last, about the time of the Spanish occupancy. At some length Professor Piper described the Filipino characteristics, distinguishing between the small educated minority and the majority of ignorant laborers. His conclusion was that immediate independence would be injurious, but that our Government should establish some limit in the future, defined by conditions of education of the majority of the race. The most remarkable thing we are doing there, he said, is the attempt, for the first time in history, to educate an inferior people *en masse*. The Asiatic European colonies have little faith in its success, but are influenced by it and our general policy.

DR RILEY B. MOORE read a paper on his *Observations in St Lawrence Island*, one hundred by thirty miles of treeless swamp and tundra inhabited by some two hundred and fifty people, the débris of five different tribes in Bering sea. Some of these resemble Sioux Indians;

others are typical Mongolians, with all intervening kinds. In summer they have a profusion of birds and fish to feed on; but in other seasons their food is whale-meat, seal-meat, and walrus-meat. They live with little ventilation and have many skin diseases. Tuberculosis also is very common. The death-rate has long exceeded the birth-rate.

Meeting of January 7, 1913

A SPECIAL meeting of the Society was held January 7, 1913, in Room 43 of the new building of the National Museum, the president, Mr George R. Stetson, being in the chair.

MR E. DANA DURAND, Director of the Census, read an important paper on *Race Statistics of the Last Census*, replete with interesting facts. Mr Dana said, *inter alia*, that during the decade 1900–10 the white population of the United States increased about 22 per cent. and the negro about 11 per cent. This difference is partly due, however, to the direct or indirect effect of immigration of whites, in the absence of which the whites would have increased about 14 per cent. The Indians increased about 12 per cent., the Chinese decreased in number, while the Japanese nearly trebled. The whites have at practically every census shown a more rapid rate of increase than the negroes, and there is reason to believe that the difference between the two races in this regard from 1890 to 1900 was greater than appeared from the census returns, on account of a probable underenumeration of the negroes in 1890. The census of 1910 showed that about 21 per cent. of the negroes are mulattoes, as compared with about 12 per cent. in 1870, the last preceding census at which the question regarding blood mixture was asked in comparable form.

There has been no very great migration of negroes out of the South, nearly nine-tenths of the total number being still found in that section. The number living outside the South increased 167,000 between 1900 and 1910, while the number residing in the South increased more than 800,000. The rate of natural increase—that is, by excess of birth over deaths—of the white population of the South, however, is much higher than that of the negroes, being higher also than that of the whites in the North.

Among the native white population whose parents were born in this country, there were, in 1910, 104 males to each 100 females, as compared with only 98.9 in the case of the negroes. Among all classes of the population more boy babies than girl babies are born, but equality tends to be brought about by a higher death-rate among the males. The

difference in sex distribution between the whites and the negroes is probably attributable, in part at least, to more favorable health conditions among the whites.

The age distribution of the native white population is somewhat different from that of the negroes, probably chiefly on account of a lower death-rate among whites, tending to greater longevity. There has apparently been a very marked decline in the birth-rate among negroes in recent years, while there has been a gradual but less marked decline in the birth-rate of the whites during each decade for a long period of time.

Negroes tend to marry earlier than the native white classes; and, in fact, at all age periods the proportion of married, widowed, and divorced persons, taken together, is higher in the case of the negroes of both sexes than in the case of the native whites of native parentage.

There has been a marked change in the composition of the foreign-born population of the United States during recent years. Natives of northwestern Europe constituted more than two-thirds of the total foreign-born population of the United States in 1900, but less than half in 1910, while southern and eastern Europeans formed only a little more than one-sixth of the total at the earlier census, as compared with three-eighths in 1910. The Germans and the Irish particularly have fallen off conspicuously in numbers, while the natives of Russia—largely Russian Jews and Poles—Austria, Hungary, Italy, Greece, and other countries of southern and eastern Europe have increased by very high percentages, no less than 1,090 per cent. in the case of natives of Greece. The natives of Russia now rank second among the foreign-born classes, and those of Italy fourth.

The speaker answered inquiries of various members as to sundry items, and these questions were accompanied by brief statements contributing further facts and explanations.

Meeting of January 21, 1913

THE 465th regular meeting of the Society was held in the National Museum at 4:30 P.M., January 21, 1913, the president, Mr George R. Stetson, in the chair.

DR TOM A. WILLIAMS read a paper on *The Dream in the Life of the Mind*. Dr Williams said trance, vision, ecstasy, and disease delirium are closely allied to the dream state. The psychopathology of them all illuminates formerly uncomprehended diseases. In a dream (illustrated by a case) mental perturbation may crystallize, as it were, and lead to rampageous behavior. On the contrary dreams may be teleo-

logically beneficial; as where a vision saved a young woman from suicide, as was the case also with Benvenuto Cellini. They are more often a mere reproduction of former experiences more or less significant and more so in psychopathic individuals, such as in a young hysteric who dreamed of falling down wells, assassinations, and death, all painful experiences of her childhood.

Dream-thought, apparently confused, is really significant of the mental trend of the individual, when properly analyzed and interpreted. One dreams all the time, but recollects only that dreamed within seven minutes of waking. The form of dream can be determined by external stimuli. This is demonstrated in spite of its contradiction by some psychopathologists.

Meeting of February 4, 1913

A SPECIAL meeting of the Society was held on February 4, 1913, at 4:30 P.M., in Room 43 of the new building of the National Museum, the president, Mr George R. Stetson, in the chair.

DR CLARK WISSLER, curator of the department of anthropology in the American Museum of Natural History, New York, read an elaborate and philosophical paper on *The Doctrine of Evolution and Anthropology*.

The lecturer distinguished between cultural phenomena on the one hand and biological on the other, especially making clear that cultural phenomena are not inherited, though the instinct to develop culture, or to invent, is most certainly inborn. It was suggested that the historical attitude of present-day anthropology should be taken as expressing the cultural point of view. Culture itself seems to be associated habit complexes or constructs of the mind and not to be in any way innate or inborn, but to be an external affair, preserved and carried on entirely by learning or educating processes. Cultures develop and have an evolution of their own, but since they are not inherited they can not be considered parts of a biological development. They are most assuredly facts of another order. Being products of the mind, the only limitations put upon them are to be sought in the mind itself, since psychologists tell us that we have in the main only an associated cultural whole, resolvable into psychological elements, and since this, in turn, is only a matter of invention and not of cell differentiation. Being a matter of invention, the genetic relationship becomes purely a matter of history, since we can not foretell what the relationship is.

The psychophysical mechanism of man is biological and innate and

constitutes man's equipment for the production of cultures. Anthropology holds that the mechanism is general in so far as it is not limited to any particular culture, and that it enables the individual to practise any culture he may meet, though not necessarily to equal degrees.

When we come to consider the biological theory of evolution we find that it applies to the psychophysical mechanism but not to culture. For cultures we must have another point of view or theory, and this in America, at least, is the historical or cultural conception. This conception is in general that cultural traits are the results of invention, a mental process, and their development or evolution is to be taken as a historical and psychological problem.

The paper was briefly discussed by Dr Folkmar, Dr Swanton, and Dr Hough.

Meeting of February 18, 1913

THE 466th regular meeting of the Society was held in Room 43 of the new building of the National Museum at 4:30 P.M., February 18, 1913, the president, Mr George R. Stetson, in the chair.

PROFESSOR W. H. HOLMES delivered an address on *The Agricultural Implements of the Mound-builders*, in which he stated that the rich alluvial and prairie country of the middle Mississippi valley is especially adapted to the practise of primitive agriculture, and here are found large numbers of skillfully made flint blades of large size suitable for hafting as hoes and showing unmistakable evidence of long usage in operations that gave the working end a high degree of polish. They are made of grayish flint or chert which occurs plentifully in the form of flattish nodules in southern Illinois. These nodules were readily shaped by fracture with stone hammers, and vast numbers were gotten out and worked up by the mound-building tribes. The processes of manufacture were demonstrated by the speaker, and it was shown with what ease and rapidity the blades could be made.

It was also shown by examples obtained from the Missouri River tribes that hoes made of the scapulæ of the buffalo were in use in very recent times and that the hoes found in excavating ancient sites near Omaha correspond with these recent Indian forms both in shape, manner of hafting, and surface polish, and that both display, although in bone, precisely the same kind of polish and markings as do the similarly shaped hoes of flint. It was suggested that these flint hoes were modeled after scapular hoes, since these were in general use by the tribes and have doubtless been in use from very early times among all the tribes advanced to the sedentary agricultural stage of culture.

Referring to questions of antiquity which have been raised recently in regard to the burials of the Omaha district, it was suggested that since the buffalo was a comparatively recent arrival in the Mississippi valley, a culture in which the bones of buffalo are represented must be younger, not older, than that of the mound-builders, since no traces or pictorial representations of the buffalo are found within the older Indian mounds.

The paper was briefly discussed. Mr Stetson read notes on certain implements lately found in Britain. Professor Holmes commented concisely thereon.

PROFESSOR HOLMES then read a paper on *Scope and Relationships of History and Archeology*, which embodied in outline a study of the nature and scope of archeology and of archeological research as related to the field of human history as a whole. The history of man, or anthropology, according to Powell's classification, may be considered under seven heads or departments, giving rise to as many branches of research, as follows: somatology, psychology, philology, sociology, sophiology, technology, and esthetology. In working out its problems each of these seven branches employs every available agency of research within and without its particular field and makes use of every form of record in which the history of man is embodied.

The records or sources of information to be drawn upon in these researches are comprised under two principal heads: intentional or purposeful records on the one hand and non-intentional or fortuitous records on the other.

The intentional records are of four forms, as follows: (1) pictorial or pictographic; (2) commemorative, taking the form of monuments; (3) mnemonic, in the form of tradition and lore, orally transmitted; (4) inscribed or written records. Fortuitous records take numerous forms: (1) the diversified material results of human activities in which the commemorative motive is absent, but which comprise the great body of the products of handicraft; (2) the immaterial results of human activity as embodied in language, beliefs, customs, music, philosophy, etc.; (3) the ever-existing unpremeditated body of memories which accrue to each generation and are in part transmitted adventitiously; (4) the record embodied in the physical constitution of man which when properly read tells the story of his development from lower forms; (5) the record of intellectual growth and powers to be sought and studied in the constitution of the mind; (6) the environments which reveal the story of the nurture and building up of the race throughout the past.

It is from these diversified records of present and past times that the

story of the seven grand divisions of the history of man must be drawn. Archeology stands quite apart from this classification of the science, transversing in its own way the entire field of research. It claims for its own more especially that which is old or ancient in this vast body of data. It is even called upon to pick up the lost strands of the earlier written records, as with the shadowy beginnings of glyphic and phonetic writing, and restore them to the historian. It must recover the secrets of the commemorative monuments, the tombs and temples intended to immortalize the now long-forgotten great. It must follow back the obscure trails of tradition and substantiate or discredit the lore of the fathers. It must interpret the pictorial records inscribed by the ancients on rock faces and cavern walls which men meant should last forever. All that archeology retrieves from this wide field is restored to human knowledge and added to the volume of written history.

The services of archeologic science are equally potent in the field of the fortuitous records of humanity, for it reads that which was never intended to be read. The products of human handicraft, present and past, which have recorded automatically the doings of the ages are made to tell the story of the struggles, the triumphs, and the defeats of humanity. The fortuitous records embodied in the non-material products of man's activities of to-day, although in themselves not antiquities, are made to cast a strong light on the history and significance of the material things of the past. Even the body of knowledge gathered from many sources and stored in the memory of the living, though unreliable and transient as a record, may be made to illumine the past; and the physical and psychical characters of man are in themselves records and may be made to tell the story of their own becoming and to explain the activities and the products of activity throughout the ages. All that archeology gathers from this wide field of research is added to the volume of written history.

In the great work of assembling the lost pages and completing the volume of the history of man, archeology may well claim first place among the contributing sciences.

This paper was discussed by Messrs Casanowicz, Carroll, Stetson, Babcock, Hewitt, Swanton, and Neumann.

Meeting of March 6, 1913

A SPECIAL meeting of the Society was held March 6, 1913, at 4:30 P.M., in the auditorium of the new building of the National Museum, the president, Mr George R. Stetson, in the chair.

DR WALTER HOUGH read a paper on *Savage Mutilations for Decoration.*

The paper was a short excursion into the enormous field of custom with regard to ethnic mutilations, and sufficient examples were given to lay the subject rather completely before the Society. In it were described the most striking forms of head-shaping by pressure in infancy: the various forms of teeth mutilations; ear, nose, cheek, and lip modifications and ornaments; pressure and mutilations in the arms, waist, and limbs, and modifications of the bones of the feet. With mutilations also should be considered, perhaps, extraordinary hair-dressing and treatment of the finger-nails.

Many slides were shown of tattooing, scarification, and decoration of the skin by means of dyes and pigments, and some of their multifarious meanings given. On the whole, it was concluded that ethnic mutilations originated from many concepts, the more important being a desire for identification, in some cases individual, but in most cases tribal; a desire for ornamentation, mainly individual in its treatment, but following environmental and tribal fashions: and also very important mutilations growing out of religious ideas.

Many ethnic mutilations also relate to sex, puberty, social rank, honor for warlike feats, and the like. All these ideas, which at times have been advanced as the explanation of the causes, show that the matter is extremely complex. The bearing of ethnic mutilations on primitive surgery was also hinted at, as well as its effects on the development of costume.

Dr Williams and Dr Swanton made certain inquiries and brief remarks which Dr Hough answered.

Meeting of March 18, 1913

THE 467th regular meeting of the Society was held in Room 43 of the new building of the National Museum at 4:30 P.M., March 18, 1913, the president, Mr Stetson, in the chair.

DR JOHN R. SWANTON read a paper on *The Creek Confederacy.*

After explaining the geographical and linguistic positions of the tribes of the Creek confederacy with the aid of a map, Dr Swanton traced the evolution of the confederation from a small nucleus of tribes speaking the Muskogee language to a large association, comprising a number of Hitchiti-speaking people, the Alabama, Koasati, some of the Apalachi and Yamasi, part of the Natchez, the Yuchi, and, for a time, some of the Shawnee. He showed that this association was facilitated through the institution of a dual division of towns into white or peace towns and

red or war towns, the towns of each division, or "fire," considering each other friends or allies, and having opposing but not warlike relations with the towns of the other "fire". It thus happened that when an outside town or tribe came to be accepted as a "friend" of one of the white or red towns in the confederacy, its position with reference to all the other white and red towns was thus established and it entered into the confederate scheme. The communication of other common features to the new towns also took place, although more slowly. Such features were the "green corn dance," or busk, or perhaps rather the Muskogee form of it, participation in common although irregular councils, and the adoption of Muskogee as the standard language of intercommunication. The actual discontinuance of the proper languages of the various members of the confederacy was, fortunately for the ethnologist, much slower, several of them having persisted to the present day. Through the progressive adoption of smaller tribes and the practical destruction of some in warfare, a process accelerated by white contact, the Creek confederacy came to be almost the sole representative of eastern Muskhogean culture, and even influenced the culture of the Chickasaw to a marked degree. The great Choctaw body, on the other hand, maintained its cultural independence and was never dominated by the Creeks. In sharp contrast to the Creeks, whose national structure was built up by fitting numerous distantly related tribes into an artificial fraternal scheme, the Choctaw seem to have owed their sense of unity to an actual homogeneity in the Choctaw population, the occupancy of a common area, and the necessity to resist common enemies. They perhaps preserved the simplicity of culture existing among all Muskhogean Indians in times long anterior to the formation of more complicated associations or confederacies.

Meeting of March 25, 1913

A SPECIAL meeting of the Society was held at 4:30 P.M., on March 25, 1913, in Room 43 of the new building of the National Museum, the president, Mr Stetson, in the chair.

DR GEORGE GRANT MACCURDY read a comprehensive paper on *Ancient Man, His Environment and Art.*

This paper dealt with the environmental factor in human development; the newly discovered human remains from Piltdown, Sussex, and their significance; recent finds in the terraces of the Somme valley; San Isidro, near Madrid; Torralba, a large camp-site in the province of Soria, Spain, where a rude stone industry associated with an ancient

fauna has been found; caves on the Island of Jersey occupied by Mousterian man; typical caves and rock-shelters of southern France: La Quina, La Ferrassie, Placard; the art of the cave man in France and Spain: Altamira, Castillo, La Pasiega, Covalanas, Pindal, Font-de-Gaume, Cap Blanc, Niaux, Gorgas, Laussel, Alpera, Cogul; representations of the human form; La Combe, a cave in the Dordogne excavated last summer by Professor MacCurdy; Tuc d'Audoubert, a Pyrenean paleolithic cavern of great beauty discovered last July; its parietal art and the unique figures of the bison modeled in clay; paleolithic art in its relation to magic; some of the causes which led to its development and eventually to its decay.

The lecture was based largely on first-hand observations by the lecturer during last summer. The lantern slides reproduced faithfully in color the remarkable paleolithic cavern frescoes. The epochs covered by the lecture, beginning with the oldest, are: Eolithic or pre-Chellean, Chellean, Acheulian, Mousterian, Aurignacian, Solutrean, Magdalenian, and Azilian. These are all pre-Neolithic.

Several questions were asked and answered.

Meeting of April 1, 1913

A SPECIAL meeting of the Society was held in Room 43 of the new building of the National Museum at 4:30 P.M., April 1, 1913, the president, Mr Stetson, in the chair.

DR J. H. GORE, who had recently returned from a visit to the King of Siam, read a paper on *Siamese Life and Industries*, profusely illustrated with lantern slides. The former included fine basketry, bronze vessels, silver vessels, matting, textile fabrics of silk and other material, and hammered silverware of admirable workmanship, the method of production being to fill a silver vessel with sand and hammer in the surface from the outside to form the ground, leaving the decorative human figures in series (beside other ornaments) in high relief. Usually the figures represent some mythological story. Dr Gore's lantern-slide pictures of Siam included many farm-scenes, illustrations of games, festivities, and elephant-capturing, and views of the city of Bangkok, the aquatic human life of its rivers and canals, the palace, imperial crematories and temples, one of the latter being an exceedingly beautiful rock-cavern temple of great renown.

Dr Gore explained that the teak-wood forests and rice culture are among the chief resources of the country, most of the ship-decks of the world being supplied from the former, now managed by an expert forester,

and the export of rice being very great. About seventy rice mills of modern equipment are operated in Bangkok, besides a large amount of similar work done by more primitive methods and appliances throughout the country. The soil is of the highest fertility and unequaled depth in the main valley of the kingdom. There are about eighty miles of good roads around Bangkok, and the streets of the city are well made, modern street-car lines running on some of them; but the remainder of the country is practically without roads.

The late king was notable for divers modern and enlightened reforms, such as freeing slaves, relinquishing the royal ownership of the land in favor of those who had been long in occupancy and use of it, waiving the exemption of the royal lands from taxation, and compiling and publishing an edition of the Buddhist scriptures, which he supplied to the libraries of the world.

The inhabitants of Cambodia, he said, are nearly of the same stock as the Siamese, but regarded as inferior by the latter people, whose language is nearly akin to the Sanscrit. The human images before their temples are not idols, but for ornament. There is a flame-like upward aspiring tendency in their decorative work. No magical or religious importance is attached to white elephants, so called, which are albinos, white only in patches; but these are regarded as rarities and curiosities, and as such are given to the king.

Meeting of April 15, 1913

THE 468th regular and 34th annual meeting of the Society was held in Room 43 of the new building of the National Museum at 4:30 P.M., April 15, 1913, the president, Mr Stetson, in the chair.

The minutes of the last preceding annual meeting were read and approved.

Obituary notices were presented as follows: Miss Alice Fletcher for Miss Sara A. Scull; Mr F. W. Hodge for Dr W J McGee, and Dr D. S. Lamb for Dr Robert Fletcher.

The following officers were elected and installed for the ensuing year: President, Mr George R. Stetson; Vice-President, Dr John R. Swanton; Secretary, Dr Daniel Folkmar; Treasurer, Mr J. N. B. Hewitt; Councilors: Mr George C. Maynard, Mr Felix Neumann, Dr I. M. Casanowicz, Dr E. L. Morgan, and Mr Francis LaFlesche.

Invitations to meetings of the National Academy of Sciences and the German Anthropological Association were presented and accepted.

WM. H. BABCOCK,
Secretary

DISCUSSION AND CORRESPONDENCE

NEGRO-UTE MÊTIS

The accompanying photographs were taken by the writer at the time of a visit, in April, 1910, to the Southern Ute reservation in southwestern Colorado, in the company of Mr John P. Harrington of the School of American Archæology at Santa Fe, New Mexico. The picture of greatest anthropological interest is figure 54, portraying,



FIG. 54.—Negro-Ute brother and sister.

as it does, a not very common instance (in that region, at least) of race mixture. The boy and girl are brother and sister, children of a Negro father and full-blood Ute mother. They live on the farm allotted by the Government to the mother. The Negro characters are most apparent. Some features, however, especially the hair, show Indian influence. The hair, particularly that of the girl, recalls a type found among many of the Oceanic blacks. Their skin has the distinctively Negro chocolate color. For comparison, I present, in figure 55, the picture of two typical Ute



FIG. 55.—Ute girls.

girls. The four children are of about the same age and were all pupils in the day-school a few miles north of Ignacio agency.

CLARK UNIVERSITY
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ALBERT N. GILBERTSON

NOTE ON THE FOX NEGATIVE PARTICLE OF THE CONJUNCTIVE MODE

FROM the position of *pwāwi*, the Fox negative particle of the conjunctive mode, directly after *ā-* and *wī-*, one would suspect that it should be classed as an initial stem. That such is the case can be shown by Kickapoo. I quote from Dr Jones' Texts: *ā'paitcahiāwātci*, THEY WERE NOT ABLE TO KILL THEM, which in Fox theoretically should be *ā'pwāwitcāhihāwātci*. I do not know if the exact expression occurs in Fox. But it is important to note that the idea of *killing* is derived solely from the context: *tcāhi* is an incorporated particle, *-h-* the instrumental, *ā—āwātci* the modal and pronominal elements. Hence unless *pwāwi* be an initial stem we have a verbal compound without any. In this connection I may add that *āgwi*, the Fox negative particle of the indicative, occurs somewhere in Jones' *Texts* in a verbal compound as an initial stem 'deny.' Unfortunately the reference is misplaced.

BUREAU OF AMERICAN ETHNOLOGY
WASHINGTON, D. C.
TRUMAN MICHELSON

ANTHROPOLOGIC MISCELLANEA

The United States Indian Census.—Statistics of the Indian population of the United States and of Alaska collected at the Thirteenth Decennial Census, taken in 1910, are given in an advance bulletin soon to be issued by Director Durand, of the Bureau of the Census. It was prepared under the supervision of William C. Hunt, chief statistician for population.

Population.—The total number of Indians in the United States, exclusive of outlying possessions, in 1910, was 265,683, and in Alaska, 25,331. The corresponding figures for the census of 1900 were: United States, 237,196; Alaska, 29,536; and for the census of 1890, United States, 248,253; Alaska, 25,354.

According to these figures, which cover the last three enumerations only, the number of Indians in the United States decreased between 1890 and 1900 but increased during the last decade, the increase for the 20-year period 1890–1910 being 17,430, or 7 per cent. The data from the reports of the Commissioner of Indian Affairs, which are given in the bulletin, indicate that the number of Indians decreased from 1870 to 1890 and increased by about the same amount in the following 20 years. In Alaska the number of Indians reported decreased from 1880 to 1910 by 7,665, or 23.2 per cent. The figure for 1890 is probably incomplete, owing to the unexplored condition of the country at the time, so that the increase between 1890 and 1900 may be only apparent. The figure for 1880, though based in part on an estimate, is believed to be approximately correct. It is probable that the census returns for 1910 and 1900 are fairly comparable, but the difficulties of enumerating the Alaska Indians are so great that conclusions from the statistics must necessarily be tentative.

The number of Indian tribes reported for the United States in 1910 was 280, comprising 53 linguistic stocks. Of these tribes, 77 had more than 500 members each, while 42 were represented by 10 members or less; of the latter, 10 were represented by 1 member each. The most important tribes numerically were the Cherokee, with 31,489 members; the Navaho, with 22,455; the Chippewa, with 20,214; the Choctaw, with 15,917; and the Teton Sioux, with 14,284. These 5 tribes comprise all those represented by over 10,000 members; 39 other tribes had over 1,000 members each.

In Alaska 66 Indian tribes, forming 7 linguistic stocks, were reported. The principal ones, aside from the Southern Eskimo group, were the Kuskwogmiut, the largest tribe of the Eskimauan linguistic group, with 1,480 members, and the Aleut, with 1,451; 11 other tribes were represented by more than 500 members each.

Oklahoma had by far the greatest number of Indians reported for any state in 1910, 74,825, or more than one-fourth of all the Indians in the United States, while 7 other states reported more than 10,000 Indians each. These 8 states, all of which, except Wisconsin, are situated west of the Mississippi, contained together nearly three-fourths (72.2 per cent.) of the total number. Of the Eastern states, North Carolina, with 7,851, and New York, with 6,046, had the largest Indian population. While there were Indians in every state of the Union in 1910, the number in some was extremely small, 4 states—Delaware, Vermont, New Hampshire, and West Virginia—having less than 50 Indians each.

The proportion of Indians in the United States declined steadily from 1870, when it was 72.1 per 10,000 of the total population, to 1910, when it was 28.9. In Alaska the decline in the proportion of Indians has been even more pronounced, the number in each 10,000 of the total population decreasing from 9,871.4 in 1880 to 3,936.1 in 1910. Thus, while in 1880 almost the entire population of Alaska consisted of Indians, in 1910 they formed only about two-fifths of all the inhabitants.

Blood.—The Thirteenth Census was the first at which any returns worthy of tabulation were secured as to the proportion of full-bloods and mixed-bloods in the Indian population.

Of all the Indians in the United States in 1910, 56.5 per cent. were full-bloods and 35.2 per cent. mixed-bloods, while for 8.4 per cent. information on this point was not given.

Of the 93,423 Indians reported as mixed-bloods, 88,030, or considerably more than nine-tenths, represented a mixture of white and Indian, 2,255, of negro and Indian, and 1,793, of white, negro, and Indian, while 80 represented other mixtures, and for 1,265 the kind of mixture was not reported.

In Alaska, 84.7 per cent. of the Indians were of full-blood and 15.3 per cent. of mixed-blood; almost all the mixed-bloods were a mixture of white and Indian, the remaining few representing a mixture of Indian with Chinese and Japanese blood.

Twenty and six-tenths per cent., or 18,169 of the 88,030 persons of mixed white and Indian blood in the United States, were more than half Indian; 24,353, or 27.7 per cent., half Indian and half white; and 43,937,

or 49.9 per cent.—practically one-half of the total—were more than half white. Thus about four-fifths of the Indian and white mixed-bloods were at least half white.

The number of negro and Indian mixed-bloods reported, 2,255, is probably an understatement, owing to disinclination to admit negro blood. Of the number reported, 31.8 per cent. were more than half Indian, 32.3 per cent. half Indian and half negro, and 34.6 per cent. more than half negro, while for 1.3 per cent. the proportion of negro blood was not reported.

In each of five adjoining states—New Mexico, Utah, Arizona, Colorado, and Nevada—which comprise a large part of the interior arid plateau, the proportion of full-bloods among the Indians exceeded 85 per cent. Iowa and Mississippi, where the Sauk and Fox and the Choctaw tribes, respectively, have preserved a high degree of purity, were the only other states with at least 100 Indians in which more than 85 per cent. of the Indians were full-bloods.

The proportion of full-bloods was frequently higher in the states with a large Indian population; a notable exception is Oklahoma, which has by far the largest number of Indians, but reported a small proportion of full-bloods, 36.6 per cent. This low proportion in Oklahoma is no doubt due in part to the fact that the possession of valuable lands by the Indians encourages intermarriages between whites and Indians, and that persons with very little Indian blood are anxious to establish their claims as members of the Indian tribes, in order that they may be entitled to participate in the distribution of lands and moneys belonging to the Five Civilized Tribes in Oklahoma.

Sex.—Of the 265,683 Indians reported in the United States in 1910, 135,133, or 50.9 per cent., were males, and 130,550, or 49.1 per cent., females. The number of males to 100 females was 103.5. In Alaska the number of males in 1910 was 12,995 and of females 12,336, the ratio of males to 100 females being 105.3.

In 1910 the ratio of males to females among the Indians (103.5 to 100) was not as great as in the total population of the United States (106). Among the native whites of native parentage the number of males to 100 females was 104, and among the foreign-born whites 129.2, but among the negroes only 98.9.

In the United States, according to the returns, the number of males to 100 females was considerably less (101.7) among full-blood Indians than among those of mixed blood (106.4). This condition is reversed in Alaska, where the proportion of males to 100 females was 106.2 among

full-bloods and 100.3 among mixed-bloods. As the number of mixed-bloods in Alaska was comparatively small, however, no reliable conclusions can be based on the sex distribution among them.

The greater preponderance of males shown among the mixed-bloods than among the full-bloods in the United States is probably due in part to the tendency to report as white Indian women of mixed blood who are married to white men.

The figures apparently indicate that the excess of males decreases with the increase in the amount of white blood, but since the division by degree of mixture is only approximately accurate no reliable conclusion can be drawn from these proportions.

Age.—More than one-half (51.5 per cent.) of the Indians in the United States in 1910 were under 20 years of age, more than one-third (36.1 per cent.) from 20 to 50 years, and about one-eighth (12 per cent.) 51 years and over. In 1900 the proportion of young and old persons was slightly less and that of persons of the intervening age group slightly greater than in 1910. In Alaska in 1910 the proportion of young and of old persons was smaller and that of persons in the intermediate age period considerably greater than in the United States.

The fact that stands out most prominently is the high proportion of young persons among the mixed-bloods as compared with the full-bloods. A similar difference is to be noted between the mixed tribal bloods and the full tribal bloods. In both cases the difference may be accounted for in part by the fact that mixed marriages had not become common until within comparatively recent years. Another reason for the predominance of the young element among the mixed-bloods is no doubt found in the greater fertility of mixed marriages.

Fecundity and Vitality.—Information was collected by the Census Bureau in 1910 in regard to the number of children borne by every married woman. Only those women were included who were between 15 and 44 years of age, who had been married for at least one year, and who were neither widowed nor divorced nor married for a second or subsequent time.

The most significant fact is that, while for all classes of marriages the proportion resulting in no issue was 8.6 per cent., for marriages between full-bloods the proportion was 10.7 per cent., and for mixed marriages it was 6.7 per cent. Thus sterility is considerably less common in cases of miscegenation than in cases of marriage between full-bloods. Furthermore, the proportion of issueless marriages decreases directly as the amount of white blood in the married couple increases. Thus an inverse

relation between the amount of white blood in the married couple and the proportion of childless unions seems to be established.

A comparison of the figures for marriages between full-bloods with those for mixed marriages shows the greater fertility of the latter; a smaller proportion resulted in two children or less and in from three to five children than in the case of the pure marriages and a much higher proportion in six or more children. A larger proportion of the children having one white parent survive than of children both of whose parents are full-blood or mixed-blood Indians, but do not in themselves show whether this is due to conditions in the home or to greater virility of the offspring.

The results of the studies on sterility, on fecundity, and on vitality all indicate that the increase of the mixed-blood Indians is much greater than that of the full-blood Indians, and that unless the tendencies now at work undergo a decided change the full-bloods are destined to form a decreasing proportion of the total Indian population and ultimately to disappear altogether.

From Modern Danish Anthropology.—Of significance to modern anthropological investigation is the work of the Anthropological Committee in Denmark established in 1904 to carry out a general anthropological survey of the kingdom for the purpose of determining the racial characters of the Danish people, the results of which investigation are published in the following articles:

BURRAU, CARL. "Om Hovedets Form og Størrelse." (On the Form and Size of the Head.) Meddelelser om Danmarks Antropologi, København. Afdeling 2, p. 241. MCMVII.

—— "Korrelationen mellem Legemshøjden og Hovedets Dimensioner." (The Correlation between the Height of the Body and the Dimensions of the Head.) Afdeling 3, p. 275. MCMIX.

HANSEN, SØREN. "Om Hovedets Breddeindeks hos Danske." (The Breadth-index of the Head in Danes.) Afdeling 2, p. 221. MCMVIII.

—— "Om Hovedets Størrelse hos voksne Mænd og Kvinder." (The Size of the Head in Men and Women.) Afdeling 1, p. 69. MCMVII.

—— "Om Legemsvægt og Legemshøjde." (On the Weight and Height of the Body.) Afdeling 2, p. 203. MCMVIII.

—— "Om Haarets og øjnenes Farve i Danmark." (On the Color of the Hair and Eyes in Denmark.) Afdeling 3, p. 285. MCMIX.

HERTZ, POUL. "Københavnske Kommuneskolebørns Vækstforhold." (Investigations on the Growth of Children in Copenhagen Elementary Schools.) Afdeling 4, p. 319. MCMXI.

MEKEPRANG, E. P. "De Værnepligtiges Højde i Danmark." (Height of the Danish Conscripts.) Afdeling 1, p. 11. MCMVII.

RAMBUSCH, S. H. "Skolebørnenes fysikalske Forhold i nogle midtjydske Sogne." (The Physical Characteristics of School Children in some Parishes in Mid-Jutland.) Afdeling 2, p. 173. MCMVIII.

STEENSBY, H. P. "Foreløbige Betragtninger over Danmarks Racemtropologi." (Preliminary Observations on the Racial Types in Denmark.) Afdeling 1. p. 83. MCMVII.

The collective, experimental, and statistical method has been employed; 5,000 adults of both sexes have been measured and otherwise examined according to generally adopted anthropological principles. Besides the principal investigation several special researches have been carried out, the whole being financed at public expense.

One conclusion reached is that an additional racial type is to be found in Denmark; in other words, the current view that only brachycephalic and dolichocephalic types, according to the system of W. Z. Ripley, make up the population of Denmark, should be readjusted to include another wholly different racial type. Further conclusions concern, among others, average head, stature, and average intercorrelation figures. In the case of head indices the breadth index or formula $\frac{\max \cdot B \cdot x10.0}{\max \cdot L.}$ was used. The number of heads measured equaled 4,000 adults, both sexes, ages 20–65 years, with average age 34.7 for men and 28.8 for women, and only Danes born in Denmark, including all districts, were taken. The greatest (average) length of head was 193.6 mm. for men, 184.1 mm. for women; greatest (average) breadth was 156.0 mm. for men, 149.9 mm. for women; the average index was 80.7° men, 81.5° women, therefore 81° as a whole. Average stature measurements were 169.45 cm. for men, 159.22 cm. for women; in relation to average length of head 11.42 for men and 11.52 for women.

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Mongolian Sand-painting.—In a communication to Dr Aleš Hrdlička, of the United States National Museum, Mme Karnakova, a Russian lady who has conducted ethnological investigations among the Mongolians and has published a number of papers on the habits and religion of that interesting people, writes as follows regarding their sand-paintings:

"It is very strange, but there are very many analogies between the sand-paintings of the Indians and those of the Mongolians. I shall say a few words about it—perhaps they will interest someone. Sand-painting among the Mongolians is a part of a great secret ceremony which the lamas make every summer. The public is not admitted to the ceremony, and only a few men outside of the lamas can ever see it. Due to special circumstances I have been able once to be present. They

regard me as one of themselves; nevertheless, they stipulated that I should wear at this visit 'all clean clothes.' I saw a wonderful picture which hardly looked as if made by human hands. At the center of the sanctuary stood a table. Eight young lama artists were selected to make the sand-painting, and one of the chief lamas was there to direct and criticize the work. They made a drawing on the table, then they took sharp pointed conical copper tubes and into these put the various powders and sand. These were prepared seven days before from sandstone, the grindings being mixed with curds, allowed to dry, and the whole reduced to fine powder. Each of the copper tubes had a kind of comb on one side, and by moving a long needle over the teeth of this comb the sand from the tube was deposited exactly as desired. The pigments were red, yellow, green, blue, black, and white, as among the Indians; and the lamas made also a circle of sand on the table. Each artist drew his own part. The work lasted seven days. After being finished, there followed a form of worship, again of seven days, during which twenty-one lamas sat in the church from morning to evening chanting and praying. Next the lamas gathered all the sand from the paintings, put it into a vase, and with sacred music, and a crowd of people following, went down to the river. The chief of the lamas then threw the sand into the water, took up some water into the empty vase, and gave it as a drink to the people who came to pray to God on this occasion."

Eskimo Collection in Christiania.—A collection of interest and value to students of North American ethnology is that in the "Gjöa Hall" of the Ethnographic Museum of the University of Christiania. It consists of the material collected by Captain Roald Amundsen, now famous as the discoverer of the South Pole, on his voyage of exploration in the ship *Gjöa*, in the years 1903 to 1907, on which he determined the location of the north magnetic pole and navigated the whole extent of the Northwest passage.

Among the specimens are two sledges from the Eastern Eskimo, a gift from the ill-fated Danish explorer, Mylius Erichsen. One shows the common type from Upernivik; the other, from Cape York, is of a modernized type, believed by the curator of the museum to show the influence of Admiral Robert E. Peary. This sledge belonged to the Eskimo Kolotengwa, who was the companion of the Norwegian explorer, Eivind Astrup. Kolotengwa had received it from another Eskimo. When the latter died, the sledge, having belonged to a dead person, became unlucky; hence the owner gave it to Mylius Erichsen. There is also a

kaiak from western Greenland and a small number of objects from the most westerly Eskimo tribes.

But the greater part of the collection is from the Netchilli tribe, of the Central Eskimo, among whom Amundsen lived for two winters. It includes clothing of men, women, and children, very different from the dress of the Greenland Eskimo. A few articles are made of copper plate, believed to have been secured from wrecked ships. Besides, there are vessels for lighting and cooking, some vessels made of the skull of the muskox, the dress and drums of a shaman, several kaiaks, etc. The collection presents a complete survey of the culture of the tribe. One of Amundsen's Eskimo dogs, mounted, is seen hitched to a sledge.

A very interesting account of the Netchilli is found in Amundsen's book, *The Northwest Passage*. The curator of the Museum in Christiania is Dr Yngvar Nielsen, Professor of Ethnography at the University. He is assisted by Dr Olaf Solberg, who has done important work on Eskimo archeology.

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School of American Archæology.—The summer session of the School of American Archæology will be held in New Mexico from August 1st to 29th inclusive. It is announced that in American archeology and ethnology there will be few formal lectures, but the primitive arts and industries—pottery making, blanket and basket weaving, shell and metal work, flint-chipping, and domestic processes—as well as ceremonies, language, and music, will be demonstrated by Indian families living in the placita of the Governor's Palace, the headquarters of the School at Santa Fe. There will be excursions to important archeological and historical sites, with field lectures, including a five-day expedition to El Rito de los Frijoles, where the field work of four seasons past will be studied. At Quarai, one of the most important ruined pueblos of the Manzano district, the encampment will last a week, and the opening work on a new site, which will probably require several seasons for excavation, will be demonstrated. The following faculty for the season of 1913 has been announced: Edgar L. Hewett, Director, School of American Archæology: field lectures, Recent Field Work of the School, two lectures. Lewis B. Paton, Hartford Theological Seminary: The Archeological History of Palestine, nine lectures. Henry R. Fairclough, Leland Stanford Junior University: Roman Archeology and Art, nine lectures. Mitchell Carroll, General Secretary, Archæological Institute of America: The Women of Ancient Greece, four lectures. Ralph E.

Twitchell, Historian: archives work; History of the Southwest, two lectures. Kenneth M. Chapman, Assistant Director, School of American Archæology: field sketching excursions; Pueblo Art, two lectures. Sylvanus G. Morley, School of American Archæology: field lectures; Recent Work in Yucatan, two lectures. John P. Harrington, School of American Archæology: laboratory work in linguistics; Recent Field Work in California, two lectures.

Sir John Lubbock, first Baron of Avebury (created 1900), died May 28, 1913. Lord Avebury was born in London, April 30, 1834, and was educated at Eton and at home. He served as Member of Parliament from Maidstone, 1870–80, and during the next twenty years represented the University of London. He was a member of various commissions, including the Royal Commission on the Advancement of Science, and served as president of the British Association for the Advancement of Science in 1881 (jubilee year), the Ethnological Society, the (Royal) Anthropological Institute, the African Society, the Society of Antiquaries, the International Institute of Sociology, and the International Association of Prehistoric Archæology, and was also a member of many other domestic and foreign societies. His writings covered a wide range of subjects, but his best known work is *The Pleasures of Life*, which has reached an edition exceeding a quarter of a million copies in England, and has appeared also in more than fifty foreign editions. To archeologists Lord Avebury is best known by his *Prehistoric Times* and *The Origin of Civilization and the Primitive Condition of Man*, each of which has reached its sixth edition. His latest work in anthropology, published in 1911, is *Marriage, Totemism, and Religion.*

Field Museum Researches.—The Joseph N. Field expedition to the South Pacific islands has concluded its work under Dr A. B. Lewis, who has returned to Chicago, and the vast amount of material received by the Museum as a result of his survey and collections will be catalogued, labeled, and prepared for installation. During the four years devoted to this research Dr Lewis gathered many thousands of specimens, and the collection already forms one of the largest, most important, and most interesting ever acquired by the Museum through field work. Practically every field of Melanesia is represented, and the specimens have been supplemented by numerous photographs, anthropometric data, and phonographic records.

Rev. Gilbert L. Wilson, of Minneapolis, has submitted to the American Museum of Natural History the report of his investigations of

the agricultural customs of the Mandan and Hidatsa Indians, which, says *The American Museum Journal*, "promises to be one of the most complete and suggestive studies of this particular phase of American Indian culture. It brings out among other things the aboriginal origin of methods of fertilization and propagation. Certain fields were not only the habitual planting places of particular families, but the right to them was hereditary. This is important because it approaches the modern conception of individual ownership of land, a rarity among the communal Indian tribes." A series of primitive agricultural implements from the Mandan and Hidatsa has been received by the Museum and placed on exhibition.

THE eighth annual meeting of the American Association of Museums was held in Philadelphia, June 3–5, 1913, with about one hundred members in attendance. Dr Henry L. Ward, of the Milwaukee Museum, presided. In addition to the reading of papers the program was so arranged as to provide time for the study of important museum collections at the Academy of Natural Sciences, University Museum, Commercial Museum, Wistar Institute of Anatomy, Academy of Fine Arts, and Memorial Hall. The officers elected for the ensuing year are: *President*, Benjamin Ives Gilman, Museum of Fine Arts, Boston; *Secretary*, Paul M. Rea, Charleston Museum, Charleston, S. C.; *Treasurer*, William P. Wilson, The Commercial Museum, Philadelphia. The next annual meeting will be held in Chicago with a supplementary session in Milwaukee.

THE forty-fourth general meeting of the Deutsche Anthropologische Gesellschaft will be held in Nürnberg, August 3–9. The final program of the meeting, which will be issued in June, will be sent to the members of the American Anthropological Association, the Anthropological Society of Washington, and the American Ethnological Society of New York on request. In connection with the meeting a three days' excursion is contemplated for the study of the prehistoric remains in southern Bavaria and for the inspection of the museums in Munich. The Secretary-general of the Deutsche Anthropologische Gesellschaft is Prof. Dr G. Thilenius of Hamburg.

THE American Museum of Natural History will support a number of field expeditions this summer. Dr Goddard left early in June to investigate the Beaver Indians of the Peace River territory. Mr Nelson made some observation studies of Spanish caves under the direction of Professor Obermaier. Mr Skinner took up a reconnoissance of the Plains Ojibwa and Western Cree, and expects later to return to the

Menomini field. Dr Spinden rounded out his researches among the Rio Grande Pueblo Indians. Dr Lowie returned to the study of the ceremonial practices of the Hidatsa and Crow.

At the annual commencement exercises of Clark University, Worcester, Mass., held on Tuesday, June 17, 1913, the Degree of Doctor of Philosophy was conferred on the following students in the Department of Anthropology: Mr Albert Nicolay Gilbertson (A.B., University of Minnesota, 1908; A.M., 1909), thesis "Some Ethical Phases of Eskimo Culture." Miss Miriam van Waters (A.B., University of Oregon, 1908; A.M., 1910), thesis "The Adolescent Girl among Primitive Peoples."

The second Loubat prize has been awarded to Dr John R. Swanton, of the Bureau of American Ethnology, in recognition of his two publications, *Tlingit Myths and Texts*, and *Indian Tribes of the Lower Mississippi Valley and Adjacent Coast of the Gulf of Mexico*, issued by that Bureau. The award, which is made every five years, carries with it the sum of four hundred dollars. The first prize was awarded for a work on the commercial history of the United States.

At the spring meeting of the San Francisco Society of the Archæological Institute of America held in conjunction with the Pacific Association of Scientific Societies, April 10–12, the following papers relating to American anthropology were read, following an address by Professor John C. Merriam, of the University of California, on "Excavations in the Asphalt Beds of Rancho La Brea."

E. W. Gifford, Assistant Curator of the Anthropological Museum of the University of California: "Notes on the Age of California Shellmounds in the Light of their Molluscan Contents."

William Frederick Bade, Professor on the Frederick Billings Foundation for Old Testament Literature and Semitic Languages, Pacific Theological Seminary: "Metal Taboos Among the Greeks."

A. L. Kroeber, Associate Professor of Anthropology and Curator of the Anthropological Museum of the University of California: "The Problem of Cultural Development in the Shellmounds of California."

John P. Harrington, of the School of American Archæology, Santa Fe: "Stone Idol Frauds of Cochiti Pueblo."

Herbert E. Bolton, Professor of American History, University of California: "New Materials for Southwestern Ethnology."

John C. Merriam, Professor of Palæontology and Historical Geology, University of California: "Recent Discoveries of Artificially Formed Implements Presumed to Occur in Pleistocene Beds at Rancho La Brea and San Pedro, California."

Thomas T. Waterman, Instructor in Anthropology, University of California: "The Making of Myths."

A. L. Kroeber: "Linguistic Evidence of the Pre-history of California."

In the Peabody Museum of Harvard University the following appointments have been made, dating from May 1: Frederic W. Putnam, A.M., S.D., honorary director; Charles C. Willoughby, assistant director; Roland B. Dixon, Ph.D., librarian, and curator in ethnology; Charles Peabody, Ph.D., curator in European archæology; Alfred M. Tozzer, Ph.D., curator in Central American archæology.

Mr Nels C. Nelson, of the American Museum of Natural History, New York, is visiting Europe for the purpose of studying archeological results and methods. He will inspect the principal caverns and other sites where the remains of early cultures have been found, and gather material for a type model of such deposits.

Professor George Grant MacCurdy, of Yale University, lectured on the evening of April 18th, at the annual meeting of the American Philosophical Society, Philadelphia, his subject being The Antiquity of Man in the Light of Recent Discoveries. The lecture was followed by a reception.

We regret to record the death, on February 10th last, of Dr K. Penk, known to anthropologists chiefly by his *Kultur und Rasse* (1904) and by his contributions to *Politisch-anthropologische Revue* and *Mitteilungen der Wiener anthropologischen Gesellschaft*.

A pamphlet of "Suggestions for Investigations in Human Geography in Britain" has been written by Dr H. J. Fleure and Mr W. E. Whitehouse, and is issued from the registrar's office in the University College of Wales, Aberystwyth.

A large collection from the Malecite Indians, gathered by G. A. Paul, the hereditary chief of the Penobscot Indians, has recently been placed on view in the American Museum of Natural History, New York.

The famous prehistoric camp known as Maiden Castle, near Dorchester, England, has, at the suggestion of the King, been purchased by the Duchy of Cornwall, and will now be carefully preserved.

In the interest of the Geological Survey of Canada, Dr John Alden Mason has gone to Great Slave Lake for the purpose of investigating the Northern Athapascan tribes of that region.

Professor Hampel, one of the directors of the Hungarian National Museum and the leading authority on the pre-Christian archeology of Hungary, died at Budapest, March 25.

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PRECOLUMBIAN DECORATION OF THE TEETH IN ECUADOR

WITH SOME ACCOUNT OF THE OCCURRENCE OF THE CUSTOM IN OTHER PARTS OF NORTH AND SOUTH AMERICA

BY MARSHALL H. SAVILLE

PRIMITIVE personal decoration, wherever found and however practised, is a subject of interest to the anthropologist. Man was ever vain, fond of ornamenting his person in a multitude of ways. He early learned the art of painting, tattooing, and scarifying his face and body, and pierced his ears, nose, lips, and cheeks for the insertion of ornaments of various materials and divers shapes, fondly imagining that he added to his personal appearance thereby, through which he attracted the opposite sex. One of the most singular ways in which the love of facial decoration has found expression is that in which the teeth have been operated upon, either by painting or staining, or by filing or cutting the ends into different forms,[1] or, further, by the insertion of foreign substances into cavities artificially cut into or through the enamel in

[1] The work of von Ihering is the first general treatment of the custom of dental decoration. In his brief account of the practise of the custom among the American Indians, he confines himself to cases among tribes of modern times. Hamy was the first to present the proof of the occurrence of the custom in times anterior to the coming of the Spaniards in Latin America. He was also the first to give us examples of inlaying, as will be observed in the chronological bibliography which follows. In the present paper I do not take into consideration the filing of teeth as now practised in Brazil and other Latin American countries.

the front of the upper teeth. It is to this latter phase of dental decoration to which attention is called in this study. So far as we are aware, the type of decoration represented by the insertion of stone or metal into the teeth in the manner about to be described is not found outside of ancient America. The author has been interested in this subject for many years, having collected examples of decorated teeth in Oaxaca, Chiapas, Yucatan, and Honduras.[1] For the sake of comparison a brief reference will be made to some examples from Mexico and Central America, together with a list of authorities, at the end of this communication. The material from Ecuador, herewith published, has been collected in connection with the work of the George G. Heye Expedition in that country, and the specimens are now in the Heye Museum, New York.

In a communication to the International Congress of Americanists held at Vienna in 1908, in giving a brief résumé of the results of my first archeological trip to Esmeraldas, the writer said:

> Another custom which we have found in Esmeraldas, and which, so far as we are aware, is not present in any other part of South America, is the decoration of the teeth by the insertion of inlays in small perforations cut in the enamel of the upper incisors. This custom of decorating the teeth was quite common in various parts of Mexico, where different settings were used. In the Mayan area, as far south as Salvador, the object most often used for the inlay was jadeite. In Mexico, for example in Oaxaca, I have found hematite used; in Vera Cruz, turquoise has been found; and in other parts, teeth with settings of rock crystal.

[1] I presented some notes on "Decoration of the Teeth in Ancient America" before the American Association for the Advancement of Science at the Detroit meeting in 1897. This paper was not published, partly by reason of the fact that I wished to collect more material bearing on the subject, but especially because of my long absence in Mexico on the work of the Loubat Expedition during the fall and winter of 1897–98. (See entry in the bibliography under date of 1899.) In 1901 Dr Lasch published in Vienna his paper on teeth mutilation and decoration in America. (See entry in the bibliography under this date.) Lasch mentions my account of finding teeth inlaid with hematite in Xoxo. He quotes my paragraph, "This ancient custom can now be traced from the Pueblo region of Arizona to southern Central America," and says, "Alas, Saville neglects to give his proof for the wide distribution of this custom." Dr Lasch unfortunately had not consulted several studies, entries of which I give in my bibliography, where he would have found published accounts of decorated teeth in Chiapas, Yucatan, and in Honduras and Salvador. Regarding the Pueblo region, I made the statement after having photographed a skull found by Dr Fewkes at Sikyatki, Arizona, a study of which seems to me clearly to indicate single serrations in at least three of the upper incisors and in the lower right lateral incisor.

obsidian, and a red cement, have been found. We have never heard of this custom in Colombia or Peru, but in Esmeraldas, in Atacames, skulls have been found with tiny discs of gold set into the teeth in the same manner as in Mexico and Central America, with the exception of the material. To our knowledge, among the thousands of mummies and skulls from Peru, inlaid or filed teeth have never been found, and it is a fact of very great significance in the study of the migrations of the ancient people of the west coast of Central America, and of northwestern South America.[1]

Since writing the above, Boman's great work on the archeology of the Andean region of Argentina has appeared,[2] and he has presented a skull showing filed teeth which was found in the extreme northwestern part of that republic. He furthermore refers to filed teeth being found in the neighboring part of Bolivia by Crequi Montfort;[3] but what I have said regarding the inlaying of teeth still holds true.

The only account from the early Spanish chroniclers which relates to the decoration of the teeth in Ecuador is found in the important work of Cieza de León. In treating of the province of Guayas in my *Antiquities of Manabi, Ecuador, Final Report*, I have cited this notice.[4] Before mentioning this custom, Cieza

[1] See entry in the bibliography under date of 1909.

[2] The title of Boman's great work will be found in the entry under 1908 in the bibliography. The skull described by Boman, and illustrated by both Chervin and Boman, was found in Argentina, near the arroyo of Sayate, in the province of Jujuy, not far from the Bolivian and Chilean frontiers. Sayate is in about the latitude of Antofagasta of the Chilean seaboard. The skull is that of a child of about the age of seven years; it has three of the lower incisors filed, the other being missing. The upper teeth also are missing, hence we do not know whether these were filed.

[3] Chervin, in his *Anthropologie Bolivienne*, after describing the Sayate skull, later treated in considerable detail by Boman, writes: "Nevertheless I found among the skulls coming from the graves of Tocarji, near Yura, province of Porco, Department of Potosi (Bolivia), analogous mutilations, less distinct, less fine, if I may say so. It consists of a division worked by two strokes of a saw, approaching a right angle, and thus separating a triangular piece, the base of which is situated on the cutting edge of the tooth, and the point directed toward the root. (See especially skulls numbered 285, pl. 81, and 314, pl. 86.) There it is a simple variation of Sayate, which has its importance in that it shows us the geographical area of these dental mutilations is very considerable in this region."—Tome III, pp. 94–95.

[4] See entry in the bibliography under date of 1910. Cieza de León was on the coast of Ecuador between the years 1540 and 1550, hence it is plain that the custom of inlaying the teeth with gold discs must have persisted for some time after the first coming of Pizarro in 1527.

enumerates several villages of the district, among them Colonche, Chanduy, and Chongon, towns which still exist along the coast of the region, between Manglar Alto and Guayaquil. He then proceeds: "In some of these villages the caciques and principal ones fasten bits of gold in their teeth." This undoubtedly refers to the style of dental decoration found in Esmeraldas province much farther to the north, where discs of gold were inserted as inlays into artificial cavities, as will be described later.

Bollaert, in his *Antiquarian, Ethnological, and Other Researches in New Granada, Ecuador, Peru, and Chile*, published in 1860, gives some information regarding the Esmeraldas coast which he received from M. Bourcier, formerly consul-general from France to Ecuador. He states that "large earthen vessels, containing chicha, have been disinterred, also a male skeleton, which had false teeth, secured to the cheek-bone by a wire of gold."

In his *Resumen de la Historia del Ecuador* Cevallos quotes from a report made about the coast of Esmeraldas during the early forties, to President Flores, and the statement which follows relates to a portion of the coast between La Piedra, at the mouth of Esmeraldas river, and Rio Verde, about twenty miles to the north. We translate from this account:

> In the year 1836 the Señora María Montero de García found in opening a well in her garden a jar with the skeleton of a man: the skull was well preserved and the teeth were interlaced or intertwined with gold wire. Examining the jaws to see if the teeth were artificial, in which case the wire would have served to secure them, it was found that they were not, and that the gold served as a pure ornament or fancy of the individual.[1]

It seems quite probable that this official account refers to the skeleton about which M. Bourcier gave information to Bollaert. The place where this discovery was made is in the immediate neighborhood of the locality in which was found one of the examples which I brought from Ecuador last summer. It is indeed unfortunate that we have no representation of this skull to further enlighten us concerning the style of decoration.

[1] Volume VI, the final volume of the work of Cevallos from which we take this statement, was first published in 1873. I quote from the second edition, volume VI of which was printed in 1889.



A. SKULL WITH TEETH INLAID WITH GOLD, FROM ATACAMES, ESMERALDAS, ECUADOR. IN THE BRITISH MUSEUM



B. SKULL WITH TEETH INLAID WITH GOLD, FROM ATACAMES, ESMERALDAS, ECUADOR. IN THE HEYE MUSEUM

In the spring of 1913, a Cholo, one of the natives of Atacames, a town in the province of Esmeraldas, about eighteen miles southwest of the city of Esmeraldas, found a skeleton in a burial tube in the right bank of the Rio Atacames, just above the town. The skull was found with the teeth inlaid with gold, but the finder contented himself by breaking off the superior maxillary, throwing the rest of the skull away. When I visited the town in June of the present year for the purpose of making some excavations to supplement my former work, I obtained the fragment. The two upper middle teeth are decorated by the insertion of thin gold discs in cavities drilled or bored in the enamel of the face of the teeth, as shown in figure 56, in the drawings in plate XIX, *d*, *e*, and also in the photograph shown in plate XVI, *b*. An unusual dental feat, in addition to the decoration, is found in the right middle tooth. This is not a right middle incisor, but a right lateral incisor (pl. XIX, *d*), which does not belong to the jaw but was implanted to replace the middle incisor. This is such an extraordinary feature that we must weigh very carefully the evidence as to its having been found in the jaw. Everything is in favor of this position; indeed there is no reason to doubt that the replacement is a genuine precolumbian triumph of the ancient dentists of Atacames.

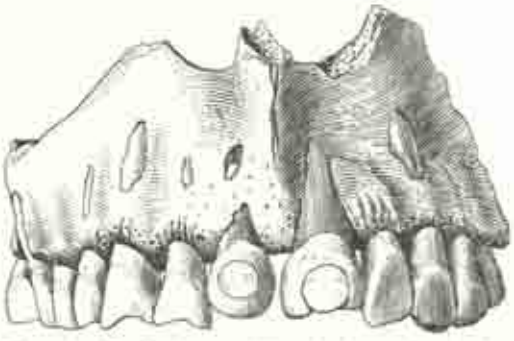


FIG. 56.—Teeth decorated by the insertion of thin gold discs.

The occurrence of decorated teeth is extremely rare, very few specimens having been found, but this is not proof that the custom was not a common one in former times. The inhabitants of the little village are incapable of appreciating the archeological value of such finds, as they hold in little esteem objects of antiquity which are found in great abundance, and there is no market for

relics in this isolated place. The value of the gold inlays as bullion is very small: the owner sold the specimen for less than two dollars, and I could have otained it for less, had I desired to follow the usual method of trade. The tooth fits perfectly into the socket, although, as a matter of course, it is not so long as the cavity, this space at the end being proof that the original tooth was replaced by the implanted one only a short time before death, otherwise the growth of the bone would have filled it.

Although I have never before seen an implanted upper tooth in ancient America, we have an example in a lower jaw which I uncovered in an excavation at Copan early in 1892. Dr Andrews, the well-known dental authority, has published a record of this find, as follows:

> In the lower jaw of the skeleton was found the most interesting curiosity in the whole collection to dentists—a lower left lateral incisor that has been carved from some dark stone, and which has been implanted to take the place of one that had been lost. The tartar would seem to show that it had been worn for some time during life. This implantation antedates Dr. Younger's experiments by some fifteen hundred years.[1]

In another paper, Dr Andrews writes:

> The most interesting dental curiosity in the collection is an implanted tooth, made of some dark stone. It was found neatly fitted in the socket of an inferior left lateral incisor, and is shaped very much like the natural tooth. That it had been worn for some time during life was indicated by the thick incrustation of tartar upon it.[2]

The setting of the implanted left middle incisor of the Atacames specimen under consideration (pl. XIX, *e*) is a little larger than that in the right tooth, being a slightly irregular disc, 6.5 mm. in diameter, while the other inlay, a perfect disc, is only 5 mm. in diameter. The smaller disc, however, is slightly thicker than the larger one, being less than .5 mm. in thickness, the other being but .3 mm. The surfaces of the inlays are flat and polished. The larger one projects below the edge of the central part of the tooth, and viewing at it from the inside (pl. XIX, *f*), it appears to have been filed, and thus decorated before the insertion of the inlay. It is extremely

[1] See first entry in the bibliography of Dr Andrews, under date of 1893.

[2] See second entry in the bibliography of Dr Andrews, under date of 1893.



SKULL WITH TEETH OVERLAID WITH GOLD, FROM LA PIEDRA, ESMERALDAS, ECUADOR.
IN THE HEYE MUSEUM

probable that the left lateral incisor and the left canine exhibit decoration by filing (pl. XIX, *g*, *h*), and are not naturally worn down. This custom of filing the teeth, a quite common custom in ancient Mexico and Central America, is now found for the first time on the Pacific coast of South America, in case our presumption is correct, although, as has been already stated, Boman has recently reported it from Argentina.

The back teeth are very much worn, evidence that the decorated incisors were carefully taken care of, in order that the implanted tooth and the projecting inlay might not be injured.

A short time before my first visit to Atacames in 1907, a skeleton was found in a burial tube, which had the four incisors and the two canines of the upper jaw decorated with gold inlays. The finder, unfortunately, extracted the settings for the trifling value of the gold, and threw the skull away. I secured these six inlays, and they now form a part of the Esmeraldas collection in the Heye Museum. They are a little smaller than the two in the specimen just acquired, one being 4.5 mm. and the other five 4 mm. in diameter. Several other teeth with gold setting have been found at various times after floods, when the banks of the river were undermined, often uncovering burials. With one exception, outside of our own collection, they have been given away as curiosities. The exception noted is a fragment of a skull found in the early seventies and presented to the late J. S. Wilson. It is now in the British Museum.[1] This skull (pl. XVI, *a*) formerly contained eight gold inlays in the upper jaw, decorating the four incisors, the two canines, and the two bicuspids. Only the settings in the canines and the bicuspids remain, although the cavities in three of the incisors are found, while one of the incisors is missing.

We know, then, that the number of the teeth to be decorated was variable. Our examples have two and six, while the British Museum has eight inlays, the latter number being the extreme

[1] A drawing of this skull has recently been published in the *Short Guide to the American Antiquities in the British Museum*, written by Mr Joyce. See entry in the bibliography under date of 1912. I obtained a photograph of this specimen in 1895, which has been reproduced for several years among the plates of my unpublished work on the archeology of Esmeraldas.

found by us in a skull from a tomb in the ruins of Copan, Honduras, where, however, the setting was of jadeite. It may be observed here that gold as an inlay has never been found thus far to our knowledge in North America or in South America outside of the Esmeraldas coast region. From Tomsupa, a few miles north of Atacames, we have two gold discs, one 4 mm. and the other 4.5 mm. in diameter, which are without doubt inlays from teeth. From La Tolita, more than a hundred miles to the north, we have numerous gold discs, of about the size of the Atacames specimens, which are probably inlays, but thus far, in the extensive diggings that have been carried on there in search of gold, no skulls with decorations have been found. I believe that when careful excavations are made in the many mounds on the island, skulls having gold decorations will be discovered. It is a curious fact that we do not find any indication of this type of facial decoration in any of the hundreds of pottery heads from La Tolita, but in reality our hasty survey of this area is hardly a scratch on the surface of this important archeological field.

By far the most transcendent example of teeth decoration which has at present come to light in America is in a skull discovered in 1909 at a place called La Piedra, near the point on the right bank of Esmeraldas river where it empties into San Mateo bay. It was accidentally found by Mr Pinzon and Mr George D. Hedian, the latter the American consular agent at Esmeraldas, and was kindly presented to me by Mr Hedian for the Heye Museum during my visit to Ecuador last summer. The skull was seen projecting from the bank, but no other parts of the skeleton were uncovered, probably having been washed away after the bank was undermined. The upper part of the skull is in fragments, but is restorable. The upper and lower jaws are somewhat flattened, having been crushed by the weight of earth, and still remain with the mass of earth in which they were imbedded (see pl. XVII, and fig. 57). The skull, slightly deformed, is that of an adult female. The decoration of the teeth is unique and presents a new type of facial ornamentation. Instead of small discs being set into artificial cavities, we find in this case, as shown in plate XIX, *c*, that certain teeth of the



A. SKULL WITH FILED TEETH IN UPPER AND LOWER JAWS, FROM MOUND 6, RUINS OF LABNA, YUCATAN. IN THE PEABODY MUSEUM OF HARVARD UNIVERSITY



B. SKULL WITH TEETH INLAID WITH JADEITE, FROM CHALCHICOMULA, PUEBLA, MEXICO. IN THE ETHNOGRAPHICAL MUSEUM OF MUNICH

upper jaw were almost entirely covered on the outer face by an *overlay* of gold. The entire enamel of the teeth decorated has been removed with the exception of narrow bands at the bases and the upper parts where they were close to the flesh and imbedded in the jaw. The removal of the enamel is through to the dentine and was skilfully accomplished. It appears that in some instances sawing was done slightly under the enamel at the upper part, so that the gold overlay, or covering, might be fitted under it in order to make it more secure. In one tooth there is a very tiny ridge on the right side where the enamel was left in a beveled line. The teeth thus practically "face-crowned" are the four incisors and the two canines. The overlays are missing in all but one of the teeth, the left lateral incisor (pl. XIX, *c*). This gold covering is slightly folded or bent over each side of the tooth for greater security. The overlay measures 5 mm. in height, and has an extreme width of 8 mm. (an average of 7 mm.) on the face, while the clamped or bent-over section is too small to be measured. The teeth which have lost the overlays (a front and side view of one is given in pl. XIX, *a*, *b*) show that the cutting extends toward the dentine 1 mm. or a trifle more. In the left middle incisor the vertical cut is 6.6 mm.; the right middle incisor has a vertical cut of 6 mm.; while the canines have 5 mm. In some of the cuts traces of a cement which aided in holding the gold fast to the teeth may still be seen. The

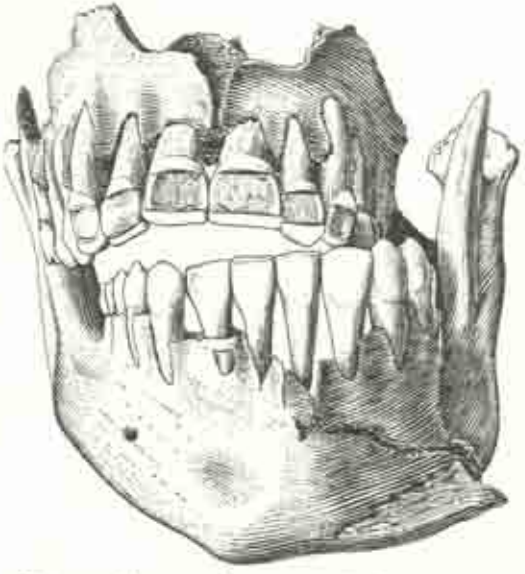


FIG. 57.—Upper teeth ornamented with overlay of gold.

polished surface of the remaining overlay does not come out to the face of the tooth; in other words, the gold is not so thick as the depth of the cut. Unlike the fragment of skull which contains the disc inlays described above, the teeth are not worn down, and are in a splendid state of preservation. The teeth decorated are those which show when the mouth is opened in speaking, and are so covered that they must have had the appearance in life of gold teeth.

This new phase of dental decoration exhibits a skill far in excess of that shown in the simple discs cut out of the enamel for inlays, as the removal of such a large part of the enamel required the most delicate work on the part of the operator so as not to injure the dentine and cause premature decay. Had the gold overlay not been tightly fitted over the exposed dentine, decay likewise would have been rapid, but there is not a trace of decay on the surfaces of the dentine where the overlays have been lost, nor is there any indication that the decoration was not worn for a considerable time during life, and I am of the opinion that the accidental finding of the skull is responsible for the lack of the five overlays, and that they were not lost during life.

One other type of decoration remains to be considered. On the first expedition to Esmeraldas, in 1907, my assistant, Mr Niendorff, was sent on a trip from Atacames southward to the frontier of the province of Manabí. At Tonchigue, a few miles south of Atacames, he made several excavations, and I quote from his report as follows:

> One tube, twenty inches in diameter and two feet six inches high, contained a skeleton; the tube stood on an olla overlapping it about two inches. The olla was thirteen inches deep. On top of the tube there had been another tube overlapping the lower one by about five inches. Being so near the surface, the tube and the olla had been exposed to the elements for so long a time that I could not save the bones. A part of the top of the skull had been bleached white. On either side of the skull I found small pieces of copper wire which had been gilded. They were evidently earrings. Between the two upper front teeth I found a small spoon-shaped piece of gold [see fig. 58], bent around the tooth on the inside.



FIG. 58.—Tooth ornament of gold.

The teeth and the rest of the skull were so much disintegrated that Mr Niendorff was unable to preserve them. This gold orna-

ment has a small piece broken from it. As shown in the drawing, which is natural size, it is flattened out. It was bent around the tooth with the rounded side out, thus forming a type of decoration combining the disc and the band on the face of the incisor.

In our study of this subject we have found that various methods of decoration were in vogue along the Esmeraldas coast. The most common type was the inlay of small discs; we have also the overlay of gold bands in the enamel; again, as in the Tonchigue example, the binding around the tooth of a convex disc and bands; and, finally, the reported discovery in the thirties of the intertwining or interlacing of gold wire around the teeth. It should also be noted that the decoration was always in the upper teeth, and so far as we now know gold was always used as the material for the inlay. There is also the indication that filing of the teeth was practised.

In order to compare our Esmeraldas specimens with some of those found in Mexico and Central America, there are introduced in plate XIX a few drawings of teeth from this area. They show that in the art of inlaying substances in the teeth, the technique in Central America is identical with that of Esmeraldas. The examples *i* to *m* are inlaid teeth from Mexico and Honduras, exemplifying three different materials used as inlays. *i* is an upper incisor from Yucatan in the Berlin Museum; it has an inlay of turquoise, is not filed, and has a perforation on the side near the upper end of the root for suspension. Example *j* is from Tecolpa, Chiapas, not far from the ruins of Palenque.[1] I collected it in 1897, and it is now in the American Museum of Natural History. It is an upper incisor, has an inlay of jadeite, and is filed at each corner. Specimen *k* is from the ruins of Copan, Honduras; it was found in a tomb which I uncovered in 1892, and is now in the Peabody Museum of Harvard University.[2] This is an upper incisor, and is decorated in the same manner as the tooth from Tecolpa, being inlaid with jadeite and also filed. The tooth shown in *l* is also from Copan; it has an inlay of jadeite, but is filed only on the right corner.

[1] See entry in the bibliography of Troncoso under date of 1893.

[2] See entry in the bibliography under date of 1896.

An upper canine, *m*, is from Xoxo, Oaxaca. In my paper on Zapotecan tombs[1] I have described the finding of this tooth; it was excavated in an enclosure in front of a stone burial chamber in the center of Mound 5, with a number of human teeth which had been thrown in with a mass of other objects. Several of the teeth were ornamented by the insertion of small circular pieces of hematite averaging three-sixteenths of an inch in diameter. Several were also filed, and two had no setting but were filed at the corner. These are all upper teeth. The tooth illustrated has a hematite inlay, but is not filed. This specimen, with two other decorated teeth from the Xoxo tomb, are now in the American Museum of Natural History. The other teeth shown in plate XIX illustrate examples of simple filing. Specimen *n* the writer found in the Cave of Loltun, Yucatan;[2] it exhibits filing similar to that found in the skull which I also discovered in a tomb in the ruins of Labna, Yucatan, while engaged in the work of the Thompson Expedition of the Peabody Museum of Harvard University. This skull has been illustrated by Dr Andrews,[3] but I give here, in plate XVIII, *a*, a front view, as the publications of Dr Andrews are not readily accessible. Teeth *o* and *p* of plate XIX are from a skull illustrated in Strebel's work, and are from Cerro Montoso, Vera Cruz. They exhibit a different style of filing, the first showing the presence of a double serrated edge, while the second has a single serration.[4] All the teeth shown in the illustration are from upper jaws.

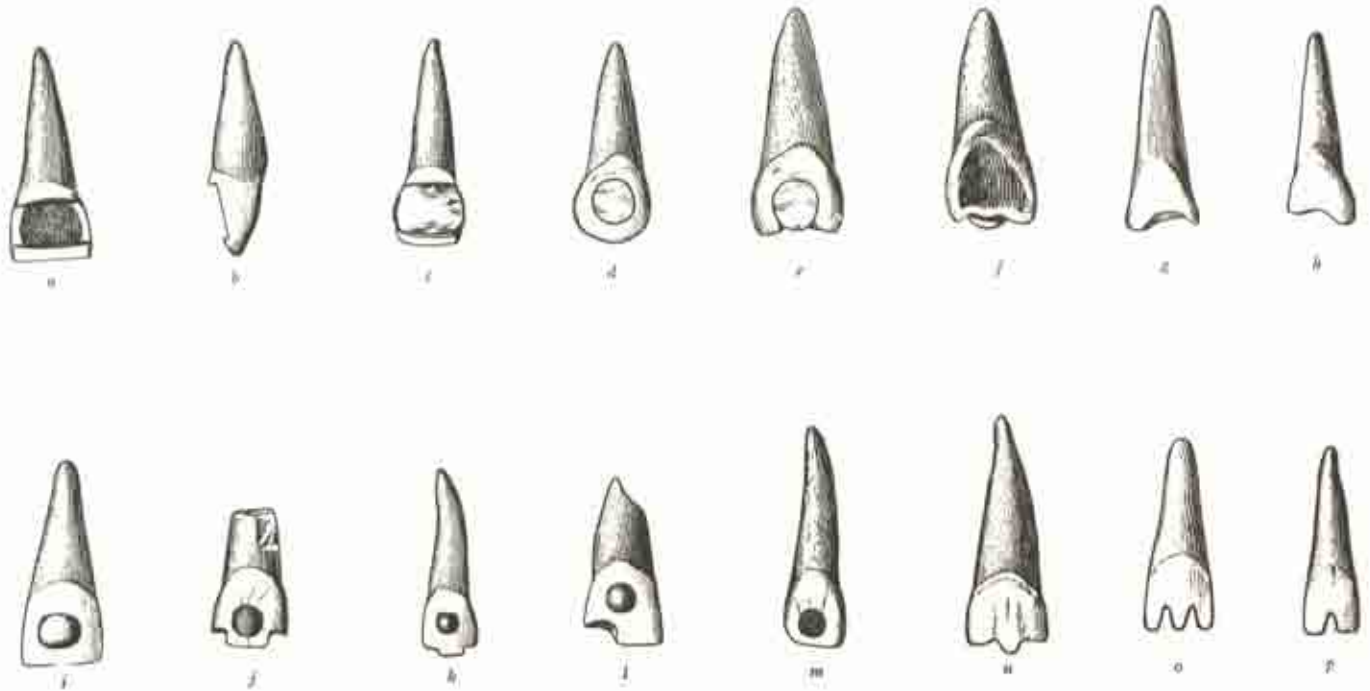
In all the examples of skulls with decorated teeth which I have seen, if the style of decoration is that of a simple inlay or a combination of inlay and filing in the same tooth, the teeth of the lower jaw are not decorated. Inlaying is confined strictly to the teeth of the upper jaw. If the upper teeth, however, are only filed, then in a number of instances we find the lower teeth filed with a single or a double serration, as in the examples of upper teeth shown in *n*, *o*, *p*, of plate XIX. Unfortunately, only one of the

[1] See entry in the bibliography under date of 1899; also the entry of Batres under date of 1902.

[2] See entry in the bibliography under date of 1897.

[3] See entries in the bibliography under date of 1893.

[4] See entry in the bibliography under date of 1885–89. These teeth are found in a skull figured in tome 1, pl. VIII, fig. 18.



DECORATED TEETH SHOWING OVERLAY, INLAY, AND FILING

skulls with filed upper and lower teeth which I have seen has all of the teeth in place, namely, the example from Labna, where the six upper teeth, incisors and canines, are filed; and the eight lower teeth, incisors, canines, and bicuspids, are also filed. In other skulls it is impossible to state how many of the lower teeth were thus decorated. In the Mexican and Central American area, what I have written about the variability of the number of teeth to be decorated in Esmeraldas is also true.

In figure 59 is illustrated the fragment of upper maxillary figured by Hamy.[1] It is one of two examples of the kind with inlaid teeth from Mexico which we have ever seen published; other specimens showing this custom are simply isolated teeth separate from the jaw. It is from Campeche, Mexico, and indicates that at least six of the teeth were decorated—the four incisors and the canines. The right middle incisor is missing, and the settings of turquoise are lacking in the cavities cut in the left middle incisor and in the right canine.

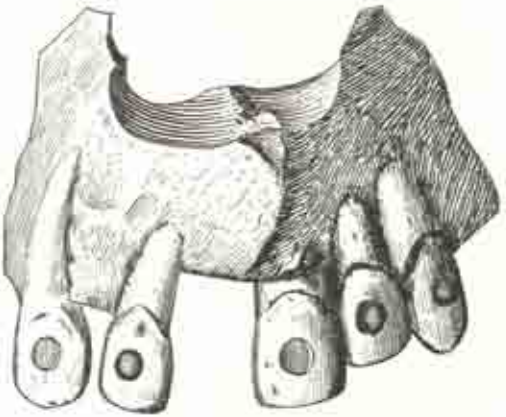


FIG. 59.—Upper teeth inlaid with gold. From Campeche, Mexico. (After Hamy.)

The other example is in a complete skull from Chalchicomula, state of Puebla, Mexico, which has recently been illustrated by Dr Walter Lehmann; it is now in the Ethnographical Museum in Munich. In this, the only complete skull with decorated teeth which has been published (see plate XVIII, *b*), the two upper incisors are ornamented with small circular inlays of jadeite, somewhat smaller than the average inlays in other decorated teeth which I have examined.

[1] See entry in the bibliography under date of 1882.

Comparing these specimens with our Atacames fragments, the close similarity is evident, especially in the specimen in the British Museum and the Campeche fragment, the inlays in both specimens being of the same size.

I cannot help expressing the opinion that the custom of inlaying teeth as found on the Ecuadorian coast has come directly from Central America, and that future explorations of the George G. Heye Expedition to the north, along the Colombian coast, will probably bring to light other examples of this custom in the region separating the coast of Ecuador from Central America. It would be premature at this time to dwell on the question of a connection between the coast cultures of Ecuador and Central America, but it might be stated, in conclusion, that we have several other points of contact which seem to be indicated in a study of our extensive collections from the province of Esmeraldas. This is a subject which we reserve for consideration in our forthcoming monograph on The Archeology of Esmeraldas, which will appear as Volume III of our *Contributions to South American Archeology*.

The interesting questions will be asked, How was the work of cutting the teeth accomplished? and How was the patient able to withstand the pain of the operation done with the most primitive of tools? The only information that sheds light on the first query is found in the work of De Landa, who, writing about the native population of Yucatan, the Mayas, says: "They had the custom of sawing the teeth, leaving them like the teeth of a saw, and this they did for elegance or show; the work was done by the old women, filing them (the teeth) with certain stones and water."[1] This probably explains the process employed by the people of Esmeraldas and Argentina in filing the teeth and in cutting out the enamel for overlays, as shown in La Piedra skull; but, in cutting the cavities for inlay work, stone drills, or perhaps either hollow bone or cane drills, were employed with sand and water. No metal tools have yet been discovered in Esmeraldas or elsewhere in Ecuador by which the work could have been done. All the copper celts and

[1] The work of Diego de Landa, entitled *Relación de las Cosas de Yucatán*, was found and first published by Brasseur de Bourbourg in 1864. I translate from the edition of Brasseur (p. 345) after comparing the paragraph with the text of the two later editions.

axes are large, and we have only a single small copper implement, an awl, from Esmeraldas. We must not forget that to the present time hardly any archeological work has been done in this section of South America. Our own explorations thus far have been little more than a preliminary reconnoissance of the region. Later, tools suitable for the fine dental work exhibited by these specimens may be uncovered by the spade of the investigator. I believe, however, that copper is too soft to have been used successfully for cutting so hard a substance as enamel, hence it is fairly evident that other materials must have been employed as tools by the ancient dentists.

Regarding the other question, as to the ability of the patient to bear the discomfort and pain of the operation, is it not possible that these people had discovered the properties of coca in producing local anesthesia? We know from archeological evidence, which I have brought out in my work on Manabi,[1] that the people of the coast were addicted to the use of coca, chewing the leaves, mixed with lime, exactly as do the Indians of today in a large part of western South America. In view of this fact, it does not seem unreasonable to advance the hypothesis that coca may have been used, in some form, in dental work in this area, where, without question, a little-known branch of the South American Indians reached a high state of aboriginal culture.

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1882 IHERING, H. VON. Die kunstliche Deformirung der Zahne. In *Zeitschrift für Ethnologie*, Band XIV, pp. 213-262, Berlin, 1882.

Von Ihering devotes a small space at the end of the paper to the filing and other mutilation of teeth in America.

HAMY, E. T. Les mutilations dentaires au Mexique et dans le Yucatan. In *Bulletin de la Société d'Anthropologie de Paris*, 3e série, tome V, p. 879, Paris, 1882.

1883 HAMY, E. T. Mutilations dentaires des Huaxteques modernes. In *Bulletin de la Société d'Anthropologie de Paris*, 3e série, tome VI, pp. 644-645, Paris, 1883.

[1] See entry in the bibliography under date of 1910. In this volume (pp. 183-187) I have discussed this subject, and in plates LXVII-LXVIII have illustrated some vessels of shell and clay which were used to contain the lime mixed with the masticated coca leaves. These objects were found with skeletons in graves excavated by the George G. Heye Expedition at Cerro Jabonecillo, Manabi.

These studies are republished by Dr Hamy under the title "Mutilations dentaires des Huaxteques et des Mayas," in *Décades Américana, Mémoires d'Archéologie et d'Ethnographie*, 3d and 4th Decades, XXVII, pp. 88–94, figs. 14, 15, Paris, 1898.

Dr Hamy figures the fragment of an upper jaw of a skull from Campeche which has the teeth inlaid with turquoise.

1885–
1889 STREBEL, HERMANN. Alt-Mexiko, 1885, Tafel VIII, fig. 18; Zweiter Teil, 1889, Tafel IX, fig. 14. Hamburg und Leipzig, 1885–1889.

In the first illustration Strebel gives a skull from Vera Cruz with filed teeth in the upper jaw; in the second plate cited he illustrates a tooth inlaid with obsidian, also from Vera Cruz.

1890 LEÓN, NICOLAS. Anomalias y Mutilaciones Etnicas del Sistema Dentario entre los Tarascos Pre-Colombianos. In *Anales del Museo Michoacano*, 3d year, pp. 168–173, 1 pl., Morelia, 1890.

Illustrates and describes a skull from Michoacan with filed teeth in the upper and lower jaws.

1892 PECTOR, DÉSIRÉ. Notice sur l'archéologie du Salvador précolombien. In *Internationales Archiv d' Ethnographie*, tome V, pp. 112–116, Leiden, 1892.

This paper is a résumé of the work of Montessus de Ballore, *Le Salvador précolombien*, a portfolio of 25 plates published in Paris in 1891. Pector calls attention to what appears to indicate filed teeth in several of the pottery specimens. I fail to find any marked examples of this custom, except in two animal heads in which the teeth are pointed, and in a face, probably representing the mask of Tlaloc, in which two of the teeth are cut. In the human heads nothing of the kind is found.

PINART, A. L. Déformations dentaires artificielles chez les Indiens de l'isthme de Panamá. In *Compte-rendu Congrès International des Américanistes*, VIIIe session, Paris, 1890, p. 340, Paris, 1892.

1893 PASO Y TRONCOSO, FRANCISCO DEL. Catálogo de la Sección de México, Exposición Historico-Americana de Madrid, 1892, tomo II, p. 381, Madrid, 1893.

Mention is made of the collecting of teeth, filed and inlaid with jadeite, in Tecolpa, Chiapas. In 1897 I collected a tooth of the same character in Tecolpa, which is now in the American Museum of Natural History.

ANDREWS, R. R. Prehistoric Crania from Central America. In *International Dental Journal*, reprint, 4 pp., 1 pl., 4 figs., Boston, 1893.

ANDREWS, R. R. Prehistoric American Dentistry. In *Dental Practitioner*, reprint, 3 pp., 2 ill., Buffalo, 1893.

In these two papers Dr Andrews figures and describes a skull from Labna, Yucatan, with teeth filed in the upper and lower jaws, and also teeth filed and inlaid with jadeite and a red cement, from Copan, Honduras, all excavated by Saville. These specimens are now in the Peabody Museum of Harvard University.

1896 SAVILLE, MARSHALL H. Prehistoric Ruins of Copan, Honduras. *Memoirs of the Peabody Museum of American Archæology and Ethnology, Harvard University*, vol. 1, no. 1, pp. 30, 32, text figs.

Several of the filed and inlaid teeth are illustrated and the finding of them is mentioned in the report on the excavation of the tombs.

1897 THOMPSON, EDWARD H. Cave of Loltun, Yucatan. Report of Explorations by the Museum, 1888–89 and 1890–91. *Memoirs of the Peabody Museum of American Archæology and Ethnology, Harvard University*, vol. I, no. 2, p. 20, fig. 16.

Illustrates three filed teeth found by Saville, while in charge of the work of the Thompson Expedition, in the Cave of Loltun, Yucatan.

1899 SAVILLE, MARSHALL H. Exploration of Zapotecan Tombs in Southern Mexico. In *American Anthropologist*, N. S., vol. I, pp. 354, 361–362, April–June, 1899.

Mentions the finding of filed teeth and teeth inlaid with hematite in a tomb excavated in Xoxo, Oaxaca, by the Loubat Expedition. Several of these teeth are in the American Museum of Natural History, New York.

1901 LASCH, RICHARD. Die Verstümmlung der Zähne in Amerika und Bermerkungen zur Zahndeformierung im Allgemeinen. In *Mittheilungen der anthropologischen Gesellschaft in Wien*, Band XXXI, pp. 13–22, Vienna, 1901.

A general treatise on teeth mutilation in ancient America.

1902 BATRES, LEOPOLDO. Explorations of Monte Alban, Oaxaca, Mexico, pp. 9–10, fig. 3, México, 1902.

In this account of the explorations carried on at Monte Alban, Batres illustrates a filed tooth inlaid with hematite which he states he found in a crypt in Xoxo. This is not so. The tooth is one of those found by me, and became the property of the Museo Nacional, Mexico City, in the division of the material found by the Loubat Expedition.

LUMHOLTZ, CARL. Unknown Mexico, vol. II, pp. 426–427, 1 ill., New York, 1902.

Lumholtz illustrates a skull with filed teeth in the upper jaw. In exploring an ancient burial place near Zacapu, Michoacan, Lumholtz found a number of skulls with filed teeth in both the upper and the lower jaw. These skulls are in the American Museum of Natural History.

1907–1908 CHERVIN, A. Anthropologie Bolivienne. Publication of the *Mission G. de Crequi Montfort et E. Senechal de la Grange*, 3 volumes, Paris, 1907–1908.

In tome III Chervin illustrates a skull with filed teeth from Sayate, Argentina, and also two skulls from the Department of Potosí, Bolivia, which he states have filed teeth. The illustrations are small and do not clearly show this feature. See tome III, pp. 93–98, figs. 29–33, pl. 16, and pl. 81, no. 285, pl. 86, no. 314; also p. 59, fig. 26.

1908 BOMAN, ERIC. Antiquities de la Region Andine de la République Argentine et du Désert d'Atacama. Publication of the *Mission Scientifique C. de Crequi Montfort et E. Senechal de la Grange*, tome II, pp. 579–589, pl. XLVII, figs. 113–114, Paris, 1908.

Boman gives considerable attention to the subject of decorated teeth, citing various authorities, and illustrates a skull with filed teeth from northwestern Argentina, collected by the expedition.

1909 SAVILLE, MARSHALL H. Archæological Researches on the Coast of Esmeraldas (Ecuador). In *Verhandlungen der XVI Internationalen Amerikanisten-Kongresses*, Wien, 1908, p. 344. Vienna, 1909.

First notice of the finding of skulls with teeth inlaid with gold in Atacames.

1910 SAVILLE, MARSHALL H. The Antiquities of Manabí, Ecuador, Final Report. *Contributions to South American Archæology*, vol. II, pp. 8–9, New York, 1910.

1912 JOYCE, T. A. A Short Guide to the American Antiquities in the British Museum, pp. 36–37, 1 ill., London, 1912.

Joyce figures a broken skull from Atacames, Ecuador, with the teeth inlaid with gold. The photograph which we reproduce in this paper was taken for the author in 1895.

LEHMANN, WALTER. Berichte des K. Ethnographischen Museums in München, IV (1911), pp. 101–102, Abb. 28, Munich, 1912.

Lehmann figures and describes a skull with two teeth inlaid with jadeite. He also calls attention to several other instances of decorated teeth but gives no general account of the subject.

HEYE MUSEUM
NEW YORK CITY

SHELL GORGETS FROM MISSOURI

By GEORGE GRANT MACCURDY

COLOR, texture, rhythm, harmony, symmetry, these are some of the playthings with which Nature beguiles her children. That they appealed to even the infancy of the race there is abundant evidence. The esthetic sense early found expression in various ways. One of these was in articles of personal adornment or symbolic use. Ornaments of shell came into use before the close of the Paleolithic period and have ever since played an important rôle in primitive art. The reasons for this are obvious. Shellfish figure largely in the food supply: the empty shells serve as ready-made vessels, and are also easily fashioned into tools or articles of apparel. The inner walls of certain large shells offer a prepared field for incised and open work.

Disks of considerable size can be cut from the expanded portion of such shells, for example as *Busycon perversum*. Disks of this kind are provided with a pair of holes near the margin and presumably were worn suspended about the neck, hence the name gorget or *plaque pectoral*. In fact the mode of occurrence would seem to leave no doubt as to the method of wearing this ornament. We have the testimony of eye-witnesses, among them Mr C. Croswell,[1] who says that the gorget he found "lay on the breast-bone of a skeleton, with the concave or ornamental side uppermost."

The most comprehensive discussion of shell gorgets, also one of the first to be published, is that by Professor William H. Holmes,[2] whose classification has been quite generally followed by subsequent writers. Holmes recognized at least six groups, "distinguished by the designs engraved upon them." These are the cross, spider, scalloped disk, serpent, bird, human figure, the human face, and the frog. The group representing the human face when not per-

[1] *Trans. Acad. Sci. St. Louis*, III. 537. 1878.

[2] Art in Shell of the Ancient Americans, *Second Ann. Rep. Bureau Ethnology*.

forated for suspension might well have been used as a mask. Perforated examples, however, seem to have been used as true gorgets, for Mr Clarence B. Moore[1] has found such on the chest in burials from Arkansas and Mississippi.

The home of the shell gorget is in the middle and lower Mississippi valley and eastward along the Gulf coast to the Atlantic

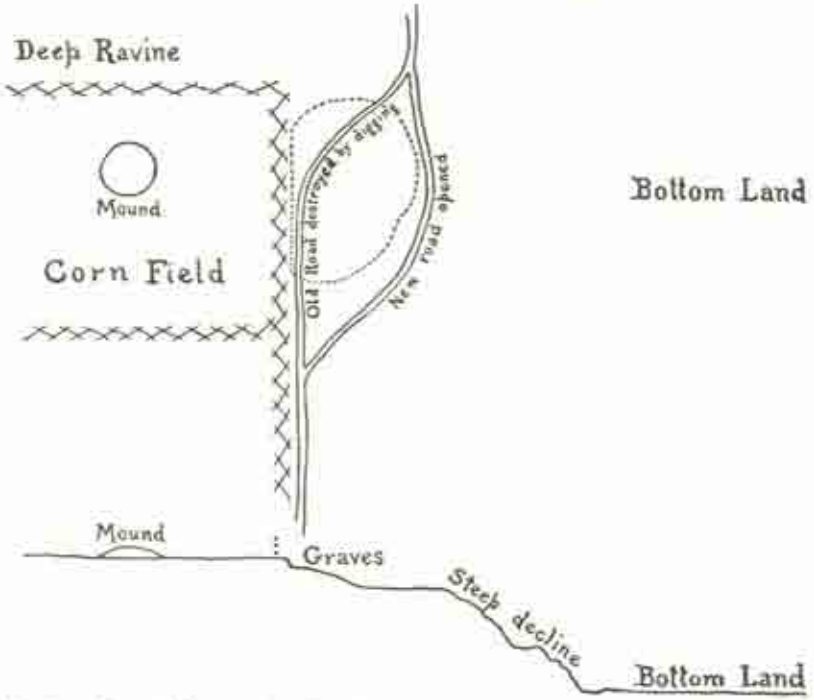


FIG. 61.—Ground-plan and profile of the site near Saint Marys, Perry county, Missouri. The objects were found within the dotted enclosure.

ocean (Missouri, Illinois, Ohio, Kentucky, Tennessee, Arkansas, Mississippi, Alabama, Georgia, and Florida), Missouri and Tennessee furnishing perhaps the finest examples. Previous writers have noted the resemblance between certain shell gorgets from Mexico (Tampico, Guerrero, Vera Cruz, and Michoacan) and those from the Mississippi valley and the Southern states.

[1] Some Aboriginal Sites on Mississippi River, *Jour. Acad. Nat. Sci. Phila.*, XIV, 1911.

In 1871 Professor O. C. Marsh was so fortunate as to secure for the Yale University Museum eight shell gorgets and a fragment of another, all (with possibly one exception) from the same cemetery in Perry county, Missouri. These, together with other antiquities from this cemetery, were bought of Alfred D. Chandler, who obtained them "on the spot," and which he says "cost several days' hard labor and adventure in the woods." The locality is about four miles south of the town of Saint Marys and three miles west of the Mississippi, opposite Chester, Illinois. The cemetery is on the first gentle declivity that extends from the limestone bluffs to the steeper decline descending to the bottom lands. The graves were first laid open by the deep wagon ruts that skirted a cornfield. On the terrace near the graves and in the center of the cornfield is a mound described as being "now about one hundred feet in diameter, and perhaps eight feet high, circular in form. The farmers say it was once many feet higher, but has been worn down every year by plowing and by rain. Chandler found nothing in the mound. The accompanying ground-plan and profile (fig. 61), which evidently give a good idea of the site, are copied from a pen sketch in one of Mr Chandler's letters to Professor Marsh. The following description of the finds made at this site is also taken from this letter:

> There has been but one perfect skull taken out . . . it is the skull of an adult well preserved, with all the teeth. Every attempt to get another such has failed; the bones are too far decomposed to hold together after the earth is removed. . . . Every entire skeleton was placed with its feet to the east. Many disconnected bones were found put in without order. The face was always uppermost. The bodies were sometimes in layers. The relics, etc., were always round the head. . . . Besides a large number of pots, bottles, and images, all different in shape, I have stone hatchets, copper, lead, very small arrowheads cunningly formed, large spear heads, several lower jaws, implements of bone, some fine specimens of engraved shells dipped apparently in some dye, with many other odds and ends. . . . Every article you may be sure is genuine and out of this place. I have myself excavated many, and have seen, or know beyond question that all the others have been dug up there. About a quarter of an acre of land has been upturned to get them.

Judging from the engraved shells in the Yale collection it is difficult to understand why Mr Chandler should say they had been "dipped apparently in some dye," unless he mistook the discolor-

ations of age for dye. Where the original surfaces are peeled away the shell shows white and chalky by contrast.



FIG. 62.—Shell gorget from Saint Mary's, Perry co., Missouri. Cross design. Yale collection. (½)

Following the classification of Holmes, the series of eight gorgets include two that might be considered as representing the cross, two the spider, one the serpent, and three the human figure. Figure 62 represents a well-preserved gorget in which the design is brought out by means of open work and incised lines. It resembles two oblong links of a chain interwoven at right angles. Beginning at the top, the right half of the vertical link passes over the upper half and under the lower half of the horizontal link; going upward the left half of the vertical link passes over the lower and under the upper half of the horizontal link. By rotating the disk 90°, the foregoing relations are exactly reproduced. The open work and the incised lines at their ends give to the links the appearance of being set in an open circular field. This design and that on a gorget[1] from Fain's Island, Tennessee (fig. 63), are variants of the same idea. In the latter the links are more angular, more closely interwoven, and not bounded by open

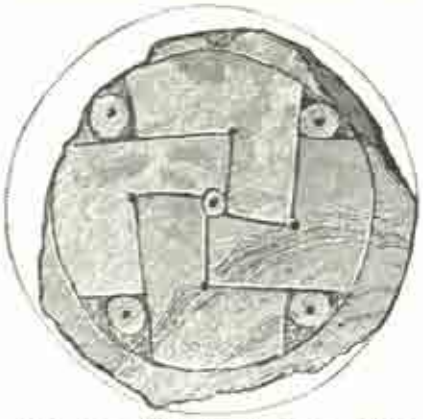


FIG. 63.—Shell gorget, Fain's Island, Tenn. Cross design. (After Holmes.)

[1] Holmes, op. cit., pl. LII, fig. 1.

work. Alternating with the arms of the cross are four annular nodes produced by *champlevé*, each with a small conical depression in the center; and at the center of the cross is a similar but smaller node.

Unfortunately the design on the gorget represented in figure 64 is fragmentary. Enough remains, however, to render restoration of the missing parts reasonably sure, because of the symmetrical character of the pattern. In the center is a circle enclosing a cross. To another larger circle enclosing these, four straight lines are attached situated at the four points of the compass and in line with the arms of the central cross. The cruciform idea is still further extended by a series of three double terraces radiating from the four cardinal points. The tops of the four outermost terraces coincide with the inner of at least two enclosing circles. A somewhat less elaborate example of this style is found on a shell gorget from Missouri illustrated in Mr C. C. Willoughby's "Analysis of the Decorations upon Pottery from the Mississippi Valley."[1]



FIG. 64.—Shell gorget from Saint Marys, Perry county, Missouri. Cross design. Yale collection. (Exact size.)

The significance of the cross in ancient American art has been dwelt on by various writers. Holmes believes that attempts to connect the use of the cross in prehistoric America with its use in the East "have signally failed"; and "that it occupies a place in ancient American art so intimately interwoven with conceptions peculiar to the continent that it cannot be separated from them." Among historic tribes the equal-armed cross is a common symbol for

[1] *Jour. Amer. Folk-lore*, x, 1897.

the four cardinal points or the four winds. Like the swastika, with which it is sometimes associated, the cross seems to be at home everywhere. Its absence from America would call forth remark even more than its presence. It is employed as a decoration on some of the pottery from the ancient graves of Missouri south of Perry county, occurring no fewer than ten times on one of the water bottles in the Yale collection that came from Diehlstadt, Scott county, seven times painted in white on a red slip and three times spared out of the ground. On the neck are six crosses, each surrounded by a circle. On the bottom, but not centrally placed, is a rather large cross, swastika, and circle combined (fig. 65); it resembles the central symbol on the gorget from Saint Clair county, Illinois, seven miles from the city of Saint Louis. This gorget, which was found on the breast of a skeleton, represents a spider, the cross symbol being placed dorsally on the thorax. Similar conceptions in repoussé and open work are to be seen on several pendants of sheet copper found by Mr Clarence B. Moore at Moundville, Alabama. The three Greek crosses on the body of this vessel are in the red color of the slip, each set in a white circular field, which in turn is surrounded by a sort of aureole suggesting the rays of the sun. The cross here might well be considered therefore as a symbol of the sun. The cross and circle surrounded by pointed rays is the central symbol on certain shell gorgets from Tennessee, Mississippi, and Florida. The cross represented in figure 66 is one of three from the body of a water bottle in the Scott county collection. It is a variant of the cross design on one of the gorgets (fig. 64).

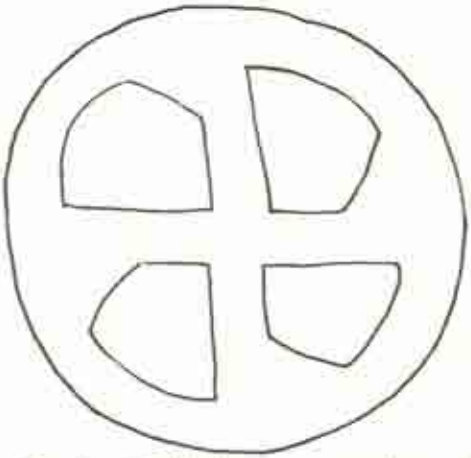


FIG. 65.—Combination cross, swastika, and circle painted on the bottom of a water bottle from Scott county, Missouri. Yale collection.

Representations of the spider are rare in ancient American art: scarcely more than half a dozen examples of it on shell gorgets have hitherto been published. The treatment is remarkably realistic and uniform, showing the artist to be a close student of nature as well as an adept in graphic expression. That the head is invariably turned downward[1] as if the spider were suspended by its

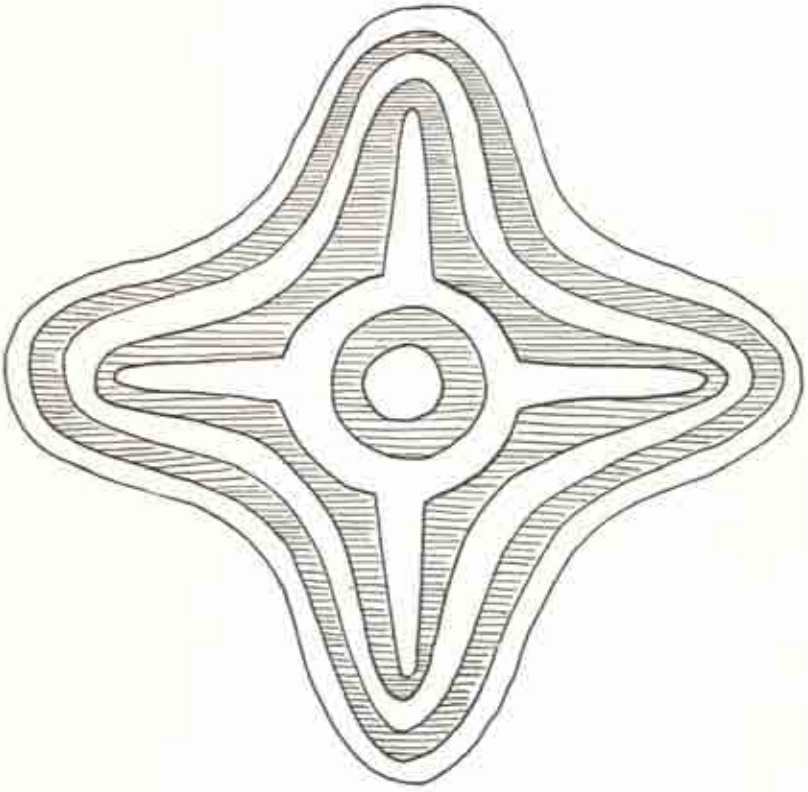


FIG. 66.—Cross design from the body of a water bottle. Diehlstadt station, Scott county, Missouri. Yale collection.

thread, is sufficient evidence to prove this to be true. According to Professor Petrunkevitch, the eminent authority on arachnids, the spider's head is always downward when the creature is in repose.

[1] The specimen from Fain's Island, Tenn., figured by Holmes, cannot with certainty be called an exception to this rule.

This is the spider's position of safety; taking it is simply obeying the law of self preservation. At the first intimation of danger, the creature drops to safety, leaving a thread by which to find its way back to the starting point; for the spider's sense of sight is probably not of the best. The artist was also exact in respect to the number, pose, and anatomy of the spider's legs. Aristotle gave to insects eight legs when they have only six. Arachnids have eight legs, but Japanese toy-makers give them only six. The ancient red man of the Mississippi valley, more observant than either, represents the spider on his shell ornaments with eight legs, the correct number.



FIG. 67.—Shell gorget from Saint Marys, Perry county, Missouri. Spider design. Yale collection. (Exact size.)

The pose is also correct, for all orb-weaving spiders have the legs disposed two forward and two backward on each side. The anatomy of the leg is also faithfully rendered in the series of alternating long and short segments (fig. 67). That nearest the body represents the femur, the first short segment is the patella, the second long one is the tibia, the second short segment represents the colored zone at the joint, and the last long segment the metatarsus and tarsus combined. Mandibles, palpi, and abdomen are in general faithful to nature. Even the attachments for the dorso-ventral muscles are depicted on the abdomen by means of dots. The most pronounced deviation from nature's

model is seen in the treatment of the cephalothorax. In some species there is a suggestion of differentiation between head and thorax, but nowhere is it so marked as in the engraved effigies. In the latter, too much prominence is also given to the eyes: the spider's eyes, eight in number, are so small they were probably overlooked. The cross which sometimes actually occurs on the abdomen, the artist has for some reason placed centrally over the thorax. In *Epeira insularis*, a species common to the Mississippi valley and the United States generally, the abdominal cross is quite distinct.

In view of the artist's success in holding as it were the mirror up to nature, caution should be exercised lest the rôle of symbolism be over-emphasized. Mrs Nuttall,[1] for example, attaches much significance to the downward position of the head in spider gorgets, calling attention to the descent of Tezcatlipoca by a spider's thread. The two points she emphasizes are: that the title Tzontemoc (he who descends head foremost) "is recorded in the Codex Fuenleal immediately after the name Mictlantecuhtli"; and that "the spider is figured on the manta of Mictlantecuhtli in the B. N. MS. and is sculptured in the centre, above his forehead, in his sculptured image." The sculptured image referred to is on the bottom of a large stone sacrificial bowl (*quauhxicalli*). The figure in the center above the forehead of Mictlantecuhtli is not the realistic spider seen on the shell gorgets; for the abdomen, the most prominent feature of the spider's anatomy, is lacking entirely, and the posture is head upward instead of head downward. It is perhaps safer to assume that the spiders engraved on gorgets are first and foremost delineations of the habits and anatomy of the spider, about which their mythological meaning, if they had any, crystallized.



FIG. 68.—Shell gorget from Saint Marys, Perry county, Missouri. Spider design. Yale collection. (Exact size.)

[1] *Archaol. and Ethnol. Papers, Peabody Museum, Harvard Univ.*, II, 44, 1901.

The only gorget in the Yale collection that might possibly be grouped with those bearing effigies of the serpent is reproduced in figure 69. Much of the weathered crust has disappeared, leaving only faint traces of the original incised pattern, which is enclosed by a circle and which seems to consist for the greater part of three groups of approximately parallel lines. The open work confined to the central portion would no doubt add materially to the meaning of the design, which must remain somewhat of a puzzle until made clear by discoveries of better preserved examples.

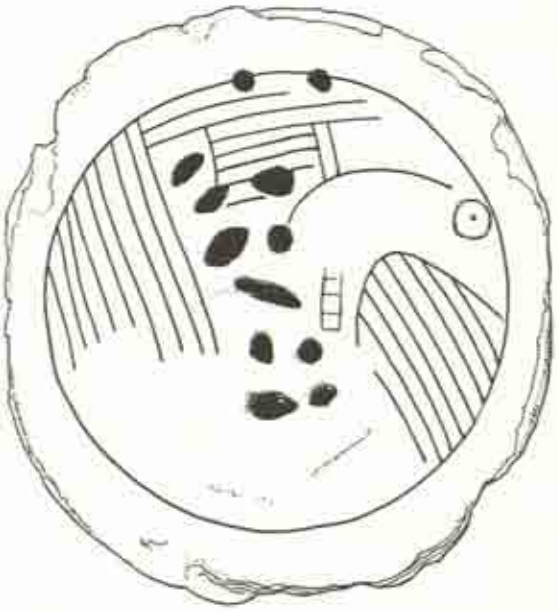


FIG. 69.—Shell gorget from Saint Marys, Perry county, Missouri. Yale collection. (Exact size.)

The rarest of all shell gorgets, and for that matter the gems of all art in shell, are the gorgets with representations of the human figure. Three of this class are in the Yale collection. One of these (fig. 70) is perhaps the finest combination of engraving and open work that has as yet come to notice. The figure is evidently in ceremonial garb and in action. Its outlines are accentuated by a complete cutting away of the field with the exception of the enclosing circular border nearly two centimeters wide, on which the head and extremities of the image overlap. The pose is exceedingly graceful. The weight is carried by the highly flexed right knee and the half-flexed left leg, supported by which the body is bent sharply forward. The head is seen in profile, the face being turned to the right with chin over right shoulder.

A large disk-like object, resembling the "chungkee" stone and held in the right hand, serves as a counter-poise. The left hand grasps an emblem the character of which is not wholly revealed. The position of the thumb overlapping the ends of the fingers is indicated with precision. The object held is similar to that seen in other gorgets. Above the hand it is bent inward until it seems to



FIG. 70.—Shell gorget from Saint Marys, Perry county, Missouri. Human form. Yale collection. (Exact size.)

be partially broken; both above and below the break and again below the hand the shaft is marked by a diagonal line. To the lower end is attached a large plume marked by cross lines and short terminal longitudinal lines. In a shell gorget (from Eddy-

ville, Kentucky) in the United States National Museum the emblem is identical but turned end for end (fig. 71).

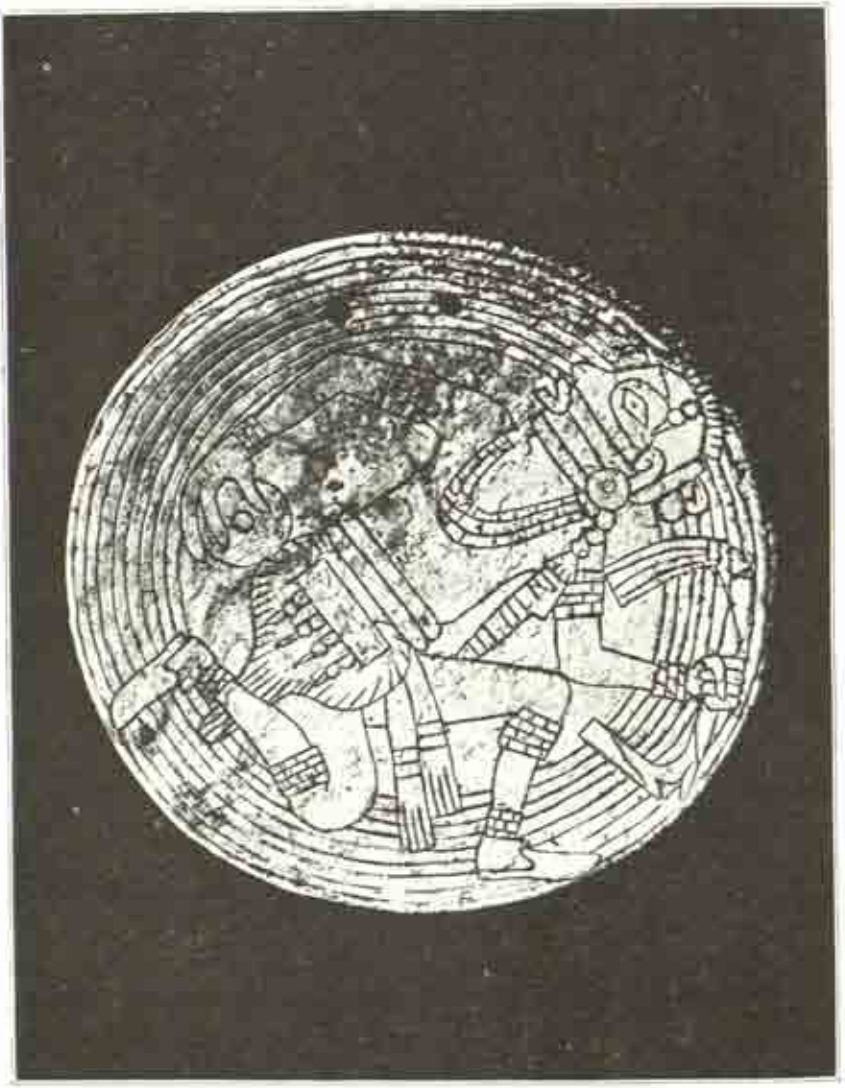


FIG. 71.—Shell gorget with engraved figure of a discus thrower, from an ancient grave near Eddyville, Kentucky. (After Holmes.)

The box-like headdress is similar to those in two large copper

figures from the Etowah mound, Georgia (fig. 72). The design enclosing the eye and reaching across the cheek in one direction and to the ear in another is seen on both shell and copper figures. The ear ornament is elaborate, extending to the elbow and represented as obeying the laws of gravitation instead of being parallel



FIG. 72.—Copper plate, Mound C, Etowah group, Georgia. (After Thruston.)

to the body axis. On the other hand the long pendant to the necklace follows stiffly the line of the body axis, one reason for this being that if allowed to assume the position called for by gravity the pendant would interfere with the unique tracery that describes almost a circle reaching from below the armpits to the knees and

resembling the skirts of a ballet dancer. The necklace and pendant are the same as those on shell and copper from the Etowah mound. There is a broad band about the waist, the free end of which hangs vertically, as might be expected, reaching the margin of the disk exactly opposite the two holes for suspension of the gorget. Below the sash and covering the right hip is a design evidently representing some article of apparel, possibly a pouch. Ornaments are worn on the arms and legs. This image and the one incised on a shell gorget from Eddyville, Kentucky (fig. 71), represent the same personage or scene, the significance of which can only be surmised.

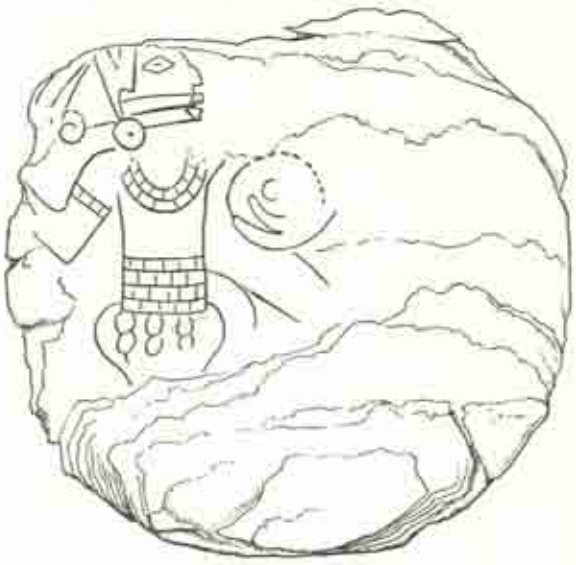


FIG. 73.—Shell gorget from Saint Marys, Perry county, Missouri. Human form. Yale collection. (⅔ size.)

The pose is the same even to minute details, such as the disappearance of the tapering end of the pouch behind the right ankle. The scene here depicted might be some game similar to the game of *it sĕ wah* of the Piegan Blackfoot Indians. In modern times the Blackfeet have used a small metal ring, wrapped with rawhide or deerskin, and cross-barred with sinew, on which various colored beads are strung.[1] In primitive times use was made of flat circular stones of convenient weight. The Yale Museum recently came into possession of such a stone disk, with the wand employed in connection with it, as a gift from Dr George Bird Grinnell. The stone had come down through many generations to chief Three Suns, of

[1] Culin in *Twenty-fourth Ann. Rep. Bur. Amer. Ethnol.*, figs. 577, 583.

the Blackfoot reservation, Montana. Both were given by the wife of Three Suns to Dr Grinnell in 1898. The Piegan stone disk is about the same size as the disks represented in the shell gorgets from Saint Marys and Eddyville.

One other shell gorget in the Yale collection (fig. 73) depicts a like scene. Here, however, the head is turned so as to bring the



FIG. 74.—Shell gorget, New Madrid county, Missouri. (After Thruston.)

chin over the left shoulder; the discus is held in the left hand, and the wand, if any, in the right. The lower part of the face is marked by straight lines drawn from the mouth to the ear, as is the case in the specimen from Eddyville, Kentucky. These lines probably represent tattoo marks, or perhaps the beak of an eagle which is

much more clearly indicated in the copper figures and an engraved shell from the Etowah mound where the attributes of the eagle are indicated not only by a mask but also by outspread wings and tail. Attention has already been called to certain articles of apparel or ornament worn in common by these images on both shell and copper.

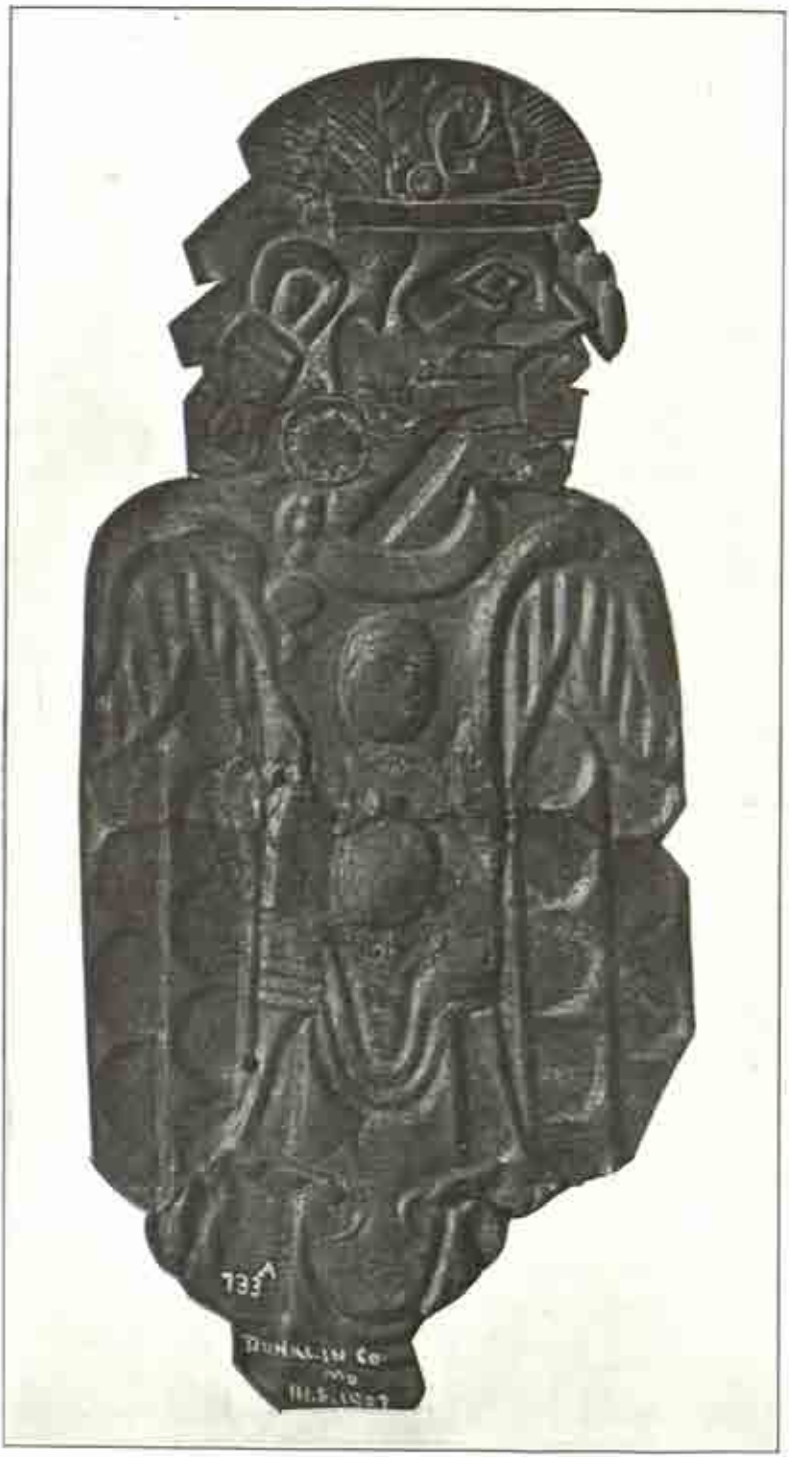
A shell gorget from New Madrid county, Missouri, furnishes another example of the mythical creature who is evidently something more than a mere player of games (fig. 74). The posture is the same as in the Perry county and the Eddyville (Ky.) specimens. The right hand however holds what might be intended for a tomahawk instead of the discus; while something resembling the latter appears as a breast ornament. Back of the right arm is an emblem that occurs on the Etowah effigies in copper. The headdress and braid of hair also recall Etowah. In view of these analogies one is justified in regarding the long curved proboscis as an exaggeration of the eagle's beak.



FIG. 75.—Shell gorget, McMahon mound, Sevierville, Tennessee. (After Holmes.)

Eagle attributes are the dominant feature in a shell gorget from MacMahon Mound, Sevierville, Tenn., which according to Holmes "must certainly be regarded as the highest example of aboriginal art ever found north of Mexico." Less than two-thirds of the design has been preserved, but being bilaterally symmetrical, the missing parts have been restored (fig. 75). Two beings, human except for eagle claws and wings, are contending for supremacy.

Moore recently found at Moundville, Alabama, an interesting shell gorget on which is engraved a human head with eagle features (fig. 76); also one in which the design represents a human form on



COPPER PLATE FROM MALDEN, DUNKLIN COUNTY, MISSOURI. WULFING COLLECTION. (AFTER FOWKE)

all fours. The customary headdress and the pouch at the hip are present. The hands seem to be armed with eagle claws.

Avian characters are dominant in the figures[1] on copper recently found in Dunklin county, Missouri; in fact they completely mask the human figure in all save one of the specimens. In this (pl. xx) the human features are quite distinct, especially the face, ear, and hair; ear ornaments and collarette are also conspicuous. The wings are folded, the feathers being represented in a rather simple yet telling fashion. The claws are those of the eagle, but the beak is not so characteristic, suggesting the turkey as much as anything else.



FIG. 76.—Shell gorget from Moundville, Alabama. (After Moore.)

In some respects the most remarkable of all the shell gorgets is that reproduced in fig. 77. The diameter is about 12.5 centimeters (5 inches); there are no concentric circles decorating the border, which however is well indicated by limitations set upon the open work. In the center is a human figure erect with arms outstretched at right angles to the body. The face is in profile, the chin being over the right shoulder. A curved line, drawn so as to include the upper jaw, mouth, chin, and a portion of the cheek and neck, gives to the other features a mask-like appearance which is further emphasized by the triple-pronged deer-horn that rises from the back of the head. The ear ornament consists of a single annular disk; the necklace of large beads and pendant is like that in the discus thrower from the same cemetery (fig. 70). The two free ends of the broad sash or belt reach to the knees in front. Each outstretched arm passes

[1] *Bull. 37, Bur. of Amer. Ethnol.*

through the figure of a star.[1] Below these and opposite the knees are two other larger stars, making four in all. The human figure is suspended, as it were, in the heavens from the two stars through which the arms pass, while arrows are being shot at it from the east and the west—one at the forehead, one at the back of the head (in line with the ear ornament), one at the left side, and two at the



FIG. 77.—Shell gorget from Saint Marys, Perry county, Missouri. Human form. Yale collection. (¾ size.)

feet. The portion of the shell broken away and lost probably carried with it a sixth arrow aimed at the right side. The designs above and overlapping the large lower stars are bilaterally symmetrical: their fragmentary condition leaves their meaning obscure.

This gorget is full of symbolic import. The stag horn, as sug-

[1] This might represent a cross section of the conch shell.

gested to me by Mr Stansbury Hagar, might be considered as an attribute of the sky-god, and the four stars as the four quarters of the sky. The arrows are suggestive of sacrifice and might point to some such ceremony as the Skidi rite of human sacrifice described by Dorsey.[1] This ceremony is said to have been performed not yearly but only when Mars was the morning star, and when his desire to have the ceremony performed was revealed in a vision or dream. The victim is a young woman taken from an enemy's camp and dedicated to the Morning Star. In the construction of the scaffold the four directions play an important part. The maiden's hands are tied to the upper cross-bar which points to the north and south; her feet to the topmost of four lower cross-bars.

"Her blanket is removed, and a man rushes up from a hollow in the east, bearing in his hand a blazing brand with which he touches her in the groins and armpits. Another man approaches and touches her gently with a war-club in the left groin; he is followed by three other men, the first touching her with a war-club in the other groin, and the other two in the armpits. Then the man who captured the girl approaches from the east, bearing a bow and arrow which belong to what is known as the Skull bundle; he shouts a war cry and shoots the maiden in the heart. The chief priest opens the thoracic cavity of the maiden with the flint knife from the altar, and, thrusting his hand inside, besmears his face with blood. All the men, women and children press forward now and aim each to shoot an arrow into the body. The spectators circle about the scaffold, four times, then disperse."

Thus we may possibly have in the ancient shell gorgets from Missouri sidelights on two institutions that have persisted among the Plains Indians with apparently little change down to the present time, namely: The game of *it sĕ wah* and the Skidi Pawnee rite of human sacrifice. If this be true it affords fresh evidence of the importance of ethnology as an aid to the correct interpretation of archeology; especially when it is a question of the same or a contiguous geographic region, as in the present instance. Connecting the modern Plains culture with the ancient culture of Missouri is

[1] *Congr. internat. des Américanistes*, XVe session, Québec, 1906.

not exactly equivalent to proving the latter to have been indigenous; it does however increase the difficulties in the way of those who would invoke Mexican influence in order to account for the symbolism on shell gorgets and copper plates from the Mississippi valley.

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NOTES ON THE HAIRY MEN OF THE PHILIPPINE ISLANDS AND ELSEWHERE

By ROBERT BENNETT BEAN

THE people of the Philippine archipelago are for the greater part glabrous except for the hair of the head. The Negritos frequently have short, stubby beards, and a scant amount of hair on the face is not unusual with the other peoples. The hairiest men of the islands are found in the heart of Luzon and Mindanao, especially in the former. These are the largest islands of the group and have retained aboriginal populations longer than any of the other islands. The center of the group of hairy men is in the Ilongot Igorot country, in the eastern southern central part of northern Luzon. They border the purest Negritos of the archipelago on the east, the Igorots on the north and west, and on the south the Filipinos, who have penetrated the province of Nueva Viscaya.

The inhabitants of the Philippines may be grouped roughly into three divisions: the coast people or Littoral Filipinos, the people of the interior or Inland Filipinos, and the Moros or Mohammedans of the Sulu archipelago and Mindanao. The largest portion of the Inland peoples is the Igorot, occupying the central mountainous part of northern Luzon. The Ilongot Igorots form the southeastern division of them, and it is among the Ilongots that the greater number of hairy men have been seen, although their northern neighbors, the Ifugao Igorots, have also a few hairy men. The Subanuns of central Mindanao have likewise a few bearded men.

It is, however, the Ilongot Igorot hairy men that chiefly concern us, and an attempt will be made to illustrate the similarity that exists between these hairy men and the Ainos of Japan, the hairy men of Australia, the Todas of southern India, and the Europeans.

When I was in the Philippines (1907–1910) I was impressed with the occurrence of hairy men resembling Europeans among the

Ilongots and Subanuns, and procured all the pictures I could find in the Bureau of Science in Manila (see pls. XXI–XXX, figs. 78 to 85). These seemed to be inadequate, but recently Worcester has published pictures of hairy men, not only of the Ilongots, but of the Ifugaos, their northern neighbors (see figs. 86–90).

A cursory inspection and comparison of the four groups of hairy men from the Philippines, Japan, Australia, and India will emphasize similarities and at the same time will illustrate differences (see pls. XXI–XXIX, figs. 78–107). The men all have beards and mustaches, and some have side-whiskers. In some the hair is plentiful on the face, in others it is scant. Heavy beards with mustaches and whiskers exist in each group (see figs. 78, 79, 93, 94, 95), and no doubt scant beard and mustache without side-whiskers, as represented for the Filipinos and Australians, may be found in all the groups, although none is shown among the Todas and Ainos. A similarity of the features of the face may also be seen in each group, especially if the hairiest individuals are selected. Compare the Ilongot of figure 78, the Australian of figure 79, the Aino of figure 99, and the Toda of figure 93. With these may also be compared the Cingalese man of figure 106, and the Korean of figure 107. There is something about all these men that any competent observer will at once assign to the European (Caucasian or white) people. What is it that gives the appearance of similarity?

In the first place, the beard, mustache, and whiskers give a somewhat uniform appearance to the face below the nose, hiding the lips and chin and obscuring the mouth. In the second place, the nose is straight-lined and the nostrils open downward. In the third place, the upper eyelid has a line immediately above it made by the turning in of the upper lid under the fold above. This distinguishes the European from the Mongolian eye. In the latter the lid disappears beneath the fold above, only the lashes project, and the inner end of the upper lid is attached below the inner end of the lower lid, which passes under it. The lids are occluded evenly in the European, and the line of occlusion is more or less straight and horizontal from the inner canthus to the outer, whereas in the Mongolian eye the upper lid overlaps the lower lid

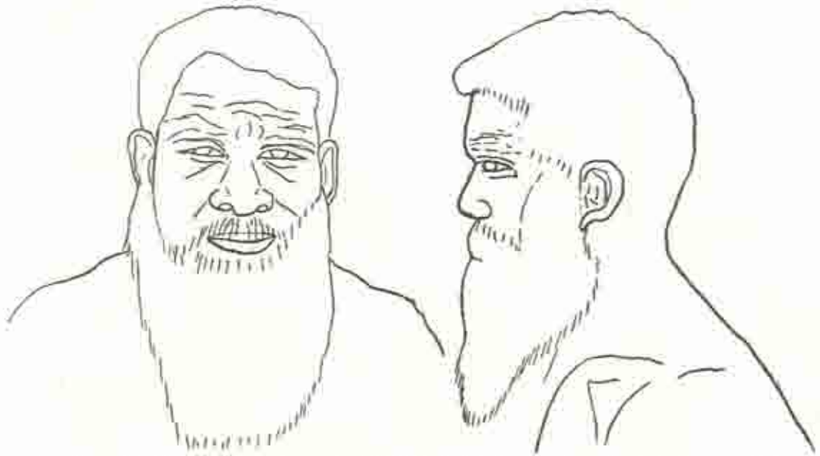


FIG. 78.—Ilongot Igorot man with modified European features, from the same tribe as the previous pictures. Copied by projection from a lantern-slide. This man and others that follow call to mind the Aino of Japan. Meso-phylomorph to meso-ontomorph.

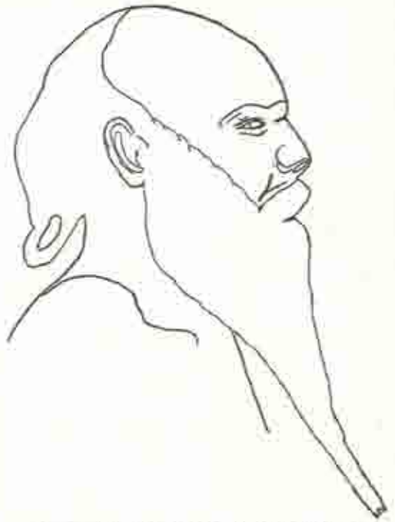


FIG. 79.—Australian man with modified European features. Note the resemblance to the Igorot man in figure 78. Copied directly by tracing from *The Living Races of Mankind*. A meso-phylomorph to meso-ontomorph.



FIG. 80.—Ilongot Igorot man with modified European features. Copied by projection from a lantern-slide. Hypo-ontomorph to hyper-ontomorph.

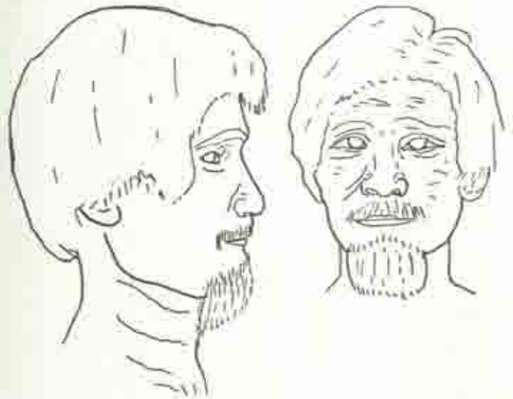


FIG. 81.—Subanun man from the heart of Mindanao, with modified European features. Copied by projection from a lantern-slide. Meso-ontomorph to hyper-phylomorph.

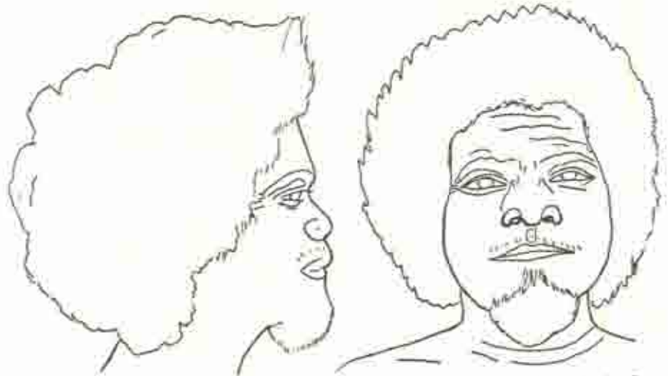


FIG. 82.—Ilongot Igorot man, said to be crossed with a Negrito. Copied by projection from a lantern-slide. Hypo-phylomorph to meso-phylomorph.

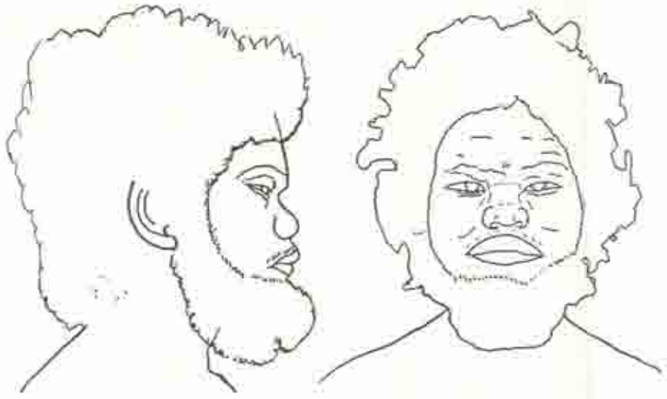


FIG. 83.—Ilongot Igorot man said to be crossed with the Negrito. Copied by projection from a lantern-slide. Hypo-phylomorph.

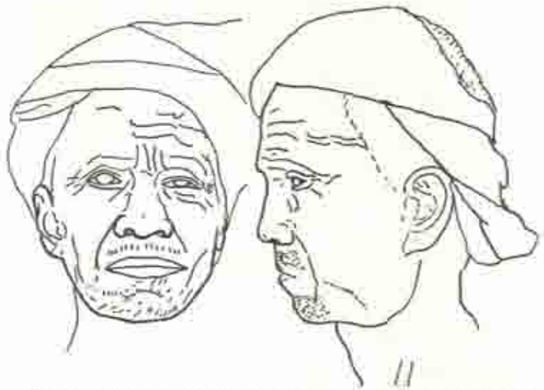


FIG. 84.—Subanun man from the heart of Mindanao, with modified European features resembling the Arab. Copied by projection from a lantern-slide. Hyper-phylomorph.

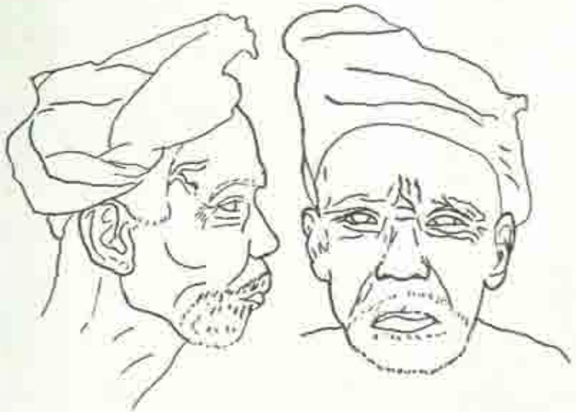
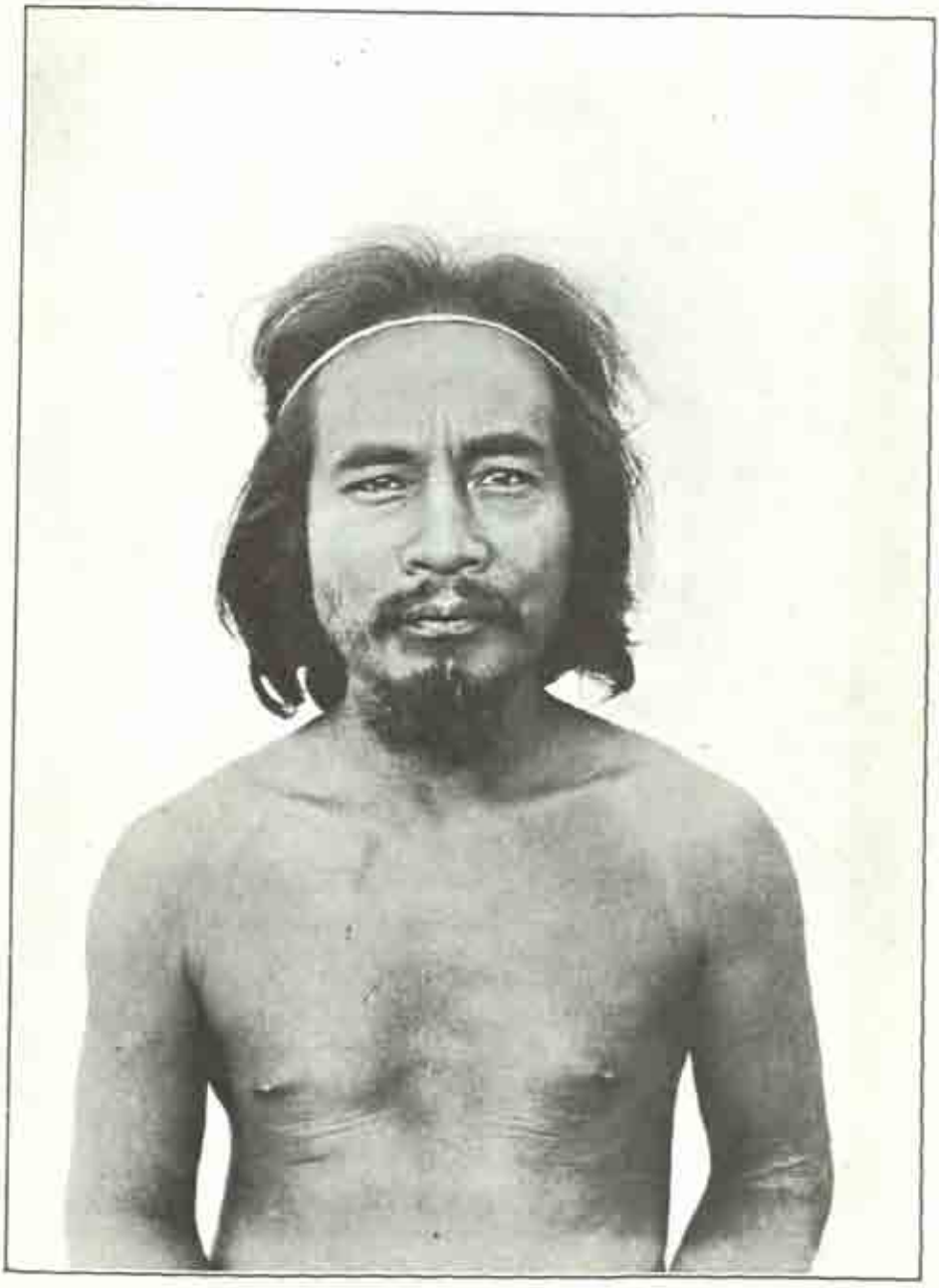
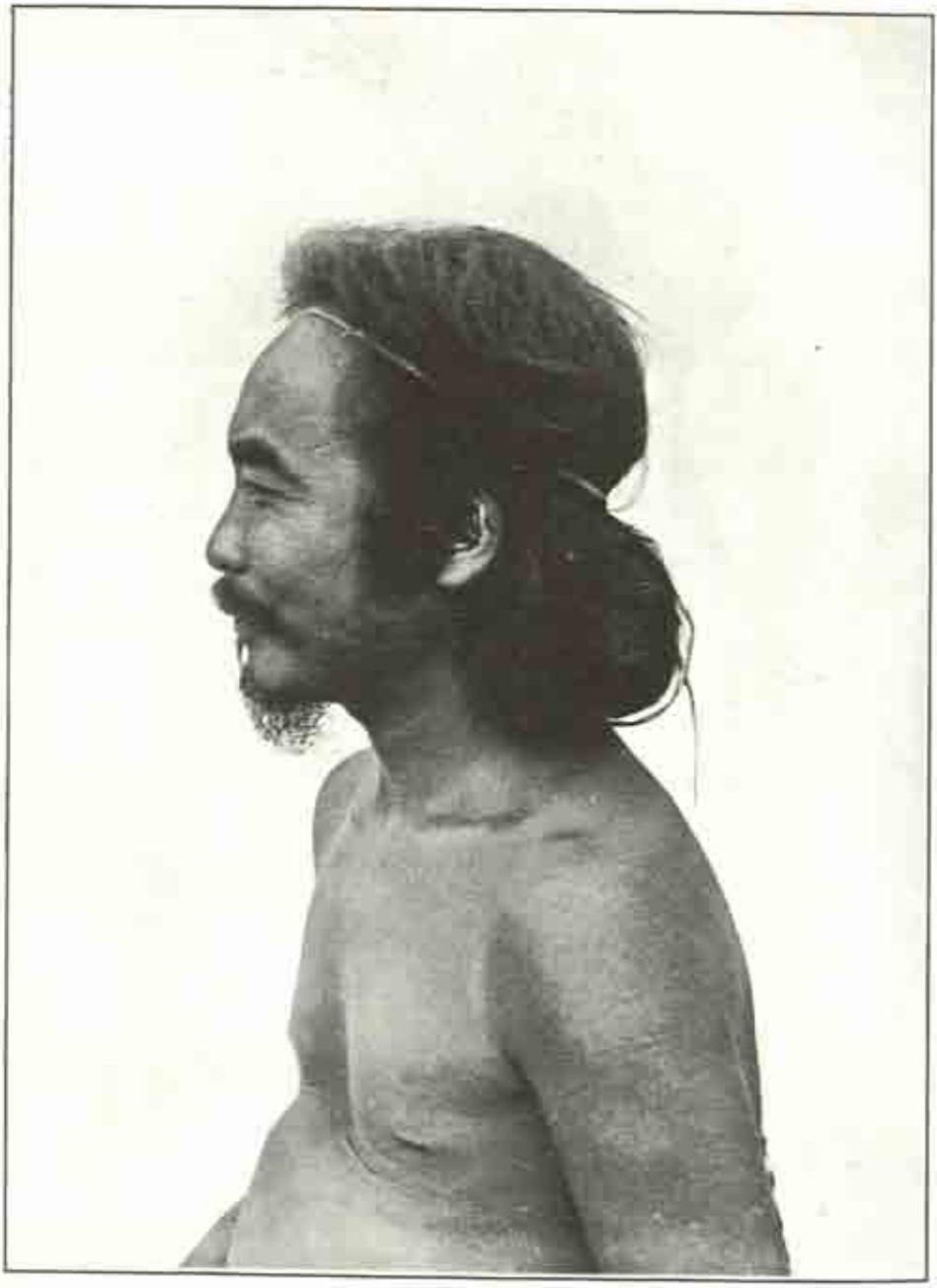


FIG. 85.—Subanun man from the heart of Mindanao, with modified European features resembling the Arab. Copied by projection from a lantern-slide. Hyper-phylomorph.



ILONGOT IGOROT MAN WITH MODIFIED EUROPEAN FEATURES—A MESO-ONTOMORPH. ALL THE MEN ILLUSTRATED BY PHOTOGRAPHS LIVE IN THE HEART OF NORTHERN LUZON



ILONGOT IGOROT MAN (PROFILE OF PLATE XXI)

at the inner canthus, where the line of occlusion is not continuous, and the upper lid forms a bow with a dip at the nasal end and the convexity upward. In the fourth place the hair of all the individuals is straight or nearly so.

In spite of the similarity of the six men under consideration, there are noticeable differences especially in the characteristics of the nose. The Ilongot (fig. 78) has a short nose, and so has the Australian; whereas the noses of the Toda, Cingalese, and Korean are long and relatively narrow, and that of the Aino is somewhat intermediate. The faces of the Korean, Cingalese, and Toda are also longer and narrower than the faces of the others, although in this appearances may be deceptive, because of the beard.

From these examples of hairy men who resemble the European, we may turn to others, and in each of the four groups the remaining individuals resemble the surrounding peoples. The Ilongot of figure 80 resembles the Malays, with scant beard and mustache, and no whiskers; stiff, straight coarse hair; almond-shaped eyes, wide apart; round face and head; flat nose with depressed root and bridge, and prominent cheek-bones. The Ilongot of figure 82 resembles the Malay and Negrito, and the Ilongot of figure 83 the Negrito. The attention is at once fixed by the negroid features, curly hair, large mouth, thick lips, and short, flat, stubby nose. The Igorots of figures 86 and 86*a* resemble the Ifugaos, who are long-faced men, and the Igorots of figures 87 to 90 resemble the Ilongots, who have short faces and noses. The Australians of figures 100 to 103 approach nearer and nearer the Negro type, from the man in figure 100, who is semi-European in appearance, to the man in figure 103, who is very nearly like the Negro. The Ainos of figures 95 to 98, also figure 104, approach the lower-class Japanese and the Malay. The Todas of figure 94 approach this form in a slight degree, but there, especially in figures 91 and 92, the European features dominate. The Subanuns of figures 81, 84, and 85 change from the European to the Arab, due to the admixture of the Moro or Mahommedan, who came from Arabia through Sumatra to the Sulu archipelago and Mindanao, as the immediate precursor of the Spaniard in the Philippines. This and previous

studies of the Filipinos have convinced me that the Malays are mixtures of many peoples, and that the Malay as an entity is a myth. In the Philippines today are to be found the following components: First the Negritos, then the hairy men, after which the "Proto-Malays," who have a large proportion of tall, long-headed, long-faced, long-nosed people (Indo-European) mixed with the Mongolians who came from southern Asia and drifted through the Pacific islands. They constitute the greater portion of the inland tribes of the Philippines. Later came the "Neo-Malays," some of the same stock as the "Proto-Malays," with a greater proportion of the Negrito, hairy men, and Mongolian mixture, making them smaller in stature, more broad-headed, and with broad face and nose. These enter largely into the littoral population of the Philippines today. Wandering peoples from India settled here and there from time to time, and the Moro came to the southern islands, Sulu and Mindanao, where their spread was stopped by the Spaniards. Recent introductions of European and American whites and American negroes add to the polyglot, making the Philippines one of the richest fields in the world for the future anthropologist. The final work has not been done, the final word has not been said. Only the surface has been scratched.

Returning then to our subject, it would seem that a hairy people of whom the Todas are a remnant, and who resemble the Europeans, occupied the mainland of southern Asia and the adjacent islands at some remote time, and there is evidence of contact with the Negro in Australia and the Negrito (little negro in reality) in the Philippines. This contact has altered both peoples, more especially the Australians and Filipinos, where the hairy men have practically disappeared; to a less extent the Todas and Ainos, of whom the hairy people form the greater part. Yet even today there are a few hairy men in Australia and the Philippines who resemble Europeans, although the greater part of the native population of these two places belongs to other stocks.

Race apparently has not been the only influence at work, because the Ainos, who are presumably the purest of the four hairy groups, are most different from the Todas, who are supposed to be more like



FIG. 86.—Ifugo Igorot man with modified European features. Copied by tracing directly from *The National Geographic Magazine*, September, 1912, p. 880. Meso-ontomorph to hyper-phylomorph.



FIG. 86a.—Igorot man (Ifugao?) with modified European features. Copied by projection from a lantern-slide of a group of Igorot chieftains. Hyper-phylomorph.



FIG. 87.—Ilongot Igorot man with modified European features. Copied by tracing directly from *The National Geographic Magazine*, September, 1912. Meso-phylomorph.



FIG. 88.—Ilongot Igorot man with modified European features. Copied by tracing directly from *The National Geographic Magazine*, September, 1912, p. 857. Meso-ontomorph.



FIG. 89.—Ilongot Igorot man with modified European features. Copied by tracing directly from *The National Geographic Magazine*, September, 1912, p. 853. Meso-phylo-morph (mild).



FIG. 90.—Old Ilongot Igorot man with modified European features. Copied by tracing directly from *The National Geographic Magazine*, September, 1912, p. 853. Meso-phylomorph (mild).



FIG. 91.—Toda man from India with European features. Copied by tracing directly from Deniker's *Races of Man*, p. 412. Hyper-phylomorph to hyper-ontomorph.



FIG. 92.—Toda man from India with European features. Hyper-phylomorph to hyper-ontomorph.



FIG. 93.—Toda man from India with European features. Hyper-phylomorph to hyper-ontomorph.



FIG. 94.—Toda men of India with modified European features. Copied by tracing directly from Keane's *Man Past and Present*, p. 558. Meso-ontomorph.





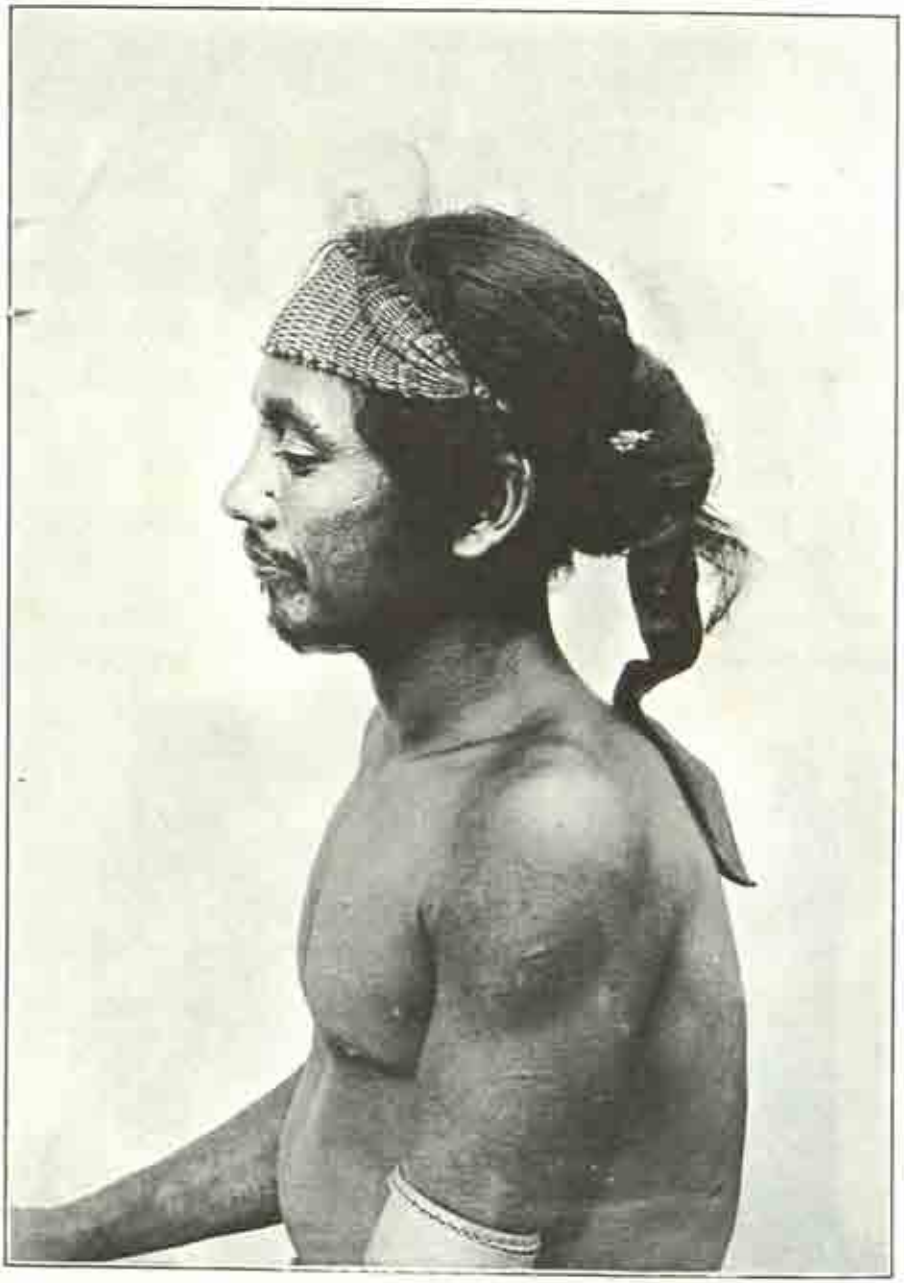
FIG. 95.—Aino man of Sakhalin island with modified European features. Copied by tracing directly from Keane's *Man Past and Present*, p. 558. Hypo-phylomorph to meso-phylomorph.



FIG. 96.—Aino man of Yezo island with modified European features. Copied by tracing directly from Keane's *Man Past and Present*, p. 558. Hypo-phylomorph.



ILONGOT IGOROT MAN WITH MODIFIED EUROPEAN FEATURES — A MESO-ONTOMORPH



ILONGOT IGOROT MAN WITH MODIFIED EUROPEAN FEATURES (PROFILE OF PLATE XXIII)

the precursors of all the groups. The Todas, however, may have been altered by mixture with the tall long-heads, Indo-European from the northwest, and the Ainos may be more like the aboriginal form. The nose of the Aino, of the hairy Igorot, and of the hairy Australian is more or less infantile in form, and resembles that of all the Pacific peoples, except recent intruders. Without known contact, the peoples of the whole region have this infantile form, which is reason for believing that environment and selection as well as heredity and variation have had their share in molding the form of these peoples. The conditions of life at present found in all four groups of hairy men may account in part for their present physical form. Some of the contributing causes have been a diet of fish and rice, a plethora of animal parasites intestinal and cuticular, faulty nutrition, habits of indolence, and climatic conditions, any one or all of which would tend to a retention of the infantile physical form.[1]

Measurements of the hairy men of the Philippines have not been made, and it would be of great interest to know their face, head, and body form. Anutschin[2] and Koganei[3] describe the Ainos as of medium stature, although there is a small group of tall stature. The forehead is high and broad, the nose is broad but not flat, and the lips are thick. The face index is intermediate, and the cephalic index is subdolichocephalic to mesocephalic (77.9 to 78.6). Lefèvre and Collignon[4] give records of the color of hair and eyes of 42 men and 48 women in whom the eyes are "foncés" and the hair brown or black. Von Baelz[5] relates the Riu-Kiu islanders to the Ainos by reason of their hairiness and resemblance to Europeans, and gives them a stature of 157–9 cm. and a cephalic index

[1] Worcester, Dean C., Head-hunters of northern Luzon, *National Geographic Magazine*, Sept., 1912.

[2] Anutschin, D. N., Materialen zur Anthropologie ostasiens. I. Der Stamm der Ainos. *Beitr. z. XX Bd. d. Nachrichten d. k. Gesellsch. d. Liebhaber d. Naturforschung, Anthropologie u. Ethnologie*, Moskau, 1876, pp. 79–203.

[3] Koganei, Kurze Mittheilung u. Untersuchungen an lebenden Aino, *Arch. f. Anth.*, XXIV, 1–39.

[4] Lefèvre, H., et Collignon, La couleur des yeux et des cheveux chez les Ainos, *Rev. d'anthropologie*, 1889, pp. 129–141.

[5] von Baelz, E., Die Riu-Kiu Insulaner, die Aino, und andere kaukasierähnliche Reste in Ostasien, *Sitzungsberichte d. Anthr. Gesellsch. in Wien*, 1911–12, pp. 133–137.

of 78 to 81. The measurements of these authors on the living are confirmed by von Török's[1] measurements of the skeleton of the Aino. Twenty skulls give the following indices: *Cephalic:* Dolicho, 57.8%; Meso, 42.11%; Brachy, 0.0%. *Facial:* Leptorrhine, 11.11 %; Mesorrhine, 50%; Platyrrhine, 38.88%.

Forty-three more skulls are classified as 13 European, 25 intermediate, and 5 Mongolian.

Sir William Turner[2] compared 17 skulls of Dravidians and 19 of Kolarians from southern India with many Australian skulls and concluded that the Kolarians and Dravidians are of the same stock, something that Risley had demonstrated by measurements of 6,000 people. The people of southern India resemble the Australians in two significant characteristics—they are both dolichocephalic and platyrrhine. In minor traits, such as the projecting glabella, depressed nasion, prognathic upper jaw, elongated palate, and coarse, large teeth, as well as roof-shaped crania, the Australians are more pronounced. The similarity of Dravidians, Kolarians, and Todas of southern India to the European is so well marked that no one doubts the affinity. The southern Indians and the Ainos have a closer resemblance to the European than is borne by the Filipinos and Australians, and the two former also include a larger body of hairy men than the two latter. This would seem to indicate that either a larger number of the hairy men located originally in Japan and India than in the Philippines and Australia, or they are more recent arrivals in the former places, or else local conditions enabled them to survive in the former rather than in the latter places. All three suggestions may apply.

Further studies of plates XXI–XXX and figures 78–107 from the standpoint of my classification of the ear, nose, and face, may

[1] Török, Aurel. Ueber den Yézoer Ainoschädel aus der ostasiatischen Reise des Herrn Grafen Béla Szechenyi und über den Sachaliner Ainoschädel des königlich-zoologischen und anthropologisch-ethnologischen Museums zu Dresden. Ein Beitrag zur reform der Craniologie. *Arch. f. Anthr.*, Band XXIII, viii, pp. 249–345; Band XXIV, pp. 277–338; ditto, pp. 479–576; Band XXVI, pp. 95–144, 247–315, and 561–690, and Anhang, pp. 1–168.

[2] Turner, *Sir* William. Contributions to the craniology of the peoples of India. Part II. The Aborigines of Chota Nagpur, of the central provinces and the people of Orissa. *Proceedings of the Royal Society of Edinburgh*, Session 1899–1900, pp. 161–162.



FIG. 97.—Aino man with modified European features. Copied by tracing directly from Haddon's *Races of Man*, p. 15. Hypo-phylomorph to meso-phylomorph.



FIG. 98.—Aino man of Yezo with modified European features. Copied by tracing directly from Deniker's *Races of Man*, p. 371. Hypo-phylomorph to meso-phylomorph.

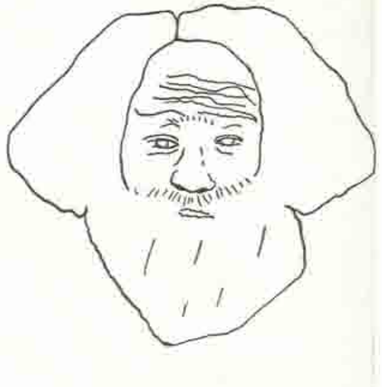


FIG. 99.—Aino man of Urap with only slightly modified European features. Copied by tracing directly from Keane's *Ethnology*, p. 419. Hyper-phylomorph.



FIG. 100.—Australian man with modified European features. Meso-phylomorph.

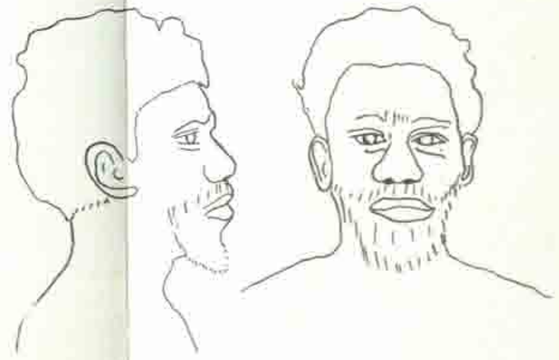


FIG. 101.—Australian man of Queensland with modified European features. Copied by tracing directly from Stratz, *Naturgeschichte des Menschen*, p. 272. Meso-phylomorph.

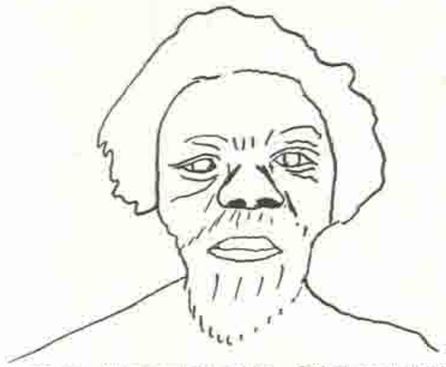


FIG. 102.—Australian man from Adelaide. Copied by tracing directly from Stratz, *Naturgeschichte des Menschen*, p. 274. Hair is straight. Meso-phylomorph. (Hypo also?)

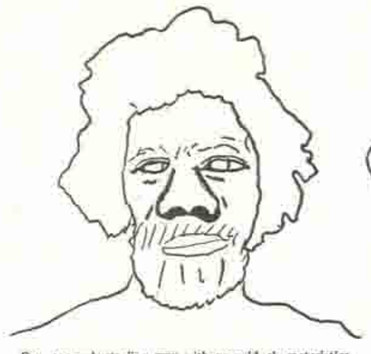


FIG. 103.—Australian man with negroid characteristics. Hair is wavy. Meso-phylomorph. (Hypo also?)



FIG. 104.—Aino man with modified European features. Copied by tracing directly from Stratz, *Naturgeschichte des Menschen*. Meso-phylomorph.



FIG. 105.—A Cingalese from Ceylon with modified European features. Hypo-entomorph.

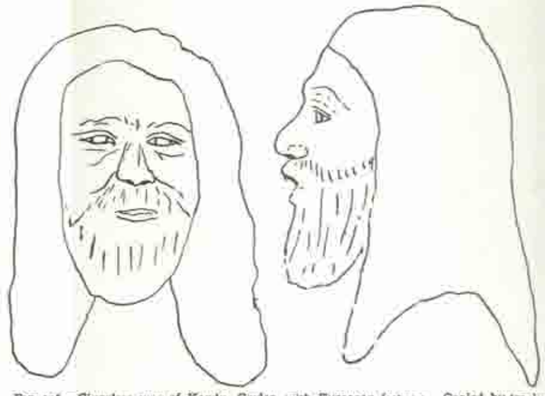


FIG. 106.—Cingalese man of Kandy, Ceylon, with European features. Copied by tracing directly from Deniker's *Races of Man*, p. 416. Hyper-phylomorph.

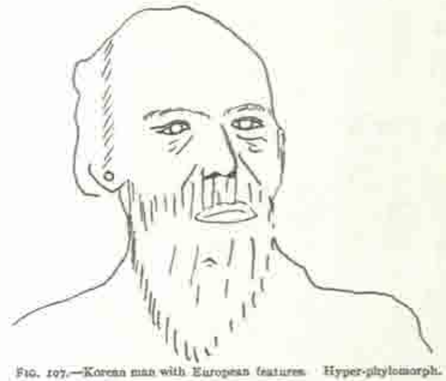
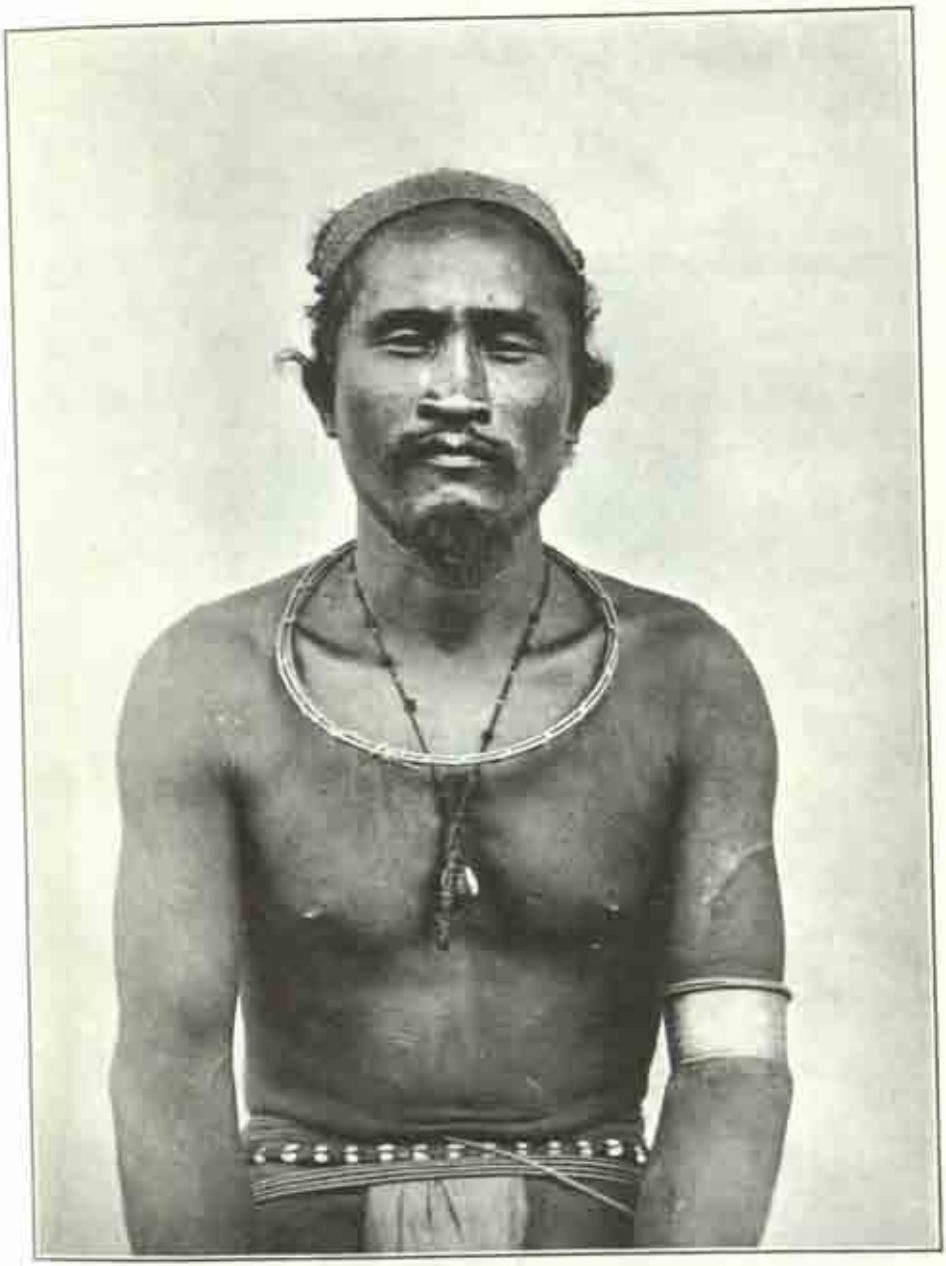
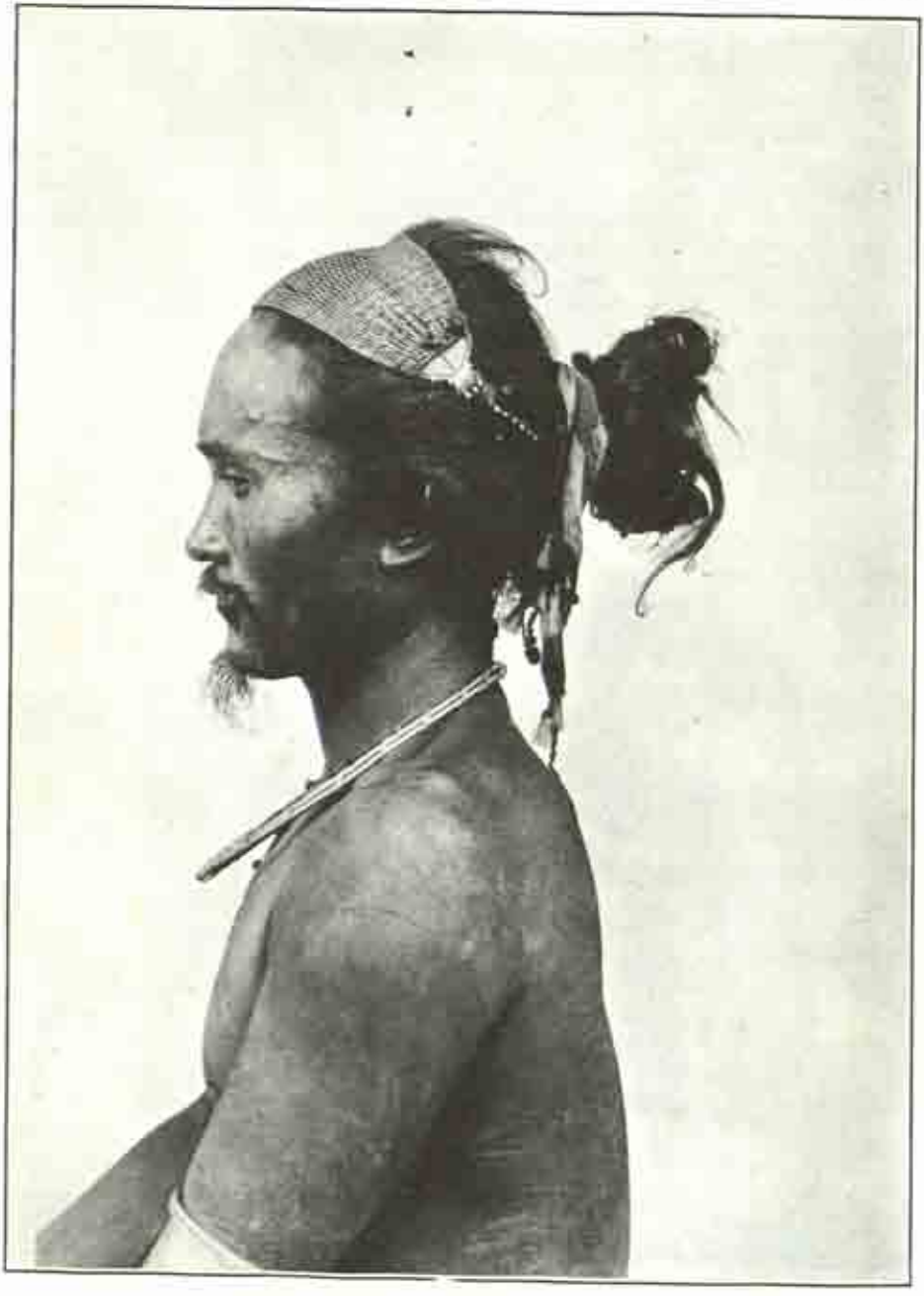


FIG. 107.—Korean man with European features. Hyper-phylomorph.



ILONGOT IGOROT MAN WITH MODIFIED EUROPEAN FEATURES—A MESO-ONTOMORPH APPROACHING HYPER-ONTOMORPH



ILONGOT IGOROT MAN (PROFILE OF PLATE XXV)

not be without illumination. Outlines from pictures of three citizens of the United States belonging to the European stock, chosen at random from among several thousand, are given in figures 108–110 to facilitate the conception of three forms that I believe to be fundamental throughout the world.

The hypo-ontomorph of figure 108 is more or less infantile in appearance. The face is round or oval, the nose short and broad, the eyes far apart, the ear bowl-shaped or trumpetlike.

The hyper-ontomorph of figure 109 is sharply contrasted with the hypo-ontomorph. The face is long with pointed chin, the nose is long and thin, the eyes close together, and the ears have the central part, anthelix, tragus, and antitragus everted, and the periphery, helix, rolled back.

The meso-ontomorph of figure 110 has a large face with straight sides, pyramidal nose, big mouth, and large, square, flat ears.

The three original forms from which these are supposed to have evolved are called respectively the hypo-phylomorph, the hyper-phylomorph, and the meso-phylomorph.

The hypo-phylomorph is the true infantile form with the adult size, and is found most frequently and distinctly in the large islands of the Pacific ocean associated with what is called the Malay peoples (see fig. 83).

The hyper-phylomorph is represented by the Nordics of northern Europe, and the Cro-Magnon people of southern Europe, as well as by such people as the Igorots of northern Luzon. They are tall, with long heads, faces, and noses. The face is pentagonoid and not like the triangular face of the derived hyper-ontomorph. The nose is large as well as long, and not so fine and thin as that of the hyper-ontomorph (see figs. 99, 106, 107).

The meso-phylomorph is represented among the Australian and Negroid peoples generally and elsewhere, although the true negro is not the pure meso-phylomorph, but a modified form. The meso-phylomorph has a large face, usually ellipsoid, a nose that is straight in outline and pyramidal in shape, with ears that are large and more flattened than those of the meso-ontomorph (see fig. 101).

The six groups may be placed in serial order and those nearest will resemble each other more than those farther away.

1. Hypo-phylomorph.
2. Hypo-ontomorph.
3. Meso-phylomorph.
4. Meso-ontomorph.
5. Hyper-phylomorph.
6. Hyper-ontomorph.

This series represents six forms that merge into each other in any group of people, and it also represents the six forms through which each individual develops, unless the growth or development of the individual ceases before the stage of the hyper-ontomorph is reached.

The phylogeny is conceived to be something like this: The phylomorphs represent three conditions reached by three different



FIG. 108.—European hypo-ontomorph.



FIG. 109.—European hyper-ontomorph.

groups of segregated peoples under different environment. The ontomorphs represent stages of individual development, or forms produced by the crossing of the three phylomorphs where they come into contact, and in any group of peoples today the ontomorphs differ in degree of development from those of any other group. For instance, the ontomorphs among the Filipinos would be less developed than the ontomorphs among the Spaniards.

It may be difficult for anyone without considerable experience to differentiate between the ontomorphs and the phylomorphs, but there can be little difficulty, even for the inexperienced, in differentiating between the hypo, meso, and hyper forms, especially if one bears in mind the faces represented in figures 108–110.

The hypo-phylomorph is well represented in figure 83, disregarding the hairy parts. The nose is buttonlike, with broad, flat bridge, depressed root, with the concavity forward. The nostrils flare and the tip of the nose is tilted upward so that the nostrils open forward. The eyes are wide apart and the lids are almost closed. The upper lids are so puffy, as if infiltrated and swollen, that they not only nearly close the eyes, but the upper lid retreats beneath the fold, leaving only the lashes protruding. The upper lid is attached to the face below the attachment of the lower lid at the inner canthus. The eyes and nose are those of the infant, and the Mongolian fold is pronounced. The ear is trumpet or bowl shaped, although the upper part of the ear is covered by hair and cannot be seen.



FIG. 110.—European meso-ontomorph to meso-phylomorph.

The meso-phylomorph is fairly well represented in figures 100–103 of Australian men. The brow ridges and glabella are large, giving a depressed root to the nose and a formidable expression to the face. The nose is pyramidal in shape and large in all dimensions, with straight lines along the bridge, sides, and base. The mouth is large and the lips thick, with considerable surface of mucous membrane exposed. The ear is semi bowl shaped, but the concha is not so deep as in the hypo-phylomorph.

The hyper-phylomorph is shown poorly in figures 99, 106, and 107, an Aino, a Cingalese, and a Korean. There the nose is high, long, and moderately narrow, but not the long, thin, high, narrow nose of the hyper-ontomorph. Other figures, as 91, 92, and 93, show the transition to the hyper-ontomorph, as figure 109 represents the ultimate form of the latter.

The analysis of the number of each form as found among the thirty-eight men here under consideration in the four groups may not be without interest.

ANALYSIS OF THE FORMS OF HAIRY MEN

Hypo-phylomorph	Hypo-ontomorph	Meso-phylomorph	Meso-ontomorph	Hyper-phylomorph	Hyper-ontomorph	Total
4	3	13	8	9	1 (?)	38
Hypo		Meso		Hyper		
7		21		10		
Phylomorphs			Ontomorphs			
26			12			

It may be said that the earlier, more generalized or less developed forms of men (phylomorphs, 26) are greater in number than the later forms (ontomorphs, 12). The meso group is also larger (21) than either the hyper (10), or the hypo (7). The inference may be that the hairy men of the four groups, Ainos, Igorots, Australians, and Todas, are remnants of a stock whose form was that of the meso-phylomorph, that spread over a considerable part of the Eurasian continent and the great islands adjacent at some remote period of time.

There can be no doubt that the four groups of hairy men are related, as demonstrated by measurements of the living and of the skeleton, as well as through the present study of their physiognomy. There can be little doubt that the four groups of hairy men are related to the European (Caucasian or white) peoples. The process of evolution has lengthened the stature, face, and nose of the meso-morph and produced the hyper-morph; and shortened the stature, face, and nose and produced the hypo-morph.

ANATOMICAL LABORATORY, TULANE UNIVERSITY
NEW ORLEANS, LOUISIANA



A. ILONGOT IGOROT MAN WITH MODIFIED EUROPEAN FEATURES RESEMBLING THE JAPANESE—A HYPO-ONTOMORPH

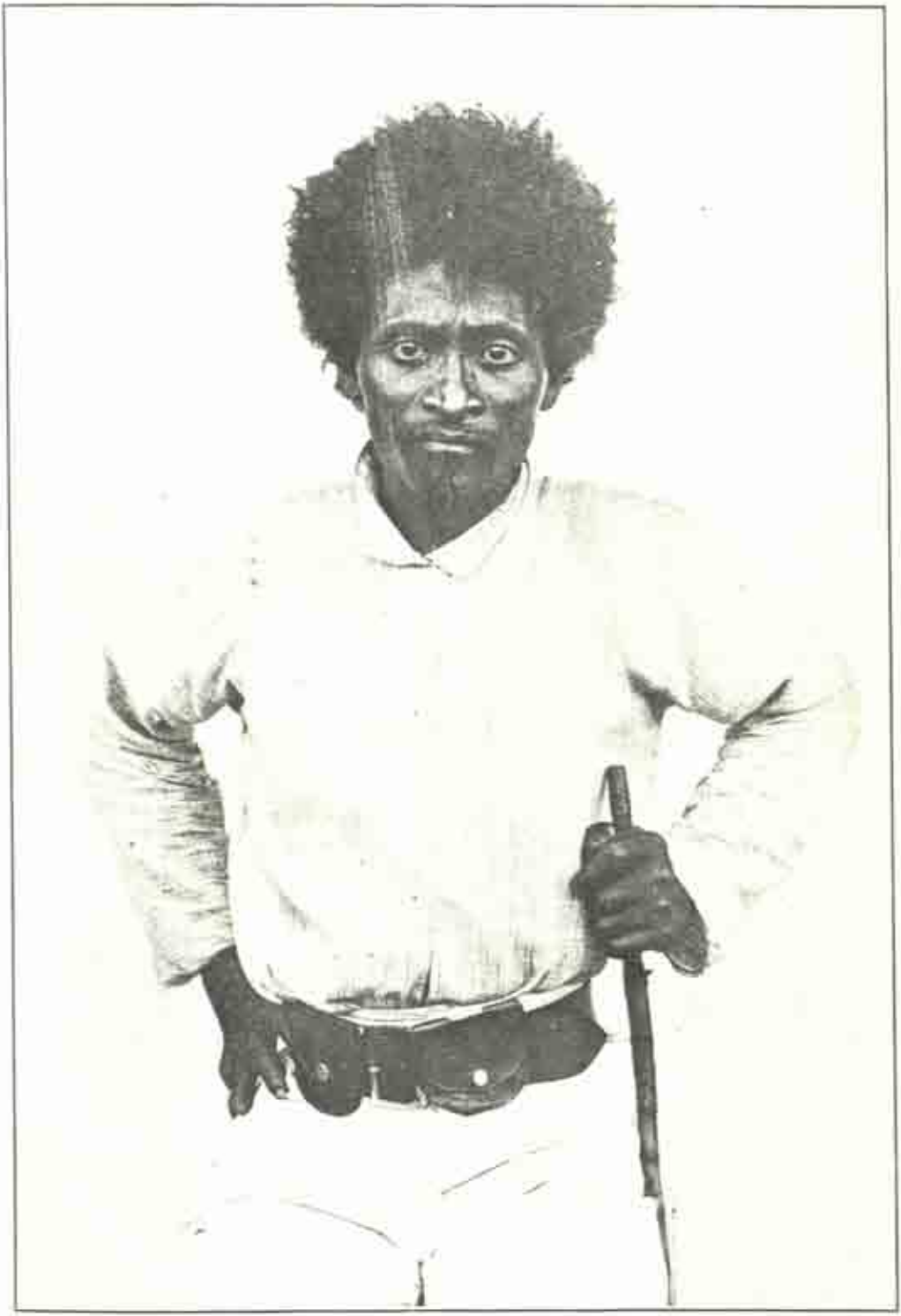


B. LONGOT IGOROT MAN (THE SAME AS PLATES XXI AND XXII)

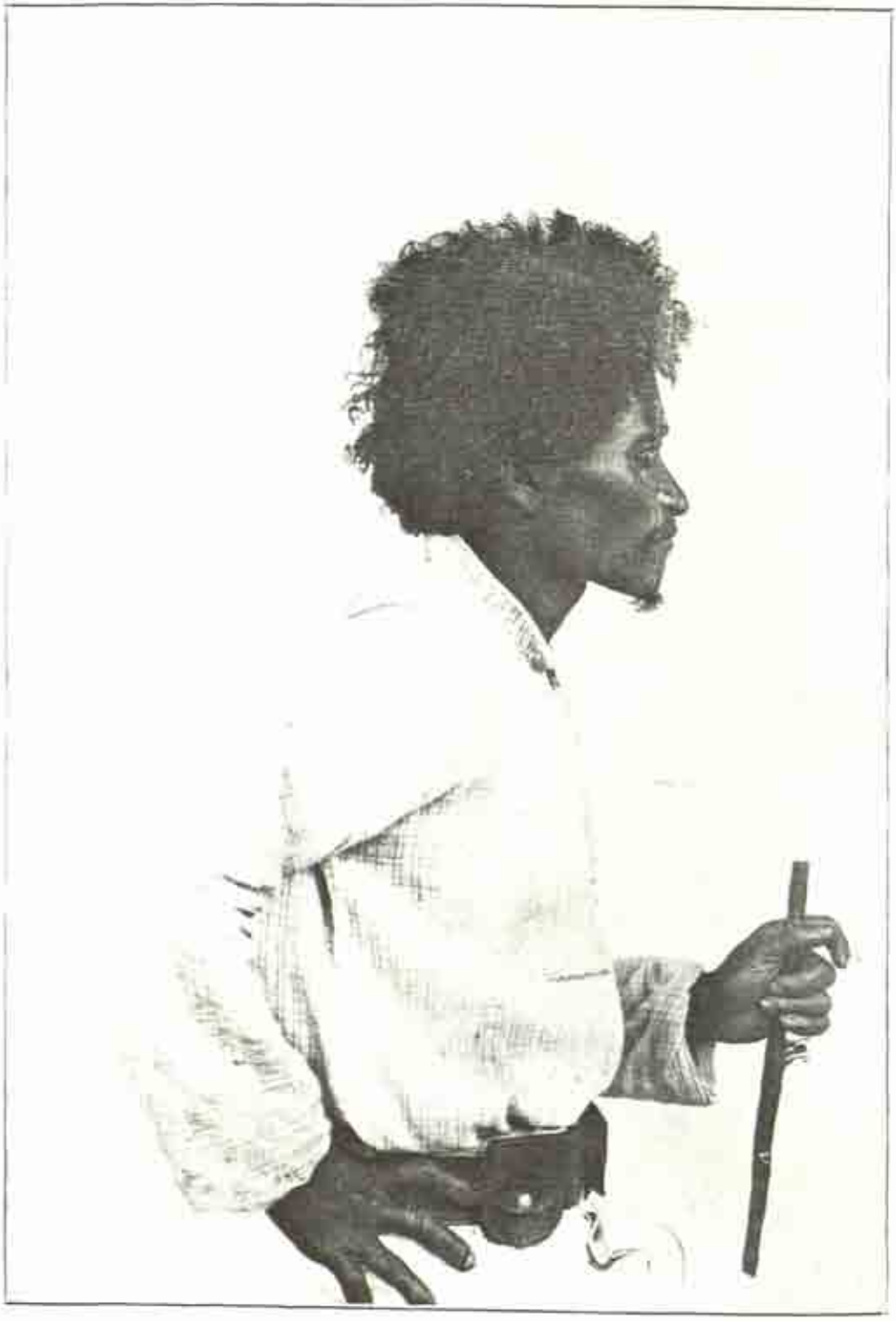


ILONGOT IGORUT MAN

(THE SAME AS PLATES XXV AND XXVI)



NEGRITO CHIEF, PAGATOLON, OF NORTHERN LUZON, WITH MODIFIED EUROPEAN FEATURES. THIS MAN HAS TWO ALBINO CHILDREN. MODIFIED HYPER-ORTOMORPH



NEGRITO CHIEF, PAGATOLON (PROFILE OF PLATE XXIX)

CERTAIN KITCHEN-MIDDENS IN JAMAICA

By THEODOOR DE BOOY

DURING a sojourn on the island of Jamaica in the months of January, February, and March, 1913, in the interest of the Heye Museum of New York City, the author was enabled to excavate some of the typical aboriginal kitchen-middens found in various parts of the island. These middens shed much light on the mode of life of the pre-Columbian inhabitants, and, above all, allow a practically exact determination of their different foodstuffs. At the same time, such ceramic fragments and other artifacts as one can find—and they occur in great quantities—are most valuable for comparative studies of the prehistoric cultures that existed in the West Indies.

The modern equivalent of the kitchen-midden is the ash-heap: where, nowadays, we cast our broken kitchen utensils, bottles, and empty cans, the natives threw their broken pots and cooking-slabs, their shells, and such stone artifacts as happened to break in the making or during use. It can therefore readily be seen what important conclusions can be drawn from the varied specimens found in a midden. The author considered himself especially fortunate in being able thoroughly to examine and excavate a number of these refuse heaps.

The writer wishes to express his sincere thanks in behalf of the Heye Museum and himself to the Reverend J. P. Hall, of Brown's Town, Jamaica, for facilities given him in this work, for generous permission to excavate ,and for the material from the middens and from other sources presented to the Heye Museum.

In Dr J. F. Duerden's work on the archeology of Jamaica[1] the following paragraph can be found on page 19:

[1] Aboriginal Indian Remains in Jamaica. *Journal of the Institute of Jamaica*, vol. II, no. 4. Kingston, 1897.

RETREAT.—These deposits are on the property Retreat, situated between Brown's Town and Stewart Town, in St Ann, about four miles from the former. The land is now owned by Mr Roper, but was formerly in the possession of Mr Moulton Barrett. Miss Moulton Barrett made a number of investigations at the place and lent to the Anthropological Exhibition a collection of pottery fragments obtained. . . . The hill or ridge upon which the kitchen-middens are found is about 1,200 feet high, and six miles from the sea. . . . The elevation in question was very significantly known by the former owners as "Cacique's Ridge," and is also known as Little Nigger-ground Hill, while a higher one near has the title of Big Nigger-ground Hill. These latter names recall the fact that in slavery days the particular spots were used by the Negroes as provision grounds. . . . Excavations were made at numerous spots, and, in all, scattered amongst the upper dark loose earth and fragments of limestone, were broken pieces of pottery, quantities of land shells, a few specimens of marine shells, and the bones of the Indian coney and of various fish. This foreign material extended in several places to a depth of two feet. In one a deposit of partially indurated bluish-gray ash and charcoal gave evidence of the use of fire by the builders of the refuse-heaps.

At the time of the author's excavations the Retreat property was owned by Mr Hall, and since the investigations of Dr Duerden in 1896 no excavations had been conducted on Little Nigger-ground hill. Figure 111 shows the top of the hill. The actual crest of the hill is almost level, and the middens can be readily seen on the northern, eastern, and southern slopes, around the crest. The author determined sixteen middens with accuracy by digging small test-holes in the soil wherever there was a hummock. There may be several more middens on the hill, which in the course of time have altered in shape or the original summit of which has been removed by the excavations of Dr Duerden and previously by those of Miss Moulton Barrett.

The western part of the top of Little Nigger-ground hill is a rocky woodland. There was no proof that it had been used as part of the village site, nor could evidence of burials be discovered.

Little Nigger-ground hill (fig. 112) is situated about six miles from the sea. It does not afford a view of the sea, as it rises between the surrounding hills; but sentinels could readily perceive the approach of marauding Caribs and give ample warning to enable escape to the neighboring hills in the interior in case of a raid. An old road, in reality little more than a footpath, still extends from the hill to the sea, and is reported to have been made by the Spaniards. It is quite within the bounds of probability that

this road was an aboriginal path, and that the Spaniards afterward used and enlarged it for their own purposes. The plain due north of Little Nigger-ground hill is fertile and suggests an ideal place for the cultivation of cassava.

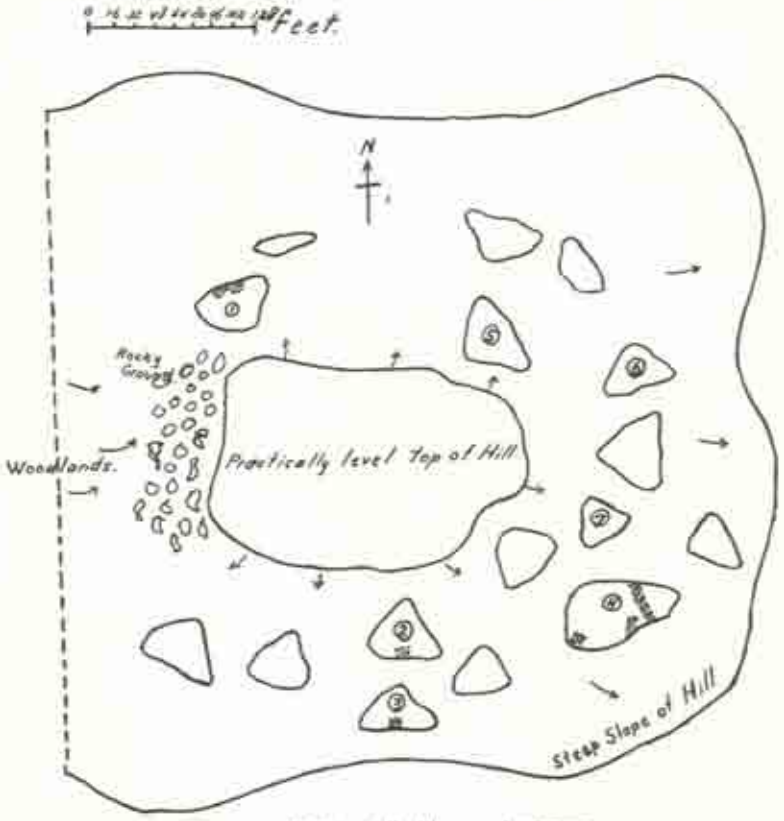


FIG. 111.—"Retreat" village and middens.

EXCAVATIONS IN THE MIDDENS

Excavations were commenced in the midden marked 1 in figures 111 and 113. This midden is on the northern slope of the hill, and, as can be seen on the plan, is somewhat isolated from the other middens, there being a very small midden in front of it, but otherwise no other mounds within 160 feet. Midden 1 is 42 feet long and 30 feet wide; the crest has a height of 4 feet above the slope.

Excavation in this midden produced the same kind of material as afterward was found in midden 4, of which a detailed account follows. As three trenches were dug in midden 4 and only one in

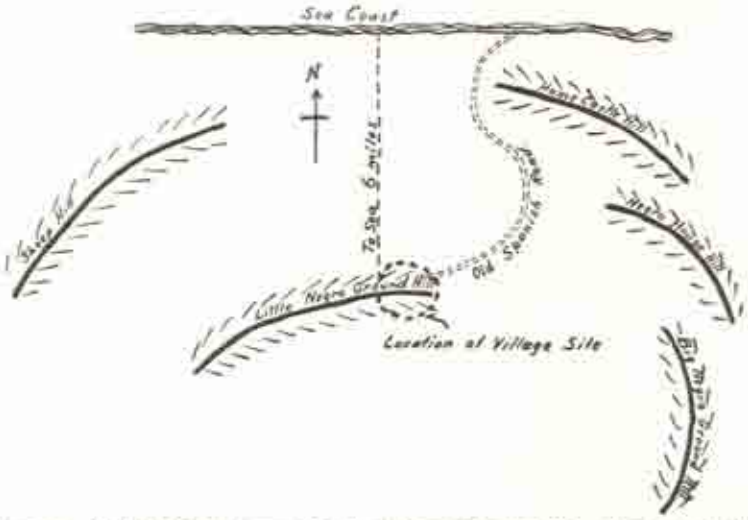


FIG. 112.—"Little Negro Ground" hill, with neighboring hills. (Not to scale.)

the first midden, it is preferable to give the detailed account of the excavations in the larger refuse heap. It is, however, of interest to note that such pottery fragments as were found in midden 1 were

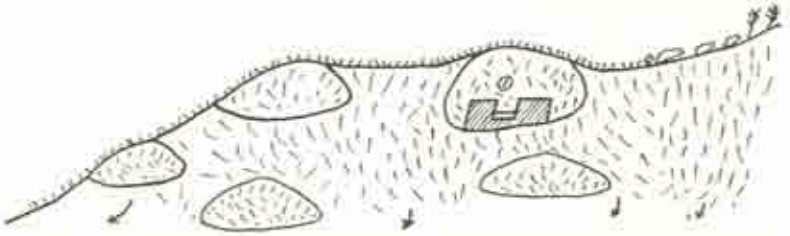


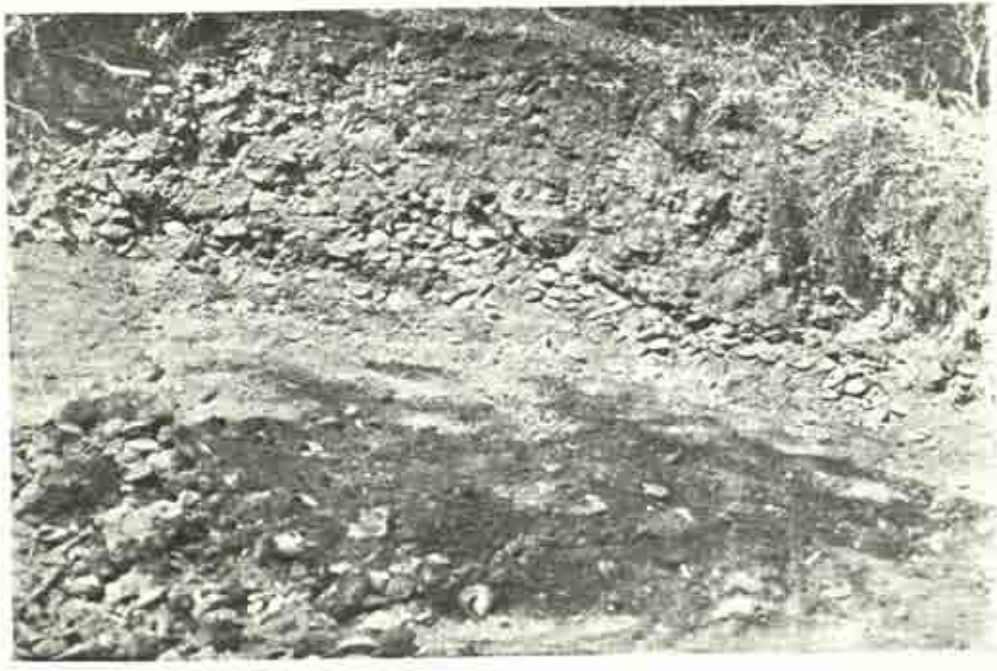
FIG. 113.—Side elevation of "Retreat" village site, looking south, showing middens on slope. (Not to scale.)

far more brittle and were smaller than those from the other accumulations. This was due probably to the better drainage of the southern slope of the hill.

Midden 2 is on the southern slope of the hill and did not produce much material. This midden has a more pointed crest than any of



A. LONG TRENCH CUT THROUGH MIDDEN 4



B. CUT IN MIDDEN 4, SHOWING SHELL DEPOSITS

the others and could not have afforded space for more than a single hut.

Midden 3 is directly south of midden 2, but about twenty feet lower down on the slope of the hill. This midden also was not very productive, but, on the other hand, the sherds were in far better condition than those from the other sites.

It was in midden 4 (figs. 111, 114, 115) that the most extensive excavations were made. The latter part of these excavations was not made with the purpose of obtaining more archeological material, but with the idea of procuring as accurate information as possible regarding the location of the huts and the exact limits of the shell and ash deposits.

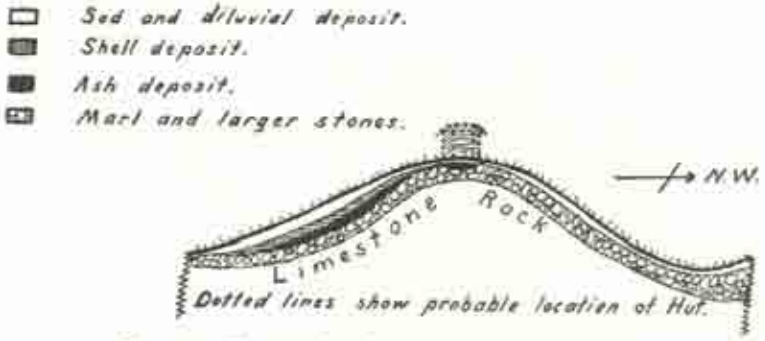


FIG. 114.—Cross-section of midden 4. (Not to scale.)

As in all previous excavations on Little Nigger-ground hill, an enormous number of land-snail shells were unearthed; indeed, from test-holes dug in midden 4, the author computes that this midden alone contained more than 300 cubic feet of shells.

Three trenches were dug in this midden, besides a large number of test-holes. The first trench (A, fig. 115) was 14 feet long by 10 feet wide, with varying depth down to marl. This trench extended in a south to north direction. At the most northerly point the marl came immediately under the diluvial deposit and the sod, and no shells, ashes, or artifacts were found. The second trench (B) was 38 feet long by 10 feet wide and followed a southeast-northwest direction, with a depth of four feet at the southeastern end, down

to marl, and a depth of less than a foot on the crest. This trench was purposely continued beyond the crest, with a view of verifying the test-holes previously dug. As will be shown later, this long trench gave important testimony as a basis for a hypothesis concerning the exact location of the aboriginal abode. The third trench (C, fig. 115) was 10 feet long and 10 feet wide.

At the point marked B, the author started the second trench by having the sod and diluvial deposit removed. This was a foot thick at the base of the midden, where the trench was begun. Proceeding toward the crest, after a distance of a foot, a layer of shells was found under the diluvial deposit, which layer gradually

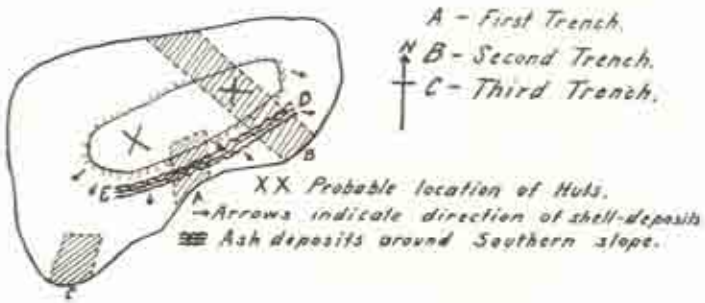
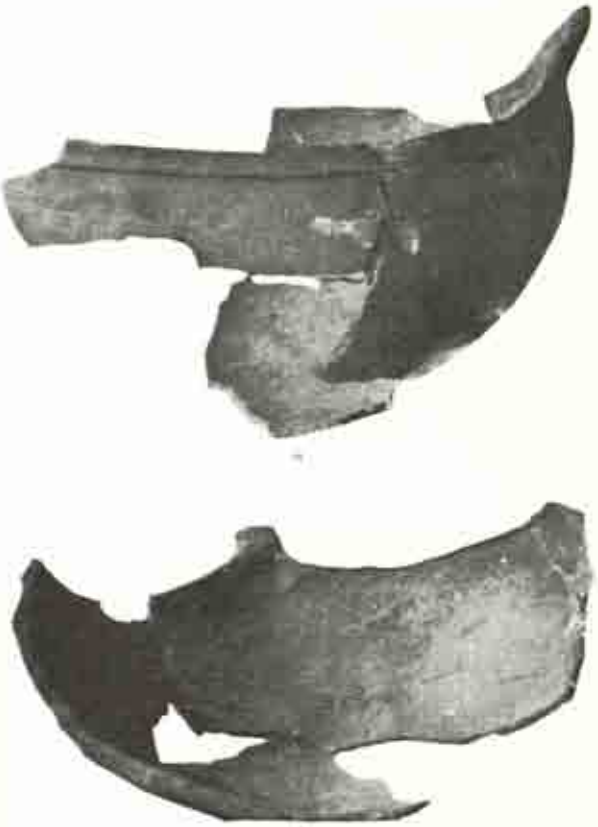


FIG. 115.—Top view of midden 4. (Not to scale.)

increased from a thickness of six inches at the very base to a thickness of a foot about two feet inward, and then tapered gradually to a single shell or two at the summit of the mound. Following the trench down the opposite slope, no shells were found. Mingled with the shells on the southern slope of the midden were the artifacts, such as worked stones and pottery fragments, many of the latter in excellent condition. The ash deposit commenced four feet above the foot of the slope and continued to the summit. This deposit was from 8 to 12 inches in thickness, and in it were found sherds, bones, worked stones, etc. No ashes were found on the northern slope of the midden. Test-holes showed that the ash deposit extended round the southern slope, covering in all about half the circumference of the midden, while the shell deposit covered about 270 degrees of the circumference. On the crest of the midden



a, b. FRAGMENT OF BOAT-SHAPED VESSEL. (THREE-FOURTHS)



FRAGMENT OF CLAY GRIDDLE. (ONE-HALF)

two ash-pockets were found, about two feet in diameter and 12 inches deep, surrounded by stones about the size of a man's head. The presence of these ash-pockets is problematical, as the aborigines certainly did not need a fire to keep their abode warm in a tropical climate, and the semicircle E—D (fig. 115) around the hummock supports the theory that cooking was done on the slope of the midden rather than on the crest. It is not from the two ash-pockets, but from the direction of the shell and ash deposits, that the author reaches the conclusion that the aboriginal abode was situated on top of the hummock and has formed the theory that the inhabitants threw the refuse and the discarded artifacts in three quadrants of the circle: in other words, in all directions save one, which afforded them at least one clean, clear space in front of the hut.

That the native made use of a natural rise of the ground on which to build his hut can plainly be seen in plate XXXI, *a*, which illustrates the long trench (B) cut through midden 4. It can here be seen that the contour of the midden is practically the same as that of the surface of the ground, as the trench was cut down to marl and all loose earth, shells, and ashes had been taken out before the photograph was made.

A good idea of the shell deposits can be had from figure *b* of the same plate, in which a section of trench A in midden 4 is shown. In all the middens on Little Nigger-ground hill at least 98 per cent. of the shells found were those of land-snails, the remainder being sea-shells. The author gathered specimens of the different species and a later examination identified them as follows:

Pleurodonte acuta
Pleurodonte acuta ingens
Pleurodonte sinuata
Sagda alligans
Arca noae
Arca dehayesi
Livona pica
Fasciolaria distans
Avicula
Strombus gigas

Various small animal bones were found in the middens, but the

identification of these has not been possible. It is certain, however, that some of them belonged to the utia (*Capromys*). There also were many fish-bones, and these for the greater part have been identified as belonging to the rock-fish (*Mycteroperca*), which at the present time is regarded as one of the most edible fishes in the Caribbean.

Archeological Specimens from the Middens

The predominating type of pottery vessel in these middens, as well as in other middens of Jamaica investigated by the author, is a boat-shaped type, and while naturally no entire vessel was found, enough remains of several of them to show their form quite distinctly. In plate XXXII, *a*, *b*, is shown part of a vessel of this type, made of a dark-red clay, partly blackened either in the firing or by usage. The wall of the vessel is not more than one-eighth of an inch thick, and with the exception of the handle, which shows a few simple incised lines, it is undecorated. The rim is incurving and has a banded edge.

Many of these boat-shaped vessels have handles that are more elaborately decorated, and one occasionally finds handles that show a conventionally modeled parrot's head. Human heads also are depicted. Plate XXXIII, 1, shows some of the handles of these types. Fragments of decorated rims also were found in abundance, the decoration consisting chiefly of straight-line incisions, while serrated lugs under the rim are not uncommon.

The difference between Jamaican pottery and that from the neighboring islands impressed the author as being quite considerable; this is especially noticeable in the type of handles and in the fact that in the rectilinear decorations on sherds from most of the other islands an indentation made with the same tool that made the incised lines is found, which does not occur on any of the many hundreds of sherds collected by the author in Jamaica. This feature is described by Dr J. Walter Fewkes[1] as follows:

> A marked feature in rectilinear decoration is the indentation of the extremity of each line. The potter commonly terminated a line with a shallow pit that was

[1] The Aborigines of Porto-Rico. *Twenty-fifth Annual Report, Bureau of American Ethnology*, Washington, 1907, p. 180.



1. HANDLES OF VARIOUS TYPES. (TWO-THIRDS)



2. SHERDS WITH INCISED DECORATION. (ONE-HALF)



3. TYPICAL JAMAICAN HANDLES. (TWO-THIRDS)

apparently made with the same instrument as the line itself; or it was sometimes slightly separated from the end of the line. So constant, almost universal, is this feature that it may be looked on as characteristic of pottery from Porto Rico and Santo Domingo.

This feature was also noted by the author in the sherds found on the Caicos islands and the Bahamas, which, on comparison, can hardly be distinguished from Santo Domingo sherds. Dr Fewkes also says (page 188) in the work referred to:

Illustrations *b*, *c*, and *d* are representations of fragments of pottery from Nipe Bay, Cuba, and show the striking resemblance between the ceramics of Porto Rico and those of the largest of the Antilles.

It would therefore appear that the Jamaica pottery should not be included in the culture-type of that of Porto Rico, Hayti, Cuba, and the Bahamas, but that it belongs in a class by itself. It is rare to find impressed decorations on Jamaican pottery, and in the few instances in which it is found, the ornamentation is crude. On the other hand, as can be seen in plate XXXIII, 2, some of the incised decorations are fairly elaborate.

The middens of Little Nigger-ground hill also produced a type of handle that is not found in the other West Indian islands. Dr Duerden figures one of this type in his monograph above referred to, and it seems to be found in middens in various parts of Jamaica, with only slight variations in size and decoration. Plate XXXIII, 3, illustrates a few handles of this type. Whereas all the pottery previously described has a uniform thickness of from one-eighth to three-sixteenths of an inch, the thickness of the vessel to which this type of handle belongs is at least a quarter of an inch, and increases to not less than half an inch at the back of the perforation. Raised, serrated ornamentation is shown under the perforations in some cases (pl. XXXIII, 3, *a*); in other specimens two small lugs were added by the potter (*c*); again, a kind of scrollwork (*b*) is employed, as if the potter endeavored in her crude way to represent the tentacles of an octopus; while in *d* and *e*, two fragments belonging to the same vessel, an attempt may have been made to indicate a mouth, belonging to a face, of which the ridge between the perforations would represent the nose and the perforations the eyes.

Besides earthenware vessels, the middens also produced many fragments of clay griddles (pl. XXXII, *c*). These are about an inch thick at the base and taper to a thickness of half an inch in the middle. They had a diameter of about 14 inches, but one finds only comparatively small fragments of these objects, which more than likely is due to the fact that the action of fire made them more brittle than the other ceramic objects.

The author found the usual worked stones in the middens, consisting of celts of the petaloid type, hammerstones, and rubbing and smoothing stones. A single specimen of shell celt was found, fashioned from the lip of a conch.

HEYE MUSEUM
NEW YORK CITY

PORTO RICAN ELBOW-STONES IN THE HEYE MUSEUM, WITH DISCUSSION OF SIMILAR OBJECTS ELSEWHERE

By J. WALTER FEWKES

Introduction

MANY prehistoric stone objects found in Porto Rico have taxed the ability of archeologists to explain and have furnished the theorist with abundant material for speculation. Among these may be mentioned three-pointed idols, both with and without animal or human heads. Other forms, from their resemblance to horse-collars, have from the first been designated as collars or collar-stones. Those prehistoric Porto Rican stone objects that, from their shape, are called elbow-stones, are the least known and apparently one of the most enigmatical types. The splendid Antillean collection of George G. Heye, Esq., of New York, contains undescribed examples of all these problematical objects, and of these the three elbow-stones here described for the first time are among the most important.

Elbow-stones resemble, in general form, fragments of broken collars, but a detailed study of various elbow-stones and comparison with stone collars, rather than bearing out this seeming resemblance, tends to show that they form types distinguished by highly specialized characters.

The elbow-stone type of objects is represented by twelve specimens in the archeological collections studied by the author. Objects of this type are therefore less numerous than the collars, of which there are about one hundred in different collections. Elbow-stones have not been found in Cuba, Jamaica, or the Lesser Antilles, and have never been reported from the American mainland. Their distribution in the West Indies corresponds closely with that of stone collars and three-pointed stones, which are practically confined

to Porto Rico, Hispaniola (Haiti and Santo Domingo), and possibly eastern Cuba. The author is of course aware that stone collars and three-pointed stones have been recorded from certain of the Lesser Antilles, but their number, or rather their relative proportion to other prehistoric objects from the same islands, is so small that he is inclined to question the recorded provenance of these specimens. Thus the late Professor O. T. Mason described and figured a single collar in the Guesde collection from Guadeloupe, and M. Alphonse Pinart ascribed another specimen of this type to the same island. Among several hundred stone objects from St Vincent the author has not seen a single collar or three-pointed stone, and he therefore reasonably suspects that the locality of the single broken fragment of the latter type ascribed to St Vincent by Mr Joyce[1] is doubtful. It is the writer's belief that these objects are not indigenous to the Lesser Antilles.[2] With a collar in the British Museum described by Joyce and said to have been found in St Thomas, Danish West Indies, the case is somewhat different. St Thomas, St Croix, and neighboring islands belong to the same prehistoric culture area as Porto Rico, hence stone collars may rightly be expected in them; in fact a fragment of a collar undoubtedly found in St Croix is now in the Nordby collection at Christiansted, the chief city of that island.

As the author intends to point out elsewhere that the localization of characteristic stone objects determines certain archeological areas, he will now only briefly mention the existence of several well-defined prehistoric Antillean culture areas. The majority of stone objects from the St Vincent-Grenada area are radically different from those of St Kitts, and these in turn differ from those of the Barbados area.[3] Stone collars, elbow-stones, and three-pointed stones are peculiar to the Porto Rico-Haiti culture area, and when found elsewhere in the West Indies are believed to have been introduced.

[1] Prehistoric Antiquities from the Antilles in the British Museum. *Jour. Roy. Anthr. Inst.*, vol. XXXVII, pp. 402–419, 1907.

[2] A peculiar form of three-pointed stones from Carriacou, one of the Grenadines, now in the Heye Museum, will be described later.

[3] Trinidad and Tobago belong culturally, as well as geographically and biologically, to the adjacent continent.

Since the three types of Antillean stone objects above mentioned are closely connected, both culturally and geographically, they are logically considered as related, and in order to understand the significance of elbow-stones a more accurate knowledge of the collars is desirable.

The variety of forms and the distribution and character of superficial ornamentation of typical Porto Rican collars have been indicated in the author's work, *Aborigines of Porto Rico*,[1] and in the

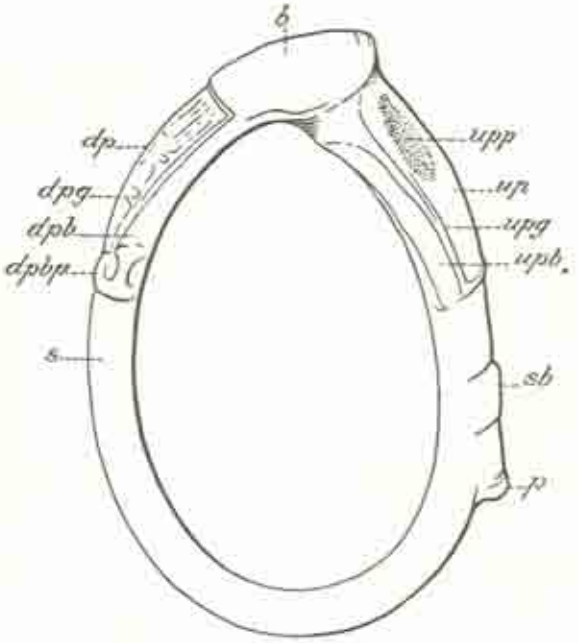


FIG. 116.—Schematic drawing of a slender, oblique stone collar.

accompanying illustration (fig. 116) from that report the topography of the surface ornamentation of one of these collars is indicated. Comparison of an elbow-stone (fig. 117) with a broken stone collar shows that the two have the so-called boss (*b*) and the undecorated panel (*up*) in common. On the other hand, the decorated panel (*dp*), shoulder (*s*), shoulder band (*sb*), and projection (*p*) are not found in elbow-stones. An arm with decoration exists in

[1] *Twenty-fifth Annual Report, Bureau of American Ethnology*, Washington, 1907.

the elbow-stone, but when figures are cut in relief on it they are quite unlike those on the decorated panels of collars. The arms of the two types on which the decorations appear are not identical, and the ends of the two arms of the elbow-stones may be fluted or girt with grooves (*g*), which are not represented in collars.

For convenience of study the two arms of an elbow-stone (fig. 117) may be designated as right and left (RA, LA), and their point of junction the angle or elbow. One of the arms is either decorated or has a panel; the ends of both may be fluted, while their general form tapers more or less uniformly. One or both arms may have a groove on the outside called the sulcus (*s*), which, when situated on the paneled arm, extends lengthwise from the panel border to the end of the arm. A cross-section of an elbow-stone near the boss following the elbow band[1] is, as a rule, about the same as that near the pointed pole of an ovate slender collar. The surface of an elbow-stone, especially the boss, is generally rough, but several examples have the remaining parts finely polished.

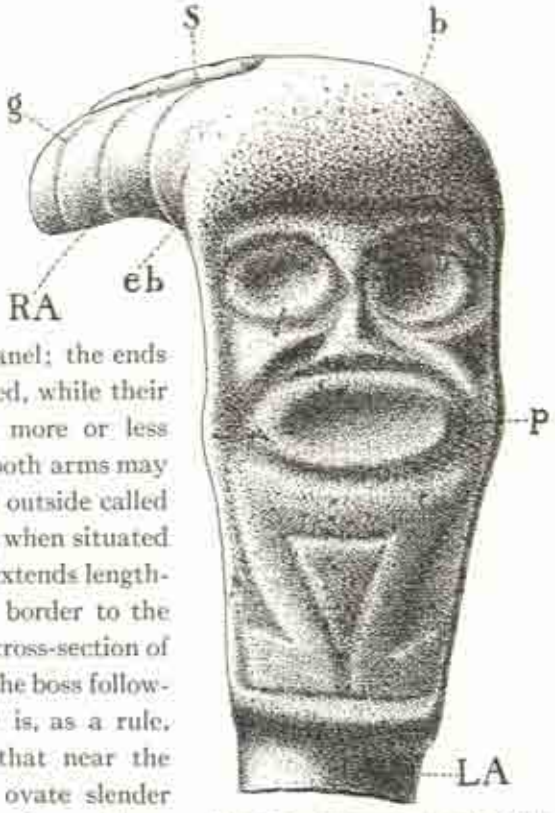


FIG. 117.—Elbow-stone in the Heye Museum. (9×4 inches.)

So close are the general likenesses between the boss and the arms or shoulders of collars and elbow-stones that an identification

[1] The elbow band (*eb*) found in some collars and elbow-stones extends transversely across the inner surface from one rim to the other.

of the latter with broken collars is most natural. In order to explain minor differences in the two types, it is held by some of those who entertain this opinion that a broken collar has been subsequently fashioned into an elbow-stone and its surface redecorated to fit it for secondary use. So radically different, however, are the carvings and symbols on the surfaces of these two types of objects that this conclusion seems unreasonable.

Other archeologists believe that the elbow-stone is a fragment of a type of collar differently ornamented from any that have been found entire. The resemblances are believed by them to be close enough to indicate identity and the differences are looked upon as special rather than as general characters.

The belief that the elbow-stone belongs to a distinct type is far from the thought that there is any utilitarian difference between the two classes of objects. All indications tend to show a like use and that if we could satisfactorily explain the meaning of one type we should be in a fair way to interpret the other. It is, in fact, primarily to shed some light on the significance of the stone collar that the author presents the following results of his comparative studies.

Elbow-stones, like stone collars, may be divided into right-handed and left-handed, or right-armed and left-armed, according to the position of the decorated arm. When an elbow-stone is placed so that the panel will show,[1] this feature will be seen either on the right or the left hand, thus determining the designations "right-handed" and "left-handed" elbow-stones. The significance of the difference in this feature is not known—it may mean nothing, but it would appear that its very occurrence in both collars and elbow-stones has some important bearing on the function of the objects.

The style of ornamentation furnishes data for a classification of elbow-stones on other grounds. Two distinct varieties of these objects can be readily recognized accordingly as a head, face, or

[1] Professor Mason determined this feature by the position of the "projection," which does not exist in elbow-stones. He figured stone collars with their shoulders above and the pointed ends below. The position adopted by the present author as natural for both elbow-stones and stone collars has the pointed pole above.

body is sculptured on the outer surface of one of the arms. This sculpture, when it appears, is generally in low relief, and always

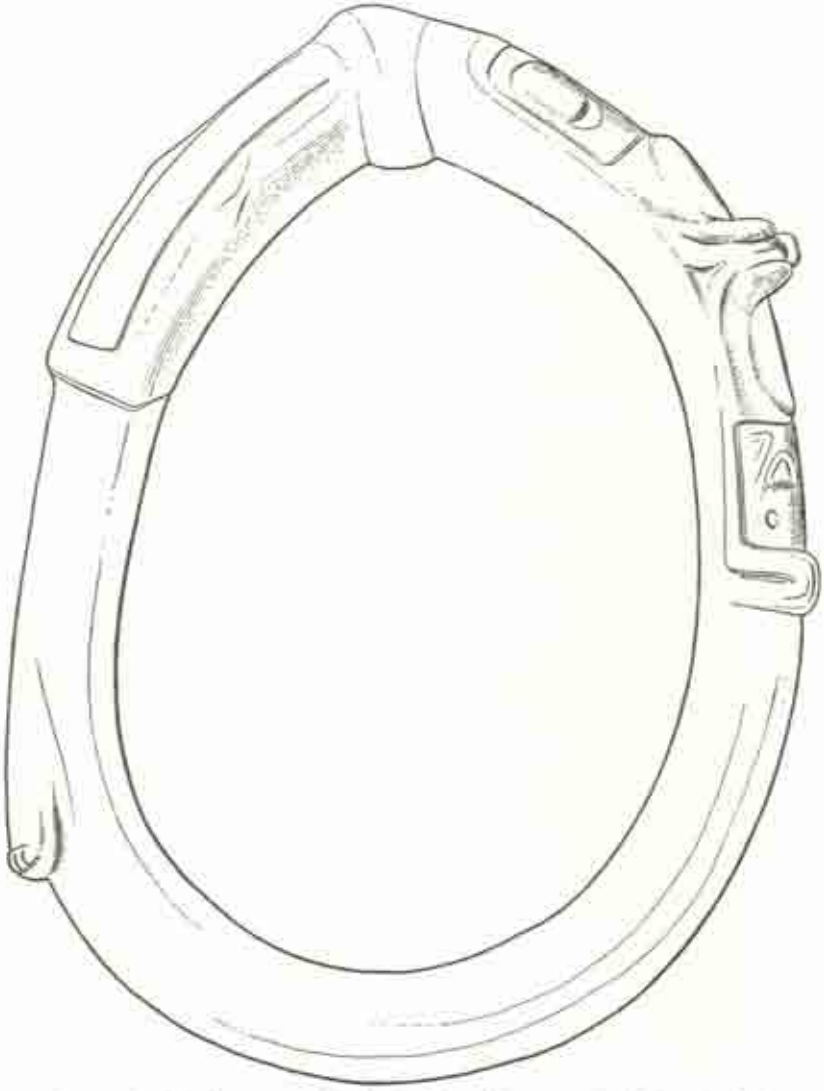


FIG. 118.—Massive stone collar in the Heye Museum. (20½ × 15 inches.)

represents human features, never those of an animal. In elbow-stones on which such a sculptured figure does not appear, there is

always a panel with a shallow, oval, concave pit hollowed in the middle, in which is sometimes a secondary depression, as shown in figure 125. The arm bearing this panel with its pit corresponds with that on which, in decorated elbow-stones, is cut a human head or body. A homologue of this plain panel (identical with the undecorated panel of a stone collar) does not occur on those elbow-stones in which carved heads or faces are found, consequently it is supposed that the decorated panel of the stone collar is not represented by a sculptured head in elbow-stones.[1]

[1] If the arm of an elbow-stone that bears a panel is the same as that with the decorated head, it is not improbable that a head was formerly attached to the panel. Acosta has suggested that a three-pointed stone was attached to the undecorated panel of a stone collar, in which case the resemblance to an elbow-stone with head on the arm would be striking. It is instructive to note that as a rule those elbow-stones that have a figure cut on one arm have, when the arm is unbroken, a sulcus and grooves on the same arm, while those with a panel have the sulcus and grooves on the opposite arms. Few of the specimens have sulci on both arms, a fact which opposes the theory that there was ever a wooden connection, but the best specimens have the end of both arms fluted.



FIG. 119.—Massive stone collar in the Heye Museum. (Side view of Fig. 118.)

In those specimens of elbow-stones in which a face is sculptured on one arm, it will be noticed that the middle line of the face or head is placed longitudinally and not transversely to the axis—always lengthwise of the arm, never crossing it. The position of these figures on known elbow-stones differs radically from that of the heads on panels of stone collars, for in the latter the middle line of the face is at right angles to the panel. The figure on a collar is situated generally on the border of the decorated panel, and is small and in low relief; but in an undescribed collar in the Heye Museum (figs. 118, 119), which is unique in this respect, the head rises above the surface. An examination of this collar shows that in general form it belongs to the massive stone-collar group, while the decoration is more like that of the slender oval collar; but the head cut on the panel is so different from any yet described that it can hardly be assigned to the latter group. It is therefore regarded as a connecting form having affinities with both massive and slender oval collar stones.

It is instructive and may be significant that the faces on all the elbow-stones are anthropoid, and the same is true also of the stone collars, the heads on all of which have human features. The symbolism of the spirit depicted represents a human, not an animal, zemi.

Description of Elbow-stones

The following classification includes the known elbow-stones in various collections, designated by the name of the owner, the collector, or the museum in which they are deposited.

A. With face cut in relief on one arm

a. Face on the right arm
   1. Madrid specimen (fig. 120)
   2. Heye Museum specimen (figs. 121, 122)
   3. Latimer specimen, National Museum (fig. 123)

b. Face on the left arm
   1. American Museum specimen
   2. American Museum specimen
   3. Pinart specimen
   4. Heye Museum specimen (fig. 117)

B. Arm without face, but with panel

a. Panel on the right arm
1. American Museum specimen
2. American Museum specimen
3. American Museum specimen
4. National Museum specimen (fig. 124)

b. Panel on the left arm
1. Heye Museum specimen (fig. 125)

C. Elbow-stone of doubtful type

A. WITH FACE CUT IN RELIEF ON ONE ARM

a. FACE ON THE RIGHT ARM

1. *Madrid specimen.*—The most perfect and elaborately decorated of all these objects is an elbow-stone in the Museo Arqueologico of Madrid, which has face, arms, and legs sculptured on one arm. This specimen has been figured by Neumann and several other writers, but as it is almost unknown to archeologists a new illustration (fig. 120), indicating the variations in the decoration of these objects, is here introduced.[1]



FIG. 120.—Elbow-stone, Madrid specimen. (12⅝ inches.)

From an inspection of the figure it appears that both arms of this beautiful specimen, unlike those of most elbow-stones, are unbroken. The right arm shows the longitudinal groove (sulcus) common to these objects, extending from the lower margin of the panel to the extremity of the arm. The surface is almost wholly occupied by the figure sculptured upon it, the head, arms, legs, and horseshoe-shaped headband or fillet being in relief. This fillet, which

[1] The accompanying figure was made from a photograph obtained in Madrid in 1912 by Professor M. H. Saville. It is a pleasure to acknowledge my indebtedness to him and to my friend Sr Nacisso Sentenach who made the photograph from which the illustration is reproduced.

is of about the same breadth throughout, is decorated with a number of incised pits, one of which is placed medially over the forehead. The fillet ends on each side of the face, near the cheeks, where there are depressions apparently representing ears. This headband recalls those found on heads of three-pointed stones, with which it is seemingly homologous. The two ends of the fillet merge into the shoulders of the figure and continue to form

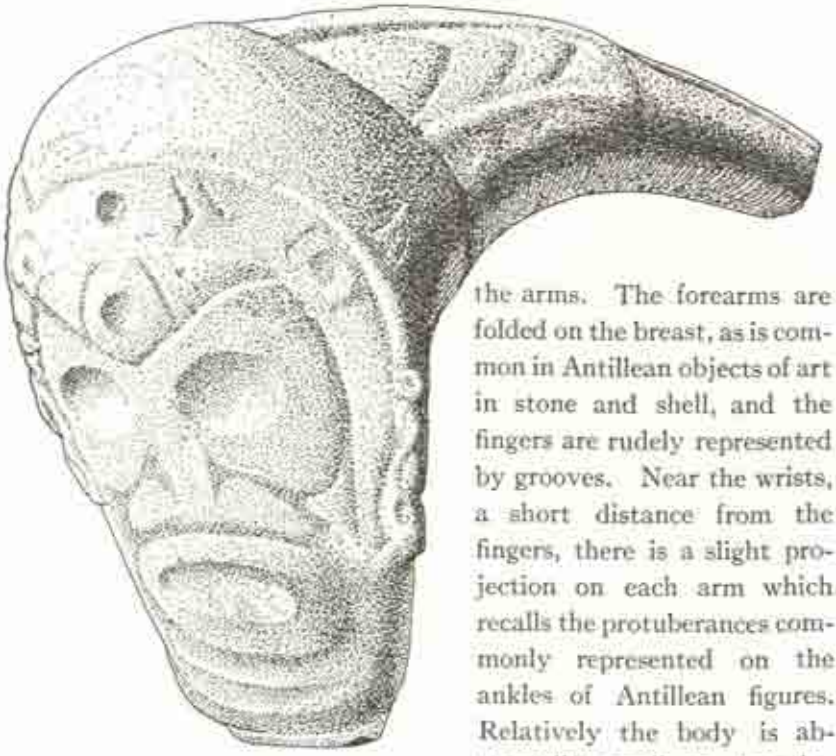


FIG. 121.—Elbow-stone in the Heye Museum.

the arms. The forearms are folded on the breast, as is common in Antillean objects of art in stone and shell, and the fingers are rudely represented by grooves. Near the wrists, a short distance from the fingers, there is a slight projection on each arm which recalls the protuberances commonly represented on the ankles of Antillean figures. Relatively the body is abnormally small or inadequately represented, the space between chin and legs being so restricted that not even the umbilicus, so constantly found in stone images from Porto Rico, is represented. The soles of the feet are turned upward in an extraordinary way, and the toes are folded back, a common feature in Antillean idols. The mouth is large, nose broad, cheeks prominent, the whole recalling faces on three-pointed stones.

2. *Heye Museum specimen.*—The second specimen of elbow-stone (figs. 121, 122) with a face on the right arm is less elaborately sculptured than the Madrid example, the arms and body not being represented. The right limb is apparently broken off just below the carved face, so that there is nothing on this arm corresponding to a feruled end. On the forehead of the figure may be seen a triangular area in which is a central pit. The head is fringed by a fillet less elaborately made than that of the Madrid specimen. The end of the small arm appears to have been broken, there being no sign of fluting, although it shows indications of a sulcus. On the outer side of the small arm, near the angle, there are two series of parallel lines, or chevrons, cut in the surface, recalling the decoration of a massive collar elsewhere figured.[1]



FIG. 122.—Elbow-stone. Sketch of Fig. 121 from the top.

In order to compare this elbow-stone with certain stone heads figured by the author in his *Aborigines of Porto Rico* (pls. LI, LII, LIII) we may suppose that the two arms are much reduced in length, as in plate LII here referred to, and the face cut in high relief instead of being low or flat. A still further reduction in the homologues of the arms appears in certain stone heads and in stone disks with faces illustrated in the plates mentioned, in some instances all traces of the arms having disappeared. The stone head shown in plate LIV *a a'* has the neck developed into a short handle, giving the appearance of a baton and recalling certain ceremonial celts.[2] The objects called "stone heads" in

[1] *Aborigines of Porto Rico*, op. cit., pl. LXIV.

[2] See Joyce, op. cit., and *Twenty-fifth Report Bureau of American Ethnology*, pl. XV.

the author's work above cited so closely resemble three-pointed stones that they may be allied to the third type of zemis, in which the conoid projection is modified into a head. A like parallel occurs in the first type of three-pointed stones, the heads of which recall those of men, lizards, and birds. The few known specimens of the second type have human faces.

The figures representing lizards in both the first and the third type of three-pointed stones are characterized by elongated snouts, eyes, and two pits, representing nostrils, placed near the extremity of the upper lip. The human faces of the first type generally have the ornamented fillet reaching from ear to ear, which is never represented in reptilian three-pointed stones of the first type, but is present in reptile figures in the third type. Ears appear in human but never in bird or reptilian forms. In place of a depression or pit in the median line of the head-band, the reptilian figures of the third type have a device consisting of a low convex projection and pit of the first form. This last-mentioned feature is sometimes situated in a fold extending downward over the forehead, suggesting a frontal ornament.

3. *Latimer specimen.*—This elbow-stone (fig. 123) was first figured by Professor O. T. Mason,[1] who regarded it as a part of a collar,[2] and afterward by the author, who founded the type now known as elbow-stones upon its characteristics. Although the form of the Latimer elbow-stone is somewhat aberrant in several particulars, it presents the distinctive features of the type. Its arms are apparently unbroken at their extremities, and the face is cut on the right limb. Instead of the encircling grooves on the arm bearing the face, the arm is perforated near its end, where it is crossed by a single transverse groove supposed to serve the same purpose as the grooves in the fluted specimens above considered: in other words, for attachment to a staff or some other object. The oval face, eyes, nose, and mouth are typical of Antillean art. The head-band has a pit medially placed above the forehead and is

[1] The Latimer Collection of Antiquities from Porto Rico in the National Museum at Washington, D. C., *Smithsonian Report for 1876*.

[2] The Aborigines of Porto Rico and Neighboring Islands, *Twenty-fifth Annual Report, Bureau of American Ethnology*, 1907, pl. LXIX.

ornamented by a series of parallel incised lines. The slightly protruding ears at the termini of the head-band have large circular pits. The shorter arm has a shallow longitudinal groove (sulcus?) and obscure elbow-band.

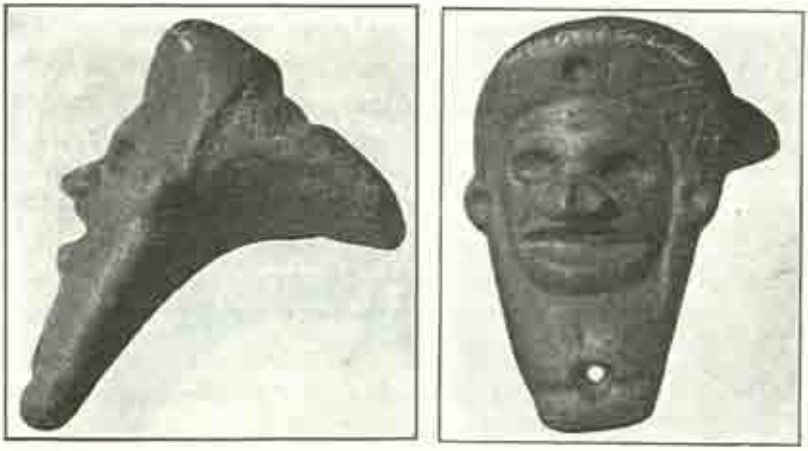


FIG. 123.—Elbow-stone in the Latimer collection. Side and front views. (Length 7¼ inches.)

b. FACE ON THE LEFT ARM

1. *American Museum specimen.*—Among the elbow-stones in the American Museum of Natural History there is an instructive specimen in which an arm is ornamented with a human face in relief, portions of the body, and anterior appendages; the legs are drawn together and merge into a beaded end with longitudinal sulcus and accompanying encircling grooves. The face sculptured on this specimen is oval; the cheeks are prominent, the eyes and mouth circular. The ear pits are prominent and the fillet or head-band bears a medial circular protuberance with its accompanying pit. The arms are bent; the legs are separated above by a space in which is a triangular depression. The umbilicus is indicated by a circular design. The shorter arm is girt by parallel grooves and tapers to a rounded extremity.

2. *American Museum specimen.*—In the same Museum there is a second specimen of elbow-stone, on the left arm of which is carved

a rude face. This example is broken on one edge. It has no grooved arms, but in place of them is a perforation near the end of one arm, as in the Latimer specimen. The sulcus is absent.

3. *Pinart specimen.*—The Pinart elbow-stone, said to have been at one time in the Trocadero Museum, Paris, belongs to that group in which the left arm is the larger and bears an oval face which has large open mouth, prominent ears and head-band, with a circular pit over the forehead. Representations of arms, legs, and umbilicus are present: the legs are separated by a triangular depression as in a former specimen. In the figure given by Pinart[1] there are indications of the grooves or furrows of the terminal ends of both arms, but as his illustration is imperfect this feature is difficult to determine satisfactorily.

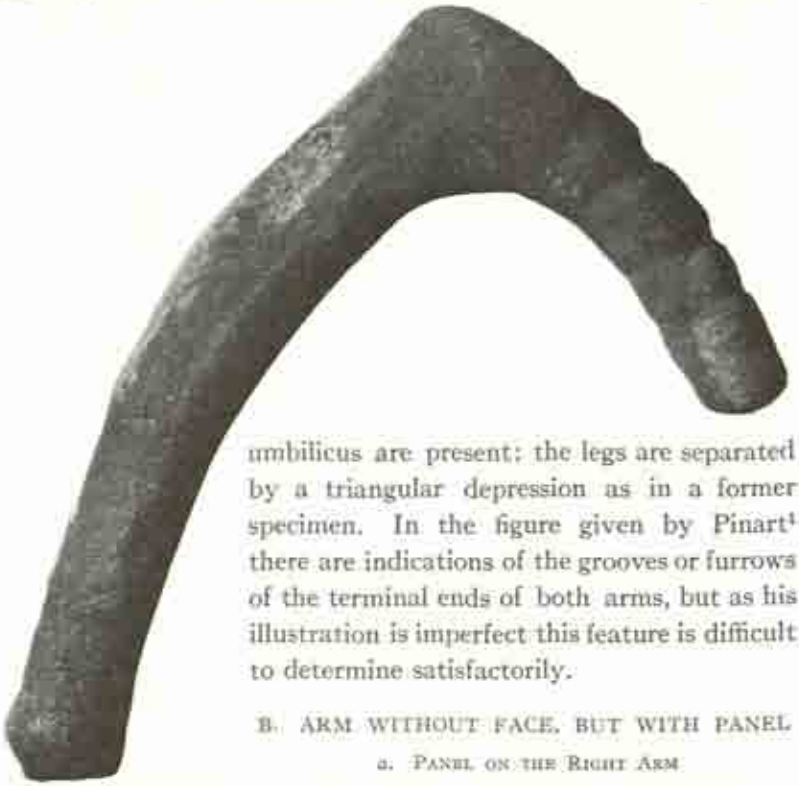


FIG. 124.—Elbow-stone in the United States National Museum.

B. ARM WITHOUT FACE, BUT WITH PANEL

a. PANEL ON THE RIGHT ARM

There are five[2] specimens of elbow-stones with flat panels instead of figures on the arms. Three of these are in the American Museum of Natural History, New York, a single specimen of the same type

[1] *Note sur les pétroglyphs et antiquités des Grandes et Petites Antilles*, pl. 10, 1890.

[2] Two of these are figured by J. B. Holder in an article, "The Stone Period of the Antilles," *Scribner's Monthly*, August, 1875.

is in the National Museum collection, and there is one in the Heye Museum. All, except the last, are right-handed.

These objects are simpler in form than those of the previous group, otherwise they are of the same general character. Each has a sulcus on the surface of one arm, which, however, is without encircling arm grooves. Although the panel pit, a constant feature of the panel, is about uniform in position, it varies in shape and size in the several specimens. From its general shape and simplicity it would appear that the panel in these specimens served as a base to which another object, possibly a stone head, was attached.

The specimen in the National Museum (fig. 124) is said to have been collected at Vieques island, the only locality excepting Porto Rico from which elbow-stones have been recorded.[1] The paneled arm of this specimen is long and slender, the other limb short and grooved, but with a well-marked sulcus not shown in the figure.

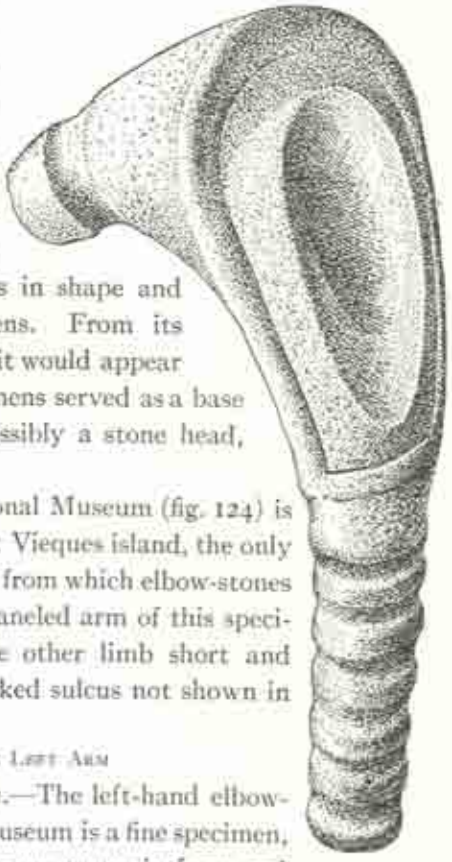


FIG. 125.—Elbow-stone in the Heye Museum.

b. PANEL ON THE LEFT ARM

1. *Heye Museum specimen.*—The left-hand elbow-stone (fig. 125) in the Heye Museum is a fine specimen, surpassing the others of the same group in form and superficial polish. Its left arm ends in a series of fluted joints, but is without a sulcus: the right arm is short, with an encircling groove. The panel is almost wholly occu-

[1] The Madrid specimen may have come from Santo Domingo. Although Vieques Island had been conquered by the Caribs, like Santa Cruz and St Thomas it belongs to the Porto Rico culture area. The Greater Antilles practically end at Anegada channel, geologically, biologically, and culturally. It will be shown in a later publication that all the islands from this channel to Trinidad had a culture, divided into minor groups, which was largely agricultural (Taínan). This culture, especially in the volcanic islands, had been overlaid by Carib elements.

pied by an elongate oval depression in which is a second oval pit, the surfaces of both of which are smooth. The panel is surrounded by a polished border, slightly raised and evenly rounded.

C. ELBOW-STONE OF DOUBTFUL TYPE

There are one or two aberrant specimens that are doubtfully identified as elbow-stones. In discussing the Guesde collection Professor Mason figured[1] and described an unusual object from Punto Duo (?), allied to elbow-stones but of highly aberrant form, as follows:

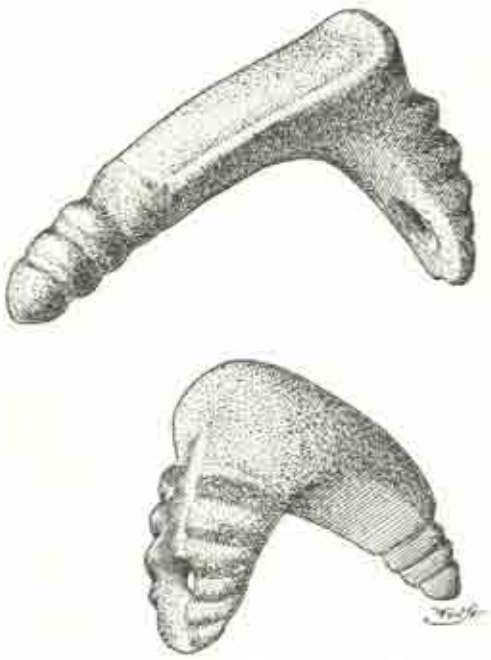


FIG. 126.—Two views of an aberrant elbow-stone in the Guesde collection of the Museum für Völkerkunde, from a drawing made in 1913. (One-third size.)

Fig. 195. An ornamental piece, of bluish green color. It is rare in form but not absolutely unique. In the American Museum at New York is a similar specimen. The chamfering and fluting are gracefully blended. The left-hand extremity is perforated for suspension. Length of long limb, 8 inches; of short limb, $5\frac{5}{16}$ inches.

The differences between this specimen (fig. 126) and the typical elbow-stones lie mainly in the "chamfering," nevertheless it shows certain characters peculiar to elbow-stones. The "similar specimen" in the American Museum, referred to by Mason, is possibly one of those above mentioned under group B.

The Guesde stone is exceptional in several particulars. The figure shows no indication of a panel or a head, and the sulcus like-

[1] Guesde Collection of Antiquities in Pointe-à-Pitre, Guadeloupe, West Indies. *Smithsonian Report for 1884*, reprint 1899.

wise is missing. On account of the absence of the panel it is difficult to tell whether it belongs to the right-arm or the left-arm group. The fluting on the longer arm reminds one of the specimen in the National Museum at Washington (fig. 124), and the perforated shorter arm is like that of the Latimer specimen (fig. 123). The grooves of the smaller arm extend halfway round the arm, while those of the longer arm girt it entirely.

Morphology and Interpretation

The many similarities between three-pointed zemis, elbow-stones, and stone collars would seem to indicate a corresponding similarity in use, consequently any light on the morphology of one would aid in the interpretation of the other types.[1] The author believes that the life figures on these three types of objects are symbolic representations of zemis, or spirits, which were worshiped by the prehistoric Porto Ricans. They were idols, and bore the name of the particular spirit represented (as well as the general designation "zemi"), a usage common to primitive religions.

A consideration of the differences in form, or the morphology, of these objects is desirable before the many theories as to their use can be intelligently discussed.

A forward step in the interpretation of the morphology of stone collars was taken by Mr Josiah Cato[2] and later by Professor Mason who recognized that the "shoulder ridge" faintly resembles a lashing of the two ends of a hoop.[3]

An important suggestion has been made by Mr T. A. Joyce[4]

[1] A discussion of the many theories suggested to explain the meaning and use of stone collars would enlarge this article to undue proportions, hence the question will be considered elsewhere. In the following pages one of these uses is incidentally considered.

[2] Dr Holder (The Stone Period of the Antilles, *Scribner's Monthly*, August, 1875) quotes Mr J. Cato (1869) as follows: "The other [region of collar] on the side of the ellipse, may, perhaps, be intended to represent the ends of a hoop which have been laid together and bound by a ligature."

[3] The most serious objection to the majority of theories of the use of Porto Rican stone collars is that they fail to explain a constant feature, the "shoulder band and projection." These features appear in most collars of both the massive and the slender oval varieties.

[4] Prehistoric Antiquities from the Antilles, in the British Museum. *Jour. Royal Anthr. Institute*, vol. XXXVII, pp. 402-419, pl. XLVIII-LVI, 1907.

that the Antillean stone collar is a copy of an archaic zemi made of branches of a tree bent into a hoop and fastened at their ends. He was the first to associate the stone collar with "tree worship," an important advance in the solution of the enigma. Mr Joyce described a stone collar in the British Museum in which there is no shoulder ridge but what appear to be the two ends of branches "overlapped" and "hooked together" at the point where the shoulder ridge ordinarily is found. This led him to suggest that in studying a stone collar we must "retranslate" it to its wooden prototype and recognize that the juncture of the ends in this case (and perhaps in all) was effected as follows: "When the limbs of the fork [of a tree] were trimmed, the stump of a small subsidiary branch, growing in a convenient position towards the end of each, was left projecting; the longer limb was bent round, and the projection towards its termination was hooked round the projection on the shorter limb; the addition of a cotton bandage would hide the joint and make all secure." (P. 410.)

"It is perfectly obvious," Mr Joyce says, "that these collars were constructed originally of wood; a young tree was selected and cut off immediately below a fork; the two ends of the fork were trimmed into unequal lengths, the longer bent round so as to overlap the shorter, and the two fastened together by a band of cotton similar to the leg-bandages worn by the natives." He also states (p. 410): "Starting with the supposition that they were originally constructed of wood (which seems to me to be almost certain), it seems possible that a clue might be found in the prevalence of tree-worship in the Antilles."[1]

"The heavy collars," continues Mr Joyce, "which appear to have been formed of a single and comparatively stout stem bent into a hoop and the ends secured by a bandage, may represent zemi made originally from the straight trunk of a tree without a fork." Thus a second and important step in the interpretation of the meaning of the collar was taken by Joyce in the recognition of the collar as a zemi connected with tree worship, its original prototype

[1] In a future publication an effort will be made by the present writer to identify the spirit of the tree or bush represented by the images on elbow-stones, three-pointed stones, and stone collars.

being made of wood, the stone form being a more lasting one, but one in which certain characters of the wooden or archaic form still persisted.

In Ramon Pane's account of how Antillean wooden zemis were made, as directed by a tree spirit, we have evidence of tree worship in Haiti, but the testimony afforded by this account is too meager to prove that when the tree referred to by the Catalan father was felled it was made into the form of a collar. The author suspects that the idol referred to by Ramon Pane represented the Yuca Spirit, but this suspicion is still subject to proof.

In Antillean as in other tree worship it was the spirit of the tree that was the object of adoration, and that worship was more or less connected with the material benefits desired: generally the food that the tree yielded. The deity that controlled the manioc (*yuca*), or the Yuca Spirit, *Yucayu*, was worshiped for temporal benefits, the wooden idol being the visible, material symbol.[1]

In differentiating the elbow-stone from the collar as a distinct type, it has been shown above that the position of the heads of both relative to the axis does not coincide, since one is transverse to the axis, the other longitudinal. In one case the object must be placed vertically, in the other horizontally, in order to bring the face into a normal position—a difference in position that remains to be satisfactorily explained. If, however, the elbow-stone was carried, it may be that one arm only of the elbow-stone was attached to a staff and the object carried upright, while the collar was laid horizontally when in use, bringing the head[2] into the same relative position.

It is evident that the furrow, or sulcus (*s*), is an important feature in the morphology of elbow-stones. This groove, non-existent in the collars, may have been cut in the surface of the elbow-

[1] Attention is called to the fact that as yet no collar, elbow, or three-pointed idol made of wood has been found, although several wooden ceremonial objects have been recorded from caves in Haiti, Jamaica, and the Bahamas. The discovery of a wooden collar would serve as a most valuable and decisive support of Mr Joyce's suggestion.

[2] The two known collars besides that shown in figures 118 and 119 with heads cut on the decorated panel border have these faces in the same relative position as that shown in the figures cited, while in all elbow-stones they are at right angles and resemble figure 117 in this particular.

stone for the insertion of a rod or staff to which it may have been lashed with cords held in place by the grooves girdling the arm. It is not always limited to one arm, but is sometimes found on both arms, and it would appear that occasionally either two sticks were attached to the stone, one at each end, or the two ends of the same stick were bound to the arms, in which latter case the stick would have to be bent into a hoop resembling in shape a stone collar, part wood, part stone, the elbow being of the latter material.

The attachment of an elbow-stone to a rod or staff was probably by means of vegetal fibers; in some instances this was unnecessary, since there was sometimes a depression in the end of each arm, as in an elbow-stone reputed to be owned by Sr Balbas of Porto Rico, to which reference has been made elsewhere, but which the author has not examined. In this case it appears as if there are depressions in which the sticks were possibly inserted, rather than lashed to the stone.

The theory that the extremity of a staff was laid in the sulcus and lashed to the elbow-stone would preserve the normal position of the face carved on the panel if held vertically. If carried by means of this staff, the face cut on the arm would be upright or in a natural position. Some of the elbow-stones (fig. 127) may have been carried in the hand without an attached staff, thus accounting for the absence of a sulcus.

The close resemblance of the faces on the elbow-stones to those on three-pointed zemis has already been mentioned. There are other likenesses between these objects, for it sometimes happens that the anterior and posterior ends of three-pointed stones are so elongated that their length equals the arms of an elbow-stone. (See fig. 127.) These resemblances may signify that the three-pointed stone is morphologically related to the elbow-stone.

Three-pointed stones, as other writers have shown, generally, but not always, bear surface evidences of worn grooves indicating a former attachment by cords or bands. Especially are these evident in three-pointed stones belonging to the first and second types, where a ridge is often found back of a groove at the base of the conoid apex. The wear of the lashing by which it was tied

can sometimes be observed in this groove, where the stone is quite smooth. The general likeness of the three-pointed stones and the elbow-stones leads one to compare the so-called anterior or head end of the former to the arm of the latter on which the head is cut, while the posterior end would represent the other arm of the elbow-stone. In this comparison the conical region of the three-pointed stone would be homologous to the elbow. Following out this comparison we can suppose the three-pointed stone was attached to a staff in much the same way that the elbow-stone is theoretically supposed to have been lashed, as above set forth.[1]

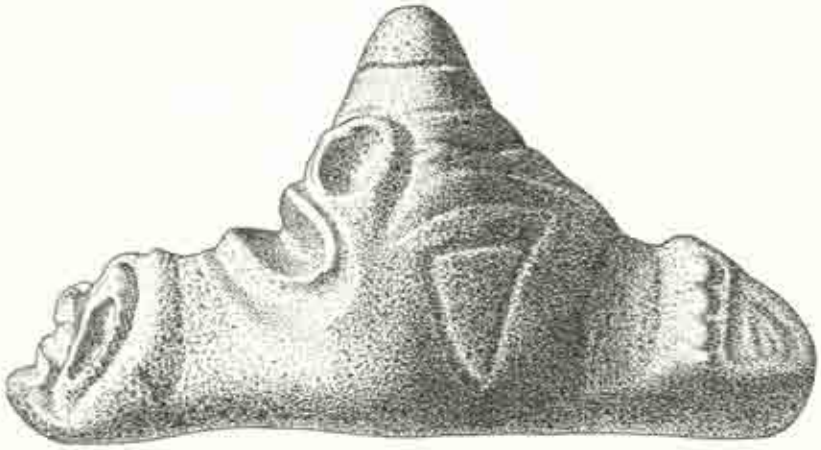


FIG. 127.—Aberrant form of elbow-stone in the Heye Museum. (Length 8 inches.)

The classification of three-pointed stones indicated in the author's *Aborigines of Porto Rico*, where like forms of these objects are grouped into types, is more or less arbitrary, but it is believed to be a convenient one for scientific comparison. Additional specimens of three-pointed stones, unknown when the classification was suggested, have since come to light, and it is found that a few of these forms are aberrant and do not fall naturally into any one of the four divisions suggested. One of these (fig. 127), in the Heye

[1] Among Guiana Indians, according to im Thurn, "the Ackawoi have one dance in which each of the performers represents a different animal; and in this each carries a stick on which is a figure of that animal" (*Among the Indians of Guiana*, p. 324, 1883). The prototype of the stone zemi among the Antilles was like that of wood among the Orinoco tribes.

Museum, has the three-pointed form, but with the distinctive sculptural features of both the first and second types; that is, this specimen has a head cut on the anterior end and another head or face on the side of the conoid projection just above it, and therefore has distinctive features of both the first and the second type. The specimen referred to is exceptional in other features. While its general form, as seen from one side in the accompanying figure, shows profiles of the two faces and also the superficial sculpturing on one side of the conoid projection, the posterior end, as in the first type of three-pointed stone, has representations of retracted legs,[1] a feature foreign to most known and all described specimens of three-pointed stones of the second type. The lateral and real surfaces of the conoid projection are ornamented with an incised groove which, strangely enough, extends to the region of the ears, where it ends in a triangular figure forming an appendage quite unlike the ear of any known Antillean idol. There are several other three-pointed stones in which the conoid process is ornamented with incised lines, and one other in which the lines are rectilinear; but they are generally curved lines—spirals, circles, and the like. Straight lines with sharp angles are rarely found on three-pointed stones.

Ceremonial Batons of Stone

An examination of certain celts, clubs, and other stone artifacts leads to the belief that the prehistoric Antilleans had many kinds of objects which they carried in their hands on ceremonial or other occasions. Several of the almond-shaped or petaloid celts with heads or human figures cut on the sides have their pointed ends prolonged into a handle;[2] and even those without such a prolongation can hardly be supposed to have been hafted, as in such a case much of the design cut upon them would have been concealed. Many of the beautiful axes for which the island of St Vincent is famous were too bulky to be carried in war and too dull to be used

[1] The author has lately acquired, through the courtesy of Professor Saville, a photograph of a three-pointed zemi with a head on the posterior as well as on the anterior end, a condition unique in the many known specimens of the first type.

[2] See Joyce, op. cit.

as cutting implements. They may have been carried by chiefs on ceremonial occasions as badges or insignia of office.[1]

A remarkable stone object (fig. 128) in the Heye collection has the appearance of having been used as a baton, but its form[2] is differ-

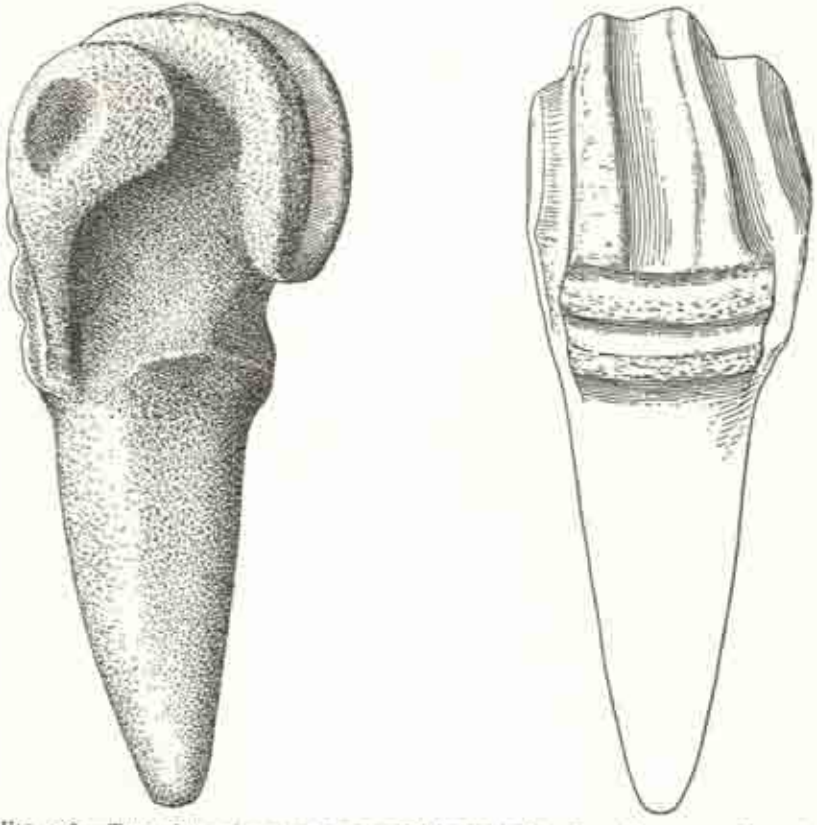


FIG. 128.—Two views of a stone ceremonial baton in the Heye Museum. (Length 6¾ inches.)

ent from that of any yet described, and would suggest that it was carried in the hand, but it may have been inserted into a wooden

[1] The "figure trouvée dans une sepûlture indienne," figured by Charlevoix (*Histoire de l'Isle Espagnole ou de St. Domingue*, p. 6), is believed to be a ceremonial baton similar in function to the object here considered.

[2] Many different forms of batons made of stone, wood, and even clay, might be enumerated. A wooden stick with an animal, or rather two animals, carved on the end is figured in the author's *Aborigines of Porto Rico*.

staff. One end of this object is enlarged, with the surface cut into a definite form, while the other end tapers uniformly, providing the handle, possibly for attachment to a rod. The figure on the larger end has a median crest or ridge extending over the extremity, on each side of which is a prominence, the arrangement recalling the crest and eyes of some highly conventionalized animal. The crest or ridge is found on examination to be double and to extend

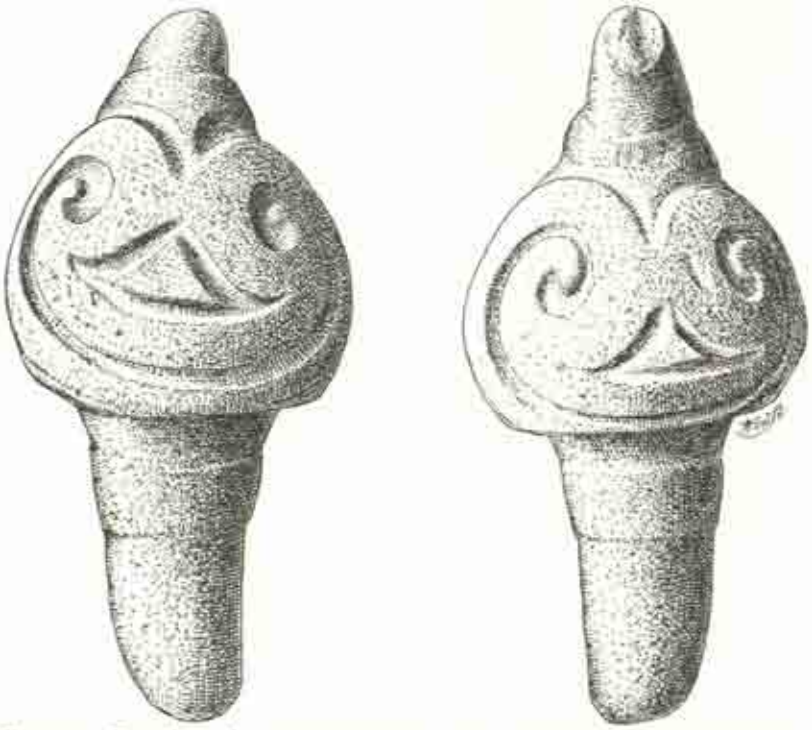


FIG. 129.—Two views of a stone ceremonial baton in the Museum für Völkerkunde, Berlin. (About one-third size.)

round the larger end, the two parts coalescing at one end and uniting by a transverse band on the other. On the sides of this median crest are the protuberances, each with a circular pit and extension from the margin. The only object known to the writer that approaches in form the stone referred to is one made of burnt clay found in Barbados, many miles away. This specimen[1] also has an

[1] Now in the Cornell collection at St Kitts, British West Indies.

enlargement representing a head at one end and tapers uniformly to the other extremity in the form of a handle. The Barbados object also has a crest extending along the middle of the enlarged part and ending abruptly near a hole which may be likened to a mouth; on each side of this elevation there are pits that may be regarded as eyes. The ridge or crest suggests a distorted nose, or the beak of a bird, a suggestion that would seem to comport with the parts on the enlarged end of the stone baton above described. The double median fold and lateral elevations with pits represent beak and eyes.

Another stone object, from an unknown locality, described by Professor Mason, evidently belongs to the same type as the stone ceremonial baton, or some form of badge mounted on a staff. Mason's description of this object is as follows:

Fig. 197. An ornamented stone of a marble gray color. The right part is conoidal and has near its middle a raised band. This may have fitted a socket. The left part resembles a liberty cap, bounded at its base by a curve of beauty. On the two sides of the enlarged middle are compound scrolls in relief, resembling the implements sold to draughtsmen for making curves. Length 11¼ inches.

The accompanying illustration (fig. 129) is from a drawing of this object in the Guesde collection in the Museum für Völkerkunde in Berlin.

Use of Elbow-stones

The author believes that stone collars and elbow-stones were used for similar ceremonial purposes. They are regarded as idols (zemis), and the figures sculptured upon them are supposed to represent spirits (zemis). The arms of elbow-stones are interpreted as extensions by which these idols were attached to a foreign body, and are regarded morphologically as rudiments, survivals of more elaborate objects, possibly the same as the shoulders of stone collars. It is believed that the spirit represented by the faces on the elbow-stones is a bark or tree spirit, and that possibly it is the being that caused the manioc, a plant of prime importance to the ancient Antilleans, to germinate and increase. This spirit the Antilleans of Porto Rico and Haiti called *Yucayu*.

Bureau of American Ethnology
Washington, D. C.

THE INTERNATIONAL CONGRESS OF HISTORICAL STUDIES

By ADELA C. BRETON

THE third session of this Congress (Congrès International des Sciences Historiques) was held in London under the patronage of the King, April 3–9, and brought together a large number of distinguished men from all parts of the world. More than three hundred delegates were appointed by universities and other institutions, and the members and associates numbered eleven hundred. In the scheme of work laid out, all the main lines of human activity were included as departments of historical study. There were nine sections and as many sub-sections. Twelve or fourteen of them met simultaneously in buildings some distance apart, so that it was impossible for any person to hear more than a very small porportion of the two hundred papers, and the attendance was less than it would otherwise have been. Two general meetings were also held, at each of which four of the more important papers were given. The central bureau at the Grafton Galleries proved a great convenience, but abstracts of papers had to be obtained at the respective sections when the papers were read.

At the opening meeting, the address of the president, the Rt. Hon. James Bryce, was read in his absence by the acting president, Dr A. W. Ward, Master of Peterhouse, and printed copies were distributed. In it Mr Bryce noted the widening in recent years of the field of History, so that it is now regarded as a record of every form of human effort and achievement, concerned not only with political events and institutions, but with all the other factors that have molded man, and including the study of the psychology of races and peoples in successive stages of their growth. He alluded to the changes in the condition of the weaker and more backward races who are vanishing under the impact of civilized man, and dwelt on the importance of recording the expiring forms of speech

and the embodiments in custom of primitive human thought, whilst, on the other hand, fresh examples of race-blending are presenting themselves for study.

The address was followed by a speech from the Chilean Minister, Don Agustin Edwards, on the historical evolution of Latin America. He said, in part: "The nations of Latin America, as they are constituted at present, grew up in the course of the nineteenth century and it is since their independence that they have begun to evolve that community of experiences, feelings, ideas, and interests which constitutes the history of a people. In spite of their common origin, these nations are perfectly defined, having different temperaments, feelings peculiarly their own, and a clear consciousness of their political unity and entity. This arises partly from the fact that the conquerors were not natives of the same Spanish province. Thus, in Chile the predominating Iberian element is of Basque origin. Many names testify to this, and also the calm, reflective, and vigorous character of the inhabitants. But Peru owes the bulk of her settlers to Castilla and Andalusia; hence the vivacious, intelligent, and somewhat dreamy disposition of that people. Amongst all these nations there is growing a consciousness of solidarity, of the essential unity of their ideas and interests, and a patriotism wider than the frontiers of this or that Republic."

In Section I (Oriental History and Egyptology), Mr D. Hogarth's presidential address was on "Hittite Civilization in Syria." Certain large questions are being investigated in the light of the British Museum's exploration at Carchemish. The results so far obtained there suggest that Cappadocian civilization was new to Syria in the fourteenth century B.C., and that it was superimposed on an indigenous culture which persisted beneath and was never greatly affected by it. The Hatti race was never represented in North Syria by more than a few garrisons and officials. The great majority of "Hittite" works of art found in Syria are apparently not Hittite but Aramæan, or indigenous Syrian works, and historians in the future must distinguish sharply between the large area occupied by Hatti culture and a comparatively small one occupied by the Hatti race.

Prof. E. Meyer gave the results of an expedition that he sent to Egypt last winter for the purpose of copying all representations of foreign races on the ancient monuments. Prof. G. Steindorff's paper on "The Ancient Libyans (from Egyptian Sources)" described the frequency with which they are mentioned throughout the history of Egypt, from the fourth millenary B.C. onward. Either they were at war with Egypt, or subject for a time, or serving as mercenaries in the Egyptian army until, in the XXII dynasty, three kings were Libyans.

"The Relation of Cyprus and Egypt under the Empire (B.C. 1600–1100)" was treated by Mr H. R. Hall. The discoveries in Crete have now enabled us to date, with fair precision, the coming of Ægean or Mycenæan culture to Cyprus, at the beginning of the third Mycenæan period (corresponding to the third late Minoan period in Crete) and the middle period of the XVIII dynasty. The archeological evidence of connection with Egypt at this time is very full. We find the connection continuing through the period of the raids of the Peoples of the Sea, whereas all communication between Egypt and Crete and the Ægean was cut off. There is archeological evidence of connection in the time of Rameses III. The settlement of the Philistines in Palestine brought the period of acute maritime disturbance to an end, sea-borne commerce revived, and the later connection may have been directly from the Nile ports.

In "Ancient Arabian Poetry as a Source of Historical Information," Sir Charles Lyall showed the importance of understanding the conditions in Arabia before the conquests of Islam. These can be learned only from the ancient poetry, and the earliest pieces preserved date from the end of the fifth century A.D. The poems require the assistance of tribal tradition for their interpretation. They should be translated and the relevant traditionary matter should be carefully studied to make known to the world the valuable and interesting pictures of life which they afford.

Prof. Freiherr von Bissing put forward a theory for the "Reconstruction of the Palaces of the Persian Kings." He thinks that even as early as the time of Cyrus the palace was a basilica and that the palace-towers may be restored from the funeral towers of

Persepolis and other places. It is possible that this peculiar form of building may be traced back beyond Cyrus to the Medes and that the Hittite *bêt khillani*, as well as certain foreign features in Assyrian work, are to be explained by the influence of the early builders of Ecbatana or their ancestors. Prof. Paul Koschaker gave a learned German paper on the importance and problems of a "History of Babylonian-Assyrian Law."

Turning to India, Prof. A. Macdonell, in an account of the "Early History of Caste," said that the caste system has impressed on the civilization of India a unique character for more than 2,500 years. In the oldest Veda (before 1000 B.C.) the castes are yet unknown (except in one hymn of its latest chronological stratum). But we already find the elements of the earlier caste system: the three Aryan occupational classes, as opposed to the subject aborigines. The transformation of the earlier Vedic classes into the castes of the later Vedic period was due to the deep racial dividing-line of color between the Aryans and aborigines, resulting in the prohibition of marriage between the races. This led to a similar prohibition between the Aryan classes. In the later Vedas the fundamental castes are mentioned as four, and are constantly enumerated by name in the same order, the Brahmins coming first. At the present day, the typical form of caste is that based on occupation. But tribes, groups of half-breeds, and religious sects have been transformed into castes in modern times.

Sir William Lee-Warner's paper on "Evolution of Indian History" defined History as being mainly concerned with men's actions in molding their civil constitution so as to satisfy their instinctive desire for personal freedom. In India there was a transition between 1500 B.C. and 1206 A.D. from a pastoral Indo-Aryan community enjoying personal liberty to a medley of separate despotisms, in which the priestly caste monopolized temporal and spiritual power. The Muhammadans, A.D. 1206–1788, broke the sacerdotal ascendency in the north. The British secured the public peace and defence of India, and abolished by legislation slavery, sati, and caste-disabilities.

"The Nationality of the Kushanas" was treated by Prof. Sten

Konow. The so-called Indo-Scythian tribes founded an empire in India and neighboring countries after being driven from their habitats in central Asia by Turkish tribes. Discoveries in eastern Turkestan have now informed us of the existence of two hitherto unknown Indo-European languages, of which one was spoken in Turfan and the other apparently in Khotan. Baron von Staël-Holstein maintains that the old Khotan tongue was probably the same as that spoken by the Kushana and related tribes. Prof. Konow drew attention to some philological facts which support this latter view.

"Die historische Stellung Armeniens in Altertum," by Prof. Lehmann-Haupt, was illustrated by slides of very ancient remains at Van, and was followed by a discussion on the origin and extreme antiquity of the people, in which Mr Hogarth took part.

In the Colonial sub-section of Section IV (Modern History) there was an interesting series of papers. Mr E. A. Benians considered "Dutch Policy in Java," especially in relation to the introduction of Western life, and the policy and influence of the Dutch East India Company. The principal factors of the Dutch system were: the preservation of native institutions, the continued rule of the country by its native aristocracy, and the employment of that aristocracy in political work. Close relations between the native aristocracy and the Dutch were thus brought about, with intermarriage. Prof. Bernard Moses, in the "Relation of the United States to the Philippine Islands," described a different method. American democratic ideas influenced the formation of a government for the islands. By imparting a knowledge of Western practical achievements, and providing access to European ideas by the teaching of English, the improvement of the people was sought. An obstacle was presented by the conceit of half-educated Eurasians, but the Filipinos, in spite of political ignorance, were called on to form and conduct a popular assembly. Prof. R. Altamira spoke on "Some Aspects of Spanish Colonial History," and in "Some Features of West Indian History" Sir C. P. Lucas emphasized the vicissitudes of ownership and changes of administration in most of the smaller islands. The Spaniards, conquering

rather than trading or settling, aiming at a continental empire, held the large islands but passed over the small ones. Later comers from Europe found the small islands good jumping-off places for raids on the larger islands and the mainland. Then the islands were found to be exceptionally suited for the production of sugar and they became valuable prizes, so that during wars between European nations, they were frequently taken by one or another and sometimes there was a joint occupancy. With the introduction of beet sugar and the abolition of slavery, the importance of the West Indies rapidly declined.

In Section VIII (Archeology), Mr St George Gray, curator of Taunton Museum, gave a paper with slides, on "The Lake-villages of Somerset." The locality was probably once a basin-shaped estuary open to the Severn sea. The Glastonbury Lake-village was completely excavated and again turfed over, 1892–1907. About ninety dwellings covered three acres, and they were enclosed by a border-palisading of large piles. The dwellings had circular floors of clay, and walls about six feet high, of wattle-and-daub, the conical roof being supported by a central oak post. Meare Lake-village is about 3 miles from the other. Excavations have been conducted there since 1910, and will be continued this summer. The antiquities found include: bronze rings, and brooches of La Tène I and II types, glass and amber beads, hand-made pottery, of which one-seventh is ornamented with incised designs, some of them very intricate. The inhabitants were excellent carpenters and draftsmen. Their furnaces and crucibles show skill in metallurgy, and the bronze-working was of a high order. Weapons are rarely met with, but objects of bone and antler are numerous, especially bobbins, combs, etc., connected with weaving. The human remains of the Glastonbury village were found chiefly outside the palisading, and were of long-headed individuals. The cemeteries are still unknown. The influence of Roman culture had not reached these places when they were abandoned, and the remains belong to the Early Iron Age. They can be seen in the museum at Glastonbury.

Prof. Baldwin Brown's paper on the "Archeological Evidence

Connected with the Teutonic Settlement of Britain" showed that pottery urns of the type known as *Buckelurnen* occur in Schleswig, Hanover, and Holland, and in the northeastern, midland, and East Anglian districts of Britain. Cremated and non-cremated early burials occur all up the Thames, from the Medway nearly to its source. The Thames valley settlers have affinities with Saxons and Angles in other parts, and not with the inhabitants of Kent. No single archeological trace of the presence of Angles of the Pagan period has come to light in Scotland. This seems to show that settlement was later there, for Anglian cemeteries are common in Yorkshire. The distinction in grave-finds between Angles and Saxons agrees with what Bede says of the ethnic differences between the Teutonic settlers in Britain.

There were two Russian sessions in this section, with papers by M. E. von Stern on "Some Newly-discovered Prehistoric Remains in Bessarabia," and M. Pridik, "Recent Acquisitions of the Erémitage." Mons. Pharmakowsky, in "The Archaic Period in South Russia," described the antiquities of Koban, Kalakent, a new find at Joprak-Kalé (Van), the oriental objects in gold and silver found in 1897 by M. Wesselowsky in a Bronze Age tumulus at Maïkop, and others in ivory, bronze, alabaster, Egyptian pottery, etc., showing the influence of ancient Oriental and Greek art in Scythia and the Caucasus. Prof. Rostowzew gave an account of the silver vases in the "Hellenistic Tumuli of South Russia." Powerful states were formed among the Scythian tribes during the period from the fourth to second centuries B.C., with a rich and powerful aristocracy and a highly-developed Greek and Iranian culture. There were sumptuous sepulchers in high tumuli. Amongst the articles found in them are those made to order for Scythian nobles in some Greek towns in Asia Minor, or on the coasts of the Black sea, where the habits and artistic tastes of the Scythians were well known. Other articles were made in some semi-Greek towns in southern Russia. The gold and silver vases are of the highest interest, especially the vase found in the tumulus of Kal-Oba with representations of scenes of Scythian life. Many silver vases of the same kind were discovered in the so-called Tchmireva tomb in the

northern Caucasus. All these demonstrate the fine tastes of the Scythian nobles and the efforts of the artisans to gratify them. M. A. Bobrinskoy gave a list of the gold and silver objects forming the great "Treasure of Poltawa," found in 1912, which, though of later date, points to a still flourishing condition, and intercourse with Byzantium and the East.

Section IX (Related and Auxiliary Sciences) was divided into three sub-sections. The first of these included ethnology, historical geography, topography, and local history. Here were a few papers on American subjects. Dr A. P. Maudslay showed maps to explain "Cortés' Route from Mexico to Honduras," being a comparison of the accounts of the march given by Cortés in his Fifth Letter, and by Bernal Diaz, supplemented by information from the most recent maps and from the speaker's own journeys.

On "The Toltec Question" Dr E. Seler said that, although part of the tradition respecting the Toltecs may be mythical (the life experiences of Quetzalcoatl have all the signs of a moon-myth), some of it has a foundation in historical fact. Recent discoveries have shown that the civilization, hitherto known to us, chiefly at Teotihuacán, was widely spread over the Mexican plateau. These people appear to have been driven out by tribes who came later to the valley of Mexico and its neighborhood, and they may have gradually migrated toward the Atlantic coast, as tradition relates of Quetzalcoatl. Some may have remained behind and have been mixed with the conquerors.

For the "Historical Geography of British Guiana" Mr J. A. de Villiers presented a number of early maps of the region. In historical geography Guiana (Guayana) comprises the territory bounded by the Orinoco, the Rio Negro, the Amazon, and the Atlantic. Though discovered by the Spaniards about 1500, no settlement was formed until 1591, when de Berrio established San Thomé on the Orinoco. In his despatches to the King of Spain he mentioned what was being done "concerning the journey to El Dorado," to which previous expeditions had been directed. There were at least two fairly well accredited sites for the Golden City and both were occupied by a tribe called Mañáos. The more

southerly was on the river Urabaxi, a tributary of the Rio Negro, but Sir W. Raleigh in 1595 accepted de Berrio's view of its location near the equator, in the Guiana hinterland. A unique manuscript map in the British Museum drawn by Sir Walter himself, or under his immediate supervision, has for its principal feature an elongated lake with 37 tributary rivers and with the city of "Manou" at its eastern extremity. The Dutch next came on the scene, and the log-book of an emigrant ship despatched by the Dutch West India Company in 1624, states that there were colonists of at least three years standing on the Essequibo river. When Brazil was abandoned by the Dutch after a great defeat in 1649, numbers of the fugitives, amongst them a large proportion of Portuguese-speaking Jews, established themselves on the Pomeroon river in Guiana. In 1714 the company sent instructions to the Governor in Essequibo to despatch an expedition to seek information on El Dorado. There is plenty of proof that the Dutch at Essequibo were in active intercourse, during the first quarter of the eighteenth century, with the Indians as far off as the Rio Negro by way of the Rio Branco and the Rupununi. Dutch influence extended, therefore, over the whole of the route followed by the Indians who came to them for their trading wares and ammunition. In 1739 Nicolas Horstmann was sent on behalf of the Company to seek a route by inland waterways from Essequibo to the Amazon and endeavor to find El Dorado, said to be situated on Parima, an enormous lake which figures on all the early maps. On the watershed of two great river systems, Horstmann found only the small Lake Amucu, which at times overflows, and may originally have been larger.

Prof. Witton Davies drew attention to the distinction between "Magic and Witchcraft," often forgotten by scholars and writers who employ the words "witch" and "witchcraft" for "female magician" and "magic." Writers on Indian, Babylonian, Egyptian, and Hebrew religion have been guilty of this. Masculine nouns have been rightly translated "magician," "sorcerer." The feminine forms of these nouns are often rendered "witch," but this word means something essentially different from "magician." From the Teutonic peoples and the Christian Church, witchcraft came

to have the sense now usually attached to it. The witch of the Middle Ages was a woman believed to have bargained her soul to the Devil in return for certain powers. An examination of the words used in the literature of the Babylonians, Assyrians, and Hebrews makes it clear that among these peoples witchcraft in the strict sense did not exist. In the discussion on this paper an account was given of the active belief in the power of a witch still prevalent in the west of Ireland.

In Section IXc, Mr ffoulkes described "The Armouries of the Tower of London," where the collection is the oldest in Europe. Many of the specimens are to be found in an inventory taken in 1547, and there is reason to suppose they were there long before that date. In 1455 there was an inventory of armor, swords, and banners, but without sufficient detail. Since a recent rearrangement the provenance of each piece is historically established.

The other sections also provided many interesting papers. Professor I. Gollancz, general secretary, and Professor Whitney, the secretary for papers, worked hard to insure the success of the congress. Each section had its own president, vice-president, and secretary, who were responsible for the business of their sections. Entertainments of all kinds were provided, and the British Government gave a banquet to the foreign and colonial delegates, at which 400 persons were present, followed by a reception for the other members. Many historic houses were opened to them, and Mr John Murray afforded to a few the opportunity to inspect his precious manuscripts of Byron's poems and other treasures. By command of the King, five hundred members were invited to tea at Windsor Castle, and the Archbishop of Canterbury gave a reception at Lambeth Palace. The Record Office and the authorities of the British Museum also combined instruction with entertainment. An excursion to Cambridge and the delightful hospitality of some members of the University closed the festivities. The next Congress will be held at St Petersburg.

LONDON, ENGLAND

CONTRIBUTIONS TO ALGONQUIAN GRAMMAR

By TRUMAN MICHELSON

THOUGH the bulk of this paper is concerned primarily with the Fox language, nevertheless the above title is adhered to as the discussion involves some of the more general aspects of Algonquian grammar. The Kickapoo citations are from the texts collected by the late Dr William Jones. The Fox citations are partly from the *Fox Texts* (by page and line) by the same author, partly from the present writer's texts, and partly from what he has heard in conversation; no words are cited which were obtained by direct questioning. The author's Fox texts were collected in the current syllabary, being written out by Indians who spoke little or no English. I have restored the phonetics according to the scheme of Dr Jones. The numerals within brackets refer to the sections of the Algonquian sketch in the *Handbook of American Indian Languages*.

Phonetic Changes

1. *n* to *c*

The change of *n* to *c* occurs before an *i* which is either a new morphological element or the initial sound of such an element. This has disguised a good many instrumental particles. Examples are: *kanōci* (J. 298.26) TALK TO IT (an.) [*-i* 31] as contrasted with *ā'kanōnetiwātci* (M.) THEN THEY CONVERSED TOGETHER [*ā—wātei*, 29; *-n-*, 21, 37; *-e-*, 8; *-tī-*, 38]; *āhicigi* (M.) I WAS TOLD [*ā—ig*^{i}, 41] contrasted with *ākināte*^{i} (J. 240.16, etc.) HE SAID TO HIM [*ā—āte*^{i}, 29; *-n-*, 21, 37]; *mīci'yāgāgu'*^{a} (J. 32.12) YOU MIGHT GIVE TO HIM [*-iyāgāgu'*^{a}, 30] but *kīmīneguwāwa* (J. 32.13) HE SHALL GIVE YOU [*kī—guwāw*^{a}, 28; *-n-*, 21, 37; *-e-*, 8]; *pyācī*^{a} (M.) HE WHO BROUGHT ME [*-ī*^{a}, 33] but *nepyānāw*^{a} (M.) I BROUGHT HER [*ne—āw*^{a}, 28; *pyā*, 16; *-n-*, 21, 37]; *mālaciyametcig*^{i} (M.) THEY WHO OVERTOOK US (excl.) [*-iyametcig*^{i}, 33; change of stem vowel, 33] but *āmaḍanegate*^{i}

(J. 168.5) AS HE WAS OVERTAKEN [*ā—tc*^{1}, 29; *mADA*, *mAIA*, 16; *-n-*, 21, 37; *-e-*, 8; *-gu-*, 41] *āmyācitāhātc*^{1} (M.) HE HAD DOLEFUL FEELINGS IN HIS HEART [*ā—tc*^{1}, 29; *-ītā-*, 18; *-hā-*, 20] but *myānegāw*^{a} (in the grammatical sketch) HE DANCES POORLY [*myā-*, initial stem; *-n-*, 8; *-egā-*, 19; *-w*^{a}, 28]. The change occurs in Sauk and Kickapoo naturally enough. It likewise evidently occurs in Potawatomi: *kamīnen* I GIVE THEE, but *mīcin* GIVE (THOU) ME [these would be *kemīuene* and *mīcin*^{a} in Fox; both constructed by myself; see sections 28 and 31]. It is important to find out if this is a Pan-Algonquian law or confined to certain languages. That *ni* when in the same morphological unit remains is clear from *-nitc*^{i} [34], *-n*^{i} [42]. A preceding *e* prevents the action of the law: *tō'keni* (M.) WAKE HIM UP [*tō'k-*, 16; *-e-*, 8; *-n-*, 21, 37; *-i*, 31]; *pAgisenig*^{a} (M.) SET ME FREE [*pAgi*, 16; *-sen-*, 20; *-ig*^{a} YE—ME (the form given in section 31 is due to some error; Shawnee and Kickapoo have *-ig*^{a} likewise)]. Furthermore the law does not take place in the demonstrative (47) and interrogative (49) pronouns, due either to the influence of other sounds or to the morphology structure of these pronouns which is quite unclear.

2. CHANGE OF *s* TO *c*

Certain variations of *s* and *c* are probably due to mishearing. Neither sound is quite like the corresponding English one, hence the confusion. But the following is a true phonetic process: *s* becomes *c* before an *i* which is either a new morphological element or the initial sound of such an element. Examples are *necigu* (M.) KILL (YE) ME [for *-ig*^{a}, see above], *neciyan*^{a} (J. 54.21) IF THOU SLAY ME as compared with *nesegus*^{a} (J. 168.13) HE WOULD HAVE BEEN SLAIN [stem *ne-*, not *nes-* as given in the sketch (p. 784); *-s-*, 21; *-e-*, 8; *-gu-*, 41; *-sa*, 30], etc. The interchange of *s* and *'t* is morphological: see section 21. The change apparently does not apply to cases of nouns combined with the copula *-i-*.

3. CHANGE OF *t* TO *tc*

It is perfectly clear from a comparison of the intransitive third person singular animate *-ta*, *-te*, *-tci* of the participial, present sub-

junctive, and conjunctive, respectively, that *l* changes to *tc* under the same conditions.

4. CHANGE OF -*yA*- TO -*yä*-

The word for HIS MOTHER is *ugyäni*. It is evident that this stands for *u-gi-ani*, cf. *ugiwäwan*[1] (J. 154.9) THEIR MOTHER just as *negy*[a] MY MOTHER stands for *ne-gi-a:* see section 45 (*u*—[*m*]*ani* is the sign of the third person animate possessive pronoun singular). It may be noted here that plurals such as *asenyän*[1] STONES, are due to the same cause: they stand for -*i-ani*, with the *i* taken over from the singular as shown by the normal ending -*ani* (inanimate pl.). As -*yA*- is retained in the conjunctive, etc., it would seem that a preceding consonant is required to make -*yA*- become -*yä*-. [*ketaiyäg*[1], THY PETS, J. 298.16; and *utaiyän*[1], HIS PET, J. 298.28, are to be explained similarly: the *i* of *ai* is consonantal.]

5. CHANGE OF -*wA*- TO -*ō*-

As can be seen from the folder at the end in the *Twenty-eighth Annual Report of the Bureau of American Ethnology*, the change of -*wA*- to -*ō*- (*u*) after a consonant, is found in many Central Algonquian languages. However, the actual consonants after which this change takes place are not yet determined, and I have some evidence to show that the languages concerned do not all agree. This may be due in part to analogical levelings. What I wish to point out here is that plurals such as *me'tegōni* (M., and in the grammatical sketch) TREES, are really contracted from *me'tegw-ani*, and *nenusōg*[1] (in sketch) BUFFALOES, from *nenusw-agi*. Similarly *kīcesōn*[1] (J. and M.) SUN, obviative (objective) is for *kīcesw-ani*. The forms are wrongly discussed in the sketch.

NOTE ON INTERVOCALIC CONSONANTS

On page 752 of the sketch I have expressed the conviction that the so-called intervocalic consonants are probably morphological elements, and tried to show that -*tci*-, not -*tc*-, was one of the elements. Examples supporting this are: *kepyätcinänen*[a] (J. 40.12) I'VE COME TO TAKE YOU AWAY WITH ME [*ke—ne*, 28; *pyä*, *nä*, 16; -*n*-, 21, 37];

nepyātcinānāwᵃ (J. 42.4) I'VE COME TO TAKE HER AWAY WITH ME [*ne—āwᵃ*, 28]; *kepyātcinatumenepwᵃ* (M.) I HAVE COME TO INVITE YOU [*ke—nepwᵃ*, 28; *pyā-*, 16; *natu-*, 16; *-m-*, 21; *-e-*, 8]; *kepyātcinawihene* (J. 256.7) I HAVE COME TO VISIT YOU [*nawi-* initial stem; *ke—ne*, 28; *-h-*, 21, 37; *-e-*, 8]; *nepyātcikaskiʻtō* (M.) I'VE COME TO BUY [*ne-*, 28; *kaski-*, 16; *-ʻtō*, 37].

NOTES ON THE VERBAL COMPLEX

From a careful study of Dr Jones' Fox and Kickapoo texts, as well as of the Fox texts of the writer, it seems that the very great firmness in the unity of the verbal complex is only apparent, not real. All sorts of incorporation can and do occur, save the incorporation of the nominal object and subject in the transitive verb. The following will illustrate in measure the above: *netcāgimāmegunāʻkawaniʻtō* (M.) I HAVE REALLY INDEED LOST THEM ALL AGAIN [*ne-*, 28; *-ʻtō*, 37; *tcāgi*, 16; *wani*, 16; incorporation of particles *mā* and *megu*, and the adverb *nāʻka* between the two 'initial' stems]; *āʻpōnimegutātagiʻanwatciwīgatamowātcᵏ* (M.) THEY INDEED CEASED PAYING THE SLIGHTEST ATTENTION TO IT [*ā—amowātcᵏ*, 29; *-t-*, 21, 37; incorporation of particles *megu* and *tātagi* after the initial stem *pōni* (16)]; *kikutcimāʻwināmāinatcikene* (Kickapoo, J.) I WILL CERTAINLY TRY TO HELP YOU [for *kī—ne*, 28; *-h-*, 21, 37; *-e-*, 8; incorporation of particles *mā* and *wīna* between the initial stems *kutci* and *māi* (Fox *māwi*)]; *āʻpwāwāpeneskimātcᵏ* (J. 138.20) IT WAS NEVER HIS WAY TO SCOLD HER [*ā—ātci*, 29; *pwāwi*, 35.3, the terminal *i* is lost before the initial vowel of *āpe;* incorporation of the particle *āpe* (*āpeʻe*) before the initial stem *neski*, 16; *-m-*, 21, 37]; *āʻpwāwimegu mōʻtc aneʻkī aʻtānigi* (J. 118.20) THERE WAS NOT EVEN A LITTLE [incorporation of the particles *megu* and *mōʻtci; aneʻkī* is difficult to label]; *ātaswikutcimegōnimesahōtci* (M.) AS OFTEN INDEED AS SHE TRIED TO JUMP [*ā—tci*, 29; incorporation of the particle *megōni* after the initial stems *taswi* (16) and *kutci; -m-*, 8; *-esahō-* evidently the same as the secondary stem *-isahō-*, 18].

We now come to examples of more radical incorporation: *āʻpyātciʻōsabamegutcᵏ* (M.) WHEN HIS FATHER CAME TO SEE HIM [really a passive; *ā—tcᵏ*, 29; *pyātci* discussed above; *-m-*, 21, 37;

-e-, 8; *-gu-*, 41; *ōsa* apparently an abbreviated form of *ōsani* (HIS FATHER), resembling *utōtāma* or *utōtāmani* (HIS GIVER OF SUPERNATURAL POWER); *ba* apparently is a shortened form of *wâba* to see, an initial stem, 16: cf. section 12; the shortened forms suggest the intimate association in the compound]; *ā'pwāwigāi'uwīyā'akaskikanawitci* (M.) THEN TRULY NO ONE WAS ABLE TO SAY A WORD [incorporation of a particle *gāi* and indefinite subjective pronoun, 48, before two initial stems]; *ā'pōnikāgōi'icitāhātc'* (M.) THEN HE CEASED THINKING OF ANYTHING [incorporation of indefinite inanimate objective pronoun (*kāgō'*, 48) after the initial stem *pōni*, CESSATION, 16; and before the initial stem *ici*, THUS, 16; *-itā-*, 18; fusion of terminal and initial *i*, 10; *-hā-*, 20; *ā—tci*, 29]; *ā'pwāwimegukāgōi'ketōnitci* (Kickapoo, J.) AS THE OTHER INDEED DID NOT SAY ANYTHING [incorporation of the particle *megu* and indefinite pronoun *kāgōi* as above; fusion of the terminal vowel of *kāgōi* and *i'ketō*, an initial stem, TO SAY; *ā—nitci*, 34; *pwāwi*, 35]; *ā'paimeguawīyāhipyā'tōtci* (Kickapoo, J.) HE DID NOT BRING ANYTHING [*pai* corresponds to Fox *pāwi*, 12; incorporation of *megu* (as above) and *awīyāhi*, an indefinite pronoun, inanimate singular, before the initial stem *pyā*, 16; *'tō*, 37; *ā—tci*, 29]; *wī'pwāwi'acāhahike'kānemegutc* (J. 224.7) THAT SHE MIGHT NOT BE FOUND OUT BY THE SIOUX [final *i* lost before a vowel; *wī—tci*, 29; *pwāwi*, 35; *ke'k-*, initial stem, 16; *-āne-*, 18; *-m-*, 21, 37; *-e-*, 8; *-gu-*, 41; *acāhahi* same as *Acāha'i* SIOUX, obviative pl.; incorporation of the logical nominal subject].

The following illustrate a very curious type of incorporation: *ā'ugwisiwātc'* (M.) THEN THEY HAD A SON [*ā—wātci*, 29; *-i-*, 20]; *kī'ugwisemene* (M.) I WILL HAVE YOU AS SON [*kī—ne*, 28; *-m-*, 21, 37; *-e-* (both times), 8]; *kī'unāpāmemene* (M.) I WILL HAVE YOU AS HUSBAND [*kī—ne*, 28; *-me-* (second one), 21, 37, 8]; *ketugimenepena* (M.) WE HAVE THEE AS MOTHER [*ke—nepena*, 28; *-t-*, 28; *-me-* as above]; *nīhutūgimāmipena* (J. 28.6) WE WOULD HAVE THEE AS OUR CHIEF [an error for *kī—ipena*, 28 (see 13); *-h-*, 8; *-m-* (second time), 21, 37]; *āhutānesiwātc'* (J. 66.15) THEY HAD A DAUGHTER [*ā—wātci* and *-i-* as above; *-h*, 8]; *ā'pōnunāpāminitc'* (J. 70.9) AND SHE NO LONGER HAD HIM FOR HER HUSBAND [final vowel of *pōni*, the initial stem, 16, is lost before *u-*; *ā—nitc'*, 34; *-i-*, 20]. That we have pos-

sessed nouns incorporated is evident enough. The *u-* strongly resembles the *u-* of the third person possessive pronouns; note *ugwisan*[4] (M.) HIS SON; *ugiwāwan*[4] (J. 154.9) THEIR MOTHER; *unāpāman*[4] (J. 162.4) HER HUSBAND; *utānesan*[4] (M.) HIS DAUGHTER; I lack an example for CHIEF(S) with the third person possessive, but the structure would be the same as shown by *ketūgimāmenānag*[4] (J. 62.22) OUR (inclusive) CHIEFS. See section 45 of the sketch. The question arises whether originally the *u-* of the possessive pronouns did not originally mean possession by any one, and only secondarily became fixed as representing third persons. It will be observed that the terminal elements which would occur in nouns by themselves do not occur in the verbal compound.

The extreme limit of incorporation is reached in incorporating verbs within verbs: *pwāwi'ācimenāge'icawiyane* (M.) IF YOU DO NOT DO AS WE TELL YOU [*pwāwi*, 35; (*i*)*cawi*, do, 16; *ā—nāge*, 29; *-me-*, 21, 37, 8; *ci* possibly for *ici* (see section 12), or *cim* is an initial stem; *e* the phonetic insert; *-yane*, 29]; *kī'pōni'ānāpamiyaninānāpami* (M.) AS THOU HAST BEEN SEEING ME, THOU WILT CEASE SEEING ME [*kī—i*, 28; *pōni*, CESSATION, 16; *ā—iyani*, 29; *-n-* (both times), 8; *-m-* (both times), 21, 37; *āpa* TO SEE, initial stem (see section 9)].

It should be stated here that compounds of the type 'HE WOULD HAVE BECOME CHIEF' (*ugimāwis*[a], J. 26. 16) occur in which the noun is stripped of the terminal animate ending and combined with the copula *-i-* with the ordinary verbal endings.

It is obvious that stems will have to be reclassified. It is quite certain that a class corresponding to the accepted secondary stems will occur, but whether the present two-fold division will be maintained or classed in a different manner is uncertain. That the present so-called initial stems will have a different classification seems reasonable. There is an essential difference between stems such as *icāgi* TOTALITY, *kutci* TRY, *asāmi* TOO MUCH which can occur outside as well as inside the verbal compound, and such stems as *pyā* TO COME, *mīgā* TO FIGHT, *kaski* ABILITY which can occur only within the compound. Moreover it is possible that a new division may be made according to the position of incorporated particles, and the like. Also the position of stems in noun-formation will have to be taken into consideration.

From what has been said above it will be seen that the firmly united part of the verbal compound seems to be the pronominal elements and the instrumental particles. Yet it may be mentioned that though in some cases the original meaning of the instrumental particles is kept with great fidelity, in the majority of cases the original meaning has faded, and it is a matter of absolute convention as to which particle is used with any given verbal stem. It also appears that not all stems can be combined with each other. In other words, in Algonquian words may be analytically separated into the constituent elements, but these elements can not always be combined synthetically to form new words.

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CONTRIBUTIONS TO A TUTELO VOCABULARY

By LEO J. FRACHTENBERG

BESIDES the present list, there are in existence two other Tutelo vocabularies. Of these, the earliest was collected by Horatio Hale on the Grand River reservation, Ontario, in 1883,[1] while the latest attempt to obtain a vocabulary of this extinct dialect was made by Dr Edward Sapir.[2] My own material was collected under the auspices of the Bureau of American Ethnology, on the Grand River reservation, Ontario, in July, 1907. My informant was Lucy Buck, an old Tutelo woman, who remembered only the few words and phrases that are herein recorded. As she was unfamiliar with English, it was necessary for me to obtain this scanty material by using as an interpreter Andrew Sprague, a Cayuga, who in his early youth had been adopted by the Tutelo tribe.

As is well known, Tutelo (and Saponi) form a subdivision of the great Siouan family. They lived in North Carolina at a very early date. During one of their frequent raids, the Iroquois took these two tribes along with them northward.[3] According to information obtained from Andrew Sprague, the Tutelo were admitted into the Confederacy of the Iroquois, thereby forming the sixth nation of the Iroquois League—by which we may assume that the Tutelo and the Saponi were adopted with the Tuscarora. Sprague also informed me that at all the Iroquois festivals it is customary to sing a few Tutelo songs in deference to that tribe.

At the time this material was collected, only two Tutelo families survived, namely, the Williams and Buck families. No member of the Williams family remembered a single word of their former tongue.

[1] Published in the *Proceedings of the American Philosophical Society*, March 2, 1883.

[2] See *American Anthropologist*, N. S., vol. 15, no. 2, April–June, 1913, pp. 295–297.

[3] See James Mooney, The Siouan Tribes of the East, *Bull. 22, Bur. Am. Ethnology*, Washington, 1895.

Of the Buck family, Lucy was the only one who seemed to know a few words of her language. She told me, however, that the head of her family, John Buck, who at that time was a fugitive from the reservation, could speak Tutelo fluently. I made several fruitless attempts to locate him.

This material is presented in the form in which it was given to me. No attempt to verify the words by means of other vocabularies has been made, owing chiefly to the fact that I deemed the material obtained highly unreliable, as a glance at the various confusing terms given for the different cardinal numerals will show.

The appended song was rendered toward the close of the Iroquois Strawberry festival, at which I happened to be present. Sprague told me that it was a Tutelo song. No translation could be obtained.

Numerals

no^{n}s one
kise'^{n}g, kise'n, no^{m}p, two
sago'm three
tup, bala^{u}'n four
ni'swa five
aka's, bāz, niwā' six
sago'm, nī'li, yawenō'^{n} seven
bala^{u}'n, yawinō'^{n}, nihilī' eight
kse^{n}k, sagā' nine
bulsk, gwiz, gwī ten

Nouns

ē'ho^{n}, e'ha^{n} mother
kīnā' my mother (?)
dawinā'k sister
wā'kasī'k girl
mihā'^{n} man
warīwā' woman
nīska', niska' child
mankīda' my cousin
māxkanakā'sit negro
wā'skanaka, waxkana'ka, white man
yakū'tskake'^{n}g dizzy woman
mo^{n}pa^{u}'^{n}, mā'paye^{n}g cattle
tso^{n}gide'^{n} horse
mō^{n}skūlo', moskulā'^{1} pig
hē'wo^{n} frog
tso^{n}k dog
yū'thayē'k black bear
bisōka' fish
babō'sko^{n} buck deer
kanulo'^{n} nixa nīxo'^{n} coon
pās cat
tcina'^{n}kehe male buck (sic)
wāyutka', wayā'su^{n}tka pigeon
hē'kaxu^{n}ska' yearling (deer)
no^{m}paye'^{n} cow
tsō^{n}gidā'ye^{n}k colt,
wākcapā', wa'ksākpa^{u}' bread
matcigo^{n}yo'^{n} salt
mīha^{n}sī'k fire
wadēwī' sugar
wahukmī' falseface (mask)
mo^{n}gitcī', wagitcī' dance
pehahē'[1] pepper

[1] Probably English.

mate'[1] knife
menī'kate'o^{n}, *menīgoto'*^{n} bottle, kettle, vessel (for water)
kcimbaī' pipe
kcimbaī' nonē' tobacco
ye^{n}*hē'* lacrosse stick
kagsagīnakō'^{n} bracelet
gisā' wooden spoon

Adjectives and Adverbs

ko'^{n}*ke*^{n}*k* grand
bi'wa nice, good; also "thank you"
tabatā' down (river)
ōtap'ai' up (river)

Verbs and Phrases

walu't to eat
dagiku' to tear into pieces
kē'ko^{n}*g* I will
ksapū'ne where is our bread?
kēko'^{n}*g e*^{n}*he'*^{n} *alewa'yo* in everything you are right
ma'^{n}*gelī'da* let us go home
kadit kilē'da he went home
wālu't maksapā' eat bread!, come to dinner!
walu't waksaksi' take some soup!
bilahe'^{n}*k* thank you
nonī'k wax'ē'n dahē'we all people go to bed

Song

Yohenigo ho enigo kneheⁿgo yani neheⁿgo nehe^{n}*gi kneheⁿg nu*^{n}*gik.*
Kneheⁿgo go yani kneheⁿgo neheⁿgo yahawe kneheⁿg yahawa nu^{n}*gik kneheⁿgo.*
Yenigo enigo kneheⁿg koya'ni enigo kneheⁿg yahawe kneheⁿg.

Siletz, Oregon
September, 1913

[1] *t* as in English "thin."

GRAMMAR AND GLOSSARY OF THE TULE LANGUAGE OF PANAMÁ

By J. DYNELEY PRINCE

THE present article is a study of the words and analogies in the extant Tule material, based on a collation from the following works: (1) J. D. Prince, "The San Blas Language of Panamá,"[1] indicated by P; (2) a word-list by De Puydt[2] (RG); (3) a manuscript word-list of the San Blas by the late Moravian Bishop Berckenhagen (B); (4) *Pequeño Catecismo Cristiano*, by P. de Llisa, in Cuna, edited by me;[3] (5) A. L. Pinart, *Vocabulario Castellano-Cuna*. As the greater part of the words and phrases herein treated are taken from the Catechism and Pinart, both of which sources use the Spanish orthography, this material is indicated by Pi. only when it is necessary to distinguish Pinart's work from the Catechism.

The differences between Cuna and San Blas are merely dialectic,[4] so that all the material is combined in one glossary, where the distinction between the dialects is indicated by the above abbreviations, or by C = Cuna; SB = San Blas.

Phonetics

The comparatively simple sound-system of the Tule with the natural variations as well as those resultant from the different orthographies of the sources, are shown as follows:

a = *a* in father(*a-a: ampa-ampa*).

b initial, as in Eng.; medial, as Sp. medial *b* (*b-g: tula-buena; tula-guena; b-m: ibia* (SB) = *imia* (C); *b-p* tenuis between vowels; *b(p)-v: ipa*(C)-*ivi* (SB); *ogoba-ogovuk; 'abogan-anagan-*.

c = *k* tenuis, especially between vowels (hence *c-g* passim;

[1] *American Anthropologist*, 1912, XIV, 109–126.

[2] *Journal of the Royal Geographical Society*, XXXVIII, 100–105.

[3] *American Anthropologist*, XV, 288–326.

[4] *American Anthropologist*, XIV, 111–113.

c-p: aptacuelo- actacuelo; c (C)-*t*(SB): *caca-gata; c* omitted: *obpisale-piscali.*

ch = Sp. *ch* in Darien-Cuna, grading through Polish *c- ś*, to pure *sh* and to plain *s* in SB: *ch-s*, passim: *chapal- sabala; ch-th: cho-tho; ch-z* (Eng.): *guichi* (C)- *wisi* (SB): *ch-ts* (*c*): *tchégua- itsegúa; chipúgua-tsipúgua.*

d = Eng. *d* and often as voiceless *t*.

e = Sp. *e*: *e-o: mete-gal* (C)-*modey* (SB).

g = hard *g* representing *c*(*k*) between vowels: *guaca* (C); *waga* (SB).

gu = hard *g* before *e* and *i*; = *gw* before *a*.

gŭ = *gw* and sometimes *hw*(*w*): *gu-k: pogăe - pohwey; guaca - waga; tiguie-tiwia* (SB).

h = simple breathing, occurring more in SB than in C: *kabe*-(SB)-*ape* (C); *kemi* (SB)-*imi-s* (C); *kai* (SB)-*ai* (C). Pi. and the Catechism, knowing no *w*, represented *w* by *hu: nuhueti- newedi* (P).

i = Sp. *i*, long and short.

j = Sp. guttural *j*, except where indicated as Eng. *j*.

k = hard *c* tenuis

l = thick, as Polish *ł*; frequently omitted in writing; interchanges with *r: cai-cal; cunai-cunali; chapul- chapur; canel-caner.*

m = Eng. *m*: *m-b* (see *b*); *m-n: amtar-antar.*

n = Eng. *n*: *n-r: chenetu; cherete.*

o = Sp. *o*: *o-e* (see *e*).

p = *p* tenuis, written often *b* between vowels (see *b*): *p-c* (see *c*).

qu = *kw* before *a* and *k* before *e* and *i* unless written *qŭ-*.

r = Eng. *r* (not trilled): *r-l* (see *l*); *r-n* (see *n*); omitted in writing: *cockéno- curguina.*

s = hard *s*; frequently *ch*, q. v.

sh = Eng. *sh* = *ch*, q. v.

t = *t* tenuis: *t-d* (see *d*).

ts = Polish *c* (see *ch*).

u = Eng. long *oo* and, short, = *a*, q. v.: *u-o: neu-neva.*

v really not existent = medial *b: ogoba-ogoeah; neu-neva;* also *p* tenuis: *ipa-eri.*

w = Eng. *w* (see *gu; h*)

z = Eng. *z* (see *ch*)

The general tone of the language is low and monotonous, not unlike the eastern Algonquian idioms. It is, therefore, often difficult to establish the vowels exactly; note *bul-pel*. *Ablaut* seems to appear in some verb-forms (see Verb) and also in *tampe-temperipa*. Final nasals occur in some dialects, as Berckenhagen heard *-ang* in *galang-calá; ibiang-ibia*. I distinctly heard *-n* in SB *sunnáke-chumáque* (C); note *nunnáque-numáque*. The sibilant, even in SB, is peculiarly uncertain. Thus, I heard Ina Makchia say *šuli* and *suli* for 'not' = *chuli* (C). The *c*(*k*) tenuis is an especially light palatal touch, as will be seen from the above permutations. There is an occasional glottal catch in SB, as *i'ti*, but also pronounced *iti*.

The stress changes as irregularly as in Russian, so that the accentuation indicated in the Glossary is not invariable, especially when suffixes are appended.

Word Formation

The Tule is in many respects an isolating language and can certainly not be classified under the head of polysynthetic idioms.[1] In fact, in its word-formation and sentence structure, it reminds one of Malay and its kindred dialects, rather than of a North American language. Nouns, adjectives, and verbs are made up of well-defined roots, few elements of which disappear in combination. The long sentence word of the Algonquian or Iroquois, for example, is quite strange to this tongue, as will be seen by comparing the verb with the pronoun in Tule with the same phenomenon in any North American language. The formation of word roots is effected by means of a number of endings which seem to be purely formative, i. e., they define but do not alter the grammatical status of the chief stem. Such are, for example: *-a*, common in verbs: *arpa-gal* they work; also in nouns: *napria-gua* truth = it is right; *-al: chap-al (chap-in)* belly; *-cale-ti: narma-cale-ti* command; *nusa-cale-ti* blessing; *cua = gua: chicua-cua* quail = it is a bird; *-e (-a): cho-e; mecho-e; mimi-e* 'say; kill; give a little' respectively; *-gua; -gue* = predicate passim; *-gui (-ki) = gua: ti-gui-e* rain; *nac-guine-ki* example; *-l: paca-l(-mal)* Trinity; *tegui-l* wish; *-lub: gui-lub* be; *is-lub* sad = what is low *(is)*; *n (-r): chap-in* belly *(chap-al)*; *-o: arpago* work *(arp-a-)*; *-pa* demonstrative: *me-pa* heaven; *ne-pa* field; *nig-pa* heaven (cf. Pronouns and *-ba*); *qui(a) = gui; -r nuhue-r; (-n); -s:* a frequent formative element: *chu-s* child; *imi-s* now; *hoipo-s* day; *ito-sa* hear; *napo-s* render; *ni-s-koa (= gua)* child; *oguigu-s* die; *penu-s(a)* pay: *purcui-s* die; *taque-s(a)* see; *ui-s* desire. All these are probably fragments of earlier elements of demonstrative force, as are the following formative prefixes used in the same manner: *a-: a-pin; an-: an-cal; e-: e-cur; e-pin-ch; p-: p-uquet* pay; from *ugue-t* give; *t-: t-ânigui* come. We should note here the endings *-bie* wish; *-bu* love, and the prefix *o-* which seems to have the grammatical force of turning a stem into an active verb (see Verb).

[1] Prince in *American Anthropologist*, XIV, 115–116.

A few words are formed by means of onomatopoetic stems, such as *corcor-maque* to boil; *nuú* dove. Reduplication also plays its part, as: *acala-cala; gual-gual; imis-imis; ne-ne; ni-ní; no-no; nu-nu; ololó-gua; pali-pali; pane-pane.* Many words are compounds; such as *cali-toguet* struggle = lit. the (*-i*) going (*togue*) to seize (*cal-i*); *cal-mali* walk = management of the foot; *prestan-chae* lend = Sp. *prestar* + *chae* make. See especially s.v. *chiet; gual; cal-maque; maque;* and *ti* for this sort of combination. A single root sometimes presents many compounds; as *es-* metal, from which *esnou; es-tin; es-tobol, eswalah* = *es -gua-la*, all denoting metal objects. See also s.v. *ta-* 'see,' with its various derivatives. As indicated above, there are no traces of pure polysynthesis or the melting together of elements, except possibly in the case of the root *-se* bless (*guilu-se*). In noun compounds, the final formative vowel may be omitted, as *mol(a)-maque-co* (= *ico*) = needle = cloth-catch(ing) thorn; *lis(a)-chiagua* chocolate = broth of cacao. We have a treble verbal combination in *picua be-penus-at-uquet-p-uquet* how much do you pay = how much you (*be-*) pay (*penus-*) it (*-at-*) giving (*-uquet*) payment = *p-* (demonstr.) + *uquet* 'give.'

Abstracts seem to be formed by means of *-guin(e)*, q.v. and see *choque-r; gui-lub; nuca-; pin-che-.*

Morphology

The suffix *-te* (*-ta; -ti*) is frequently used as a definite article, usually with verbs; *choque-te* the saying. This is the same element as the demonstrative prefix *te-* (see Pronouns).

There is no grammatical gender; thus, the pron. *iti* = he, she, it.

Nouns form their plural by *-cana: ome-cana* women; *-cona: negsea-cona* lakes; *-gan(a)*: *machere-gan* (all clearly variant spellings of the same element; probably = many); *-mala: ulu-mala* canoes (*mal* = thing; cf. *i-mal* something). The plural may be omitted if it is evident, as when the verb has the plural ending *-gal*. Nominal inflection is effected by postpositions (see Prepositions), but the genitive relation is often expressed by nominative apposition with or without the demonstrative particle *e-*, as *Dios tula e nuchu* the living (*tula*) God that one (*e-*) son = the son of the living God;

patir-mal pel ab-choco the priests' every saying = all that the priests say. The emphatic genitive is expressed by *-gati* (see Prepositions).

Adjectives follow the nouns they qualify and are not inflected, as *Dios nuhue-ti* the (*-ti*) good God, but predicate: *Dios ati nuhue-ti* God he (is) the good (one). For the comparison of adjectives, see *amal; piti-bul.*

The personal pronouns are as follows:

an I.
pe (*be*) thou.
adi; ati; iti (SB) he; she; it; *ome* 'woman' is used when the emphatic feminine must be expressed.[1]
nen we; clearly a reduplication of the 1st p. element (*a*)*n*.
nan we, in a relative clause = that which we-; for us, etc.
an-mala we (SB; pl. of *an-*)
am-pogua we two; *am-pog-pela* we two all (emphatic dual).
pe-mal (*a*) you.
pe-pogua you two.
pe-pog-pela you two all (emphatic dual).
e-mal = *at-mala* they.
iti-mala they (SB).
pela-kwo-p; pela-kwo-ppa = they; *pela* all + *kwo* = *gua* + demonstr. *p*(*b*).

These personal pronouns are used as possessives standing in nominative apposition, like any other noun, before the noun possessed: *an-neca* my house; *pe-neca* thy house, etc.[2] Mine, thine, etc. = *an-gali; pe-gali*, etc. (See Prepositions.)

The reflexive pronoun is *guacal* self, q.v.

The interrogative pronouns are as follows: *penki; penqui* who? *tegua* who; *piti* what; which; *ibi; igui* what; both making pl. in *-mala*.

The demonstrative pronouns are: *abi; adi; ati; iti* this; *te* that; this (see Article). The element *ne*(*na*) is also used as a definite object with verbs, as *cayá e-cur-ne* cane grind it (cf. *ni-*).

The indefinite pronouns are *i-guen* anyone = indef. *i* + *guen* (*cuen*) one. *I-guen* is also used for 'something,' which however is usually *i-mal;* pl. *ibi-mala; tegua* someone (used also for interr. who = def. *te* + pred. *-gua;* pl. *tegua-mal*(*a*)). The indef. one (Fr. *on*) is expressed by *tule* person: *tule cha-ja-te* what one has done.

The relative relation is expressed by the verbal element + def. *te: chuma-ja-te* that which was spoken (*chuma* speak; *-ja* past; *te*);

[1] *American Anthropologist*, XIV, 115.
[2] *Ibid.*, 115–116.

pel istar tule cha-ja-te all evil which one has done (*cha-ja-te*). Relation may also be expressed by *ibi* or *penki: an-guichi ibi cuno* I know what he is eating; *an-takse penki iti* I see who he (is).

The Verb

The full incorporation of the pronoun with the verb I have already given,[1] stating that at that time I had no knowledge of tense formation. The Catechism has supplied this deficiency to a great extent, showing that the tenses are rather simple. The past is usually left unexpressed, as in North American languages, unless it is absolutely necessary, in which case *-ja* 'from' is used: *epe-ja* stayed; *sarso-ja* killed; *tegua pin-cha-ja-te* who invented (it), etc. These past forms may be used unchanged with any pronoun. Pinart[2] hints that vowel change is employed for the past, as *ne-gua* I have done, from *nao* go, but cf. *ne* 'go' = present tense! I find *nae; nao;* reduplicated *nane; nini* = continued going (cf. *nane-di* travel) and the definite *na-te* all in the sense 'go.' It is probable that *na-te* means 'the one who goes,' and is a more emphatic form than simple *nae; nao.* The continuous present and occasionally the future (I am going to) are expressed by *queb*, q.v.: *queb nanao* he is traveling; *queb noáli* it is going up. The pure future is indicated by *che-: an-che-palmie-mala* I will do them. This *che-* also means 'must.' Note that *-mala* in the last example is the objective plural.[3] The suffix *-tani* (*-dani*) = *tánique* 'come' is frequently used for the future: *agláre dánique* (it) is going to fall; *purque dánique* (he) is going to die.

Verbs make their plural in all tenses by *-gal* and *-mal*, the active verb usually taking *-gal: ecae-gal* (they) open it; *cope* to drink, but *o-cope-gal* (they) give to drink; *tale* see, but *o-tale-gal* they show. Note *cune* eat, but *o-cune-mal* they feed, here with *-mal*.

'Must' is expressed by *che-* and *ocua-ne* promise, q.v.

The verb with suffix is used for the infinitive of purpose, as *ocua nane-gal* they promise they go = promise go-go they.

The participle is expressed by *-t; -te* and rarely by *-l* (*cael; chiet; e-pincha-el; guiluhu-*), but even this form, which is only the verb +

[1] *American Anthropologist*, XIV, 114–115.

[2] Op. cit., 5–6.

[3] *American Anthropologist*, XIV, 114.

the definite, may be used indiscriminately, as *chactiet* shut; imperative. Note the plural participle *istar a-pincha-mal* those who think evil.

The passive is formed in two ways; i. e., by the pronoun + preposition followed by the plural verb: *Dios nan-ga chabu-bu-gal* God (is he who) must be loved by us = God is he who by us (*nan-ga*) they (*-gal*) like (*-bu*) to love (*chabu*); and secondly, by inserting the stem between *o-* and *-diba: o-tule-diba* he was created (made alive).

The verb to be = exist appears under *chi; chinu; chu; eque; mai; te-di*, q.v., all which mean 'existence.' The predicate relation is expressed by the 3d p. pronoun: *Dios pap ati Dios* God the father he (is) God. To have = possess = *nica; paca*, the *-ca* undoubtedly being the possessive element seen in the genitive preposition *-gati*.[1]

The prepositions (postpositions) are difficult to understand, as, with but few exceptions, they show a great variety of meanings, fully illustrated in the Glossary. Whenever the verb permits; i. e., carries an inherent prepositional meaning, the preposition is omitted. This is especially the case with *nae; nao; nane; na-te* to go, which requires no preposition. See in the Glossary the following entries:

bal(i) at; for; with; respecting; during; from; on (a day); *chalbal; cholbal* behind; *-chuli* without (= not having); *-ga* dat. to; for; with: *cuena-ga* for eating; *istar-ga* for evil; *-gati* of or belonging to; *-ja; -je* as; for; from (also = past tense); *-tar* for; on; over; note *is-tar* bad; evil; lit. 'for low; as low.' Two prepositions may be used together: *tule-ga-bal* with respect to the people.

Adverbs

ee yes (nasal *e*).
eto yes.
chuli no; not.
iti-bali here; in this.
te-bali there; in there.
jabal ahead; forward.
chana-je when.
inacua when.
inggo when.
picua how many.

Conjunctions

amal-ba because.
yancal-ba because.
moga and (postpositive).

[1] On the numerals, which, like adjectives, follow the noun, see, for full discussion, *American Anthropologist*, XIV, 116–118, and Glossary, s. v. *-impa-*.

Syntax

Negation is expressed by the suffix *chuli* not: *gui-chuli* he knows not. The prohibitive negative is *mele*, q.v. passim. A privative element seems to exist in *-na: ti-na* dry (*ti* water + *na* not).

Conditional phrases are expressed by the hanging clause, as *nue nan-ga a-laque-li nen-abogan* (if) good for us, it awakens our body.

Interrogative phrases often end in *choque-gua* saying it is.

The sentence construction will be best understood by a study of the Catechism.[1]

Reference should be made to the resemblance between the Tule and the Chibcha of Colombia.[2] There are likewise apparently fugitive analogies between Tule and the Miskuto, as perhaps:

Tule		Miskuto
an	I	*yang*
ati; iti	he; she; it	*witin*
nen	we	*nani;* pl. of any pronoun
pa demonstrative		*ba* suffixed article = the

The element *-ka* in Miskuto *lika; mika; sika* '(it) is' may correspond to the possessive Tule *-ca* in *pa-ca; ni-ca; -gati.* Tule *chichi* 'dark' may = Miskuto *siksa* 'black.' Finally, the Miskuto infinitive *-aia* may = the frequent Tule *-e* (see above, Word Formation). What the connection was between these Central American idioms must be left for future investigators, as the existing material is too scanty to permit any conclusion at present.

Several errors in the two former papers[3] have been corrected in the present treatise, as the grammatical peculiarities have become clearer to me. I sincerely hope that this series of three papers on the Tule, although unavoidably imperfect here and there, owing to the phonetically uncertain nature of much of the material, may prove useful to future students of this little-known idiom. I strongly urge the necessity of field work among this people before they become contaminated by alien influences. The Tule possess a quantity of folk-lore, songs, etc., which certainly should be

[1] *American Anthropologist,* XV, 288–236.

[2] Ibid., XIV, 118–119.

[3] Ibid., XIV, 109–126, and XV, 289–326.

recovered and which would undoubtedly throw additional light on the vocabulary and structure of their language.

Cuna-English Vocabulary

A

a-; formative element as in *a-pin(ch)-*

a chuli used in comparison: *iti mastol nuhueti adi mastol nuhueti a chuli* that man is good (but) that man is better; *a* is also poss. and rel.; see *choquet* and note the following: *a nuchu* his son; *a nuet* as good (*apintaque-malo*); *a pap choquets* what the priest commands

ab- (*ap-*) formative pref.: *ab-cho: pe nen-ga a. chuli* you to us do not speak (*aptacuelo-; choco; choque-te*); *ab-choco: patir-mal pel ab-choco* to priest all tell = confession; *patir abchoco* = *Confiteor; ibi istar ab-choqué-gal* something evil (you) confess (*choco*)

abe; error in P: *pi abe nega* = *pia pe neca* where is your house

abeyoh love (P; *chabuet*)

abi pron. of 3d p.: *a. calo mai* it is lean; *abi* is also demonstrative and = other, pl. *emal-bi* (*emal-bi-mal*)

abogán body; womb; health: *pe-a.-di pulégua* how is your health (*avacá; azagá*); *a.-ulbal* girdle = under the belly

ab-sogue-te chao indeed = he says (*ab-choque-te*) to do it (*chao*)

a-bulenena chuli without end = he is more than there is not; i. e., there is not anyone more than he (*bul*)

acaé-gal open: *imie a.* o. the eyes (*ecaé*)

acald-calá bad; evil: *a. chiqui-mal queb an-cuno* bad birds I am eating *a.-te chumaque* speak dishonestly; *a. Dios-emal* evil of the Saints; *a. imal chet* evil things to do = sin. See *cal* hold. *Acalá-cálo* probably = held back = secret

acal-ba hide: *tatá e gual-cal a.* eclipse of the sun = sun himself hides (*calba*)

acalyogue cap: *e mola a.* his cap.

acán; acanú axe

acár then; *imis a.* now then; indeed (*nónico*)

acpenegu-ja repentance (*nacpígu*) with repentance

acpúi melted

actacuelo hope: *uni a.* how (will you) hope (*aptacuelo; tacuelo*). *Ac-* here is probably for the demonstr. pref. *ap- ab-*

actiqueti loaded: *an hulu a.* my canoe is loaded (*tiqué* = buried, i. e. in the water). *ac-* for *ap-* = *ab-*

-acua; see *-agua; -cua, -gua*

acua stone: *ti itiqui-ga a. codi-codi* river with stony banks; *a. chipúgua* crystal white stone; *a. mulú* rock; *a. neca* city = stone house(s); *a. napri-talégue* pretty stone; *chalú a.* pearl = mollusk stone; *mand a.* thunder-stone (bolt)

acuanet descend: *tata a. punua* west wind = sunset wind (*arcuan-*)

acu-nica-te scanty; few; little

acús false: *a. pe-chumaque* falsely you swear

achá honey (*achúcua*)

achigua mild: *ina a.* mild wine = wine *per se* (*ochigua*)

achó animal; dog (*achú*); *a.-sa populiti* animal

a-choquet (*choquet*)

achú dog; animal (B): *achú parpáti* tiger (*atchuó*)

achúcua macáleti sugar = Sp. *azucar* + *macáleti* (see *achú*)
achu-el fish-hook (see *el*)
achú gualguéna single wildcat
achú pan wildcat in a herd (?)
achú parpáti tiger
achú quinéti lion
achúe nose; onomatopoetic? See *kachú*
adi that one (*ati*). See *at-mala*
ádi-te that one (*ati*)
-agáti (see *-gati*)
agláre fall: *pe-neca a. dániqui* your house is going to fall
-agua formative element seen in *pun-agua; napri-agua; nic-agua.* (See *-acua; eqüe; gua*)
aguayacan sort of religious dance
aguicherso in danger
aguircher take away
ai Icuacunapaleti máitun shuna-te friend, carry this ripe banana to I. (*hai*)
akwa rock (B)
ála egg
alcal judge = Sp. *alcalde*
aléji laugh; laughter
alepitár laugh
alley laugh (P)
alpán move the hammock (*pan*)
alúcua testicles (*ológüa* round)
alulua green
amá aunt
amal other: *pe a. choco-te moga* and do thou otherwise speak = forgive (*amel*); *e-meial-mala-te amal moga* to the relations and others = Holy Apostles; *iti mastol nuhueti amal emalbi-mal* this man is better *than* the others (*emalbimal*); *puna amal-gati* wife of another; *amal e Pacal-mal* (to) the other Trinity; *pe-y-amal-ba* because thou-; *amal-cuen* anyone = other one
am-ba maskuche we eat (B)
ambégi ten (B; P)
ambégui ten; *e a.* the tenth
ambégui cacá cuénchigüe eleven
ambégui cacá paguégüa thirteen
ambégui cacá pocua twelve
amel: aturtegal imala amel-gati they steal things from others (*amal; mele*)
amiét see; look for: *mas cuné amiét-imal* to go seek something to eat; *yer pili amiét* much (his) foe he seeks = one addicted to arms
amim sealing-wax
aminé hunt: *imal aminé* seek something; *capal ib aminé* beat a wood in pursuit of game = hunt
ampá lively; quick: *ical-bal a. nanédi* follow the road = road lively go; *ampá tulá* living; lively (see just below). *Ampá* = *umpá* ahead; forward
ampá-güa be born (see just above)
ampá-güi bring forth child (see just above)
am-pogüa we (P) = I (we) two
amtár flexible (*antar*); idler; loiterer
an- I; me (*ani*). See *-n-*
an-cál hand; *a. elíét* hand-cleaner = towel (*chincal; chuncal*); *a. ucse* hand giving = marriage (*cal*). *An-cal;* lit. hold with it (cal)
an-gá to me: *patír pela a. choco* the priest tells all to me; *pe a.* thou to me; *a. chumaque* answer to me: *Dios an-ga imal choco chao* God to me something says to do
angumbal: ti a. ravine with water (*ti*)
angun unmalo whatever there is (?)
an-gati my; *Dios a.* my God; *iti ti napi neca-te an-gati* the house at the end of the river is mine (*-gati*)
an-güro I exude: *sagar a. mája-te* I am sweating through and through
ani I; me (P). See *an-*
áni = iguana

ániqui come (*tánigue*); *inacu-aniqui* when did you come.
an-mala we (P)
antár lazy; idle (*amtár*)
anu I; me (RG)
ap- = *ab-*
apalá half: *pirca a.* half of the year
apé blood (*habe*)
apé tupú vein = blood tube
apin receive: *nen a., pocuagua* we receive absolution; *apin-apin Niya colo* receiving evil (= Devil) say = blaspheme (*apiní; pina-pina*)
apinchát receive (see *e-pinch-; pinch-*): *ibi pi-a.* what have you received; *istar apin-cha-mal* those who receive evil; *bul-nepri-apincha-mal* those who receive (think) more evil (*bul*)
apin-chao receive: *chanaje apin-chao* when must one receive it (*apiro*). See *pin-; apinagua*
apinchu- receive: *unicar nen apinchu-malo* how must we receive it; *tegua nen apinchuo* whom do we receive
apinguegal receive: *matu olagua apinguegal* receive the Sacrament
apinguer hold: *ulu chiete a.* anchor = ship make hold
apinguile-te: imiá apinguile-te eyebrows = that which holds the eye; *matu olõgua apinguile-ti* receiving the Sacrament; *maz apingulet* food receiving = vigor
apiní meet: *icar-bali amal-cuen be-apiní* did you meet someone on the road (*apin*)
apino: Dios a. ib cuenaga Communion = God's receiving for food
apin-tacuĩlo hope (*tac*)
apintague-t hope; *apintague-malo a nuet* that we should hope in him as good
apintaqũelo hope
apir-mala neighbors; probably incorrect = *epir*, q. v.
apiro: unigua-te a.-chumala how must one receive it (*apinchu*)
aptaco: pe- a. look out! (*tacuelo*)
aptacuĩlo expect (*tac*). See *actacuelo*
a-puna (*puna*)
a-púr: ti a. mist (*pur*)
a-purco ulguine by means of his death (*purco*)
aqũet arrow; hook; vomiting = hooking up: *a. epuĩ* he holds an arrow = hook: *ibi aquete* square = hook-shaped; *nen at-aqueti* he saves (hooks) us; *pe carque aqueta* you sell (hook) dear
aquiné extinguish
araragwadi green (B)
arati blue (B) (*arrati*)
arcuan- descend; go down (*acuanet*)
arcuanáli: tar-núer a. sunset = sun goes down
arcuáne-te: tatá a. it begins to get dark = go down (*tatá* = sun; west
arcuáno: mele-gue nen a. Niya not that we go down to the Devil
aregána hand (B)
argána finger (B)
ar-guin: cabaí a. chiet saddle = horse on back it holds
aró rice = Sp. *arroz* (RG)
arpá work: *tule a. chuli* one does not work; *a. nemala* we go to work
arpago: mele-gue arpago so as not to work
arpagũet work: *iti yer a.* he much works
arpa-gal they work
arpai work (P)
arpi go: *acar niya-neca a.* then to Hell he went; *an-a.* I went
arquia source of a river (*pes*)
arrâti blue
arsána stair-case; ladder
axobando give: *mánia an-gati pe-a.-teque* the silver do you give me (RG)
azió day before yesterday

asué = *Avocado* pear (B); Sp. *aguacate*
aswala nose (B)
asuè (*asué*)
atá see: *ipe-mazar pe-hurpa a. chuli* it is a long time since I saw your brother. Note the following:
at ab see: *que* a. he is blind (sees not)
atac see: *tule que a.* people (cannot) see him (*ataquet; atan-; tagsah; taikse; takse; taquet; taunemala*): *uni-la atác* (I) met him = saw him
atáco hope: *Dios e an-a,* I hope in God. See *atac*
atále five; *e a.* the fifth
atan-; chapi cholbal epéja mele atan-malo he stayed hidden behind the trees = trees behind he stays, so not they see him (*atac*)
ataquel- awaken: *sue nan-ga ataqueli nen abogán ulúcus epe-malo* if good for us, it awakens in the body a rest-condition = health (*atac*)
atáquet awaken (*atác*)
atarquichi jealous: *a-puna* a. jealous of a woman
atchúo dog (P) = *achú*
atchúo patparti tiger (P)
atequèti blanket; cloak; sheet (= *atig-* cover)
ati he; that one (P) = *adi*
atigdi clouds; cloudy = cover (*atáquet*)
atigul cover: *ngud* a. deaf = ear-cover (el). See *atequèti; atúgal*
at-mala they (P). Pl. of *adi*
attusai steal (P) (*atursa-*)
atúgal cover (*atig-*)
atúquet cloak = cover: *guilúl tulè Dios* a. he lives (because) God cares for (covers) him (*atig-*). See *uquet*
atursa- steal: *pundal-mal pe-a.* women you steal (*attusai*)
atursdet thief
atursae: mele-gue ibi-na-al (= *mal*) *a.* do not steal not anything
atursegal they plunder
avacá-nuédi healthy (P) = body good (*abogán*)
avagá feel (*abogán*)
av'gana feel: *igi pe-a.* how do you f. (P)
avagán-ecktoga feel (P). See *ecktoge* = belly-feel
ayá friend; friendship (*ai; hai*); *a. chuli* enemy = not a friend
ayá-licha: lit. friend-broth = *guarapo,* drink brewed from fermented sugar cane
ayá tupuni friends' greeting (mutual salutation)
ayopi let it be thus (*teyopi; -yo-*)

B

b; cf. *p*
-ba: acal-ba; prob. = *pa-*
-bal, prep. particle: *pe-bal chinu-guine* with thee he is; *hulu chalbal caèt* behind the ship it holds = rudder (*chol-bal*); *imal istar-ga an-bal-chao chuli* with something evil I with it do not = I resolve to sin no more; *an-bal chao chuli-ne* I will not do it again = as for me-; *te-bal* from there; *ipa pagua-ti-bal* on the third day; *Patir epirquinet tule-ga-bal nusaet* the Bishop with respect to the people he names (them) = confirms them (accus.); *icar-bal* on the road
bali longer form of *-bal: pirca-impa-bali* year-once-for = once a year; *untar impa-gam-bali* many times (*gam-bali*); *mai-bali* it is = being-for; *e-pincha-chul-bali-te* thought-not-for-the = without thinking; *yti-bali* in this = here
barra = Sp. *vara:* eighty centimeters (RG)
be thou (*pe*)
Beber God (P); father (P)
be-ga to thee *pe-ga* (*choco*)

bel all: *mele-gue b. istar chao* not everything evil do (*bul; pel*)
bendaki help (P)
-bie wish; desire: *an-mas-cum-bie* I wish to eat (*cun-*); *nuá-bic* suck = he wants milk; *pe-ulúcus-bie* you wish to rest (*buet; chabu*)
bio-ja beat; thrash: *pe-pundol pe-b.* your wife you beat (*pibione*)
brea pitch; tar
bu love; cf. *-bie; chabu-; ibu*
budoquizak die (P)
-buet love: *ome-mal nueti-buet* woman-good-love = matrimony (*-bie; chabu*)
bul all; more (in comparison) = *bel; pel* all: *b. nuhueti* more good (*a-bul-enena; piti-bul*); *b. napri-chu-gal* more good get = choose; *b.-nepri-a-pincha-mal* good people = those who think more good; *bul-napri-chague be-chuo* do you choose what you like

C

ca leaf; pepper: *c. ochigua* mild pepper (*achígua*); *c. olágua* round pepper = *pimientos* (*cagla; queca*)
cabai horse = Sp. *caballo*: *c. ar-guin chiet* saddle = horse-on hold(er)
cac language (*cacá; gata; kaká*)
cacá and (in numerals)
cacá mouth; *c.-guin* in the mouth; *c. iabal* when we eat it = in the mouth (*kakuraka*)
cacá ulba lip = under the mouth; must mean lower-lip
cacá-bal border; bottom; margin: *ti c.* bank of river; *c. que ti ne-ne-gal* it will not be possible to ford the river = on bottom not of river you go; *telmal c.* mouth of the sea = bay
cacan lie: *be-c. chaja-te* you made (told) a lie (*cachunsai*)
cacana lie (n)
cacana cheat (v)
cacanche lie (n): *c. chumaque* tell a lie
cacanchi lie (RG; n)
cacarmatár heron
cachal well: *c. an-cuiscujo-te* I rise well; *hoipoja c. chuna-te* to-day I am very well (*chuna*)
cachi hammock: *nen-c.-mal nachi-malo* we shall hang in hammocks (*catchi; kochi*)
cackunsai lie (*cacan; cacana; cacanche*)
caé take; put on (RG): *caé-gal* seize; grasp; *mola pini caé* put on new clothes (RG); *múrrucua urtalegua caé emigue* wash this porringer = dish take wash (RG). See *cahey; cai*
caet hold: *hugua c.* fish holder = net; *hulu chalbal c.* rudder = boat behind it holds; *guinqui c.* he holds a gun
cagla roof; shingle: *pe-neca e-cagla-mal pe ocuane pinune* your house its roof you promise to renew (it). See *ca; nigpa*
caglia leaf (see just above)
cahey hold (P; *caé*)
cai sickness = holding: *ua c. pe-nica* sickness you have
cal hold: *an-cal eliet* towel = hand-cleaner (*chincal; chuncal*); *an-cal uc-se mastol puma moga* hand-holding (of) man and woman = matrimony; *tule-cal* prison = people hold; *tuis-cal* udder; teat = milk (?) hold
calá bone: *tugual e c.* marrow = leg of bone; *abi c. mai* it is lean (*galang; yan-calá*)
calá-gua lean
calba: Dios nan c. chumáque blasphemy = what we (*nan*) secret (*calba*) say (*chumáque*) of God (see *acalacalo; acal-ba*)
calcatáque perhaps
calquibí everywhere; of any kind at all (*calquibá*)
calin hen; poultry (RG. *canir*); *pe*

calin opo cune do you feed maize to the poultry; *calin pe-caé* do you catch a hen (RG)
calitoguet struggle
calitoja fought (*echa*)
calmdli walk; *te-bali pe-c.* did you walk there = holding foot (*mali*)
calmaque: nen nuhueti c. we wish well = say; cry; shout well (*colmáque*)
calnamchi music (P)
calquibi everywhere; of any kind at all (*calguibi*)
calzóna trousers (*carson*) = Sp. *calzon*. See *karzóna*
camé oar; paddle; *camé pe-hue-taque* of the paddles do you take care (RG)
camiya paddle (P)
camú collar; neck (*kamwala*)
can bench; *neca-guin c. chuli* there is no seat in the house
-cana: pl. ending *ome-cana* women (*guna*)
cána seat; chair (RG); *cana-guin be-chicue* on the chair you sit; *chiagua-cana* cacao trees (RG); see *gual-cana*
cananonója follow tracks
canarapoh strong (P) = *can* in *cantiqui*
canél candle; *c. ocaé-te* the lighted c.
caner-ukui light (P) = *canél-ukui* (*uque*) light it gives
canír hen; chicken; *c. cheni* chicken = little hen; *c. machi* cock; *c. puna* hen (*calin; kanira*)
canti strong (*canarapoh*)
canti-colmáque cry; clamor (RG) = strong shout
cántiqui: nua cántiqui; RG gives 'good seaman,' but = good; strong; *c. be-palmaque cuyégue omó-gal* thoroughly do you clean yourself (?) so as to arrive early; *mas c.* strong = something strong (*cuantiquit*)
canti-quili the Mighty One (God) = strong; eternal
capal: c. ió amine hunt for something in the *capal*(?)
cape room; *c. neca* room of a house (RG)
capégüa large; *estin c.* large knife (RG)
capi coffee; *c. uyégüa* sugarless coffee (*cappi*)
capié dream; sleep (*carbey*); not to be confused with *copé* drink
capó stay; *nen c.* we shall stay (see *chubil*)
cappi biting; piquant (*capi*)
captána captain
carbey sleep (*capié*)
cargual stick; rod; *ne-c.* the stick
carpá hamper; basket
carque dear (price); *pe c. aqueta* you sell dear = *c. an-bega penuco* dearly (well) I will pay you
carson breeches (*calzóna*)
cartá paper; writing; cook = Sp. *carta* letter; paper; *c. namarcáleti* book; *c. namarcáleti palmie* commandment = paper writing make; *c. nármaqu:* letter-writer; *ani carta thogue* I command; order (see *karta*)
caspá punná hammock-rope
catchi hammock (P; *cachi; kochi*)
-cati of or belonging to: *ann-cati* mine; *pe-cati* thine; yours, etc. Same element as *nica-te* (*-gati*)
cayá sugar-cane; *c. ecurné* grind cane; *c. e curnéga* sugar-mill
cayángui reed-bank
cepi trap = Sp. *cepo*
-co = *-gu* (*purco*)
codl-codl: ti itiquiga acua c. a river with banks = the river here has stony shores. See *cohual*
cobey drink (P; *capié; carbey; copé*)
cockeno hat (P; *curquina; kuregina*)
cogüé deer; venison; stag (RG)
cohudl toe; *mali c.* foot-finger (*cohué*). Same as *codl* bank = point; peak

cohué finger: *c. tuculal* finger-nail (*coué*)

cojál get: *tampe c.* he has caught cold (*cujdle*)

col-dánique come with violence: *punua istar c.* storm = wind bad comes (*tániqui*); *nego istar c.* hurricane = bad storm comes, etc

col-máque bark (said of dog) = *col-maque: hachú c.* sneeze = call with nose

colo say; shout: *apin-apin Niya c.* blasphemy = receiving Devil speak

comó flute

comotóro flute-player

-cona pl. = *-gana* (*negsea-cona*)

copé drink (*carbey; kopye*): *moli nuú pe-c. huishi* can you drink milk (RG); *ti c.* thirst = water drink (*kobe*); *an-ga o-cope-gal* give me a drink

corcormaque boil: *ti corcormaquet* the water boils

córtiqui yellow (RG)

coué inyogue buckle; hopo; ring (*cohué* = finger around)

cowagai sick (P; *que-cujal*)

crus cross: *na-crus-guine* on the Cross (also *cruz*)

cu louse: perhaps = eater

-cu die (*-gu; oguigu*)

cu eat (*cune; cuno*): *chana cu* eat meat

-cua (*-gua*). See *chicûi-cua; imis-cua* (passim); *quincua*

cuadlo = *camote*, sweet potato (*cualú; kwalú*)

cuachir sandpiper (bird)

cualú butter; fat; oil: *c. pel guilusaja-te* holy oil = butter blessed; *c. maqui* bacon pork (*cuadlo*)

cuamacâle-ti: nabsa c. clay; mud

cuamáguet fat; strong: *abi c.* that one is fat.

cuantiquit pregnant (*cántiqui*)

cuar-mola trousers (RG) = *gual-mola* leg-clothes

cuayegue quick; ready: *c. tague-gal* come quickly (*cueya; cuyegue*)

cubi: quini-c. gunpowder

cúblegue seven: *e c.* the seventh (*cúplegue; kúg'le*)

cucuá bark of tree

cucúr fly

cuegui heart; life: *nen c. nuet chicue-gal* we observe purity of life = we life good must sit (dwell). See *cuequi*

cuen one; proper: *pe cuen mecha* you kill one; *pirca-guena* one year; *pirca-guinil cune* once a year; *cuená guilubu* he is one; *que cuena nan-ga epe-mala iltiguine* it is not proper (one) for us to stay here; *que cuena ulúcut-gúla* there is no time (not proper) for us to rest; *que cuena* never; *saco* [Sp.] *cuena pe-she* bag one you bring (RG); *cuéna-cuéna* each one in turn; *saco cuena* a bag = one bag

cuena-ga: ib c. food something to eat (*cune; cuno*)

cuenágúa alone; first; *cuenágúa-ti* (thou) alone; *ib cuenagua* communion = something one

cuena-ti the first

cuéncheye anyone; someone (see *cholbal*)

cuénchigúe one (*kwenchakwa*)

cuen-ito eating: *mas c. chuli nen-mal* we are without anything to eat (*cune; cuno*); *machi cuen nica chuli* one must not eat it = a man eat has not

cuénuco enjoy: *an-begui c.* I wish to enjoy (= eat)

cuepúr village

cuepúr chúne-ti city = many villages

cuepúr-mal people = villages

cuequi heart; life (*cuegui*): *nen c. otúrtacal* to instruct us in the faith = to teach our heart

cueya ne-mala we go to clean ourselves (RG) but = we go quickly (*cuayegue; cuyége*); or it is for *cuia* comb = to comb (ourselves)?
cugal (*guiscugal*)
cuia comb (*chipū*)
cuicán shoulder
cuicuja (see *cuisa*)
cuichi holy: *Dios c. guilubu* sacrament = God's holy essence
cuichi-chi holy may it be (*chi*)
cuié saliva; spittle
cuié mosquito
cuiegua spittle; spit
cuiel owl; unsociable fellow?
cuisa go up: *na cuisa-te* he ascended; *an cuis cuicuja-te* I got up
cuja save; safe; well: *que-cuja;* be sick; *guilubu c.* (I am) sick; *pe-q.* you are sick = not well (*cojal; cowagai; cujale; que-cus*). This probably = *-guja*, q. v.
cujále save: *nen-gu-abegan c.* save us (*chujal; guja*)
cumácal fire; great fire
cumaco throw
cumáque fire; candle; light; be burned
cum-bal inside; interior
cum-bie (*cune*)
cuna eat; feed (va). See *cune*
cunai bite (P)
cunali bite
cunú-lile bitten: *nagpe tulé c.* bitten by a snake = snake person bites
cune bite; chew; eat; feed (va): *an-mas-cumbie* I want to eat; *tule pe-mas cumbie* what have they given you to eat = people you something feed; *o-cune-mal* they feed them; *igui nen-cuno* what shall we eat; *icho mas cune* he eats much = much something he eats; *pe calin opa cune* do you feed maize to the fowls (RG); *ypi pe-c.* what have you eaten; *mas cune amiet imal* look for something to eat; *moli mache cune pe shuna-ti* give the cow a banana to eat = cow banana eat you give (*cuna; cuney; cuno; cuen-*)
cunét: iō c. benefit; fruit; something to eat = profit
cuney eat (P)
cuno eat: *mele-gue chana c.* so as not to eat meat; *an-c.* I eat
cunoet eating: *que-c.* disgust for good = not eating
cunú rubber
cúplegue seven (*cúblegue; kūg'le*)
curquina hat (*cockeno*): *quinqui c.* cap of gun
curuéga grind: *cayá e c.* sugar-mill = cane grind (*e-cur*)
-cus (*que-cus*)
cusúb thicket; jungle
cuyégue early; quickly (*cántiqui; cuayegue; omo-*)

CH (SH)

chadí ache: *an-chapal ch.* my belly aches (*chapal*)
chabi paunch; tripe
chabu love: *Dios e an-ch.* I love God; *nen pap nen nana-gati nue chabu* our father and mother belonging well love = to love our parents well; *Dios be-ch.-gal* do you love God; *Dios nan-ga chabu-bu-gal* God must be loved by us; *nue chabu-gal nen-mala-te* well love (him) we (must); *nueti nen-ch.-malo* well we love (him)
chabúet love (v and n). See just above
chácan feather
chactiet shut; confine; lock: *nec-gudnab ch.* shut (lock) the door; *nec. ch.* lock house = shutter
-chae: prestan-chae lend; *prest-* = Sp. *prestar* + *chae* = lend say
chae yesterday: *ch. múltiqui* last night (*sai*)

chae-ga: mele istar ib ch. not anything evil say = do (*chao*)

chaglá head (*sdcale; sdgale; sdgld*): *ch. cheni* governor (little head); *ch. chiet* pillow = head hold(er); *ch. choqui* green corn = Sp. *chocló; ch. numaque* headache; *ch. soquit* long haired; *ch. tutú* memory

chaglágua hair

chaglaun world: *ne-ch.* the world

chaglid bad (*uunu*)

chagud tupú = *majagua-* tree = *Hibiscus tiliaceus* (*chagua* = *chidgua?*)

chagual-mal moth

chaja do; complete (past): *istar imal pe-chaja* evil thing you do; *pel istar tule chaja-te* everything evil which man has done; *e-pinchet imal istar tule chaja-te* feeling something evil man having done; *pogüe imal istar an-ch.-te Dios nueti* cry of something evil I have done (against) our good God; *ibi istar an-ch.-te* something evil which I have done; *be-cacan-ch.-te* you have done a lie; *an peli purçua ch.-te* me all absolve (hast) made; *pel istar an-ch.* everything evil I have done (*choja*)

chal-hal behind: *hulu ch. caet* rudder = ship behind hold (*cholhal*)

chal cacá black-bill (bird)

chali carpenter-bird

chalú mollusk: *ch. acalacala* = sea snail (*bèche de mèr*); probably = hidden snail; *ch. acua* pearl; *ch. chipugua* oysters; *ch. matarra* shell-fish

chamet tániqui = *mejoso* (?)

chamu bactris palm; also = white ant (*sic*)

chamúcua tagua vegetable ivory

chana meat: *ch. tudleti* cooked meat; *ch. ndrsegal* roasted meat; *ch. cu chu choquégüa* meat eat you have = have you eaten meat; *chapür ch.* game = meat of the mountain; *mele-gue ch. cuno* not meat (to) eat; *e ch. chèle ipe-ndcar chdna chapó mai* the meat is not good = the meat is sour; a long time the meat is kept. See *sana; sanah*

chanaje when: *ch. tedi* when shall it be; *ch. apin-chao* when must one receive it (*sana*)

chao do; make: *nen-di-tego ch.* even as we do; *absogue-te ch.* indeed = saying to do; *imal istar-ga an-bal-chao chuli* something evil I indeed do no more = a resolution to sin no more; *patir-mal be-ga chao che-gal* priest to you (says) to do (you) must do = obey the priest; *penitencia snigua ch.-degua* a penance how does one do; *Dios an-ga imal choco chao* God to me something says to do; *patir imal nan-ga choque ch.* the priest something to us says to do; *tegua ch.* who does it; *igua chao* what does it mean; *papa-mal choque-te ch.* what parents say to do; *mele-gue bel istar chao* not everything evil to do

chapal belly: *an-ch. chaál* my belly aches (*chapin; sabala*)

chapála belly

chape-ti wood: *ulu shape-ti shique pe huishi* do you know how to build a canoe (RG) = canoe wood to cut you know (*chapi*)

chapi tree: *ch. ulbal* under the trees (*sape; sapi*)

chapi-ca tree leaf (*ca; sapecak*)

chapin-sale-ti: pundgua ch. girl before puberty = belly empty (*chapal; sabanya; saabi; sapingua*)

chápo keep: *ch. mai* it is kept (*chana*); *Duminguin itogue unicar nue chapogal* Sunday observing how well does one keep = how does one keep Sunday properly

chapul forest; wood (RG *chapur*)

chapur forest; mountain = wild land; *ch. matá* mountainous lake; *chapur-gua* over the mountain; *chapur chana* game = mountain meat; *ch. yalá* cleared ground; *chigli ch.* mountain turkey; *ib ch.* wild animals; *moli ch.* tapir; *yanu ch.* peccary

chapur-chit: be-ch. your cleared land

chaque say; *bul napri ch. be chuo* choose what you like = all good say (what) you wish (*choque*)

charquitup bramble; briar

chatéqui tupú royal bamboo

che by-form of *chao* do; bring: also future sign: *an-che be-tague-guine* I (we) will do in accordance with my perception (seeing); *nue be-che* well you do; *igua an-che palmie-mala* what must I do (*che* = shall; must); *an-che-palmie-mala* I will do them; *igui-gu(a) che palmie-mala* something (I) will do; *ibi be-che ichi* what are you doing; *pe-she* you bring (RG); *kudla pe-she* do you bring tobacco (RG); *saco cuena pe-she* bring one (a) bag (RG); *pe-mola she; puna mola emique* give your dirty linen to be washed (RG) = your linen bring; woman linen wash; *patir-mal be-ga chao che-gal* what priest says to you do must (*cheet; cheyet; chiet; chiyet; suey*)

chele hard; sour (*chana; chole*)

chénetu great; old: *hugua ch.* whale (*chenti; chérete; chuneti; serredi*)

cheni little: *saglá ch.* governor = little head; *puná ch.* younger sister; *cheni-mala* less; lesser things; *ni cheni* star = little moon

chenti great; old; *quil ch.* eternal one (*chénetu; chérete*)

chérete old (RG): *mola ch. chica* pull off your old clothes

cherret ancient: *pup ch.* ancient father

chet hold; do (*chiet*): *istar imal ch.* something evil do; *acalacala imal chet* something evil do; *unicar nuet chet* how (will you) act well

chetáque carry (*che* = *she*): *ega chogual ch.* smoke-pipe (?). See *saddge; sedey*

cheto evening: *sheto* (RG)

cheyet: guine cheyet urine bladder = urine holder (*chet; chiet*)

chi may be; is: *piaje chi mastol* where is he as man; *ibi chi* what is; *nitalal-te-guine Dios nan neca chi* in Heaven and in the Holy Sacrament (= what is in God's house) it is; element in *gui-chi* know; *cuichi chi* may it be hallowed; *te-balá tegua chi* there who dwells (*chu*); *ecaé-chi* open (*chinu*)

chidgua cacao (*chagua?*): *ch. guamóquet* cinnamon; *ch. cana ch. tdquesa* the cacao trees bear fruit

-chiat in *pir-chiat* (*chiet*)

chica pull of: *mola chérete ch.* pull off (your) old clothes (*chique; echuquete*)

chicuí bird (*chiqüi; siquey*)

chicuicua quail

chichi night: *neg-chichi* the night

chichigua black; negro (*sichigua*)

chichlti black; dark; negro: *guacá ch.* negro = black foreigner

chicue sit (RG): *yti balí ch. chule* do not sit here; *pe-ch.* do you sit down; *nen cuegui nuhuet chicue-gal* we must lead a good life = we must sit (with a) good heart (*chigüi*)

chiet hold: *cabai ar-guin ch.* saddle = horse on hold(er); *chaglá ch.* pillow = head hold(er); *cho ch.* fire place = fire-hold(er); *nucal ch.* gum = teeth hold(er); *(?uilule a-choquet ch.* Christ's sayings to keep; *ti ch.* water-jar = water hold(er); *ulu chiete apinguer* anchor = ship keep hold; *choquet chiet* keep a saying; *nigpa i-guilub ch.* rain-

bow = above what is (the thing above)

chigla judge

chigli turkey: *shigli* curassao-bird (RG); *ch. chapur* mountain turkey

chigli- cut: *chiglileja: tule-mal pi-ch.* people have you wounded (*chique; shique; sickey*)

chigual thorn (*ig-chigual*)

chigüi sit: *pe-ch. nitalal-neca* thou sittest in Heaven (*chicue*)

chija-te speak of; mention: *ie istae ch.* when one speaks of something evil

chiman week = Sp. *semana* (*chumán*): *iti ch.-guin* this week

chimanú navel

chiná dirty (*sina*)

chini machi water-cress (Sp. *berraco*)

chincal hand (*ancal; chumal; chuncal*): *ch. gual* arm = hand tree (*gual*)

chinu- be; is: *pe-bal ch.-guine* he is with you (*chi*)

chipát goat

chipú ivory = white (thing): *cuia ch.* ivory comb,

chipü-gua white (RG): *acua ch.* crystal = white stone; *chalú ch.* oysters (*zipowadi; sipileti; sipugo; tsipugua*)

chique (*chica; shique*) cut; open; break: *acán sh.* cut with axe (RG); *pe-na-te sho sh.* do you go and cut fire wood; *quinqui sh.* fire a gun; *ulu shope-ti sh. pe-huishi* do you know how to build a canoe = canoe wood cut you know (*chigli; sickey*)

chiqüi-mal birds (*chicui*)

chircua e mastol son-in-law; *ome ch.* niece

chirpu lale-ti swarm of bees ?

chirtiquit gray

chiscua daughter (father speaking)

chiskoa child (B; *chusgua*)

chis-: *tar na chis-mala-te* the one they place (on the Cross)

cho fire: *cho chiet* fire-place = holder; *cho mutáque* blow the fire; *cho-neca* kitchen = fire-house; *nabsa cho palmie* volcano = earth fire make; *nabsa cho ulu* railway = land fire-ship; *talmal cho ulu* steamer = sea fire-ship; *sho* fire (RG); *sho taque pe-she* fire see you fetch = fetch me fire (or light). See *chogun; choó*

choána wood = firewood (*chudra; suára*)

chobgal pots (*nabsa*)

chocal say: *patir be-ga ch.* the priest to you says them

choco say; tell: *ch. e nuchu-mal* to tell the children; *Dios an-ga imal choco chao* God to me something says to do; *am be-ga ch.* I to you tell; *patir pela ch. nue ilogo* what the priest all says well have = obey; *nuquega pel be-ga ch.* all greet you = greeting all to you say (*ab-choco; chogue*)

choe say; tell: *patir nan-ga nueti ab-choe* the priest to us good tells = forgives

choga-lile: pe nae ch. you will (are going to) tell (us); *arpa-gal ch.* they work as they advise

chógual smoke

chogual-cua = cocobol-tree used by cabinet makers

chogual quia smoke-pipe

choguaqua quiz nica-te olive tree = Sp. *manzanilla*! = *ch.* which has poison

chogue tell (*choco*): *pe-guilub-guine pe-ch. pe-pinche-guin* in accordance with thy being do thou tell me what thou thinkest (*choque*)

chogun coal (*cho*)

choja-te: Espiritu Santo ch. (by) Holy Ghost begotten (made: *chaja*)

cholbal backwards; behind: *ch. epeja* he remained behind; *chapi ch.* behind the tree(s); *ch. yancalá* on the back or shoulders

cholé hard; sour (*chele*)

chonŏ-te fat: *punagua ch.* girl after puberty = fat = pregnant
shonĭe-te fat (RG)
choŏ candle; fire (*cho; sho*)
choque say: *ibi nacpign ch.* what is sorrow say; *igui ch.* what does it mean; *patir imal nan-ga ch. chao* priest something to us says to do = penance; *patir be-ga ib choque-gal* Father, to thee something I will say = penitence; *pe mumurgus chu choque-gūa* you drunk perhaps you say; *chu choque-gua* is used in asking a question; *palitos Poncio Pilato choque-guine* suffered Pontius Pilate's order by; *ticsal puquet pe-napos choque-gūa* taxes payment you render say; *pe-shogue* you tell (him; RG); *ypi shogue* what do (you) say (RG); *Olanquilleli pe-sh.* to *O.* do you tell it (RG)
choquer-: Dios ch.-guine God's commandments
choquet say: *nuet chun ch.* I am well thanks = well truth say; *napri be-ch.* you say rightly = you are right; *a-ch. cheet* his saying to keep
choque-te say: *pe-dina nue puna ib-gua Dios nan neca ch.* you indeed good with a woman something in Church say = you get married; *chun ch.* tell the truth; *papa-mal ch. chao* parents what say do = obey; *que ch.* I cannot say; *a pap. ch.* what the father orders
choqui: chaglá ch. green corn = Sp. *chocló* (*soquit*)
chorchiqui manĕdi it goes curved or crookedly
choscua guagara sort of tree
chu (*chi*): *nan-neca chu* Sacrament = what in Church is. Same *chu* as in *chu-li* not
chu-choquegua (*choque*)
chuára wood (*choána; etine; suára*)
chuchú damp
chugal get; overtake; reach: *que-gūe ch.* (I) cannot reach it; *mele pin-che ch.* not think to get = covet; *mele-gūe nen Niya ch.-te ibi istar* so not us Devil reach with something evil (*cuja; chuja-te; guis-cugal; pen-chugal*)
chuigua: ulu ch. sampan (boat)
chugual wild cane
chuiligua; plain; smooth
chuilugo; nepa ch. plain; smooth
chuir child (*chus; echus; nuchu*); pl. *chuir-gana* children (family)
chuja-te save: *ibi istar nen ch. Niya neca moga* (from) something evil and Hell save us (*cujale; guchao*)
chul not: *e pincha-chul-bali-te* without thinking; *iti chul-mal* those who do not (keep the Commandments)
chula paca
chule epidemic; plague (*chuli*)
chulé no; nothing
chúle sort of hare
chuli no; not; without (follows verb): *gui ch.* he knows not; *arpa ch.* he works not; *iti-guin i-guen ch.* here is nothing; *ni chuli* without moon (*-l; mele; sulí*)
chuli evil; ill (*chule*)
chuli-gua without: *nono ch.* bald = without hair
chulil: te-ch. icar-bal nen-capŏ a long time on the road we stay (*chul-tenal*)
chúlo monkey (RG). See *chulú; sulu*
chul-tenal long time (*chulil*)
chulú monkey (*chúlo*)
chulub eagle
chuluba sparrow hawk
chumágue tell; say: *mele-gue cacanche ch.* not to tell a lie (*chumáque*)
chumaja-te spoken: *pe istar ch. chuli-degua* you evil have you not spoken;

chumal: yocor ch. elbow; probably error for *chincal; chuncal*

chumo-la receive: *unigua-te apiro ch.* how must one receive (*apinchumala*)

chumún week: *pe-papa-mal chumún-mala-te impa-guino pe-secole* your parents once a week you visit (*chiman*)

chumáque tell; say: *icho ch.* he knows how to speak; *ibi istar an-chaja-te an-chumáque* what evil I have done (as) evil I announce it; *acus pe-ch.* falsely you swear = say; *nugüe ch.* well (*nuhue*) speak = appease; calm (*runmaque*)

chuma-te saying (n): *itogo ch.* Creed = believe say

chumúr yancald back-bone

chun true; truth: *ch. choque-te* tell the truth; *nuet chun-choquet* I am well thanks = well (I am) truth (I) say

chuna-chuna truly: *chuna-alguine* in truth

chuna take away; remove; carry (RG)

chunabí-te thick; dense (*olíei; sunabi-te*)

chuna-te: hoipoja cachal ch. to-day I am very well = today well; it is the truth; *an-pe-chuna-te* I beseech (pray you; *mastol chuna-te* true (honest) man

shuna-te: pe-sh. you give; also imv. (RG); *quinqui shique pe-sh.* do you take away your gun

chuncal hand (*chincal*)

chuncal motá palm of the hand

chune-ti many: *cuepur ch.* city = many villages (*chénetu*)

chunchogue-te truth

chuque-mulu water fall (*mulu*)

chuquet: ti ch. river current

churcua jest; rattle

chus child; son (*chuir; echus; nuchu*)

chuspa pudenda feminae

chuo choose: *bul napri-chaque be-ch.* do you choose what you like (*chaque*)

D

d (see *t*)

dani (*tani; cf. oguigú*)

ddnique come = *tanique:* used as fut: *purque d.* he is going to die; *pe-neca agláre d.* your house is going to fall

degua (see *tegua*)

di = demonstrative *ti*, q. v.; used as follows: *te-di chuli* it cannot be; *tgue nen-di ocoe* what did we promise = what we it promise; *pe-abogán-di pulégua* your health it how = how is your health; *nen-di-tego chao* we it as do = even as we do (see the following three words)

-diba: e-tule-di-ba he was created = he man (alive) it became

-din: Dios-din tegua God he who = who is God; *pe-din* (*guelgu*)

-di-na: nuual pe-d. I am well; you it also = I am well and how are you; *pe-di-na nue puna ibgua . . . choque-te* you also say something good to a woman = marry her

Dios God = Sp: *Dios-gati* belonging to God

diwala river (B) = *tiguala; tiwala*

-dol-; pun-dol-mal girls; women

dumdda great (B) = *tumáti* (*nai-ko-dumdd*)

Duminguin Sunday; *duminguin-mal neguin pe iti mai* on Sundays for this are you here (= *iti*)

E

e demonstrative and possessive 'his' and 'of the': *e mola acalyogue* his cap; *punagua e nan* wife's mother; *mastol e pap* husband's father; *e pocua* the second; *Dios e pacal-mal* God of the Three (Trinity); *Dios e*

nuchu God's son; *machi Dios e nuchu* children of God; *Dios e nan neca* God's house; *e punagua* his wife; *esmet e tumati* large pan; boiler

e either; or (RG)

eba day; sun (P). See *evi; ipa; ipe* and cf. *ibeleli*

ecaé: chapur ecaé mountain gorge = mountain open (see *acaé*); *nec-guanab he-e.* do you open the door

ecaé-chi open; sincere

ecde-gal to open

ecktoge feel; taste (P). See *arugán-ecktoga*

e-cur grind: *caya e-cur-né* grind sugar-cane (*curuegu*)

echa machete; weapon: *echa-guin pe-calitoja tule-mal-ga* with weapon you fight with people (see *esnou*)

echá sequiti sword

echique untie; loosen. See *echúque*

echúque-te loosen; take off: *mola e.* take off clothes (*chica; chique*)

echus baby; child (*chus; nuchu*)

edite present: *nen e.* we (must) present (see *naeguine*)

ee yes (pron. nasally)

egd pipe; tube: *e. chégual chetáque* smoke-pipe = pipe smoke takes

ega: e. an-ga quenúco he promised us = pledge (?) to us he offers

egudla doll; toy; wrist

egwenóti brother (B)

eksenai come: *an-e.* I come (see *tánique*)

el: achú-el fish-hook = animal it holds

elíet cleanse; rub: *ancal e.* towel = hand-cleaner

emalbi-mal others: *iti mastel nuhueti amal e.* this man is better than the others (see *abi*)

emaquet enclose: *neca e.* enclose a house

emie clean (RG). See *emigue; surgana*

emigue wash: *naala nrtalegua ote emigue* dish take wash = wash the d. (RG). See *múrrucua*

emique wash: *pe-mola she; puna mola e.* your clothes fetch; woman clothes wash

emis to-day (RG). See *imis*

emis-cua immediately (RG)

enúquet clean; clear; wash (see *emigue; emigue*). This is the *nu-* of *nuhueti* = make good

epe-ja stayed: *cholbal e.* he stayed behind; *pia epeja* where did it stay = where is it

epe-malo; que cuena nan-ga e. iti-guine it is not proper for us to stay here; *nue nan-ga, ataqueli nen abogan ulúcus epe-malo* (if) good for us, it awakens in our body (so that) it restful stays; *chapi ulbal nen-epe-malo* tree under we stay

epincha- (see *apinchu; pinch-*): *epincha-chul-bali-te* without thinking; *puna epinchácet* a woman he thinks of = is in love with; *Dios-guin epincha-malo* that we believe in God; *uni nuéti nen epincha-malo* how well we (can) believe

epinche-: Dios-guine e nue epinche in God good feeling = state of grace *Dios epinche* (I) believe (in) God;

epínchet feeling

epir master; lord: *nan epir-guine* our master (see *pir*); *patir epir-guine-ti* bishop = priest who is for (*guine*) a lord; *patri epir-guinet* bishop (*apir*)

episé count

epuo use; desire: *nunca be-e.* how do you use it; *pali-pali mele nen puna epuo* often that not we a woman use = that we commit no fornication; *tule-imal-gati mele-güe epuo* people's property (something belonging to people) not to use = desire; covet

eqûe it is; they are: *cuepur-mal e. panachuli* the villages are near
eqûe-ti-no-chuli the water is high in the river = is not (*chuli*) the water high (*no*)
equisoête pray: *uni octacuelo equisoête* how hope and pray (see just below)
erquija beg; supplicate = *equifate*
esmet pan; pot; *esmet e tumáti* large pan; boiler
esmète cauldron; pot (RG)
esmáti steel
esnunoderute metal (P)
esnon machete (see *echa*)
estín knife; *e. capegua* large knife (RG)
estina buy: *iti e.* he bought
estóbol rattle; rattle-snake
eswalah spear (P)
eti fasten; tie: *moli totogua eti machigua pe-tagne nae* whip (!) the oxe with the workmen = oxe tie up workmen you see go (RG)
etine tie; *pelo etine* are they lashed (RG); *etine pela* they all are lashed (tied); *Pedro chuâra etine* help Pedro cleanse the yard (!) = Pedro the wood tie (make secure); *eti noete* tie = fasten well; *kulu eti noete* = anchor; grapple = ship tie well
etnoet: mali etnoet fetters = foot tie
etó will (n.); well; yes; *eto-jo* very well
etucubal: piaje iti ti e. pes where of this river the sources
evi day (*eba*): *ne evi-gana* days (P)

G

-ga dative: *an be-ga penuco* I to you pay; *patir-mal be-ga chao* what the priest commands to you do; *imal istar-ga an-bal-chao chuli* something for evil I again do not; *pe-calitoja tule-mal-ga* you have fought with people; *nuqûega pel be-ga choco* greeting all to you say; *tue-ga* for sin; *toto-ga* play with = for play
-gal pl. and causative: *o-cope-gal* give to drink
galang bone (*cala; pehe-*). All forms in *-ang* from B
-gam-bali; yalá-g. (in the) mountains (*intpa-*); *gam-* = pl. *-gana*
-gan(a) pl.: *macheré-gan* men (*-cona; gam-bali*)
ganagua abundant
gata language = *cac; cacá.* (P): *tule-g. wini* to speak Indian
-gati of; belonging to: *an-gati* my; *pegati* thy; *nun-gati* our; *pe-mal-gati* your; *nan-gati* for us; *pap nana-gati nue chabu* father mother well to love (= acc.); *tegua-g.* whose; *iti neca tegua-mal-g.-te* this house whose is it; *pela- (a)gati* belonging to all; *igui nec-guilubu machi-mal-gati* what will become of their children
-gini at; in (P; *guine*)
gluto (*nu-mai*)
-gu die (*ogan-gu; ogui-gu*)
-gûa respective particle with noun or verb; *chapur-gûa* over (as to) the mountain; *quine-gûa* he went = jumped; *ipi gûa* what is there (RG); appears also in *nun-gu-abogán cujâle* save us with respect to body = save; *te-bali te-gua chi* there who lives; *guala-gûa* wet; *nica-gûa* one has; *kulu-gûa* canoe; boat; *mol-gûa-gûa* blanket; *nuchu-gûa-gûa* child (*agua; gu-chao; -gûe; -gue*)
guacá foreigner (*waga*): *g. chipúgua* white people = white foreigners
guacal face; self: *an-g.* myself; *patir e g.-guine* before the priest: priest his face at; *g. tule ocuie* skull = face people scares (*gualcal; wágala*)
guacúr morning; to-morrow (*guritar*)
guagúa smell: *g. yapane* smell a smell

guai tree; any projecting object: *g. inócua* tree trunk; *chincal g.* arm; *mali g.* leg = foot-tree; *hulub g. nóble-ti* onion cedar; *hulub g. quini-ti* cedar; *g. pir-chiat* take to trees (of birds); *g. pirmécuet* bridge = tree across; *g. tamibi* = *palo frio* (?); *chamu g.* bactris palm; *chu-g.* wild cane; *ucur g.* raft pole (*hnigual; sakwawala*)

gualá tobacco (*huala*)

guala-gua wet

gualcal: tatá e g. acalba eclipse of the sun = sun himself (his face) hides = *guacal*, q. v.

gual-cana branch of tree (see *cana*)

gual-gual ribs; reduplication of *gual*

gual-guéna: achú g. = *gato solo* lone panther

guama = *penelope meleagris* (RG)

guamáquet: chidgua g. cinnamon

guanab door: *nec-g.* house door

guanab-cara door (RG)

guápin tongue (*kwabina*)

guaquija escaped: *pei tule-mala g.* all the people escaped

gu-chao save (*gua*): *nan-gu chao Señor ibi istar* us indeed save Lord (from) something evil = *nan-gua chao* make for us

gu-cho (*palmie*)

güe = *gua: que güe onótule* I cannot meet him (*mele-güe; güe*)

gueitar morning; to-morrow (*guacúr*)

-güela ending of pl: *nen úis ulúcus -guela* let us rest = it is time to rest

guelgú grace; joy; joyful: *ibi g. nen-palmie-mala* what grace we make = what grace does it cause us; *ib nicate an-guel-güin* (with) what I have I am content; *imele pe-din-g.* thou art full of grace; *Espiritu Santo nuet guelgu-gal* the Holy Spirit's grace; *Dios . . . guelgu-gal-e* to enjoy God; *ibi-ga nen o-guelgu-gal-e* how do we serve God; *nue guelgu-gala* in a state of grace = we enjoy it well

-guen = *-guin: iti-guen* here

güi know: *abí* (*atí*) *g. chuli* he does not know; *an-g. chuli* I do not know; *gui chuli* ignore = not to know; *an-be-gui-ito-chuli* I do not know what you say to me = I you know say not; *uni be-gui chuli* how do you not know (see *guichir; guis-cugal; huishi; wizi*)

gui: nuguer-gui; nuhuer-gui good weather

-guia (*-quia*) formative (*chogual-quia; tiguia*)

güichir he knows = *gui* + *chi* + *r*(?); comprehension (n). See *gui; huishi; wizi*

güichu know: *am-be-g.* I you know = I know you

guil eternal (*guilub; guilul; guilus; quil*): *Pedro Pablo-te guil-guine* to (*guine*) Peter (and) Paul these (*te*) eternal ones

guilub being; essence; is connected with *guil; quil. pe-guilubu-guine pe-choque pe-pincke-guin* in accordance with thy essence do thou tell what thou thinkest (with respect to what thou thinkest); *ib g. saja* shade; shadow = what is shade; *guilub-chit* it is some time ago (*hace tiempo*); *Dios guilubu* Holy (*sic !*) God = the God who exists; *guilubu nacquine-ki* life everlasting (*guilul*); *Dios nuchu e guilubu* God's son the one who is; *Dios purcuet guilubu* when God died = God's death being; *Dios purcue g. omoe ipa-guena* Lent = in the days when (*ipa-guena* one day) God promises (*omoe*) forgiveness (*purcue*) that it shall be (*guilubu*). In such phrases *guilubu* is participial. *ibi ne-g.*

what does it mean (is it); *iguí nec-g.e machí-mal-guti* what becomes of their children; *iõi-te g.* what is it; *ibi g.* portrait = what is it; *cuena g.* one he is; *g. que-cujal* (I am) sick; *hord g.* watch; *an hulu g. actiqueti* my canoe is loaded; *mani g.* treasure; money it is; *si g.* monthly period (of woman); *an pap g. que-cuja* my father is suffering; *e guilubu-se* Chrism = what is holy (?); *Dios e nan neca iguen guilubu-tet* sacrament of the Church = of God's house something sacred; but note *iguí nec-guilubusect* (= *tset*) what does it mean; *se-guilub* festival; cf. *iguilub*. For *-lu(b)*, note *is-lub; istar*

guilul live; exist (like *guilub* above): *guilúl tulé Dios atõguet* he lives long because God protects him = he is alive God protecting him; *cualú pel guiluuaja-te* oil all blessed (cf. *e guilubu-se*)

guilul-tset are comprised: *pocua-guin g.* are c. in two

guilusaja-te made clear; blessed: *pel g.* all blessed

guiluse-gal bless: *an-guacal g.* blessing myself; *g. Santa Na-cruz nen-mal-guine* by the blessing of the Holy Cross on us

guimanè wage: *pili g.* wage war

guimáque open: *ical g.* open a road

guin(e) at; in general prep. (gini): *iti chimán g.* in this week; *an-choco Dios g.* I tell (it) to God; *pia-je mastol-guin guja-te* how was he made man; how for (as) man was he got; *echa-g.* by means of a sword; *pe-g.* with respect to you; *pe-bal chinu-g.* he is with you = with you for being. Also sign of abstract *passim: Dios moi-guine-te* God's existence; used for 'believe in': *Dios g. epiucha-malo* that (we) believe in God. Frequent as complement: *nuxale-g.* as blessed (*guen*)

guinae piss (RG); pron. *guinè*

guinè cheyét bladder = urine holder

gũiro (*an-gũiro*)

guirso street; swallow (bird)

gũis-cugal learn knowledge get (see *gũi*): *gũis-cugal-e* notice (n.); *ne-gũiscugal itõguete* learning of the Creed; *pap nen-gati-te gũis-cugal-e* learning the *Pater Noster*. *Gũis cugal* = get knowledge.

gu-ja made (*guin*) = *cuja* denoting good condition

H

hibe blood (B; see *ape*)

hachú colmáque sneeze (*achúe*) = shout with the nose

hai friend: *an-h.* my friend (*ai; aya*)

hemi to-day (B.) See *imis*

hilú son (RG)

hogurapa hungry (P). See *ucur; ukruba*

hoipis day: *mele-gue arpago-te h.* so as not to work on that day

hoipo-ja to-day: *h. cachal chuna-te* I am well today = today well; (it is) the truth = from (*-ja*) day

hoipos day: *pulé h.* good day; *pane-pane h.* daily = continually day

hord gu-lubu watch = it is a watch

huacuterga morning (RG)

hudla cigar; tobacco (RG: *gualá*): X. *neca hualo pe nae puque* to X's house tobacco you go buy

hucá grass

huchó rabbit

huerpa hot (P)

hueye cut; reap: *yal-guin imal h.* in the mountain something cut

húgal fever; *hugal nica-gua* to have fever (*nica*)

hugúa fish; *h. caát* fish-net = fish hold (*vt*); *h. chenétu* whale; *h. ucú* fish-scale (see *oowa*)

hugud ear

hugue hot; *yonec h.* summer = season of heat; *ne hugue an iloguete* I am hot = have heat

huie cowardly; idle; weak; *h. toga* very idle; *nate h. toga* he is too idle

huini beads of many colours = *chaquiras*

huish(i) know: *ann. h. chule* I do not know (RG); *an huishi* I know (RG); *yti pe-h.* do you know this (RG); *sana cune pe-h.* can you eat meat = meat eat you know = can; *ulmola maqueti pe-h.* can you sew a sail; *quinqui ácole pe -h.* do you know how to shoot (*güichi(r)*; *wizi*)

hulgó board; table

hulú boat; ship; *h. obpisale* ship-wreck; *talmal cho h.* sea fire boat = steamer; *h. chalbal caét* rudder-ship behind hold

huluō gual quiniti cedar; *h. gual noble-ti* sort of cedar

hulúl red-faced monkey

hulu-gua canoe; boat; trunk; box

humóe cruel; fierce

húrgua heart-leaved arnotta (*bixa*)

hurpa younger brother; sister (*orne; urpa*)

hur-tale-tale transparent = through see see (*tale-tale*)

hus-gual lever; pole = lift (?) stick

I

i indef. element seen in *igui; imal*

iabal: cacá i. in the mouth = when we eat it

ib something = *ibi;* also = animal: *ib tula* domestic animal; *ib chapur* wild animal = of the mountain; *capal ib amine* hunt for animals in the ?; *mele istar ib chaé-ga* not evil anything do; *ib cunet* profit = something to eat; *mele ib cune* not anything to eat; *ib guilub sája* shade; shadow = something which is shade (dark). See *ig, igi*

ibaet: puna i. matrimony

ibeleli sun (B. *eba; evi; ipe*)

ib-gua something: *i. Dios nan neca choque-te* something say in God's house

ib nica-te what one has

ib tucu nica-te sharp; something which bites (*tucu*)

ibi what; something; thing: *i. istar* something evil; *ibi-te guilubu* what does it mean; *i. aqueté* square = something hook-shaped; *ibi-mala,* pl.; *ibi nuhueti* something good (see *ipi*)

ibi dawn (*ibia*)

ibia eye (B): *ibia chuli* blind = without eye (see *imid*)

ibiang eye (B); indicates that B heard a final nasal

ibi-ga why

ibi-gŭa: ibi-gŭa unilagua from what = why did he save us; *i. mastol o-tule-diba* why was man created = made alive

ibi guilubu portrait = what is it (!)

ibi-mala things; pl. of *ibi*

ibi itri-guine soul = something inside

ibi olégua circle; something round

ibi-na-al error for *ibi-mala*

ibuja- marry; matrimony: *ome-mal ibuja-te* matrimony; *puna ibuja-le nusale-ti* matrimony; *pe-ibuja-te* you marry (= *bu* love; cf. *bie; ckabu*)

ical road: *i. ituet* road guide (*icala; icar*)

icala road: *pili i.* enemies' road

icar-bal on the road: *i. pina nanedi* on the road curving one goes; *Dios i. nue teyopi* on God's road may it be well

icó fish-bone; needle; penis; thorn

ichagŭagŭa hate (P)

ichégŭa little; tame (*itsegŭa*)

iche (see *ichi*)

iche-ja-te illness: *napi i. pe-oguigūó* almost from your illness you die; *napi-iche oguigugal* almost sick he dies

ichi: piaje be-ichi where do you live; *ibi be-che- ichi* what are you doing. This *ichi* prob. = *che;* cf. *Pascual ani carta shogue pe-ishe-ga* (to) P. I order say (that) you do = I order you to tell Pascual; *napi iche pe-oguigugal* almost you are going to die

icho very much; enough: *i. an-ulúcus* I am very tired = much I rest; *icho chumágue* he knows how to speak well = enough speaks

ig-chigual thorny cedar = something thorny

igi how; what; something: *igi pe-av'guna* how (what) do you feel. See *ib; ibi; igui*

igles English: *igles-ulu* ship = English boat (B)

iguabichir medicine-man

igūeja-te forget (cf. *ocoe;ucue*); really = forgotten = something promised

iguen anyone; something: *i. chuli* nothing; no one; *i. nica chuli* poor = something have not; *iti-guin i. chuli* here is nothing; *i. guilubuset* something holy

iguena anyone

igui what; something: *patir pela choco nue itogal igui an-che-palmie-mala* priest everything say well obey (is) what I must do; *niggpa iguilub chiet* rainbow = on high something it holds; *yguasa* something more (RG); *ygui shogue* what does he say (RG). See *igue; ogui*

iguiluh something

igujal past time

ila time (Germ. *Mal*): *ila picua* how many times; *ila nercua* six times; *ila pocua nusate-malo* Confirmation = twice baptized

il-cuena once = one time

ileleti: mol i. ribbons with stripes (RG) = striped cloth (*mola*)

ilial low: *ti i.* the river is low

imal something: *i. aminé* hunt something; *istar imal* bad thing; *imal otégal* lower a thing; *mas cuné amiét imal* something to eat search something; *yal-guin i. huéye* reap = in the mountain something cut; *imal-guin* at something (see *acuyegati*); *imal pe-gati chuli* things that do not belong to you; *imala* things

imarsuiti fruit (B) = *imal-suiti*

imele pe-din-guelgu full thou indeed of grace

imid eye (*ibiá*)

imia apinguile-te eyebrows

imis now; to-day: *i. chumágue* he is speaking now; *imis-imis* at once; immediately; *imis-cua* now; present time (*emis*)

-impa- equal; once; among: *untar impa-gam-bali* (= *gan-bali*) many times; *pirca-bali impa-guin* once a year; *chuman-mala-te impa-guine* once a week; *pirca impa-bati* once a year; *impa-guine* equal; but cf.: *pe-yo-pun-mal impa-guine uusale-guin* thou indeed women-among art for blessed; *ataquet purcuena-mala-te impa-guine* he wakes from among the dead

ina = *chicha;* beverage made of rinds, sugar and molasses; wine; *i. achigua* mild wine = wine *per se; i. nueti* good wine = medicine *i. ti tinigua* whiskey = wine water burning (*in-agua; yna*)

inacua when: *i. pe-pur-mutaque* when did you confess; *inacu-dniqui* when do you come

inagua medicine (*tinigua*)

inénatopáli lower (vn): *mune i.* when the tides goes down; *ti i.* when the river lowers

inggo when (B): *i. pe-omós* when you enter harbor (B) Cf. *ynco*

inócua trunk of tree: *gual i.* = tree's round (part; *inyógue*)

inyogüe around: *coué i.* ring; hoop; buckle = finger around (*cokué*)

ipá day (*eba; evi; ibelelí*): *i. ambégui cuéna* eleven days; *Dios purcue guilubu omoe ipa-guena* Lent = one day (*ipa-guena*) God forgiveness (*purcue*) promises (*omoe*) that it shall be (*guilubu*); *ipá págüa* three days; *ipo pagüa-ti-bal* on the third day (see *ipé*)

ipé day: sun: *i. nodí punüa* east wind = sun-rise wind; *ipé taldí* the day is clear; *ipé yorocú* noon (see *ipa*)

ipé nacár long time: *e chana chële; ipe nacár chapé mai* the meat is sour; a long time the meat is kept

ipi what (RG *ibi*); *ypi pe-cune* what do you eat

yppa day (RG *ipa; ipe*)

ique who; what = *igui: ique-no-ga chichigua penqui mánia* to whom, black man, you pay the money (silver RG)

igui-tálegue strain; pass through; filter; pass through narrow place

iscála chameleon

isiüb sad (?) = Sp. *caimito:* comb. of *is* low + *iub*, as in *guilub(u)*

istar evil; comb. of *is* low + *tar: an-mal i. an-táquet* we evil feel (see) = have rancour: *punüa i. col-dánique* hurricane = wind bad comes; *negé i. col-dánique* hurricane; *i. chelte* damage = it makes evil; *te i. chija-te* when one speaks of something evil; *i. imal* bad thing; *i. an-itoguí-te* I have it bad = it does not agree with me; *i. loiejé-ti* furious = evil crazy; *istar mai* it is badly situated; *mas i. istógue* belch = something bad bring up; *istar-ga* bad (B); lit. for bad (*-tar*)

iti he; she; here; this: *tegua i.* who (what) is it; *Duminguin-mal -neguine pe iti mai* on Sundays you here are; *iti chimán-guin* this week; *itiguen* here; *iti-guin* here; *iti-guine* here; *yti-bali* here (RG)

itiquiga have (*itóguet*): *ti i. acua coál-coál* the river has stony shores

-ito: mas cuen-ito chuli nen-mal we have no food = something to eat have not we. See *itoguet*

itó noise; hear; understand; obey: *itó mai* Mass = it is to hear; *i. guilubu* Contrition; it is to hear; see just below and cf. *mag-; necktozah*

ito-gal obey: *patir pela choco nue i.* what the priest all says well obey (see *itoja; itosa*) = cause to hear

itogo believe; having (n)

itogue have; believe: *itogue chuma-te* Creed = faith saying; *uis i. malsó* it is (it has) time to take siesta; *Duminguin i. unicar nue chapo-gal* Sunday to keep how well does one keep it (really = *ito* + *güe*)

itogüe-lit like; love (*itoguet*)

itogüer desire; eat; swallow; *mas cune i.* appetite = something to eat desire

itogüet have; believe; like; love: *nehugue an- i.* I have heat

itógüe-te Creed = faith

ito-guine I believe = in hearing; also with *ulguine*

ito-ja heard: *patir onámaque pe-i.* priests doctrine you have heard = Mass

itolegüe desire; have: *ti copo i.* I am thirsty = water drink I desire

itoquergui touch (?)

itorquesi sad

itosa hear (B)
itri-guine inside: *ibi i.* soul = what is inside
itségua a little (P). See *ichégua*
ituet guide; *ical i.* road guide

J = both Eng. and Sp. *j*

-ja (*-je*) usual particle = from; past tense: *pia-je* where; lit. whence; *pia epe-ja* where did it stay; *ito-ja* heard; *oiurta-ja* taught; *pincha-ja* thought; *pe-bio-ja* you beat (past); *-ja* as; for: *tule-ja nan pule-ti* as man the mother bore him: *acpenegu-ja* with repentance
jabal ahead: *j. na-maila* we go ahead
japane smell (P; *dlapane* = *yapane*)
jawoka turtle (P; *dlawoka*)
-je (*-ja*): *neca-je an-tániqui* from the house I come; *pe nus-cana-je oiurtaja* you have taught your children

K

kaka language (B). See *cacá*
kaká and; in numerals (P). See *cacá*
kakáh shore (P)
kako land (B)
kakuraka mouth (B *cacá*)
kala bone (B; *calá*)
kamwala throat (B; *camá*)
kanira fowl (B; *canir*)
karzóna trousers (B; *calson; carson*)
karta book (B: *carta*)
-ki attributive ending: *guiluhu nacguine-ki* life everlasting. Probably = *-gui-a; -qui-a, q. v.*
kiniguadi brown (B; *quini-*)
kiniti red (B; *quini-*)
kobe drink (B; *copé*)
kochi hammock (B; *cachi; catchi*)
(nai)-ko-dumád toe (B)
kopye drink (B; *copo*)
kowadi yellow (B)
kug'le seven (P; *cuhlegue; cuplegue*)
kuk'le seven (B)
kune eat (*cune*)
kuregina hat (B; *cocheno; curquina*)
kwabina tongue (B; *guapin*)
kwala sweet potato (B; *cuadlo*)
kwarguato pawpaw (B)
kwarogua be born (B)
kwaroguadi be born (B)
kwénchakwa one (P; *cuenchiqüe*)
kwénsakwa one (B)

L

-l neg. element seen in *chu-li; me-le*
-lale-ti: chirpu l. swarm of bees = *poblado de barba* (?)
lelé enchanter; magician
lerá enchanter
lichá: ayá l. = *guarapo;* drink made from fermented sugar-cane
liché broth (cf. *lisa*)
-lile (see *choga* seems to mean like, as)
lisa broth (RG). See *licha; liché*
lis-chiagua chocolate = cocoanut broth
loiejete crazy; *istor l.* furious
lute: yalque l. olévo slippery place

M

macále-ti: acha-cua m. sugar (see *achá*)
machárret: tulé m. cacique; prob. = *machi* man + same stem as *urrue* strong
machéa boy (P; *machi*)
macherédi man (P; *mastol*)
macheré-gan men (P)
machi banana; plane-tree: *m. cana* banana tree; *china m.* water-cress sp. *berraco* (*see matsáte*)
machi son; male (prob. from *machi* banana owing to *penis erectus*); *moli m.* bull = cow's male; *canir m.* cock = chicken's male: *machi e puna-gua* daughter-in-law = son his wife; *machi-mal* children; *machi* seems to mean 'one' (Fr. *on*) as follows: *machi*

cuen nica chuli one to eat has not; *omóscu machi nen onó chuli* food for one we find (shall) not

machigua boy; workman

machi-nutáquet onion

madunu: wag-m. banana = foreign *madunu* (B).

mag- prefix in following:

magu-ito listen

magu-itogue listen. This is prob. the same element as *make; maque* in the examples *sub maque*

mai it is; is; *mai-guine-te* existence = the (*te*) for (*guine*) being (*mai*); *acana pia mai* the axe where is it; *mai-bali* it is; *istar m.* it is badly situated; *untao nigpa m.* it is very high; *Quilulele Dios nan neca-tarre m.* union of Christ and the Church it is; *cuepur muchupu mai-bali* it is behind the village

maja-te sweat: *yer nacquin m.* because (I) thoroughly sweat; *sagar an-güiro m.* I am sweating through and through

make (*maque*)

-mal really 'thing,' used also as pl.: *tegua-mal* whose; *an-mala* my country-men; also = 'we,' just as *pemala* = you (pl.); *cheni-mala* less; little thing: *Nucal-mala* Choco Indians; here pure pl.; *Tule-mala* San Blas or Cuna Indians; *nuchu-mal* children; *apincha-mala* those who receive

mali foot; *m. cohudi* toe = foot-finger; *m.gual* calf of the leg = foot tree; also = root; *m. et-noet* fetters; irons = foot-tie (see *eti*). See *calmali*

malso siesta: *sáit itógüe m.* it is time to take the siesta = desire to

mamá yuca; cassava (B)

mand thunder; *m. acua* lightning = thunder stone (bolt); *m. urué* thunder-storm

manédi go: *chorchiqui m.* curved it goes = *nanedi* (*erratum*)

manégal go; walk (= *nane*)

mango mango (B)

mani money; dollar; silver; value *m. atále* five dollars; *m. guiubu* treasure: be of value; *te m. picua* how much is this this = this value how much

mánia silver (metal; not money), but note *maniai ambégui* ten dollars

mániya silver

manú mammee-tree (*mammea Americana*)

maque catch; get: *calin pe-m.* a hen do you catch (RG); *m. nae* go hunting

maque-t. same as *maque: neca tutu m.* the house is shaking = house shake gets = earthquake: *ul-móla maque-ti pe-huishi* do you know how to sew a sail = sail catch you know

maqui raw: *cualú m.* bacon; pork; raw fat

marcún breakfast; prob. error for *mas cun; m. ne-mala* let us go to breakfast

mas something to eat; food: *pe-mascuna* have you eaten something (RG); *mas cune* something to eat; *mas istar istógue* belch = bring up something bad; *ani mas-kune* I eat; *pe-m.* thou eatest; *iti m.* he, she eats (B)

masá jigger-flea

mas apingulet vigour = food holding

masató tamales

mas cantiqui strong = strong food

mas iguen chuli pacá he has nothing to eat = something to eat not he has

mas-kune with *ani; pe* I, thou eat; eatest (B)

mas-kuche with *iti;* he eats (B)

mas-kutage with *iti;* he eats (B)

mastol man: *m. nuhueti* good man: *Dios e mastol-mala-te* God's men = Disciples; *m. chuli* without a man =

widow; *m. e nan* husband's mother; *mastol e pap* husband's father

matá lake; lagoon; *chapur matá* mountain lake; *telmal m.* sea-lake = bay

matárra shell: *chalú m.* mussels; shellfish (*cf. nai-matará*)

matsále plantain (B). See *machi* banana

matu bread: *m. pe-tegui* will you have some bread = bread you wish (RG); *m. nan-guine* bread for us; *matu olégüa* round bread = Host

mátun ripe banana (RG); used for *guinco* short banana

mecha(o) kill: *tule-mal pe-cuen-m*, people you one kill = have you killed anyone; *tule mele-mecho* do not kill anyone; *penguil pe-chumáque tule mecho* oath you take someone to kill; *mele tule mechoe* not people kill; *pocua an-mecha-te* I killed two (past by *-te*); *mechol* kill; *mele tule mechol* not people kill

mecuíti bed

meja(l) relation; kin: *mejal-mal chuli* without relations = orphan; *pe ibuja-te pe-mejar-mal degua* have you married your kin; *e-mejal-mala-te amal moga* the relations and (*moga*) friends other(s) = Holy Apostles; *meju-ti pana* kinsman

mejigue paste; dough; to make *chicha*

mele not; so as not to; do not: *tule mele mecho tegue mele* not to kill anyone = people not kill anyone not; *tule mele cacauche chumáque mele* to people not lie tell not; *mele penguil choquega* not oath to say; *mele tule mechoe* not people kill

mele-güe not; so as not to; *tule imal-gati mele-güe epuo* people's property not desire (covet); *m. chana cuno* not meat eat; *m. nen arcuano Niya* so that not we go down to Devil; *m. ibmala atursao* not things steal; *chapi cholbal epe-ja mele atan-málo* he stayed behind the tree so that not one sees him; *m. arpago* so as not to work

Meriki American: *m. sipugo* American white man (P)

me-pá heaven (*nig-pa*)

mesa table (Sp)

mete prep. for: *nahsa m. chobgal* clay for pots

mete-gal: *tar-m.* fling; throw (*modey*)

mete-gue error for *mele-gue*: *m. nen Niya chugal-te ibi istar* so as not Devil us get with something evil

mila shad = Sp. *sábalo*: *telmala m. nica* (*chuli*) in the sea shad there is not

mimi little (B)

mimiñ give a little; *neca ti m.* house water give a little (B) = water (sprinkle) the house

mimi-gua child (B): really = children

mimi-gua suckling; infant

mis cat (B)

misa Mass: *m. itógüete* he hears Mass = the hearing of Mass

misi cat (B)

miu cat (RG)

modey throw (P). See *mete-gal*

moga and; also; indeed (postpositive): *pe nuhue m.* are you well indeed (RG); *Dios moga* and (is he) God; *mastol puna moga* man and woman; *nue purtegue-gala Dios-guine e nue epiuche moga* with good respect for God and good feeling; *pirca-impabali tule oguigu-tani moga* once a year and when people are going (*tani*) to die (*oguigu-*). This word occurs passim

mogila cloud (B)

moguí = *sapajú* sort of monkey

mola gender; sex

mold cloth; stuff; clothes; linen; shirt;

m. acalyogue cap; *m. rati* clear blue cloth (RG); *telmal m.* sail = sea-cloth; *mol-chaglá* = head kerchief (*chagla*); *mola* handkerchief (*molga*)

mol-chagla (see *molá*)

mol-gá ocá soap = cloth for (*mol-ga*) it shines

molguogua chichiti blanket = black cloth

molí cow; heifer (RG); horse (B; P); also tapir

molí-cabai horse *molí* + *cabai* = Sp. *caballo*

molí e nuchu calf = cow's child

molí machi bull = cow's male

molí nuu milk (RG) (cow's m.)

molí pebe-nika-te cow; thus B, but this means; cow horns has (*nica; pepe*)

molí tulá cow = live (*tula*) cow

mol-maquêco needle = *mol* + *maque* + *ico* = cloth catch thorn

mol-máquet boil

mol pepe horn; cow horn (*molí pebe-nika-te*)

molyãgûe napritalégûe a pretty clothing

monó turtle

morboton button (B): *mol* clothes + *boton* (Sp.)

mos-idniqui get faint; swoon: *ucur an-m.* (of) hunger I am dying

motá flat surface: *chuncal m.* palm of the hand

mu old woman

muchúpu treason; really = behind: *cuépur m.* behind the village; *an neca cuepur m. mai-bali* my house is behind the village

muhi: acua m. rock

müis cheap: *estina m.* buy cheap

mulá John-crow (B)

mulú (*chuquo-mulu; telma-mulú*). This probably = tide water (*mune*)

mumunú drunk

mumurgus drunk

mumurus: mele-gûe tua-tar m. not to get drunk = not for sin to get drunk

munè tide: *m. inenatopáli* when the tide goes down: *m. nucuidle* when the tide rises (*mulú*)

müntícke night (P). See *mútiqui*

mürencua bowl; porringer (RG): *m. urtalegua cae emigûe* bowl take wash = wash the bowl

murúcua cup

mutáque: cho m. blow the fire; *inacua pe pur-m.* how long since you confessed (see *pur-*)

mútiqui night (*muntícke*): *m. ni chuli* night without (*chuli*) moon: *m. taldí* the night is clear: *chaé m.* last night

N

-n pref. of 1 p; usually represented by *an-*, q. v.

na ear (B)

na demonstr. element (see *crus; cuisa-; chis-mala-*); also privative in *ti-na*

nadl(a) meat; food (RG); plate (cf. *ndl*)

nabaulague wood-louse

nabsa earth; clay (*napá; napsa; negssla*): *n. cuamacale-ti* clay; mud: *n. cho palmie* volcano = earth fire make: *n. cho ulú* railway = land fire ship: *n. mete chobgal* clay for pots; *n. sipile-ti* dust

nacguine-ki everlasting; thorough: *guitubu n.* life everlasting, but may also = exemplary (*nacguine*)

nacksak hit; strike (P)

nacpigu sorrow (*nacpoe*): *ibi n. chogue* what is sorrow = what sorrow says (means); *yer an-n. ibi istar chaja-te* because I repent (for) what evil (I) have done (*nagpigu*)

nacpoe complain of; repent: *an-n. an-n. an-nue n. ulguine* = *mea culpa mea culpa mea maxima culpa*

nacquine exemplary; thorough; but *nacguine* = everlasting: *n. nue* good example; *yer nacquin maja-te* because (I) thoroughly sweat

nacudle up (*nacuiale*)

nacubpucua centipede

nacúca shoe

nacuiál up: *ti n.* up the river

nachi- hang: *nen-cachimal nachi-malo* we (shall) hang our hammocks

nadapí walk (B; see *nae; nao*)

nádrike good bye (B)

nae go: *pe-n.* you go; *chapul pe-n.* are you going to the forest (RG); *maque n.* go hunting; X. *neca huala pe n. puque* to X's house tobacco you go buy (*namala; naie; nanao; nane; nanedi; nao; nate; ne*)

naga foot; leg (B)

nagmatand duck

nágpe snake: *n. tule cuna-lile* snake person bites

nagpey (P) snake

nagpígu suffer: *an-n.* I suffer (*nacpigu*)

naie go (B)

nai-ko-dumád great toe (B) = big goer

nai-nalára foot (B) = going shell

nai-yokoro knee = walking elbow (B). See *yocor*

nal dish: *n. nucúgua* deep dish (*nadl*); cf. *ogui-nal*

nalás orange (see *nus-nalas*)

nálí iron

nalú macaw

naluhú = *pijibay?* a kind of parrot

namackey sing (P; *namake; onamague*)

namdké-de this (B) he says; orders it

namalá we go: *jabal n.* we go ahead (*nae; nao*)

namágue sing (*onomágue*); cf. *narmake* (*gue*)

namarcále-ti command; conn. with *namake*(*gue*) sing: *carta n.* book

nan ours, in rel. clauses = that which is ours: *Dios nan-neca* Church = God's house which is ours; *Dios nan-neca chi* Sacrament = which is (*chi*) of God's house which is ours; also *nan-neca chu; nan-neca Católica* Catholic Church: *Dios e nan-neca-je an-tánigui* from (*-je*) Church I come

nana mother; *nen-pap nen-n.-gati nue chabu* our father (and) mother well love

nanao go: *nue be-n.* may you go well

nane walk (cf. *manegal*): *Dios nan-neca pali n.* to Church often go (*nae; nao; na-te*)

nane-di follow; go; travel: *ical-bal ampa n.* follow (your) road = road lively go; *abi piaje n.* where was he going; *ical-bal pina n.* the road goes in curves; *patir-mal ocua nane-gal* priests go to promise = to take their vows (*manedi*)

nan-ga to us: *n. uco* to us give: *Dios n. chabubu-gal* God must be loved by us

nan-gati for us: *onamaque n.* pray for us

nan-tumát grandmother = great (*tumdi*) mother

nao go (*nae; manedi; nanedi; na-te*)

napá earth: *n. -guine* on earth (*nabsa; napsa*)

nápa joke; rattle

naper good; neat; pretty; savoury: *n. taglegue* (RG) pretty (see *napri; napri-talégue; nepri*)

naperiji-togue happy (P; *j* = *dž*) = enough, plenty of (*togue*)

napi almost; at the end of: *n. ícheja-te pe-oguigno* almost from your illness you die; *n. iche oguigúgal* almost he dies; *iti ti n. neca-te an-gati* this river at the end of, the house is mine = this house at the end of the river

napij-tiguie spring time

nappi- tired: *guilub nappi-mal nen* being tired we = we are very tired

nappoet misfortune

napos: tiesal puquet pe-n. choque-gua taxes payment you render say

napri good; pleasure; right; well: *n. quinque partáquet* well a gun he shoots; *n. be choquet* right you say = you are right

napri-agua truth (RG)

napritalegüe pretty: *acua n.* pretty stone; *molyágüe n.* pretty clothes; *napri* beautiful + *tale* see + *güe* = beautiful to see

napsa us(n)-guin earth for us (*nabsa*)

naquin (*nacquin*)

narasa lime (B)

narcamále-ti error for *narmacdle-ti*

narmacdle-ti command; order; write: *carta n., palmie* commandment = book; order make

narmake write (B) = *namáque*

narmaque write: *carta n.* scribe = *namáque*

narségal chop; cut: *chana n.* spade hoe = meat-chopper

na-te go: *machigua tule pe-n.* (with) boy-people you go; *Juan pe-n.* (with) John do you go; *pe-n. emis neca an-gati* you go to-day from (*sic*! = to) my house (RG); *Lazaro n. huie toga* L. is (goes) very idle (*nae; nane; nane-di; nao; ne*)

ne definite element; *ne-guin* for this; *an-bal-chao-chuli-ne* I will not do it again (*ne* = it); *caya ecur-ne* grain grind it; *ne guiscugal ilogue-te* the learning of the Creed; *ati an ne cuepur* he is of my this village; *ne-chaglaun* the world; *pi-bio-ne* you beat it

ne go: *be-ne* you go; *arpa ne-mala* we go to work; *cueya ne-mala* to clean ourselves we go; *mascun ne-mala* we go to breakfast; *ne-ne pe-shogue* come come, you tell (him). See *nae; na-mala; nunao; nane; nane-di; na-te; ne-gal; ni-ni*

nec = definite *ne* followed by palatal: *nec-guilubu*

nec house: *n. chastiet* house-lock; *n. yold* summer = house's north = north of the house (*neca*)

neca house: *Dios e nan-neca* Church God's (and) our house; *neca pe nae* to the house you go; *an-n.* my father-land = my house; *neca-mal* houses; *neca-guin* in the house; *neca nigpa* roof = house-top; *acua neca* stone house; *neca-te* the house; *n. yaquin* room (*nec; nega*)

necawey marry: *ome n.* marry a woman = house (va) from Sp. *casarse*

nec-guanab house door: *n. be-ecaé* do you open the door

necktasah hear (P = *ne* + *k* + *ito* + *sa*)

nega house: *pia be-n.* where do you live (P; *neca*)

ne-gal: caca-bal que ti be-ne-gal you can not ford the river on the bottom = on the bottom indeed of the river not you go; *pe pecua-mal nen ne-gal* you permit (that) we go

negmegua light (P)

negó: n. istar col-dániqui hurricane

negseacoma lakes (P = *ne* + *g* + *si* = *ti* water + *-coma* (pl.) = *gan*

negsula earth (P; ? cf. *nabsa*)

negua: an-n. I went

neguilupú given by *Pi.* as 'mouth,' but this must be *ne-guilubu* 'that is it'! The Indian, when asked for mouth, probably replied 'yes, that is it.'

nen we; us; our; *nen-ga* to us; with us; *Pap nen-gati-te* the 'our Father'; *nen guin* for us; *Pap nen-guin* Father for-us = *Pater noster; nen-di-iego* even as we; *nen-mal* we; *nen-mal-guine* in us; *nne chabu-gal nen-mal-e-te* we

must love him well = love (him) (is) ours; *cuplegue nen-mal-gati* seven belong to us

nene come, come; redupl. of *ne*, q. v.: *nene pe-shegue* come come you say = tell him to come (*ni-ni*)

ne-pá field; meadow; valley: *n. chuiluga* plain; smooth (*me-pa; nigpa*)

nepatoguete land (?). Perhaps = landslide: *ne-pá* + *toguete*

nepri good: *bul nepri epincha-mal* good people = more (all) good those who think (*napri*)

ne-quin for this = *ne-guin*

nereua six: *ila n.* six times; *e n.* the sixth

nergua six (B)

nerkua six (P)

nerpa: n. tupa thread (RG)

nesquao star (P) = *ni* + *s* + *kua* (cf. *niskua*) = little (*-s-gua*) moon (*niskua*)

neu ibi dániqui = dawn = in the air something comes

neuh air (P)

newedi good (P; *nue; nuhueti; nuwedi*)

ni moon; month: *ni guilubu* monthly period (of woman)

Nian devil (P: *Niya*)

nigpa heaven; up: *n.-bal na cuisa-te* to heaven he ascended (*nigpa*)

nica have; possess; there is: *ypi pe-n.* what have you (RG); *ti ulguine pela neu istar nica chuli pe-malo* by means of water we all without evil (*istar nica chuli*) become (*pe-malo; nen-malo*); *telmula mila nica* in the sea shall there are; *chiagua n.* there is cacao; *iguen nica chuli* anything have not = poor; *machi nica* are there bananas; *ti n.* is there water = does it leak. Same element as *-cati; -gati; paca*

nicá nephew

nica-gua have: *hugal n.* have fever

nica-te it is; have: *nen n.* we have (him); *palá n.* salty; *quis n.* poisonous = poison there i.

nicpa heaven; up: *n.-bal na cuisa-te* to heaven he ascended (*nigpa*)

ni-cheni star; little moon (*ni*)

nigpa heaven; up: *n. iguilub chiet* rainbow = heaven something holds (*me-pa*) = the thing above holds

nilacua yellow plane tree

nini; redupl. of root go: *pe-nini-gui* you return (RG) = you go; cf. *ne-ne*

nipurũe interpret; translate: *tule cac n.* interpreter of Indian language

niskua star (*nesquao*)

ni-talal-neca heaven = moon-shine (clear)-house: *n.-guine* in h.; *n. nenguine h.* for us

Niya devil (*Nian*): *apin-apin n. colo* blasphemy = receiving Devil say = say 'may the Devil get me'

Niya-neca Hell = Devil's house

no high: *eque ti no chuli* is not the water high (see also *nu*)

nodi rise; get up: *ipe nodi punua* east wind = sunrise wind

nodli bring up; go up; rise: *tatá gueb n.* when the sun rises; *tatá n.* the sun has risen; *pe ibi nuhueti abogan Quilulele nodli* Christ awakens good thoughts in your heart = you something good in (your) belly Christ brings up (*nuali; nucuiale*)

nóble-ti: hulub gual n. onion cedar (?)

noeti good (*newedi; nuhueti; nuwedi*)

nogá name: *igi pe-n.* what is your name (B); *noga suli* without name (P). See *nued*

nóga calabash (RG)

noga give: *penki mánia toga ipi n.* who money (silver) so much (*toga*) something gives

nója: pe-n. you are wrong

no-mai swollen: *ti n.* the river is swollen = risen (*no; nodli*)

nónico send; sending (*n*): *acar n. taguegal* then a sending he shall see = judge between (*nonoco*)

nónigui chule do not send him (RG)

nono hair: *n. chuli-gua* bald = hair without (*nonogwa*)

nonóco return (*nonico*): *Dios nan seguilub tese n.* I return for the festival

nonogwa head (B) = *nono*

noô frog

nosnôs nonsense: *n. chumâque* talk *n.* = sour, bitter; cf. *nusualas*

notópil arrive: *neca n.* on arriving home (see *onô*)

nu rise: *palô nu sacâle-ti* rock-salt = salt rises to the top (*sacâle* = *chaglâ*). See *no*, etc.

nua good (RG) = *nuhue-ti*

nuâli go up: *ti n.* has the water risen (*noâli*)

nucá be named (*noga*): *ibi pe-n.* what your name: *te chapi ibi nucá* this tree what is it called: *cuichi-chi pe-nuca-guine* hallowed thy name for = h. be thy name; *Dios e nuca* God's name. This *nu-* appears in *nusa-* = blessed

Nûcal Choco Indian: *n.-mala;* pl. from *nûcal* tooth

nûcal tooth

nucal chiet gum = tooth hold(cr). See *ungala*

nucúgua deep: *nal n.* deep dish

nucuûle rise; increase: *mune n.* the tise is increasing

nuchâ mouse

nuchu son: *choco e nuchu-mal* tell the children; *Dios e nuchu* children of God (*chus; nuscan*)

nuchu-gua-gua child (RG)

nue good: *nacguine n.* good example: *pe-di-na nue puna ibgua Dios nan neca choque-le* you indeed a good thing with a woman something in Church have spoken (*newedi; nuhueti; nuwedi*)

nuer well: *tar n. arcuanali* the sun well goes down

nuet well: *nuet chun choquet* I am well thanks = well, true the saying; *n.-mala* good people; *unicar n. chet* how will (you) act well

nueti good: *nuati huet* matrimony good loving

nugala tooth (B). See *nucal*

nuguâe calm; *n. chumâque* appease = speak calmly really = well (*nuhue*); *n. taglegue* pleasing to the taste

nuguer ocus put an end to = good end

nuguer-gui good weather (*nuhuer-gui*)

nuguijal: pato n. it has already healed; *imis nuhuer n.* now (I am) healthy (see *nûtâque*)

nuhue good; well: *n. be-nunao* may you go well; *pe-n. noga* and are you well (*newedi; nuwedi*)

nuhuer well: *imis n.* now (I am) well

nuhuer gûi good weather

nuhueti good: *ibi n.* something good

nu-mai-gluto ferment

numaque pain: *chaglâ n.* head ache; *contricion n.* act of contrition

nummague pain: sorrow suffer (RG): *ipi pe n.* what ails you

nunu perhaps *nene* = *nao-nao* is coming: *pe neca nigpa chaglia nunu ti yarqui* your house's roof is bad: coming water through

nuô teat (*nuti*)

nuquega greeting: *neca notopil n. pel-bega-choco* at home arriving greeting all you to say = you say—to all, or = all say to you

nusâ maggot; worm

nusacale-ti blessed: *matu ologua n.* bread round blessed = Host (*nuca; nusae, nusaet*)

nusae blessed: *n. Maria* = blessed Mary (name of M.)
nusdet name; he names
nusdeti baptism
nusa-guine in baptism
nusajala-te the saints = the named ones
nusaja-te named; blessed: *matu ologua patir n.* the bread round the priest named (blessed) = Host
nusal very well = blessed
nusale ; nusale-ti blessed; holy: *cualu n.* holy oil = Extreme Unction; *ome-mal ibuja-te n.* matrimony = women marry the blessed; *pe-yo pun-mal impa-guine nusale-guin* you indeed women among are for blessed
nusane baptism; *patir epir-guine-ti n.* Confirmation = Bishop's baptism
nusate-; tila pacna nusate-malo two times they name (bless) = confirm
nuscana-mal children; *pe nuscana-je oturtaja* you have taught your children (*nuchu*)
nusegal baptism = they name
nus-nalas lemon = sour (?) orange (*nalás*). See *nasnas*
nu-tâgue heal = see (*taque*) well; *ina nueti tue-ga nutaque-ti* good wine for sin is the healing; *gueb n.* it is going to heal
nute- prepare: *mas nute-que-malo* the food (we shall) prepare
nuu milk (*nuú*); *mali n.* cow's m. (RG)
nuu-bie suck (see *-bie*)
nutío dove; pigeon (*onom.*)
nuwedi well (P; *newedi; nue; nuhueti*)

O

o- demonstrative pref. *ocope-; (otale-gal; otule-di-ha; o-sabal)*
obak bad (*P*)
obpitale; break; part: upset: *hulu o.* shipwreck (*opisal; piscali*)
ocd: malga o. phosphorus (lighted candle)
ocob cocoa nut (*ogoba*)
ocobo cocoa-nut: *o.-cana* cocoa tree (RG)
ócole shoot: *quinqui o. pe huishi* gun shoot you know
ocópe-gal cause to drink: *an-ga o.* do you give me a drink
ocoe promise; *igui nen-di o.* what did we promise (*oohey; ucae; ocua*)
octió-gal rectify
ocua promise. *patir-mal ocua nane-gal* priests to promise go = to take vows. Cf. *uco; ucse; ucue*
ocuane promise; must: *pe noca e cagla-mal ocuane pinune* your house's shingles you promise to change
ocuie fear; suspect: *ibiga he-o.* what do you suspect; *guacal tule o.* face which frightens people (*ocuye*)
ocutei fright
ocuitaguer hide oneself = be afraid
o cune-mal they feed them (*cune*)
ocus end; *nuguer ocus* put an end to = well end
ocuye-gal frighten-: *imal-guin nue ocuye-gale* at something he was well frightened
ochigua mild sweet: *ca o.* mild pepper (*achigua*)
oganga drown; choke; throttle (*-ga*)
ogoba cocoa-nut (B; *ocob*)
ogovak cocoa-nut (P; *ocob*)
ogui what (*igi; igui*); probably an error
oguigu dead: *o.-dani* dying person = going to die; *o.-gal* dies; *tule o. -jal* person having died = corpse: *pe-oguigue* you die; *oguigui-mala-te* the dead (pl.); *oguigu-tani* about to die
ogui-nal ragout stew; = some kind of food (*naal*[a]; *nal*)

olívi mire; mud: *o. sunabite* slippery = thick mud (*chunabite*)
olmané accumulate; heap up
olmaque: turgua o. accumulate; heap up = filth heap up
olo gold = Sp. *oro*
ológüa round: *ibi o.* something r.: *matu o.* round bread = Host; wafer
olológüa round. Note reduplication
ome woman (P); pl. *-cana; -mal; -mala; ome-mal nueti-buet* matrimony = woman's good love; *ome-mal ibuja-te* matrimony; *ome chircua* niece; *o. necawey* marry a woman = house (*neca*)
omeyágua young girl (P)
omo- arrive; just done: *neca omo-dánigue* at home; just arrived (*omos-; tanique*); *cantiqui be-palmaque cuyegue omo-gal* thoroughly you do it so as to arrive quickly
omoe promise: *Dios purcue guilubu o. ipa-guena* Lent = God forgiveness being promise days in
omos arrive: *nen o.* we have arrived; *quebe omos* just arrived in harbor; *inggó pe-o.* when do you arrive
omoscu arrive; put into harbor: *o. machi nen onó chuli* we shall not find a ford = arriving for person we find not
omoscua beginning: *pirca o.* beginning of the year
onamágue pray (*namake; namague* sing): *o. nan-gati* pray for us; *Dios o. carta* God's doctrine = God's order writing; *o. picua* how many doctrines; *Dios e nana onamaguet* Hail Mary = God's Mother's prayer; *Dios onamaguet* God's commandments
onó find; meet; *que-gue o. tule Capitana* I could not meet the Captain = not find person Captain (*notópil*)
oodboti (P: *oot-*)
oodcacolah canoe (P: *oot-*)
oodwey sad (P)
ookey give; sell (*uco; ucse; ucue; uguegal*)
ootmola sail (P)
oowa fish (*hugua*)
opá corn; maize
opisal break; part; upset: *ulu o.* the canoe upset = breaks (*obpisale; piscali*)
opo on; upon (prep): *o. ulu pe-nae* on a canoe you go; *o. ulu pe-taquesa* on a canoe you look = have you seen a canoe
orne sister (RG). See *hurpa; urpa*
o-sabal pregnant (of animal): *o. mai* it is pregnant (*sabal*)
ostiquit sweet
o-tale-gal show: *nuet nen pincha-malo otale-gal* the good we think we must present (*talál* clear)
ote-gal lower: *imal o.* lower something; *yalá o.* lower a mountain
oteyo: yalque lute o. slippery place
o-tule-diba created: *iti-gua mastol o.* why was man created = made alive (*tula; tule*)
oturta- teaching: *o-turta-cal Dios* teaching of God: *pe-nuscana-je o-turta-ja* your children you have taught; *igi nen oturta* what us does he teach; *oturta-que Dios mai-guine-te* teach about (with respect to) God's existence; *nen cuequi oturta-cal* it instructs our heart; *ogui o.* what does it teach; *oturta-quet Dios onamaquet* teaching of God's commandments. Also = punish: *pe-an-ga oturta-que Niya neca ulguine* thou (couldst) punish me by means of Hell
oyó- indicate; show: *icar-bali pe nen-ga oyó-mal* you will show to us the road

P

pa demonstrative particle (*paibie; paipa; mepa; nepa; nigpa;* probably = *-ba*)

paba God; father (B; P; *pap*): *p.-nega* Heaven = father's house

pabacá eight

pábaka (P)

páca be; have; *mas-iguen chuli p.* he has nothing to eat (*-ca* as in *nica*)

pacal-mal three; Trinity (*pacua*)

packey buy (P)

pacua three: pl. *p.-mal* Trinity (*pacal-mal; pagua; paqua*)

pagló balsam

págua three: *p.-mal* (*pacua; paqua*): *ipa p.* three days; *ipa piti-bal* on the third day

pagwa three (B)

paibie that (*paipa-*)

paipa- that: *paipale mas-cune* they eat (B)

pája knife

pakébaka nine (P; *pakéwaka; paquébague*)

pakégua four (P; *paquégua*)

pakéwa four (B; *paquégua*)

pakéwaka nine (B; *pakébaka, paquébague*)

palá lock (n): *quinqui p.* gun lock

pali always; often: *Dios nan neca p. nane* to Church often go

pali-pali often (*pane-pane*)

palitos suffering: *p. Poncio Pilato choque-guine* suffering P.P. by order of

palmáque make (= *palmie*): *cantiqui be-p.* thoroughly you do it

palmáquet: quin p. oar = it makes blows (*quin*)

palmie do; make; perform: *carta narmacáleti p.* book order make = commandment; *igui gu-che-palmie-mala* = *igui-gu(a) che-palmie-mala* something (I) shall (*che*) do: *Dios palmie nan neca palmie* commandments = God's doing; Church's doing; *nahsa cho p.* volcano = earth fire make; *ibi guelgu nen palmie-mala* what joy we make = have

palô salt: *p. nica-te* salty = salt having; *p. nu sacile-ti* rock salt; *p. upile-ti* ground salt

pal-ti salt water; *pal-ti guilub* wave; billow = salt water it is

pan far: *achu pan* far cat = (Sp.) cat of a herd

pana to-morrow (RG) = far

pana: meja-ti pana kinsman = the far relative

panâ-ba far (*pandî*): *untar p.-jal* far away = very-from-far

pana-bi it is long: *icar-bal untar p.* the road is very long

pana-chuli near = not far

pandî long

panalogo girl (P; *puna*)

pane to-morrow (B; *pana*)

pane-pane continually (*pali-pali*): *p. hoipos* daily = continually day

pap father; parent; *papa-mal* parents: *pap nen-gati-te = Pater noster; pap tumâl* grandfather = great f.

páqua three (P; *pacua*)

paquêgua four

paquêbague nine: *e p.* the ninth (*pakébaka; pakéwaka*)

parmite(y) send (P)

parpáti spotted: *achu p.* tiger = spotted animal (*patparti*)

parpátiqui spotted

partáquet discharge; shoot: *quinqui p.* shoot a gun

pasian-che-di visit = Sp. *pasear* + *che* + *di* visit-make-it (-the)

patiqui mud turtle

patir priest: *p. epir-guine* bishop

patri priest

pato already; long ago: *p. nugüjal* it has already been healed
patóquit old
patpárti spotted (error for *parpati*)
páwaka eight (B; *pábaca; pábaka*)
pe thou; thee; you (P; RG *passim*): *pe-y-amal-ba* because thou (*be*)
pebe horn; temple of head: *moli pebe nika-ti* horned cow = having horns (B). See *pep*
pebe-galang forehead (B *sic*) = horn of bone (*cala; kala; pep*)
peckpequa small (P)
pecua- allow; permit: *pe-pecua-mal nenne-gal* you permit that we pass (go)
pe-gati belong to you: *imal p. chuli* things which do not belong to you
pel all (see *bel; bul*): *p. chuna-te* all true; *p. duminguin* every Sunday; *pel an-nacpigu* I am in much pain = all I have pain; *mele-gue bel istar chao* not all evil do; *pel an-choco Dios-guine* all I tell to God; *pel tule mala* all the people (*pela; peli*)
pela they; all; *pela-agati* belonging to all; *patur pela an-ga choco* priest everything says to me; *pela nen* we all (*pel; peli*)
pelguiluquet charity (*penguiluco; penguiluquet; puquet*)
peli all: *an-p. purca chaja-te* me all absolve (hast) made
pe-mala you (pl.)
pe-malo we become (incl.)
pen-chugal help: *uis p.* they wish to help
penguil oath; payment: *mele p. choquega* not oath say; *nen p.-mal* what we owe; *nen p.-mala* those who owe us; *p. pe-chumáque* oath you say
penguil-e-te owe: *mani aidle an p.* five dollars I owe; *igui e pap p.* what do they owe the father (*pennucal; pinguile-te*)
penguilúco charity = paying (*pelguilüquet*)
penguilúquet charity
peniengu lose: *ibi pe-p.* what did you lose = pay
penki who (interr.)
penqui RG for *penuco*; see *igue*
pennucal pay: *p. ticsala-jale e puquet* pay the taxes of payment = due
penuco pay: *carque an be-ga p.* dearly (well) I will p. you
penuque-gal pay: *p. imal ticsal puquet* pay something (on) taxes due
penuquet pay
penus- pay: *picua be-penusa-t-uquet* how much did you pay (*uquet*)
pep temple of the head (*pebe*)
pepe face; front: *mol pepe* cow horn
perquisa there is no more; none (RG)
persabuma: yer p. when one is on good terms. Can this = Sp. *persona buena*?
pes (?): *piaje iti ti etucubal pes* where are the sources of this river (?)
pesuna you (B. I): *p. ma:kutage* you eat: must = *pe-chuna* you truly
pi- = *pe-* thou (see *ckigli; pi-bione*)
pi- interr. element, seen in following words:
pia where: *p. mai* where is it (RG); *pe-neca pia epeja* where is (stays) thy house; *pia pe-neca* where is your house
piaje where; whither: *p. pe-nae* where are you going; = how: *p. mastol-guin guja-te* how was he made (for) man; *p. pe ichi* where do you live; *abi piaje nanedi* where was he going (RG)
pi-bioné beat; cement; join = *pi-bio-ne* you beat it (*bio-ja*)
picua how much; how many: *onamague p.* how many doctrines; *te mani p.* this value (money) how much: *ila p.*

how many times; how often; *p. tule* how many people (RG)

pili bargain; contract = Eng. bill (?)

pilí enemy; war: *p. guimanẽ* wage war; *p. icala* enemies' road

pina heart (B)

pinã slowly: *pina-pina* gently; *p. chumãque* speak low: *icar-bal p. nanedi* the road goes in curves = slowly

pinagua slow (P)

pin-apinagua patience (*apin*) slow receiving; or = *pina-pina-gua* slow slow it is

pinch- think: *istar nan pincha* evil we who think; *iõi istar pe-pinchaja* something evil you thought; *nuet nen pincha malo-atalẽ-gal* the good we think we must present; *mele pinche chugal* not think to get = covet; *Dios e pinche* (I) believe in God; *pe-guilub-guine pe-chogue pe-pinche-guin* in accordance with thy essence do thou tell what thou thinkest; *pinche-te* think; thought; *itõ-guete tegua pinchaja-te* the Creed who invented it = thought it (see *apinchu-; epinch-*)

pinguile-te debt (*penguil-*)

pini fresh; new. *mola p. cae* put on your new clothes

pipa pipe; stalk; tube (Sp.)

pipi-gua few (RG)

pipi-nan small (B. note the nasal *n*. B. also heard nasal in *pebegalang*)

pirca year: *p. apalã* half the year; *pirca-bali impa-guin* once a y.; *pirca-guena* one year; *pirca guinil-cuena* once a year; *pir-ca-impa-bali* once a y.; *p. omoscua* beginning of the y.

pir-chiat (*-chet*) take to the trees (of birds)

pirmèquet: gual p. bridge = tree thrown across (?)

piscali broken; parted (RG; *obpisale; opizal*)

piti what; which one: *p. e pagua-mal* which one of the three; *piti ati* what are they = is he

piti-bul sign of superlative = what all (more): *p. nuhueti* best

pochi quiet

pócua two; *e p.* the second; *pocua-guin* in two (*pogũe; pogwa; poqua*)

pocudgua absolution; forgiveness (*purcua*)

pogue-ti: quinqui tar p. gun of two barrels

pógwa two (B)

pogũé cry; weep: *p. imal istar an-chaja-te* weeping for something evil which I have done (*pohwey*)

pohwey cry; weep (P) = *pogũe*

popaliti: acho-xa p. animal (P)

póqua two (*pocua; pogwa*)

prestan-chaé lend = Sp. *prestar* + *chae* lending make: *an-ga maniai ambegui p.* to me ten dollars lend

pudúa wind (P; *punúa*)

púgulo calabash

pulá grass: *telmal p.* sea-weed

pulé how; what condition: *pe-pulé-gua* how are you; *pe-abogan-di pulé-gua* your health (belly) how is it; *pe-pap p.* how is your father

pule be born; *tule-ja Dios nan pule-ti* Blessed Virgin = for man God's mother bore him

pun tail (same as *puna?*)

puna daughter, female; woman: pl. *pun-mal; pun-dol-mal; pun e-pinchaet* of a woman think = fall in love with; *puna ibaet* matrimony

punagua woman: *p. chapin-tale-ti* woman before puberty = woman belly empty; *p. chona-te* girl after puberty = belly fat; *p. chuli* widower = woman without; *p. e nan* wife's mother;

p. e pap wife's father; *machi e p.* son's wife
punalógua girl (P)
pundatsogi you speak to me (P) = *pe an-ga chóque* you to me speak
pundol wife; *pundol-mal*, pl.
pune-gal petticoat ?
punna: caspá p. hammock rope
punú ashes
punúa wind (*pudúla*): *p. istar coldánigue* storm = evil wind comes violently; *p. quebe tánigui* storm wind coming
puque buy: *X neca huala pe-nae p.* (to) X's house tobacco do you go buy
puquet pay; payment; due: *ticsajale e p.* taxes due (*purcua*)
pur: ti a-pur mist; *pur* = vapor; hence *purco* die; *purpa* soul (*purwaga*)
purco die: *nan -p.* when we die (*purcuen-; a-purco* by his death; *purcuet; purcuis*). This *-co* = *-gu* die (*pur*)
purcua forgive: *an peli purcua chaja-te* me all absolve (hast) done; *Dios purcue guilubu omoe ipa-guena* Lent = God forgiveness (*p.-guilubu*) promises in-the-day-when
purcuena-mala-te from the dead (*purco*)
purcuet death: *Dios p. guilubu* when God died = God's death being
purcuis tulaja-te he dies from life: *piaje—p.-degua* how did he die
purgana help (?): *Juan p. emie* help John clean
pur-mutágue confess: *inacua pe -p.* when did you confess (*purtacal*)
purpa soul (*pur*)
purque die: *Dios purquet guilubu* Lent = when God dies; *purque-tániqui* to them going to die (see *pur-tániqui*)
purtacal confess (*purmutóque*)
pur-tániqui going to die = faint
pur-taquet dream (see just below)

purtequege-gala: nue p. reverence = good seeing (*pur-taquet*)
púrtiquet mirror = *purtaquet*
purwaga wind (B). See *pur* mist
pulú partridge

Q

quaequah quick (P)
quaqua parrot
quayartan big (B)
-güe = *-güe* = *-gua*
que not: *tule que atac* people not see him = invisible; *que cuena* never; not once; not proper; *que cuena nanga epe-malo iti-guine* it is not right for us to stay here; *que cuena uláicusguela* there is no time for one to rest; *que cunoet* lack of appetite = he does not eat; *caca-bal que ti be-ne-gal* it will not be possible for us to ford the river; *mele-gue* so as not to; *quecuja* not be safe = suffer; be ill; *quegue ono tule* one cannot find (him); *que choque-ti* (I) cannot say
queb sign of present and future; *q. ancuno* I am eating; *q. nanao* he is travelling: *an q.- nao* I will go; *q. noali* it is going up; *q. nulaque* it is going to heal; *q. tániqui* future time = it is coming; *quebe omós* just arriving; *punua quebe tániqui* storm = wind just coming
queed bald monkey = without leaves = hair (*ca*)
que-cujal sick; *pe q.* you are sick; *guilubu q.* (I am very) sick = s. being (*cuja*)
que-cús: ibi q. what is the matter = what is not safe (well)
quenúco promise: *an-ga q.* he promises me
quenúquet promise
querquer pawpaw tree
querqui: ito q. touch (?)
quesnu tick (insect)

-quia: chogual-quia = Sp. *tuco* = smoke pipe. Same element as in *ti-quie (guia; ki)*

quil eternal, ancient; *q. chenti* eternal old one; *quil pap* eternal father; *canti-quili* strong = strong eternal one

quiley dance (P; *quine-gal*)

quili ant

quilú uncle; elder brother (see just below)

Quilu-le Christ

Quilu-lele Christ; God

uin seems to mean 'strike; explode'; hence all the following:

quincua ammunition (RG)

quin cune gun-powder (RG) = gun (= *quinqui*) eats it

quiné dance; *quine-gal* dance

quinegua he went = he ran striking with feet (jumping). See *quini*

quineti: achú q. lion = jumping animal

quin-palmáquet oar = makes blows

quini squirrel (jumper). See *quinegua*

quinicua lead; bullet used in gun (*quinqui*)

quiniti black (RG); red (P); separate root from above

quinqui gun = striker: *q. curquina* cap for gun = gun-hat; *q. palá* gun-lock; *q. shique* fire a gun = break gun; *q. tar pogue-li* gun with two barrels

quis poisonous (*choguagua*)

quisquis green-bill (bird)

R

ruti black (RG); dark-blue (RG); *tule r.* negro (RG)

rei king = Sp. *rey*

S

snabi shit (= *chapin* belly ?)

sábala belly (RG; *chapal*)

sabanya stomach (B; *chapin*)

sacále-ti: palá nu s. rock salt = salt rises to the top (*sacale* = *chagla*)

sacke net (P)

saco bag (Sp.)

saddá bring (P; *chotáque, sedey*)

ságala head (RG; *chagla; saigla; sagla*): *s. mala* head cloth (RG)

sagar: s. an-quiro naja-te thoroughly I exude sweat

sae (*yna*)

ságla chief (*chagla; sagala*)

sai yesterday (B; *chaí*)

saigla head (; *chagla; sagala; sagla*)

sailaigiang hair (B *chagla* + *igi* + *gua* = head what is on)

saja shade; shadow

sakwa-wala arm (B)

sakwa-yokow elbow (B) = arm joint (*yocor*)

sana body = *chana* flesh

sanu when; now: *s. nen-tal ta-malo* when (or until) I see you = until we (*nen*) see (*ta*). See *chana-je; sanu*

sanah meat (P; *chana; sana*)

sanu when: *s. pe-nae* when do you go (RG). See *chana-je; sana*

sapato shoe (B; Sp. *zapato*)

sape: s. turpa food (P)

sapécah leaf (B; *chapica*)

sape-wala tree (P; *chap* + *gual*)

sapi tree = *chapi* (B)

sapingua young (= has a belly [*chapin*]) Refers to the protuberant stomach of the children

sarsas tremble: *s. an tampe nica* trembling I have with cold (*tampe*); *s. an-hugal nica* trembling I have with fever (*hugal*)

sarsoja: tule s. kill a person (*tule*) = he killed someone

sasar-tigui-al deluge (*ti*)

satu work (RG; *satune*)

satune work (*satu*)

sayegua: capi s. sugarless coffee

se- blessed. See *guilub* and *se-guilub; nusa-*

secol- call: *te machi an-secolo* this one I call son = adopted son; *te pap an-secolo* this one I call father = adopted father; *pe-papa-mal chumanmala-te impa-guine pe-secole* your parents once a week do you visit; *oguigu-dani patir secolo* a dying person calls the priest = Extreme Unction; *tule macharret nen secolmalo* the cacique we shall call

secsequa dark (P)

sedey carry (P; *chetaque; sadage*)

se-guilub festival: *Dios nan s. tese nonöce* I return for the f.

Sék Jack; John (P)

sequiti: echa s. sword = knife that cuts (*chique; sique*)

serredi old (P; *chenetu; chantu; chereti; chunati*)

shó fire (B; *cho*)

sickey cut (P; *chigli-; chique; sequiti*)

sichígua black (*chichígua*)

sina pig (B) = *china* dirty

sipile-ti: nabsa s. dust = white dirt

sipöwadi white (B; *chipugua; sipugo; tsipugua*)

sipugo white (see just above)

sipilal beard = white beard

siquey bird (pron. *sikwe* = *chicui*)

siya seat = Sp. *silla*

sorgewa feel (?): *pe ukruba s.* you feel hunger = you are hungry

suara wood (P; *choana; chuara*)

suba coat (B)

suey take (P; *che*)

suli no; not; without (B; *chuli*)

sulu monkey (B; *chalo; chului*)

sünmackey talk (P; *chumágue*)

sunmake speak (B; see just above)

súquia sarsaparilla plant (RG)

soqui: chaglá s. long hair; green corn (*choqui*)

sunabi-te thick; dense: *olivi s.* slippery mud thick (*chunabi-te*)

T

tabá viper

tac see: *ti nacuial an-tac* I look up the river; *apin-tacuelo* hope. See *apta-cuelo*

tacuelo (*aptacuelo*)

tachi fox

tada sun (P; *tata*)

taglegue: nngüe t. pleasing to the taste (*taque*)

tagsah see (P; *atac; taikse; takse*)

tagua see: *be-t.* you look at (but cf. *chamúcua tagua*)

taiksa see: *an-t.* I see (B; *takse; tac; tagua; tale*)

táim crocodile; caiman

taima alligator; crocodile (B)

take see (B *taksa*)

takowe see: *an-t.* I shall see (B)

takse see (P; *atac; tagsah; tague-sa; taunemala*)

taldi llama

taldi clear (*o-tale-gal*)

-tale see (*hur-taletale, napritalegüe*)

tali fathom (RG) Eng. tally (?)

talmal sea (*telmal*): *t. mola* sail = sea-cloth

tambi. gual t. = *palo frio* (*tampe*)

tampe cold: *t. iloguete* I have cold; am c.; *t. nica-te* it is c.; *t. cojal* catch cold (*temperipa*)

tánigui come: *t. pe shogue* tell him (*pe-shogue*) to come (RG)

tánique (*-i*) come, go; *neca an-t.* I come from the house; could also mean I come to the house (?); *purque dánique* going to die; *purque t.* those going to die; *punúa quebe tánique* storm = wind is coming; *chames t.* = *mojosa; queb t.* he is coming; also = future time

tapá corotu tree

tapali: acurmaque t. run lightly

taque go (*toque;* frequently confused)

taque perceive; see (RG): *utu t.* look to the canoe: *an-che-be-taque guine* I will do in accordance with thy perception = as you think best; *sho pe-t. nae* go see to the fire; *sho she t.* get (see) some fire; *sho t. pe she* get some fire (RG); *taque-gal* (he) shall see = they; *Dios taque-gal* look to God

taque-za see: *Pascual pe-t.* have you seen P. (RG)

taquet: an-mal istar an-t. we see evil = we feel rancour; *a-t. parcuena-mala-te* he saw the dead = he rose from the dead; *istar an-t.* I see badly

tar old man

tar hole (?): *quinqui t. pogüe-ti* the gun has two barrels

tar: Dios nan Maria tergui tar-ga choco God's Mother Mary ever Virgin; *na-cruz-guine-tar na chis-mala-te* on the Cross they place him (*-tar* prep. here); *tar nuer arcuanali* sun (*tar* here = *tatá*) well (*nuer*) goes down; *tar-mete-gal* fling; throw; *Quilulele Dios-nan-neca tarre* with Christ's Church; *tua-tar* for sin; *is-tar* for low = evil; bad

tarcua bustard

tata father

tata sun: *t. acuanet punula* west wind = sun-set wind; *tata arcuana-te* west = sun-set = it begins to get dark; *tata e gualcal acal-ba* eclipse of the sun = sun himself hides

tatragua lean; thin (RG)

taune-mala let us see (*tahse*)

te this; that: *te hoipos* that day; *te chapi* this tree; *te-bal* from there; *te mani picua* this value how much; *te istar chija-te* something evil when one says; def. element suffix also in vbs. as *na-te; te-bali* there; *te-chulil* a long time (often written *-ti*)

te-di: t. chuli it cannot be; *chana-je t.* when shall it be

tegi-mala good-bye (P) = (I) wish (good) things (*tegui*)

tego: nen-di-tego chao even as we do (?) = *-tegua* indefinite element

tegua who; what; also interrog. as *pe istar chumaja-te chuli t.* you evil have spoken it not = *tegua;* question; *tegua-mal* whose (pl.) = *degua; tegua iti* what is it

tegue prob. = *tegua: tule mele mecho tegue mele* did you kill anyone = one not kill anyone not

tegui will; wish: *matu pe-t.* bread will you have; *tule tegui pe she* what people want you bring; *an t.* I will; *an t. chule* I will not (*tegue*). Cf. *tegi mala*

telma matá bay = sea-lake (*telmal*)

telmal sea (*talmal*); *t. caca-bal* sea-shore = on sea mouth; port; harbour; *t. puld* sea-weed = grass; *telmala mila nica* in the sea there is shad

telmalah sea (P)

telmamulú wave = *telma-mulú* sea-tide (?)

te-mala thing: *ti t.* (B) water thing; *t. igui nec-guilubu* this thing what does it mean

tempereripa cold (P; *tampe*)

te-nal because (*chul-tenal*)

tegue wish; will: *mania an-gati pe-asobando t.* do you give me the silver = silver to me you give wish (*tegui*)

tergui Virgin (see *tar*)

tese: Dios nan se-guilub tese nonoco I return for the festival

teyópe may it be; so; thus; amen: *Dios icar-bali nue teyopi* on God's road may it be well (see *ayopi; -yo-*)

-ti def. sfx. (*te*)

ti water; rain; river: *ti angam-bal* ravine = water course; *ti a-pur* mist; *ti kopye* thirst (B. water drink; see *cope*); *ti-cope tiolegue* I have thirst; *ti caca-bal* river-bank; *ti chiet* jar = water-holder; *ti itiquiga acua coál-codl* water has stony shores; *ti punûa* south-wind = water wind; *ti temala* sea water = thing (B); *tibalo* sea (B); *pal-ti* salt water (see *tigual; tiguie; tiquie; tiwia*)

ticsal tax: *t. puquet* tax due

tigual rain

tiguala river

tiguê bury: *t. neca* cemetery; *ap-tigue-ti* (canoe) it (*ap-*) is loaded (buried in water)

tiguê sow

tiguie rain: *t. dânique* it is going to rain; *napij-t.* spring time

tilagua ripe; also brown plane-tree

tina dry = without (?) water

tinagua sunburned; toasted: *ina-ti t.* burned wine = whiskey

tiquie winter = rainy season (*tiguie*)

tisla scissors

titi = *titi*-monkey

titirigue liquid (*ti* water)

tiwia rain (P; *tiguie*)

toco find: *piaje nen t.* where shall we find

toga much; very: *urrue t.* very bad (RG); *kuie t.* very idle; *mania t.* much money (*togua; togue*)

ogua: mania toga pe-ulugua t.-cate whence did you obtain so much silver (*togue* = enough). *Pe-ulugua* seems to mean 'in your box'

togue enough (RG). See *naperiji-togue; toga*

tomo-mackey swim (P)

top fear: *top chuli* he is courageous; without fear

topê afraid: *untar t.* very much afraid

toqué go forward: *pe t.* you go forward (sometimes written wrongly *tague*)

toro blow; play: *como-t.* flute-player

totae play; sport

totagua little; short (RG)

toto: Dios Nan t. guilubu God's Mother's play = feast = Easter

toto-ga fondle; pet = *toto* play with

totogua little?: *moli t.* heifer = little cow = tender (*tutugua*)

tsipúgûa white (P; *chipúgûa*)

tua sin: *mele-gûe tua-tar mumurú* not for sin to get drunk (*tue*)

tuale-ti cooked: *chana t.* cooked meat

tua-tua raven

tubú island (*tupu*)

tucal neck (?): *mol t. chichigûa* neck-cloth = cravat; cloth of neck black

tucúlal nail: *cohué t.* finger nail

tue sin: *tue-ga* for sin (*tua*)

tugual leg: *t. e caló* marrow = leg of bone; but *t. yocor;* leg; really hip; knee = leg-joint

tuis-cal breast; teat

tul (gold) earring

tula alive; live (B): *ampa t.* lively; living; *Dios t.* living God; *ib t.* domestic animal something alive; *moli t.* cow = live cow

tula atâle hundred (*tul-atale*)

tula-bógûa forty (P)

tula-bógûa kak-ambégi fifty = forty and ten (P)

tulabuena twenty; *t. cacá cuênchique* twenty one; *t. cacá ambégui* thirty = twenty and ten

tulaguala buena thousand

tulaguena twenty (P; *tulabuena*): *t. kak-ambégi* thirty

tula-pâgûa sixty (P): *t. kak ambegi* seventy = sixty and ten

tula-pakêgûa eighty (P): *t. kak ambégi* ninety = eighty and ten

tula paquêgua eighty

tulatdle hundred (P)

tule man; person; Indian: pl. *tule-mal(a)*; *pel tule-malo* all the people; Indians; used impersonally: *t. cacanche ab-choque* one tells a lie (*cacanche*). As object: *nagpe t. cunolile* snake bites a person; also = people: *mele t. mechoc* not people kill. *Guilul tule* he lives = is alive; *an-tule-gata-wizi* = *an-tule-caca-guichi* I Indian language know = I speak Indian; *tule cac chumâque* he speaks Indian; *o-tule-diba* he was created = made man

tule-cal prison = people hold

tule cuiel owl

tule-ga accus. of *tule* people: *tule-ga-bal nuxuet* he names the people = baptizes

tulegua live (*tule*)

tule-ja born = from life: *t. Dios Nan pule-tĭ guilubu* from the life of God's Mother = he is born of the Virgin

tule-macharret = *cacique*

tule-oguigu-gal corpse = person (who is) dead

tule-tumâdi giant = big man (P)

tuli-achu domestic dog = people's animal (B)

tumâdi big (*tumât*)

tumât big; high; tall (*tumadi*). See *nan; pap: e tumati-le-guine* to the Almighty; *esmet e tumati* cauldron = big pot; *puna t.* elder sister

tupá thread; wire; *nerpa t.* thread (RG)

tupu island (*tubú*)

tupu bamboo; tube: *ape t.* vein = blood tube; *chatequi t.* royal bamboo; *chagua t.* = *majagua* = hibiscus

tupunú greeting: *aya t.* friends' greeting (mutual salutation)

tuques snake-fish = Sp. *doncella*

turgua filth; nastiness: *t. olmaque* accumulate filth

turruiye: neca t. broom = house cleaner

tur-taque-gal warning

tut flower

tutu flower (B; *tut*); *chaglá tutu* memory = flower of the head. See however just below

tutu tremble: *neca tutu maquet* earthquake = trembling catches the house

tutugua soft; tender (*totogua*)

U

u- give; grant; seen in *u-is; uque(t)*

ua-cai sickness: *u. pe-nica* are you sick = sickness you have (RG). *Ua* may mean 'illness' + *cai* = *cae* catch; hold

ubsana cotton

ucá skin: *hugua u.* fish-scale = skin (*nka*)

uco give: *nan-ga u.* give us = to us give (*ucue*)

ucse give: *an-cal u. mastol puna moga* hand giving of man and (*moga*) woman

ucubu sand (*ukupu*)

ucue- give: *patir ucue-mal purque-tâniqui* the priests give (it) to people going to die (*acoe; eokey; uco; ucse*)

ucú-mdque flow; run (*ucur-maque*): *u. tapalí* run lightly (*ucurga*)

ucur hunger: *u. an-itogüete* I have hunger (*hoguropa; ukruba*)

ucúrga ferry; float; raft = something for (*ga*) floating (*ucú[r]*)

ucur-gual raft pole

ucur-mate quickly (RG); here *-mate* = *-maque*

ucho = agouti (RG), but this = *achu* = any animal

uchup knee

ueaca must be error for *cuenchique* = only (Son)

ugua ear: *u. atigul* ear cover = deaf

ugua fish (*hugua*): *u. chana* fishes' meat

úis desire (see *-yo-*): *úis cune* glutton = wish to eat; *úis-eu-gal* desire to serve (?); *úis itogüe-te* desire for faith = faith; *úis itógüe malso* it is time to take the siesta = desire to take—; *úis-penchu-gal* (they) desire to help; *uis ulucus-guela* (we) wish to rest; *ti an-ga úis-u-tague* water to me desire to give = please give

uiede fling; throw

uka skin (*uca*)

ukruba hungry (*hogurapa; ucur*)

-ukai give (*caner-ukai; ookey; uque*)

ukupu sand (*ucubu*)

ulba-: eaca u. lip = below the mouth (*ulbal*) = lower lip

ulbal under: *chapi u.* under the tree, *ti u.* subterranean river; lit. under water; *abogan u.* girdle = beneath the belly

ulguine by means of: used with *itogüe-te* believe + *ulbal*, for 'believe in;' *Niya-neca u.* by means of Hell

ulmola sail

ulu canoe (*hulu*): *u. opisal* the canoe upset = broke (*ulugua*)

uluc- rest: *nue ulucuja* penance = well rested = cleared of sin; *ulúcus* he is tired; *pe- ulucus-bie* you wish to rest; *nen uis-ulúcus-guela* we wish to rest; *ulucus epe-mal* it is good to stay; *que cuena ulcus-guela* it is not proper to rest

ulúgua box; trunk (*ulu* canoe)

umoe brave; savage

umoet brave; savage

umpa forward: *ical-bal u. nanedi* the road goes forward (*ampá*)

uni how; why (*unigua*): *uni be-gui chuli* why do you not know

uni ataquet they are visible (?) = how does one see them

unica how

unicar how

unigua how

uni-la atac (I) met him = saw him

unilagua Savior

un-malo; an-gan u. whatever there is

untae very: *u. nigpa mai* it is very high (*untar*)

untar much; very: *u. impa-gam-bali* very often; *u. panaba-jal* very far; *u. urrue* very strong (*untae*)

upi flour; meal = ground stuff

upi-le-ti ground: *palo u.* ground salt

uque- give; sell: *ibi nen-ga u.* what have you to sell us (*ocoe; ookey; uco; ucse*)

-uquet pay; seen in *pen-uquet; penguil-uquet*. Same stem as above with def. *-t; picua pe-penus-at-uquet* how much did you pay

uqueta sell: *pe carque u.* you dear sell

urpa brother (RG; *hurpa*). Same *ur(or)-* stem as in *orne*

urtalegua: murrucua u. portinger (RG); *naala u.* dish (RG)

urrue bad; strong: *pe-u. toga* you are very bad (RG); *u. tule* bad man; *monia u.* bad money. In the sense 'strong' it is used of the sun (*urunia*)

urunia chief = strong one ; sun

utague give (*úis*)

V

vaso glass Sp.: *v. ti* glass of water

W

waduku ear (B)

waga foreigner (P *guaca*); *w. sichigwa* Panamanian black-foreigner; *w. sipugo* Spaniard = white foreigner

wagala face (B): *guacal*

wag-madunu banana = foreign *matun*

wagoba seed (B)

wagupu yam (B)

waraqud wet (P)

wisi know (*guichi*): *tule-gata-wisi* to know the Indian tongue (P)

Y

yahlique constant
yaetique shut: *y. guanabcaca* shut the door (RG)
yaguin: neca y. room of house = inside (*yarqui*)
yaguagú silent
yahalah mountain (P; *yala*)
yalá hill; earth; mountain: *y.-gam-bali* in the mountains; *chapur y.* cleared ground; *yal-guin imal hueye* in the earth something reap
yalque place: *y. lute oleyó* slippery place
yan-cala back: *chumur y.* back-bone; *cholbal y. cuencheye* to take someone on the back (*cala; yargana*)
yan-calba: pe.-y because you are = for your back; *yancal-bal* behind: *tule y. istar imal pe-chaja* behind people something evil you have done = slander
yanu chapur wild boar; peccary (RG)
yanúca tortoise-shell (*yauca*)
yapá refuse; repent: *y. an-ga chumáque* (you) refuse to speak to me
yapane odour; smell: *guagua y.* smell a smell; *istar y.* foul smelling; stinking
yargana back (B; *yan-cala*)
yarqui within (*yaguin*): *ti yarqui* water is coming in = it leaks
yaquir pass: *y.-gu-gal* pass over; *ti yaquir-gu* the rain has passed
yaúca turtle (*yanúca*)
yaydi son
yaya-le elder brother = the son
yavi key = Sp. *llave*
yco needle (*ico*)
yer when; because: *y. an-nacpigu* because I repent; *y. naquin maja-te* because thoroughly (I) sweat; *y. persabuma* when one is on good terms
yinagua dry (P)
yo particle: *yo nan purco* when we die: *pe-yo* thou indeed (*yoo*)
yocala shirt (RG). See *yógala*
yocór ankle; lit. joint (see below); *tugual y.* hip; knee (*sakwa-yokow*)
yocór mulatto dog (?)
yocor chumal elbow (= *chincal* or *chuncal*)
yocúcur bird
yógala shirt
yol: y. punua north wind
yola north; *nec y.* summer = north of the house (?)
yonèc kúgur summer = season hot
yoo soon; instantly (*yo*)
yopi-te at once: *an y. pel an-choco Dios-guine* at once all I tell to God
yoque dress; suit of clothes: *mola yoque-te* dress oneself
yoquincugal violent
yorcua: tata yorcua noon (RG) = sun's middle (point)
yorocú: ipe y. noon = day's middle or half
yna sae medicine (RG; *ina*)
yncu when: *y. pe-nae* when do you go (RG). See *inggo*.
ynuale-ti shirt (RG)

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BRIEF HISTORY OF THE INTERNATIONAL CONGRESS OF THE AMERICANISTS

By ALICE C. FLETCHER

THE organization known as the International Congress of Americanists originated in Europe, more particularly in France. As in the case of many other important scientific bodies, the plan for this Congress was for some time in preparation.

The Société Américaine de France was organized at Paris in 1857, to encourage the study of the past life of the peoples of the American continent, and was an outgrowth of the interest in this subject aroused among European scholars by Humboldt while a resident of Paris during the early part of the last century. Under the impulse of his information and ideas an important awakening of interest in America manifested itself among European men of science, and, above all, in everything that concerned the original peopling and the native inhabitants of the New World.

In 1863 the value of Americanistic study was emphasized by the formation of a committee on American archeology within the Société d'Ethnographie of Paris. Meanwhile the interest in American matters had become so extended as to suggest the feasibility of bringing together, for mutual help, persons from different countries interested in American research.

In 1867 a plan was outlined for an international reunion of "Americanists" during a conference that took place in London between M. Matin de Moussy, at that time President of the Société Américaine de France, and Mr W. Bollaert, a resident of London who was a correspondent of the University of Chile. The plan outlined at this conference was not immediately realized by the Société Américaine de France, but was held to through all the vicissitudes that befell the country during the wars of 1870 and 1871; and when in 1873 the Société resumed its meetings the subject was again brought forward and discussed, and action determined on. Accordingly the president and the secretary of the Société issued an invitation, dated Paris, August 25, 1874, and addressed to "All persons engaged in the study of America, the interpretation of its monuments, and the ethnographical writings on the races of America," to meet at Nancy on July 19–22, 1875.

This became the First Congress of Americanists. Every country of Europe responded to the call by letter or by delegation. Among the official delegates were Dr Reinich of Vienna; Dr Liemans of Leyden; Dr Lublein of Norway; Don Vicenti Vasquez Queipo of Madrid; Dr F. Lancia of Palermo, and Dr Paplonski of Warsaw. The British Museum was represented by Dr R. H. Major; Mr Boliaert with Mr N. Trübner came from London, and the President and Secretary of the Société Américaine from Paris. Algeria was represented by M Cahen Hondas, Professor of Arabic at Oran; Dr Stephen d'Austarchi came from Constantinople; M. Ogura Yomon from Yedo, Japan, and Dr Chile y Naranjo from the Canary islands. Every country in South America sent delegates. Among these were Don Vicente Quesada, Director of the Revista de Buenos Ayres; Don José M. Semper of Bogota; R. P. Faller, Rector of St Gabriel College, Quito; and M. Felix Dibos, of Lima. Canada was represented by M. R. P. Anthoine and the Reverend John Campbell. Mexico sent Dr Pimentel, President of the Liceo Hidalgo. The United States delegates were Prof. Joseph Henry, Secretary of the Smithsonian Institution, and Robert C. Winthrop, President of the Massachusetts Historical Society.

The first Congress met at the appointed time and place. The mayor of Nancy made the city gay with the flags of all the American nations from Canada to Paraguay. The meetings were held in the Ducal Palace, whose great hall was decorated for the occasion. At one end stood a sheaf of the various American flags, at the other end hung a group of four large shields bearing the names of Lief Erikson, Jean Cousin de Dieppe, Christopher Columbus, and Amerigo Vespucci. In a separate room a collection of various artifacts illustrative of the arts and life of the native tribes of America was exhibited.

Sixteen articles of organization were formulated and adopted. The first stated that the International Congress of Americanists had for its object the contribution to the progress of the study of the ethnography, linguistics, and historic relations of the two Americas, especially during the pre-Columbian period. The other fifteen articles pertained to the organization of the Congress. The officers were to be a President, a Secretary, and a Treasurer. The principal work was delegated to two Committees, one to be formed in the city in which the Congress was to be held, the other to be composed of members of the Société Américaine and the Institute of Paris. Baron du Mast was elected the first president, and Dr Lucien Adam the first secretary.

Many of the papers presented dealt with alleged pre-Columbian

voyages and the traces of possible contact between the eastern and the western continents prior to 1492.

One paper may be especially mentioned: it was called "The Dream of Columbus" and was read by M. Gravier. The writer dwelt on the hope of the fifteenth and sixteenth centuries that the Indies could be reached by way of America, or rather across America. He mentioned the proposal made by Alvarado in 1534 that a canal across the isthmus by way of Nicaragua would open a passage; of Gomara in 1551 to establish a road from one ocean to the other; of the proposal in 1698 by Mr Peterson, the founder of the Bank of England, to organize a party to explore a route for a canal; of the views on the subject of Lord Nelson in 1790, of Louis Napoleon in 1840, besides others. He closed his address by declaring that "Science and Art will yet accomplish the Dream of Columbus!" It is to be hoped that some who heard this declaration of M. Gravier may be present at the Congress that is to meet in Washington in 1914, to rejoice with us and with the world that the "Dream of Columbus" has at last been realized.

According to the rules adopted, the Congress was to meet every two years, and the second gathering was held at Luxembourg in 1877. The attendance was large, and thirty-one names of persons appear as delegates from the United States, representing the District of Columbia, and the states of Maine, Massachusetts, Connecticut, New York, Ohio, Illinois, Michigan, Wisconsin, Missouri, Iowa, and California. A letter was sent to the Congress at Luxembourg from the Governor of Indiana and the Mayor of Indianapolis inviting the Congress to hold its third meeting in that city. According to the by-laws in force at that time, however, the Congress was obliged to hold all its sessions in Europe, therefore the invitation had to be declined. Many eminent men took part in the proceedings, among them Dr Rudolf Virchow of Berlin, who treated and discussed physical anthropology.

The Third Congress met at Brussels in 1879, and the interest was unabated.

In 1881 the Fourth Congress convened at Madrid. To this Congress was presented by Major J. W. Powell, the first official report from this country concerning the work that was being carried on by institutions in the American field. He told of the founding of the United States Bureau of American Ethnology, and of the activities of the Smithsonian Institution, the Peabody Museum of Harvard University, the Archæological Institute of America, and the Academy of Sciences at Davenport, Iowa, and mentioned some important contributions that had already

been made to the study of America. He concluded by saying, "It will thus be perceived that the field has already been extensively cultivated and its magnitude recognized." Major Powell urged the Congress to arrange to hold a session in America in the near future.

In 1883 the Fifth Congress met at Copenhagen.

The Sixth convened at Turin in 1886.

The Seventh was held at Berlin in 1888.

The eighth met in 1890 at Paris. At this session plans were made to make the Ninth Congress, which was due in 1892, commemorative of the discovery of the new Continent by Columbus, and to that end it was agreed to hold the meeting in the convent of Santa María de la Rabida in the province of Huelva, Spain.

The Ninth Congress accordingly met at Huelva in 1892 under the auspices of the King of Spain and his cabinet. The Spanish authorities offered cordial hospitality, and the railroads seconded the generosity of the Government. A remarkable exhibit illustrative of the history of the American continent was brought together and skilfully displayed. In this task several nations, including the United States, participated.

During the session of this Congress considerable attention was given to the question as to whether the name America was derived from a native term or from the name of the Italian who wrote of the voyage of Columbus. Charts were exhibited tending to show that the name was used prior to 1507, the year when the proposition was made at St Die to honor Amerigo Vespucci. In connection with the discussion of this question a letter was read from Sr Cárdenas, President of the Republic of Nicaragua, dated May 22, 1882, in which he said, "Not only is there a chain of mountains called Amerique, but this chain is inhabited by a tribe called by that name and there are indications that the tribe was found in this region in the old time."

The Tenth Congress was held in Stockholm in 1894. At this session it was decided to hold a special meeting during the following year in the City of Mexico.

The Eleventh Congress met in the City of Mexico in 1895, and for the first time assembled on the continent which was the field of special study and interest to the members.

At the Stockholm meeting it had been agreed to hold the next regular meeting in Holland, but, owing to unexpected obstacles, the session was not convened. However, in 1900 the Congress resumed its regular sessions and the Twelfth reunion was held in Paris. At this gathering a resolution was passed to the effect that thenceforth the

Congress of Americanists should hold its sessions alternatively in Europe and America, every two years, but never twice consecutively in any one country; and this resolution has since governed its movements.

In 1902 the Thirteenth Congress met in New York. The attendance was large and representative, both as to nationalities and to scholarship.

In 1904 the Fourteenth Congress was held in Stuttgart.

In 1906 the Fifteenth Congress convened at Quebec.

In 1908 the Sixteenth Congress met at Vienna.

In 1910 two sessions of the Seventeenth Congress were held, one at Buenos Aires, the other at the City of Mexico.

In 1912 the Eighteenth Congress met in London.

All these meetings were of a high standard in regard to organization and well attended by prominent Americanist scholars from all countries, many of whom represented either their governments or notable institutions. The Congresses were helpful in bringing together men dwelling far apart but working in related lines, and were also very pleasant socially.

The valuable scientific proceedings of these congresses have been published and constitute a series of twenty-four volumes.

At the Paris session, in 1900, a set of Articles and Statutes was approved by the Council for future congresses of the Americanists, a translation of which is here appended:

ART. 1.—The International Congress of Americanists has for its object the historic and scientific study of the two Americas and their inhabitants.

ART. 2.—This congress takes place every two years: as far as possible, it shall alternate its sessions between the Old and New Worlds; it cannot meet twice following in the same country.

ART. 3.—It is composed of the reunion of the persons who have requested admission and paid their subscription.

ART. 4.—At the end of each session the Congress designates the place where the next session shall be held, and chooses a certain number of persons charged to constitute an Organizing Committee at the designated place.

ART. 5.—The Committee names its President, and chooses at its pleasure its resident and corresponding members.

ART. 6.—The Committee fixes the exact date of the session, the number of sittings, the amount of subscription, arranges the program and the questions to be treated; prepares, if there is occasion, the preliminary reports to be produced at the Congress, sends the invitations, receives subscriptions, and delivers members' tickets.

ART. 7.—The Committee takes charge of all the necessary arrangements which concern the places of meeting of the Congress and the holding of sittings.

ART. 8.—The lists of subjects considered by the Committee are sent beforehand to the members; these may propose for the Committee's acceptance such modifications as appear to them useful; a part of the sittings of each session is also reserved for questions not comprised in the program, which may be proposed by a member and accepted by the Committee.

ART. 9.—The Bureau of the Committee performs the functions of a Provisional Bureau during the first sitting of the session. The members of the final Bureau are nominated during the sitting.

ART. 10.—The final (définitif) Bureau is composed of a President, of six Vice-Presidents, of whom two at least belong to the country where the Congress is held, a General Secretary, four Secretaries, and the Treasurer.

ART. 11.—The Congress may confer on persons noted for services rendered by them to American studies the titles of Honorary President or Vice President.

ART. 12.—A Council is attached to the Bureau: it should include, as much as possible, members of all nationalities represented at the Congress.

ART. 13.—The Bureau and Council united have to examine resolutions presented to the Congress, and to make reports on them, if necessary; they will pronounce on any appeals which might arise, will study the modifications to be introduced in the rules, the propositions relative to the seat of the next Congress, and will determine the distribution of books and objects offered to the Congress, which must always belong to the country in which the session takes place.

ART. 14.—A commission of five local members is united with the General Secretary and the Treasurer to constitute a Committee of Publication, which has the fullest authority to publish the proceedings of the Congress and clear up the accounts. This Committee will see to the distribution of the volumes.

ART. 15.—A permanent Council composed of the former Presidents and General Secretaries is charged to maintain the tradition of the Congress, to watch over the proper execution of the regulations, and to face the unforeseen difficulties which might arise in the interval between two sessions. The President and General Secretary of the previous session exercise the same functions towards the permanent Council, and will arrange the negotiations relating to the holding of the next Congress which will take place on the same continent.

DISCUSSION AND CORRESPONDENCE

NOTES ON THE INDIANS OF MARYLAND, 1705–1706

In manuscript volume 2291, in the British Museum, is an account of a "Voyage to Maryland—1705 and 1706." This manuscript, although rather brief, contains some interesting references to conditions prevailing in the colony at that time. It does not, unfortunately, contain the name of the author, but its authenticity is beyond question. That part of the manuscript treating of the Indians is given below:

Fol. 10. "The Indians of that countrey are very Lusty Propper men as you shall see, having fine straitt Limbs of a Tawney Complection, useing Beares Greese to anoint themselves and so lett it dry in the sun. there haire is as black as jett but they Notch itt and Cutt itt into severall formes and shapes as Best likes 'em, being verry antick as to what formes and shapes they cutt itt in, some leaving nothing butt a Lock behind, some leaving 2 Locks one of each side, some one onely just upon there forehead, sometimes one upon the Crowne of there heads. they Paint there Bodies all over with some sort of Pictures or other, and also there faces.[1] the women are also painted like ye men, have very long Black haire downe to there hams, they Carrie the Children at there backs Like Gipsies butt the men Carrie the Gun and Tomahauke and they take Care to build there Cabbins which they always doe on a swamp or

[1] This undoubtedly refers to tattooing, and as we may assume the Indians to have belonged to either the Lenni Lenape or a kindred tribe, the following description is of interest:

"In the year 1742, a veteran warrior of the Lenape nation and Monsey tribe, renowned among his own people for his bravery and prowess, and equally dreaded by their enemies, joined the Christian Indians who then resided at this place [Bethlehem, Pennsylvania]. This man, who was then at an advanced age, had a most striking appearance, and could not be viewed without astonishment. Besides that his body was full of scars, where he had been struck and pierced by the arrows of the enemy, there was not a spot to be seen, on that part of it which was exposed to view, but what was tattooed over with some drawing relative to his achievements, so that the whole together struck the beholder with amazement and terror. On his whole face, neck, shoulders, arms, thighs and legs, as well as on his breast and back, were represented scenes of the various actions and engagements he had been in; in short, the whole of his history was there deposited which was well known to those of his nation."—Heckewelder, An Account of the History, Manners, and Customs of the Indian Nations, in *Trans. Amer. Philos. Soc.*, vol. 1, p. 199, Phila., 1819.

Branch neare to a Little run of water, they Cutt downe halfe a dozen forked Poles and sett 'em up on end, then they cutt Downe some small Poles for Rafters and so Covering it with Barke, they make there fire in the Middle of the Cabbin and soe lye Round itt upon Matts or Bears skins which they often kill and eate they being extrordinary food, they live much upon oysters getting vast quantities of 'em and so Roast 'em in a fire,[1] as also fish which they are great artists at Catching and sometimes they shoote 'em with Bow and arrows, which they learne ther Children to use before they Learne 'em the use of the Gun. The women they Plant the Corne and watter mellons and get itt ready while the men go abroad in the woods Hunting after other Game."[2]

Once, while in the forest, an Indian hunter was met. He had come upon some deer "when on a sudden the Dears ither saw him or smelt him and so Ran away as hard as they could: the Indian immediately tooke a little Tomahauke, a sort of lathing hammer that will cutt at one side like a hatchett, and cutt the Barke about a foot square from a Popplar Tree and upon the tree where the Barke was he Drew the Picture of a Squirrell and knelt Downe and worshipt itt and as soon as done he took his Gun and away he went cleare contrary to which way the Dears took, and in less than half a quarter of an hower I hearde him shoot." The hunter killed a deer which he supposed to have been the one previously seen.

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A DEATH MASK OF W J McGEE

MORE than a decade ago, when the writer was requested to make a study of the brain of Major J. W. Powell,[3] the late W J McGee, whom I then met for the first time, signified his earnest intention to bequeath his own brain and body to scientific purposes. Although

[1] This statement bears out the conclusion reached by Mr Holmes in his description of the shell-heap at Pope's Creek, Maryland: "The valves of the shells are usually separated, but are rarely broken, a condition making it practically certain that the oysters were roasted or steamed and not broken open with knives or hammers."—Aboriginal Shell-heaps, in *Amer. Anthr.*, 1907, p. 122.

[2] "The Natives of this Country are generally well proportioned, and able-bodied Men, delighting chiefly in Hunting, being generally excellent Marks-Men, while the Women not only manage their Domestic Affairs, but also Tillage, Plantations, and all manner of improvement of their Land."—Morden, A Description of Mary-Land, in *Geography Rectified*, London, 1693, p. 596.

[3] The Cerebral Characteristics of Distinguished Men, with special reference to the late Major J. W. Powell. Read before the Anthropological Society of Washington, May 12, 1903. Published in *American Anthropologist*, vol. 5, no. 4, 1903.



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DEATH-MASK OF W J McGEE

making no mention of it at the time, he was aware of symptoms which he subsequently associated with the cancer that caused his death and concerning which he wrote an ante-mortem note published in *Science*, N.S., XXXVI, pp. 348–351. On the approach of his death, in personal letters and through his friends, Dr McGee reiterated his wish and formulated the following bequest in his testament:

> Pursuant to an intention fixed in early manhood on learning that a certain State provided by law that medical graduates should have dissecting room experience and yet made no provision for the requisite subjects; conformably with the shocking economic waste represented by the cities of the dead in the long-settled portions of the country; and in accordance with my custom of devoting my efforts and myself to the public good, I give and bequeath my body for purposes of dissection to any medical college selected by my executor; except that my brain go, with that of the late J. W. Powell (now in my custody), to Dr E. A. Spitzka of Jefferson Medical College, Philadelphia, Pennsylvania, for study and preservation at his discretion. . . .
>
> Impressed by the needless burden of mortuary observances in every stage of human development, I desire and direct that no funeral services, save of the simplest character, be held over my remains.

Dr McGee's body was received by the writer at the Daniel Baugh Institute of Anatomy on September 5, 1912. It had been embalmed and the tissues were in a good state of preservation. In compliance with Dr McGee's wishes a series of observations were begun, and after an interruption, due to the writer's illness, have been resumed.

The accompanying photographs show the death-mask as it was prepared from the mold made immediately on the reception of the body. The brain on removal weighed 1410 grams (49.73 oz. avoir.), or about 60 grams above the average for the same age. The important measurements of the head were:

Circumference	58 cm.
Ear to ear over vertex	38 cm.
Max. antero-posterior diam.	19.1 cm.
Max. transverse diam.	16.0 cm.
Cephalic index	83.77

The detailed findings concerning the cerebral morphology and the pathologic manifestations are being studied and recorded, but these, as well as an appreciation of Dr McGee's life-work, must be deferred to a later publication.

Dr McGee's recognition of the need of studying the brains of intelligent persons, as well as the need of affording every opportunity for

the prosecution of research into obscure pathologic manifestations as exemplified in cancerous growths, is noteworthy even in this assumedly enlightened age. It is a legitimate claim of science that all persons, particularly those of superior intellectual capacity, permit themselves to become available for scientific study immediately after death. It is true that anatomic material is now furnished to most medical schools, but never in abundance, and always derived from pauper institutions and in varying degrees of morbosity and dissolution. Concerted action among cultured persons yielded some fruitful results in the Mutual Autopsy Society of Paris, the Cornell Brain Association, and the American Anthropometric Society.[1]

Dr McGee's example, it is to be hoped, may encourage others to do likewise.

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ALGONKIN *P* AND *S* IN CHEYENNE

IN his recently published "Preliminary Report on the Linguistic Classification of Algonquian Tribes," Michelson speaks of "the apparent change of *-p(ʌ)m-* to *-m-* and *-p(ʌ)t-* to *-xt-*."[2] I believe it is rather clear from R. Petter's data alone[3] that original Algonkin intervocalic *p* (or *b*) regularly disappears in Cheyenne. Examples of this are:

nāe "to die": Cree *nipi-w* "he dies"

tāe-va "nightly" (*-va* is postpositive element): Cree *tibisk-* "night" (note that in both these cases Cree *-ipi-*, *-ibi-* corresponds to Cheyenne *-āe-*)

vā-m- "to see" (< **wā-* < **wāpa-*; Algonkin *w* becomes Cheyenne *v*, preceding or following *ā* becoming labialized to *ō*): Fox *wāpʌ-m-*

-ōva "referring to water" (< **-āwa* < **-āpawa*): Cree *-āhawa* "by means of water"

-neove- "standing" (< **-nipawi*): Cree *nihāwi-w* "he stands;" Ojibwa *nibaw* "to stand"

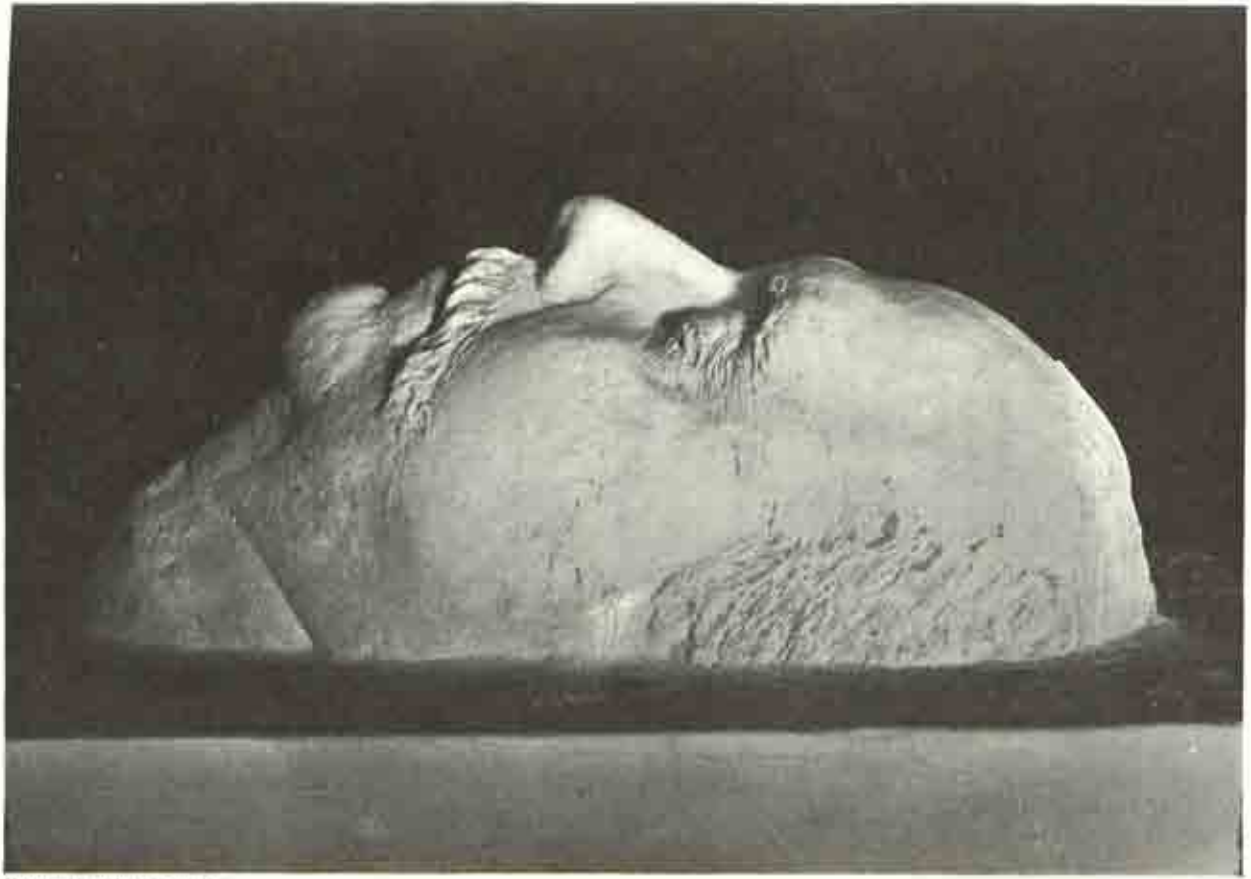
ohe "river", if secondarily transposed from **hoe* (< **hope* < **sipi*; for *si* > *ho* see *ohona* below): Cree *sipi* "river"

Initial *p*, however, seems to have remained in Cheyenne, at least in some

[1] See the writer's memoir: "A Study of the Brains of Six Eminent Scientists and Scholars Belonging to the American Anthropometric Society, together with a Description of the Skull of Prof. E. D. Cope." *Trans. Amer. Philos. Soc.*, n. s., XXI, 1907.

[2] Twenty-eighth Annual Report of the Bureau of American Ethnology, 1912, p. 233.

[3] See R. Petter, "Sketch of the Cheyenne Grammar," *Memoirs of the American Anthropological Association*, I, pp. 443–478.



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DEATH-MASK OF W J McGEE

cases. Cf., for instance, Cheyenne *na-peena* "I grind it" with Cree *pīnī-pu-tta-w* "he grinds it."

Intervocalic Algonkin *s* has regularly developed to Cheyenne *h* (doubtful if also initially; see **hoe* > *ohe* above). Examples are:

ohona "stone" (< **asɪnɪ*. Algonkin inorganic *ɪ* is to be kept apart from organic *i; i* appears everywhere normally as *i*, while *ɪ* either disappears or appears in Cree, Ojibwa, and Delaware as *i*, in Fox as *e*, in Cheyenne as *o*, at least in part, (probably also as *a*), in Natick as *a*, generally written *u* in Eliot's Bible. Algonkin **asɪ-* > Cheyenne **aho-*, assimilated to *oho-;* for *-na* < **-nɪ*, cf. Cheyenne *mata* "wood": Cree *mistī-kwo-*: Fox *ᴀsen'*; Cree *assnɪ;* Ojibwa *assin;* Natick *kassun* (i. e. *kasᴀn*); Delaware *'ᵃθin;* Abenaki *szn'* "stone," *nd-asnɪ-m'* "my stone"

maha "large" (assimilated from **mɪsa*, perhaps **masɪ*, < **mɪsɪ;* cf. *mata* "wood" < **mɪ'ta*, perhaps **ma'tɪ*, < **mɪstɪ*): Cree *misi-* "much, very;" Natick *missī, mussi* (i. e. *mɪsɪ, mᴀsɪ*) "great"

nāhā "thrice," *nahe* "three of": Fox *néswᵉ* "three;" Cree *nisto.* It is likely that *-h-* of Cheyenne *nāhā* goes back to *-s-* < *-st-* (cf. Cree *nisto* and see *-aha* below)

nohon "five" (< **nɪsɪn* or assimilated from **nɪsan* or **nasɪn?*): Blackfoot *niši-tô.* Also Arapaho *yāθan*[1] (I quote from Kroeber's MS notes) may point to intervocalic *-s-* for Western Algonkin "five" as contrasted with Eastern Algonkin *n* and *l* (*e. g.* Fox *nyānᴀnwᵉ*, Ojibwa *nānan*, Abenaki *nalân'*)

-aha "by means of the wind" (< **-asɪ* < **-astɪ;* for *st* > *s*, see *nāhā* above): Cree *-asti-* "by the wind"

Both of these phonetic laws could be abundantly paralleled elsewhere, for example in Indo-germanic. Thus, original *p* is lost in Celtic (cf. Old Irish *ibim* "I drink" with Sanskrit *pībāmi* "I drink"). Original *s* becomes *h* in both Greek and Avestan (cf. Greek *heptá* and Avestan *hafta-* with Latin *septem*). These remarks are, of course, intended merely to indicate that Cheyenne loss of intervocalic *p* and change of original *s* to *h* are not isolated phonetic processes.

E. SAPIR

GEOLOGICAL SURVEY OF CANADA
OTTAWA, ONTARIO

ANTHROPOLOGIC MISCELLANEA

Mexican Archeology and Ethnology.—A greater impetus will be given to the International School of American Archeology and Ethnology in the City of Mexico in this, the fourth year of its existence. The members have been added to and the fund for its use will be increased so as to permit of larger activities and explorations. The school was founded in 1910 by the governments of Mexico and Prussia, Columbia University, Harvard University, the University of Pennsylvania, and the Hispanic Society of America under the initiative of Columbia. In the second year of the school the government of Russia, through the Imperial Academy of Sciences, and the government of Bavaria, joined the school, and in the third year, the government of Austria and the city of Leipsic, through its ethnological museum joined. During the first year the budget of the school, including salaries and fellowships, amounted to $6,000, in the second and third years to $10,000 each, and in the coming year it will be $12,000, of which amount Mexico contributes $3,000 and two $500 fellowships. No elementary or popular instruction is given in the school, but opportunity is offered to advanced students to familiarize themselves with the problems of Mexican archeology and ethnology, and to understand researches in these fields. The objects collected by the school are placed at the disposal of the National Museum of Mexico to make such selections as it thinks desirable and the remainder becomes the property of the patrons of the school. The first director of the school was Professor Eduard Seler, of Berlin, appointed by Prussia; the second was Professor Franz Boas, of New York, appointed by Columbia; the third was Professor Jorge Engerrand, of Mexico, appointed by Mexico, and the fourth will be Professor A. M. Tozzer, appointed by Harvard.

It has been the endeavor of the successive directors to organize the work of the school in such a way as to concentrate the energies of the school on a few carefully selected tasks. Professor Seler undertook an investigation of the ruins of Palenque and of some of the less-known ruins of Yucatan, and, after the completion of this work, inaugurated investigations on the archeological types of the valley of Mexico. In the same year Professor Boas devoted some time to linguistic studies on the dialects of the Nahua. In the second year the archeological studies in the valley of Mexico were continued, and a series of stratigraphical examinations of

sites was undertaken. These led to the discovery of a regular sequence of three cultural types, the presence of which was known before, although their relative ages had not been determined, and pointed out the need of extended stratigraphical investigations in the valley of Mexico. Remains were found deep below the level of the lakes of the valley of Mexico, showing the great antiquity of the various types of culture. On the hills, sites were discovered in which the oldest type of culture appeared on the surface. The investigation of the dialects of Mexico was continued, particularly through studies on the southern dialects of the Nahua. Studies on Mexican folklore were also taken up, which yielded the most abundant and interesting results, suggesting the most curious interrelations between the folklore of Spain, Africa, and America, and suggesting a much more important influence of Spanish folklore on American tradition than has generally been assumed to exist. In the third year, Professor Engerrand continued similar lines of work. Under his direction the stratigraphical work was continued on a large scale in the valley of Mexico, and yielded most interesting results, clearing up still further the historical relation between the three cultural types. A comparative study was also made in the state of Colima. One of the fellows of the school who worked under his direction made a large folklore collection in Oaxaca, and studied the Huave, one of the isolated languages of that area, which he proved to be related to the Mixe. Another fellow continued his studies on the language, religion, and folklore of the Tepecano, a Pima tribe in northern Jalisco. The importance of the stratigraphical work conducted by the school has proved so great that the Geological Institute of Mexico is now continuing this enterprise on a large scale by means of borings. During the coming year, under the direction of Professor Tozzer, the stratigraphical work in the valley of Mexico will be continued, and the study of folklore will receive particular attention. The studies on the Nahua dialects will also be continued.—*Science.*

Deutsche Gesellschaft für Anthropologie, Ethnologie und Urgeschichte.—The forty-fourth meeting of the Deutsche Gesellschaft für Anthropologie, Ethnologie und Urgeschichte was held at Nürnberg, August 3–10, with Professor Dr F. von Luschan (Berlin) as president. His presidential address was of a general character, dealing to some extent with questions of social anthropology. Of the papers of special interest to American anthropologists mention may first be made of that of Dr F. Krause (Leipzig) on the Indian occupancy of the North American prairies. Dr Krause said:

"The prairies consist of two parts, the northern, a plateau suitable only for hunting, and the eastern, suitable for agriculture. To these geographic conditions there are two corresponding elements of population—the agricultural tribes in the lower prairie and the hunting tribes on the plateau. The first are geographically connected with the agricultural area of the eastern part of the North American continent, while the second are connected geographically with the hunting tribes of the North and West. Buffalo-hunting (which was also practised in certain seasons by the more strictly agricultural tribes) and camp-life served as the basis of a uniform culture of both elements. This uniform culture of the Indians of the prairies presents a distinct character not elsewhere found. The agricultural tribes came from the South and East, the hunting tribes came partly from the Rocky mountains and are partly eastern tribes which were pressed forward by European settlers from the St Lawrence region to the plateau-prairie, which up to that time had not been permanently settled. This fact, drawn from history and tradition, is confirmed by the investigations of the anthropologic, linguistic, cultural, and archeological conditions of the territory. As a result of these investigations it has been found that there exist two types of prairie-culture: a northern, which is much influenced by the culture of the northern hunting tribes; and a southern, with distinct eastern characteristics. Therefore both these types are the offspring (*Ausläufer*) of the two great North American culture spheres—that of the northern hunting tribes and that of the eastern agricultural tribes. These two *Ausläufer* came into relation with each other during the migration into the prairie, where they intermingled without consolidating, but, singularly enough, formed a distinct uniform culture which has nothing in common with the northern and eastern cultures, and whose origin must be sought in the prairie itself."

Another interesting paper was read by Professor Dr Th. Koch-Grünberg (Freiburg i Br.) on his explorations in northern Brazil up to the Rio Orinoco during 1911–13. He traversed the savannas and mountain region between Rio Branco and Roroima, and gave in his paper an account of the habits and customs of the tribes occupying that region, especially the Taulipáng, whom he regards as the most amiable and most prepossessing of all the Indians. The expedition encountered great difficulties during its western progress on the Uraricuéra river and also while crossing the mountains toward the watershed of the Orinoco, which was finally reached by way of its hitherto unknown right tributary, the Ventuaré. Professor Koch-Grünberg read some incantations and a

fairy-tale of the Taulipáng, and also reproduced by the phonograph a number of dance songs and flute melodies. The incantations, of which he has recorded a number in the original text with interlinear translation, represent the most important results of the expedition, as up to the present time such material from South America was unknown.

A. Poznanski discussed the archeological excavations in Tiahuanaco at Lake Titicaca.

F. N.

Indian Remains in Maine.—Early this year the Department of Archeology of Phillips Academy at Andover, Mass., sent an expedition to Maine to conduct an exploration of various sites. By the end of August the party had located and mapped a hundred or more shell-heaps and village sites. Forty-eight shell-heaps were found within ten miles of Bar Harbor, and if the circle be extended to fifteen miles, there must be at least 75. Several of these were examined, and hundreds of bone and stone implements taken therefrom. The coast from below Blue Hill to Bar Harbor (excepting the Castine region) was carefully investigated in the hope that a "Red Paint People" cemetery might be discovered; but in spite of much searching, no undisturbed site could be located, although disturbed cemeteries were found at Blue Hill and at Sullivan Falls, and about two hundred stone objects removed therefrom. The largest shell-heap lies on Boynton's Point in the town of La Moine. This deposit is more than 200 meters long and 20 to 30 meters in width. It is roughly estimated that some 7,000,000 clam-shells are in the heap. About 1100 articles of bone and stone were taken from this heap. The harpoons collected by the expedition number 185 or more, and present several types of hafting and barbing. Sections of the shells were removed in an undisturbed condition and sent to Andover in order that a cross-section may be exhibited for the purpose of giving visitors and students a better idea of shell-heaps than the usual exhibits of articles removed from such places. Altogether about 4200 objects were collected from the sites during the season. The expedition ended its labors about September 15. Dr Charles Peabody directed the work, with Mr W. K. Moorehead as curator in charge through the season. Francis Manning, of Harvard, was assistant, and Ernest Sugden surveyor. The party numbered twelve or fourteen persons and the work done was extensive.

A Haida Food Plant.—In the Haida stories recorded by the writer in 1900–1901 on Queen Charlotte islands, British Columbia, several references are made to a plant called in the Skidegate dialect *taga'nskia*

and in Massett *ta'nskliu*, the roots of which were used as food. This has since been identified by Dr Charles F. Newcombe, of Victoria, British Columbia, well known for his scientific researches along the north Pacific coast. In a letter written to Professor Boas about two years ago he has the following to say regarding it:

"The Skidegate people always told me that it grew at Tl'el [about 10½ miles north of the entrance to Skidegate inlet], but this year they were able to show me a few plants growing in the graveyard at Skidegate, and later I found one family using it, in a fish camp near Massett, under the same name. They had a lot of roots, about as thick as a lead pencil, and were about to roast them slowly in the embers of the fire at which they were toasting fish. They said that the pith of the roots would then become as sweet as sugar.

"The plant is evidently a Lupin, probably *Lupinus littoralis* Dgls., and I found a quantity of it growing on the sea-shore, near Rose Spit, close to some very old driftwood camping places, with long roots with granular excrescences. The roots reached far into the loose sand, exactly as described by the original collector, Douglas, on the coasts to the north of Columbia river, where, too, the natives cooked them in the same way. The plants agree with his description so far as I can say."

J. R. SWANTON

A MISCELLANY in honor of the sixtieth birthday of Dr William Ridgeway, professor of archeology in Cambridge University, is in course of preparation for publication. The volume will contain some congratulatory verses by A. D. Godley, public orator in the University of Oxford, Greek verses by Professor John Harrower, a photogravure portrait of Professor Ridgeway, and a series of articles on classics and ancient archeology, medieval literature and history, and anthropology and comparative religion. In the latter subjects the contributions are as follows: E. Thurston, "The Number Seven in Hindoo Mythology." T. A. Joyce, "The Weeping God." S. A. Cook, "The Evolution and Survival of Primitive Thought." J. G. Frazer, "The Serpent and the Tree of Life." W. Boyd Dawkins, "The Settlement of Britain in the Prehistoric Age." W. Wright, "The Mandible from the Morphological and Anthropological Point of View." C. G. Seligmann, "Ancient Egyptian Beliefs in Modern Egypt." W. L. H. Duckworth, "Craniological Notes." W. H. R. Rivers, "The Contact of Peoples." J. Rendell Harris, "The Dioscuri in Byzantium and its Neighborhood." C. S. Myers, "Primitive Music." Henry Balfour, "Some Pecular Fishing Appliances and

their Geographical Distribution." A. C. Haddon, "The Outrigger Canoes of Torres Straits and North Queensland." J. H. Moulton, "Notes in Iranian Ethnography."

Frederick Albion Ober died at Hackensack, New Jersey, June 1, 1913, aged sixty-four years. Mr Ober had long been interested in anthropological subjects and had been a collector of note. He visited the West Indies as commissioner of the World's Columbian Exposition in 1891–92, making noteworthy collections throughout an area in which he had traveled extensively in the seventies, a part of the published results of which is his work *Camps in the Caribbees* (1879). Mr Ober also wrote many volumes of travel and adventure, and several books for boys, designed chiefly to impart information on ethnological and historical subjects, as *The Last of the Arawaks* (1901), *A Boy among the Pueblos* (1902), *With the War Chiefs* (1904), *With Osceola the Seminole* (1905), *A Friend of King Philip* (1906), and *In King Philip's War* (1907). Mr Ober was a member of the American Antiquarian Society, under whose auspices was published in 1894 his *Aborigines of the West Indies* (46 pp.).

It is stated in *Nature* that the Italian archeological mission to Crete, under the leadership of Professor Halbherr, announces the discovery at Cortina of a temple dedicated to Egyptian deities, bearing the dedication by Flavia Philyra, the foundress. In the inner cella were found images of Jupiter, Serapis, Isis, and Mercury, with fragments of a colossal statue, supposed to be that of the foundress. A little flight of steps leads down to a subterranean chamber in which ceremonies of purification were performed. The excavation of the numerous prehistoric sites in the island of Malta is being actively prosecuted under the direction of Professor T. Zammit. The most important discovery is that of a series of well tombs of the Punic type at the Kallilia plateau, northwest of Rabat. A large number of skeletons, with pottery, lamps, spindle-whorls, and a circular bronze mirror, has been unearthed. A partial exploration of the Ghar Dalam cave, conducted by Professor Tagliaferro and Mr C. Rizzo, produced bones of a hippopotamus and a deer, above which lay a quantity of prehistoric sherds. The museum, by the bequest of the late Mr Parnis, has received a large collection of books about Malta and numerous antique objects.

The daily life of the ancient cliff-dwellers is exhibited in the new permanent Southwestern Indian hall just added to the museum of anthropology of the University of California, in San Francisco. Two

other phases of aboriginal life are abundantly illustrated in the same new hall—the town-dwelling arts, crafts, rites, and industries of the Pueblo Indians, and the life of war and the chase led by the nomadic tribes of the Southwest, such as the wild Apache, Navaho, Pima, Papago, and Walapai. The museum is open free to the public daily except Monday, with free lectures every Sunday at 3. It has four other large permanent exhibition halls—Egyptian, Greek, Peruvian, and Californian—besides smaller unit collections. The collections of this museum of anthropology are said to be worth from three to five million dollars, and are the gift to the university of Mrs Phoebe A. Hearst. The Department of Anthropology is extending its usefulness by field investigations of Indian languages and customs, by correspondence courses in anthropology, and by sending out to any school that desires traveling loan collections illustrating life among the Indians.—*Science.*

THE École d'Anthropologie of Paris has announced its course in Anthropology during the forthcoming term, commencing November 3, as follows: Professor R. Anthony, Anatomic Anthropology; Professor L. Capitan, Prehistoric Anthropology; Professor Georges Hervé, Ethnology; Professor P.-G. Mahoudeau, Zoologic Anthropology; Professor L. Manouvrier, Physiologic Anthropology; Professor Adrien de Mortillet, Comparative Ethnography; Professor G. Papillault, Sociology; Professor Franz Schrader, Anthropologic Geography; Professor S. Zaborowski, Ethnography; Professor J. Vinson, Linguistics. Certain conferences will be held during the year, under the charge of MM. Courty, Franchet, Kollmann, Paul-Boncour, and Siffre.

MR JUAN MARTINEZ HERNANDEZ, of Mérida, Yucatan, the eminent Maya philologist, has recently been appointed Inspector of Antiquities for the states of Yucatan, Campeche, Quintana Roo, Tabasco, and Chiapas. Mr Martinez's contributions to the field of Maya philology and mythology render him especially fitted for the responsible position he has been called upon to fill, and it is the hope of all who are interested in the science that he may long continue in the office.

S. G. M.

AT the Birmingham meeting of the British Association for the Advancement of Science the following grants were made in aid of anthropologic research: Dr R. Munro, Glastonbury Lake Village, £20; Sir C. H. Read, age of stone circles, £20; Dr R. Munro, artificial islands in Highland lochs, £5; Professor G. Elliot Smith, physical character of

ancient Egyptians, £34; Professor J. L. Myres, anthropometric investigations in Cyprus, £50; Professor W. Ridgeway, Roman sites in Britain, £20; Dr R. R. Marett, Paleolithic site in Jersey, £50.

THE following have been elected honorary members of the Deutsche Gesellschaft für Anthropologie, Ethnologie und Urgeschichte: H. S. H. the Prince of Monaco, Professor Schwalbe of Strassburg, Professors Retzius and Montelius of Stockholm, Professor Haddon of Cambridge, and Professor Livi of Florence. The following have been elected corresponding members: Professor Boas of New York, Dr W. T. Brigham of Honolulu, Professor Holmes of Washington, Drs Fritz and Paul Sarasin of Basel, and Professor Sergi of Rome.

THE international committee, which met in Paris recently to determine the place and time of the next meeting of the International Eugenics Congress, has decided to accept the invitation to hold the next congress in New York in 1915, on or about September 20. The American delegates to the recent congress were Dr Frederick Adams Woods and Dr David Starr Jordan. The arrangements for organizing the next congress rest with the American delegates and the Eugenics Record Office at Cold Spring Harbor, N. Y.

IN his annual report for 1912–13 the Librarian of Congress states that by a stroke of fortune, coming almost at the close of the fiscal year, the library was able to augment its source material relating to the earlier periods of discovery and exploration of the western hemisphere, and, in larger degree, to increase its resources in the indigenous languages of what is now known as Spanish America, through the acquisition of the manuscripts of Dr Rudolph R. Schuller, the specialist in American philology.

WORD has been received in Cambridge that the collection of Egyptian objects made by Professor Reisner for the Harvard University Museum has been partially destroyed on the way to America. The ship which was bringing it caught fire and was forced to return to a German port. The extent of the damage has not yet been determined. The collection consisted of prehistoric skeletons, pottery, flints, and a series of Egyptian anatomical remains.

WE are requested to state that there is no Maya manuscript in the Bodleian Library at Oxford, England, as erroneously mentioned in Dr Pruneda's Report to the Mexican Government on the 18th International

Congress of Americanists. The Library has had inquiries from many persons on the subject since the publication of the report.

Dr Roland Gideon Curtin, of Philadelphia, died in March, 1913, in his seventy-fourth year. Doctor Curtin was a physician of national reputation and a frequent contributor to medical journals and text-books. He was a founder of the American Anthropological Association.

Alfred Russel Wallace, the great English man of science, author of works on natural selection, geographical distribution, and a wide range of biological and social subjects, died on November 7, in his ninety-first year.

The Instituto de Anatomia, Faculdade de Medicina da Universidade de Lisboa, has commenced the publication of an *Archivo de Anatomia e de Anthropologia* under the editorship of Professor Henrique Vilhena.

For the Australian meeting of the British Association in August next year, under the presidency of Professor W. Bateson, F.R.S., Sir Everard im Thurn has been appointed president of the Section of Anthropology.

Professor Carl Schröter, of the University of Zurich, gave two illustrated lectures August 6 and 7 at the University of Chicago on The Lake Dwellings and Lake Dwellers of Ancient Switzerland.

The University of Münich has awarded a prize of 3,000 Marks to Dr Joseph Golling for his anthropological investigations on the bones of the nose in man.

The death of Dr Ferdinand Blumentritt, of Leitmeritz, Bohemia, known for his ethnological and other researches in the Philippines, has been announced.

The Prince of Monaco, according to *Petermanns Mitteilungen*, has established at Paris an institution for the investigation of the origin of the human race.

Dr K. Th. Preuss, of the Berlin Anthropological Museum, started in September on an exploratory trip in Colombia.

American Anthropologist

NEW SERIES

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SOME ASPECTS OF NORTH AMERICAN ARCHEOLOGY[1]

BY ROLAND B. DIXON

ARCHEOLOGICAL investigations in North America may for convenience be divided into two classes—those, on the one hand, which are concerned mainly with the question of the existence of early man in the continent, and, on the other, those which relate to later prehistoric peoples, to the immediate predecessors of the historic Indians. With the former class I do not propose to deal here, but wish rather to confine my attention to certain aspects of the latter which have a more or less direct bearing on American ethnology and ethnography. A very considerable mass of archeological material and information of this type has been accumulated in the last half-century. It seems therefore not inappropriate to consider a few of the broader and more general results of this work, the character of some of the problems which it presents, and some of the lessons which we may draw from what has already been done that will help us to more efficient and productive work in the future.

Anyone who may make a general survey of the archeology of North America as it is known at present, cannot fail to be impressed, I think, by one broad and fundamental contrast which exists between the western portion of the continent and the eastern. The contrast lies in this, that in the former area the archeological

[1] Presidential address delivered at the annual meeting of the American Anthropological Association, New York, December, 1913.

record is, relatively speaking, simple and intelligible, whereas in the latter it is complex and to a large degree baffling. The fact of this contrast and the character of it lead to several interesting conclusions, but before considering these and their bearing on problems of American ethnology and ethnography, it will be well, even at the risk of stating facts which are familiar to all, to refer very briefly to a few concrete examples.

The shell-heaps and burial places along the southern California coast and on the adjacent islands, have, as is well known, furnished a large amount of archeological material. Many of these shell-heaps seem, by virtue of their relation to raised beaches, to be of very respectable antiquity. From some of them and from some of the graves, on the other hand, objects of European manufacture have been obtained, showing that a portion of the sites were occupied in historic times. The character of the objects as a whole, however, is quite uniform, and except for the things of European origin, there is little or no evidence in this region of any other type of culture from the earliest period down to that of the establishment of the missions.

The vicinity of San Francisco bay is characterized by abundant shell-heaps and shell-mounds. Investigation of a number of these has shown that the lower strata lie at present several feet below water-line. There is geological evidence that the shore-line has been slowly sinking, and while the rate of depression is not yet known with certainty, the conditions are such as to lead one to infer a very considerable age for the lower layers of these mounds. In the mounds themselves are found the remains of a culture which is on the whole uniform from the lower to the upper strata, and which merges directly into that of the historic tribes of the vicinity. The uniformity of the culture is paralleled by a similar uniformity of physical type, the crania from the shell-mounds being similar to those of the tribes in residence at the time of the first European settlement. In this region, as in that to the south, no remains indicating the presence of any other type of culture have been found.

Continuing farther to the north, abundant shell-heaps, frequently of large size, are found along the lower Fraser river and the

coast of British Columbia. Here again evidence afforded by forest growth, and by the relation of the shell-heaps to the present shoreline, indicates that the lower layers of these heaps are of considerable age. Careful investigation of these sites has shown that here also there is no sign of any noticeable change in culture from the lower to the upper layers, and that this culture as shown by its remains in these shell-heaps is substantially that of the historic Indians of the vicinity. Unlike the previous case, however, there seems to be indication of a rather radical change in physical type, dolichocephalic crania being present in the lower, but not in the upper layers. Although there would thus appear to be evidence of some considerable change in physical type, the culture has remained virtually constant.

The conditions still farther north, as shown by the shell-heaps of the Aleutian islands, are practically a repetition of those about San Francisco bay. From the lowermost layers containing objects of human manufacture to the uppermost there is revealed no important change in type, only an increasing perfection of the products of a uniform culture, accompanied by a change in the proportions of the food supply obtained from fish and from sea-mammals. Here, as in the other regions to the south, the culture of the shell-heaps is one with that of the historic tribes.

It would appear, therefore, that on the basis of the archeological investigations so far made, we are justified in concluding that in each of the respective areas considered, one and only one type of culture is evident; that such differences as are found to exist between the lower or earlier and the upper or later strata are of such a character and degree as to be most probably ascribed to gradual and uninfluenced development; and that as these various prehistoric types of culture are similar to the cultures of the historic tribes in the respective regions, the various culture types have been in permanent and continuous occupancy from very early times to the present day. There is, in other words, no evidence of any succession of distinct cultures or of any noticeable influence on the local cultures exerted by those of other areas. This purely archeological indication of permanence and stability is in large measure

corroborated by the evidence of the historic tribes themselves, since they seem for the greater part to have been long resident in their present habitats, and to preserve no recollection of migration. Linguistic evidence, to be sure, indicates that some of the tribes are really immigrants, yet they seem to have brought with them little that is recognizable as exotic, and to have been so completely brought under the influence of the new environment that in some cases they have come to be taken as typical exponents of the culture of their respective areas.

If we turn now to the eastern portion of the continent the contrast is at once apparent, for instead of permanence and stability, we find relative impermanence and instability; in place of uniform, coherent archeological remains, we have varied and unrelated types; and compared with the relative absence of apparent relationship to other culture areas, we have clear if baffling similarities with other and widely separated types. Let me again illustrate by a few concrete examples.

Beginning in the northeast, with what is perhaps the simplest case, we find that in northern New England and the maritime provinces of Canada, there seem to be indications, from the archeological evidence, of two somewhat different types of culture. One of these, clearly revealed up to the present chiefly in Maine, is represented in the very old graves which are characterized in part by large deposits of red ochre, and in part by the frequency of the adze, the gouge, and especially the ground slate points, which are often of large size. Objects of other materials than stone do not occur in these graves, and as a rule the burials themselves have completely disappeared except for faint traces of teeth or a few particles of bone dust. In the shell-heaps, which are abundant in the region, no trace of the peculiar ground slate points occurs; the adze and gouge so typical of the old graves are either scarce or entirely lacking; whereas articles of bone and shell, which were absent in the graves, are here abundant, and pottery of a crude variety usually occurs. The two types of sites occur in close proximity, yet each is in the character of its artifacts quite distinct. It seems therefore most probable that we are justified in distinguish-

ing in this region two different and presumably successive cultures.

Turning next to the region about lakes Erie and Ontario, occupied in historic times by tribes of the Iroquoian stock, a somewhat more complex situation presents itself. Here it would seem that three varied types of culture are indicated by the archeological material at hand, although the evidence is as yet in some ways obscure and perhaps insufficient. Most characteristic everywhere, and at least in the more fertile sections of this area predominant, are the remains typical of the Iroquoian tribes found in occupancy in the seventeenth century. Objects of stone, shell, bone, and metal, together with abundant pottery, are found at a great number of sites, usually but not always further characterized by defensive works of a simple nature, many of which are quite accurately datable throughout the seventeenth and eighteenth centuries. Others again are clearly prehistoric, but objects from all the sites show well-marked common features, and the changes and development in form and other respects can be traced from the earlier to the later times. Scattered alike in the fertile region about the lakes, as well as in the more rugged uplands, are various locations from which implements of stone have been gathered, quite unlike any found on Iroquoian sites. These are principally ground slate semilunar knives, short, ground slate points with notched bases, and gouges. While none of these forms are very abundant, they occur in considerable numbers in the area north and south of the eastern end of Lake Ontario, in the St Lawrence valley, and about Lake Champlain, but are absent or scarce in southern and western New York and western Ontario. Rather more widely distributed, perhaps, is another class of objects, also largely foreign to sites of known Iroquoian occupancy. This group comprises the stone tubes, the so-called banner-stones, and various types of gorgets, bird-stones, etc. Technically as products of the stone-worker's art, many of these show a relatively high development both as compared to the known products of Iroquoian tribes and to the group of ground slate objects just mentioned. So far as any evidence at present available goes, these two small groups of objects are quite distinct

from each other, in both type and occurrence, as well as from the types of artifacts everywhere characteristic of the Iroquoian sites in this area.

The extreme southeastern corner of the continent also affords archeological indications of more than a single culture. Taking the area of the peninsula of Florida together with the immediately adjacent territory to the north, the remains of several types may be distinguished. The well-known investigations along the St John river have demonstrated that in the shell-heaps of this section we have traces of a very simple culture. The finds comprise a comparatively small variety of implements of shell and bone, stone objects being remarkably scarce. Pottery and metal objects are in many sites totally lacking, and in others are found only in the uppermost layers. Ornaments of any sort are rare, and evidences of the practice of agriculture comparatively meager, the people apparently living largely on fish and shell-fish. Interspersed with these shell-heaps and also widely distributed throughout the peninsula, particularly in its northern portion, are a large number of mounds, of both the domiciliary and burial types. Extended investigation of these has brought to light the remains of a different type of culture. While objects of shell and bone are still numerous, a much larger proportion of stone objects occurs and ornaments are quite abundant. Pottery, moreover, of several types appears to be generally present, and not a few ornaments and one or two implements of copper have been found. Pipes, which do not occur in the shell-heaps, are of not infrequent occurrence in the mounds. A further contrast with the shell-heaps is shown by the fact that whereas the few crania obtained from these are dolichocephalic, those from the mounds show a predominant brachycephaly.

While the remains as a whole in these mounds would seem to indicate a different culture from that of the shell-heaps, certain of the finds deserve special mention. I refer to the so-called "spade-shaped" objects and circular spool-like ear-ornaments of stone, to the copper plates with repousseé and excised decoration, the rectangular fluted copper ornaments, and copper spool-shaped ear-ornaments in one case overlaid with silver, in one with meteoric

iron. With these may perhaps be included certain biconate earthenware tubes. These objects have been found, in the main, at two sites only, and are of types characteristic of the Ohio valley, Kentucky, Tennessee, and part of northern Alabama and Georgia. At first thought it would be natural to consider these exotic objects as brought to this remote point through the channels of aboriginal trade. It is however suggestive to note that in the two sites where the majority were found, burials at length were largely predominant, whereas the typical form of burial elsewhere in the region is in the flexed position.

In some respects distinct from either the culture of the shell-heaps or of the mounds, are the remarkable remains so far known only from Key Marco on the southwestern coast. I need not do more than refer to these well known and very interesting finds and to their curious apparent relationship alike to more northerly as well as to more southerly regions. Whatever may with fuller knowledge be the final verdict on the evidence which they supply, they clearly reveal a type or at least a stage of culture which differed from others in the area. Whether we are to regard the evidence of Antillean affinities derived from the study of the pottery designs of Florida and adjacent regions as indicating still another cultural stratum, or to consider it as merely a separate or closely related phase of the southern influence shown at Key Marco, is not wholly clear. Certain it is however, that, taken as a whole, the archeological record shows this southeastern corner of the continent to have had a far from simple history.

The last area the archeology of which I wish to consider briefly, is that of the Ohio valley. The richness and interest of this field is proverbial; the collections obtained from it have been large and varied; and the literature dealing with the region is abundant in quantity if at times disappointing in quality. It requires little acquaintance with the sites, the collections, or the literature to recognize that we have here the remains of more than a single culture, that indeed the problem is one of rather baffling complexity. A satisfactory classification even of the various types present is by no means easy, and I shall not therefore attempt to do more than refer briefly to some of the more important features.

Scattered rather widely, although nowhere very common, and more abundant in the northern than in the southern portion of the area, are groups of burials in gravel banks of glacial origin. Commonly placed in a flexed position, the bodies are either without accompanying artifacts or supplied with only a few chipped stone implements of a limited number of types. More abundant by far, and even more widely scattered, but predominant more in the south than in the north, are the so-called stone box-graves. These show a considerable number of variations from the typical cist form, and occur both in cemeteries of varying size and in mounds, the latter form being most characteristic of the Tennessee region. Some contain characteristic burials at length, others show flexed burials, while a few contain cremated remains. Some of these stone box-graves are associated apparently with defensive earthworks often of large size, others seem equally closely related to groups of mounds of complex sacrificial or ceremonial character. Some contain burials devoid of any associated artifacts or are supplied with simple objects of stone only, while from others objects and ornaments of stone, shell, and copper have been taken, showing a relatively high development of culture. In some the crania are apparently dolichocephalic and without any artificial deformation, in others the type is often strongly brachycephalic, and occipital deformation is present. In the great majority of cases nothing of European manufacture is found in these graves, but in some instances evidence of European contact is clear. From the wide variation in the details of this type of burial it would seem that we had here to deal with more than one group of people and more than one type of culture, or at least with one group at two different periods in its history.

A third type of remains in the region under consideration is that of the village sites. These again are of somewhat varied character. Some are clearly associated with large defensive works, or with small mounds of simple structure, whereas others occur quite independently. Many show traces of circular lodge sites and are characterized by extensive ash and cache pits. Burials in some cases were made in the stone box-graves, in others at length without

the use of stone and in close proximity to the houses. The people were dependent largely on agriculture, but also drew a large part of their food supply from hunting, although curiously they would seem not to have made any use of the buffalo. The pottery which they made was of an inferior type, and they had little or no acquaintance with copper.

Still another and in many ways the most important type of remains is that limited largely to southwestern Ohio, and characterized by the well-known elaborate enclosures and complex ceremonial mounds. Although in some instances associated with stone box-graves, the more typical method employed by the builders of these structures was cremation. As evidenced by the elaborate structures they built, they must have developed a rather complex ceremonial life, and had attained considerable skill in the working of bone, stone, and metal, using copper, silver, gold, and meteoric iron. Their pottery, on the other hand, was curiously crude, if we except the single case of the remarkable figurines found in the Turner group.

Whether or not the few cases of effigy mounds found in this area are to be regarded as representing a further distinct culture or are to be allied to one or another of those already referred to, the evidence at hand does not make clear. The same is true in regard to the question of the large mounds of truncated pyramidal type which occur here in small numbers. Without considering any further cases, however, it is clear enough that the history of this region is a more than ordinarily complicated one, and that we must admit here the presence of the remains of a number of different cultures.

This very hasty outline of some of the results of archeological investigation in the eastern part of the continent brings clearly into prominence the contrast referred to in the beginning. On the Pacific coast we seem to have evidence of a number of local types of culture, each showing a continuity of development from the earliest times down to the present, and each being in its own area the only culture found; here in the eastern portion of the country, in each of the areas considered, two or more different types are revealed, some of which at least would seem to have been extinct or almost wholly superseded at the beginning of the historical period.

We have so far dealt with the archeological evidence only in and for itself, its bearing on ethnological or ethnographical questions not having been considered. This is, however, perhaps its most important side, for archeology is but prehistoric ethnology and ethnography—the incomplete and wasted record of cultures which, often in vain, we try to reconstruct and affiliate with their historic descendants. Looked at from this side, the broad contrast already pointed out is significant. The Pacific coast, as we have seen, has apparently been occupied from earliest times by peoples differing but little in their culture from the tribes found in occupancy in the sixteenth century. Cut off from the rest of the country by the great chain of the cordilleras and the inhospitable and arid interior plateaus, the tribes of this narrow coastal strip developed in comparative seclusion their various cultures, each adapted to the environment in which it was found. The immigrants who penetrated to this region from beyond its bounds, brought, it would seem, little with them which has left its mark, and have been so completely molded to their new environment that but for the test of language we should not suspect their distant origin. As is well known, this long strip of territory is conspicuous for its linguistic complexity, the causes of which have been not a little discussed. The long-continued seclusion, the permanence of occupancy, are in this respect therefore not without importance, for it is precisely under such conditions that wide differentiation and division into numerous dialects and languages might be expected. There would seem to be another inference which it would be justifiable to draw from these facts. In several of the ingenious theories relating to the development and origin of American cultures in general, it has been contended that considerable migrations both of peoples and of cultural elements passed along this coastal highway from north to south. If however the archeological evidence is to be depended on, such great movements, involving many elements of foreign culture, could hardly have taken place, for no trace of their passage or modifying effect is apparent. If from the general we turn to the particular, and consider the relations between the archeological material and the individual historic tribes, it appears that we can

feel fairly sure that the prehistoric peoples of each area were in the main the direct ancestors of the local tribes of today, and that the culture of the former was the forerunner of the latter and can be explained by it—that, in short, we have here a developmental series, of which the middle and the end are known, although the beginning is yet to be discovered.

In comparison with the relative simplicity of the archeological record on the Pacific coast, that of the eastern portion of the continent is complex, and might indeed be best described as a palimpsest. This complexity leads inevitably to the conclusion that here there have been numerous and far-reaching ethnic movements, resulting in a stratification of cultures, such that later have dispossessed and overlain earlier. These very natural inferences are indeed corroborated by the traditions of migration and conflict preserved by the historic tribes, whose culture in itself also bears witness to the discrete elements which have gone to its formation. Antillean as well as Mexican and perhaps Central American influences have here been at work, and the possibility of others even cannot be neglected. In the west it seemed possible to associate the archeological remains of each area with its historic tribes; in the east so soon as we attempt to go beyond the general evidence of mutual corroboration of archeological, ethnological, and traditional data, we meet with serious difficulties. We are unable in many cases to affiliate with confidence the various types of prehistoric remains with particular historic tribes, so that as a result the archeological material remains in large part isolated and unexplained, as the modern representatives of these prehistoric peoples are unknown.

The shell-heaps, village-sites, and most of the burial places in northern New England can pretty confidently be ascribed to the Algonkian tribes of historic times, but where shall we look for the representatives or relatives of the so-called Red-paint People who seem to have preceded them? There are, to be sure, various indications which point toward the now extinct Beothuk of Newfoundland, but clear evidence of the relationship is still lacking. The great mass of the remains in New York and Ontario can with certainty be attributed to the Iroquoian tribes in occupancy in the

seventeenth century, but the archeological evidence itself shows them to have been comparatively recent comers, and it is not clear to whom we may ascribe either the simpler types of objects or those indicative of a higher and different culture, whose affiliations seem to run toward the region of the Ohio valley. In Florida we may recognize in the now extinct Timuqua the authors of the mounds of the northern part of the state, and with good reason suppose them to have succeeded in occupancy the builders of the shell-heaps of the St Johns. But whether these latter had formerly a greater extension or were related to any of the other tribes of the region, we do not know. Equally uncertain are the relations of the remarkable finds at Key Marco. Are they to be regarded as typical of the fierce, sea-roving piratical tribes of unknown linguistic affiliation who occupied the region in the sixteenth century? If so, how are we to account for the close relationship shown by many of the objects found to those typical of northern Alabama and Georgia and the country to the north?

Most difficult of all are the remains of the several cultures in the Ohio valley. In the extreme northeast the village sites and defensive works may reasonably be associated with the historic Erie, but it is quite uncertain how far southward and westward their remains extend. The Lenâpé, in their historic seats on the Atlantic coast, not infrequently, it would seem, constructed stone box-graves, and it is most probable that part at least of the numerous remains of this type in the Ohio valley (which area was by tradition their earlier home) are to be attributed to them. Graves of this type, however, containing typically undeformed dolichocephalic crania, are found clearly associated with the highest material culture of the valley. If we are to connect these, therefore, with the prehistoric Lenâpé, we must accept a radical change and considerable degeneration in culture coincident with their settlement on the Atlantic coast. We have again the problem of the typical stone box-graves of Tennessee, with their strongly deformed crania, absence of elaborate mounds and earthworks, and presence of types of pottery that are unknown in Ohio. The Cherokee traditionally occupied portions of the upper Ohio valley, and claim indeed to

have constructed some of the larger elaborate burial mounds of the region. The archeological material available, however, leaves something to be desired in substantiating this, and in determining the limits of their occupancy.

The earliest traditional home of a number of the western Siouan tribes lay in the lower Ohio valley, and the existence of a considerable body of tribes of the same stock in the middle Alleghanies has led to the belief that the Ohio valley must either itself have been the early habitat of both branches of the stock or that it served as a highway by which considerable portions migrated either east or west. If this be true, we may ask which of the various types of remains in the region is to be attributed to this stock? The association of the effigy mounds of Wisconsin and the adjacent area with the Winnebago or other Siouan tribes seems now reasonably certain, and one might therefore naturally regard the Serpent mound and the few others of this effigy type in the Ohio valley as due also to tribes of the same stock. Yet these Ohio valley effigies are hardly to be considered as tentative and early forms, as they should be, if they are the first efforts in this direction in the prehistoric habitat of the stock.

Our difficulties are however by no means confined to this type, for how are the various types of remains, quite irrespective of their tribal affiliations, to be related to one another in time? The builders of the stone box-graves would seem to have been at least in part contemporaneous with the builders of the elaborate mounds and earthworks, but they do not all show such evidence; and whether the beginning of the stone box-grave people overlapped the end of the period of construction of the ceremonial mounds and elaborate earthworks, or vice versa, is not wholly clear. That the stone box-grave builders were themselves contemporaneous over the whole area would seem to be indicated by the close similarity, amounting in some cases to identity, between the finds made in the graves at points so far apart as Illinois and Alabama; they would seem, on the other hand, to have disappeared from some sections much earlier than from others. The complete absence again from village sites such as that at Madisonville, of objects characteristic of the

higher cultures, would indicate either that these sites completely antedated the higher culture of the Ohio valley or followed it only after it had entirely passed away. The absence of buffalo bones from such sites may be significant in this connection.

The archeological investigations in this eastern portion of the country present us with many other problems, such as those associated with the distribution of certain types of objects. Are we to regard this distribution as due to actual migration of tribal groups from one section to another, or to the results of aboriginal trade? Are the spool-shaped copper ear-ornaments, for example, found from Florida to Illinois, or the biconate tubes found from Florida to New York, so widely distributed merely as a result of trade? Were the pyramidal mounds with graded ways of the upper Ohio valley mere copies of those seen or heard of in the region farther south, or were they built by actual colonies or stray fragments of the builders of these southern mounds themselves? At present it is impossible to say.

Again, we have been able, on the basis of the material available, to determine a number of characteristic and more or less clearly defined types. We have, to take pottery as an example, a Middle Mississippi type, marked by certain peculiarities of form and ornament; and we have a southeastern type, characterized among other things by the use of stamped decoration, which same method is found employed again in the Northwest. We have, however, made little progress in correlating our different types: in indicating the relationship of the stamped decoration of the Northwest to that of the Southeast, or in tracing the origin and development either of this form of ornament or of the polychrome decoration and modeled type of pottery of the Middle Mississippi region.

It is unnecessary however to illustrate further the complexity of the problems or the difficulties surrounding any attempt to relate the archeology of much of the eastern portion of the continent to the historic tribes; to trace clearly the influences from distant cultures which have made themselves felt; to decide whether the wide distribution of certain implements and types is due to migration or trade; or to correlate the different types which we have

defined, and follow out their development. The point which I want to make, however, and that to which much of what has been said, trite though it be, directly leads, is that to a large extent the difficulties and perplexities are of our own making. With honorable exceptions in more recent years, the archeological investigations so far made in this country have been woefully haphazard and uncoördinated, and the recorded data often sadly insufficient; the published reports have too frequently been unsystematic and incomplete; and there has been too little indication of a reasoned formulation of definite problems, with the attempt to solve them by logical and systematic methods. It is no doubt easier and perhaps pleasanter to skip about aimlessly in investigation, taking such opportunities as happen to present themselves; it makes a more attractive report to omit much uninteresting and supposedly unimportant detail, and to describe and illustrate by a few fine plates only the more striking objects, merely alluding to or passing over entirely the more common but often very important things; it requires considerable preliminary time and study to realize and define the real problems—all this is no doubt true, as well as that there are often practical difficulties in the way of carrying out a scheme that has been carefully considered. Nevertheless, these facts do not excuse us for the neglect of saner and more truly scientific methods.

A concrete example will make my meaning plainer. The separation of the Siouan stock into two main divisions, an eastern and a western, has already been referred to. These two groups, together with the other smaller fragments, must at some time in the past have occupied a single continuous area. The location of this early habitat, the order of separation of the various groups, their lines of migration, and the successive stages in the cultural modifications produced by new environment and association with other tribes and cultures—these and many other kindred questions are of much interest and importance not only for themselves, but in their bearing on the question of the growth of American culture as a whole, and on the still wider problems of the development of culture in general. We can trace historically the stages in this process as it

relates to one group at least of the stock, namely, in the movement of some of the Sioux from the forested region out into the plains, with the consequent transformation in the life and culture of the people. The facts in this case are historic, but a careful archeological investigation of successive sites from west to east in this region would indicate the main features of these changes which in this instance we happen to known from contemporary observation. There is no reason to suppose that the earlier prehistoric movements and changes among the other sections of the stock differed in character from those just referred to. So that if the Quapaw formerly lived on the Wabash and lower Ohio and were there ignorant of the manufacture of polychrome pottery, they did not suddenly acquire the art without some stimulus, nor at once attain to the highest excellence in its practice. There must have been stages between the location on the Wabash without knowledge of this type of art and the location in their historic sites, with the knowledge, and these intermediate stages must lie somewhere between the two extremes. It may well be replied that such a statement is puerile, that it is self-evident and assumed as a matter of course; but if so, why have not these self-evident principles been applied? Why has no systematic attempt been made to trace back, let us say, the Quapaw to their original or earlier home, to determine the stimulus which led to this special development of art, and to follow out the line of its growth? We recognize, to be sure, a special Middle Mississippi type of pottery, but so far as I know this group has not been analyzed into its constituents, to trace the differences in detail due to the practice of the same general form of art by several discrete peoples, separating the various elements and influences which are apparent, and following them wherever they may lead. If there are gaps in the evidence, why not make a systematic attempt to fill them? On the basis of evidence at hand a working hypothesis or several alternative hypotheses may be framed, and material sought which shall either prove or disprove them.

Thus the eastern Siouan tribes have either been settled in their historic habitat for a very long period, or have migrated thither from elsewhere. One hypothesis has already been framed according

to which they formerly lived in the Ohio valley, together with the majority of the remainder of the stock. The Ohio valley contains, as already pointed out, archeological material of several different types, the authorship of which is still obscure. If the Siouan tribes did formerly occupy the region, some of these remains must be attributed to them. To settle this question and to determine which if any of these types is to be attributed to this stock, one would logically proceed to investigate a number of known Siouan sites, and work back from these toward the area in question. It would be necessary to apologize for stating so simple a chain of reasoning, were it not for the fact that the puzzling problems of the archeology of the Ohio valley and of the origin and migrations of the Siouan stock have been before us for many years and are still unsolved, and so far as I am aware, no attempt has been made along such obvious lines to arrive at a definite or probable conclusion on this or on many other similar questions.

This is merely one out of many such examples which might be given of the probable advantage of carrying on our archeological investigations not only in a more systematic manner, but in one which rests firmly on an ethnological and ethnographical basis. The time is past when our major interest was in the specimen, the collection, the site as a thing in itself; our museums are no longer cabinets of curiosities. We are today concerned with the relations of things, with the whens and the whys and the hows; in finding the explanation of the arts and customs of historic times in the remnants which have been left us from the prehistoric; in tracing step by step the wanderings of tribes and peoples beyond history, beyond tradition; in attempting to reconstruct the life of the past from its all too scanty remains. It is only through the known that we can comprehend the unknown, only from a study of the present that we can understand the past; and archeological investigations therefore must be largely barren if pursued in isolation and independent of ethnology.

This is all very well, all very true, one may say, but we live in a very practical world. It is one thing to draw up an ideal plan of investigation, and evolve simple theories; it is another to apply

the theory and to carry out the plan in practice. Local and personal interests and prejudices in those carrying out or providing for archeological work must be reckoned with; important sites have either disappeared or been plundered or carelessly dug in earlier years, or are jealously guarded by unenlightened owners who refuse permission to excavate; the work really desirable is too costly, or not productive enough for the purposes of display—these and many other difficulties of course stand in the way of carrying out an ideal program. Yet in spite of these facts is it not time that we made more of an effort than has yet been made to approach the subject from the ethnological point of view? Is it not possible for us to carry through, before it is too late, even if not with ideal completeness, some of those investigations without the results of which we shall always be groping in the dark? Is it not something of a reproach to American Archeology that it has so far failed to realize and appreciate, as fully as it ought, the need of applying to the solution of its problems the principles which have, in other lands, led to such substantial and magnificent results?

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THE RELATION OF ARCHEOLOGY TO ETHNOLOGY

FOLLOWING the address of Professor Dixon at the New York meeting of the American Anthropological Association, the subject of the Relation of Archeology to Ethnology was discussed at length. Of those who participated in the discussion, Mr W. H. Holmes, Dr George Grant MacCurdy and Dr Berthold Laufer have responded to the request to present their remarks, which follow.

REMARKS BY W. H. HOLMES

IT is natural that the ethnologist engaged in the study of the tribes and stocks and their culture should lay particular stress on the importance of the prehistory of these groups and seek to follow the various threads of their history far backward into the past. To him the chief value of archeology is that it may cast additional light on the particular subjects of his research. To this attitude there can be no objection, and the archeologist stands ready to aid in this work; but he realizes his shortcomings in this direction, having learned that traces of particular peoples fade out quickly into the generalized past. A few generations, or at most a few centuries, close definite record of tribal history: beyond this the

field of archeological research extends indefinitely and gleanings from this field are utilized in answering the greater problems of the history of the race as a whole. The field of the ethnologist has but a limited range when the entire history of man is considered, yet without the many hints which it furnishes for the interpretation of the past the archeologist would often find himself groping in the dark.

Remarks by George Grant MacCurdy

On the Relation of Archeology to Ethnology from the Quaternary Standpoint

The archeologist deals with the dry bones of ethnology. This is particularly true when it is a question of the same or of an adjacent geographic area. Under such circumstances the difficulties of bringing back to life the ethnology of the past and the liability to err in the drawing of conclusions are reduced to a minimum. As soon, however, as great distances are to be covered and great lapses of time are to be considered, the problem at once becomes vastly complex. Instead of dry bones we have to deal with fossil forms, some of which are wholly extinct.

The European prehistorians of the early days of the science were justified therefore in calling their special field paleoethnology. The term archeology covers a period that is in part historic and in part prehistoric. It has been so largely appropriated by the Egyptologist, and the student of Greek and Roman archeology, that a more definite terminology is needed for the remote past—prehistory for example, or prehistoric archeology.

After citing a few instances of the more or less near relationships between prehistoric archeology and ethnology I shall confine my remarks chiefly to the remoter relationships in time as well as space.

In the recent study of a series of ancient shell gorgets from graves in Perry county, Missouri, near Saint Marys,[1] I was very much impressed by the probability of a relationship between the symbolism on two of these gorgets and certain institutions that still persist among the Plains Indians. In the game of *itsĕ'wah* the Piegan Blackfeet make use of a metal ring wrapped with rawhide and cross-barred with sinew, on which beads of various colors are strung, and a wooden dart not unlike an arrow with its shaft. Before their acquaintance with the metals of the white man they employed flat stone disks of convenient size. A stone disk of this sort was given to Dr George Bird Grinnell in 1898 by the wife of Chief Three Suns. It had come down to Three Suns through

[1] *American Anthropologist*, July-September, 1913.

many generations. This stone disk, together with the wooden dart used by Three Suns and a modern metal ring disk wrapped with rawhide, were recently presented to Yale University by Dr Grinnell.

On one of the shell gorgets[1] from Saint Marys is represented a human figure evidently in ceremonial garb, and in the act of throwing a stone disk of approximately the same size and shape as the stone disk of Three Suns. Moreover in the left hand is held a wand that might well represent a variant of the Piegan wooden dart: for it is marked by an oblique band and the wooden dart is marked for nearly half its length by a painted spiral groove. Should a Piegan Blackfoot artist with the skill of the ancients wish to depict a player of the game *itsé'wah* he could hardly do better than copy the figure from this ancient shell gorget.[2]

Another shell gorget[3] from the same cemetery is likewise decorated with a human figure, but representing a very different scene. Each outstretched arm passes through the figure of a star. Below these and opposite the knees are two other larger stars, making four in all. The human figure is thus suspended, as it were, in the heavens from two stars through which the arms pass, while arrows are being shot at it from the east and the west—one at the forehead, one at the back of the head (in line with the ear ornament), one at the left side, and two at the feet. The portion of the shell broken away and lost probably carried with it a sixth arrow aimed at the right side. The designs above and overlapping the large lower stars are bilaterally symmetrical; their fragmentary condition leaves their meaning obscure.

This gorget is full of symbolic import. The stag horn, as suggested to me by Mr Stansbury Hagar, might be considered as an attribute of the sky-god, and the four stars as the four quarters of the sky. The arrows are suggestive of sacrifice and might point to some such ceremony as the Skidi rite of human sacrifice described by Dorsey.[4] The victim is a young woman taken from an enemy's camp and dedicated to the Morning Star. In the construction of the scaffold the four directions play an important part. The maiden's hands are tied to the upper cross-bar which points to the north and south; her feet to the topmost of four lower cross-bars. Her blanket is removed, and a man rushes up from a hollow in the east, bearing in his hand a blazing brand with which he touches her in the groins and armpits. Another man approaches and touches her

[1] Op. cit., fig. 70.

[2] A shell gorget from Eddyville, Kentucky, depicts a like scene.

[3] *American Anthropologist*, op. cit., fig. 77.

[4] *Congrès International des Américanistes*, XV session, Québec, 1906.

gently with a war-club in the left groin; he is followed by three other men, the first touching her with a war-club in the other groin, and the other two in the arm-pits. Then the man who captured the girl approaches from the east, bearing a bow and arrow which belong to what is known as the Skull bundle; he shouts a war-cry and shoots the maiden in the heart. The chief priest opens the thoracic cavity of the maiden with the flint knife from the altar, and, thrusting his hand inside, besmears his face with blood. All the men, women, and children press forward now and aim each to shoot an arrow into the body.

There is always danger of mistaking analogy for genealogy. There is likewise danger of misconstruing the phenomena of parallelism and of convergence. The pathway of the prehistorian who would delve into the remote past is beset by difficulties far greater than those in the way of proving a kinship between the culture of the modern Plains Indians and the ancient culture of the Mississippi valley. His problem is bound up with the great, and as yet unsolved, problem of human origins. He must take into consideration not only relationships but also beginnings; and the beginnings of things human, so far as we have been able to trace them, have their fullest exemplification in prehistoric Europe. The cradle of the human race has not yet been definitely located. When it is found it will prove to be at least within easy reach of Europe, which structurally is the keystone of the Old World arch—still firmly planted against Asia and once in more intimate contact with Africa than at present.

The Old World then is the ample stage on which the human drama has been played. Here the cultural elements have had their exits and their entrances. The character of a culture at a given time and place should be viewed in the light not only of the elements that were present, but also those that were manifestly lacking. One can, for example, set about reconstructing the culture of *Homo heidelbergensis* or of Piltdown without danger of being misled by phenomena with which ethnologists have to reckon, namely, the disturbances resulting from a clash between cultures in almost totally different planes of development. In those days there was no danger of being discovered by a Columbus or conquered by a Cortés. Since the earliest times progress has been due in part to contact of one people with another and the resulting interchange of ideas. Infiltrations and invasions, peaceable or otherwise, have also brought changes. The evidence points to a diversity of human types as far back as the early Quaternary, but not to a corresponding cultural diversity.

Culture is a measure of man's power to control his environment. It depends largely on the inventive faculty and the facilities for transmitting racial experience. The dead level character of the so-called eolithic or pre-paleolithic industrial remains points to a long hand-to-mouth struggle for a racial bank account. Progress was slow even among the Chellean and Acheulian peoples. A rude Chellean industry was found associated with the Piltdown skull. Whether Mousterian culture was a direct outgrowth of the Chellean and Acheulian has not yet been determined. The human skeletal remains associated with Mousterian culture are of the Neanderthal type, representing a race of coarse mental and physical fiber, whose disappearance was coincident with the appearance of a new racial and cultural type. The ancestry of this new race, the Aurignacian, has not been definitely traced. The Aurignacians, represented by Cro-Magnon and Combe Capelle, were more nearly akin to the modern Europeans than to the archaic Mousterians. The cultural differences are at once so great as to make it difficult to conceive of the Aurignacian as having been an offshoot from the Mousterian age. The distribution of Aurignacian culture would in the opinion of Breuil seem to favor Africa rather than the east as a starting point.

The Aurignacians introduced the decorative as well as the fine arts: sculpture, bas relief, engraving, and painting. Through these we get a glimpse into their social and intellectual life. Some of their art works have been subjected to an interesting comparative study. For example, they left in a number of French and Spanish caves negative imprints of the human hand that manifestly point to phalangeal amputation, a practice that exists today among primitive peoples in widely separated parts of the earth. It was observed by Burchell among the Bushmen as early as 1812. It is also reported from Australia. According to Boas the Haida, Tlingit, and Tsimshian tribes of the Northwest Coast cut off a little finger on special occasions. Mindeleff reproduces a series of pictographs from the Cañon de Chelly, Arizona, in which representations of the human hand play an important rôle. He does not say however whether any of these show evidences of phalangeal amputation.

The Aurignacians likewise left us those perplexing female figures in the round from Brassempouy, Mentone, and Willendorf, as well as the bas reliefs from Laussel, all of which are reminiscent of the Bushman type of female beauty. The figures in question might however be explained on symbolic grounds rather than as realistic representations of a physical type.

If the Aurignacian culture came from the direction of the Mediterranean the same can hardly be said of the Solutrean which succeeded it and which seems to have come from the east. According to Breuil the early Solutrean is extensively developed in Hungary while the veritable Aurignacian is lacking there. It may be that the early Solutrean of the east is synchronous with advanced Aurignacian in France and that the Solutrean of the west was due to an invasion, which however did not remain long in the ascendency; for out of the contact between these two civilizations there arose the Magdalenian culture, to whose further development the east and not the Mediterranean contributed.

One encounters difficulties in comparing paleolithic art with any art period that has followed. It differs not only from neolithic art but also from the art of modern primitive races. The art of the untutored child is more like that of neolithic or modern primitive art than it is like paleolithic art. The child does not copy the thing itself so much as his ideas about the thing. Paleolithic art evinces a remarkable familiarity with the object combined with a skilled hand. The artists' models were almost without exception from the animal world, chiefly game animals. Conditions favoring progress in art are normally just the reverse of those that would make a hunter's paradise. With the increase in density of population there would be a corresponding decrease of game. The animal figures were no doubt in large measure votive offerings for the multiplication of game and success in the chase. The more realistic the figure the more potent its effect would be as a charm. The mural works of art—figures of male and female, scenes representing animals hunted or wounded—are generally tucked away in some hidden recess, which of itself is witness to their magic uses.

Mythical representations, so common to modern primitive art and to post-paleolithic art in general, are wholly foreign to paleolithic art. There were no gods, unless the human figures served also as such; and no figures with mixed attributes, as is so well typified in the gold figurines of ancient Chiriquian art of the Isthmus, or in the Hindu and the Egyptian pantheon. The paleolithic artist left frescoes, engravings, bas reliefs, and figures in the round of the horse, but there is not a single figure of a centaur.

The cave man's love for the real, the natural, as opposed to the mythical, the artificial, is also seen in his representations of the human form. A child will draw the figure of a man or a woman as clothed, but with the legs for example showing through the dress. The same thing was done by the artists of ancient Egypt. Not so with the cave artist.

That paleolithic man of the art period made use of clothing the numerous bone needles afford abundant testimony; but with a single possible exception (Cogul in southeastern Spain), and that, if an exception, dates from the very close of the paleolithic period, the human form was represented in the nude; some of the figures however suggest a more pronounced growth of hair over the body than would be common at the present time.

There is very little evidence that masks were used either ceremonially or for stalking purposes. An engraving of a male figure wearing a mask representing a horse's head has been noted from the Magdalenian deposits of the cave of Espelugues at Lourdes. Three engraved figures on a bâton de commandement from the rock shelter of Mège at Teyjat (Dordogne) have been reproduced by Breuil. A third example was found at Mas d'Azil—a man wearing a bear's head mask.

Art objects dating from the paleolithic period have every appearance of being originals and not copies. Earmarks of the copyist are singularly lacking. The work was done either in the presence of the model or with the image of the latter fresh in the memory.

Ethnology has done much toward illuminating some of the dark pages of European prehistory. But European ethnology is too far removed from paleolithic and pre-paleolithic Europe to be as good a guide there as the ethnology of the Indian is to prehistoric America. There are those who are inclined to criticize the temple of classification reared by the European prehistoric systematists. They call it too simple, too perfect, too academic—a system based on answers to the easy questions with all the puzzling problems left out of account, and therefore admirably calculated to attract the amateur. The critics however usually have very little first-hand knowledge of the European field. On the other hand those who have done most to develop the systematic side are the first to acknowledge not only the weaknesses of the classification, but also the complexity of the problems still confronting the prehistorian. No one who can speak with authority claims that the system can at present be applied anywhere except to central, southern, and western Europe. A certain definite succession of cultures already holds good over a large area. The horizon we call Solutrean, for example, need not however be synchronous in Hungary and southwestern France. When Asia and Africa shall have been studied with equal thoroughness there will be much to add and no doubt some to subtract. There can be a system of classification and still allow for all sorts of local rises and falls of the culture barometer as well as movements of peoples over large areas. All

the people did not follow a retreating glacier to the north. But all who did follow were driven slowly back with the succeeding advance of the great continental ice sheet. And it is not likely that they recognized those whose ancestors had been left behind so many thousands of years before. Lapse of time and differences in the environment must have left their impress on both classes of culture, the contact between which would eventually result in a new phase of culture. The wonder is that any system could be discovered, and I say discovered rather than devised advisedly, which could long withstand so complex and heavy a strain. The system in its elemental outlines still survives; and where there is life there is hope, and the possibility of future growth.

Remarks by Berthold Laufer

The value of a scientific method, in my estimation, cannot be determined by theoretical discussion. The academic exposition of a method may strike ear and mind favorably, and yet it may be unworkable if the practical issues of a science are at stake in broad daylight. The quality of a method is discernible only from the fruits which it yields. It remains a brutal fact that the worth of a man is estimated by the world at large from his outward success in life; in similar manner the merit and utility of a method are judged according to the degree of its success. It is sheer brutality and cold-hearted calculation if we are tempted to adopt the most successful method in the pursuit of our work. In matters of archeology it has always seemed to me that classical archeology, the oldest of the archeological sciences, has hitherto made the most successful advance; and for this reason it is deemed advisable to extend its methods, as far as feasible, to other fields of antiquarian exploration. But if a more effectual method should ever be contrived, I believe I should be inclined to abandon my own boat and embark on the new.

Archeology is largely a matter of practical experience: and, wide and unlimited as the range of experience is, the variability of methods applicable to specific cases is almost endless, and we may well say that each case must be judged by its own particular merits. Archeological problems may be likened to algebraic equations with one, two, or several unknowns: by starting from a given fact, we endeavor to unravel by it the one or more unknowns. If archeology is more than a mere description and classification of ancient remains left by past ages (and this could assuredly be only its technical foundation, which may be described under the term "museology"), but if it is the science of the ancient culture-phases of mankind illustrated by all accessible human monuments, it is needless

to insist that archeological study cannot be separated from philology and ethnology. It is a branch of historical research, a part of the history of human thought and culture; and as far as Asia, Africa, and Europe are concerned, it is obvious, without the shadow of a doubt, that only a combined knowledge of language, paleography, history, and culture will lead us to any positive and enduring result in archeological questions. Take, for example, the case of Egyptology. The very word indicates the specific character of the science. We do not speak of such divisions as Egyptian history, archeology, philology, and ethnology, but of *Egyptology* only, because a scholar desirous of promoting this research must be firm in every saddle. The great architectural monuments of Egypt are covered with contemporaneous inscriptions revealing their significance; and well-trained familiarity with the script and language, with chronology and events, with religious and other ideas, becomes the indispensable equipment for any one serving the cause of the archeology of Egypt. When we come to India, the situation is widely different. India has no historical records, and lacks any sound chronology. The accounts of the Greek, Chinese, and Arabic authors must partially supplement this deplorable gap. Monuments are comparatively plentiful, some are also augmented by coeval inscriptions, but, on the whole, they are cut off from contemporaneous tradition. The spirit of India is highly imaginative—essentially occupied with religious, mythological, and philosophical speculations, supported by an inexhaustible fund of good stories and legends. The skilful interpreter of the monuments of Indian art must naturally have these at his fingers' ends, and, to make good for the lack of historical data, ought to have recourse also to the application of psychological methods.

In China we are confronted with a peculiar situation unparalleled in classical antiquity and elsewhere. Here we face the unique fact that the Chinese themselves have created and highly developed a science of archeology beginning at a time when Europe still slumbered in the night of the middle ages. The Chinese, indeed, were the first archeologists in the world: the first to explore the soil; the first to do field-work; the first to collect, arrange, catalogue, and illustrate antiquities; the first to study and describe their monuments—with most notable results. This feature naturally offers to us many vantage points; and the study of Chinese archeology, accordingly, must begin with a study of the archeology of the Chinese. The foreign student intent on the solution of a special problem will in this manner easily see a point of attack, and will find his path through the jungle cleared to some extent by the contri-

butions offered by Chinese scholars. This state of affairs, however, has also grave drawbacks which must not be overlooked: and among these, two are important. The circumstantial evidence of Chinese antiquities, in general, is weak; the localities where they have been found are sometimes but vaguely known; the circumstances of the finds are seldom, and then but imperfectly, described to us. Again, the Chinese have their own peculiar theories, their point of view in looking at things, their peculiar logic and mode of argumentation, and have accumulated on top of their antiquities, and on the whole of their culture, huge strata of speculations and reflections which in most cases cannot withstand our sober criticism. It was a development easy enough to understand that until very recently our scholars meant to make Chinese archeology by merely reproducing the opinions of Chinese archeologists. This necessarily resulted in numerous errors, misconceptions, and wrong judgments, the effects of which are not yet overcome. These strictures being made, the outlook in this field is altogether hopeful. We have remains and antiquities in great plenty, and an overwhelming abundance of information accompanying them—often more, I should add, than we are able to digest. Above all, our conclusions can be built upon the firm basis of a secure and reliable chronology, and in the majority of cases we might say it is out of the question that a Chinese monument or object should not be datable within a certain period. The aim of Chinese archeology, as I understand it, should be the reconstruction of the origin and inward development of Chinese culture in its total range, as well as in its relation to other cultural provinces. A proper knowledge of China is bound up in this definition. We cannot comprehend any idea of modern China, or adequately treat any Chinese problem, without falling back on the past. The distinction between archeology and ethnology, consonant with the actual conditions in America, seems, at least to me, to be somewhat out of place in such fields as China, central Asia, and Siberia. The modern ethnographical conditions in these regions mean so little that they amount to almost nothing, being merely the result of events of the last two centuries or so. My conviction that there is in principle no essential difference between archeological and ethnological methods could not be better illustrated than by the fact that the method of Chinese archeology—at least, as I am inclined to look upon it—is in perfect harmony with the method of ethnology as conceived and established by Dr Boas. It is among the Chinese, even to a much higher degree than among primitive tribes, that we constantly have to reckon with such potent factors of mental development as recasting of old ideas

into new forms; reinterpretation of ancient thoughts under the influence of new currents, theories, or dogmas; new associations, adaptations, combinations, amalgamations, and adjustments. The ideas expounded by Chinese scholars of the middle ages with reference to their classical antiquity one or two thousand years back are, in fact, nothing but subjective reconstructions of the past based largely on deficient associations of ideas. This feature is most striking, for instance, in decorative art. The Sung artists of the middle ages attempted to reconstruct all the primitive patterns on the ritual objects of the archaic period on the basis of the names of these patterns as handed down in the texts of the ancient rituals. All these names were derived from natural objects, but referred to geometrical designs. A combination of hexagons, for example, was styled a "rush" pattern, because it was suggestive of a mat plaited from rushes, and may indeed have been developed from a mat impression. In the Sung period, art was naturalistic, and these artists reconstructed the ancient geometric rush pattern in the new form of realistic rushes. In this manner a new grammar of ornaments was developed, purported to represent the real ornaments of the classical period, which, however, had never existed at that time. Cases like this may have happened a hundred or a thousand times among primitive tribes, not only in art, but in social and religious development as well.

The further advantage of this critical and reconstructive method is that it finally leads us to psychology, and allows us to recognize the laws working in the Chinese mind. And this, after all, must be the ultimate aim of all our research—the tracing and establishing of the mental development of a nation, the grasp of the national soul, the determination of its qualities, aspirations, and achievements. From this point of view, we may say paradoxically, and yet correctly, that all archeology should become ethnology, and all ethnology turn into archeology. The two, in fact, are inseparably one and the same—emanations of the same spirit, pursuing, as they do, the same ideal, and working to the same end.

Finally I may perhaps be allowed a word concerning the relation of American archeology to ethnology, although I must first apologize for talking of something about which I do not properly know. It is difficult for the present to bridge American archeology and ethnology; but it seems to me that this entire question has no concern whatever with methods, or that no alleged or real deficiency of methods could be made responsible for any disappointments in certain results that may have been expected. The drawback lies solely in the material conditions of the field, and prominent among these is the lack of a substantial chro-

nology. Chronology is at the root of the matter, being the nerve electrifying the dead body of history. It should be incumbent upon the American archeologist to establish a chronological basis of the precolumbian cultures, and the American ethnologist should make it a point to bring chronology into the life and history of the postcolumbian Indians. This point of view, it seems to me, has been almost wholly neglected by American philologists and ethnologists, and hardly any attempt seems ever to have been made to fix accurately the time of traditions, mythologies, rituals, migrations, and other great culture movements. This, however, must be accomplished, and I am hopeful enough to cherish the belief that it *will* be accomplished. When archeology and ethnology have drawn up each its own chronology, then the two systems may be pieced together and collated, and the result cannot fail to appear. Whether we who are here assembled shall ever live up to that happy day, is another question. Meanwhile we ought not to be too pessimistic about the outcome, or to worry too absorbingly about the issue of methods. We should all be more enthusiastic about new facts than about methods; for the constant brooding over the applicability of methods and the questioning of their correctness may lead one to a Hamletic state of mind not wholesome in pushing on active research work. In this sense allow me to conclude with the words of Carlyle: "Produce! Produce! Were it but the pitifullest infinitesimal fraction of a product, produce it in God's name! 'Tis the utmost thou hast in thee: out with it, then!"

OBSERVATIONS ON THE NATIVES OF THE PATAGONIAN CHANNEL REGION

By CARL SKOTTSBERG

Introduction

THE Swedish Expedition of 1907–1909 to Patagonia, Tierra del Fuego, etc., visited, amongst other parts of Chile, the channel region between the Straits of Magellan and the Penas (not Peñas, as it is often spelled) gulf. The principal object of our studies, here as elsewhere, was the geology, physical geography, and botany of the region, but we also endeavored to devote as much attention as possible to the peculiar native people inhabiting the channels. However, a detailed study, like that made by the French Cape-Horn Expedition in 1882–1883 on the Yahgan tribe, would require a fixed land station where work could be conducted during a year at least. In the circumstances all we could do was to gather some preliminary notes and to prepare the way for more competent investigators. If anything is to be done, it must be done soon, for the channel Indians are becoming extinct.

The canoe Indians in the channels are generally spoken of as *Alukulup* (incorrectly written *Alacoluf* and *Alakalouf* by English missionaries; Fitzroy has *Alikoolip*). The Chileans use this word, and so did our interpreter. According to earlier authors they should not bear this name, as they belong rather to the Chonos; some others even assign them to the tribe that once inhabited southern Chiloé, the Guaitecas and Chonos islands. However, Deniker[1] remarks: "Ils ne faut pas confondre . . . les Chonos avec la peuplade homonyme vivant plus au sud, entre le cap Peñas et le détroit de Magellan: celle-ci paraît se rapprocher plutôt des Fuégiens." It is therefore possibly wrong to apply the name "Chonos" to the people south of Penas gulf. Pritchard[2] divides the channel tribes

[1] *Les Races et les Peuples de la Terre*, p. 631, Paris, 1900.

[2] *Researches into the Physical History of Mankind*, vol. v, London, 1847.

into (1) Chonos, of Chiloé, (2) Peyes to S. lat. 51°, and (3) Keyes or Key-yus to the straits. I am at a loss to know the source of the two last names, which have become forgotten. Latitude 51° is not and probably never was a boundary line between different tribes. In his work on Patagonia, Coppinger[1] follows the great explorer Fitzroy, designating the people in question the "Channel or Chonos tribe." Fitzroy[2] says that the Chonos Indians lived between the Chonos islands and the straits, and the Alukulups between the straits and Beagle channel, and (p. 142) remarks that probably no Chonos Indians were met with north of Cape Tres Montes. Their southern boundary is thus described: The Chonos occupied the northern, the Alukulups the southern shore of the Straits; they used to meet and also to combat. If this be right, it explains the occurrence of two different types of canoes in the straits.

Lately, a German geographer, P. Krüger, has stated that only one people have lived from Chiloé to the straits.[3] He writes (p. 27) that, at the time of the conquest, Indians called "Alacalufes" lived on the Chonos islands and on the coast of the mainland, but that they are now confined to the farthest south—Smyth channel and the Magellan straits. Further, that in earlier centuries the Chonos Indians and even those south of Taitao peninsula were taken by missionaries and brought to the east coast of Chiloé. Even now, he continues, in the southeastern corner of Chiloé and on the Chauques islands the language of the Huilliches (i. e. people of the south), an Araucanian dialect, is spoken. He thus aims to explain that there is still much Indian blood in the veins of the modern Chilotes. To this I need only remark that this fact may be accounted for without resorting to the theory that it was due to immigration from the south. If the language of the immigrants was Araucanian, they did not come from the channel region and had nothing to do with the small remnant of "Alacalufes" in Smyth channel, for their languages seem to have nothing in common.

[1] *Cruize of the "Alert,"* London, 1883.

[2] *Voyages of the "Adventure" and "Beagle,"* vol. II, London, 1839.

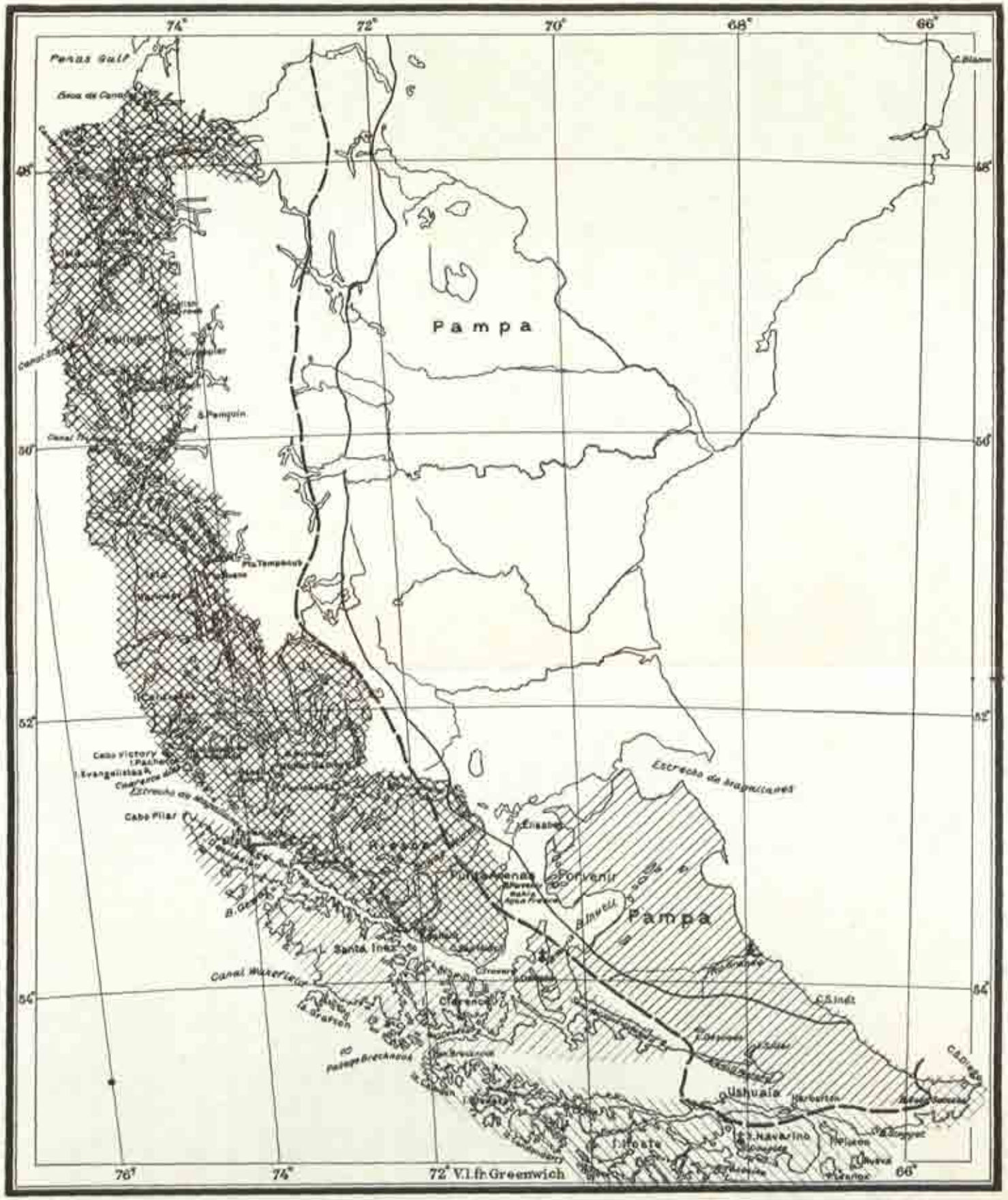
[3] Die patagonischen Anden zwischen 42° und 44° s. Br., *Petermanns Mitteilungen*, Ergänzungsheft 164, Gotha, 1909.

Fitzroy says that the Alukulups also inhabited the western entrance of Beagle channel, where, according to Hyades' and Deniker's maps, only Yahgans are found. There is another difference between the statements of these explorers. Fitzroy describes the Alukulup canoe as being like that of the Yahgan, both being made of bark; Hyades says (p. 13) that they have plank canoes, which he saw in Froward reach. Captain King also mentions such canoes in Port Gallant (p. 313) and in Fortescue bay. As Fitzroy's "Chonos tribe" lived along the northern shore of the straits, this is easily explained. Plank canoes have been observed farther south, as in Barbara channel. Fitzroy (p. 194) believes they were stolen.

According to Bougainville the Indians of Magellan straits are called "*pécherais*," a term that has become much used by tourists and also by men of science. The Fuegians were said to use this word very often. No one was able to give me an explanation of it, but I am sure that in any event it never was the name of a Fuegian tribe, and indeed there is absolutely no need of such a word. Fitzroy thinks that Bougainville's "*pécherais*" belonged to the Alukulup.

Despite the differences between the descriptions of Fitzroy and Hyades, it is obvious that they meant the same people, as is shown by their vocabularies; these certainly exhibit many differences, but we must remember that one observer was English, the other French, and that it is exceedingly difficult to record words spoken by Fuegians. This language is, however, totally different from that spoken in the Patagonian channels. Thus the straits seem to be a linguistic boundary.

Why, then, did our interpreter call the Indians seen by us Alukulup? Certainly two tribes do not bear the same name. Probably the explanation is that she had lived for some time on Dawson island, where the Salesian missionaries so designate them. Although we cannot prove that Hyades or Fitzroy used this name incorrectly, it seems certain that we cannot apply it to the channel people north of the straits. Their proper designation I have not been able to determine. During the voyage I did not doubt that the name used by the interpreter was the correct one, and therefore made no inquiries.



PROBABLE DISTRIBUTION OF FUEGIAN TRIBES AT THE ARRIVAL OF EUROPEANS

Ona — West Patagonian Canoe Indians — Alakaluf — Yahgan — Hush

Eastern limit of rain forests — — — Eastern limit of deciduous forests ——

As the tribes south of the straits are called "Fuegians," we may call the tribe here described "West Patagonian"—not a very apt name, to be sure, as they have nothing in common with the Patagonians, or Tehuelches, but still more or less appropriate as the tribe inhabits the region now often rightly or wrongly called West Patagonia.

It is probable that these Indians formerly mixed with Fuegians, and it seems certain that they also met with the Tehuelches. Fitzroy speaks of a people called by him "Huemul" because they wandered about Otway and Skyring hunting a species of deer (*Furcifer chilensis*). Now, the West Patagonians still make excursions to Skyring, as will later be seen. Therefore I am almost convinced that Fitzroy's "Huemules" were channel Indians observed during excursions into the land of the Tehuelches.

Brief Notes on Our Route

The members of the Channel expedition were, besides the author, Dr P. Quensel, geologist, and Captain José Bordes, *piloto mayor* in the Chilean navy. To Captain Bordes we are greatly indebted for the benefit of his wide experience, which was cheerfully placed at our disposal. By reason of the unequaled generosity of the Chilean government we were enabled to make use of a comfortable steamer, the S. S. *Meteoro*, belonging to the naval station at Punta Arenas, for our voyage. Leaving the capital of Patagonia, May 21, 1908, we anchored in Port Gallant the following day in order to enlist the services of an interpreter. Three canoes were seen here, each made of a single log—a type of recent origin, according to Bordes. After much negotiation we were successful in finding an interpreter, an elderly woman called Emilia (her mission name), or Akičakwarrakwilti (figs. 130, 131). She knew some Spanish, and spoke her own language fluently. At nightfall one canoe containing two men and their wives came alongside; they spent several hours aboard and gave us much information. At Port Gallant an Austrian has lived many years with an Indian woman; the natives regard him as one of their own and visit his place for the purpose of trading otter-skins.

The next morning we left Port Gallant and anchored in Puerto Angosto, a beautiful harbor surrounded by steep mountains and with a pretty waterfall. From here we steamed to the Felix lighthouse to land the mail for the staff, crossed the straits, and anchored in Sholl bay. The weather was clear, and from our anchorage we had a fine view of Muñoz Gamero peninsula and of Desolation island. The next day we proceeded westward as far as Westminster Hall, which was left on port; then passing Condor island we went northwestward through Esmeralda channel, thence through Lamiré passage east of King island, and through Laguera passage, which is only about a hundred meters broad and in which the route winds between kelp-patches and small rocks; finally through Indian passage down to Cuarenta Dias harbor on the north side of Atalaya island. From here we had to attempt a landing on the famous Evangelistas rocks, for we brought provisions for the men in service at the lighthouse. Generally a vessel bound for Evangelistas is obliged to await an opportunity to land the stores, watching the weather from Cuarenta Dias. A landing is not easily effected, as there is an enormous swell and nothing that deserves the name of a landing-place. We were quite fortunate however, and visited the lighthouse without delay on May 26. Here systematic meteorological work is done, the results of which were of much importance to our knowledge of Indian life; for how could one be able to under-



FIG. 130.—Emilia.

stand it thoroughly without an adequate knowledge of the climate of the country? We now know that there is hardly a place inhabited by man that is more disagreeable than the Patagonian channels: day after day a thick fog overhangs the mountain slopes, obscuring the view; week after week the rain pours incessantly, with frequent gales, and a temperature seldom exceeding a few degrees above the freezing point. The summer is in reality no summer, and winter is such only in name; indeed seasons are practically unknown.



FIG. 131.—Emilia.

In the afternoon, just as we prepared to leave Evangelistas rocks, a thick fog fell upon us. We made dangerous and fruitless attempts to reach a harbor, and were obliged to spend the whole night running to and fro in the entrance of the straits. At daylight, the fog lifting, we turned toward Queen Adelaide archipelago and anchored in a cove called Port San Ramón, on Pacheco island. The next

day we entered Anita channel, a very narrow and picturesque passage, and a second landing was made in Port Vacas. From Canal Anita one way led through very dirty water into Viel channel, where we met the first Indian canoe since leaving Port Gallant. It contained a party of seven, all so shy that the efforts of our interpreter to persuade them to come on board were utterly fruitless. The same day we arrived in Puerto Ramirez in Smyth channel where a Chilean and his family live in charge of a supply of coal deposited there for the use of the navy. The 31st of May we weighed anchor and went northward by the usual route through



FIG. 132.—Port Bueno. The distant smoke is from an Indian camp-fire.

Collingwood strait into Sarmiento channel and anchored for the night in Occasion cove on Piazzi island. The next day we met two heavily laden canoes, manned by two brothers with their families, who came from Port Bueno looking for a new camping-place. We took the entire party aboard and proceeded to their starting point, where we remained two days and had a good opportunity to study the natives at home (fig. 132). Some of them wore only their original mantle of sealskin; the others had a coat, or at least a waistcoat, an

old rag, or some such makeshift; the small children went quite naked in spite of the low temperature and a cold rain. On shore we found some Indians who had been left behind, for they did not possess a canoe; but probably their more wealthy tribesmen had intended to return for them. Here we discovered a large, well-built hut which will be described later. Our friends did not take possession of it, but hastened to build their usual small wigwams as soon as they landed.

Once more under way, we met the next native party, a canoe with one man and two women, in Guia narrows. They came alongside to barter, but would not come aboard, and one of the women repeatedly shouted "*Cristiano malo!*" As we could not heave to in the narrows, we went to Rayo cove, hoping the Indians would follow us; but we were deceived, so we continued northward, anchoring in Molyneux sound.

The next day we chose the route east of Saumarez island. From Penguin inlet, which was seen to be full of ice, numerous small floes were drifting out into the channel. When we were outside Port Grappler we saw smoke coming from the thicket. We stopped at once and had just let the anchor go when a canoe with ten men came to visit us. One of them, a man of about 55 years and the only gray-haired native we saw during the expedition, was in command. This party was not very agreeable to deal with; they begged for everything on board and declined to let us measure them, and they showed much indignation when we refused to give them liquor. Finally we were compelled to ask them to return to their quarters. At midnight we were disturbed by a noise alongside the steamer—the natives had come back and demanded to be taken aboard, which of course we could not allow. Early next morning the whole party was there again, now increased in number to twenty-four, including women and children. At first only the men came aboard; they were very suspicious and would not permit their families to come, but finally they grew more tractable. However, in spite of Emilia's eloquence we could not gain their full confidence. They did not understand our interpreter as well as desired, and Emilia declared that they spoke a different language. This, however,

was not the case, for I could see that they made themselves tolerably well understood, so that it must have been only a question of difference in dialect. What I was able to record in the way of a vocabulary I gleaned from Emilia and from the people in Port Gallant and in Port Bueno, hence I know almost nothing of the Grappler dialect.

After these Indians had spent some hours with us, they departed, and later we rowed ashore to see their quarters. Now a strange occurrence took place. As soon as they saw our boat, women and children ran away on the path leading into the forest, and the men gathered in front of their wigwams, apparently wild with rage, armed with stones, clubs, and sticks, and shouting that we must not come any nearer. As the boat touched the shore, they prepared to attack us. Emilia went to speak with them and told us that they were afraid of the shotgun brought by one of the officers, and only by leaving it behind did we gain permission to land. I dare say they were brave men, standing ready to defend their homes with the simple weapons at their disposal, not knowing whether we were armed with revolvers. Some of them, especially the old men, exhibited great fear of the camera; but they finally made friends with us, so that we conducted our observations without further disturbance.

In the afternoon we left these Indians and anchored in Port Eden. The next day Port Simpson was visited. We pulled up a small river which discharges here, and came into a small lagoon, where we landed, in order, as usual, to examine the vegetation. Thence we continued our journey, passing the famous English narrows and anchoring in Port Grey, where we found time for a second excursion. The next evening found us at anchor in Hale cove. After an excursion around the cove, we entered Baker inlet, a series of beautiful deep fiords with high rocky shores. The mountainsides are very barren, and only in the sheltered harbors is the usual rain forest found, owing to the formidable gales that sweep through the inlet. We anchored in Port Cuericueri, not far from the entrance. The next day we went farther in, but only to pass through Troya channel and then to turn westward again, for our diminishing supply of coal

necessitated haste. We anchored in Port Merino Jarpa, where we spent the night, then went back to Hale cove and thence to the Harbor of Isles. On June 12 we crossed Messier channel and passed through Albatross and Fallos channels into Adelbert channel, where we stopped in Heinrich's fiord. The next day we continued eastward, back to Messier, having rounded Little Wellington island and without having seen any trace of Indians other than their empty wigwams. After having passed English narrows once more, we found an anchorage in Port Riofrio. Running southward from here, we chose the passage through Chasm reach, a wonderful deep gorge through the mountains. As we emerged, we met a canoe and recognized some of the Grappler people—the first Indians we had met since we left this harbor going northward. We spent the night in Port Charrua, a most beautiful channel cove. On June 15 we passed into Andrew sound for Pitt channel, where it proved very difficult to find an anchorage. We tried a place close to Kentish islands, where 7 and 11 fathoms are marked on the Admiralty chart, but found no suitable place, although we looked all around until darkness came upon us, when we cast anchor on the south side of the channel with 19 fathoms; the shore was steep and we were not more than 30 meters from the beach. Before dawn we weighed and entered Pitt channel. Where Peel inlet branches, a sandbank has been reported, partly barring the entrance to the southern branch; nearer the southern shore there is plenty of room and water, and without adventure we steamed in toward the bottom of this most magnificent fiord. It was with a certain curiosity, for we wanted to stop here a couple of days, and no harbor or even anchorage was known. Good fortune helped us, for on the southern side, about three miles from the end, we discovered a beautiful harbor with a small island in the entrance, dividing it into two channels and sheltered from all winds. Twice a day the tidal currents filled it with drifting ice, but as the floes were small we lay thoroughly safe. The officers made a sketch of the harbor, which we called Puerto Témpanos, i. e., "Ice-flow cove" (fig. 133).

The landscape about the inlet is remarkable in its splendor. One is not far from the ice-clad cordillera with its lofty, shining, white

peaks; large glaciers descend toward the inlet from four valleys, embrace three nunataks, and join a gigantic stream of ice coming down to the water, where it terminates in a wall about 40 meters high and with an unbroken length of about three kilometers. The ice is much furrowed with deep clefts and crevices.

In the afternoon of June 18 we left Peel inlet and took the shortest route to Port Bueno, which had been abandoned by the Indians. We continued the 20th, and had just passed the entrance to

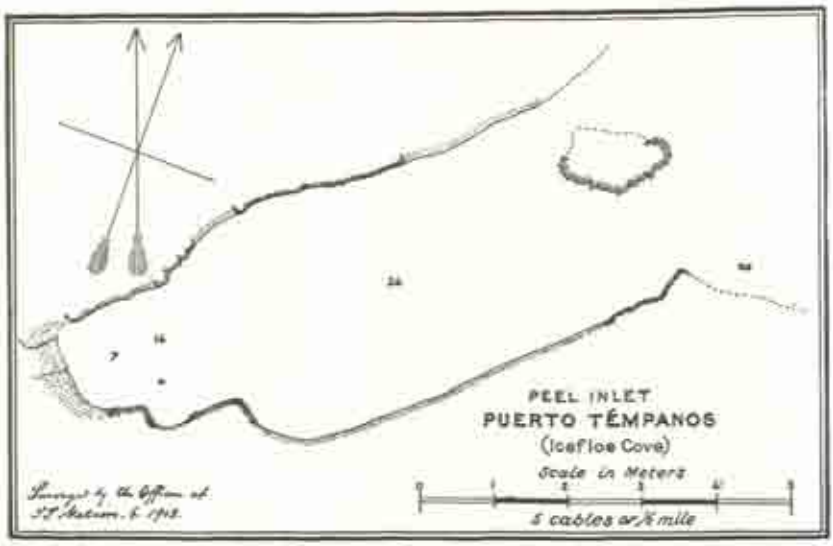


FIG. 133.

Columbine cove when, smoke being reported, we turned and stopped. There were three Indians on shore, a married couple and the brother of the wife. They were busy repairing their canoe and were in the happy possession of an ax. The next day we were back in Muñoz Gamero (Port Ramirez), where we met some Indians, who spent half a day with us on board. On our way back to Punta Arenas we anchored in Woodsworth bay and Port Borja. We left Emilia in Port Gallant on the 24th and arrived in Punta Arenas late the same evening.

PRESENT NUMBER AND DISTRIBUTION OF THE WEST PATAGONIANS

The northern geographic limit of the people in question is Penas gulf. They are said to visit even the western skerries in order to hunt seal, but I have reason to suppose that these dangerous excursions are seldom made nowadays. From the longitudinal channels visits are made into the fiords east of them, as Boca de Canales, Baker, Caldeleugh, and Ultima Esperanza. They also go down into Obstruction sound and directly across the isthmus separating it from Skyring water. The most famous and perhaps most difficult of these portages has been described in thrilling fashion by Byron in his narrative of the loss of the *Wager* (London, 1768). Coppinger also mentions some portages. Skyring pass was visited long ago. Bynoe says[1] that in Obstruction sound he found a large hut and some canoes, which he explains by the statement that the Pampa Indians (Tehuelches) make excursions to the channels, walk to the pass, and then use boats kept in storage there, and finally return to their own country. I think this explanation is wrong, first, because it is very difficult if not impossible to travel afoot from the pampa to the western part of Skyring, a region unknown when Bynoe wrote his description; and, secondly, we know from our own experience that the channel Indians make excursions to Skyring. What I cannot know for certain is why Bynoe found canoes, apparently abandoned by the natives, at Obstruction sound. Perhaps the Indians were in hiding, not wishing to reveal their knowledge of the portage.

During our visit to Skyring we went to Excelsior sound, where the portage ends. This inlet is far too long as located on the new Chilean map—half the length would be more nearly correct. As there is no beach of sand or gravel, there are no traces of a road ending there; the bay is surrounded by the compact wall of the evergreen forest. Had we not known that the road must be there, we hardly would have discovered it. We followed it 400 meters, at which distance it ends in a fresh-water lagoon. From the top of a hill we could see another lagoon, and there may be even a third one between Skyring and Obstruction sound. The road is

[1] See Fitzroy, p. 199.

laid with thin sticks directly across, the distance between them varying from three to five feet, and follows a wet depression along a cliff (fig. 134). We suppose that the canoes are pulled along, hence the sticks. Byron states that when crossing Ofqui the boats are taken to pieces and each plank carried separately. At several places in Skyring we found the framework of huts and were told by settlers that a few canoes are seen every year in June or July.

Why do the natives come to Skyring? The water is brackish and consequently animal life is poor in comparison with that of the channels. Numerous evidences of Indian repasts prove that they bring provisions with them on their journeys to Skyring water. Thus, we found bones of seafowl and seals, heaps of shells of the large *Mytilus*, and bones of animals that do not occur in Skyring. At one place we observed that a canoe had been built, or at least repaired. I have reached the conclusion that one of the reasons the Indians go to Skyring is their need of large trees, for here the forest trees (*Nothofagus betuloides* and *Drimys winteri*) are much greater than in the channels, where they are often so stunted as to



FIG. 134.—Portage between Obstruction sound and Skyring.

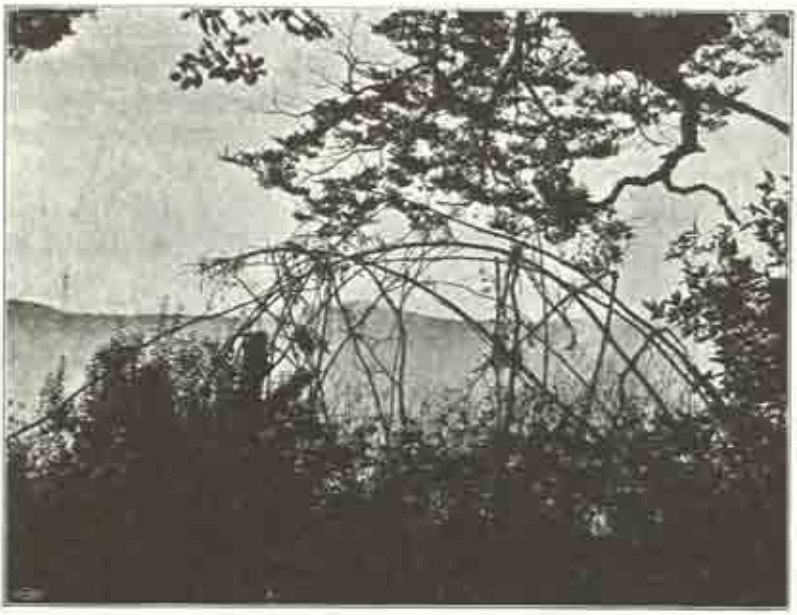


FIG. 135.—Framework of hut, Skyring.

be hardly fit for use. That in earlier days guanacos and huemuls were hunted is evident, but to judge from the total absence of bows and arrows the present Indians seem to leave the large animals alone. They now have something else to come for: the settlements, where they may freely practise their talents as beggars.

We may regard the Magellan straits as the southern boundary of the channel Indians. Only a few families go so far, preferring to confine themselves to Smyth channel and the archipelago west of it. Concerning their present number, no exact statement can be made. Barclay[1] estimated the "Alacalouf" at 800. He must have meant the West Patagonians, for there are no other free-living channel Indians, nor were there any in 1904. I think the estimate is far too high. In our cruise we counted about 80, and were told of about a dozen more. This was in winter, when most of them are found in the channels. I presume we saw or heard of a half

[1] *Geographical Journal*, 1904.

or at least a third of the tribe. Several persons living in Magallanes and familiar with the channels are of the opinion that the natives may be estimated at about 300. I believe they never were a numerous people, but they certainly have decreased rapidly during the last half-century.

Physical Characters

We went to the channels in hope of being able to make complete measurements of all the natives met, but we had underestimated the difficulties. Through the kindness of Professor G. Retzius, of Stockholm, we carried a complete outfit of anthropometrical instruments, but it was very difficult, if not impossible, to persuade the natives that these burnished steel objects were not deadly weapons, consequently we were able to measure only six men and five women. The results have been published elsewhere,[1] hence it is not necessary to repeat them here.

As no anthropometrical observations on the Fuegian Alukulup have been made, we can compare our measurements only with those of the Yahgans. Fitzroy quotes Bynoe's description of the natives in Trinidal gulf: "We all pronounced them to be a finer race than we had seen on the water. . . ." He tells various things indicating that they should differ considerably from the Yahgans. Also Mr Low[2] describes them in a manner indicating that we are dealing with a people far better developed than the Yahgans. Our observations, incomplete as they are, do not confirm this opinion. The photographs reproduced here and in my account of the whole expedition,[3] as well as the measurements, which speak more plainly than vague descriptions, show that they do not differ greatly from the Yahgans, while their general appearance is more or less the same. The upper body and arms are more strongly developed than the legs, which are thin and bent. The color of the skin, eyes, and hair is the same in the two peoples. The small children are lighter in color; they have brown hair and dark-blue eyes, which later

[1] *Ymer. Tidskrift utgifven af Svenska Sällskapet för Antropologi och Geografi*. Stockholm, 1910.

[2] See Fitzroy, p. 189.

[3] *The Wilds of Patagonia*. London, 1911.

become deep brown. The hair of the genitalia and the beard is very sparse; nowadays it is not always removed.

According to Hyades the hair of the Yahgans turns gray only with advanced age. We saw one man with gray hair—the "cacique" at Port Grappler, previously mentioned (fig. 136). I



FIG. 136.—Indians of Port Grappler. The figure at the right is the "cacique."

believe the age of this man, which we estimated at about 55 years, may be considered fairly advanced.

In comparison with the Yahgans our natives are somewhat more strongly built; the men are taller (1581 mm. against 1571 mm.), but the women are shorter (1438 mm. against 1474 mm.). Probably more extended observations would level these differences. The

West Patagonians are more broad-shouldered; the girth of the chest is greater; the head is perhaps a little larger, but more narrow across the temples; the distance between the malars is not so great; also the distance between the angles of the lower jaw and between the eyes is less. The mouth is perhaps broader.

Character and Qualities of the West Patagonians

It is often argued that in their culture the Fuegians belong to the lowest scale, and what is said of them, if it be true, may also be ascribed to the channel tribe. Certainly they all still live in the stone age, but this is not due to lack of intelligence so much as to unfavorable conditions, for their land, notwithstanding its luxuriant rain forest, is utterly poor, and no metals were ever available. Perhaps no other people have a harder struggle for existence. The climate is inimical to agriculture of any kind, as it is cold; rain and wind are almost incessant the year round, while there is scarcely any seasonal change. Impenetrable forests reeking with moisture and extensive swamps cover the slopes to the water's edge, from which, when the sky chances to be tolerably clear, the steep mountains with their perpetual snow and ice can be seen. Nature seems dead in this region. There are few birds on the water. As one makes the acquaintance of the natives, he ceases to question why they stand so low in the scale of culture, but rather wonders how they manage to exist at all.

As may be expected, the faculty of observation is well developed in the West Patagonians. Their language is rich in words for all kinds of natural products. Their faculty for finding their way into every corner, where a white man would soon be lost, is wonderful. Their memory likewise is well developed, and they exhibit, like many other primitive people, a pronounced talent for mimicry. In spite of this, it is very difficult for them to learn another language; their own tongue is certainly governed by laws quite different from those of civilized languages. It is amusing to hear them repeat, without hesitation and fairly correctly, a Swedish or a German sentence, for example, the meaning of which is unknown to them; but if they desire to use the same words in order to express themselves, they are not very clever.

Concerning the religious beliefs of this people, our investigations gave only negative results. We are not aware of any ceremonies—they may exist for aught we know, but probably, as with the Yahgans, are of a non-religious nature. They seem to dread their dead comrades, against whom they try to protect themselves by carrying amulets, such as a small leather pouch worn round the neck and containing hair of a dead person. Such articles, however, they evidently did not value very highly, as they would part with one for a match-box or a piece of tobacco.

Some travelers have declared that the Patagonians have true religious ceremonies. Fitzroy, quoting Mr Low, states that they make singular signs before eating, as a kind of invocation; but we always saw them devour their food without ceremony of any description.

The reputation of the channel Indians among the whites is not very high. We are told of treacherous assaults on people who never did them any harm. Such an assault occurred not far from Ultima Esperanza a short time before our arrival. I should imagine, however, that the suspicion and treachery ascribed to them have been inspired by unscrupulous Europeans causing the natives to lose their confidence in the white race; hence a white man is usually regarded as an enemy. Love between mother and child is strongly developed. In order to show how low the West Patagonians stand, it is said that the men sometimes offer their children for barter; but judging by our own observations the men are quite as fond of the babies as the women. How, then, can we explain that they often leave their offspring without clothes and keep them for themselves? I think that the garments that we offer them are regarded mostly as adornment, for we saw them drape themselves in old rags that were of practically no protection against the harshness of the climate. The small children are carried on their mother's backs, where they keep warm, or gather round the fire in the hut or in the canoe.

Manifestations of animosity are exhibited by the natives for the most insignificant reasons. They may feel mortally offended by an innocent joke. Inconstancy is a common trait. I do not

think that a native takes seriously any promise given by him. Jealousy is not unknown, and the husband is said to demand fidelity of his wife. Exceptions, however, are met with, as when a man sells the virtue of his wife for a cigarette; but it must be remembered that such cases are due to contact with the outcasts of civilization.

We gained the impression that the channel Indians are melancholic. If this be true, there is little cause for wonder, for the babe first opens its eyes toward a leaden sky; everything is saturated with cold rain; the wind howls almost continuously. If the child does not die, its life becomes a never-ceasing struggle; it does not become light-hearted, but bold, as is reflected in the daring boat-journeys. But, as other natives, when they sit about the fire and have plenty to eat, they forget their misery for the moment.

The families seem to live separately, governed by the husband. It was a mere chance that so many people were seen under the command of one man as in Port Grappler; in this case he was the oldest man of the company, which separated only a few days after our visit. Monogamy seems to be the rule, but there are some men with two wives. The women are not exactly ill-treated. They have the same occupations as the Yahgans. No family seen by us had more than three children; the mortality is great during infancy.

West Patagonians and Civilization

Ever since the sixteenth century the channel Indians have been visited now and then by white men, sometimes at great intervals. While the Fuegians have been the subject of the ministrations of energetic missionaries, with the result that they will soon be extinct, the relations between the West Patagonians and civilization have remained the same, although visitors have been more frequent during the last century. Although this contact has been comparatively slight, it has had a malign influence on the natives, changing them into lazy beggars whose only desire is for alcohol, tobacco, and clothing. It has also been the means of introducing distressing maladies, especially syphilis, shown by indisputable symptoms indicating advanced stages of that disease.



WEST PATAGONIAN CAMP

The Chilean authorities do not take much notice of the Indians. As they live in a country which seems to be useless for white people, it is certainly not necessary to exterminate them. It seems to be of no consequence to the authorities whether they live or not.

Camping Places and Houses

The hut is situated at the forest edge (fig. 135), and as the trees grow to the water's edge, only a few steps separate it from the beach. This form of shelter is little more than a name, but it would require much labor to clear a space in the forest—too much for people who remain only a few days in one place and then seek a new camping-ground. On the beach are the canoes, where they are dragged up on their sticks. About the hut are all sorts of refuse, and as the immediate vicinity is used as a latrine, the site is anything but attractive. Seldom did we see more than two or three huts together, and it is not certain that all were occupied at the same time. From the camp a narrow path leads into the forest,—such was the case in Port Bueno and in Port Grappler, and along this the women and children fled as we approached.

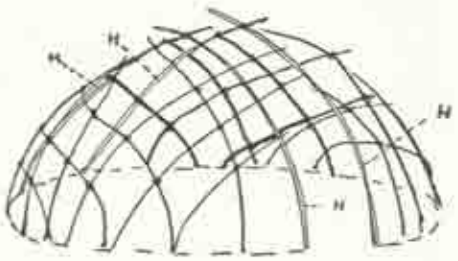


Fig. 137.—Framework of an ordinary wigwam.

In Port Bueno we desired to survey the path, but were prevented by the natives. When we returned and found the place empty, we examined the site but could discover nothing remarkable.

The hut referred to has the shape of a beehive and is about 1.8 to 2 meters high. The descriptions found in literature are sometimes more or less incorrect. As we have taken part in the erection of their houses, I may describe them in a few words. First, four long, flexible sticks of *Drimys*, *Desfontainea*, or *Maytenus* are selected, tied together in pairs, and set into the ground, forming the first two parallel arches (fig. 137). Between them is the door. Other sticks are then planted to complete the circle, bent toward

the first arches, and fastened. Finally a variable number of shorter sticks are arranged in the same manner, extending obliquely across the others; at the points of intersection they are tied together with the tough stems or leaves of *Marsippospermum grandiflorum*, a *Juncacea*. The framework is now ready. A thick covering of grass (*Hierochloa magellanica*, *Festuca fuegiana*, and *Carex trifida*) is next laid; small twigs of trees or bushes and large fern fronds (*Blechnum magellanicum*) are also used, as well as pieces of cloth or



FIG. 138.—Hut covered with sealskins.

blankets. If sea-lion skins are available, they alone may be used, without the grass (fig. 138). In the middle of the floor is a shallow cavity for the fire, but no special opening for the smoke is provided. The entrance may be covered with a piece of skin or cloth; other skins, or blankets or beech-twigs are placed on the ground.

The larger houses are sometimes of different construction. Their shape is that of a half ellipsoid. One, in Port Bueno, was 12 meters long, 4 m. broad, and 3.5 m. high. It was built of selected

sticks which crossed one another at regular intervals, and was covered with grass and beech-twigs (fig. 139). The lashings were of bast of *Libocedrus tetragona* or of sinews of birds. Several families had occupied this house the previous summer, and there were signs of several hearths. In winter the small huts are preferred, as they are easier to keep warm. Perhaps the larger ones have another meaning unknown to us. The other, larger hut was only half the size of the one described. Such houses are mentioned in literature.

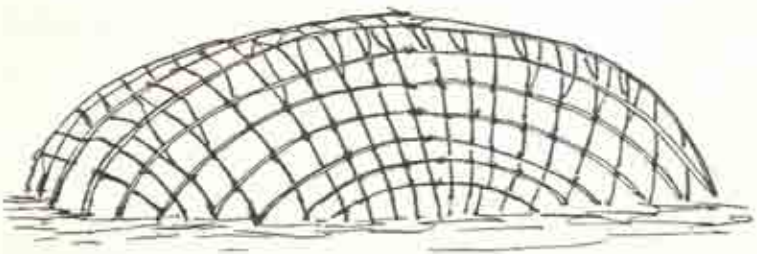


FIG. 139.—Skeleton of large house.

Bynoe[1] discovered them in Obstruction sound and describes them as having the appearance of a capsized boat and large enough to accommodate forty or fifty persons. As there were numerous traces of canoes having been built at the place, it seems probable that channel Indians had come there for that purpose. Canoe-building may occupy several months, and therefore the natives took the trouble to erect substantial houses. The existence of these huts is contrary to the explanation of the portage given by Bynoe.

THE CANOE

The canoe is known both from descriptions and from illustrations, hence it is not necessary to enter into details (fig. 140). According to Coppinger[2] the creeper *Campsidium chilense* is used for sewing the planks together; but this is not always the case, for the canoes are built also where no *Campsidium* grows, in which event bast of *Libocedrus* is used. At the present time new canoes are made with the aid of axes or other iron tools, but formerly the Indians had only

[1] Fitzroy, p. 199.

[2] Coppinger, op. cit.

fire, and stone hatchets, musselshells, etc., to serve them in their boat-building operations. Such old canoes are still to be found, for the planks seem to defy the process of decay. As is well known, the Yahgan canoe is totally different, being made of bark and as a rule not lasting more than six months.[1]

Paddles are made of *Libocedrus* wood, in one or two pieces. When made of two pieces the blade portion is provided with two

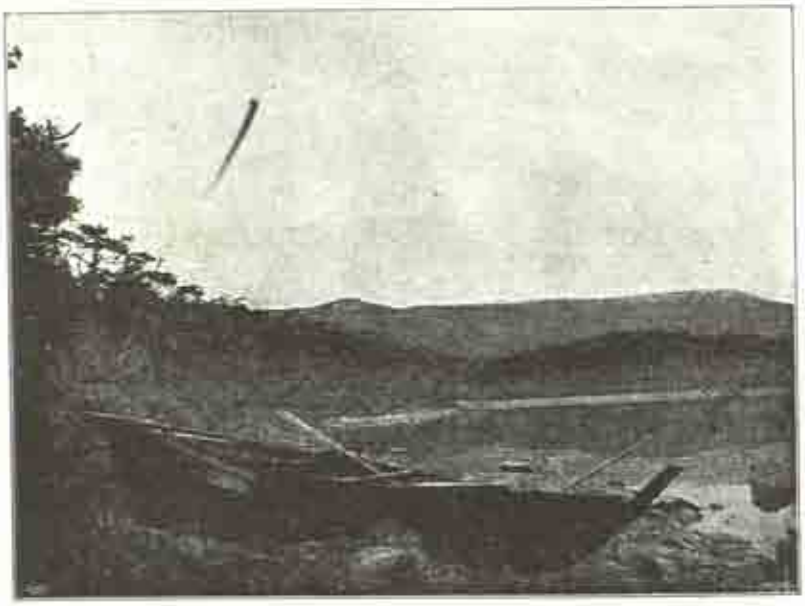


Fig. 140.—The canoe.

holes at one end, by means of which the handle is fastened with strings of bast.

The canoe is the principal property of a channel family, and two families may own one in common, but it must be large enough to contain the members and all their possessions. In one canoe we noted, besides half a dozen people and quite as many dogs, the following articles: three long oars, one short steering oar, handles for the harpoons, some large sealion skins, implements for taking shells and sea-urchins, wooden rollers for hauling the canoe, whale

[1] Hyades, op. cit.

bones and baleen, large pieces of blubber, heaps of mussels, a bag of whale-hide and several baskets containing blubber, a bark bucket with drinking water, a bailer of sealskin (fig. 141), a bag of sealskin with tools, harpoons, and sinews, an iron ax, a painter skilfully plaited of *Marsippospermum*, and large bundles of the same plant. We did not see such large canoes (7 by 30 feet) as described by Bynoe.[1]



FIG. 141.—Bailer of sealskin. (3/5)

HOUSEHOLD ARTICLES, CLOTHING, AND ORNAMENTS

The channel people do not possess anything worthy of the name of furniture. Their most important articles are the baskets plaited of *Marsippospermum*, dried over a fire. The Yahgan types figured by Hyades are rare; the most common kind has the mouth expanded by a strip of baleen, and the meshes are larger (fig. 142). An Indian family always has a supply of these baskets for gathering mussels, sea-urchins, fish, etc. Sometimes they use a circular wooden box, three or four decimeters in diameter, with a loose lid of the same shape as the box, for containing their smaller objects. They also

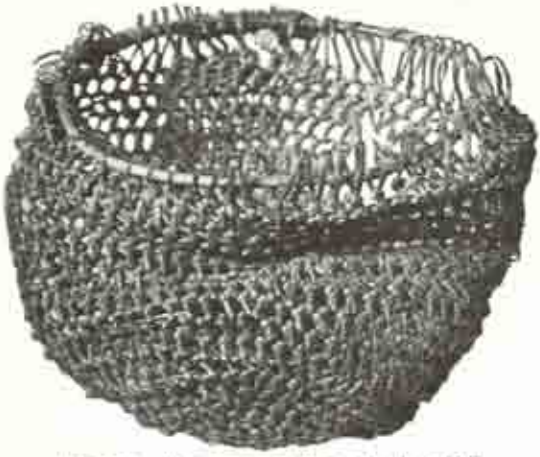


FIG. 142.—The common type of basket. (3/5)

[1] Fitzroy, p. 197.

employ, for a similar purpose, small bags of sealskin with the hairy side inward. Of aboriginal tools they possessed awls of bone or of huemul horn, large shells, flint knives, and stone axes, but such implements are now very rare. Coppinger saw only a single ax, and we asked in vain for them: they have been entirely superseded by modern implements, often of very inferior quality. Among their most noteworthy aboriginal objects is a comb made from a dolphin's jaw.



FIG. 143.—West Patagonian at his canoe.

The mantle of seal or otter skin, the only native garment worn, has become rare. We saw a few, but most of the Indians possessed none. This mantle measures about three square meters and is made of fur-seal or otter skin; it is worn over the shoulders and is fastened about the neck with plaited leather strings. The head and the legs are uncovered, and shoes are not worn (fig. 143). The women wrap a piece of cloth around their hips; presumably a skin was originally thus worn.

Ornaments are little used, and most of them are identical with those described and figured by Hyades as employed by the Yahgan.

Necklaces of small shells (*Photinula violacea*) are seen, sometimes arranged with great skill along a neatly plaited leather string, and similar strings are worn as bracelets. Often a flat, polished piece of bone is used as a pendant. It is of interest that on some of these I observed a primitive attempt at decorative art not hitherto known to exist among the Fuegians (using the term in its widest sense), that is, regularly arranged points and lines (fig. 144). The men have the same ornaments as the Yahgan (though none were seen in use) — the "diadem" of white feathers, probably of *Chloëphaga hybrida* ♂.

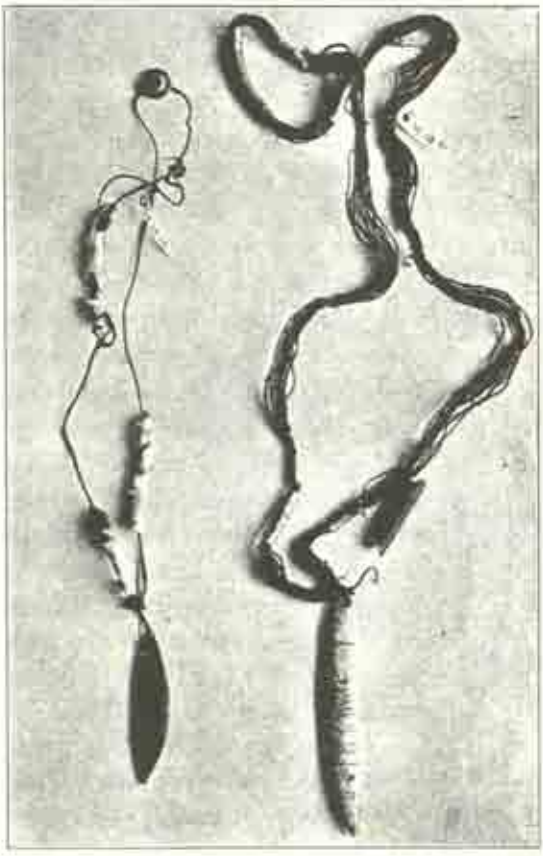


FIG. 144.—Necklaces with pendants. The example to the right is decorated. (⅔)

The inner side of the mantle, the strings, and even the harpoon handles, oars, etc., are painted red with hematite, which they keep in the dried esophagus of a sea-lion. They also paint themselves with the same material.

FOOD AND ITS ACQUIREMENT

Hyades has especially pointed out that the principal food of the Yahgans consists of mollusks, and the same is true of the West

Patagonians. I think that the animals mentioned in Hyades' work are all present in the channels. Indeed everything edible is used, as seals, otter, birds, fish of all kinds, and of course whales. The natives are not able to hunt large whales, but they take full advantage of one whenever they find it stranded. The people in Port Bueno had an abundance of whale blubber, and not far from the camping-place we saw the remains of two whales of medium size, and some carcasses had stranded at Port Grappler. Larger whales, which happen to come into the narrow channels, easily go aground, when they are taken by the Indians. The whalers in Punta Arenas also visit the channels.

Mollusks are eaten raw or are roasted on hot coals, when they open and are ready for use. They are very palatable.

Harpoons are the most important weapons and are of the same types as those of the Yahgan, having a single barb or cut like a saw. Another type has a barb on each side, but I am not aware that it is used for a special purpose. The harpoon is handled in the same manner as is pictured by Hyades. Slings and traps for birds are also employed. On the other hand, we never saw any fishing tackle, presumably because since steamers have frequented the channels, giving the Indians repeated opportunity to beg or barter, they do not devote themselves to an occupation with such dubious results as fishing.



FIG. 145.—Top of stick for catching sea-urchins.

No special implement is required for gathering the *Mytilus* and other mussels. The *Patellas* are loosened with a short, flattened stick (our specimen measures 135 cm.). Sea-urchins are caught with a long stick (our specimen is 490 cm.), cleft in four parts at one end, the four prongs being forced apart by two small sticks (fig. 145); it thus differs slightly from the implement figured by Hyades.

We saw bows and arrows only in Port Gallant, where the Indians make them for tourists. Everywhere in the channels we asked for them, but were always assured that none existed. Probably they were used mostly in warfare, but also for hunting on expeditions into Baker, Ultima Esperanza, Skyring, and other waters.

Another weapon, whose existence was hitherto unknown to us, is a heavy club, 60 cm. in length, and, according to our interpreter, made of tepû-root (*Tepualia stipularis*). Only in Port Grappler



FIG. 146.—West Patagonian club. (1/5)

were these clubs seen. They are probably used for killing seal and otter (fig. 146).

We are also certain that the channel Indians once used the boleadora, the well-known weapon of the pampa Indians. On an excursion to Cape Victory, in order to find an Indian cemetery reported to be situated in a large cavern, Captain Bordes found a beautiful boleadora of gray stone (fig. 147). This may perhaps be regarded as an indication that channel and pampa Indians once met on the eastern coast of Skyring water.



FIG. 147.—Boleadora from Cape Victory. (1/4)

VOCABULARY

Most of the words given below were recorded from the dictation of Emilia and verified whenever occasion offered. I hope that I have come as near to the correct sounds of the words as is possible without devising a new and elaborate alphabet. It should be noted that different individuals have a somewhat different pronunciation. Through the studies of Hyades, which seem excellent, we know that the Yahgan have a very intricate grammar, with, for example, four conjugations and an astonishing set of tenses, and there is no reason why this should not be the case also with the West Patagonian language. But in trying to penetrate the maze of an Indian language, I met an insurmountable obstacle, namely,

Emilia knew but little Spanish; her vocabulary was very limited, and she could express herself only in the infinitive or in the third person singular.

In spite of all this, I feel that my list is fairly, although certainly not absolutely, correct. In support of this, I may say that I have been able to identify about all the words published by Hyades (p. 278); in the exceptional cases I believe I can prove that his source of information, Dr Fenton, was mistaken.

Thanks to the great kindness of Professor K. B. Wiklund, of Upsala, I have been able to adopt a phonetic alphabet by means of which the words can readily be pronounced.

a = *a* in German *Hand*.
e = *e* in English *get*.
i = the narrow *i* in German *Kind*.
y = *ü* in German *Glück*.
o = *ø* in German *Gott*.
u = *u* in English *bull*.
a͡u = diphthongal *au*.
r is pronounced with the point of the tongue and is a very hard trill.
ʁ is the uvular trill like the French *r*.
x = a very hard, Spanish *j*.
ʀ = surd *r*.
ə, a very short, imperfect *a*.
ɛ̆, a very short, imperfect *e*.
ĭ, a very short, imperfect *i*.
ā = *a* in English *hand*.
ō = *eu* in French *seul*.
w = English *w*, as in *wet*.
j = English *y* in *yes*, but more sibilant.
č = a more palatal *ch* than in Engl. *child*.
š = English *sh*.
š' = a palatalized *š*.
ʻ = aspiration.
— = length of a vowel.
' = principal, *:* = secondary stress.

afraid, *kje'lu*
always, *a'kwa:*
angry, *a'tta:š'*
arm, *la͡u'kwe:l*
arrow, *a'rxkje:l*
asleep, *ši'r'š'stakwarrʀ*[1]
answer (to), *kja͡u'kr-kstiš'*
bad, *češ'lā'börrʀ*
bag (of sealskin), *ka'ppelu*
bailer, *ta'ʃaʒā:ʒ*
baleen (strip of), *tāš'*
barter, *klirrʀ*
basket, *tā'ju*
bear (a child), *ti'kja͡uš'*
beard, *ā'fejuk*
bed, *pāpētaʻl:*
to go to bed, *pāp*
binocle, *ia'kxnā:r*
black, *pa'l(kwarrʀ)*[1]
blood, *ki'blajk*

[1] The suffix *kwarrʀ* is very common and seems to designate a condition or a quality possessed by something: hence *ši'rk'sta*, to sleep, *ši'rk's'ta-kwarrʀ*, being asleep. The color names also end in *kwarrʀ*; a thing is *pa'lkwarrʀ*, i. e. possesses a black color. Another example is *a'rxkje:l*, arrow; *a'rxkje:lkwarrʀ*, quiver = 'the thing that holds the arrows.'

[2] = "Capitán cristiano" (Emilia). See page 615.

blubber (whale-), *a'ɪska:*
blue (or green?), *a'rx(ʁuarrʁ)*[1]
boat (life-), *čā'rru*
bone, *kārʁ*
bore-mussel, *kāu'lagill*
boy, *ā'jo:l*
breast, *ðu'rxk'* (plural-form?)
bucket, *čāu'klʌ:l*
button, *ke'pe:rrʁ*
buy, *čiā'ɪ'*
camp, *a'triɪ'kārʁ*
canoe, West Patagonian, *kiā'lu;* Yahgan, *a'tɪ'li;* of one log, *je'kuklīai*
captain, *siu'ftiu:r*[2]
cardium (mussel), *kɪku'lārʁ*
cat (tame), *i'rritu*
celery, *kō'lɪ'čāu:*
channel, *čōā'pl-i'kiaut-kle*[3]
cheek, *či'pipr*
chest, *kje'pxa:rrʁ*
chief, *rāu-rāu*
chin, *afā'tālē'*
cinders, *tāīl*
clothes, *a'či:ču:*
club, *kā'rkɪku:lɪ'*
coipu, *te'ʌestaːt*
come, *lō'la:l*
cold, *kī'ɪ'āɪ'*
cry (to), *a'tʌi(ɪ')sta:*
cure (to), *či'ɪ'ela:i*
cut (to), *aje'ʁarʁ*
dark, *kɪ'lī'pi:ɪ'*
daughter, *telōkstā'-ɪ'elīɪ'* (or *-s*)[4]
day, *kā'lōgti;* to-day, *lāfk* (also = now)
dead, *tōff*
dive (to), *kɪʌāu'i*
dog, *č(i)a'lki* (male, *č(i)a'lkɪ ārrk*; bitch, *č(i)a'lki wā'lōk'*)
duck, *ka'īp*[5]
ear, *te'lka:olo* or (?) *ku'rrxɪ'kial*
early, *a'tɪlkwa:l*
east, *čī'kerʁ*
egg, *jo'ri(ɪ')l*
esophagus of seal, used to keep iron ocher in, *kje'llōf*
evil, *či'lōgdl*
eye, *teɪ'l*
face, *tō'ɪlka:l*
fall, *ku'ʌxkā:l*[6]
fat, *a'fʌð*
father, *či'čārʁ*
fine weather, *kɪ'āɪ'*
finger, *iāu'xlwa:rkl*
fire, *ɪ'ta'tka:l*
fish (to), *kī'rksta*
flower, *i'ksta:xl*[7]
fly, *a'ppāɪ'*
fog, *či'tāɪ'*
food, *lō'fi:ɪ'*; "good eating," *lō'fi:ɪ' lā'ip*
foot, *le'ku:rʁ*
forehead, *teɪ'l-kārʁ*[8]
friend, *kwa'ltak*
fur-seal, *ārʁ;* skin of fur-seal, *ārʁ-kāuɪ'*
girl, *ā'jāu:ɪ'*
glad, *pa'lxa:rrʁ*
gloaming, *ka'lalō:rk*
go, *āɪ'*

[1] Emilia also used this for "green"; if a mistake of hers, I ignore it. The word *arʁ* means sky, the color of the sky.

[2] From "sea" and "small, narrow." I do not know the word *kle*.

[3] The word *ɪ'elɪs* means woman, female, for it is used also in combination with *i'ppā: ippā'ɪ'elɪs*.

[4] The so-called loggerhead or steamer duck (*Tachyeres cinereus*).

[5] This is very uncertain. Note the likeness with *ku'rrxɪ'kial*, ear.

[6] I believe this is some special kind of flower. I should not think the natives would have a general term for flower.

[7] From *teɪ'l*, eye, and *kārʁ*, bone.

good, *lā'ip*
guanaco, *laa͡'xe:l*
hair, *te'rrkō:f*
hand, *te'rrwa:*
handle, *kārn*
hard, *Fau'jip*
harpoon: (1) with two opposite barbs *il'l*;[1] (2) like a saw, *tō'lāl:rn*; (3) with one barb, small, *ā'leju*; (4) with one barb, larger point, *i'rl'nčil*
he, *čaux(l)*
hear, *ti'il'kior*
heart, *ši'llak*
heel, *kia͡u'thi*
hide, skin, *kāu͡l'* or *o'pōxa:l*[2]
hide (to), *a'kwa:l*
hoar-frost, *aka'pš'ti*
horse, *āu͡'reli*
house, *āt*, plur. *ātk*[3]
(the large house: *a'tɹil'kār-a'kwil-āt*[4])
I, *čix(l)*
ice, *ōkia'rl'li*
ill, *ā'lōl(k)*[5]
intestines, *kāu͡'lksil*
iron ochre, *il'lālil'*
island, *a'lil'ka:rn*
kelp (Macrocystis), *kilā'pōkl'*
kelpgoose (male), *ate'l'lap*
kelpgoose (female), *dā'rip*
kind, *a'fil:l'*
knee, *skoč'lā:l'*
knife, *aftā'ɹɛ̄*
know, *ko'i*
land, *ti*[6]
large, *a'kwi:l*
laugh, *a'lōkl'ta*
leaf, (*x*)*klil'*
leather-rope (of seal-hide): (1) large one, for fixing the seal-harpoon on the handle, *ki'rkela;* (2) smaller, *li:l'ek-la'lgu*
leave, *i'rxflai*
leg, *kat, ka'txkārn*
light, *kjāu͡'jeskwa:l*
lip, *afē'rē*
love (to), *a'tɹala:(l')*
man, *a'kīēl*
mantle, *ā'llak*
match, *i:kl'tā'f*
many, *a'kja:i, a'kj:āu͡l'*
meat, (*k*)*īpr*
milk, *āu'rxk'*[7]
moon, *i'rkapil'-ā'luk*
mother, *čāp*
mountain, *ui'l'*[8]
mouse, *a'tɹalōp*
mouth, *a'flai*[9]
mussel, *ka'puk;* the large *Mytilus: a'klt'āu͡'l*
my, *hōl*
nail, *jekl* (*-tāu͡'xlxa:rkl*)
neck, *kjāu͡'l'lerrxārn*
necklace, *skɛ'ayks-a'ppōlela*[11]
nest, *kiut-kiut*

[1] Harpoon + shaft is called *il'lkārn*.

[2] This perhaps to designate guanaco-skin (see Hyades, p. 278).

[3] *a'kjai ātk*, many houses.

[4] Literally, camp-large-house.

[5] *a'kjai ā'lōk*, many are ill.

[6] Probably because *ui'l'kli* = land with mountains (*ui'l'* = mountain).

[7] *l'tā'l* is probably the same word as in *l'ta'tkal*, fire.

[8] The same word means breast. I dare say I am not mistaken, for according to Hyades the Yaghans express themselves in the same way.

[9] *ui'l'a'kwil*, high, large mountain.

[10] I suppose that *af* is the same syllable as appears in the words for beard, chin, and lip.

[11] Plaited sinews (*skɛ'ayks*) of whale (*a'pōla*). The necklace of molluscs is called *keigfol* (= *Photinula violacea*).

new, *i'ɹapegā:ɹ*
night, *kɬ'lī'pi:ɬ'*[1]
no, *ta'xli, kjip*
north, *ja'kurlārn*
nose, *lāū'xl;* nasal bone: *lāū'xl-kārn*
nothing, *kjip*[2]
now, *lāfk*
oar, *le'pokwa:rrn*
old, *rā'ɬ'u*
ona, *uī'ɬ'-kalegr*[3]
ornament of white feathers, *čɛ'pa:la*
otter, large, *lā.ell;* small otter, *ta'ɬuščī:l*
pain, *kjō'fte:l*
painter, *ā'lče:ɬ'l*
paper, *ta'jlkatlka*
peat moss, *č'āōpl*
Photinula (small mollusk), *kei'-gjo:l*
pick-ax, *kā'risɹč:*
pipe, *te'lksɹār*
pricker, *i'ɹa:pteɹ;* with handle, *i'ɹa:-pteɹ-kārn*
puma, *ča'u:l*
quiver, *a'rxkje:l-kwarrn*[4]
rain, *ō'ppera:ɬ'*
rainbow, *akja'ielōkl*
red, *kīru(-kwarrn)*
rise, *a'ltɹārn*
rock, *ke'pli:kl*
robalo (fish), *jāū'lern*
run (to), *a'lāɬ'*
sand, *afāū'lɬ'a*
sea, *čōā'pl*
seal (fur-seal), *ārn*
seal (sea-lion), *ā'Lel-ārn*
sea-urchin, *tāū:xlā'ri*
see, *lō'kjor*
sew, *skjāpɬ'*
sheep, *wo'li*
sinew (of whale), *skɹe'ɹyks*
sit, *lī'ɹārn*
skin (otter), *lae'ltl.nāūɬ'*
skin (fur-seal), *ārn-nāūɬ'*
sky, *arrx'*
south, *ɬ'i'ptɹe:ɬ'li*
speak, *kstiɬ'*
star, *k'ollaɬ'*
steamer, *a'sxā:r, wa'jekn*
stick to loosen the patella mussels from their substratum, *i'lɬ'likāū:a*
stick for gathering sea-urchins, *i'ɹč-pīɬ'āū':j*
stomach, *kai'lɬ'el*
stone, *kje'tɬ'lan*
stool (to go to), *a'kut*
storm, *ʔa'rrkaɬ'la:rrn*
string (round the wrist), *ka'tksɹan*
slow, *lō'lo:ktn*
small, *i'kjāū:l*
snow, *a'ka:be:*
son, *le'lōksta*
summer, *jā'kaxɬ'l*
sun, *arrx-ā'luk* (*arrx'* = sky)
swim, *ō'llpai:l*
tepú, *pī'lekn:tl*
thank you, *kwa'kju:*
thigh, *ā'il'u*
thin (meager), *ā'jip*
thou, *tāū'x(l)*
throat, *je'lka:rrn*
thumb, *aiɬ'*[5]
to-day, *lāfk*
tongue, *lōkl*
tooth, *le.ɹegāi*

[1] = Dark.

[2] In Port Grappler I heard *kjop*.

[3] By this term the "foot" or pampa Indians—the Onas or Tehuelches—are designated. As *uī'ɬ'* means land, mountain, *kalegr* may be the word for people, thus "land tribe" in contradistinction to "canoe tribe."

[4] This is a curious word; it should mean "many tongues" (?).

[5] Same word for "great toe."

town, *ăt bă'la*[1]
trap, *xaiĭ'*
tree, *xa'rltōkl*
urinate, *skarrĭ'*
voluta (large mollusk), *au'rxa:l*
warm, *a'pō:ll*
water, *aki'čakwarrʀ*[2]
waterfall, *kstă'ikĭ'*
west, *a'čikulail*
wet, *stl͡a͡u'la:ga*
whale, *a'pāla*
white, *iĭ'kapiĭ'(kwarrʀ)*;[3] white man, *i'ppā*,[4] white woman, *ippā'ĭ'elis*
wife, *kjā͡u'ja*
wind, *a'ketl*
winter, *a'ka:be:*
woman, *čirkĭ'*
wood, *če'a:la:*; firewood, *a'ā:*
wound, *čĭ'ltrō:pl*
yes, *aĭ'lo:*
yesterday, *i'ebistai:*
young, *la'falō:ĭ'*

NUMERALS

one, *ta'kso* or *da'kuduk*[5]
two, *u'kl(k)*
three, *tā͡u'kl(k)* or *ukłk-at-tā͡uxlk*
four, etc., *a'kja:i* (= many)

NAMES OF PLANTS

In his paper "*Plantæ per Fueglam collectæ*" (Buenos Aires, 1896), Spegazzini has given numerous names of indigenous plants and parts of plants, some of them quoted as being *Alukulup*. Most of these coincide with those given here, which proves that they are West Patagonian or from the Straits of Magellan. Those marked by an asterisk correspond to names given also by Spegazzini.

Apium australe, kō'llĭ'čau:
Azorella caespitosa a. o. } *tōll*[6]
Bolax Bovei }
Bolax gummifera }
Baccharis patagonica,[7] *kĭ'lpel*
Berberis ilicifolia, čiĭ'
*Berberis empetrifolia, *kjā'rrʀ*
Chiliotrichum diffusum, kjā͡u'o:rrʀ
Colobanthus subulatus, tōll
Corallina chilensis, čeă'pl-a'jeku[8]
Crassula moschata, uĭ'ĭ'kti-a'jeku[9]
Donatia fascicularis, kār-a'jeku
*Drimys Winteri, *šš'la-kwarrʀ*; the stem, *kĭ'otopi*
Embothrium coccineum, še'tirkĭ'
Empetrum rubrum, pĭ'lekull[10]
Escallonia serrata, jā'ju
Gleichenia quadripartita, a'kiu:tuel
Gunnera magellanica, pa'jkauta
Lebetanthus myrsinites, ka'llĭ'tă:t
*Libocedrus tetragona, *lapă'jekl*
Macrocystis pyrifera, kiššă'pōkĭ'
Marsippospermum grandiflorum, čĭ'-pā:ĭ' or *'je'kkabi:sse*

[1] *ăt* = house. I do not know the word *bă'la*, perhaps = many.

[2] Used to designate lake, stream, etc., also the bucket for containing drinking water for canoe journeys.

[3] Possibly the same as *i'rkapiĭ'* (in *i'rkapiĭ' ăluk*, moon).

[4] I have heard *i'ppă-i'kĭ'ta:t* = the man with the matches.

[5] A similar word is used by the Alukulups.

[6] All these plants have the same *habitus*: compact cushions.

[7] Spegazzini thus calls *Escallonia serrata*.

[8] From *čeă'pl*, sea, and *a'jeku*. I do not know the sense of this word. *Corallina* is an alga. The Yaligans use *ayakou* (Hyades) for *Maytenus*.

[9] From *uĭ'ĭ'kti*, stone, ground, and *a'jeku*.

[10] The same word is used for *Tropæolum*.

Maytenus magellanica, a'ikn[1]
Myrteola nummularia, tetš'l-kwarrn[2]
Myzodendron punctulatum, te'litet$_{40}$:la
*Nothofagus betuloides, *a'llkol*
Pernettya mucronata, le'tipiš'-kwarrn[3]
Philesia magellanica, ko'lla-ko'lla
Porphyra sp., *a'ttiš'*
Pseudopanax laetevirens, a'iku
Scirpus cernuus, š'a'kā:lf
Tepualia stipularis, pi'lekutl

SENTENCES

The following short sentences were noted:

lāfk ki'š'aš'tk, it is cold today.
lāfk a'ppölerk, it is warm today.
lāfk ö'ppereš'k, it rains today.
lāfk aka'belerk, it snows today.
a'kš'ēš' čiš'elaik, the man cures.
čauxl ā'ilölk, he is ill.
Emilia skjā'pš' tā'ju lā'ip, Emilia sews a nice basket.
hōš kjau'ia, my wife.
tauxl kjau'ia, thy wife.
čaukšl kjau'ia, his wife.
ta'š'liku:lla, I will not.
tāp a'tɬala:š'k i'kjaut, the mother loves the baby.
ā'jo:l-i'kjaut a'taiš'tak, the small boy cries.
i'kjaut a'llökš'tak, the baby smiles.
čirkš' kjip kjau'krsti:š'k, the woman does not answer.
kje'pxarl kjö'ftelk, have a pain in the chest.

There is no likeness at all between this language and Yahgan. Comparison of my words with the elaborate vocabulary given by Hyades and Fitzroy shows only one that offers any resemblance:

ui'š', land, mountain: *ouçi* (Hyades), *ôshĕ* (Fitzroy).

Of much greater importance is the fact that Hyades gives a list of Alukulup words which he compares with those obtained by Fitzroy, showing that the two tongues are distinct, and that therefore the Indians of the Patagonian channels cannot be regarded as Alukulup. There are, however, some words, especially in Fitzroy's list, which seem to be identical in the two languages; in nearly all cases they do not correspond with those in Hyades' list,

[1] *tetš'l* perhaps means the edible berries.

[2] A similar word is used by the Yahgans for the same plant. Emilia also used it for *Pseudopanax*.

[3] *le'tipš'* are probably the edible berries.

which probably signifies that Fitzroy was mistaken and that his list is of dual origin, i. e., Alukulup and West Patagonian.

kārn, bone: *tçēlē-karh* (Hyades); H. has also *ouchkā-ē*, Fitzroy *osh'kiă*. This last word may be the true Alukulup expression.
kī'f'āl', cold: *klshdch* (Fitzroy).
lō'pāl', to eat: *louf-aich* (Hyades), *lŭf'fish* (Fitzroy); H. also gives *yo-arh*, probably the proper Alukulup term.
tel'l, eye: *tĕlkh* (Fitzroy).
lā'ip, good: Fitzroy has *ly'ip*, Hyades *la-laīf*.
āt, house: *ăht* (Fitzroy).
afta'tsĕ, knife: *ăfta'rĕ* (Fitzroy).
a'kwil, large: *ōw'gwĕl*[1] (Fitzroy), *kavuf kil* (Hyades).
kāt, leg: *cāt* (Fitzroy).
t'kjaut, small: *yīco-at*[2] (Fitzroy).
a'kl'ēl', man: *ăcn'ĭnĭsh* (Fitzroy).
čāp, mother: *chakp* (Fitzroy).
a'fīsĕ, lip: Fitzroy has *ŭf'fĕdre* for "mouth."
da'kuduk, one: *tŏw'quldōw* (Fitzroy); *takou atdo* (Hyades).[3]
ē'ppera', rain: *ăb'gŭahsh* (Fitzroy).
čĕ'ā'pl, sea: *chah'buel* (Fitzroy).
a'ka:be:, snow: Fitzroy has *ăc'cŭba* for *sky*.
ko'lla', star: *kounn'-ach* (Hyades), *gus'năsh* or *conash* (Fitzroy).
āl', to go, to walk: *kach* (Hyades), *aksh* (Fitzroy), but Hyades has also *ker-nĕ*, which may be the proper Alukulup term.

As a result of this comparison I shall again emphasize: (1) When in their lists Fitzroy and Hyades have the same expression, the West Patagonian word is in most cases a different one. (2) When they have different words, the one given by the former is often identical with a word in my list, which is of West Patagonian origin.

Finally, Hyades publishes a short list of words which he obtained from Dr Th. Fenton in Punta Arenas. His informants were three young "Alakalouf" women, "taken" in Crooked reach (Straits of Magellan). Hyades himself remarks that there is only a single word, *laīp*, common to this list and the two other lists. With this exception Dr Fenton's list is absolutely different. Hyades does not doubt that the young ladies in question were Alukulup,

[1] Fitzroy has the same word to indicate full moon.
[2] Fitzroy has the same word to indicate new moon.
[3] A similar word is used by the Alukulups.

but he is puzzled by the different languages and remarks that there may exist "plusieurs dialectes chez les Alakalouf."

I think that we are able to solve this problem, for a study of Dr Fenton's list shows that nearly all the words are identical with those recorded by us in the channels. In this case, as before, when dealing with Hyades' vocabulary, we must not forget that his words are to be pronounced as in French. Following is a revision of Dr Fenton's list:

tcharkouç, fire. Emilia knew this word, but did not use it for fire.
chalki, *chalki oualaki*, dog and bitch (see our list).
chalk'iki, small dog, is probably right.
kikikarak, *kikikoualaki* } male and female woodpecker. I do not know this word, but Emilia had heard it and it is probably correct. The affixes *karak* and *oualaki* correspond with *ārrk* and *wā'lōk'* in our list.
orel'lé, horse = *au'reli*.
yépeurh', meat = *(h)ī'pr*.
yp'pa, *ypa'çelis*, are given for men and women; see our list: *i'ppā*, *ippā'i'elis*, white man and white woman.
yauol'ykaout, boy = *ā'jo:l i'kjāu:t*.
yaouch'ykaout, girl = *ā'jāu:š' i'kjāu:t*.
tchou' kourrh', foot = *če'ku:rr*.
kath'karrk' is translated leg, "face anterieure"; I have it as leg. *kath* stands for thigh; I do not know if it is used in another sense than the first one. For thigh we have another term.
ter'va, hand = *te'rrua:*
dēlk, eye = *teš'l*.
dēlk'kooulo, ear = *te'lka:olo*.
tērhkaoufh', hair = *te'rrkō:f*.
tcharikk, nose, is different.
çirikti, teeth = *če'regdi*.
afouiouk', beard = *ā'fejuk*
kat, stick, is unknown to us, as well as *hathkaupourhkar*, rings.
darkalkkl, fingers = *tāu'xlxa:rkl*.
kurkaçi, seal = *ārr-kauš'*, but this means sealskin.
laldalkaaus, otter = *la'ltl-kauš'*, which signifies otter-skin.
ouayéčkark', canoe = *wa'jeku*, a word used for steamer by our interpreter.
al'lio, oar; we obtained *le'pakwa:rrr* for this.
alilki, sick = *ā'lölk*.
lékeurh', language: probably a mistake for *lökl*, tongue.
çiparh', button = *če'pe:rrr*.
oukčulkh, much = *uklk*, but this means "two."
taiia, basket = *tā'ju*

tchalabark', evil = *čeʃ'lā'bōrrʀ; tchabakta*, bad, is unknown to us.
laïp, good, nice = *lā'ip*.
orril', egg = *jo'ri(ʃ')l*.
yaoutchilh, fish = *jâû'čɛ:rʀ*.
dakadoun, one = *da'kuduk*.
ourkh', breasts = *du'rxk'*.
ytkouli, no = *?ta'ʃ'liku:lla*, I do not wish to ("no quiero").
ailaou, yes = *a'jlo:*
m'na, nothing (probably wrong).
a-hâ-hâ, all (probably wrong).
oppeurkilh, guanaco-skin = *o'pōrxa:l*.

The words in Dr Fenton's list were verified by a young "Alakalouf" boy in Punta Arenas, who also gave synonyms for three words in Hyades' list—*kaoui*, ear; *noëlh*, nose; *deuf*, ill. Only the last one was recognized by Emilia, according to whom it means "dead," and is pronounced "töff."

In addition, Hyades gained some additional words from the same source. We will revise them also.

kitchikouar, water = *aki'čakwa:rrʀ*.
ourkouark', head, is unknown to us.
okhtchikouar, rain, is evidently the same as *kitchikouar*.
terkark', feathers = *?te'rrkō:f*, hair.
oftékalk, mouth = *a'ftɑ:i*.
afteuçki, knife = *afta'ɜɹe*.
kokas, firewood = *ʁa'ɹā:ɜ*.[1]
alguéléra, dead = ?
toskarkçe, nail = *tâû'xlxa:rkl*, finger.
ioftokçkark, harpoon = ?
kiecka, birds = ?
taïkalka, paper = *ta'ʃlka:tlka*.
çouftiourlaïp, generous = *siu'ftiu:r lā'ip* = "nice captain."

The above represents the limited extent of the linguistic results of our excursion. In spite of its defects, our brief vocabulary proves that we have a fourth language, which may be spoken of as "Fuegian," and which would seem to justify its publication. As we shall see, there is even a fifth language, of which we know nothing at all.

On the occasion of my last visit to Harberton Harbor, my friend Mr W. Bridges, son of the late Rev. Thomas Bridges, the well-

[1] The sound is sometimes so hard and sharp that it closely resembles *k*.

known Yahgan missionary, informed me of a practically unknown and extinct tribe in Tierra del Fuego. These people were called "Hush" (*hōs'*) and lived along the shores of the Strait of Le Maire, eastern Tierra del Fuego; they made hunting excursions to the interior, at the same time gathering shells, and engaging in fishing, sealing, etc., leading a life intermediate between that of the Onas and the Yahgans, for they were "foot-Indians," with a shell-fish diet. They did not use canoes, probably because their coast is very open and there is a swell which makes navigation dangerous if not impossible. It is not impossible that, as I have pointed out in my book, *The Wilds of Patagonia*, the Hush were of mixed origin, being descendants of Onas and Yahgans, who formerly met at the eastern part of Beagle channel. According to Mr Bridges, not a single pure-blood Hush survives. In Harberton was an old man who looked like a Yahgan; his father was Hush, his mother Yahgan. He had been married to a Hush woman and had two daughters; the wife was dead, the last of her people, for the husband and children were, as we have seen, of mixed origin. Their language was said to be different from either Ona or Yahgan. I suspect that the natives in Good Success bay, so vividly pictured by Darwin, belonged to the Hush tribe.

Finally, some remarks on the accompanying map. I have endeavored, partly with the aid of Hyades' map, to give the former distribution of the "Fuegian" tribes. The Onas[1] are now driven back from their old hunting grounds on the Fuegian pampa. There are probably very few families left in a wild state; they are said to keep in the forests (*Nothofagus pumilio* mostly) around Lago Deseado and Lago Fagnano, which latter is called Cami by them, according to Mr W. Bridges. I have seen smoke on the northern shore of Lago Fagnano, about 20 km. from the western end. Some families work on the farms of the Messrs Bridges and move along the route from Harberton to Lago Fagnano and Cape St Inez. Some are at the Catholic mission station at Rio Grande, and some at the station in Harris bay on Dawson island.

[1] As is well known, the Onas only geographically are Fuegians; otherwise they are of the Tehuelche type.

Of the Yahgans, the head stock, about 170 persons lived in 1909 at the Evangelic mission station in Douglas bay on Navarin island (formerly in Tekenika). I am not aware of any in even a semi-savage state. The land of the Alukulups is also deserted; the whole tribe numbers only a handful of members, who live on Dawson island.

Finally, the West Patagonians seem to have abandoned the Straits of Magellan, excepting those visiting Port Gallant. It is of no use for them to remain there, in spite of the traffic, for steamers no longer stop to barter with them. The contrary is the case in the channels, where they live in a semi-savage state. Their route of travel is generally by way of Smyth channel and Messier channel, occasionally making visits to Baker inlet, Ultima Esperanza, and Obstruction sound.

I have noted on the map the two important vegetation lines which show that the canoe Indians kept to those shores where the rain-forest, which makes the land practically uninhabitable, is found, except for a part of Beagle channel and the Straits, where there is a mixed forest or a purely deciduous one of *Nothofagus pumilio*. The pampa and the less dense forests, alternating with open fields, were occupied by the Onas.

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WIYOT AND YUROK, ALGONKIN LANGUAGES OF CALIFORNIA

By EDWARD SAPIR

AMONG the numerous "linguistic stocks" of California, there are two particularly small ones whose borders are confined within a small territory in northwestern California. These are Yurok (or Weitspekan) of lower Klamath river and Wiyot (or Wishosk) of Humboldt bay; they occupy contiguous territory along the Pacific coast. It is the purpose of this paper to show that not only are these so-called "stocks" genetically related, but that they are outlying members—very divergent, to be sure, but members nevertheless—of the Algonkin stock. We shall begin by making sure of the genetic relationship of Wiyot and Yurok.

1. Wiyot and Yurok

The material available for a study of these two languages is far from satisfactory, either as regards quantity or depth of analysis. For Wiyot we have A. L. Kroeber's paper in "The Languages of the Coast of California north of San Francisco"[1] (pp. 384–413); for Yurok, a shorter paper by Kroeber in the same volume (pp. 414–426). Dr Kroeber has also kindly put at my disposal a vocabulary of Yurok, which is particularly valuable in that in it he points out a number of Wiyot parallels.[2]

As regards the relation of Wiyot and Yurok, Dr Kroeber has expressed himself rather guardedly. In 1910 he writes: "Whether the two languages are related is . . . another question. A running acquaintance with both reveals but few words that are similar. . . . This number is so small that unless it is materially increased by

[1] *University of California Publications in American Archæology and Ethnology*, vol. 9, no. 3, 1911.

[2] Since this paper was written, Dr T. T. Waterman, who has considerable manuscript Yurok material, has kindly sent me further Yurok data to work with. Several new Yurok-Algonkin cognates were thus ascertained. Waterman's forms are cited as Wat.

further comparison, the resemblances must be regarded as due either to accident or to borrowing. A systematic comparison cannot be made until both languages are farther analyzed and the stems and elements of words, which in most cases are complex, are determined." And, further on, "Loose unification of languages that may be entirely distinct, based only on general or partial grammatical similarities, is unwarranted. The structural resemblances between Yurok and Wiyot are however so close and often so detailed, as will be seen, as to create a presumption that lexical and genetic relationship may ultimately be established; and if not, to make it certain that morphological interinfluences between the two languages have greatly modified one or both."[1] The most striking morphological similarities noted by Kroeber are in the pronominal forms. He summarizes these similarities as follows:

> The pronominal forms of Yurok and Wiyot agree in the following points: They are incorporative. Elements added to nouns [possessive elements] are prefixed, those added to verbs suffixed. The prefix and independent forms are similar to one another, the suffix forms entirely dissimilar, also differing completely among themselves according as they are objective or subjective. The objective suffixes precede the subjective, which are identical whether transitive or intransitive. There is a form, used with body-part terms, denoting indefiniteness or absence of possession; it is *m-* in both languages. The fundamental elements of the possessive and independent forms in both languages seem to be *n* for the first person and *k* for the second,—the former common, the latter exceptional in American languages and therefore significant. The suffix forms in the two languages however show no similarity.[2]

In his summary of Yurok Kroeber remarks:

> The Yurok language is of the type known as appositional in that pronominal, modal, temporal, adverbial, and other elements are attached to the verb stem, which serves as the center of grammatical construction, the other words of the sentence being syntactically connected with it through these affixes. The verb is therefore complex, the pronominal elements are essentially affixes, and the grammar of the noun and substantival pronoun is reduced to a minimum, while the adjective is a verb. The pronominal elements are suffixed, but most other relations, including those of manner and time, are expressed by prefixes to the verb. The possessive prefixes of the noun, and the emphatic substantival pronouns, show no similarity to the pronominal affixes of verbs. Number and syn-

[1] Kroeber, op. cit., pp. 414–15.

[2] Kroeber, op. cit., p. 420.

tactical case-relations are not expressed. Numerals are provided with classifying suffixes. Derivation is by suffixation, and many nouns are based on verb stems. . . . In all these respects Wiyot agrees with Yurok.[1]

The most, then, that Kroeber has been willing to assert is an undeniably close similarity of grammatical structure between Yurok and Wiyot. The few cases of lexical correspondence that he then noted seemed hardly enough to justify the hypothesis of genetic relationship. Since then, however, more comparable material has accumulated and, in view of the morphological and lexical resemblances thus established, it seems safe to consider Yurok and Wiyot as mutually divergent members of a single linguistic stock. The lexical correspondences here given are due chiefly to Dr Kroeber (some have been already noted by him in the paper referred to, others have been communicated to me since then); a few others were noted by myself.

NOUNS

YUROK	WIYOT
we-lin "eye"	*we-lir*[3]
-iska "foot"	*tckatc* "leg"
we-tsewec "hand"	*we's*
-peL "tooth"	*m-èpt*[3]
-weLkete "nail"	*me-tkan*
-moL "head"[4]	*wat-wet*[3] (*wat-* is prefix)
-luL "mouth" (Coast Yurok)	*me-lil*[3]
-werL-ker "bones"	*wat-kerât*
-xkwet "penis"	*dgat*
-molox "fæces"	*me'l*
-lpeL "tail"	*wat-hèl*[3]
-LpiL "leg"[5]	*we-liL* "foot"
-piL "tongue"[5]	*m-îl*[3]
-pern "nose"[5] (*-ern* < **-etn*)	*m-etere* (< **-etene*)
mets "fire"	*mes, wes*
hukca "child"	*hetca* "baby"
-etani "strings of dentalium shells" (numeral classifier)	*reni* "dentalium shell currency"

[1] Kroeber, op. cit., p. 426.

[2] It may be noted once for all that Wiyot *r* is regularly *n* in origin. This is abundantly evidenced by Wiyot itself. See Kroeber, op. cit., p. 386.

[3] It will be observed that Yurok *-L* frequently corresponds to Wiyot *-t* or *-l*.

[4] Wiyot *m* and *w* often interchange. See Kroeber, op. cit., p. 385.

[5] Note *-p-* peculiar to Yurok.

YUROK	WIYOT
wonoyek "sky" (*won-* "up")	*wèn, wiru-dala* "sky"
puuk "deer"	*but-caweti* "white deer" (*caweti* "white")
tsieri "bear"	*tsetsgeruLigerer*
taxtet "eagle"	*di'l*[3]
o'lomet "house"	*mal*[3]
camot "bow"	*cwat*
pa'[a] "water"	*pâk* "salt water, ocean"

VERBS AND ADJECTIVES

rurawo "to sing"	*lalîw*
ckewok "to like"	*di-cgam*
plelî, pelil "large"	*bel* "flat, wide"

NUMERALS

qoot-, qo(o)xt-, qoxts-, qoor- "one"	*gō'ɪ-, gû'ts-*
ni'-, nâ'-, ne'- "two"	*rit(w)-* (< **nitw-*)
naxkc- "three"	*rik(w)-* (< **nikw-*)

DEMONSTRATIVES

ku "that, the"	*gu, gu-r, gu-ru* "that"
ki "that"	*gic* "this"

YUROK	WIYOT

INDEPENDENT PRONOUNS

nek "I"	*yil* (< **nil* ?)
qel "thou"	*kil*

PRONOMINAL PREFIXES

ne-, no- "my"	*ru-, r-* (< **nu-, *n-*)
qe-, qo "thy"	*ku-, k-*
we-, (w)o- "his"	*(h)u-, w-*
me-, m- "somebody's" (indefinite prefix for body-part nouns)	*me-, m-*

GRAMMATICAL PREFIXES

kowits- negative	*ka-, ga-*
ki- future	*ka-* "imperative"; *gît-ga* particle indicating futurity

GRAMMATICAL SUFFIX

-ik, -k locative noun ending	*-akw*

While two or three of these resemblances may be quite accidental and one or two others due to borrowing, it is difficult to believe that the bulk of them can rest on anything but genetic relationship. In estimating the value of this comparative material, it should be remembered that our knowledge of Wiyot and Yurok is still very incomplete and that therefore the total amount of lexical and grammatical material that one can work with is quite inconsiderable in extent. It is clear enough that Yurok and Wiyot are only distantly related at best, but I believe it to be no less clear that they are indeed related.

2. Algonkin, Wiyot, and Yurok

Lexical Evidence

Consider Cree *mi-skāt* "leg," *ni-skāt* "my leg," *ki-skāt* "thy leg," *o-skāt* "his leg." Similar to this is *m-ipit* "tooth," *n-ipit* "my tooth," *k-ipit* "thy tooth," *w-ipit* "his tooth." These four possessive pronominal prefixes (*m-* prefixed to body-part nouns to express indefinite possessor, "somebody's"; *n-* "my"; *k-* "thy"; *o-* or *w-* "his") are characteristic not only of Cree but of Algonkin generally. Compare Micmac *m-ilnoo* "tongue," *n-eelnoo* "my tongue," *k-eelnoo* "thy tongue," *w-eelnoo* "his tongue;" Natick *mu-sseet* "foot," *nu-sseet* "my foot," *ku-sseet* "thy foot," *wu-sseet* "his foot;" Arapaho *bā-* (< **mā-*) as body-part prefix; Ojibwa *mi-gwan* "feather," *binéssiwi-gwan* "bird's feathers;" Blackfoot *mo-χkatsis* "foot," *no-χkatsis* "my foot," *ko-χkatsis* "thy foot," *o-χkatsis* "his foot."[1]

Turning to Yurok and Wiyot, we find all four of these possessive elements in each. With Cree *mi-skāt* "leg" compare such Wiyot forms as *m-a'n* "pubic hair," *me-lir* or *we-lir* "eyes," *me-lāk* "testicle;" and Yurok *m-* "someone's." With Cree *ni-skāt* "my leg" compare Wiyot *r-a'n* "my pubic hair," *ra-watkerāt* "my bones," *ru-daluwi* "my boat" (Wiyot *r-*, it will be remembered, is *n-* in origin); and Yurok *ne-*, *no-* "my." With Cree *ki-skāt* "thy leg" compare Wiyot *ke-lāk* "thy testicle," *ke-lir* "thy eye," *ku-daluwi*

[1] It is probably from such cases as a starting-point that initial *m-* of noun or verb stems came to be so often lost in Blackfoot when preceded by grammatical elements or other stems. See Uhlenbeck's papers cited below.

"thy boat;" and Yurok *qe-*, *ǫo-* "thy." With Cree *o-skāt* "his leg" and *w-ipit* "his tooth" compare Wiyot *hu-watkerati'l* "his bones," *o-silakwe'l* "his pain," *we-line'l* "his eye;" and Yurok *we-*, *wo-*, *o-* "his." I fail to see how any ingenuities of mere "accident" could bring about such perfect accord in use and form of possessive pronominal elements. It was indeed these remarkable analogies that first led me to consider the possibility of Yurok and Wiyot being outlying members of the Algonkin stock. The search for further points of contact soon revealed a number of other grammatical elements held in common by Algonkin and Wiyot (or Yurok, or both) and a considerable number of lexical resemblances, some of them startling enough. I shall now, without further preliminary, present the lexical evidence.[1]

PERSONS

W.[2] *di-wile*, *di-wela* "somebody, another": Cree *awiyak* "person" (? < **awilak*; Lacombe's Cree regularly has *y* where Eastern Algonkin has *l* and Ojibwa *n*)

W. *gākweiL* "old man": Oj. *akiwesi* "old man"

[1] For my Algonkin forms I am indebted chiefly to A. Lacombe, *Dictionnaire de la Langue des Cris*, 1874; id., *Grammaire de la Langue des Cris*, 1874; Bishop Baraga, *A Theoretical and Practical Grammar of the Otchipwe Language*, 1878; id., *A Dictionary of the Otchipwe Language*, 1878; W. Jones, *Algonquian (Fox)*, Bureau of American Ethnology, Bulletin 40, pt. 1, pp. 735–873, 1911; S. T. Rand, *Dictionary of the Language of the Micmac Indians*, 1888; J. H. Trumbull, *Natick Dictionary*, Bureau of American Ethnology, Bulletin 25, 1903; R. Petter, *Sketch of the Cheyenne Grammar*, Memoirs of the American Anthropological Association, vol. 1, pp. 443–478, 1907; C. C. Uhlenbeck, *Flexion of Substantives in Blackfoot, A Preliminary Sketch*, Verhandelingen der Koninklijke Akademie van Wetenschappen te Amsterdam, Afdeeling Letterkunde, N. R., deel XIV, no. 1, 1913; id., *De Vormen van het Blackfoot*, Verslagen en Mededeelingen der Koninklijke Akademie van Wetenschappen, Afdeeling Letterkunde, 4e Reeks, deel XII, pp. 174–219, 1913; id., *Ontwerp van eene vergelijkende Vormleer van eenige Algonkintalen*, Verhandelingen der Koninklijke Akademie van Wetenschappen te Amsterdam, Afdeeling Letterkunde, N. R., deel XI, no. 3, 1910; T. Michelson, *Preliminary Report on the Linguistic Classification of Algonquian Tribes*, 28th Annual Report of the Bureau of American Ethnology, pp. 221–290b, 1912. For Arapaho I have depended chiefly on material kindly communicated to me by Dr Kroeber. In 1911 I collected short vocabularies of Delaware, Abenaki, Malecite, Micmac, Montagnais, and Rupert's House Cree; these have been used to some extent in this paper.

[2] W. = Wiyot; Y. = Yurok; Abn. = Abenaki; Ar. = Arapaho; Bl. = Blackfoot; Ch. = Cheyenne; Del. = Delaware; Mal. = Malecite; Mic. = Micmac; Mont. = Montagnais; Nat. = Natick; Oj. = Ojibwa

W. *mūl-iL* "medicine-man": Oj. *midē* "member of Grand Medicine Lodge"

W. *tsèk, tcīk, tsak* "child": Bl. *tsiki* "boy" (used as vocative, according to Uhlenbeck, in speaking to small boys)

W. *watcer* "girl": Mal. *wā́ṣiṣ* "child;" Mic. *medéi-wāddā́tiš* "child"

W. *bitcò-tcker* "grandfather": Oj. *-misho-miss* "grandfather;" Cree *-muso-m* "grandfather"

W. *dār, dān-* "father, son": Abn. *ki-dadán'* "your father," *ō-dadan-d'* "his father." Are Oj. *-dān-iss* "daughter;" Bl. *tann-a* "daughter," and cognates for "daughter" in other Algonkin dialects related to these words?

W. *dòk* "brother, sister": Kickapoo *-tōtā-ma* "brother, sister;"[1] Cree *-tote-w* verbal suffix referring to "family"

W. *gò-tcker* "grandmother" (for *-tcker* cf. *bitcò-tcker* above): Cree *okku-ma* "his grandmother;" Oj. *noko* "my grandmother!"; Kickapoo *nō'ko* "grandmother!";[2] Nat. *oku-mmes* "grandmother"

W. *gwatc* "mother": Cree *ni-kāwiy* "my mother," *nega* (voc.); Oj. *- gā;* Bl. *ni-kssta* (< **-kista*[3]); Nat. *nu-kas;* Mic. *n-kéch* "my mother," *oo-kwij-āl* "his mother;" Del. *nī ŋ-gik*" "my mother"

W. *rekā* "daughter" (< **nekā*): Kickapoo *-negwana* "son-in-law"[4] (? = "married to daughter, having daughter as wife," cf. below Oj. *wiwan* "his wife"); Oj. *-ningwan* "son-in-law"

W. *wetserakw* "son-in-law": Nat. *wussénum* "he is son-in-law of," *pish ken waseenumukqueh* "thou shalt be my son-in-law," *nosénemuck* "he is my son-in-law." Nat. **waśīna-m-* = W. **wetsena-*.

W. *wise-pelei* "married man," *wisi* "married woman": Oj. *ni-wish* "my wife," *wiwishan* "his wife." Cf. Fox *wwīw(i)-* "to marry;" Oj. *wiwi-ma* "to marry one," *widige* "to be married;" Cree *wiyamew* "he is married to her." With these words are related:

W. *wī́wa-l* "his wife": Oj. *wiwan* "his wife;" Kickapoo *n-īwa* "my wife;"[4] Cree *wiwa* "his wife;" Nat. *no-weewo* "my wife"

BODY-PART NOUNS

W. *dāu, tāu* "belly"; Cree *m-otāy* "ventre." Less probably also related to Oj. *m-ōdji* (< **ōdi*) "belly of an animal;" Ar. *n-ot* "my belly"

W. *dgat* "penis;" Y. *-xkwet* "penis": Cree *n-ittakāy* "mes parties génitales"

W. *djlpL-iL* "beard": Ch. *mī'-shis* "whiskers"[5]

Y. *-erkerL* "knee": Cree *mi-kitik(w)-* "molette du genou;" Oj. *gidigw-* "knee;" Nat. *mu-khuttuk*

[1] W. Jones in *American Anthropologist*, N.S., 15, 1913, p. 334.

[2] Ibid.

[3] Bl. *tsi, ksi,* and *psi* are regularly developed from *ti, ki,* and *pi*.

[4] Jones, op. cit.

[5] Mooney, *The Cheyenne Indians*, Memoirs of the American Anthropological Association, vol. 1, p. 427.

W. *hodīʟzere* "umbilical cord" (*ho-* third person possessive prefix?): Oj. *-dīsi* "navel"

W. *me-lāk* "testicles": Mic. *ūlsoāk* "testicle"

W. *me-lokaʟ* "throat": Nat. *mu-nnaonk* "throat"

W. *me-lūl* "mouth;" Coast Y. *-luʟ* "mouth" (< **-lul*): Cree *mi-ton* "mouth;" Oj. *-dōn;* Mic. *ǫ°-tǫ́n'* "his mouth;" Nat. *mu-ttwn* "mouth." W. *-lūl* is perhaps assimilated from **-lūn*.

W. *me'l* "excrement;" Y. *-maloʟ* "fasces"; Cree *miy, mey* "excrement;" Oj. *mo;* Nat. *mwi, mwee* "ordure, dung"

W. *m-ɛ̀pt* "teeth;" Y. *-peʟ* (< **-pet*): Cree *m-ipit* "tooth;" Oj. *-ibid;* Mic. *w-ǐbǐt'* "his tooth;" Ar. *be-itɜiθ* "tooth" (< **me-ipiθ*[1]); Nat. *w-eepit* "his tooth"

W. *merār* "horn" (< **wenān* ?): Fox *-winā-* "horn;" Cree *-wiθ*[2] "horns of the head;" Oj. *wagi-wine* "it has crooked horns;" Nat. *weween* "horn"

W. *m-eɛere* "nose" (< **-etene*); Y. *-pern* (< **-p-etn* ?): Mic. *n-ǐtę* "my nose;" *w-ǐtę* "his nose;"[3] perhaps also Cree *m-iteyikum* (< **-iteli-, *-iteni-*) "nostril;" Oj. *mang-idenigome* "to have large nostrils." Is Ar. *be-itɜ* "nose" < **me-itn* (but cf. Ch. *-ɛ̄s* "nose" as incorporated element)?

W. *me-tkan* "nail;" Y. *-we-tkete* "nail": Cree *mit-eskan* "horn of the head;" Oj. *eshkan* "horn;" Nat. *askon* (i. e., *eskan*); Bl. *mo-tskinaw.*[4] Related to these words are, in all probability, also Oj. *-shkanj* "nail;" Cree *mi-skasiy;* Mic. *m-kūse.*

W. *me-weriʟ* "flesh, fat": Oj. *winin* "fat;" Nat. *wēs, weis* "fat;" Mic. *weoo's* "flesh;" Cree *wiyās* "flesh"

W. *m-ɜt* "tongue;" Y. *-pɜʟ* (< **-p-it*) "tongue": Ar. *be-iθan* (< **me-itan*) "tongue;" Bl. *m-atsini* (< **m-atini* < **m-ilani* by metathesis[5]); Gros Ventre *innītǔnī* "tongues" (i. e. *-ilani*)[6]; Cree *mit-eyaniy* "tongue" (< **-elani*); Oj. *-ēnaniw;* Mic. *m-ilnoo;* Del. *-ilanō*

W. *m-okɛc* "fingers": Bl. *m-oksisis* "finger"

W. *tckatc* "leg;" Y. *tska* "foot": Cree *mi-skāt* "leg;" Oj. *-kād* (< **-'kāt*); Bl. *mo-χkātsis* "leg, foot" (< **-χkat-*); Mic. *An-kāt'* "my foot;" Nat. *mukkont* "leg" (i. e. *-'kant*). Observe that this stem means both "leg" and "foot" in both Algonkin and Yurok-Wishosk. There seem to be two Algonkin stems: *-skāt* (Cree) and *-'kāt* (Mic., Nat.; these dialects regularly preserve original *sk*). This is confirmed by incorporated forms *-ska-* and

[1] For *ɜt* < *p*, see Michelson, op. cit., p. 235.

[2] Cree not infrequently has *t* where other Algonkin dialects have *n* or *l*. See Michelson, op. cit., p. 239.

[3] Rand gives *wedoon* (1st per. *nedoon*) as "nostril."

[4] Bl. *-tskin-* must go back to **-tskan-* or **-tkan-*, as original *ki* would have given *ksi*. Cf. Bl. *ǒmaχksi-kimi* "great water" with Oj. *-gami-* "water."

[5] Vocalic and consonantic metathesis seems to be rather common in Blackfoot. Another example of vocalic metathesis is *moksīs* "awl" (< **mokis*); cf. Oj. *migōss*.

[6] G. B. Grinnell in *American Anthropologist*, N.S., 15, 1913, p. 330.

-'ka (-skāt: -ska- = W. tckatc: Y. tska). -ska- is found in Fox -sk(a)- "with the foot" and Cree -ska-we-w (inanimate -ska-m) "with the foot;" -'ka- is found, e. g., in Fox -'ka- "trail" and Bl. -ka- "foot" (e. g. siksika "black-footed").

W. wat-ɨɛat "shell" (wat- in this and following words is prefix): Oj. ess "shell;" Cree es

W. wat-kai "skin," ra-watkai "my skin": Cree m-asakay "skin of the human body;" Oj. -jagaāi; perhaps also Bl. m-otokis "hide"[1]

W. wat-kerāt "bone," ra-watkerāt "my bones;" Y. werɪker "bones": Cree oskan "bone;" Oj. -kān (< *-'kān); Fox ut-o'kan-eman[2] "his bones;" Nat. m-uskon "bone;" Bl. oχkin (< *oskan). Besides *oskan (and its reflex o'kan, -'kan), we find also *-kan- (-gan-) as incorporated element: Cree -gana-m-ew "action sur les os, en frappant;" Oj. sāki-gane "to have strong bones." This suggests that os- (> *oχ-, o'-) may be a prefixed element cognate with W. wat-, Y. werɪ- (-tk- > -sk-; see metkan above). Cf. werɪ-kun below.

W. wat-melok "ear" (stem -lok): Cree mi-tāwekay "ear" (incorporated -tāwek-); Nat. mē-htáuog; Mont. u-tuki "his ear;" Bl. mo-χlókis "ear"

W. wat-ōtk "fin": Cree mit-oskwan "tail;" Oj. ojigwan "tail of a fish;" Nat. w-ussukqun "his tail"

W. wat-wet "head;" Y. -moɪ (< *-wot?): Mic. windžį[3] "head," n-indžį "my head" (< *windi, *-undi). It is somewhat doubtful if Oj. wijigan "skull" and Fox u-wīc[4] "his head" are related to these Mic. forms.

Y. werɪkun "liver": Cree oskun "liver;" Oj. -kon (< *-'kon < *-skon); Mic. ooskoo'n; Nat. m-ushqun. For Algonkin os-: Y. werɪ- cf. wat-kerāt above.

W. we-ser (< *-sen) "woman's breast": Ar. be-θen[1] "breast," be-θenetš (= -θen-netš "breast-water") "milk"[2]

W. we-'s "hand;" Y. we-tsewec: Bl. mo-tsis "hand;" Ar. bā-tcet; Cree mi-tchitchiy. Ar. -tcet seems to indicate that Algonkin tc remains in Ar.; where Ar. has θ and Fox tc, we seem to be dealing with Algonkin tc after or before i or ɨ palatalized in Fox to tc before ə[3] (cf. Ar. -ɨlɨiθ "tooth" and -ɨθan "tongue," in both of which θ < t after ɨ).

ANIMALS

W. bòtcwi, bātcɨwi "skunk": Mal. abik'tsiiǫ' "skunk"

W. hòlakw, hǎɪakw "deer": Oj. atik "deer," plur. atikwag; Nat. ahtuk

W. hēikw "louse": Oj. ikwa "louse;" Cree ikkwa; perhaps also -kw of Mic. waakw "louse"

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[1] Does -ki- go back to *-kai-? Original -ki- would have become -kɨ-.

[2] Pointed out by Kroeber.

[3] Michelson's sole example (op. cit., p. 235) is Fox -nitc[4]: Ar. -niθ. That Fox conjunctive -tc[4] is here <*-t[4] is indicated by corresponding subjunctive -te and participial -ta.

W. *mākw* "grizzly bear": Cree *maskwa* "bear;" Fox *mā'kwa*; Oj. *makwa;* Nat. *masq*

W. *me'lakw* "elk": Oj. *mons* "moose"

W. *mirel* "angleworm": Cree *mottew* "worm;" Oj. *mōsse* "worm (of wood);" perhaps also Mic. *wēte* "worm"

W. *pāne'r* "crane": Oj. *binē* "partridge," *binēshi* "small bird," *binēssi* "large bird"; Cree *pihyew* "partridge"

Y. *wergec* "fox": Oj. *wāgosh* "fox;" Nat. *wonkŭēssis;* Mic. *wokwis*

PLANTS

Y. *kāpeL* "brush": Oj. *kibinsan* "shrub, bush"

W. *mukweti* "pine": Oj. *amikwandag* "white pine"

W. *tālew-it, tāleg'-it* "tree": Gros Ventre *tānē*[a] "tree"[1]

W. *we'taw* "salmon-berry": Del. *'wā̃hĭm*[a] "strawberry;" Oj. *odēi-min*

W. *wētcatc* "buds": Oj. *wanimik* "bud;" or though perhaps less probable, Mic. *wiskŭstōk* "bud"

W. *wīt* "alder": Oj. *wadōp* "alder-tree"

NATURAL OBJECTS

W. *gitcai-ailokwe* "sun" (cf. *ritzowel-ailokwe* "moon"): Oj. *gisiss* "sun, moon;" Ar. *kĭsis* (< **kĭ̄sis*) "sun, moon;" perhaps also Ch. *ēsēwa* "daily" (*-(e)wă* is locative). Should Oj. *gijig* "day, sky" not be related to W. *kèk* (q. v.), *gitcai-* is perhaps to be put rather with Oj. *gijig* than with *gisiss*.

Y. *ha'āi(gon)* "rock": Ar. *haha'ana*[a]*kā*[a] "rock"[2]

W. *hèkw* "snow": Ch. *hĭstās* "snow"[3]

W. *kèk* "clear sky": Oj. *gijig* "day, sky;" Cree *kijik*, plur. *kijikwa, kijikaw* "it is day;" Nat. *kesuk* "day, sunlight;" Mic. *-giskuk* "day," in compounds only. W. *kèk* would seem to imply **kisk* (cf. Mic. *-gisk-*); for Oj. *jig: sk* (Fox *'k*) cf. Oj. *bimi-najikawa* "to pursue": Fox *-ne'ka-* "to drive, pursue." See *gitcai-* above.

W. *lethak* "sand": Oj. *nēgaw* "sand;" Cree *(s)yekaw* (< **lekaw*)

Y. *Lqel* "earth": Cree *askiy* "earth;" Oj. *akki;* Nat. *ohke* (i. e. *a'ki*); Fox *a'ki*

W. *māti* "wood": Cree *mistik* (plur. *mistikwok, mistikwa*) "tree, piece of wood;" Oj. *mitig* "tree;" Fox *me'tigw-*; Nat. *mehtug(q)*; Bl. *mistsis* "stick" (< **misti-s; -s* is suffix, as shown by *nits-istsi-m* "my stick"); Ch. *mata* "timber, wood." Bl. and Ch. are interesting as implying Algonkin stem **misti* or **masti* without *-kw-* suffix of other Algonkin dialects; this goes well with W. *māti*.

W. *mes, wes* "fire;" Y. *metc* "fire": Oj. *mishi* "piece of wood for fuel," *missan* "wood for fuel;" Nat. *mishash* (Nat. *-ash* and Oj. *-an* are inanimate plur.)

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[1] G. B. Grinnell in *American Anthropologist*, N.S., 15, 1913, p. 328.

[2] Pointed out by Kroeber.

[3] J. Mooney, op. cit., p. 427.

"wood;" Ar. *bāā* (< **mās*) "wood." Is Cree *mitti* "firewood" also related? There are numerous examples in America of "firewood" derived from or identical with "fire."

W. *pāk* "salt water, ocean;" Y. *pa'** "water": Gros Ventre *wāāh* "water"[1]

W. *pātūt* "earth, soil": Ar. *bita'ā*wu* "earth"[2]

W. *p'lètk, p'lèts* "rock": Mal. *p'anāpsk'** "stone;" perhaps also Mic. *-pskēk* "rock" in compounds, which, however, seems rather to correspond to Mal. *-psk'**.

Y. *pontet* "ash": Oj. *pingwi, panguí* "ashes;" Cree *pihkkow;* Nat. *pukquee*

Y. *rokw* "wind": Oj. *nōdin* "wind;" Cree *yōtin* (< **lōtin*) "wind blows"

W. *wèn, wiru-dala* (< **winu-*) "sky," *gotso-wèn* "day"; Y. *wonoyek* "sky," *wonu-clei* "sun, moon": Ch. *woe* "sky" (Ch. *v* < Algonkin *w;* cf. Ch. *-ōva-* "referring to water": Cree *-ābāwa-* "by means of water;" *newō* "four": Fox *nyāwi*[3]). Kroeber connects Y. *wono-* with *won-* "up," with which is perhaps to be compared Oj. *wanako-* of *wanakong* "at top or head of tree," *wanakowin* "top, extremity," *wanakodjaonag* "foremost part of canoe."

OBJECTS MADE BY MAN

W. *cwat* "bow;" Y. *camot;* Coast Yurok *cmoxter, cmahater:* Fox *me'tā*[4] "bow;" Ar. *bātā* (< **mātā*).[5] If these etymologies are correct, *c*(*a*)- of W. and Y. would seem to be a prefix.

Y. *horāu* "arrow": Ar. *hoti* "arrow;" Cree *atus;* Oj. *mitigw-anwi* (*mitigw-* "wood")

W. *mol* "house;" Y. *o'lomeL:* Bl. *moyis* "hut;" Gros Ventre *-wā', -wāh'* "lodge;"[6] Ar. *ha'ā*wu* "house," *-a*wu* "lodge" (*-*wu* < *-*mu;* cf. *wox** "bear": Cree *maskwa*)

Y. *naxko* "board": Cree *nabakittak* "board;" Oj. *nabagissag*

W. *tsāpi* "arrow": Bl. *ápssī* "arrow" (< **apī*), *nó-χpssī* "my arrow." Fox *n-īp*[4] "my arrow;" Ar. *n-ētc'* "my arrow." If these etymologies are correct, W. *ts-* is a prefix.

W. *kac-werar* "small house" (< **-winan*): Mal. *wenǫ'djĭgwǫm'* "house"; Mic. *wēndĕigwōm'*; Ar. *nīna** "house" (< **wīna**? cf. Ar. *no*ku* "rabbit": Oj. *wābos*)

VERB AND ADJECTIVE STEMS

W. *ate-l, ane-l, hane-w; ie-l* "to say, tell": Cree *ite-w* "il lui dit," *itwe-w* "il dit," *itwe-win* "word;" Oj. *nind-inā* "I tell him"

W. *gawe-betser* "it is becoming dry" (*gawe-* inchoative): Oj. *bā-ss* "to be, become dry," *bā-tte* "it is dry;" Cree *pā-ssowew* "he dries it"

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[1] G. B. Grinnell in *American Anthropologist*, N.S., 15, 1913, p. 328.

[2] Suggested by Kroeber.

[3] Noted by Kroeber.

[4] G. B. Grinnell in *American Anthropologist*, N.S., 15, 1913, p. 329.

[5] See Michelson, op. cit., p. 235.

W. *bitcewe-tskarer* "to peel": Oj. *bishagi-bina* "to peel, pare, shell, flay"
W. *bokin* "to hit, strike": Fox *paga-, pagi-* "to strike;" Oj. *pakitē-*
W. *butc* "to scratch": Cree *pes-* "tracer, tirer des lignes"
W. *cakw* "sick, to die": Oj. *ākos* "to be sick"
W. *capo* "straight": Nat. *sampwi* "it is straight"
W. *dokap, dokaw* "to crack": Oj. *tāskka* "to split"
W. *gets* "cold": Cree *kiskin* "it is cold;" Oj. *kissina* "it is cold"
W. *gos-wiwi* "to swim": Cree *kosāpew* "il enfonce dans l'eau"
W. *it, w-it, n-it* "to sleep, dream": Cree *itābat-* "to dream;" Oj. *ināban-*
W. *kac, kacam* "small, short": Oj. *agāshi* "small;" Ch. *ka-* "short"
W. *hi-kāwaw-it* (*hi-* denotes past time) "they cut it (dead body) up;" Oj. *gawa-* "to cut down (tree);" Fox *kāwa-* "to crunch"
W. *kiedal* "to take, pick": Cree *kitti-new* "il y met la main"
W. *kika* "red": Bl. *ksik-* (< **kik-*) "white"
W. *ktat* "hot": Oj. *ktj-āte* "it is hot;" Ar. *ha'sitā'*[1] "it is hot" (< **kāsi-*[1])
W. *ko-mal,* (perhaps also) *da-kwes* "to hang": Cree *kosā-we* "to hang," *ako-tew* "he hangs it;" Oj. *ago-* "to hang (tr.);" Nat. *(h)ogkw-chin* "it hangs, is suspended"
W. *(hi-ka-)kuwèyél(-it)* "(were not) afraid any longer": Fox *ku-* "to fear;" Oj. *go-;* Cree *ku-s-*
W. *lakwet* "to cough": Mal. *nēk'ᵘ-kamp-* "to cough;" Mic. *nō'γum'*
W. *laliwe* "to sing;" Y. *ruraww:* Mal. *dlin't'* (or *dlin''tp-*) "to sing;" Abn. *lin't'o'* "sing!" (probably from *dl-*). Such forms as Abn. *kwdwadzint'o-* "to begin to sing," *dabadakwint'o-* "to finish singing," Mal. *ᵉmimadjen.' t'o-* "to begin to sing," *e'kwin''tp-* "to stop singing" show that *(d)lin''tp-* is compounded of *dli-* and *-n'tp-*. It is with this *dli-* (< **dsli-?*) that W. *lali-* is probably to be compared.
W. *letka* "to fall, descend": Cree *nitta-kusiw* "to descend," *nitti-new* "he lowers it"
W. *ha-lewu, o-lewu, do-lewu* "to dance": Fox *nimi-* "to dance;" Cree *nimi-w;* Oj. *nim:* Mic. *némal'kaī* "I dance"
W. *teriwoke-tskarer* "to peel": Cree *siniku-* "frictionner, frotter, essuyer-brosser;" Oj. *sinigo-* "to rub"
W. *mīw-* "to eat (slain animal)": Oj. *amwa* "to eat (animate object);" Fox *amw-* "to eat;" Ch. *miw* (< **miw*) "to eat (e. g. human flesh)"[2]
Y. *new, neg'wo* (i. e. *neγwo* = *newwo,* according to Kroeber) "to see": Fox *nāw-, nāu-* "to see;" Del. *nāwāwᵘ* "I see him"
W. *niewom* "to kill," *hi-niewa-k* "he killed him": Cree *nipa-* "to kill;" Mal. *nē'pa-*. Is Del. *ni'l-* of *ni'lāwa-* "to kill" related?
Y. *ok* "to live, be" (Wat.): Fox *(u)wīgi-, (u)wīge-* "to dwell"
W. *pelal* "to break, open, cut": Cree *payipa* (< **pali-?*) "percer de part en part"

[1] See Michelson, op. cit., p. 235.
[2] J. Mooney, op. cit., p. 426.

W. *picar* "to swell": Cree *pisakusiw* "il est abondant, il fournit beaucoup"
Y. *goqonewuL* (reduplicated) "long": Cree *kino-, kinw-* "long;" Oj. *gino-, ginw-*
W. *rakcem* "to pursue": Fox *nag-* "to follow after"
W. *sirwa* "black": Bl. *sik-* "black"
W. *tawal, dakw* "dead, to die": Fox *tāw(i)-* verb stem indicating "physical pain"
W. *tawi* "to butcher": Nat. *tumm-ussum, tumm-ehtam* "he cuts (it) off"
W. *tawik-wi* "to visit": Fox *nawi-* "to visit"
W. *tem* "to sit": Del. *lám'ᵊt-api-* "to be seated"
W. *tigelis-wi* "to swim": Mic. *degišim-* "to swim, bathe"
Y. *tmo* "to shoot with bow" (Wat.): Fox *pemw(a)-* "to shoot." If this is correct, Y. *tmo* would seem to be dissimilated from **pmo*.
W. *twe-Layer* "to cut, notch": Cree *twā-hwew* "he makes a hole in it"
W. *tsaw* "to touch": Cree *sāmi-new* "to touch"
W. *tsitsir* "to sneeze": Cree *tchatchā-mow* "he sneezes"
Y. *tsíyuk, atsíyuqw, atsíyuuk* "to sit": Ar. *šiokw* "to sit" (cf. *šia"ku* "to stand"); perhaps also Bl. *itsistoχk-* "(to do) while lying"
W. *tsowes* "to shout": Cree *sākowe-w, sā-sāskwe-w* "he cries out with joy;" Oj. *sa-ssākwe* "to shout with joy"
W. *waL, maL, pL* "to eat": Fox *wāseni-* "to eat;" Oj. *wissin*
W. *wayit* "to bend": Oj. *wāgina* "to bend;" Cree *wāki-siw* "he is bent"
Y. *wec'ona* "sky": Cree *wās-* "clair, lumineux, brillant," *wāseskwan* "le ciel, le temps est clair"
W. *welu, wilu* "hollow": Cree *wayā-hew* (< **wal-*) "he hollows it," *wāti* "hole in the earth," *wāyi-siw* "hollow (inanimate);" Oj. *wānike* "to dig a hole in the ground;" Mic. *wōl-bēgddākun* "to be hollow," *wōl-koōākūm* "to make a hollow in the ground" (i. e. *wal-*)
Y. *hèL-wenóo-c* "give me" (stem *we-noo-*): Cree *mi-yew* "he gives him;" Oj. *mi-na* "to give him;" Ar. *bi-n-* (< **mi-*) "to give;" Fox *mī-n-*
W. *weratc* "to drink," *weratcī* "water": Cree *minikkw-* "to drink;" Oj. *minikwe;* Del. *min'ā-;* Ar. *bānā*
W. *wei* "satisfied," *witâ'w-it* "he rejoiced": Fox *metā-* "to take pleasure in;" Cree *miyā-wātew* "il en est content"

It is very important to notice that several Algonkin secondary verb stems (i. e. such as occur only compounded with preceding stems) seem to be cognate with Wiyot primary stems. It is quite likely on general principles, in view of the fact that several initial stems may be compounded in Algonkin, that many, if not all, such secondary stems are in origin primary stems that came to be restricted to a secondary place in compounds. Once in a while, indeed, one finds that a stem which is primary in one Algonkin dialect can be used only as a secondary stem in another. Thus

Baraga gives Oj. *nin gābaw* for "I stand," *nin gābawia* for "I make him stand," while Lacombe defines *-kābawi-w* in Cree as "une terminaison qui désigne: se tenir debout;" similarly, in Fox, Jones lists *-gāpā-* "to stand" as a secondary stem (of the second order). The examples so far discovered of Wiyot primary stems corresponding to Algonkin secondary ones are:

W. *inag*[1] "to think": Oj. *-en(i)-* "to think" (e. g. *in-en-dam* "to think of it," *takwendam* "to think always of it"); Fox *-āne-* "relates to mental operation;" Cree *it-eyi-mew* "il le pense ainsi;" Nat. *-an-* (e. g. *an-an-tam, un-an-tam* "he thinks," *mizt-an-tam* "he thinks much")

W. *kawi* "to make": Bl. *-ka-, -xka-, -χka-* "to make something;" Cree *-kke-*

W. *tɛphai* "to taste": Cree *-spo-ku, -spi-te* "it tastes so and so;" Oj. *mino-pi-djige* "to find a good taste" (*-pi-* < *-'pi* < *-spi*)

W. *otw* "to bring": Cree *-towat-ew* (ending of neuter verbs) "un fardeau, un poids, qu'on porte sur son dos;" Fox *-ō-* "to bring, carry a burden on one's back;" Oj. *-ō-*

W. *unas* "to crawl": Fox *-ōtā-* "to crawl"

NUMERALS

W. *gō'l-, gū'ls-* "one;" Y. *goot-, go(o)xt-, goor-;* Fox *nēgut*[2] "one;" Oj. *ningōto-;* Nat. *nequt;* Bl. *nitûkska* < **nituki-* < **nikuti-*.[3] Is original Algonkin *-got-* modified to *nt-got-* by analogy of other numerals beginning with *n-*?[3]

W. *rit(w)-* (< **nitw-*) "two;" Y. *ni'-, nā'-, nc'-;* Cree *nijo, nijw-* "two;" Fox *nícw'; Ar. nīši; Oj. nij;* Abn. *n s';* Ch. *nixā* "two," *niš* "two of;" Bl. *nâtoka* "two." Algonkin **nicw-* may have been developed from **nitw-* (cf. W.) as original *-tk-* developed to *-ck-, -sk-* (see part 4 of this paper). Originally, antevocalic **nicw-* may be supposed to have varied with antecosonantal **nito-;* this is confirmed by Bl. *nâto-ka* with its otherwise mysterious *-t-* (*-ka* suffixed as in *nîlûks-ka* "one" and *ninôks-ka* "three").

W. *rik(w)-* (< **nikw-*) "three;" Y. *naxkc-;* Cree *nisto, nistw-* "three;" Fox *nésw'; Ar. nāsâ; Oj. nisso-, nisswi;* Abn. *nās'*; Ch. *nāā* "three," *nake* "three of" (*-k-* < *-s-*); Bl. *niuôksha, niuôka* (i. e. **niwoki-?*). W. *-kw-* and Algonkin *-sw-* (e. g. Fox) and *-stw-* (e. g. Cree) point to original final *-w-* of stem; W. *-kc-*, Y. *-xkc-* and Bl. *niuok-* point to *-k-* as part of final consonant cluster;[4] Y. *-xkc-* and Algonkin *-sw-, -stw-* point to *-s-* as

[1] Another example of consonantal metathesis, if metathesis indeed is involved here, seems to be *maisikin* "moccasin", < **masikan* < **makisan;* cf. Cree *maskisin* Oj. *makizin.*

[2] Perhaps Algonkin "one" without *n-* prefix is preserved in Abn. *kwid-ᵈA's* "six." . e., "one and five" (cf. below under W. *hâlu* "seven").

[3] Mic. inanimate *nāsiskāl* (i. e. *nāsiskAl; -Al* is inanimate plural) also suggests original *-k-*. *-sisk-* < **-siks(w)-*, assimilated from **-niks(w)-* (see below). How explain *nā-*? Cf. Algonkin *nt-got-?*

original member of this cluster also. Perhaps original **nkxw-* (with loss of *-w-* in Y. and of *-x-* in W.) lies back of all our forms; Algonkin *-skw-* may be supposed to have developed from *-kxw-* (in those dialects that do not preserve *-st-*, *-stw-* developed to *-sw-*; that all Algonkin dialects originally had *-stw-*, and that *-sw-*, *-s-* did not directly develop from *-kxw-* by loss of *k* is indicated by Mic. *šīšt'*, assimilated from **nīst-*).

W. *riaw-*, *rām-* "four" (< **niaw-*): Cree *newo* "four;" Fox *nyâw'*; Oj. *niwin;* Mic. *néu;* Abn. *'yau'* (animate *'yâw'-ak'*); Ch. *nevă;* Ar. *yēini* (*y-* < *ny-;* cf. *yāθani* "five": Fox *nyâ.naw'*). Bl. *niso* "four" does not fit well with Algonkin **nᵘew-;* perhaps it is to be more closely connected with:

Y. *toon-*, *tsoon-* "four" (perhaps < **toson-*, cf. *tāmaw-* below; this may be dissimilated from **noson-* < **nison-* or **nɪson-*): Bl. *nis(o)ó*, *nɪso* "four"

W. *hălu* "seven": Mic. *eluwiginak'* "seven;" Fox *nōhig*ᵃ (for *-g*ᵃ cf. also *nēgutwācig*ᵃ "six" and *nēcwācig*ᵃ "eight," probably also *cāg*ᵃ "nine;" *nō-* < **inō-*, cf. *nēniw*ᵃ "man" alongside of *inéniw*ᵃ). Fox *nōhī-* corresponds to Mic. *eluwi-*. Most Algonkin dialects have 2 + 5 for 7: Oj. *nijw-āsso-;* Mont. *nījw-ō'ītā;* Rupert's House Cree *nīs-ōs;* Nat. *nes-ăuzuk takshe;* Ch. *nis-oxtoă;* Ar. *nīs-a*ᵘ*;* Abn. *daba-ɣs* (< **daba-ɣs;* cf. *kwid-ɣs* "six" and Mic. *dâbo'* "two"). W. *hălu*, Fox *nō(hi)-*, and Mic. *elu(wi)-* seem to point to an older stem for "seven" not based on a quinary system.

Two or three other elements of indefinite numerical significance may be included here:

W. *daru* "all" (also as verb prefix *ru-*): Cree *tatlo, tattw-aw* "each, every"

Y. *qòlin* "the other": Cree *kutak* "another;" Fox *kutʌg-;* Nat. *on-kalog* "another person"

Y. *kuc tsăme-ɪ* "how many?" *kuc tāmaw-o* "how many months?" *kuc tamopir* "how many dentalia?" *kuc termerw-er* "how many woodpecker scalps?" (assimilated from **tamaw-er*), *kuc termerpi* "how many obsidian blades?" (assimilated from **tam(aw)-erpi*) (*kuc* is "what?" whence *tamaw-* can be inferred to mean "as much as, so and so many in number;" for *ts-:t-* cf. *tsoon-: toon-* "four" above, perhaps implying original stem **tasm(aw)-*): Oj. *dassw(i)-* "so and so many" (used with numeral classifiers); Fox *tʌsw(i)-* "as many as, as much as, number." With Y. *termerpi* cf. Oj. *dassw-ābik* "so and so many objects of metal, stone, or glass."

LOCAL TERMS

W. *dat* "up, above": Cree *tett-* "to be over" (*tettahyew* "he puts it above," *tettapiw* "he is seated over")

Y. *pets-ik* "up stream" (*-ik* is locative): Mic. *petow* "up stream"

Y. *pul-ik, puleku-k* "down stream": Mic. *bāp-kāāk* "down stream" (cf. perhaps Cree *māmik* "bas d'une riviere")

W. *tcatc* "south": Cree *sāwan* "south;" Oj. *jāwan;* Nat. *sowandyeu*

W. *tcwi* "behind;" Y. *hé-ɪqāu-* verb prefix "in the rear" (Wat.) (*he-* is demonstrative; *-ɪqāu-* < **ɪqw-*, cf. Y. *horāu* "arrow" < **hotw*): Oj. *ishkwi* "to remain (behind)," *ishkwa-* "after, at the end of something," *ishkwiang* "behind the others;" Cree *iskw-* "the last, at the end, in the last place;" Nat. *ashq-* (i. e. *ackw-*) in *ashqshout* "he who remains," *ashqunut* "he who is left;" Mic. *eskw-* in *eskwaadoo* "I let it remain," *eskweak* "to remain." Primitive Algonkin **ckw(i)-*, **skw(i)-*, variable vowel *i-*, *a-*, *e-* being presumably prefixed merely to support consonant cluster.

W. *wa* "far"; Oj. *wāssa* "far;" Cree *wāyo*

W. *wur* "north" (< **mon?*): Ch. *notam* "notth" (perhaps dissimilated from **motam;* cf. *na'ko* "bear" < **ma'kw-?*)

PRONOUNS

Y. *hī-*, *he-* (Wat.) demonstrative stem compounded with local adverbs used as verb prefixes (e. g. *hīgwop* "in front floating," *hīpets* "up stream," *hēɪqāu* "in the rear," *hēci* "this side of"): Fox *ī-* of *īna* "that" (anim.) *īni* (inanim.) (*-na* as in *mana* "this"); perhaps also *i-* of Fox *ici-* "thus," Cree *it-*, Oj. *in-*

Y. *iyo*, *yok* "this," plur. *iyoɪko:* Cree *eako* "ce, celui-ci," plur. *eakonik;* Oj. *iw*, *iwi* "that;" Nat. *yeu* "this (thing)," animate *yeuoh*, animate plur. *yeug*

W. *tci-wa* "that; so, thus;" perhaps also Y. *hē-ci* "this side of" (Wat.) (*he-* is demonstrative): Cree *tche-skwa* "ci-après" (for *-skwa*, see W. *tcwi* "behind"): perhaps also Fox *ici-* "thus"

Y. *kwa* "what? where?": Fox *-gu-* in *waguna*^{i} "what (inanimate)?" (cf. *wāna*^{ta} "who?")

Y. *tin* interrogative pronominal stem in *tinica* "what? what kind?" *tinpa* "which one?": Cree *tān-* interrogative pronominal stem in *tānisi* "how? of what kind?" *tāneki* "why?" *tāntatto* "how much?" *tānispi* "when?"; Fox *tān*^{a} "which (animate singular)?"; Bl. *tāa* (animate singular) "which? being where?"

W. *-wa* in *du-wa* "what?" *ci-wa* "what?" *wai* "is that so?": Oj. *wa* "what?" (in answer to questions); Ch. *-wā*, *-wa* in *nenā* "who?" *henowa* "what is it?"

Y. *nek* "I;" W. *yil* (< **nil?*): Cree *niya* "I" (< **nila*); Fox *nīn*^{a}*;* Oj. *nin;* Nat. *neen;* Mic. *neen* (assimilated from **nīl*); Mal. *nil*

W. *kil* "thou;" Y. *qel:* Cree *kiya* "thou" (< **kila*); Fox *kin*^{a}*;* Oj. *kin;* Nat. *keen;* Mic. *keel;* Mal. *kil*

W. *kinār*, *winār* "we" (< **-nān;* are these two forms inclusive and exclusive?): Cree *kiyānow* (inclusive), *niyān*, *niyanān* (exclusive); Fox *kīnān*^{a}, *nīnān*^{a}; Oj. *kinawind*, *ninawind;* Nat. *keenawun*, *neenawun;* Mic. *keenoo*, *nenīn*, cf. also *-nāna* and *-nūna* of Bl. *nistúnàna*, *kistúnùna* (these are really possessive forms of stem *-stu-*)

W. *kiluwa* "you (plur.)": Cree *kiyawaw* "you (pl.)" (< **kilawaw*); Fox *kīwāw*^{a}*;* Oj. *kinawa;* Nat. *kenauau;* Mic. *kelow;* cf. also Bl. *-aua* (= W. *-wa*) in *kistóaua* (really possessive form of stem *-sto-*)

3. Algonkin, Wiyot, and Yurok

Morphological Evidence

We shall begin by taking up the various grammatical elements that Algonkin has in common with Wiyot or Yurok or both.

Possessive pronominal prefixes

W. *r-, ru-, ra-* (< **n-, *nu-, *na-*); *yi-* (before terms of relationship; < **ni-?*) "my;" Y. *ne-, no-:* Cree *n-, ni-, nit-* "my"; Fox *n-, ne-, net-;* Oj. *ni-, nin-, nind-;* Mic. *n-, an-;* Nat. *n-, nu* (= *na-*); Bl. *n-, ni-, nit(s)-, no-. -t-* forms (Bl. *-t-* or *-ts-* forms) are used before stems beginning with vowels. This *-t-* seems comparable to *-d-* of W. *ru-d-aluwi* "my boat" (*haluw?* "boat"), probably also *d-* of *d-etere* "my nose" (*m-etere* "nose").

W. *k-, ku-,* "thy;" Y. *qe-, qo-:* Cree *k-, ki-, kit-* "thy;" Fox *k-, ke-, ket-;* Oj. *ki-, kid-;* Mic. *k-, ük-* (i. e. *ak-*); Nat. *k-, ku-* (i. e. *ka-*); Bl. *k-, ki-, kit(s)-, ko-,* Ar. *hi-* (< **ki-*). *-t-* forms (Bl. *-t-* or *-ts-* forms) are used before stems beginning with vowels. This *-t-* seems comparable to *-d-* of W. *ku-d-aluwi* "your boat."

W. *hu-, o-, w-* third person possessive pronominal prefix, singular or plural, "his;" Y. *we-, wo-, o-:* Cree *o(t)-, w-;* Fox *u(t)-:* Oj. *o(d)-, w-;* Mic. *o-' w-;* Nat. *w-, wu-* (i. e. *wa-*); Bl. *o-, ot(s)-, m-*

W. *m-, me-* body-part prefix, "somebody's;" Y. *m-:* Cree *m-, mi-;* Oj. *mi-;* Mic. *m, 'm-* (i. e. *am-*); Nat. *m-, mu-* (i. e. *ma-*); Bl. *m-;* Ar. *bā-* (< **mā-*). See beginning of part 2.

W. *wat-* body-part prefix (e. g. *wat-kerāt* "bone," *wat-melok* "ear," *ra-wat-kai* "my skin"); Y. *wer-* (e. g. *-werʟker* "bone," *-werʟkun* "liver"): Cree *os-* of certain body-part nouns (e. g. *os-kan* "bone," *os-kun* "liver"), see part 2 s. v. *wat-kerāt.* Certain body-part nouns in Arapaho are preceded by *wa-* (*wan-?*): *wa-natana'* (read *wan-atana'?*) "ear," *wa-not* (read *wan-ot?* cf. Oj. *m-ōdji* < **m-ādi* "belly of an animal") "belly," *wa-a°θ* "foot." It is tempting to compare this *wa(n)-* with W. *wat-*, though Kroeber suggests it may be another form of *bā-* (see under *m-*).

Tense-mode verb prefixes

W. *hi-* prefix of ordinary past: Ch. *-'-* prefix indicating past time (e. g. *na'-mese* "I ate"; *na-mese* "I eat")

W. *ka-, ga-* negative (e. g. *guts-kā-nakw* "it is not good," *ki-ka-kuwəyēliʟ* "were not afraid any longer"); Y. *kowits-:* Oj. *ka-* "not," *kawin* as independent adverb; Ar. *hâw°* (< **kāw°*); Cree *eka* (only with subjunctive forms)

W. *ka-* prefix which, together with suffix *-iʟya*, forms imperatives of some verbs (e. g. *ka-tal-iʟya* "jump!"); Y. *ki-* future prefix, *kiti-* (Wat.) "impending action"; Cree *ka-, kata-, kita-* future prefixes; Oj. *ga-, gad-*. With Cree *kita-* is perhaps also to be compared *git-* of W. *gitga*, particle indicating futurity.

Y. *ki-* "incomplete action" (Wat.): Cree *ki-* prefix of past time

Y. *matseki-* "if" (*-ki-* is perhaps future prefix): Ch. *ma* "if, when"

Y. *nimi-, nimok-* negative: Cree *nama, nama-* "not"

W. *wi-, wa-* future prefix: Fox *wī-* future prefix; Cree *wi-* "signe de la volonté; être sur le point de"

ADVERBIAL VERB PREFIXES

(comprising also elements best considered as initial verb stems in Algonkin)

W. *dakw-* in *dākw-darĕdakw* "they are with (their grandmother)": Fox *tagw(i)-* "together;" Oj. *dago-* "amongst others, amongst other things"

W. *gawe-, gawa* inchoative prefix: Alm. *kwdwadzi-* "to begin to" (e. g. *kwdwadzinlo-* "to begin to sing;" also *howadzi-*)

Y. *kits-* prefix indicating completed past: Cree *kisi-* or *kiji-* "to finish;" Fox *klc(i)-* "to finish;" Bl. *-ksist(s)-* perfective prefix (< **-kisi-*)

W. *kul-* "back, again": Cree *kiwe-w* "he returns to his own place," *kiwe-ku-yew* "he takes him back to his country"

W. *let-* prefix defined by Kroeber as "apparently defining motion in some way" (perhaps circular motion is implied: *let-kaleg'al-iz* "roll," *dak-let-athanagat* "boil violently," *let-kalegal* "fall"[1]): Fox *tetep-* "to move in a circle"

Y. *tsegi-* "all" (Wat.): Fox *tcāgi-* "all, entirely"

PRONOMINAL SUFFIXES

W. *-e'l* third person (singular or plural) possessive suffix (e. g. *we-lin-e'l* "his eye," *ku-watkerat-e'l* "his bones"): Fox *-an*[1] (obviative ending); Oj. *-an;* Mal. *-al';* Mic. *-āl* (i. e. *-al*). Algonkin noun forms with third person possessive prefix normally end in obviative **-ali;* thus, Oj. *o-sinisz-an* "his father-in-law" (cf. *ki-sinisz* "thy father-in-law"). Is W. *-e'l* really obviative, and is W. *ku- . . . -e'l:* Algonkin **o- . . . -ali* more than accidental?

Y. *-k* "I" (subjective): Fox *-g'* "I" in *-a-gi* "him—I" (conjunctive mode); Cree *-a-k* "him—I" (subjunctive-participle), *-a-ki-k* "them—I;" Oj. *-a-g* "him—I" (subjunctive)

Y. *-m* "thou" (subjective): Oj. *-m* "you (plur.)" (indicative mode; < **-mwa*, as indicated by imperfect *-mwa-ban;* this *-mwa* may be compounded of original *-m-* "thou," no longer preserved as such, and *-wa*, second person plural suffix, seen, e. g., in Oj. *ki- . . . -wa* "your" and *-wa* of W. *kilu-wa* "you" and *-itawa*, see below); Algonkin *-mwa* appears in several dialects as *-pwa* (e. g. Fox and Bl.).

W. *-it, -at* "thou" (subjective): Fox *-tci* (< **-ti*) in *-a-tci* "him—thou" (conjunctive), *-te* in *-a-te* "him—thou" (subjunctive); Cree *-a-t* "him—thou" (subjunctive-participle); Oj. *-a-d* "him—thou" (subjunctive)

W. *-itak, -atak* "we" (subjective): Fox *-yāge* "we (exclusive)" (conjunctive); Cree *-yak* (subjunctive-participle); Oj. *-iang* (subjunctive)

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[1] But see part 2 s. v. *letka*.

W. *-ítawa, -atawa* "you (plur.)" (subjective): Fox *-yägwe* "you (plur.)" (conjunctive); Cree *-yek* (subjunctive-participle); Oj. *-ieg* (subjunctive; < **-yegwa* > **-yego*, as indicated by pluperfect *-iego-ban*)

W. *-a* "him": Fox *-ʌ-* "him" (conjunctive; see under *-k* and *-it* above); Cree *-a-;* Oj. *-a-*. Note that in Algonkin, as in Wiyot and Yurok, when (in subordinate modes) both pronominal subject and object are suffixed, objective elements precede subjective elements; thus, Fox *-ʌ-tci* (< **-ʌ-ti*) "him—thou" like W. *-a-it* (often contracted to *-ēt*) "him—thou."

OTHER VERB SUFFIXES

(including elements best considered as secondary verb stems)

W. *-ākw* in *wānākw* "tree": Fox *-ā'kw-* "wood, tree;" Cree *-āsku-* (e. g. *ask-āsku-siy* "green wood")

W. *-ātho* causative suffix: Bl. *-ats-* causative suffix

W. *-er* suffix found on intransitive verbs (including numerals and adjectives; e. g. *rikw-er* "three," *kacam-er* "small," *gawu-bets-er* "it is becoming dry:" < **-in*): Cree *-n* suffix of first and second persons singular indicative of intransitive verbs (including adjectives; e. g. *ni-miyosi-n* "I am good," *ni-pimipattā-n* "I run," contrast *miyosi-w* "he is good," *pimipatta-w* "he runs"); and *-n* suffix of third person inanimate indicative of many intransitive verbs (adjectival and impersonal; e. g. *miwāsi-n* "it is good," *kimiwa-n* "it rains")

W. *-ʟāk* adjectival suffix on terms of color: Fox *-ʟag-* secondary stem referring to color.

W. *-ʟayer* suffix in verbs of cutting and related activities (e. g. *twe-ʟayer* "to cut, notch," *ka-ʟayer* "to whittle," *kuwe-ʟayer* "to mash," *gutwaiap-ʟayer* "to brush"), probably best considered as secondary stem: Cree *-tw-ew* (animate object), *-s-am* (inanimate object) "la marque du feu, du ciseau et du couteau," *-sawat-ew* (animate object), *-sawat-am* (inanimate object) "l'action du couteau ou du ciseau"

Y. *-puʟ* in *tenpuʟ* "rain": Oj. *-bissa* "to rain" (secondary stem). Mic. *ki'-pčiax* "it rains"

W. *-rakw, -erakw* (< **-nakw*) verb suffix "to be" (perhaps better defined as denoting "to be so and so in appearance or character;" e. g. *gots-herakw* "he is good-looking," *makʟ-erakw-iʟ* "he is small"): Fox *-nägw-* "look, appearance, resemblance" (secondary stem); Cree *-nāku-si-* (animate), *-nākw-a-* (inanimate) verb suffix indicating "action de la vue" (e. g. *miyo-nāku-si-w* "il a belle apparence")

W. *-tskarer* suffix in verbs of peeling (e. g. *rari-tskarer* "to shave, plane," *biteewe-tskarer* "to peel," *ʟeriwoke-tskarer* "to peel," *ci-tskarer* "to flay"), probably best considered as secondary stem: Cree *-kkut-ew* "l'action du couteau, de la hache et de la verloppe, sur le bois"

W. *-u, -au* adjectival suffix (e. g. *kacew-au* "short," cf. *kacam-er* "small;" perhaps

predicative, as in *ra'ɪ-aw-iɪ* "it is long"): Cree *-w* third person inanimate suffix of certain intransitive verbs (adjectival and impersonal: e. g. *maskuwu-w* "it is strong," *takkigamiw* "liquid is cold"); Bl. *-o, -u* predicate inanimate adjectival suffix (e. g. *ómaχk-o* "big," cf. animate *ómaχksim* for persons, *ómaχkimin* for animals, *ómaχksiksim* for trees). Do Cree inanimate adjectives in *-n* and *-w* correspond respectively to W. adjectives in *-er* and *-aw*?

NUMERAL CLASSIFIERS

Y. *-emi* "times, occasions, years" (e. g. *naxkcemi* "three years)": Bl. *-mi* numeral classifier for "years" (Uhlenbeck states: "In order to indicate age the noun *stúyi* 'winter' is suffixed to the numeral stems and the suffix *-mi* is placed thereafter, which complexes are then conjugated like ordinary verbs")

Y. *-en* "days" (e. g. *naxkcen* "three days"): Bl. *-ni-* numeral classifier for "days and nights;" compounded with this *is* Oj. *-gwan* "days and nights" (e. g. *nijo-gw-an* "two days," morphologically and etymologically parallel to Y. *nā'-āin* "two days")

Y. *-erpi* "obsidian blades" (e. g. *nerxkcerpi* "three obsidian blades"): Oj. *-ābik* "objects of metal, stone, glass" (e. g. *nijw-ābik* "two such objects, two dollars," morphologically and etymologically parallel to Y. *ner'-erpi* "two obsidian blades"); Cree *-ābiskw-* "iron, stone"

Y. *-o* "months, dollars" (e. g. *naxkco* "three months, dollars"): Oj. *-o* used with numerals to indicate "measure" (e. g. *nijo* "two before substantives denoting measure" < *nij* "two;" *nijwāsso* < *nijwāsswi* "seven")

NOUN SUFFIXES

W. *-akw* general locative (e. g. *mes-akw(i)* "in the fire;" Y. *-(i)k* (e. g. *mets-ik* "in the fire"): Fox *-g'* general locative; Oj. *-ng;* Cree *-k*

W. *-ātc, -hāts, -wāts* diminutive suffix: Cree *-s, -š, -sis, -šiš* diminutive suffixes (*-sis* is doubly diminutive); Oj. *-ns* diminutive suffix, *-sh* pejorative suffix; Nat. *-ez* diminutive suffix; Mic. *-tšitš, -džitš* (morphologically parallel to Cree *-sis, -šiš*)

W. *-iɪ* derivative noun suffix, apparently instrumental in force (e. g. *còor-eɪ* "index finger, pointer;" *dakaks-iɪ* "gun"): Bl. *-s(i)* noun ending, perhaps instrumental in force (e. g. *mistsí-s* "stick," cf. *kits-ítsi-mi-núna* "our stick" and, with *-kw-* suffix, Cree *mistí-kw-; motsí-s* "hand," cf. *motsí-sts* "hands," *-sts* being inanimate plural, and, with another suffix, Cree *mitchi-tchiy; moyí-s* "lodge," cf. *moyí-sts* "lodges;" *moksí-s* "awl," Oj. *migō-ss*, cf. Bl. *mo ksí-ks* "awls," *-ks* being animate plural. That *moksíks* is not phonetically simplified from **moksís(i)ks* is indicated by such cases as *oχsís* "her younger brother," plur. *oχsísi-ks*, where *-s(i)* is no derivative suffix)

Aside from any question of direct comparison of morphological elements, it is abundantly clear that Algonkin has several important morphological characteristics in common with Wiyot and Yurok. Among these, so far as the limited material at our disposal allows us to generalize, are:

1. Possessive pronominal elements are prefixed to noun stems. There are distinct elements for first person, second person, and third person singular. In Wiyot, as in Algonkin, second and third person plural possessive prefixes are identical with corresponding singular elements (cf. W. *kiluwa ku-* "your," literally "ye thy-" with Fox *ke—pwa* "your"). For body-part nouns *m-* is used to indicate indefiniteness of possessor.

2. Independent personal pronouns are found which are etymologically closely related to possessive pronominal prefixes. They are characterized by suffixes which agree to a remarkable extent (with *-l* of W. *yi-l* "I" and *ki-l* "thou" and *-l* of Y. *qe-l* "thou" cf. *-l* of Mal. *ni-l* and *ki-l;* with *-nār* = *-nān* of W. *hi-nār, wi-nār* "we" cf. *-nāna* of Fox *nī-nān*ᵃ and *kī-nān*ᵃ and Bl. *ni-stú-nāna;* with *-lu-wa* of *ki-lu-wa* "ye" cf. *-la-wa(w)* of Cree *ki-ya-waw* and Mic. *ke-low* = *ki-la-w*).

3. In Wiyot and Yurok verbal forms pronominal elements are suffixed. In Algonkin pronominal prefixes are found only in indicative forms and are identical with possessive elements. In all other cases, to a large extent also in indicative forms, pronominal elements are suffixes. In Arapaho and Micmac indicative pronominal elements are suffixed only, being really conjunctive in origin. It does not seem likely that Arapaho and Micmac represent a more archaic usage in this respect, in view of the occurrence of pronominal prefixes in verb forms in Cheyenne and Blackfoot as well as in nearly all Central and Eastern dialects. On the other hand it seems very probable that the indicative with prefixed pronominal elements is a peculiar development of Algonkin, based on or influenced by the possessive series (cf. the development in Micmac of a new conjunctive series which is evidently based on the possessive forms). The pronominal series for the conjunctive and related modes, possibly also some of the suffixed elements of the indicative, represent, then,

the historically oldest Algonkin forms. They are etymologically parallel to the suffixed elements of Wiyot and Yurok. In Algonkin, Wiyot, and Yurok objective pronominal suffixes precede subjective elements.

4. Preceding the verb stem are often one or more elements of temporal or modal significance. These shade off into a set of adverbial prefixes which are doubtless verb or other stems that have become specialized as first position elements (such are W. *ru-* "all," *kul-* "back, again," *let-;* Y. *tsyu-* "all;" Fox *tcāgi-* "all," *tetep-* "in a circle").

5. Several derivative verb suffixes (e. g. causative, reflexive) are found. A number of suffixed elements are found whose significance is so specific or concrete that they are best looked upon as secondary stems (see, e. g., W. *-iskarer* and *-ɪayer* above). The peculiar method of compounding verb stems of various positions which has been described in detail for Fox by Jones and no less clearly indicated, though in rather different terms, for Cree by Lacombe, thus bids fair to be paralleled in the verb structures of Yurok and Wishosk. Much more material, however, is needed before a point of this character can be satisfactorily established.

6. Animate and inanimate are carefully distinguished in Algonkin. For Yurok Kroeber notes several adjectives which have distinct animate and inanimate forms, animate forms being characterized by suffixed *-er* (e. g. *montse* "white," animate *monter-er; cokoto* "red," animate *cerkert-er*). It seems difficult to believe that this fundamental distinction is expressed in Yûrok only in the adjective. There must be other evidences of its operation that have not yet been disclosed.

7. Numeral stems are frequently followed by classifying suffixes. That such exist in Wiyot as well as in Yurok is demonstrated by W. *-eu, -ayu* "years" and *-āk, -wāk* "days." Besides such numeral classifiers as have been noted above, Ojibwa and Yurok both possess elements denoting "fathoms" and "canoes," though these do not seem to be etymologically connected.

8. As distinctive of the noun may be noted a general locative suffix and a diminutivizing element which is also suffixed.

9. Reduplication is not widely used in either Algonkin or Yurok-Wiyot. It is, however, employed to some extent in both, chiefly to express iteration (cf. W. *tsitsir* "to sneeze" with Cree *tchatchāmow* "he sneezes").

Some of these morphological traits are, of course, rather general in character and not to be considered as carrying much weight when taken singly. Taken *en masse*, however, and in connection with the specific resemblances in morphological elements listed above, I think it will have to be conceded that the morphological evidence for our thesis is not to be despised. I am well aware of the probability that a considerable number of my lexical and morphological parallels will, on maturer knowledge, have to be thrown out of court; I cannot hope to have always hit the nail on the head. However, even if we eliminate fifty per cent. of our cognates as errors of judgment (doubtless far too great a sacrifice to caution) we are still confronted with no fewer than one hundred or more reasonably close analogies in stems and morphological elements.

4. Phonological Notes

A really sound study of Algonkin-Yurok-Wiyot linguistics demands first of all the establishment of the phonetic laws that have operated to bring about present phonetic (and, in its train, no doubt often also morphologic) divergence. Unfortunately our knowledge of even Algonkin phonology is as yet in its infancy. No very precise data as to phonology will therefore be expected of us at this stage. Nevertheless I believe that at least a few sound-relations can be made out with reasonable certainty.

Wiyot-Yurok *h-*. Wiyot and Yurok not infrequently have *h-* where Algonkin has no initial consonant. Cheyenne and Arapaho, however, seem to have *h-* in analogous cases. It seems not unlikely, then, that most Algonkin dialects have lost *h-*, at least in certain cases.

W. *hòlakw* "deer": Oj. *aŧikw-* "caribou"
W. *hēikw* "louse": Cree *ikkwa*
W. *hālu* "seven": Mic. *elawiginʌkʼ*
W. *(h)u-* "his" (Yurok *o-*): Cree *o-*
Y. *hordu* "arrow": Cree *atus;* but Ar. *hoti*

Y. *hī-*, *he-* demonstrative element: Fox *i-*
W. *hèkw* "snow": Ch. *hi'stăs*
Y. *ha'dí* "rock": Ar. *kaha'ana"kā"* (reduplication of *ka-* seems to indicate that *k-* is organic)
W. *hi-* prefix of past time: Ch. *-'-*

In W. *hu-* it seems likely that *h-* is only secondary (cf. parallel forms *u-* and *w-*); loss of *h-* in W. is illustrated also in *haluwi* "canoe"; *ru-d-aluwi* "my canoe." In view of such correspondences as Y. *horău:* Ar. *hoti* it now seems plausible that Ch. *hitan* "man" and Ar. *hīnen* have original *h-*, which has been lost elsewhere in Algonkin (**hilini-w-* > Fox *ineni-w-*).

WIYOT-YUROK *w*. As already noted, W. *w* and *m* seem to interchange in certain circumstances. In spite of this there is every reason to believe that organically distinct *w* and *m* are to be kept apart in W. (cf. W. *w-* "his": *m-*, *w-* "somebody's;" W. *mīw-* "to eat," Ch. *miv-;* W. *welu* "hollow," Mic. *wal-*). In certain cases W. (and Y.) *w* is found where Algonkin has *m*.

W. *witâ'w-iɪ* "rejoiced": Fox *metā-* "to take pleasure in"
W. *weratc* "to drink": Cree *mini-kkw-*
Y. *hèɪ-wenôo-c* "give me": Fox *mī-* "to give"
W. *-lewu* "to dance": Cree *nimi-*
W. *tsaw* "to touch": Cree *sāmi-*
W. *wur* "north": Ch. *notam* (see under W. *wur* above)
W. *tawi* "to butcher": Nat. *tumm-* "to cut off"

In W. *weratc* and *wur* and Y. *-wenoo-*, *w* may have been dissimilated from *m* because of following *n* (W. *r* = *n*). Parallel to this may be Fox *nāw-* "to see": Abn. *nem-*.

WIYOT *r*. In one or two cases W. *p* (*b*) seems to correspond to Algonquin *m*. Evidence for this is so scanty, however, that it may well be doubted whether there is anything more than error involved.

W. *bitcò-tcker* "grandfather": Oj. *misho-m-*
W. *pātūt* "earth": Ar. *bita'ā"wu* (Ar. *b* < *m*)

This interchange may be also involved in Mic. *bapkāāk* "down stream" (cf. Y. *pul-ik, puleku-k*): Cree *māmik* "bas d'une rivière."

WIYOT *l*. Though W. *l* seems sometimes to vary with *n*—*r*, it is quite clear that it is in many cases organically distinct from that sound. As for Algonkin, it is well known that certain dialects

possess both *n* and *l* as distinct consonants (e. g. Micmac), others only *n* (e. g. Fox). Michelson seems to assume that Algonkin originally possessed only *n* and that, under undefined circumstances, it developed to *l* in several dialects. Inasmuch as *l* occurs in all positions (and cannot therefore well be explained as resulting from *n*); as all Eastern dialects (Montagnais, Micmac, Abenaki-Penobscot, Malecite, Natick, Delaware), Peoria and related dialects, and Cree all have *l* (or its reflexes; various Cree dialects have *l*, *r*, *y*, or *ð*—see Lacombe) as distinct from *n;* and as Cheyenne seems to have *t* or its palatalized reflex *ts*, not *n*, where Eastern dialects have *l* (cf. Ch. *hitan* "man" with Mont. *ilɪnú*), I prefer to believe that original Algonkin possessed both *l* and *n* and that these sounds were leveled to *n* in several Central dialects (Fox, Kickapoo, Ojibwa), apparently also in Blackfoot and Arapaho. This is confirmed by comparison with Wiyot and Yurok. Examples of Wiyot *l* corresponding to Algonkin *l* are:

W. *lɛtkak* "sand": Cree *yɛkaw;* Oj. *nēgaw.* Cree *y:* Oj. *n* necessarily points back to Algonkin *l.*
W. *pɛlal* "to break open, cut": Cree *payipa-* "percer de part en part" (< **pali-*)
W. *wɛlu* "hollow": Mic. *wal-* "hollow;" Cree *wāyā-* "to hollow;" Oj. *wāni-*
W. *hālu* "seven": Mic. *ɛlɪwiginʌk;* Fox *nōhig**
W. *-l* of *yil* "I," *kil* "thou," *kiluwa* "ye": Mal. *nil, kil;* Fox *nīn**, *kin**, *kinwāw**
W. *di-wile* "somebody": Cree *awiyak* "person" (< **-wila-*)
W. *-e'l* third person possessive suffix: Mal. *-al'*, *-l'* obviative suffix

As Michelson has pointed out, Cree sometimes has *t* where Ojibwa and Fox have *n*. It will be noted, however, that in practically all such cases Eastern dialects have *l*, so that what is really involved is not primarily a *t*—*n* interchange but a *t*—*l* interchange. Here again Wiyot and Yurok are confirmatory, inasmuch as they sometimes have *l* where Algonkin has *t* or vice versa. Examples of Wiyot *l* as compared with Algonkin *t* (or *'t*) are:

W. *mil-ɪl* "medicine-man": Oj. *midē* "Indian of the Grand Medicine" (Oj. *d* < *t*)
W. *wat-me-lok* "ear": Mont. *-tuki;* Bl. *mo-χtôki-s*
W. *me-lūl* "mouth": Cree *mi-ton*
W. *hòlakw* "deer": Oj. *atīkw-* "caribou" (*-t-* < *-'t-*)
W. *lalɪsw* "to sing": Mal. *dli-n-'tǫ-* (*dl-* < **tl-*)
W. *let-* (see above): Fox *tetep-* "in a circle"

W. *lalisw* is perhaps assimilated from original **tali-;* this may be supported by Y. *ruraw* "to sing," inasmuch as Y. *r* often goes back to original *t* (see below), *ruraw* assimilated from **rula-* < **tula-*. Fox *let-* is perhaps similarly assimilated from Algonkin **let-*.

Examples of Wiyot-Yurok *t* corresponding to Algonkin *l* are apparently about equally numerous. It is interesting to note that in some cases one or more Algonkin dialects agree with Wiyot-Yurok as against other Algonkin dialects.

W. *dgat* "penis": Cree *-ittakāy* "genitals of male" (*y* < *l*)
W. *tawik-sei* "to visit": Fox *nawi-* (< **lawi-?*)
W. *tem* "to sit": Del. *lum'ᵊl-apí-*
W. *m-it* "tongue": Del. *-ilAnō;* Cree *-eyaniy* (< **-elani*); but Bl. *m-atsini* (< **-atini* < **-ilani*); Ar. *be-iōan* (< **-ilan*); Gros Ventre *-itAni*
Y. *horāu* "arrow" (< **hotāu;* see below): Oj. *-anwi* (< **-alwi*); but Cree *atus;* Ar. *koti*

In regard to this interchange of *t* and *l*, whose causes are not yet understood, it is suggestive to note that both *-t* and *-l* seem to become *-ɪ* in Yurok (see part 2 of this paper); further that *t* and *l* (or its reflex *y*) sometimes interchange within Cree itself (e. g. *wāti* "trou dans la terre": *wāyi-si-w* "creux").

There are, finally, cases of *l*—*n* interchange. Examples of Wiyot *l* corresponding to Algonkin *n* are:

W. *me-lūl* "mouth" (assimilated from *-lūn?*): Cree *mi-ton*
W. *me'lakw* "elk": Oj. *mons* "moose" (?)
W. *p'lè-tk* "rock": Mal. *p̂ʌnâ-p̂ík'ʷ*
W. *lakwet* "to cough": Mal. *nêk'ʷ-hʌmǫ-*
W. *letka* "to fall, descend": Cree *nitta-ku-si-w*
W. *-lewu* in *halewu, olewu, dolewu* "to dance": Cree *nimi-* (assimilated from **lim-?*)

WIYOT *n*. Wiyot *n* (which frequently becomes *r*) and Yurok *n* regularly correspond to Algonkin *n* (e. g. W. *dān-* "father, son": Abn. *ōdadanâ*ᵗ "his father;" Y. *new* "to see": Fox *nāw-*). There are several cases, however, of Wiyot *n* (*r*), as of *l*, corresponding to Algonkin *t* (or *'t*).

W. *mirɛɪ* "angleworm": Cree *mottew;* Mic. *wēte*
W. *unas* "to crawl": Fox *-ōtā-*
W. *daru* "all": Cree *latto* "every"
W. *wur* "north": Ch. *notam*
W. *-tskar-er* suffix used with verbs of peeling: Cree *-kkut-*

In W. *metkan* "nail," Cree *-eskan* "horn," Wiyot-Algonkin *n* corresponds to *t* of Yurok *-wetkete* "nail." Within Wiyot itself *t* and *n* seem to vary in *atel* and *anel* "to say" (cf. Cree *itew:* Oj. *inā* "to tell").

YUROK *R*. Yurok *r* does not ordinarily seem to be equivalent in origin to Wiyot *r* < *n* (yet cf. W. *wat-kerāt* "bone" with Y. *wert-ker*). In several cases it can be inferred to go back to *t*. Within Yurok itself *r* and *t* interchange in *qoor-e*ˢ "one," normal form of stem: *qoot-*.

Y. *-erkerL* "knee": Cree *-kitikw-* "molette du genou"
Y. *-p-ern* "nose": W. *-etere;* Mic. *-itn*
Y. *horāu* "arrow": Cree *atus;* Ar. *hoti*
Y. *ruratwo* "to sing" (assimilated from **rula-*): Mal. *dli-n''tq-* < **tli-*

Perhaps also:

Y. *pernekr* (misprint for *pern-erk?*) "hand-measure": Mic. *-pidn* "hand"

One case has been noted in which Y. *r* seems to correspond to Algonkin *l* (*t*—*l* interchange?):

Y. *rokw* "wind": Cree *yotin* (< **lotin;* Oj. *nodin*)

WIYOT-YUROK *L*. Voiceless affricative or spirantal *L*, which is so common in Pacific Coast phonetics, occurs frequently also in Wiyot and Yurok. As it does not occur at all in Algonkin, some reflex of it should be ascertainable, if our thesis is to be considered valid. I believe that original *L* has regularly developed in Algonkin to *s*.

W. *gākwiL* "old man": Oj. *akiwesi*
W. *djīpL-iL* "beard": Ch. *mi'-shis* "whiskers" (original postvocalic *p* is regularly lost in Ch.)
W. *ho-dīLere* "umbilical cord": Oj. *-diss* "navel"
W. *me-weriL* "flesh, fat": Mic. *weoós* "flesh"
W. *wat-iLat* "shell": Oj. *ess* "shell"
Y. *kāpeL* "brush": Oj. *kibinsan* "shrub, brush"
Y. *Lqel* "earth": Cree *askiy* (Y. *Lq-* may, however, go back to *tk-;* see below)
W. *kLet* "hot": Oj. *kijāte;* Ar. *kā'sitā'**
W. *Leriwoke-tskarer* "to peel": Oj. *sinigo-* "to rub"
W. *waL, maL* "to eat": Fox *wīseni-*
W. *Lephai* "to taste": Cree *-spo-ku, -spi-te* "it tastes"
W. *-Layer* suffix in verbs of cutting: Cree *-sawēt-* "l'action du couteau ou du ciseau"

In view of these cases of *ɬ* > *s*, W. *-ɬāk* suffix referring to color: Fox *-ɬᴀg-* must be considered as rather doubtful.

WIYOT-YUROK *tc*, *ts*. There is good evidence to show that original *tc* (*ts*) was regularly simplified in Algonkin to *c* (or *s*).

W. *watcer* "girl": Mal. *wāšiš* "child"; Mic. *-wādžiš*
W. *bitcō-tcker* "grandfather": Oj. *-misho-miss;* Ar. *-bāci-bā* (< **-māci-mā*)
W. *gwatc* "mother": Nat. *-kas;* Mic. *-kech*
W. *wetseraku* "son-in-law": Nat. *wussé-num* "he is son-in-law of"
W. *djīpɛ-iɛ* "beard" (*dj* doubtless merely variant of *tc*): Ch. *mī'-skis* "whiskers"
W. *tckatc* "leg:" Y. *tska* "foot": Cree *-skāt* "leg"
W. *gitcai-ailokwe* "sun": Oj. *gisiss;* Ar. *kīšis*
W. *bitcewe-tskarer* "to peel": Oj. *bishagi-bina* "to peel"
W. *butc* "to scratch": Cree *pes-* "tracer des lignes" (Lacombe's *s* includes both Algonkin *s* and *c*)
W. *gets* "cold": Oj. *kissina* "it is cold"
W. *tsaw* "to touch": Cree *sāmi-*
W. *tcatc* "south": Oj. *jāwan* (Oj. *j* < *c*)
Y. *kits-* perfective verbal prefix: Fox *kic(i)-* "to finish"
Y. *mets* "fire;" W. *mes:* Oj. *missan* "wood for fuel," *mishi* "piece of wood for fuel;" Nat. *mishash* "wood"
W. *-āte* diminutive suffix: Cree *-s, -š;* Oj. *-ns, -sh;* Mic. *-tšiti, -džiti*

It is important to note that while original *ɬ* becomes Algonkin *s*, original *tc* (*ts*) normally becomes *c* (i. e. *š*), only secondarily, it would seem, *s* (*tck-* perhaps regularly becomes *sk-*). It is possible that Alongkin *s* (of Oj. *miss-an*): Algonkin *c* (of Oj. *mishi*) reflects W. *mes:* Y. *mets*. It is interesting to observe that in these cases Micmac has *tc* (i. e. *tš*) or *dž* where other Algonkin dialects have *c* (or *s*). Is this an archaic feature of Micmac? In one case original *tsk* seems to have become Algonkin *'k* (*kk*) instead of *sk:*

W. *-tskarer* verbal suffix referring to "peeling": Cree *-kkut-ew* "l'action du couteau, de la hache et de la verloppe, sur le bois"

Far less commonly Yurok-Wiyot *tc* (*ts*) corresponds to Algonkin *tc* (*ts*):

Y. *tsegi-* "all": Fox *tcāgi-* "all"
W. *tsèk* "child": Bl. *tsiki* "boy"

WIYOT *tk*. Wiyot *tk*, which regularly appears as Yurok *ɬk* (*ɬq*), has become assibilated in Algonkin to *sk*, *ck*.

W. *me-tkan* "nail;" Y. *-we-tkete:* Oj. *eshkan* "horn;" Nat. *askon* (i. e. *äskan?*); doubtless also Oj. *-shkänj* "nail;" Cree *-skasiy.* If *-tsk-* of Bl. *mo-tskinau* "horn" is not secondarily developed from Algonkin *sk*, it may represent an older development of original *tk* to *tsk* (*tck*), suggesting that *tk* > *tsk* fell together with original *tsk*, both then becoming normal Algonkin *sk*.

W. *watkerät* "bone;" Y. *-wertker:* Cree *oskan*

Y. *-wertkun* "liver" (< **wat-kun*): Cree *oskun*

W. *wat-ötk* "fin": Cree *-oskwan* "tail"

Y. *tqel* (< **tkel?*) "earth": Cree *askiy*

Algonkin *sk* < *tsk*, *tk* fell together, it would seem, with original *sk* and developed in certain dialects still further to *'k* (e. g. Fox) > *kk* (e. g. Ojibwa); thus, Oj. *-kan* (i. e. *-kkan*) "bone" < **-'kan* (cf. Fox *-o'kan*) < **-skan* (cf. Cree *-oskan*) < **-tskan* < **-tkan* (cf. W. *watkerät* = **watkenät*).

In W. *letkak* "sand" and W. *letka* "to fall" (cf. respectively Cree *yekaw* and *nitta-*), *-tk-* has not developed to *-sk-*. I can offer no explanation (*let-* of *letka* is quite likely identical with *let-* discussed above).

Parallel to this change of *tk* to Algonkin *sk* (*ck*) is that of original *-tw-* to Algonkin *-cw-:*

W. *ritw-* "two": Fox *nicw'*

Original *tkw* (> Yurok *tqw*) regularly developed in Algonkin, as would be expected, to *skw* (*ckw*), in Wiyot, however, to *tcw:*

Y. *he-tqäu* "behind" (< *-tqw-*, cf. Y. *korau* "arrow" < **hotw-*); W. *tcwi* "behind" (< **tkwi*): Cree *iskw-* "le dernier"; Nat. *ashq-* (i. e. *ackw-*)

As far as can be seen at present, *tckw* or *tkw* could also here be assumed as starting point.

ORIGINAL *sk*, *skw*, *st*. While Algonkin *sk* is in a number of cases the resultant of older *tk* and *tsk*, there is also an older set of words with *sk* and *skw*, in which *s* is probably original. While Wiyot has preserved both *tsk* and *tk* (Yurok has preserved *tsk* but changed *tk* to *tk*), original *sk* (*ck*), *skw* (*ckw*), and *st* seem to have become simplified to *k*, *kw*, and *t*, generally with lengthening of preceding vowel.

W. *me-läk* "testicles" (< **-lask?*): Mic. *ältoók* (i. e. *alsúk*)

W. *kèk* "clear sky" (< **kisk?*): Mic. *-giskuk* "day;" Cree *kîjik* "day, sky"

W. *dokap, dokaw* "to crack" (< **toska-?*): Oj. *täshka* "to split"

W. *mäkw* "grizzly bear" (< **maskw*): Cree *maskwa* "bear"

W. *hèkw* "snow" (< **hiskw* ?): Ch. *hi'stās*

W. *wān-ākw* "tree" (< **-āskw* ?): Cree *ask-āsku-siy* "green wood;" Fox *ā'kw-* (< **-āskw-*) "wood, tree"

W. *māti* "wood" (< **masti*): Cree *misti-kw-;* Bl. *mistsi-s* (< **misti-*); Fox *me'ti-gw-* (< Algonkin **misti-*)

Vocalic lengthening followed by *kw* seems to be equivalent to Algonkin *'kw* (*kkw*) in:

W. *hēikw* "louse": Oj. *ikwa;* Cree *ikkwa*

Here again I am fully aware of the probability that I have made more than one miss in my search for phonetic laws. I hope, however, that it has become quite evident that such really exist, as we compare Algonkin with corresponding Wiyot (and Yurok) forms. This feeling should do much to inspire confidence in the nature of our material and in the validity of our hypothesis.

To sum up: There is good lexical, morphological, and phonological evidence to genetically relate Algonkin to Wiyot and Yurok. Whether Wiyot and Yurok form a group as compared with Algonkin proper or whether Wiyot, Yurok, and Algonkin proper are three distinct major divisions of the stock remains to be seen. Although there are several startling special threads binding Wiyot and Yurok to Blackfoot and Cheyenne (as might be geographically expected), I do not believe that either of these latter or Arapaho will turn out to be more closely related to the Californian languages than to the other members of the Algonkin stock as hitherto understood. As for the name of the stock whose territorial limits are thus unexpectedly enlarged, I see no reason to depart from the well-accepted term "Algonkin." I suggest that the whole stock be termed "Algonkin" and that the dialects ordinarily known as Algonkin be specifically referred to as "Plains-Atlantic" dialects, wherever it is necessary to distinguish ("Eastern Algonkin," which would be simpler, is too definitely connected in most minds with the dialects of the Altantic seaboard to be given a new meaning). It is not necessary to waste words here on the new vistas opened up of earlier distributions and movements of aboriginal populations in America. Obvious possibilities of various sorts will present themselves to all who read.

GEOLOGICAL SURVEY OF CANADA
OTTAWA, ONTARIO

NEW LINGUISTIC FAMILIES IN CALIFORNIA

By ROLAND B. DIXON and A. L. KROEBER

THE authors recently announced[1] the determination of a common origin for several of the groups of native Californian languages hitherto believed to constitute distinct stocks or families. As some further time must elapse before the material on which the conclusions are based can be published, and as some interest has been manifested in the matter, a few preliminary notes indicative of the character of the determinations may be worth while.

Penutian

The Penutian family is perhaps the easiest of recognition of any, but the large number of dialects comprised in it,—more than sixty,—and the peculiar character of the sound changes between them, have heretofore obscured many resemblances that a new arrangement of evidence reveals very clearly.

The word for bow is typical. The principal forms in the five languages or families, as they have previously been thought to be, are:

Yokuts: *dayap, dalap*
Wintun: *kulul, kulsak*
Costanoan: *lawa, ʒonok, tanuka*
Maidu: *pandak*
Miwok: *soloku, kono, tanuka*

Such a list, far from being convincing, is not even promising. Rearranged, it shows:

	Bow
Wintun	*ku lu l*
	ku lsa k
Maidu	*pa nda k*
Yokuts	*da la p*
	da ya p

[1] *Science*, N. S., XXXVII, 225, 1913.

Miwok	*ta nu ka*
	so lo ku
	ko no —
Costanoan	*lo no k*
	ta nu ka
	— la wa

It is obvious that these words compel the reconstruction of an original form very close to *t8l8k*, in which "*8*" in both syllables represents either an *a* or a back vowel.

Similarly, the words for

Three

Wintun	*pan ol*
Maidu	*sa pwi*
Yokuts	*šo pin*
Costanoan	*ka pxan*

represent an original *s8p8n*, in which the first vowel is farther posterior in articulation than the second. Maidu *w*, and Costanoan *x* after *p*, are parasitic, Wintun *ol* is probably a suffix, and the *k* of Costanoan replaces *s* by a very frequent equivalence, which sometimes extends also to *h* and *x*.

Again:

Fire

Maidu	*sa*
Yokuts	*u šit*
Miwok	*wu ke*
Costanoan	*šoto*

The original form must have been *wuS8t* or *uS8t*. The second *o* of *šoto* is not original.

In all three of these stems an initial syllable is lost in different dialects. Such alterations are not rare, and do much to disguise indubitable resemblances.

The *s-k* equivalence is found also in the words for

Liver

Wintun	*tši la*
	te ti
Maidu	*kü la*
Yokuts	*da la piš*
	di p
Miwok	*ku la*
Costanoan	*si re*

The original form would be *s8la* or *k8la*, or possibly *s8lap*, since *iš*, usually in the form of *-oš*, *-uš*, is a recognizable Yokuts noun ending. The above arrangement also explains Yokuts *dip*, which without the transition form *dalapiš* could scarcely be connected with *išila* or *kula*. It is further clear that Wintun surd *ɬ*, which does not occur in the other languages, represents at least in some cases original sonant *l*.

One further example may suffice:

	Forehead		
Wintun	*tei*	—	—
	sihi n		—
Maidu	*sü*	*ndu*	*k*
Yokuts	*ti*	*li*	*u*
	pi	*li*	*u*
Miwok	*to*	—	*kosu*
Costanoan	*ti*	*ma*	—

The original form is more difficult to frame, but was perhaps *tin8k*. Yokuts final *u* may be for *w*, from *k*.

The two Yokuts terms *tiliu* and *piliu* show a permanence of vowels but radical variability in consonants, which, especially for initial consonants, is quite characteristic within larger dialect groups of this family, but unusual in some more familiar forms of human speech.

All of the examples chosen point to original triconsonantal and probably disyllabic stems. It appears that such is the typical Penutian root, whether in noun or verb. The monosyllabic or biconsonantal stems which are especially frequent in Maidu seem mostly to be reductions of original longer forms.

There is available enough information on the structure of the five Penutian languages to prove their genetic affinity beyond a doubt even without recourse to lexical similarities. This relationship would have been recognized previously, were it not that attention has been directed chiefly toward phases of structure that, while conspicuous, were not very typical of the group in question; and especially because comparisons have been instituted between single languages instead of the whole five. In the compass of the present notice, it is impossible to begin to enumerate the structural re-

semblances; but, as at least an outline of the grammar of each of the Penutian languages is in print, this is scarcely necessary. It will be sufficient to call attention to the list of case forms given below, and to specify a few of the most typical fundamental traits of the family.

Penutian possesses an elaborate and delicate system of vowel gradations or mutations. Etymological composition is scantily developed. Prefixes of any sort are totally lacking. The noun is provided with seven, and probably never more than seven, true cases. The verb does not express instrumentality or location, as it does in so many other American languages, but is altered only to express categories which in the main are expressed also in Indo-Germanic conjugation: intransitiveness, inception, and similar ideas; voice, mode and tense; and person. A true passive occurs. There was originally a full set of pronominal suffix forms used with verbs.

All of the five individual languages are simpler in structure than this ideal scheme. The differences between them are due largely to their having sloughed off different ones of these traits. Thus Costanoan has entirely, and Miwok at least largely, lost the ablaut system which Maidu and Yokuts retain. On the other hand, Miwok has kept quite fully, or even developed, the personal endings of verbs, which Yokuts has dropped completely, while in Wintun, Maidu, and Costanoan there remain only fragments. The unparalleled instrumental verb prefixes of Maidu are clearly a special growth, due to freer word-compounding in that language than in the others.

PENUTIAN CASE SUFFIXES

	WINTUN	MAIDU	YOKUTS	MIWOK	COSTANOAN
Objective	*-m*	*-m**	*-ə, -i*	*-i, -tĭ*	*-e, -ne, -se, -s*
Possessive	*-n*	*-ki*	*-in*	*-n, -ñ*	———
Instrumental	*-in*	*-ni*	*-ni, -ñi*	*-s, -su*	*-sum, -yum*
Locative	—	*-di*	*-u*	*-to, -t*	*-to, -tak, -tka*
Ablative	—	*-nan*	*-nil*	*-m, -mŏ, -am*	*-m, -me, -mo*
Terminative	—	*-nak, -na*	———		
Comitative	—	*-kan*	———	*-kŏta, -kŏ, -li*	*-tsu*

The general evolution of Penutian seems to have been from complex to simple, as in Indo-Germanic, to which great family, it

* Nominative.

may be remarked in passing, it is, in the outlines of its plan of structure, remarkably analogous.

Hokan

While the Penutian territory is unusually compact and conformable to physiographical factors, the Hokan area in California is quite irregular and broken.

The lexical similarities and the sound equivalences which they involve are however not less evident.

Hokan Stems

	Tongue	*Eye*	*Water*	*Stone*	*Sleep*
Karok	*a p ri*	*yu p*	*a s*	*a š*	
Chimariko	*i pe n*	*i so l*	*a ka*	*k'a*	
Shasta	*a p li*	*oi*	*a tsa*	*i tsa*	*i ts mi*
Pomo	*ba l*	*ui*	*ka*	*xa be*	*si ma*
Yana	*bawa' la*		*ha -na*	*k'ai -na*	*sa m*
Esselen			*a sa -nax*	*šie fe*	*a tsi n*
Yuman	*i pa lya*	*i šo*	*a ha*	*a vi*	*i s ma*
Original Form	*a pa la*	*i yu?*	*a sa*	*ka ve*	*si ma*
	i pi li		*a ha*	*ha ve*	*i s ma*

The metathesis of vowels, as in *apri, apli, ipalya; yup, išo, oi, ui; isma, atsin*, is conspicuous in this family.

While the stems are polysyllabic in appearance, none of those cited contains more than two consonants. It is therefore possible that the language is built up from monosyllabic roots enlarged by vocalic increments.

The *s-h-k* sound shift is again in full evidence.

So thorough are the correspondences that even at this early stage of analysis it is clear that in some or most respects the Diegueño dialect of Yuman is nearer to the remainder of the family than the more specialized Mohave. Pomo is greatly worn down, phonetically, by attrition. Shasta is the most altered group of dialects in the family. The original type is perhaps best preserved, on the whole, by Chimariko, and in some respects by Yuman.

Especially convincing as to genetic relationship is the correspondence between the Esselen noun ending *-nax, -nex*, and Yana *-na*.

On the side of phonetic constituents, it is surely significant that the only languages in California in which an *f* occurs are Karok, Pomo, and Esselen; also that *v* is found, outside of Shoshonean, only in Karok and Yuman.

Structurally, the Hokan languages are not so well understood as the Penutian. Esselen has perished with only a few scraps preserved, Chimariko is as good as extinct and only partially recorded, Yuman is very little known, and Yana and Shasta have not been described. Nevertheless certain common features of grammar are plain. Among these are:

No plural form for most nouns.

Frequent pairs of distinct verb stems identical in meaning except that one is singular and the other plural.

Verb suffixes indicating plurality.

Verb prefixes denoting the instrument and verb suffixes denoting local relations.

"Conjugation" of the verb by affixed pronominal elements, usually prefixes.

Yana, which is throughout a suffixing language, is the most difficult to reconcile to the type of structure characteristic of the family, but is so obviously related in many important stems, that the problem which it presents is not whether it is to be considered genetically akin, but how its grammatical peculiarities are to be explained.

The Hokan family is not confined to California. Shasta extends into Oregon, and Yuman is spoken mainly in Arizona and Lower California. It is therefore not unlikely that new relatives of the group remain to be discovered, even in addition to such probable though unproved congeners as Seri.

Iskoman

An apparent structural similarity of Chumash and Salinan was long ago noted by the authors, but as in the case of Yurok and Wiyot, lexical resemblances, while occurring, are to date not conspicuous. A presumption favorable to relationship may however be properly entertained on the basis of existing knowledge.

	CHUMASH	SALINAN
water	*o, io*	*i-a, tš-a* (ocean)
rabbit	*gun*	*kol* (jack-rabbit)
jack-rabbit	*ma*	*map* (rabbit)
arm	*pu*	*-ipokou*
sky	*alapa*	*lem, lemak*
coyote	*alaxšuwul*	*elka*
stone	*xöp*	*-xap, tš-xa*
dog	*hul'lu, wutšu*	*otšo*
ground squirrel	*emet*	*-emko'm*
two, four	*išhom, škumu, paksi*	*kiša, kakiše*
ten	*tuyimili*	*tsoe*
sixteen	*peusi, peta*	*kpeš*

Several of the above words lend themselves to the hypothesis of a connection between Hokan and Iskoman: water, house, sky, stone, two. To these may be added blood, Chumash *axulis*, Hokan *ax-;* no, Chumash *pwo*, Hokan *po-;* tongue, Salinan *paz*, Hokan *p-l;* salt, Salinan *akai*, Hokan *aki, asi.*

It is however idle to discuss further a possible relationship between Iskoman and Hokan, when the genetic connection between the members of Iskoman is scarcely yet a matter of demonstrable proof, probable though it may seem.

RITWAN

A renewed examination, to which Dr E. Sapir has added several valuable contributions, reveals sufficient lexical correspondences between Yurok and Wiyot to make certain the genetic unity which structural similarities have previously indicated as possible.

MEANING	YUROK	WIYOT
person	*oL*	*di-wil-e, gu-wil* (man)
head	*-moL*	*-wet*
eye	*-lin*	*-lir*
mouth	*-luL*	*-lul*
tooth	*-peL*	*-pi*
hand	*-tsewec*	*-we's*
foot	*-ts'qa*	*tchate* (leg)
leg	*-Lpil*	*-liL* (foot)
penis	*-xkwet*	*-dgat*
vagina	*-Lpoc*	*-bec*
fæces	*-melox*	*me'l*

Meaning	Yurok	Wiyot
bone	*-ker*	*-kerat*
heart	*tseuke*	*-swetsa'*
body-part prefix	*wer-, wel-*	*wal-*
water	*pa'*	*pāk* (ocean)
stream	*weroi*	*weratci* (water)
fire	*mets*	*mes, wes*
smoke	*merä-*	*bi'wur*
sky, up	*won-*	*ween, wir-*
house	*olomel*	*mol*
bow	*camoi, cmoxter*	*cwal*
fathom (on numeral stems)	*-emoi*	*-ewan*
dentalium-strings	*-etani* (on numeral stems)	*reni*
elk	*mewil*	*me'lakw*
deer	*pūk*	*būl-caweti* (deer-white)
skunk	*waisel*	*botcwi*
eagle	*taxtel*	*dī'l*
down stream, north	*pul-*	*wur-*
large	*pelin, pleli*	*bel* (flat, wide)
jump	*layo*	*lal*
sing	*ruraw*	*laliww*
like, love	*chewok* (*ckui*, good)	*dī-cgam*
take, catch, hold	*olo*	*wol-ew, olo-wo*
one	*gots-, goreu*	*guts, go't*
two	*ni'il, nā'ā-*	*rit-*
three	*naxk-*	*rik-*
I, my	*nek, ne-*	*yil, ru-*
you	*qel*	*kil*
that	*ku*	*gu-r, gu*
that	*ki*	*gi-c* (this)

The following are less certain:

child	*hukca*	*hetca*
nail	*-kete*	*-(l)kan* (metathesis?)
hair	*-lep, -lepiäl*	*-bal* (metathesis?)
tail	*-tpel*	*-hel*
earth	*tqel*	*lagerak*
liver	*-kun*	*iceget*
sick	*eā'* (ghost)	*cakw*
married woman	*winoc*	*wis-il*

Conclusions

Taking into account only those languages from which testimony is presented, the authors feel certain that on the one hand Wintun,

Maidu, Yokuts, Miwok, and Costanoan must be reduced to the single Penutian family, and on the other hand Shasta, Chimariko, Karok, Pomo, Esselen, and Yuman to the Hokan family. This makes two families in place of eleven, and twelve in the whole of California in place of twenty-one. Assuming however that every connection here intimated as probable, will ultimately hold good, sixteen families consolidate to four, even without pressing the suggestion of affinity between Hokan and Iskoman. Of the five not involved, four are mainly extra-Californian. These are Shoshonean, Washo, Lutuami, and Athabascan. The fifth is Yuki, which remains isolated. On this basis the only purely or principally Californian families would be five: Penutian, Hokan, Ritwan, Iskoman, and Yuki; and the total number in any way represented in the state, nine, instead of twenty-one. That this basis is sound, and the probability, as here outlined, a certainty, the authors hope to demonstrate when their full evidence can be presented.

STONE IMPLEMENTS OF SURGERY (?) FROM SAN MIGUEL ISLAND, CALIFORNIA

By H. NEWELL WARDLE

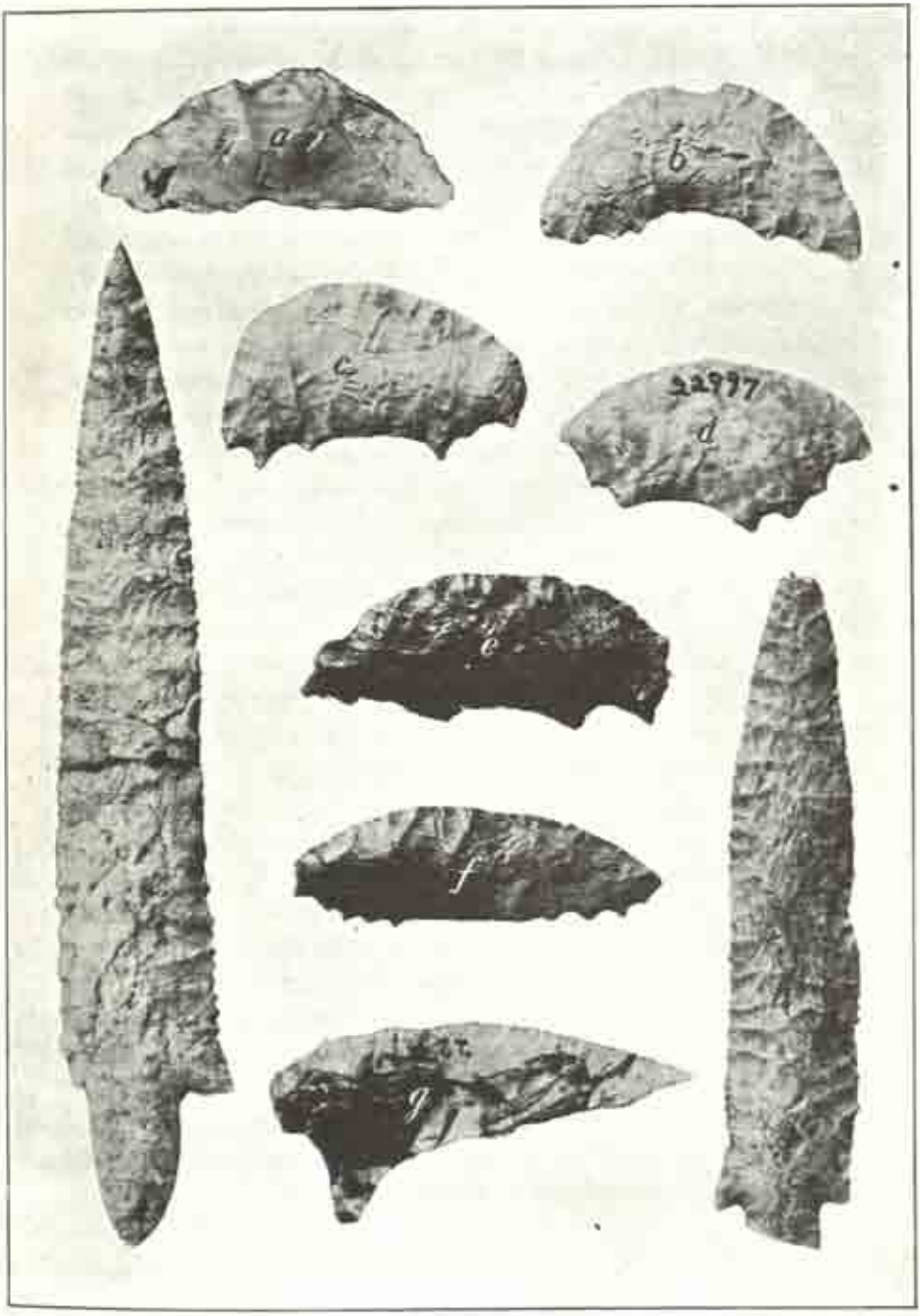
THE seven stone implements which are the subject of this paper were gathered many years since on San Miguel island, the most westerly of the Santa Barbara group, lying off the coast of southern California. The San Miguel archeologica now incorporated into the Vaux Collection of The Academy of Natural Sciences of Philadelphia, include also spear- and arrow-heads, drills, perforators, knives, plummets, pendants, rubbing-stones, pestles and mortars, stone cups, tubes and tubular pipes, ring-stones for war-clubs and digging-sticks, and beads of stone and of shell—a typical series of about ninety specimens in all.

Unfortunately it is now impossible to determine whether these seven pieces which, upon a recent overhauling of the collection, were found by the writer grouped together, along with two slender knife-blades,—to which reference is made later,—came from a single burial and were possibly once the property of some native "specialist," or, scattered through several graves, represent the activities of various medicine-men. Be that as it may, they show amid their variation a strong family likeness, a peculiarity and specialization of outline, for which it would be difficult to suggest other than surgical uses.[1]

In length they vary between 57 mm. and 41 mm., and, with a single exception, are all most carefully and delicately chipped from quartz or flint.

This exceptional piece (A. N. S. P. no. 22998), plate XXXVIII, *a*, has the appearance of a more primitive type from which five of the others were evolved. It is of translucent quartz, with an almost straight lower edge and an upper which is roughly the quadrant of a circle.

[1] The term "surgical" is here used in its broadest sense to cover any operation of a cutting implement upon living tissue.



STONE IMPLEMENTS OF SURGERY (?) FROM SAN MIGUEL ISLAND

Figs. *a–f*, scarifiers; *g*, lancet; *h–i*, knives. (Natural size.)

The entire circumference has been minutely flaked to a cutting edge, which, viewed edgewise, exhibits a distinct double tortion of the outline, resembling the tilde over the Spanish *ñ*, and more marked on the convex than on the straight edge. A slight notch, a little aside from the median line, may have facilitated a possible hafting. The piece has a length of 48 mm., a width of 19 mm. at its middle, and maximum thickness of 8 mm. The thickness, which exceeds that of any of the other pieces under consideration, is possibly due to the refractory nature of the material employed.

A second implement (A. N. S. P. no. 22996), figure *b*, has much more character. The even semicircular convexity of its beautifully finished upper edge shows a median notch, which corresponds to a broader concavity in the central third of its lower edge, which, while quite sharp, owing to the extreme thinness of the artifact, yet lacks the prominent teeth which mark its extension upon either side. The piece is of putty-colored flint and measures 44 mm. in length.

In a third specimen (A. N. S. P. no. 22995), figure *c*, chipped from the same material, there is less symmetry of contour, though the workmanship is quite as skilful. The upper edge lacks the median notch, though the lower edge retains the even line in its center. The teeth on the lateral portions of this edge are more spine-like and of varying length, the two series being set nonconformably. Length 41 mm.

This nonconformity of the teeth is emphasized in another implement (A. N. S. P. no 22997), figure *d*, to such a degree that the two series of teeth would be perpendicular to each other were their continuity not broken by the even concavity of the lower median notch. This tilting up of the lateral portions of the lower edge noticibly shortens the upper, and gives to its unnotched outline the appearance of lessened convexity. Unlike the three previously described, this and the two following artifacts show a differentiation of the two faces, the one being much more convex than the other, though the "retouching" has been done from both faces. The specimen is of translucent quartz, and measures 42 mm., being the smallest of the group.

That the serrations of the lower edge served a definite purpose

is shown by their noticeable correspondence in the piece just described and in another artifact (A. N. S. P. no. 23000), figure *e*, which, though longer, not so broad, and with the angles less pronounced, yet repeats the number and relationship of the cusps and the concave, notchless line in the center. Two of the teeth have been broken away, but their position is plainly to be seen. There is, however, the difference that, taking into consideration the almost flat "back" of the implement, the design of the teeth is reversed. The piece, which is of black flint with a gray reflex, exhibits a unique feature. In lieu of the median notch in its convex upper edge, there are two clear-cut nicks, each nearly opposite the tooth which marks to right or left the shallow central notch of the lower edge. It has a length of 51 mm.

A more symmetrical form characterizes one of these instruments (A. N. S. P. no. 22999), figure *f*, which may be described as elongate amygdaloid with one point slightly blunted. The upper edge has an unnotched and even contour. In the place of the broad shallow notch or toothless concavity of the lower edge which appears upon the other specimens, there is here a straight line along the central third, beyond which begin, upon each side, the delicately cut serrations, minute and keen. The specimen is of gray flint with a length of 50 mm.

The last two pieces described show a slight beveling at one end, which may be wholly accidental or may have played its part along with the lower notch, and the upper when present, in the hafting of the blade. For hafted they probably were, though in what position it were hazardous to guess.

All these specimens[1] were apparently scarifiers, though the

[1] Through the courtesy of Mr Nels C. Nelson, subsequent to the presentation of this paper to the American Anthropological Association, the writer was enabled to examine the archeological collection from California in the American Museum of Natural History, and found therein a number of artifacts of similar character to those herein noted. They appear to be mostly of the crescent form with its variants as above described, some showing outlines which suggest crude animal shapes even more than does that of the Academy's specimen above described (fig. *c*)—a resemblance which is deemed to be of too fortuitous an origin to warrant mention in the text. Some of the specimens are larger than any here described, and carry broad, heavy teeth. The central concavity or toothless notch of the lower edge is, so far as noted, always

peculiarities of some would suggest that they had other and more special uses, better known to the stone-age surgeon than to the latter-day archeologist.

The remaining piece of the group (A. N. S. P. no. 22994), figure *g*, is a slender blade of quartz with an opalescent luster, resembling chalcedony. From a rounded base it tapers to an acute point, and would be quite symmetrical but for a secondary point, or spine, which projects at an angle of approximately 90 degrees from near the base of the artifact. The tip has been broken from this spine, but in its present state it measures about 1 cm., while the entire length of the implement is 57 mm. The piece might have served as a lancet.[1]

In conclusion a passing reference may be made to the two long and slender flint blades (A. N. S. P. nos. 22992 and 22993) shown in figures *h* and *i*—91 mm. (incomplete) and 136 mm. in length respectively—which were associated with the artifacts just described. They are of cream-colored flint and of excellent workmanship, with finely serrated edges. The shorter, which has lost four or five millimeters at the tip, has a notch midway along one edge. It is stemmed and barbed. The longer blade, also stemmed, has but a single barb, the corresponding part of the opposite edge being

present; the upper median notch is variable, being occasionally replaced, as in figure *e*, by two nicks, laterally placed, and occasionally absent. The amygdaloid form is rare. The series runs into several markedly aberrant forms, which possibly do not belong to the same category. Most of the class under discussion are recorded as from San Miguel island, but three specimens from San Nicolas were noted, and it is thus quite possible that they may occur in other islands of the Santa Barbara group. Ceremonial scarifying was a common practice among the California tribes.

[1] Two curious stone instruments from New Zealand—the one a symmetrical point with a secondary spine arising at a somewhat greater angle from its base, and the other a curved blade with a jagged edge and blunt at one end, evidently for hafting—are published by Edge-Partington (*Ethnographic Album of the Pacific*—N. Z. pl. 218, figs. 2 and 5) with the remark that they were said to be used for surgical purposes. The curved blade (fig. 148, *a*) suggests the San Miguel scarifiers; the other (fig. 148, *b*) bears a strong family resemblance to the lancet form above described. Both the New Zealand and the San Miguel blades with the secondary spine would have served admirably for trephining, but the writer has seen no evidence that trephining was practised in either locality. The rarity of the type may be accounted for by the use of the more perishable bone implements for lancets, as was customary among the Tinné until a recent date (P. Julius Jetté, S.J., Riddles of the Ten'a Indians. *Anthropos*, VIII, p. 637, riddle 69).

finely finished close to the stem with minute and keen serrations. These are knives rather than projectile points, and may originally have belonged with the instruments in whose company they have lain for many years.

This paper aims to suggest rather than to prove the possible purpose of a class of stone objects hitherto undescribed, and it will

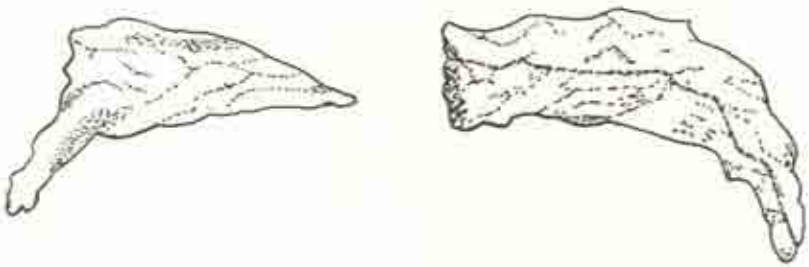


FIG. 148.—New Zealand surgical instruments.
(After Edge-Partington.)

have attained its object should it elicit information as to the distribution of similar artifacts, or as to instruments still used in the practice of primitive surgery.

THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA

NOTE ON THE ARCHEOLOGY OF CHIRIQUI

By GEORGE GRANT MACCURDY

THE faunal environment of a given region is apt to be reflected in its primitive art, especially when the art is primarily of local origin. The province of Chiriqui, Republic of Panamá, affords a good example of this interrelation. Archeologically the most common medium of art expression is pottery. The principal motives in the ceramic art of Chiriqui have been traced to certain animal forms. For example, the armadillo and motives derived from that animal, or parts thereof, are so dominant in one large class of pottery as to justify the name *armadillo* ware for that particular ceramic group. For a like reason other groups are appropriately called *serpent* ware, *fish* ware, and *alligator* ware. Very few motives can be traced to plant originals.



FIG. 149.—The octopus design as a panel decoration. Lost color ware. Heye collection, cat. $\frac{5}{1111}$. (¾)

Recently Professor Marshall H. Saville of Columbia University called my attention to the decoration of an ancient vase collected by Mr George G. Heye while in Chiriqui during the month of January, 1913. The vase (fig. 149), which is in a perfect state of preservation, belongs to the so-called lost-color ware. The chief ornamental feature is enclosed in a large circular panel on the side of the vase and repeated on the opposite side. It consists of a diamond-shaped body and eight extremities somewhat evenly distributed, and all curved at the distal end as if to suggest a prehensile or clinging character. In drawing some of these appendages the artist apparently misjudged the space at his disposal or else purposely made some of the appendages smaller than others. All are composed of similar elements. The five larger, however, are made up of three parallel bands; while in each of the other three space enough was left for only two parallel bands. The original was evidently an animal form without apparent head or tail or even antennæ, but with exactly eight appendages that are also relatively large in comparison with the size of the body. Moreover, alternating with the two circular panels are two rather narrow vertical panels, in which motives (similar to fig. 150) are repeated that are derived from the same animal form. When showing me this vase Professor Saville suggested, and it seems to me with reason, that the octopus is here represented. It might also represent a cuttlefish of the octopod type. Both are known to exist in Isthmian waters and by their nature would be calculated to leave an indelible impression on the primitive mind.

Had Mr Heye's splendid specimen been a part of the United States National Museum collection when Holmes wrote his *Ancient Art of the Province of Chiriqui*,[1] or of the Yale collection when I was preparing *A Study of Chiriquian Antiquities*,[2] it would have suggested to him or to me the meaning of certain puzzling motives encountered at the time—puzzling because of the absence of the realistic stages in their evolution. For example, figure 150 (Holmes' fig. 271) was considered by him to be a "highly conventionalized

[1] *Sixth Ann. Rep. Bur. American Ethnology*, Washington, 1888.

[2] *Memoirs Conn. Acad. Arts and Sciences*, vol. III, Yale University Press, 1911.

alligator derivative." That it is, however, derived from the same original as the design on the Heye vase is now quite apparent. The



FIG. 150.—The octopus motive. (After Holmes.)

same is true of figure 151 (Holmes' fig. 275), a very interesting example of the use of the octopus appendages to form a pleasing running ornament independently of the body of the animal. Figure 152

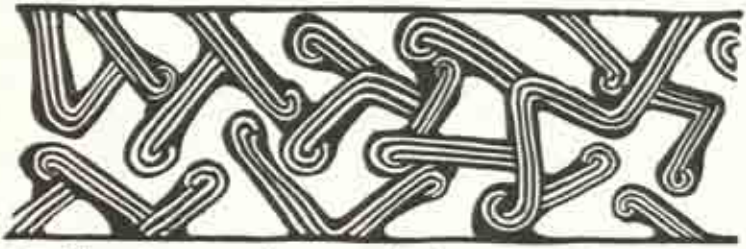


FIG. 151.—The octopus appendage repeated to form a decorative motive. (After Holmes.)

(Holmes' fig. 238), a detail from a drum-shaped vase of the lost-color ware, is a variation of the same thing.

In the light of the foregoing, geometric designs like that in figure



FIG. 152.—Conventional design on drum. (After Holmes.)

153, from the shoulder of a bottle-shaped lost-color vase (Holmes' fig. 272), take on a new meaning. The rosette-like designs filling circular panels on numerous small lost-color vases figured by both

bottom and ascending on each side to the neck are successive pairs of opposite fronds. Each frond consists of three slender parallel bands rather sharply curved at the tips, with a single row of spots adjacent and parallel to the longer upper band; these follow the convex margin of each appendage as they do in figure 154. In some cases this row of dots is carried up the stem to the base of the succeeding frond. In the large field below the base of each handle there is a design with a diamond-shaped center and six frondlike appendages, recalling the design in the arched panels of the vase reproduced in figure 155.



FIG. 156.—Lost color vase ornamented with octopus motives. Yale collection. (⅓)

Still further removed from the octopus original is the design on the vase reproduced in figure 157 (fig. 181 of my work previously cited). This vase had seen much service, the recurved lip having disappeared piecemeal. The broken surfaces are aged and smoked, and the tone of the entire red ground is deepened. On opposite sides of the body are life forms in low relief. Alternating with these are two four-sided panels, each filled by a painted design that I once said "retains only slight traces of a life form." It now appears to me like eight (the correct number) octopus appendages so disposed as to form a pleasing decorative motive. On the opposite side the combination of these same elements is such as to produce an equally original though somewhat different design.

It is worthy of notice that designs derived from the octopus are confined to one great group of Chiriquian pottery—the so-called lost-color ware. This is in keeping with what was found to be the case with other animal motives. The armadillo dominated one group, the serpent another, the fish a third, and the alligator two closely related groups. Again, a given technique prevails in

each group. In the armadillo and the fish ware the designs are in the round or in relief; in the serpent ware the motives are incised and incisions filled with a white substance; in the alligator and the polychrome ware, the alligator motives are in color; and this we now find to be likewise true of octopus motives.

I realize that decorative and symbolic art is not to be demonstrated by mathematical formulæ. That its manifestations are, however, subject to laws of growth, and one might add decay, there can be little doubt. In the evolution of art the haphazard plays an insignificant rôle. The reasons for each step may not always be obvious, but they exist nevertheless. The work of a given



FIG. 157.—The octopus appendage repeated eight times to form an ornamental pattern. Lost color ware. Yale collection. (½)

artist reflects alike his spiritual makeup and his environment, cultural as well as natural. Without insisting that the model for the design in figure 149 is an octopus, one is certainly justified in affirming a genetic relationship between that design and those in the subsequent figures (especially 150, 154, 155, 156, and 157). Their kinship therefore has a more solid basis than mere fortuitous convergence toward a common type. Each artist either had in mind the common source of inspiration or else copied from some one who was drawing from that original source.

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THE RELATIVE TIME OF FERTILIZATION OF THE OVUM AND THE SEX RATIO AMONGST JEWS[1]

By RAYMOND PEARL and REDCLIFFE N. SALAMAN

IT has recently been shown[2] that in cattle the proportionate number of males born increases to a marked and statistically probably significant degree as the time of coitus becomes later and later in the œstrous period. Thus, putting all the available trustworthy data together, we have the following results:[3]

TABLE I

Showing the Sex Ratio in Relation to Time of Service

Time of Service	Sex of Young		♂♂ : 100 ♀♀
	♂	♀	
Early in heat	134	178	75.3
Middle of heat	67	58	115.5
Late in heat	77	44	175.0
Totals	278	280	....

It will be perceived that these figures, so far as they go, appear to give support to the theory of Thury[4] regarding sex determination. According to this theory ova which are at the time of fertilization over-ripe, or "stale," will give rise to a preponderant number of *male* young. If we may suppose, as there is some warrant for doing, that the ova fertilized late in heat are, in cattle, of a somewhat greater age (measured from the time of ovulation) than those fertilized early in heat, the results obtained accord fully with the theory. But leaving this point entirely out of account, the fact

[1] Papers from the Biological Laboratory of the Maine Agricultural Experiment Station, No. 48.

[2] Pearl, R., and Parshley, H. M., Data on Sex Determination in Cattle, *Biol. Bul.*, vol. XXIV, pp. 205–225, 1913.

[3] Loc. cit. p. 218.

[4] Thury, M., *Ueber das Gesetz der Erzeugung der Geschlechter bei den Pflanzen, den Thieren und dem Menschen*, Leipzig, 1864.

appears to be well established by the figures presented, that in cattle there is a definite relation between the proportion of the sexes born and the time at which the ova are fertilized with reference to the period of œstrus.

In his original publication Thury cited as evidence in support of his views the fact that statistics of sex show a relatively larger proportion of males to females among the Jews than in the general population of other races where they are living.

Thury's work has given rise to a number of references to the same phenomenon. Darwin,[1] quoting Thury,[2] expresses himself as much surprised at the figures given, and refers to those given for Prussia 113, Breslau 114, and Livonia 120, as compared with 104 for the non-Jewish populations.

Lagneau[3] considered the preponderance of males might be ascribed to the laws of separation practised by observant Jews, whilst Nagel[4] ascribes it to the greater care Jewish mothers take of their health, and the smaller number of illegitimate births amongst them, whilst others have ascribed it to the fact that Jews are essentially town dwellers and marry early. J. Jacobs[5] is inclined to regard the more striking differences as due to faulty statistics.

Fishberg[6] has recently discussed the problem afresh. Quoting Nichols[7] he states that whilst the sex ratio for seven million births in Europe generally is 1057 : 1000, the more southerly parts and the less cultured, such as Bulgaria, Greece, and Roumania, show a decidedly higher proportion of male births. In the Mussulman population of Algiers the proportion rises to 1191 : 1000.

These facts at once suggest that the proportion of males is

[1] Darwin, *Descent of Man*, 2d ed., p. 243.

[2] Thury, *La loi de production des sexes*, p. 25, 1863.

[3] Lagneau, *Du Denombrement de la Population de Paris*, 1882.

[4] Nagel, Der hohe Knabenüberschuss der Neugeborenen der Judinnen, *Statistische Monatschift*, p. 138, 1884.

[5] J. Jacobs, article "Births," *Jewish Encyclopædia*, vol. III, p. 225.

[6] Fishberg, The Jews: A Study of Race and Environment, *Contemporary Science*, 1911.

[7] Nichols, Numerical Proportion of Sexes at Birth, *Memoirs American Anthropol. Assn.*, vol. I, p. 247, Lancaster, Pa., 1907.

higher in those countries where the birth of a male child is valued over that of a female, and further suggest that the extraordinary ratios found are probably due to the negligence of parents in recording the births of their daughters. An analysis of the Jewish birth statistics in various Russian centers does much to confirm this view. In eastern Europe the midwives and rabbis are supposed to report the births to the authorities; now amongst Eastern Jews the birth of a son is welcomed with more enthusiasm than that of a daughter. Moreover the ceremony of circumcision and the consequent festivities are events which cannot be overlooked by the rabbis. In Russia there is a further reason for the greatest accuracy in the registration of the Jewish male births. As is well known, Jews in Russia are subjected to a system of persecution which reaches from birth to death. The Jew has at all times the greatest difficulty in acquiring a passport, but if in addition his registration is out of order and he is unable to prove his identity, his position is rendered so much the more precarious, while at the same time he lays himself open to all sorts of irregular demands on the part of the military officials. Fishberg is confident, and it would appear with good reason, that faulty registration is at the bottom of the anomalous Jewish birth ratio. Thus in 1893 the Jewish birth ratio was 1459 : 1000, but in 1901, when persecution was once more firmly established, the ratio was 1295 : 1000.

The comparison of birth ratios of neighboring places lends much strength to the same argument. Thus in 1897 the Russian-Jewish birth ratio was 1331 : 1000. But in detail it was most divergent. For Taurida the ratio was 1016, but in Wilna 1774 : 1000. Again, Courland and Wilna are close to one another, yet their ratios are 1154 and 1774 to 1000 respectively. Again, in Prussia, 1893–1902, where statistics are naturally more accurate, the proportion of males amongst Christians was 1059 : 1000, and amongst Jews 1062. In Austria in 1900 it was 1068 amongst Christians and 1078 amongst Jews. In both these cases the difference is minimum.

Fishberg remarks that if the number of male births (in Russia) was genuinely so greatly in excess of female, then one should expect a corresponding excess in the returns for children of one year of

age, but here we find for 1897 the ratio 1042 : 1000 given. The normal excess in the mortality of boys would not explain the great difference between this ratio and that given for the Jewish birth ratio, and one is forced to the conclusion that the data are untrustworthy.

Notwithstanding the probability that the statistics on which Thury and others have based their conclusions are at fault, the suggested explanation of Thury is of so much interest that it has seemed to us worthy of further investigation.

It will be remembered that Thury and Lagneau suggest that the separation (*niddah*) regulations of the Jewish women are the determining cause of the unequal sex ratio. These regulations are as follows: [1]

No connubial relations are allowed—

(*a*) For at least 24 hours before the expected catamenia.

(*b*) During the period—however transient the flow may be, it must for ritual purposes be considered as enduring at least 5 days.

(*c*) For a further period of 7 days from the 5th day after the commencement of the catamenia, or if it should continue longer than that period from the day on which every sign of discharge has disappeared.

These regulations are no doubt in a general way fairly faithfully followed amongst Eastern Jewesses, yet it is obvious that in mass statistics collected from the general Jewish population on the sex ratio one would not be warranted in assuming that the code given was universally or even generally applied.

To determine the influence of the sex ratio of the code, something more in the nature of an experiment was necessary. This, owing to the kindness of Rabbi Dayan [2] A. Feldman, B.A., we have been able to obtain. Dayan Feldman is intimately acquainted with the life of observant Jews in the east end of London and occupies a unique and honored position in London Jewry. He has compiled for us a list of the children of 57 families in which he

[1] *The Religious Duties of a Jewish Wife*. London, published by Jacob Dickson.

[2] A dayan is a Jewish ecclesiastical official who occupies a position which may be described as analogous to that of a judge and a bishop combined in one.

can with great confidence state that the laws of separation are strictly and consistently carried out in each case. Moreover in the great majority of the families here given the mothers are now beyond the child-bearing age. The parents of all the families enumerated here are Russians by birth, which renders the results obtained the more striking when one compares them with the Russian data already discussed.

In the following table we have, therefore, statistics which on the one hand are accurate, and on the other are capable of throwing definite light on the influence, if any, of the separation customs of the Jews on the sex ratio of birth:

TABLE II

Dayan A. Feldman's List of Families in which the Jewish Separation Customs are Strictly Adhered to

FAMILY	♂♂	♀♀	TOTAL CHILDREN	FAMILY	♂♂	♀♀	TOTAL CHILDREN
1	5	5	10	29	3	2	5
2	6	2	8	30	8	5	13
3	4	9	13	31	6	4	10
4	7	4	11	32	3	3	6
5	3	1	4	33	4	7	11
6	7	7	14	34	1	7	8
7	2	3	5	35	4	2	6
8	7	6	13	36	5	1	6
9	3	5	8	37	3	0	3
10	4	4	8	38	2	2	4
11	2	2	4	39	3	3	6
12	1	7	8	40	4	4	8
13	5	2	7	41	4	6	10
14	6	3	9	42	3	1	4
15	9	2	11	43	5	7	12
16	4	4	8	44	3	3	6
17	5	5	10	45	3	2	5
18	5	4	9	46	5	3	8
19	5	5	10	47	4	4	8
20	5	4	9	48	4	4	8
21	2	7	9	49	5	4	9
22	2	6	8	50	0	5	5
23	4	2	6	51	0	1	1
24	3	5	8	52	1	1	2
25	6	4	10	53	1	1	2
26	3	6	9	54	2	0	2
27	5	2	7	55	1	0	1
28	3	2	5	56	1	1	2
..	..	..	..	57	2	1	3
	Totals	.....	.....	.....	213	202	415

From this table the following points are clear:

1. The families are, with few exceptions, large. The mean number of children per family, including all families in the table, is 7.28. Leaving out of account the seven small families at the end of the table, the mean number of children per family is 8.04. The fact of such relatively high fecundity in these matings adds greatly to the value of the data.

2. There is no unusual or marked preponderance of male births in these families. Taking all 57 families the sex ratio is 1054♂♂ : 1000♀♀. Leaving out the seven small families at the end of the table, too small to be of any value in the present connection, the sex ratio is 1041♂♂ : 1000♀♀. These ratios do not significantly differ from each other, nor from the ratio for the general population of England of the same period.

In 1910 the Registrar's return gave a sex-ratio of 1040♂♂ : 1000♀♀.[1]

In the Census for 1911 the sex-ratio was 1041♂♂ : 1000♀♀,[2] whilst the children under one year are as 1022 to 1000.

While the numbers involved here are statistically small, they have some significance, we think, because of their accuracy respecting the point to be tested. If the time of fertilization of the egg relative to the menstrual period had any influence in the determination of sex or in the modification of the sex ratio (such as is observed in *general* Jewish statistics), this influence would certainly be expected to make itself apparent in the present data. The families are large, and the records partake more of the character of definite experimental records than of ordinary sex-ratio statistics. More accurate and precise data than these here given it will probably be impossible to obtain for man regarding this particular point under discussion.

One would seem justified in concluding that:

(a) There is no evidence that in the human race the time of fertilization of the egg relative to the catamenial period has any influence on the sex-ratio exhibited by the offspring.

[1] *Seventy-third Annual Report of the Registrar General of Births, Deaths and Marriages in England and Wales* (1910), published 1912, pp. xxiii.

[2] *Census of England and Wales*, 1911, vol. VII, pp. vi and xlix.

(*b*) *The higher male sex-ratio shown by the general Jewish statistics, if not entirely due to faulty registration, must owe its origin to other factors than the time of fertilization of the egg.*

The present results still leave entirely open the question of the metabolic condition (relative staleness, etc.) of the germ cells at the time of fertilization as a possible factor in the influencing of the sex-ratio in man.[1] The distribution of ovulation over the inter-menstrual period in the human female is so wide as to preclude any possibility of forming any judgment as to the relative age of discharged ova, on the basis of the time of menstruation.

[1] For discussion of this matter in other forms, see Pearl and Parshley, loc. cit.

RESULTS OF AN ARCHEOLOGICAL SURVEY OF THE STATE OF NEW JERSEY[1]

By LESLIE SPIER

COMMENCING with the year 1872 a series of announcements have been made regarding the archeology of the valley of Delaware river which have been of great interest to American archeologists. In that year Dr Charles C. Abbott noted the presence of crude artifacts, which he styled paleolithic implements, in the Trenton gravel and also occasionally associated with the ordinary forms of flint arrowheads and other relics of the historic Indian. His conclusion, based wholly on the results of his own research, was "that the valley of the Delaware has yielded sufficient evidence to warrant the conclusion that it was occupied by man representing three distinct stages of culture: Paleolithic man, Argillite man, and the historic Indian."[2]

These horizons of human occupancy were found occurring in three distinct geological strata. First, in the black soil, discolored by decaying organic matter, were artifacts of widely varying character—the indisputable remains of the historic Delaware Indians; second, in the yellow soil immediately beneath were crude implements of argillite and quartzite; and third, in the river gravels, occurred rough artifacts attributed to paleolithic man.

The conclusions of Dr Abbott are substantiated by Mr Ernest Volk, whose investigation was under the direction of the Peabody Museum of Harvard University. In his voluminous report[3] Volk expresses his general conclusion that "the traces of man in the yellow soil must be regarded as pre-Indian for two reasons; first, because the characteristic traces of regular Indian occupancy found

[1] Presented at the meeting of the American Anthropological Association, New York, December 29, 1913.

[2] Charles C. Abbott, *Archæologia Nova Cæsarea*, vol. 3, p. 82.

[3] Ernest Volk, The Archaeology of the Delaware Valley, *Papers of the Peabody Museum, Harvard University*, vol. v, 1911.

in the black soil, except the intrusions made from that level, cease to appear below the black, and second, because the traces of man's work in the yellow soil were limited to quartzite pebbles broken by fracturing and fire, and to implements made of argillite."[1] His conclusion with regard to the occurrence of a paleolithic culture-horizon is based on his belief that artifacts are in situ in the Trenton gravel, and therefore that man was living in the Delaware valley at a time antedating or coincident with the deposition of the river gravels, whatever the age of that deposition be.

These claimants for great antiquity of man in New Jersey, however, have never asserted that "Argillite Man" and "Paleolithic Man" were racially distinct from the historic Indian.

Such was the status of archeology in New Jersey, when, in April 1912, the legislature of that state authorized the commencement of archeological investigations under the direction of the Geological Survey of New Jersey. The Department of Anthropology of the American Museum of Natural History inaugurated this third systematic archeological research in the summer of 1912. The prosecution of this investigation has, even at this early date, been productive of results sufficiently definite for presentation to those interested in the archeology of New Jersey.

The claims for the occurrence of pre-Delaware culture horizons were based on a series of finds in one particular area—that about Trenton. It was evident that, before a general statement could be made, the inferences based on this material must be substantiated by evidence from other localities. The first problem was to fix upon localities where investigation might be pursued.

The archeological information at hand was, however, very meager. The immediate necessity for a fund of accurate information as to the character and distribution of remains was quite apparent. To remedy this fundamental defect, and to serve as a basis for the development of a definite plan for future investigation, a tentative list of archeological remains was compiled by the members of the survey staff, Messrs Alanson Skinner, Max Schrabisch, and the writer. Our chief attention was given to the surface remains, to

[1] Ibid., p. 108.

determine their distribution, and to seek evidences for or against their homogeneity.

At the end of the successful field season of 1912 there was attempted the correlation of the field notes with regard to the geographical position of each site. This study[1] has yielded a definite conception of the distribution of remains within the state. The occurrence of sites in certain general groups was unmistakably significant.

Historical records were the chief sources of information regarding the distribution of the Indian before the archeological survey was undertaken. A tradition, found among the descendants of the old settlers, states that the aborigines lived for the greater part of the year in the Delaware river valley and about Raritan bay, and that they journeyed at certain seasons into the interior and to the coast to hunt and fish. Historical evidence, obtained from the missionary-journalists,[2] supports this tradition, and adds that the Lenni Lenâpé were in three divisions. The portions of the state occupied by these divisions differed widely as to physiographic characteristics; and it was from these, according to Brinton, that they obtained the names Minsi, Unami, and Unalachtigo. The Minsi occupied the northern, mountainous part of the Delaware river valley; to the south of these, occupying the territory between the mouth of Hudson river and the Delaware river about Trenton, dwelt the Unami; and in the low-lying region about Delaware bay lived the Unalachtigo.

While our list of sites is in no way complete, the positive results of our survey tend to confirm traditional and historical evidence. Few traces of permanent settlement are to be found along the Atlantic coast; but frequent use of the same site during the fishing season is evidenced by the shell-heaps and camp débris. The flat, sandy interior appears, from the comparatively few traces of occupancy found there, to have been but a hunting preserve. The great mass of the camps and villages lie in the valley of the Delaware

[1] A Preliminary Report of the Archæological Survey of the State of New Jersey, *Bulletin 9, Geological Survey of New Jersey*, 1913.

[2] Hrdlička, The Crania of Trenton, *Bulletin American Museum of Natural History*, vol. 16, art. 3, pp. 34–40, New York, 1902.

and on the western side of the mouth of Hudson river. Groups of villages are found at three points in the Delaware valley: first near Belvidere, at the foot of the mountainous country; second, centering about Trenton; and third, on Cohansey creek, which empties into Delaware bay. A fourth great group was found on the western side of Staten island and along the adjacent shore of Raritan bay. Between the village groups sites are widely scattered. The coincidence of the distribution of remains with historical and traditional evidence warrants the conclusion that practically all the surface remains are those of the Lenni Lenâpé of the period of colonization.

Although the distribution of the superficial surface remains, when viewed collectively, was found to agree with the distribution of the historic Indian, yet the differences between individual sites was sufficiently great to indicate their lack of homogeneity.

A specific instance of this heterogeneity occurs in the area between the headquarters of the Unami at Staten island and that at Trenton. A group of sites, visited by the writer during the field season of 1913, lies at the foot of the Watchung mountains on the watershed of Raritan river. The characteristics of these sites differ in a marked degree from those usually found in Lenâpé camps. As evidenced by the surface indications, the peculiarities of these sites are an uncommon abundance of the commoner implements, and a great rarity of the finer artifacts, the total absence of pottery, of shell pits and heaps, of animal bones and other camp débris, with the exception of a few fire-cracked stones. There are two distinct types of sites in this group: the first is characterized by the preponderance of crude argillite blades, with which are a very few small, but well-made, black flint and yellow jasper arrowpoints; the second shows equal quantities of well-made argillite, quartzite, flint, jasper, and trap-rock specimens—a condition similar to that obtaining in Lenâpé camps near this region. There is apparently no relation between the cultural characteristics and the geographic position of the sites in this group.

It has been suggested that the presence of remains in this region was due to bands traveling between the two headquarters of the Unami, or to some such occupancy as that described in a

tradition retained in this region and on Staten island, which states that the Indian, even at a comparatively late date, left the villages on Staten island and about Raritan bay in the autumn to winter in the sheltered valley at the foot of the Watchung mountains.

Beyond the fact that these sites do not lie in the direct line of communication between the two headquarters, the writer can but arbitrarily state that in his opinion the first suggestion does not account for the presence of these sites. The tradition may account for their existence, but it neither offers nor suggests a reason for their lack of homogeneity. The remains resulting from an occupancy such as that described by the tradition are not those which are found on some of the sites. The total absence of camp débris—so far as is known—is the most apparent characteristic of the camps. Were all of these camps occupied at a comparatively late date there would exist today on each camp site evidence of that fact in the slowly decomposing débris which blackens the soil of so many camps of known modernity. Then, too, the number of sites within this limited area is too large for all to have belonged to that period designated by tradition. The lack of homogeneity, coupled with the disparity between the number of sites and the number that would probably have resulted had the region been occupied only during the designated period, calls for another reason for their existence besides that which ascribes the remains to the Lenni Lenâpé of the colonial period.

Nor is this region unique in containing sites of heterogeneous character. There is reported at least one site, among the villages of the Unalachtigo on Cohansey creek, where crude argillite tools alone occur. It has also been observed that the lowest layers of débris in the rock shelters of northern New Jersey, Westchester county, New York, and Pike county, Pennsylvania, and in the shell-heaps at Keyport, exhibit crude tools and no pottery, although the upper layers are rife with the remains of the historic Indian. The consistent reports from independent observers in widely separated localities of the prevalence of the same conditions are proof that this is indeed a problem for serious study.

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PROCEEDINGS OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION FOR 1913

By GEORGE GRANT MACCURDY

THE annual meeting of the American Anthropological Association was held at the American Museum of Natural History, New York City, December 29–31, 1913, in affiliation with the American Folk-Lore Society. The joint program was unusually long and more cosmopolitan than at any previous meeting; and the sessions were well attended. The thanks of the members of both societies are due to the American Museum of Natural History for the ample and attractive facilities provided; to the Explorers Club for the welcome extended to members of the council, and to Mr George G. Heye for a private view of the Heye Museum.

Members of the council of the American Anthropological Association present were: F. Boas, W. H. Holmes, R. B. Dixon, G. B. Gordon, G. G. MacCurdy, P. E. Goddard, T. Michelson, W. K. Moorehead, C. Peabody, C. H. Hawes, R. H. Lowie, N. C. Nelson, A. A. Goldenweiser, W. Hough, A. Hrdlička, A. E. Jenks, B. Laufer, M. H. Saville, H. J. Spinden, and J. R. Swanton.

Report of the Secretary

There has been no meeting of the American Anthropological Association since the last annual meeting (Cleveland), the report of which was published in the *American Anthropologist* for January-March, 1913. A joint council meeting of the American Anthropological Association and the American Folk-Lore Society was held, however, at the American Museum of Natural History, New York, on March 29, 1913. By action of the joint council the agreement entered into at the Washington Meeting (1911) with respect to financing *Current Anthropological Literature* is to be continued until eight numbers shall have been published.

A proposal to amend Section 5 of Article III of the Constitution of the American Anthropological Association by changing the sum "$1000" to "$500" was referred to the Council; and notice was given[1] that this proposed amendment would be presented at the next annual meeting (the present one) for approval and adoption. It was voted to furnish

[1] See *American Anthropologist* for January-March, 1913, p. 143.

to authors fifty copies of each article published in the *American Anthropologist*, with printed paper cover, gratis, and additional copies at cost. Professor Boas, chairman of the committee on Americanistic Anthropological Literature, reported progress. He spoke especially of the willingness of the Library of Congress and the Smithsonian Institution to coöperate in the preparation of Americanistic bibliographies. Mr F. W. Hodge was designated to formulate and submit a plan of coöperation among institutions in ethnological and archeological work. A committee consisting of the editors of the *American Anthropologist*, the *Journal of American Folk-Lore*, and *Current Anthropological Literature*, and Dr A. A. Goldenweiser was appointed to consider the advisability of devoting one number of the journals to recent progress in the field of American anthropology in connection with the International Congress of Americanists to be held at Washington October 5–10, 1914.

Only one death from the ranks of our membership has been reported during the year, that of Miss S. A. Scull, of Smethport, Pennsylvania.

The annual growth of the Association continues to be somewhat in excess of the losses through death and resignation, and could be largely increased if all our members would coöperate by sending new names to the Secretary. Applications for membership,[1] twenty-six in number, are herewith submitted for election, as follows:

C. B. Adams, C. A. B. Brockwell, F. W. Brown, J. B. Ford, E. W. Gifford, A. A. Goldenweiser, Louise Haessler, J. P. Hall, J. P. Harrington, C. C. Harrison, Geo. Hatjidakis, E. A. Hooton, E. Huntington, A. V. Kidder, C. W. Mead, S. G. Morley, Elsie Clews Parsons, Jean van de Putte, P. H. Ristan, F. D. Sanford, M. H. Saville, Mary A. Schively, Leslie Spier, Vassar College Library, Miriam van Waters, W. R. Wheeler.

The Secretary has represented the Association at the annual meeting of the American Year Book Corporation as a member of the supervisory board, and also as a contributor to *The International Year Book* (D. Appleton & Co.) for 1913.

At the Cleveland meeting the Secretary was instructed to prepare a list of names of persons eminent in anthropology to be submitted with the view of election to honorary membership at the New York meeting of the Association. Pursuant to his instructions the Secretary submitted a list which was referred to a committee named by President Dixon: Boas (chairman), Hrdlička, Peabody, and the Secretary, with instructions to recommend five names. The report of this committee was approved and the following honorary members were elected by the council: Professor

[1] Full addresses are given in the list of members printed elsewhere in this issue.

Léonce Manouvrier, Paris, France; Professor Karl von den Steinen, Berlin, Germany; Dr Alfred P. Maudslay, London, England; His Excellency W. Radloff, Saint Petersburg, Russia; Professor Émile Cartailhac, Toulouse, France.

Report of the Treasurer.—In the absence of Mr B. T. B. Hyde, his report was read by Dr Walter Hough, the acting Treasurer. It was referred to an auditing committee (Saville and Goddard):

REPORT OF THE TREASURER FOR 1913

RECEIPTS

Balance from 1912		$ 603.87
From Anthropological Society of Washington for *American Anthropologist:*		
Vol. XIV, no. 3	$ 59.42	
Vol. XIV, no. 4		
Vol. XV, no. 1	42.12	
Vol. XV, no. 2	44.64	
Reprints	4.62	150.80
From American Ethnological Society for *American Anthropologist:*		
Vol. XIV, no. 3	39.48	
Vol. XIV, no. 4	45.92	
Vol. XV, no. 1	26.37	
Vol. XV, no. 2	40.24	152.01
From American Folk-Lore Society:		
Seven-twelfths cost of *Current Anthropological Literature* published by American Anthropological Association and American Folk-Lore Society:		
Vol. I, no. 2	125.09	
Vol. I, no. 3	151.41	
Vol. I, no. 4	145.88	
Vol. II, no. 1	119.28	541.66
Annual dues		1,208.75
Annual subscriptions to *American Anthropologist*		567.50
Sale of back numbers and extra copies of *American Anthropologist*		196.65
Authors' reprints (at cost)		100.11
Sale of *Memoirs*		52.76
Publication fund		15.00
Special fund for Editor's expenses		500.00
Subscriptions to *Current Anthropological Literature*		25.80
Life membership fees		200.00
TOTAL		$4,314.91

EXPENDITURES

For printing, binding, and mailing *American Anthropologist*:			
Vol. XIV, no. 3	$392.12		
Vol. XIV, no. 4	297.68		
Vol. XV, no. 1	337.66		
Vol. XV, no. 2	518.90		
Current Anthropological Literature:			
Vol. I, no. 3	235.08		
Vol. I, no. 4	226.37		
Vol. II, no. 1	179.35		
Reprints	444.38	$2,631.54	
Illustrations		396.02	
Editor's expenses		525.68	
Treasurer's expenses		127.63	
Secretary's expenses		136.23	
Returned subscriptions		5.75	
Subscription toward meeting expenses of organization committee of International Congress of the Anthropological Sciences		25.00	3,847.85
Balance on hand			467.06

M. H. SAVILLE,
P. E. GODDARD,
Auditing Committee.

In the absence of the Editor no editorial report was presented: but Dr Lowie, for the editors of *Current Anthropological Literature*, made a brief verbal report stating that there yet remained two copies to be issued under the old agreement with the American Folk-Lore Society. The question of a new agreement and the continuance of *Current Anthropological Literature* as a separate publication was referred to the Executive Committee. It seems to be the general consensus of opinion, however, among members of both societies that the separate publication could not be continued.

The proposal to amend Section 5 of Article III of the Constitution by changing the sum " $1000 " to " $500 " was adopted.

Dr Goldenweiser reported for the committee appointed to consider the advisability of devoting one number of the journals (*American Anthropologist* and *Journal of American Folk-Lore*) to recent progress in the field of American anthropology in connection with the International Congress of Americanists to be held in Washington, October 5–10, 1914. The report was accepted and Dr Goldenweiser was instructed to

complete his correspondence with contributors and to send the contributions to the editors for publication. The Editor of the *American Anthropologist* was instructed to have extra copies of the number in question printed for free distribution among foreign members of the International Congress of Americanists. The contributions already promised are: *Archeology*, W. H. Holmes; *Physical Anthropology*, A. Hrdlička; *Material Culture*, Clark Wissler; *Mythology*, Franz Boas; *Linguistics*, P. E. Goddard; *Ceremonial Organization*, R. H. Lowie; *Religion*, Paul Radin; *Social and Political Organization*, A. A. Goldenweiser; *Historical Relations*, J. R. Swanton and R. B. Dixon.

Professor Boas reported for the Committee on Americanistic Anthropological Literature. His motion that the Executive Committee be authorized to appropriate the sum of $300 to be used to prepare manuscripts of Americanistic Anthropological Bibliography for the year 1914, provided the state of the treasury permits and provided the Bureau of American Ethnology agrees to publish the bibliography in question, was carried.

The committee on the preparation of a scheme of phonetic representation which will have the official sanction of the American Anthropological Association reported progress through its chairman, Professor Boas, who announced that a further report would be made at the International Congress of Americanists in October.

The Committee on the Preservation of American Antiquities was discharged at the request of its chairman, W. H. Holmes. A similar request was granted to Dr Charles Peabody, chairman of the Committee of American Archeological Nomenclature.

Dr Hrdlička gave a detailed report of the progress made by the local committee in preparation for the forthcoming International Congress of Americanists to be held in Washington. The American Anthropological Association accepted an invitation to become a member of the Congress, to which President Dixon named Franz Boas of Columbia University and George Grant MacCurdy of Yale University as delegates from the Association.

A letter was read from Professor A. L. Kroeber, who expressed the hope that the Association would accept the invitation of Mr James A. Barr, manager of the Bureau of Conventions and Societies of the Panama-Pacific International Exposition, to hold a special session in San Francisco during the Exposition. Professor Kroeber announced his readiness to do everything in his power to help make such a meeting a success. The invitation was referred to the Executive Committee with power to act.

The selection of a place for the next annual meeting of the Association was likewise left to the Executive Committee, which has decided that the meeting shall be held in Philadelphia during the Christmas holidays in affiliation with Section H of the American Association for the Advancement of Science.

The Chair appointed a Committee on Nominations consisting of Boas, Lowie, Swanton, Gordon, and MacCurdy, whose report was accepted by the Association, the election of officers resulting as follows:

President: Roland B. Dixon, Harvard University.
Vice-President, 1914: George A. Dorsey, Field Museum of Natural History.
Vice-President, 1915: Alexander F. Chamberlain, Clark University.
Vice-President, 1916: A. L. Kroeber, University of California.
Vice-President, 1917: George B. Gordon, University of Pennsylvania.
Secretary: George Grant MacCurdy, Yale University.
Treasurer: B. T. B. Hyde, New York.
Editor: F. W. Hodge, Bureau of American Ethnology.
Associate Editors: John R. Swanton, Robert H. Lowie, and Alexander F. Chamberlain.
Executive Committee: The President, Secretary, Treasurer, Editor (ex officio), and W. H. Holmes, Charles Peabody, and Pliny E. Goddard.
Council: F. W. Putnam, F. Boas, W. H. Holmes, J. W. Fewkes, A. F. Chamberlain, R. B. Dixon, G. B. Gordon, G. A. Dorsey, G. G. MacCurdy, B. T. B. Hyde, F. W. Hodge (ex-officio); Alice C. Fletcher, C. P. Bowditch, S. Culin, R. H. Lowie, C. Wissler, C. H. Hawes, E. Sapir, N. C. Nelson, H. Bingham, (1914); A. E. Jenks, S. A. Barrett, W. Hough, A. Hrdlička, A. L. Kroeber, A. M. Tozzer, F. G. Speck, A. A. Goldenweiser, F. C. Cole (1915); H. I. Smith, G. H. Pepper, W. C. Farabee, J. R. Swanton, G. G. Heye, H. J. Spinden, T. T. Waterman, B. Laufer, W. D. Wallis (1916); W. C. Mills, H. Montgomery, C. B. Moore, W. K. Moorehead, C. Peabody, C. C. Willoughby, P. E. Goddard, T. Michelson, M. H. Saville (1917).

The incoming President, Professor Roland B. Dixon, has appointed the following committees:

Committee on Program: G. G. MacCurdy (chairman), F. W. Hodge, W. H. Holmes, B. Laufer, E. Sapir, and C. Peabody.
Committee on Finance: B. T. B. Hyde (chairman), G. G. MacCurdy, W. H. Furness 3d, George G. Heye, Clarence B. Moore, C. P. Bowditch.
Committee on Publication: The names of the members of this committee appear on the third page of the cover of this number of the *American Anthropologist.*
Committee on Policy: Alice C. Fletcher (chairman), F. W. Putnam, F. Boas, W. H. Holmes, A. L. Kroeber, G. B. Gordon, J. W. Fewkes.

Addresses and Papers

The address of President Dixon on *Some Aspects of North American Ethnology* is published in this issue of the *American Anthropologist*. The presidential address of Professor Lomax before the Folk-Lore Society on *Types of American Folk Songs* will appear in the *Journal of American Folk-Lore*. Professor Dixon's address was introductory to a symposium on the *Relation of Archeology to Ethnology*, in which Boas, Holmes, Laufer and MacCurdy participated. Most of this discussion follows Professor Dixon's paper in this issue. Some of the more noteworthy papers read at the joint meeting are represented in this report by abstracts:

Ten Days with Dr Henri Martin at La Quina (Charente) France: Charles Peabody

Dr Peabody showed slides of the Mousterian station of La Quina (Charente) France, where, on behalf of the Peabody Museum of Harvard University, he spent the last part of September in excavating and study. This was by the courteous approval and invitation of Dr Henri Martin of Paris, the owner of the site, whose work and publications have helped to cause it to rank with Le Moustier, La Ferrassie, La Chapelle-aux-Saints, and other paleolithic stations of commanding interest archeologically and somatologically. La Quina offers a complete Mousterian picture from the lowest reminiscences of Acheulian shapes to *pointes courbes*, perforated teeth, bone *poinçons*—pointing to the Aurignacian. Dr Martin was the first to notice them at this site. Of special importance are a few bits of manganese; Dr Martin suggests a use prefatory to the use of black color during the three later paleolithic epochs. The proportion of bones of reindeer, horse, and bison bearing the marks of crushing, scraping, and cutting by flint implements is large, though in the collection hardly attaining the 40 per cent reached by Dr Martin.

Paleolithic Art as Represented in the American Museum of Natural History, New York: George Grant MacCurdy

The paper is based on specimens collected by Professor Henry F. Osborn and the author during the summer of 1912. The series represents the art, the art tools, and the ornaments of the Aurignacian and Magdalenian peoples of the Dordogne. The Museum was especially fortunate in securing two original engravings of the horse: one a large figure deeply and rudely incised on a limestone slab from the late Aurignacian rock-shelter No. 2 at Sergeac, and the other a small figure delicately

incised on a fragment of reindeer bone from the late Magdalenian rock-shelter at Limeuil. The paper is published in the number of the *American Museum Journal*.

The So-called "Argillites" of the Delaware Valley: N. H. WINCHELL.

This paper is based on a collection of about 300 specimens, collected in the vicinity of Trenton, N. J. It is composed essentially of a petrographic description of the rock of which the specimens are composed, and of the alteration forms which they exhibit; it brings out the following results: The rock is not argillite, but basic volcanic tuff densely compacted so as to look like basalt. It is rather easily decomposed superficially, when exposed for a long time to any oxidizing agents, and the specimens (arrowpoints, blades, and all small implements made of this rock) have become coated with a scale of decay which is sometimes hard and brown, and sometimes so soft and chalky that it is removed by any gentle friction, such as rain, frost, and especially by wind-driven sand. Such removal of the decayed layer leaves the surface finely rough with projecting grains which are composed of the original basalt, the depressions being due to the more easy decay and removal of the matrix matter which surrounds the grains; and this interstitial matter has been further decayed, in numerous instances, so as to leave a more or less loose condition in the texture of the rock to somewhat greater depth, suggesting an appropriate descriptive term, "eaten," which has been applied to it.

The rock within is dense and black, hardly warranting the name "basic tuff" here given to it: and such nature of the rock would not have been detected except for the careful examination in microscopic thin section, for which the writer had made about a dozen slides. The nature of the rock suggests former volcanic ejection and sedimentary spreading of the débris in the Triassic ocean, and hence also the conclusion that this rock occurs as strata in the Triassic and not as dykes.

There are larger implements made of diabase rock, and they manifest also a remarkable superficial alteration, the alteration scale being hard and of a greenish-yellow color, the thickness of which is about the same as the chalky scale on the implements made of the volcanic tuff. This diabase rock is allied to the tuff rock genetically and chemically, but it occurs as dykes, which pierce the Triassic strata at some distance above Trenton.

There are said to be outcrops of argillite in the valley of the Delaware, and there may be implements made of such rock, but in the handling of about 300 implements, collected with the idea that they were composed of

argillite, Professor Winchell has failed to find one composed of that rock. He refrained from a discussion of the possible cause of this remarkable alteration, which is quite unlike any alteration seen by him elsewhere; such discussion would involve the interpretation of the much disputed archeology of the Delaware valley; and that is reserved for a future more elaborate investigation.

The Results of an Archeological Survey of New Jersey: LESLIE SPIER (Published in the present number of the *American Anthropologist.*)

Etruscan Influence in West Africa and Borneo: E. A. HOOTON. (Read by title)

The subject was introduced by remarks on the construction of cultural genealogies. The parallelism between Kayan and Kenyah religious rites and the systems of augury and *extraspicium* of ancient Tuscany and Rome were critically examined (Hose and MacDougall, *The Pagan Tribes of Borneo*, vol. II). Then followed an examination of Frobenius' theory of a connection between Yoruba culture and the civilization of the Etruscans as expressed in "*Und Africa Sprach.*"

The Human-Monster Figure on the Nazca Pottery: EDWARD K. PUTNAM (Read by title)

The most frequently recurring figure on the beautiful polychrome ware from the Nazca valley, Peru, is some form of a human-monster, which, may be interpreted either as a man in centipede or other animal dress, or else as a mythological creature, part human and part animal. Thirty of the Nazca pots in the Ficke collection from Nazca, recently placed in the museum of the Davenport Academy of Sciences, represent this human-monster in some aspect. A study of these pots shows a series of at least six types, more or less distinct, but all interrelated. Mr Putnam's paper is published in the *Proceedings* of the Davenport Academy of Sciences.

Note on the Archeology of Chiriqui: GEORGE GRANT MACCURDY. (Published in the present issue of the *American Anthropologist.*)

The Maya Zodiac of Acanceh: STANSBURY HAGAR

An inscription upon a wall of Acanceh, in Yucatan, recently uncovered, presents symbols of the sun, stars, planet Venus, and of the northward and southward course of the sun along the eclipse, also a series of vases used in the ritual of the monthly festivals. The middle band of this inscription apparently contained originally twenty-three

panels in two rows, each panel enclosing the figure of a man or an animal. All these figures are symbols of the signs of the Maya zodiac, placed in correct sequence, the lower row probably representing the signs themselves and the upper row the dieties governing them. This zodiac reveals symbols almost identical with those of the numerous other American zodiacs found from Peru to Arizona, and its analogy to the Oriental zodiacs is but little less marked.

Is there Evidence, other than Linguistic, of Relationship between the Northern and Southern Athapascans? P. E. GODDARD

The Navaho and Apache relate a myth of a culture hero who killed many monstrous animals. The Beaver and other northern Athapascan tribes have a myth similar in several details. Are these facts conclusive evidence of the survival of a myth known to the Athapascans when they formed a single community?

Phratries, Clans, Moieties: R. H. LOWIE

Phratries corresponding to a dual division are essentially different from phratries that are merely assemblages of clans or gentes, and should be uniformly designated as "moieties," especially as there are tribes with both types of social unit. In general, it should not be taken for granted that all "moieties," "phratries," "clans," or "gentes" correspond to the same reality, the contrary being sometimes demonstrably true. These terms simply constitute a convenient nomenclature and should never be interpreted to be more than that.

The Cultural Position of the Plains Ojibway: ALANSON SKINNER

A brief account of the social, political, and ceremonial organization of the Plains Ojibway in comparison with that of the neighboring Plains and Woodlands tribes. The Plains Ojibway have been separated from the main body of the tribe for a long time and now consider themselves as an independent group giving themselves the name Bungi, they keeping an intermediate position between the tribes of the plains and those of the forest.

The Social, Political, and Religious Organization of the Tewa: H. J. SPINDEN

In this paper Dr Spinden discussed some of the fundamental principles that control the life of the Pueblo Indians, particularly those of the Rio Grande region. The matter covered comprised the clan and

clan groups, the questions of intermarriage and inheritance, the election and duties of officers, the religious heads and religious societies; as well as certain important religious concepts, which react upon the organization of society.

Results of Some Recent Investigations Regarding the Southeastern Tribes of the United States: JOHN R. SWANTON

Recent investigations among and concerning the tribes formerly living in our southeastern states have developed several interesting facts, of which the most important are the following:

The Yuchi Indians are already known to have occupied in ancient times the territory along Savannah river, Georgia, from Ebenezer creek to a position a considerable distance north of Augusta, and to have occupied at least the upper portion of the Ogechee valley. They are now shown to have been identical with the Westo of the early Carolina settlers, while it is demonstrated that a part of them living north of Augusta received the name of Hoglogee. The terms Westo, Hoglogee, Ogechee, and Yuchi were evidently given at one period to as many distinct bands of these Indians, each having for a time its own separate history; but all, except perhaps the Ogechee, seem to have reunited in one body among the Lower Creeks. There is one other possible exception in the case of the Choctawhatchee band of Yuchi who appear to have joined the Tukaba'tci. Most important of all, however, is the discovery that there was in the seventeenth century a detached band of Yuchi living upon Tennessee river, a band finally destroyed or expelled by the Cherokee. Owing to the absence of any record of the Yuchi prior to 1670 the question is raised whether they did not come into their later historical positions after about 1600.

The Muskhogean stock proper is shown to have consisted of a southern and a northern group of tribes. The former maintained their separateness in the western part of the area occupied by them as the Choctaw, but the eastern tribes of the group came in time to be dominated by and partially submerged in the tribes of the northern division, known to history as the Muskogee or Creeks. A few, like the Yamasi, were practically exterminated. These Muskogee consisted of a small number of closely related tribes like the Coosa and Abi'ka among the Upper Creeks and the Kawi'ta and Kasi'ta among the Lower Creeks. To the former were added, in course of time, a number of others, the last of which, the Koasati, Alabama, and probably the Taskigi, belonged to the southern Muskhogean group In the same way around the Kawita and

Kasi'ta came to be gathered the Chiaha, from among the Yamasi; the Osotci, from Florida; the Hitchiti, from southern Georgia; the Okmulgee, from the river which now bears their name; the Sawokli, from the Choctawhatchee; and the Apalachicola, representing the remnants of the Apalachee and those Muskhogean bands which formerly lived on the lower course of Apalachicola river. The Oconee, from the river of that name, also settled near them for a few years, but soon went to Florida, where their town constituted the nucleus of what afterward came to be known as the Seminole nation. In addition there were some groups which have since been lost to sight. Such were the Tamali and the Aëquite, the latter perhaps identical with the Ocute of De Soto, and a more interesting tribe known as Tamahita, whose original home appears to have been in western Virginia and who may have been either Muskhogean or Siouan.

Part of the Taskigi, Koasati, and Chiaha formerly resided upon Tennessee river, and along with them were two mysterious peoples, the Tali and Casquinampo. The latter are the Casqui or Casquin of the De Soto chroniclers; the former were perhaps the Talligéwi of the Delaware *Walam Olum*, and may have been part of the Cherokee or Muskogee. Another mysterious tribe was the Monsopelea. They seem to have resided in early days in the neighborhood of the present city of Cincinnati, but later they moved down upon the Mississippi and finally united with the Taënsa.

The people living along the lower course of the Mississippi northward of Red river in De Soto's time were probably connected, as in later days, with the Tunica or the Natchez, but little can be done with the names given by his chroniclers. Nevertheless there is reason to believe that the Pacaha, instead of being Quapaw, were a part of the Tunica. It would thus appear that the Tunican group at one period extended over a much wider area and played a more important part in the aboriginal history of the lower Mississippi in precolumbian times.

Notes on the Social Organization of the Fox Indians: TRUMAN MICHELSON

The Fox Indians are divided into a number of exogamous gentes with animal names, which furthermore form groups in so far as they perform certain courtesies for each other, such as burial and acting as the attendants in clan-feasts. Thus the Bear and Thunder gentes bury each other; at the Eagle clan-feast there will be eight male ceremonial attendants, two of whom will belong to the Bear gens, two to the Thunder gens, and four to the Wolf gens; while there will be eight female atten-

dants, four of whom will belong to the Eagle gens, two to the Bear gens, and two to the Thunder gens. The two fire attendants will belong to the Bear gens.

It further appears that formerly the order in which the various clan-feasts were held was rigid. The following is the order thus far obtained: Bear, Wolf, Thunder, Fox, Eagle. The tribe is furthermore divided into two divisions, membership in which is thus regulated: the first child, whether boy or girl, will belong to the group that the father does not; the second child, boy or girl, to the group the father does, and so on alternately. The statements by Jones[1] regarding the regulations of membership cannot be substantiated by actual pedigrees. Members of one side are called Kĭckŏ'ag^{i} (sing. Kĭckŏ'^{a}), and paint with white clay; those of the other are called Tŏ'kānag^{i} (sing. Tŏ'kān^{a}), and paint with charcoal. The ordinary statement that these major groups are merely for rivalry in athletics and for emulation generally, is certainly a mistaken one. At clan-feasts the invited are separated into these divisions, the Kĭckŏ'ag^{i} being seated on the south side of the lodge, the Tŏ'kānag^{i} on the north, resembling the line-up in the lacrosse game.

Moreover, in clan-feasts certain officers are definitely assigned to these two divisions, and have fixed positions, the performers of the clan giving the feast being always in the center, on the south side. Thus at a Fox clan-feast the drummer will be a Kĭckŏ'^{a}; at a Thunder clan-feast the drummer will be a Tŏ'kān^{a}, the rattlers adjacent to his west Tŏ'kānag^{i}, the rattlers adjacent to his east Kĭckŏ'ag^{i}; formerly a Tŏ'kān^{a} man attended the west fire and a Kĭckŏ'^{a} the east fire; at an Eagle clan-feast the drummer will belong to the Kĭckŏ'^{a} division, on each side of whom there will be a rattler belonging to this division, adjacent to each of whom there will be two or three Tŏ'kānag^{i} rattlers, next to each group of whom there will be a rattler, two smokers, and two female ceremonial attendants of the Eagle gens—all of whom will be Kĭckŏ'ag^{i}. It should be especially mentioned that in the Eagle clan-feast the female attendants belonging to the Bear gens will be on the south side, but this is clearly because they must be Kĭckŏ'ag^{i} and not due to any localization by clan-right. Similarly in the same clan-feast the female attendants belonging to Thunder gens, being Tŏ'kānag^{i}, will be on the north side. As mentioned above, the male attendants will belong to the Bear, Thunder, and Wolf gentes; half of each group will be Kĭckŏ'ag^{i} and half Tŏ'kānag^{i}, and of these attendants one leader will be a Kĭckŏ'^{a} and belong to the Bear gens, and the other leader will be a Tŏ'kān^{a} and belong to the

[1] *Journal of American Folk-lore*, XXIV, 220. This may be said also of earlier writers.

Thunder gens. In the dances and eating connected with the clan-feasts the same divisions reappear, but Dr Michelson has not yet succeeded in working out the precise arrangement in detail.

Finally, according to information received the two major divisions are prominent in adoption-feasts, the buffalo-hunt, and camp-police; but details are lacking. It should be especially noted that these major divisions have nothing whatsoever to do with marriage so far as pedigree and statements of informants show. In conclusion it should be mentioned that the bulk of the above information had to be obtained without the services of an interpreter, owing to the extreme conservatism of the Fox Indians. Hence it is probable that there may have been some misunderstanding on some points which accordingly may be subject to future correction.

Notes on Algonquian Grammar: TRUMAN MICHELSON. (See *American Anthropologist* for July–September, 1913.)

From a study of Dr Jones' *Fox Texts*, as well as Michelson's, and Dr Jones' Kickapoo ones, it appears that the very great firmness in the Algonquian word-unit is more apparent than real. All sorts of incorporations in the verbal compound can and do occur; but it should be carefully noted that the incorporation of the nominal object (formerly thought to be characteristic of American Indian languages) is non-existent.[1] However, it may be noted that the various incorporations cannot occur in haphazard positions; but ordinarily only after initial stems, and the element *-tci-* (discussed below). Also it appears that it is quite conventional after which initial stems these incorporated elements can and can not occur. It should be noted that certain initial stems can occur outside the verbal compound as well as within the compound, while others can occur only within the compound. The difference between secondary stems of the first and second order as distinguished in the Algonquian sketch in the *Handbook of American Indian Languages* has proved to be untenable. Certain supposed secondary stems have turned out to be initial stems. And it would seem that the order in which the two supposed classes occur is conventional and does not conform to a general rule. In this connection it may be mentioned that whichever copula is used in connection with verbal stems, it appears to be entirely conventional. This conventionality applies to other combinations of stems, and to the instrumental particles for the most part; and, it would seem, to the so-called inervocalic consonants (though as a matter of fact some cases, e. g. *-tci-*,

[1] Under certain conditions even this can occur.—T. M., March, 1914.

are composed of a consonant and a following vowel). To sum up, in Algonquian the firmness in word-unit is more apparent than real, and although Algonquian may analytically be reduced to the constituent grammatical elements, yet synthesis of such elements by no means holds good universally.

It appears that both reduplication and duplication occur in Algonquian, with and without vocalic or consonantic change (these apply to reduplication only). No rule has been found as yet to govern these: but it appears that reduplication with consonantic change is limited to a very few stems. It should be mentioned that initial stems only (with limitations discussed below) are duplicated or reduplicated; however an initial stem may be reduplicated, even though not the first initial stem in a verbal compound. In one case the instrumental particle *-n-* is reduplicated with the initial stem as if an integral portion of this. The secondary stem *-usā-* shows the peculiarity that vowel *u* is treated as if an integral portion of the preceding initial stem, and is reduplicated with it.

A beginning has been made in the elucidation of the pronouns of the subordinate modes. These single pronouns (which are invariably suffixed) express both subject and object. It is clear that subjective and objective pronouns, and in certain instances modal elements also, have been fused; but the fusion has been so complete that hitherto it has all but defied analysis. In all cases that are at all satisfactorily understood the objective pronoun immediately follows the instrumental particle, and precedes the subjective pronoun. Thus *-i-*, the invariable objective pronoun, first person singular, in all subordinate modes, occurs in such combinations as Fox *-itc*^{1}, *-it*^{c}, *-it*^{a}, etc., as the object with the third person animate singular of the conjunctive, subjunctive, and participial modes respectively as subject; compare the intransitive third person animate singular in the same modes; *-tc*^{1}, *-t*^{c}, *-t*^{a} respectively. Similarly it appears that *-n-* is the practically universal objective pronoun of the second person, singular and plural, in subordinate modes. These facts, in combination with what has been previously known, make it obvious that it will be only a question of time before the whole matter is unraveled.

It may be noted that certain transitive forms of the independent mode have turned out to be passive in structure, and that certain objective pronouns are the same as in subordinate modes.

The table of the participial mode in the Algonquian sketch in the *Handbook of American Indian Languages* contains certain forms which are terminations of the conjunctive, not participial; and the supposed transitive forms with inanimate subject or subjects properly should have

been discussed in Section 34. Moreover it appears that the table is constructed on a wrong principle in so far as it does not show all possibilities. Incidentally it may be mentioned that a participial of the interrogative occurs, though not given in the sketch. However, the forms are extremely uncommon.

It is expected that this paper will be printed in full as part of a series in the *American Anthropologist*.

The Boomerang in Ancient Babylonia: JAMES B. NIES. (To be published in a forthcoming issue of the *American Anthropologist*.)

Chinese Antiquities in the Field Museum: BERTHOLD LAUFER

Dr Laufer showed 42 slides representing a small selection from the Chinese antiquities gathered by him for the Field Museum of Natural History during the Mrs T. B. Blackstone expedition. The main object of his paper was to point out the close interrelation of religious and artistic thought in ancient China, the character of early art being preëminently determined by ancestor and nature worship. The geometric symbolism of the archaic period was briefly set forth and illustrated by a number of early bronzes and jades. The idealism of the Han period (B.C. 206–220 A.D.) was interpreted in the light of the quaint mortuary customs as expressed by its grave-sculptures, pottery, and peculiar use of jade. Several specimens of early Buddhist sculpture in marble and wood were demonstrated, and a larger number of medieval funereal clay figures, which now form a very important source for the study of the culture-life and religious beliefs of the Tcang period (618–906 A.D.).

The Huron and Wyandot Cosmogonic Deities and the Iroquoian Sky Gods: C. M. BARBEAU

This paper dealt with the primeval human-like beings of the Sky-world and the Water-world, the fall of the Woman from the Sky, the creation of the Island on the Big Turtle's back, the birth of the Twins and their works upon the Island; their war, in the course of which the Giants and Dwarfs were brought into existence, and the coming of man. It is a synoptic exposition of the information contained in several cosmogonic myths of the Hurons and Wyandot, two versions of which Mr Barbeau has recently collected among the Oklahoma Wyandot. The second part of the paper was a discussion of the nature and function of the Iroquoian (i. e. Iroquois and Huron) Sky gods Hamendiju or Hawenniyu, the Sun and the Moon, and the Thunderers.

The Wyandot Ukis: C. M. BARBEAU

The Wyandot *ukis*, equivalent to the Algonquian "manitos," are a multiplicity of good and bad monsters, believed to dwell everywhere in the world and to mingle with the Indian folk for their benefit or detriment. Some of them are said to be the cause of all calamities and diseases, while others may become the friends and protectors of the Indians at the time of their initiation.

The Clan and the Maternal Family of the Iroquois League: A. A. GOLDENWEISER

Whereas certain features, such as exogamy, establish an identity, or at least an equivalence, between a clan in a tribe of the League, and its namesakes in the other tribes, the presence of other features, such as the individual names, which differ for every clan and tribe, necessitates the distinction of the clan in each tribe as a social unit. The functions of characteristics of the Iroquois clan were as follows: exogamy; a set of individual names; a burial-ground; association with a certain locality, perhaps a long-house; an indefinite sense of relationship between its members; certain prerogatives with reference to chieftainship and ceremonial officials (see Family).

The maternal family comprises all the male and female descendants of a woman, the descendants of her female descendants, etc. The limits of the family are not so clearly fixed as those of the clan; but its social bearings were, in the old Iroquois system, of the greatest importance. While the chiefs and ceremonial officials were theoretically associated with clans, these functionaries were really hereditary within the limits of maternal families. Certain families also had religious prerogatives, such as the ownership of the Real Life Medicine, etc. Besides these definite functions, the influence of the maternal family was ever present in affairs of public and individual concern.

At the present time the clan and the maternal family are constantly being confounded even by the best-informed Indians. The reason for this lies in the fact that the principle underlying the clan and the maternal family is the same. It is quite certain, however, that *de facto* the two kinds of social units are quite distinct. The number of individuals in a clan is often larger than could be the number of individuals living at one time, and related by blood. Moreover, situations like that among the Mohawk or the Oneida show clearly that here a clan must comprise at least three separate lines of maternal descent. The fact that a clan has a name, while the maternal family has none, is in part responsible for the

more fluctuating character of the latter units; as ties of blood relationship are, after a few generations, lost sight of, and a once integral line of descent splits up into two or more maternal families. (Two genealogies were shown to illustrate the relation between the elective and the hereditary elements in the succession of chiefs.)

The Eruption and Decay of the Permanent Teeth: ROBERT BENNETT BEAN

The author presented a preliminary report on the results of an investigation of the teeth of 2221 school attendants for the anatomical laboratory of Tulane University. The data are as follows:

630 Filipino male (5 to 30 yrs.).	322 German male.	407 American male (5 to 18 yrs.).
146 Filipino female (5 to 30 yrs.).	306 German female.	410 American female (5 to 18 yrs.).
776	628	817

Eruption of the teeth.—(1) The Filipinos are from one to four years earlier than the Germans and Americans in the eruption of the permanent teeth, and the Americans are slightly earlier than the Germans. (2) The females are more precocious than the males in the three groups, but this difference is very slight among the Filipinos, and a little less among the Germans than among the Americans. (3) The Filipinos are more homogeneous sexually (there is less difference between the sexes) than the Americans, who are more heterogeneous than the Germans. (4) The lower teeth erupt before the upper, except that the upper premolars erupt before the lower. (5) The permanent teeth erupt at three periods, about the ages of 7, 10, and 18 years, in connection with the eruption of the three sets of molars, and the first two periods alternate with periods of rapid growth in stature. Results: Individual teeth.

The teeth erupt in the following order: 1, Lower first molars. 2, Lower median incisors. 3, Upper first molars. 4, Upper median incisors. 5, Lower lateral incisors. 6, Upper lateral incisors. 7, Upper median premolars. 8, Lower canines. 9, Lower median premolars. 10, Upper lateral premolars. 11, Upper canines. 12, Lower lateral premolars. 13, Lower second molars. 14, Upper second molars. 15, Lower third molars. 16, Upper third molars.

This order is followed by the Germans and Americans, and also by the Filipinos except that among the Filipinos the canines erupt earlier than the premolars and upper lateral incisors; and the canines erupt from two to four years earlier in the Filipinos than in the Germans and Americans.

A law of alternation in development has been deduced, based on the alternation of periods of acceleration and retardation in the growth of the bones (stature), upon the periods of acceleration and retardation in the development of the permanent teeth, and upon the alternation in the eruption of the individual permanent teeth, as well as from a general knowledge of development, especially from the researches of Donaldson, Jackson, and others. This law may be formulated somewhat as follows:

There are one or more periods of acceleration alternating with periods of retardation in the development of the structure of the body. The periods of acceleration in the development of one structure are synchronous with the periods of retardation in the development of another.

The various structural parts, or organs, of the body do not develop synchronously, nor with equal rapidity during the same periods of time, but first one then another develops. Thus the period of the first six months after birth is one of rapid growth in length, which is followed by the eruption of the temporary teeth, all of which are through the gums by the end of the third year, after which there is a period of rest. Following this there is another period of rapid growth in length (stature), subsequent to which the permanent teeth begin to erupt, after which the growth of the body is again accelerated, to be followed by a second rapid eruption of the permanent teeth, and then another rapid growth of the body which is succeeded by puberty.

The development of the organs in the embryo and the fetus, as well as after birth, may be given to illustrate the law of alternation. The early development of the heart precedes that of the lungs, and late development of the liver precedes that of the stomach and intestines, and the development of the brain and head precedes that of the trunk and extremities.

The law is not only applicable to normal development but also seems to apply to abnormal development through a process of compensation. If one structure is unusually precocious in the periods of acceleration in development, its complementary structure will be backward in the periods of acceleration, and vice versa. Thus the upper canines are precocious in the Filipino boys, and the upper lateral incisors are backward, and the upper lateral incisors are precocious in the Filipino girls and the upper canines are backward. Other examples could be cited, but these suffice to illustrate the law.

Decay of the teeth.—The temporary teeth of the Americans are worse than those of the Filipinos, which in turn are worse than those of the Germans. The permanent teeth of the Americans are worse than those

of the Germans, which are worse than those of the Filipinos. The girls have worse teeth than the boys in all the groups.

Morphologic form and teeth.—Those individuals with long faces, heads, and noses, and large occipital circumferences of the head, have worse teeth than those individuals with broad heads, faces, and noses, and large parietal circumferences of the head; and the teeth of the former develop earlier than the teeth of the latter. The long head-face-nose forms with the large occipital region of the head have been called Hyper-onto-morphs by Dr Bean, and the broad head-face-nose forms with the large parietal region of the head have been called Hypo-onto-morphs.

The relative number of Hyper-onto-morphs is greatest among the Americans, least among the Filipinos, and nearly as great among the Germans as among the Americans. Hypo-morphism decreases with age, and Hyper-morphism increases, so that whereas among the Filipinos there are 15.2 Hypos to 1 Hyper between the ages of 5 and 16, there are only 3.8 Hypos to 1 Hyper from 16 to 30 years of age. Hypo-morphism is a condition of less maturity than Hyper-morphism. Apparently the Filipinos mature more slowly than the Americans and Germans in morphologic form; although they mature earlier in stature and in the eruption of their permanent teeth, which again may be only another expression of compensation in the law of alternation in development.

The Crow Sun Dance: R. H. LOWIE

The Crow Sun Dance differs from the ceremony as performed by other Plains tribes in being undertaken only for the purpose of revenging the death of a tribesman. With the esoteric rites designed to effect this object, however, there are combined esoteric performances very similar to the Sun Dance activities of neighboring tribes.

Notes on the Folklore and Mythology of the Fox Indians: TRUMAN MICHELSON

A study of the published material as well as the unpublished collection of Dr Michelson (several thousand pages in text) shows that woodland, plains, and European elements enter into Fox mythology and folklore. The tales about Pītcicā'ˢ (Pītică'ˢ), Cā'kanā'ˢ, and Ātwānˢ, corruptions of Petit Jean, Jacques le, and Antoine, respectively, are among those most patently European. It is evident that the European elements are old, several of them likewise occurring in Kickapoo, and a few in Malecite. Very little Sauk material is available to enable one to determine how close this is to Fox. Dr Jones' Kickapoo collection, though not large, indicates an extremely close relationship. The published Ojibwa material

as well as Dr Jones' unpublished collection shows conclusively that this is not closely connected with Fox folklore and mythology. The scant Peoria material collected by Dr Gatschet exhibits an intimate relationship. It has been said that the Fox tale is brief and succinct. This is not confirmed by the writer's collection, in which one myth is about 1200 pages in extent, one more than 1100, one more than 800, and quite a number of a hundred pages more or less. How in the dissemination of myths and tales the myth and tale adopted by a tribe may be modeled to suit the previously existing mythology and folklore can be well illustrated by the Fox material. Thus among the Ojibwa the culture-hero is married and has children who are always hungry; among the Fox he is unmarried but is intimately associated with his grandmother. Consequently in the story of how Duck miraculously produces the wild-rice and how the hero unsuccessfully attempts to imitate him, among the Ojibwa Nānabucu's wife figures and his children are fed; among the Fox Wisā'ka'ᵉ's grandmother appears and the episode of the hungry children is absent. It matters not whether the story has been borrowed by the Fox from the Ojibwa or by the Ojibwa from the Fox, or both from a common source, adaptation to the existing folklore and mythology must be assumed.

Stone Implements of Surgery(?) from San Miguel Island, California: H. NEWELL WARDLE. (Published in the present issue of the *American Anthropologist.*)

Wayside Shrines in Northwestern California: P. E. GODDARD. (Published in the present issue of the *American Anthropologist.*)

Tewa Kinship Terms from the Village of Hano, Arizona: BARBARA FREIRE-MARRECO. Read by title. (To be published in the next issue of the *American Anthropologist.*)

A number of papers were read for which no abstracts were obtained: *The Piltdown Skull*, C. H. Hawes; *The So-called Red-paint People Cemeteries of Maine*, W. K. Moorehead;[1] *Brief Account of Recent Anthropological Explorations under the Auspices of the Smithsonian Institution and Panama-California Exposition*, A. Hrdlička; *Results of Excavations at Machu Picchu*, Hiram Bingham; *The Horse and the Plains Culture*, Clark Wissler;[2] *Field Work among the Pagan Tribes of the Philippines*, Fay C. Cole; *The Sac-sac or Human Sacrifice of the Bagobo*, Elizabeth H. Metcalf; *Daily Life of the Southern Paiutes Forty Years Ago*,

[1] See *American Anthropologist*, April–June, 1913.

[2] To appear in a future issue of the *American Anthropologist.*

F. S. Dellenbaugh; *Conditions favoring the Development of Totemic Organization*, Franz Boas; *The Physical Type of the Burusheki of the Northern Himalaya*, R. B. Dixon; *A Piebald Family of White Americans*, A. E. Jenks; *A Folk Dance from the Charente, France*, Charles Peabody; *Iroquois Totemic Complex*, A. A. Goldenweiser; *Home Songs of the Tewa Indians*, H. J. Spinden; *Negro Lore in South Carolina*, H. C. Davis; *The Bridge of Sunbeams*, Phillips Barry; *The Japanese New Year*, Mock Joya; *Some Aspects of the Folklore of the Central Algonkin*, Alanson Skinner.

Additional papers were read by title: *My Experience in the South Seas*, A. B. Lewis; *Outline of the Morphology and Phonetics of the Keresan Dialect of Cochiti*, J. P. Harrington; *The Relation of Winnebago to Plains Culture*, Paul Radin; (a) *Siuslawan, a Newly Discovered Linguistic Family;* (b) *An Ethnological Sketch of the Waiilatpuan Tribes of Northeastern Oregon*, Leo J. Frachtenberg; *An Introduction to the Study of Indian Religion*, Paul Radin.

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DISCUSSION AND CORRESPONDENCE

Wayside Shrines in Northwestern California

In northwestern California there are numerous spots of more or less sacred nature. In all cases noted they are by some well-traveled trail. Several of them are on the crest of ridges and a few in the neighborhood of springs. The ceremonial requirements are perhaps different for each sacred place. Many of them are called resting places where the traveler is expected to seat himself for a few moments, smoke, and rest. In the case of these particular places it is not certain that much that is sacred or religious is attached to the localities. It seems rather that a convention, a social habit, requires one to stop at these places. In the myths and tales of the region it is almost invariably the custom to mention that those passing stopped at such points to rest. The reason given for the existence of these resting places is that the culture hero or some other important person stopped to rest at these places in mythical times. Such a resting place is mentioned in the upper or sky world in a Chilula medicine formula.

There are various places where the traveler is expected to shoot with bow and arrows. The explanation of such places is usually that in mythical times competition in long-distance shooting occurred at these places, between travelers who met there by chance. The celestial resting place mentioned above was of this sort since the formula mentions the shooting.

Near Korbel as one begins the ascent of the mountain from the North Fork valley stands the stub of a redwood tree. Into this tree in earlier times any Hupa who passed shot an arrow. In recent years it is the custom to insert a twig of a tree or a small piece of brush instead. There were formerly two such trees. One of them was cut for lumber some years ago. The Indians claim the tree left died from sympathy. Near the trail from Bair's on Redwood creek to Hupa on the ridge which separates Minor creek from North Fork creek is a place of offering. Each passer by must drop a stick or stone and pray. He says: "I am going into the country of the enemy. May I return in safety." On the return journey the prayer is a thanksgiving. "I have been to the country of the enemy. I am glad I am returning alive." This spot seems to mark, in a rather indefinite way, the boundary between the Hupa on Trinity river and Redwood Indians on Redwood creek.

A similar place of offering is on a trail which leads up the ridge between Djictañadiñ and Xaslindiñ creeks on the east side of Trinity river. This place has not been seen by the writer, but a Hupa once told of misfortune coming upon an Indian who set the accumulated pile on fire.

In the Van Duzen region, occupied formerly by the Nongatl, resting places on ridges are mentioned in myths and tales. In one case offerings were left at a spring where one was expected to rest and drink. At another spring no offering was left. The narrator explained that the water of the first spring was originally bad and was purified by Coyote, the Nongatl culture hero. At the second spring no such deed was performed, therefore no offering was left. Such offerings are spoken of as "paying."

In one case a very definite origin was given of an offering place similar to the one between Hupa valley and Redwood creek mentioned above. While riding through the country of the Siñkyōne on the ridge between the drainage of Matole river and the South Fork of Eel river, Briceland Charlie, a Siñkyōne, pointed out this place and made the customary offering of a twig broken from a tree. The name given the place having excited curiosity, its etymology was sought. The name was said to mean "hands lie." The explanation given was that many years ago a war band of his tribe went to Briceland to avenge the death of some of its members upon the natives of that place. They killed a man and brought his hands and feet to this spot, where they buried them. The spot was said to have been chosen well within the territory of the victors. The prayer customary is the expression of a wish that such a fate may not overtake the traveler. This informant claims to know of other such places north in the Van Duzen country which he said had a similar origin. This conjecture of the Indian may be correct, but it must be borne in mind that the Hupa and probably the Nongatl were not in the habit of taking trophies from their enemies. The places of offering, however, may have survived the practice.

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DR MATTHEW ON WRIGHT'S ORIGIN AND ANTIQUITY OF MAN

I HAVE delayed answering Dr Matthew's strictures on my book in the October–December number, 1912, of *Current Anthropological Literature*, because it was intimated that other phases would be touched on by other reviewers in later numbers of the journal. But as the other reviews have not yet appeared, it is not well to neglect longer Dr Matthew's

serious charge that my "argument is throughout a prejudiced, and at times somewhat unscrupulous, presentation of such facts and opinions as may serve to support" my conclusions.

One of his charges is that I have not accepted the "planetesimal theory" of the formation of the solar system; but in this I am probably still in company with the great majority of leading astronomers and physicists of the world. Besides, the calculations of Sir George Darwin on which I have placed reliance are not dependent on any theory regarding the loss of heat by radiation from the solar system, but on the action of gravity in checking the diurnal revolution of the moon. However much of uncertainty he may later have admitted to enter into his data for calculation, it is certain that astronomers and physicists do set some limitation to geological time. And those who have set comparatively narrow limits are not of such a grade that their opinions can be lightly set aside.

To the charge that I have "ingeniously combined" the estimates of geological periods made by "Williams, Dana, Walcott and Upham" [he should also have added Wallace] so as to secure a minimum length for the Glacial period, it is proper to say that Walcott's conclusion amply justifies my inferences. His words are: "Geologic time is of great but not of indefinite duration. I believe that it can be measured by tens of millions but not by single millions, or hundreds of millions of years." His calculations led him to limit geologic time as shown in stratified deposits to between 25,000,000 and 70,000,000 years; while Wallace's calculations from the rate of the erosion of the earth's surface and the amount of deposition to produce the sedimentary strata of all the geologic ages are that not more than 30,000,000 years are required. No geologic facts have been brought forward which would indefinitely enlarge these calculations. Besides, no ingenious combination of theories is needed to give basis for my arguments for the recent date of the Glacial epoch. My estimates concerning the date and length of the Glacial epoch are based on abundant facts that cannot well be neglected by anyone who proposes to have an intelligent opinion on the subject.

I am glad to see that Dr Matthew agrees with me in discrediting the supposed evidence of Tertiary man. This is especially fortunate since it has been determined by the latest evidence that *Pithecanthropus* is certainly post-Tertiary. The argument for great antiquity of man, therefore, now depends on the evidence for a slow rate of biological development. And here we come to a subject in which much confusion of thought has arisen from a loose use of the word "species," a term

which I have aimed to avoid applying to the minor divisions of the human race, determined by minute anatomical peculiarities.

For example, while it is true that Lydekker says that the bones of *Pithecanthropus* "constitute a further link in the chain, bringing man nearer his simian prototype," he had said, just before, that they are human, and "are not held to represent what has been called the 'missing link' bridging over the gulf between man and the apes." Cope, also in speaking of *Pithecanthropus*, says that the "femur is long, straight, and entirely human." Later he says, "Until we learn the character of the lower jaw of the latter we shall be in doubt as to whether this individual pertains to the *Homo sapiens* or to the *Homo Neanderthalensis*." But in his final conclusions concerning *Homo Neanderthalensis* he had said that while we have in it "a greater number of simian characteristics than exist in any of the known races of the *Homo sapiens* . . . there is still, to use the language of Fraipont and Lohest, an 'abyss' between the man of Spy and the highest ape."

Now, it is evident that this "abyss" of Cope and this "gulf" of Lydekker represent about as large spaces as are generally allowed for species, and that the comparatively minute anatomical peculiarities are scarcely greater than those which characterize the different races of men at the present time. They are hardly worthy to be called specific characteristics, and Cope evidently hesitates to call the individuals "species," but generally speaks of them as "races" or "types," and in one case as "sub-species." In fact, the effort to bridge the "abyss" which separates *Homo sapiens* from the apes is not more successful than the attempt to bridge the St Lawrence by a single span. The argument from gradual approach is not effective to cover all distances. The spans of a bridge cannot be spread indefinitely; beyond a certain point they break down. This may be illustrated by the limitations which are set to the speed of trotting horses. The time of trotting a mile in 2.40 as it was fifty years ago has now been reduced to 2.04. But no one supposes it will ever be reduced to nothing, or indeed to half its original amount.

Just here I may be permitted to correct another false charge made by Dr Matthew against me, namely, that of misrepresenting Professor Sollas, in quoting him as authority for my conclusion that "the differences between the Heidelberg jaw and that of living races are slight and do not warrant specific distinction." This is false. I simply quote Sollas' statement concerning the dentition which he says is "in some respects less simian than that which can sometimes be observed in existing primitive races, such as the Australians."

Finally, what Dr Matthew says about my crediting the evidences for Pleistocene man on the Pacific coast well proves the statement, which I have somewhere made, that the devotees of physical science at the present time, as a class, are incapable of appreciating the weight of ordinary evidence in proof of individual facts. Dr Matthew thinks that Mr Sinclair has disproved or made doubtful every one "of the long list of alleged discoveries of human remains under the lava beds of the Pacific coast." Mr Sinclair has, indeed, as I freely admit, proven that the Calaveras skull which Whitney brought to Cambridge could not have come from the place from which Whitney thought it did. But I have elsewhere shown from information which I personally gathered on the spot how a mistake could easily arise in the substitution of the wrong skull without any intention to deceive. The evidence still stands that Matison found and brought to Mr Scribner a skull from the place designated.

As to the evidence for the many other similar discoveries, it is not true that Mr Sinclair has disproved any of them, or brought evidence to throw reasonable doubt over any of them. He merely *surmises* that Clarence King might not have observed the facts with sufficient care to form a trustworthy opinion of the position of the object which he took with his own hands from the gravel beneath Table mountain. Mr Sinclair disbelieves the evidence which Mr Becker collected concerning the relics found in the shaft at Rawhide gulch, largely because the mortar of andesite and the spearheads of obsidian are of material which is found in pre-volcanic gravels, overlooking the possibility of their having been carried thither by commerce; whereas we have found bushels of obsidian implements in a single mound in Ohio which must have been brought in prehistoric times from the far distant Rocky Mountains.

As to the evidence for the McTarnahan mortar, which I carefully obtained twenty years ago, all that Mr Sinclair can find to throw doubt over it is that Mr McTarnahan's brother says it was found by them "back of the lagging during the work of retimbering." But there was no motive for anyone to have carried it in there 700 feet from the outside.

I may also add a word about the Nampa figurine. The evidence that this came from 300 feet beneath fluvial deposits, covered by a few feet of lava, in the Snake River valley, Idaho, was first collected by Mr Charles Francis Adams and several of his associates while on the spot a few days after its discovery. A better jury for testing evidence could not be found, and they knew all the persons in any way connected with the discovery. Furthermore a great amount of internal evidence sup-

porting the external evidence has been presented, while there was nothing to discredit the evidence but some supposed general conditions which on examination proved to be of no positive weight. Indeed no one has had the hardihood to dispute the evidence on anything but theoretical grounds. If Dr Matthew had familiarized himself with all the evidence concerning remains of man beneath the lava deposits on the Pacific coast, and not trusted to the criticisms of a single critic writing many years after and depending wholly on general considerations, he could not have written as he has in his criticism of my position on the subject.

One more word: The cause of variations in animals and plants is still as profound a mystery to scientific men as it has ever been. To suppose that chance variations have furnished the ground for natural selection leading up to the marvelous organizations which we find in both plants and animals involves a mathematical absurdity. Design must be reckoned with in some shape. The manner in which we think it to enter will be determined largely by one's philosophy concerning ultimate things. "Sports" occur in nature. My own statement is that to Science, man, while genetically connected with the lower species, appeared as a "sport," and that as yet there is no sufficient evidence that he attained his present superiority by infinitesimal degrees. When Dr Matthew finds the evidence for which he hopes in central Asia we shall all be glad to consider it.

But space forbids reference to several other points in which Dr Matthew's criticisms are unjust. I close by simply saying that in Dr Matthew's slurring reference to my knowledge and use of early Biblical documents as contributing something to the solution of the problem of the early distribution of the human race, he betrays his own ignorance of the present state of Biblical criticism. The theories by which the antiquity of those documents were challenged twenty-five years ago in Germany are now discredited and are being rapidly abandoned in the country from which they emanated. But this is not the place in which to present the evidence of this fact.

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THE "RED-PAINT PEOPLE"

IT has ever been a failing of some archeologists, both here and abroad, to attribute great age to any form of burial or aboriginal objects the origin of which was not apparent. For this reason many graves discovered on the coast of Maine have been considered the work of a mysterious people whom "for want of a better name we have designated the 'Red-paint People.'"[1] The name has been applied on account of the large amount of red hematite (red oxide of iron, Fe_2O_3) found in

most of the graves. But the custom of placing a mass of this mineral in graves was not confined to the people of Maine, since it has been found associated with human remains, either in mounds or in separate graves, probably in every state east of the Mississippi. In some parts of Florida vast quantities of the red oxide had been mixed with the natural white sand, coloring the latter a pinkish hue, and placed as distinct strata in mounds. The following is from a description of a mound on Murphy island, Putnam county, Florida:[2]

"The body of the mound was composed of the whitish sand of the surrounding territory, with the marginal portions, 4 ft. or 5 ft. in, dyed a light pink through the intentional admixture of the red oxide of iron. Pockets of pink sand and of light chocolate colored sand, some of considerable size, were encountered throughout the mound."

At another point in the same mound a large number of objects of stone were discovered

"ten feet down, in a pocket of red *Hematite*, near human remains."

Many similar references could be quoted. About thirty years ago three small mounds occupying the summit of a bluff between Spoon river and Walnut creek, in Knox county, Illinois, were examined. The largest of the group was about three feet in height, with diameters of 64 and 47 feet. At a depth of two feet below the center, ashes were encountered resting upon a stratum of clay about three inches in thickness. The clay had the appearance of having been packed while in a plastic state. "Below the packed clay is a thin stratum of red paint, and below the paint, ashes and paint intermingled. In this material we found 14 arrow-points made of hornstone."[3]

But to return to Maine. The graves are practically destitute of all traces of human remains, but of itself this condition is not necessarily proof of great antiquity. The cemeteries are along the shores of lakes and streams, consequently the ground is probably more moist than in other sections, and this element, aided by the extreme cold often prevailing in this locality, would have hastened the decay and final disappearance of human bodies.

Mr Moorehead fails to describe the exact form and size of the graves examined by his party, but we are led to believe they are similar to those

[1] Moorehead, Warren K., The Red-paint People of Maine, *American Anthropologist*, vol. xv, Jan.–Mch., 1913, pp. 33–47.

[2] Moore, Clarence B., Certain Sand Mounds of Duval County, Florida, in *Journ. Acad. Nat. Sci. Phila.*, vol. x, 1895, pp. 63–76.

[3] Adams, W. H., Mounds in the Spoon River Valley, Illinois, *Smithsonian Report for 1883*, pp. 836–837.

discovered by Mr Willoughby about twenty years ago.[1] Admirable drawings of some of the latter are given in the article cited. These represent pits from two to three feet in diameter and of about the same depth. Resting upon the bottom is a quantity of pulverized hematite, and often some yellow oxide, which has resulted from the oxidation of masses of pyrite. These pits closely resemble the caches met with on the sites of many villages of Algonquian and Iroquoian tribes, and a human body to have been placed in one would necessarily have been flexed, and probably wrapped in a robe or a bag. Some pits are larger and are supposed to have contained several bodies, similarly placed. The upper surfaces of many graves are shown to be decidedly concave; this would have resulted from the settling of the earth after the decay of the human body and its accompanying objects of a perishable nature.

Now, in view of these discoveries made on the coast of Maine, within the limits of the territory of the Abnaki, it is of interest to consider the form of burial practised by the kindred Indians which occupied Cape Cod, Massachusetts, during the early part of the seventeenth century.

The Pilgrims in the *Mayflower* reached Cape Cod and came to anchor within the present harbor of Provincetown, November 11, 1620. A small party was soon sent ashore to explore the neighboring forests, and in their journal,[2] under date of November 30, the following entry occurs:

"When we had marched five or six myles into the Woods, and could find no signes of any people, we returned againe another way, and as we came into the plaine ground, wee found a place like a graue, but it was much bigger and longer than any we had yet seene. It was also covered with boords, so as we mused what it should be, and resolved to digge it up, where we found, first a Matt, and under that a fayre Bow, and there another Matt, and under that a boord about three quarters long, finely carued and paynted, with three tynes, or broches on the top, like a Crowne; also betweene the Matts we found Boules, Trayes, Dishes, and such like Trinkets; at length we came to a faire new Matt, and vnder that two Bundles, the one bigger, the other lesse, we opened the greater and found in it a great quantitie of fine and perfect red Powder, and in it the bones and skull of a man. The skull had fine yellow haire still on it, and some of the flesh vnconsumed; there was bound vp with it a knife, a pack-needle, and two or three old iron things. . . . We opened the lesse bundle likewise, and found of the same Powder in it, and the bones and head of a little childe; about the leggs, and other parts of it was bound strings, and bracelets of fine white Beads; there was also by it a little Bow, about three quarters long, and some other odd knacks; we brought sundry of the pretiest things away with us, and covered the Corps

[1] Willoughby, C. C., Prehistoric Burial Places in Maine, *Papers of the Peabody Museum, Harvard University*, vol. 1, no. 6, 1898.

[2] Cheever, G. B., *The Journal of the Pilgrims at Plymouth*, New York, 1849, p. 38. (This is often designated the Mourt Relation.)

vp againe. After this, we digged in sundry like places, but found no more Corne, nor any things els but graues."

The last statement makes it appear that the graves were so similar in form and appearance to the caches in which the corn was stored that one could not be distinguished from the other, therefore the very recent graves encountered by the Pilgrims were of the same form as those illustrated by Willoughby. These graves on Cape Cod, if found at the present day, would present an appearance in every respect similar to those found on the coast of Maine. The outline of a pit could be traced in the sandy soil; all signs of the human remains, together with other objects of a perishable nature, would probably have vanished, but all examples of stone and metal, and the "great quantitie of fine and perfect red Powder," the insoluble red oxide of iron, would remain. This was the form of burial practised by the Algonquian tribe found occupying the extreme eastern parts of Massachusetts three centuries ago, and the same custom may have persisted for some years. Why then should graves similar in every respect, but situated a comparatively short distance northward on the coast, yet within the territory of a kindred people, be attributed to some mysterious race? The cemeteries examined by Moorehead and earlier by Willoughby should unquestionably be considered the work of the Abnaki, and many graves may be of more recent origin than those rifled by the Pilgrims in the year 1620.

Soon after coming into contact with Europeans the Indians along the coast lost many of their primitive customs and followed the examples set by the newcomers. The inhabitants of Cape Cod ceased burying their dead in pits, and placed the bodies, extended, in graves. It is quite evident the same change of custom resulted among the kindred tribes on the coast of Maine. The two forms would be very easily distinguished, as is evidently the case:

"Although the cemeteries of the Red-paint People are readily distinguishable from those of recent Algonquian tribes, the identification of their village sites is no easy matter. With reference to the latter, nothing may now be said, as it will be necessary to devote two or more seasons of additional exploration before the villages or camp sites of these peculiar people can be determined, and even then a clear line of demarcation may be difficult to draw."[1]

A change in the manner of disposing of the dead would in no way have caused a change in the appearance of the village or camp sites of the same people, consequently many seasons may elapse and still "a clear line of demarcation" will not have been recognized.

UNIVERSITY, VIRGINIA D. I. BUSHNELL, JR.

[1] Moorehead, op. cit., p. 35.

ANTHROPOLOGIC MISCELLANEA

First National Conference on Race Betterment.—Four hundred men and women of prominence, comprising the first representative group of scientific experts ever gathered in America for that purpose, met in Battle Creek, Michigan, January 8–12, to assemble evidence of race deterioration and to consider methods of checking the downward trend of mankind. The meeting was known as the First National Conference on Race Betterment. Already the effect of the Conference is apparent in Battle Creek, where popular interest in mental and physical efficiency was awakened by a series of public school tests which showed an alarming percentage of defective children in all grades. The Conference had its inception in the efforts of four men, particularly interested in race betterment—Reverend Newell Dwight Hillis, pastor of Plymouth Church, Brooklyn; Dr J. H. Kellogg, of the Battle Creek Sanitorium; Sir Horace Plunkett, former minister of agriculture for Ireland, and Professor Irving Fisher of Yale University. At the invitation of a central committee chosen largely by these men, fifty men and women of national prominence in the fields of science and education shared in the program. Their addresses, together with open discussion of many of the points considered, constituted a widespread study of all phases of evident race degeneracy and the advocacy of many ideas of reform. Some of the suggested methods of improvement are frequent medical examination of the well, outdoor life, temperance in diet, biologic habits of living, open-air schools and playgrounds, the encouragement of rural life, the segregation or sterilization of defectives, the encouragement of eugenic marriages by requiring medical certificates before granting license, and the establishing of a eugenics registry for the development of a race of human thoroughbreds. Among those having a share in the program were: Rev. Newell Dwight Hillis, Jacob Riis, Judge Ben B. Lindsey, Booker T. Washington, Dr Victor C. Vaughan, Dr S. Adolphus Knopf, Dr C. B. Davenport, Dr J. N. Hurty, the Very Reverend (Dean) Walter Taylor Sumner, and many others of equal prominence.

Peabody Museum Building.—On May 28, 1913, the sod was turned for the foundations of the last section of the Peabody Museum of American Archæology and Ethnology of Harvard University that will join it to

the University Museum. An address by Professor F. W. Putnam, who assisted in breaking ground for the first section 54 years ago, was read, in his absence through illness, by Dr Charles Peabody. A considerable company listened to the reading which took place in the Peabody Museum, and proceeded afterward to the southwest corner of the open space between the Peabody section and the Geological section of the University Museum. Here President Lowell with a spade cut out a sod, which was lifted and placed on a wheelbarrow by Mrs H. L. Higginson, a daughter of Professor Louis Agassiz. After that, Messrs George and Max Agassiz, with Dr Charles Peabody, Mr C. C. Willoughby, and other officers of the different sections of the Museum, lifted sods and placed them in the wheelbarrow, Professor Putnam being represented by his son Eben and his daughter Alice, thus following out the plans made by Professor Louis Agassiz for the cutting of the first sod of the Museum building. A small column of earth adjoining the spot where the sod was cut was left standing in the excavation so that Professor Putnam might actually take part in the removal of the last sod. On June 21 Professor Putnam, Mrs Putnam and Miss Putnam, Mr Samuel Henshaw, Director of the Museum of Comparative Zoölogy, Dr Peabody and his son Alfred, with Mr Willoughby and Mr Guernsey, officers of the Peabody Museum, took up this sod and removed the column of earth from the excavation. Professor Putnam's address is printed in full in *The Harvard Graduates Magazine* for September, 1913.

Rev. Joseph Alexander Gilfillan died in New York City on November 18, 1913, after a year's illness. Mr Gilfillan was born near Londonderry, Ireland, in October, 1838, and was of Scotch-Irish descent. He was educated in Londonderry, spent two years in the University of Edinburgh, and when nineteen years of age came to the United States and settled in the then Territory of Minnesota. He was engaged in business with his uncle at Faribault, then studied three years for the ministry in the Theological Seminary of New York, and after traveling for a year went to Duluth, where he was ordained as an Episcopal clergyman in 1870. He remained in Duluth for two years, spent a year in Brainerd, Minnesota (at both of which places he had a church), and in 1873 was sent as missionary to the Chippewa Indians at White Earth, Minnesota, where he remained until failing health compelled his retirement, twenty-five years later, after which time he resided chiefly in Washington, D. C. Mr Gilfillan had the superintendence of all the missionary work of the Episcopal church in Minnesota, his circuit covering an area of nearly

300 miles in the northern, sparsely settled part of the state. It may be said that his assignments were always in the most difficult and inhospitable places, whether among the Indians or in the lumber camps. He acquired an excellent speaking knowledge of the Chippewa language, and endeared himself to the Indians by his gentle and kindly manner. He wrote many articles on Chippewa subjects, including "Minnesota Geographical Names Derived from the Chippewa Language" (*Fifteenth Report of the Minnesota Geological and Natural History Survey*, 1887), and was the author of "The Ojibway, a Novel of Indian Life of the Period of the Early Advance of Civilization in the Great Northwest" (New York and Washington, 1904).

MR ALANSON SKINNER has returned from a four months' collecting trip among the Indians of Manitoba and Wisconsin for the American Museum of Natural History. While in Manitoba he made a detailed study of the so-called Plains Ojibwa, a group regarding themselves as independent of the Ojibwa proper, and designating themselves as "Bungi." Part of the Bungi reside on Turtle Mountain reserve in North Dakota. The chief point of interest resulting from Mr Skinner's observations is that these Ojibwa present very clearly traits of culture pertaining both to the Central Algonquian tribes of the eastern woodlands and to the Plains Indians of the buffalo country to the west. The study of these transitional or mixed cultures is of importance just now, because of the discussions between geographers and anthropologists as to the relation between geographical environment and culture. Also, such studies bear directly on the theoretical problem as to whether a people gets its culture chiefly by borrowing it from others or by inventing it independently under the stimulus of similar conditions of life.—*American Museum Journal.*

AMONG the lectures delivered in the course of the University Museum, Philadelphia, commencing November 1, three were by Professor Boas, on American Race Problems, the Indian, the African, and the Immigrant being successively discussed on November 8 and 22, and December 6. On November 15 Mr Frederick I. Monsen spoke of Mexico and Her People, and on the 29th Mr Fay Cooper Cole addressed the Museum on The Pygmies: the Social and Home Life of the most Primitive of Living Races. On January 3 Mr Monsen will lecture on The Indians of the Painted Desert: on the 10th Mr Cole will speak of Mindanao, the Land of Human Sacrifice: on the 24th Mr Charles Wellington Furlong will deliver an address on The Wild River Lands of the Guianas and Their Peoples, and on January 31 Professor Hiram Bingham will speak of The

Land of the Incas, presenting some of the results of his archeological researches in Peru.

Rev. Gilbert L. Wilson, of Minneapolis, a volunteer field-worker in anthropology for the American Museum of Natural History, has just completed two months' study of the zoöculture of the Hidatsa-Mandan Indians in North Dakota. The term "zoöculture" is often used to designate all the relations between man and animals, especially such as are to any degree domesticated. Mr Wilson reports the work unusually successful. His notes show that these people had worked out a detailed and definite body of knowledge for the breeding, training, and use of dogs as traction animals. Later when horses were introduced among them, they worked out another system for that animal. The results of this study will be published by the Museum.

In the alcove of the North American archeology hall of the American Museum of Natural History a mural series of unusual interest has recently been completed. It consists of five polychrome frescoes, three of which are enlarged copies of the frescoes on the walls of the cavern of Font-de-Gaume in France and two are enlarged copies from the ceiling of Altamira in Spain. The originals of these are handed down to us from the Old Stone Age and represent paleolithic art at its highest point of perfection. The date of these cavern paintings is problematical, but it is safe to say that they were painted at least twenty-five thousand years ago. The copies in the Museum were made by Mr Albert Operti.

Among the recent accessions of American objects by the University Museum, Philadelphia, are the following: Twelve ancient stone implements dug up on Calf island in Frenchman's bay on the Maine coast, collected by Professor Warren K. Moorehead and presented by Mr Edward Morrell; five painted buffalo robes and two deerskin pouches with porcupine-quill embroidery; a drum collected at Santa Clara, California, presented by Mr W. H. Mechling; a collection of Inca pottery, gold and silver images, and bronze implements, brought from Peru in the early part of the nineteenth century and presented by Mrs Randolph Clay of London.

On January 6 Associate Professor Frederick Starr, of the department of sociology and anthropology in the University of Chicago, begins a course of five illustrated lectures on the general subject of "Japan: The Land of the Rising Sun" at the Abraham Lincoln Center of the University Lecture Association in Chicago. The subjects of the individual lectures

are as follows: "The Life of the Japanese," "Japanese Religion," "The Hairy Ainu of Japan," "Korea: The Land of the Morning Calm," and "Far Eastern Questions."

THE department of anthropology of the American Museum of Natural History, New York, has recently purchased from Mr G. A. Paul, of Oldtown, Maine, a collection from the Micmac Indians. The Museum has hitherto possessed very few specimens from this tribe, and such specimens are rare in most institutions. The collection includes some old specimens of beadwork and various utensils showing carving similar to the characteristic work of the northeastern New England tribes.

THE death is announced of Dr A. F. Le Double, professor of anatomy at the École de Médécine in Tours, France. Professor Le Double was an indefatigable worker and published a number of works of special value to anatomy and anthropology on the variations of the muscular system and on the bones of the skull, face, and spine. Death overtook him in his sixty-sixth year and in the midst of preparation for further work on the variations of the human system.

THE CHARLES S. MASON archeological collection from the vicinity of Jonesboro, Tennessee, presented to the American Museum of Natural History by the late J. Pierpont Morgan, contains several remarkable engraved shell gorgets and a number of unusual stone implements among which are two large exceptional celts. The entire collection came from one locality and thus constitutes an important addition to the Museum's series for the Eastern states.

SIR ARTHUR EVANS has presented to the museum at Cambridge, England, the last instalment of an interesting set of objects selected from the collections of his father, the late Sir John Evans. The gift consists of 121 specimens ranging in date from prehistoric times to the eighteenth century. The value of the collection is greatly enhanced by the fact that all the specimens composing it were found in Cambridgeshire and the adjacent counties.

THE Department of Archeology of the Missouri Historical Society at St Louis has issued its first bulletin, devoted to *Prehistoric Objects Classified and Described*, by Gerard Fowke, the object of the paper being "to present as briefly as possible some information about Missouri's primitive inhabitants." The publication consists of 32 pages, including the index, and is illustrated with a number of plates. The price is twenty-five cents.

DR ALBERT ERNEST JENKS, Professor of Anthropology in the University of Minnesota will take sabbatical leave of absence from the university the second semester of the present year. He will spend February and March, 1914, in the southern part of the United States, and the next six months in northern Africa and in Europe. He will observe certain aspects of ethnic amalgamation, and influence of environment on groups of men.

AT the recent annual meeting of the American Anthropological Association held in New York City, Professor Roland B. Dixon of Harvard University was re-elected President, and Professors Franz Boas of Columbia University and George Grant MacCurdy of Yale University were designated to represent the Association at the International Congress of Americanists to be held in Washington, D. C., October 5 to 10, 1914.

NEWS has been received from Dr William C. Farabee, who is now in Brazil directing the University of Pennsylvania Expedition in the Amazon region. The expedition had passed through the territory inhabited by the Macusi Indians, and was starting, with forty porters, through the Wai Wai country into unexplored parts of French and Dutch Guiana.

AT the Dropsie College for Hebrew and Cognate Learning, Philadelphia, Dr Ignaz Zollschan, of Vienna, will deliver three lectures on January 14, 15, and 19 on "The Cultural Value of the Jewish Race," "The Significance of the Mixed Marriage," and "Tendencies of Economic Development Among the Jewish People."

MR CHRISTOPHER WREN, of Plymouth, Pa., curator of archeology of the Wyoming Historical and Geological Society at Wilkes-Barré, announces the approaching publication of a work on *North Appalachian Indian Pottery*, comprising about 100 pages of descriptive matter and numerous illustrations.

AT the meeting of the general committee of the American Association for the Advancement of Science at Atlanta, Georgia, commencing December 29th, Dr Clark Wissler, of the American Museum of Natural History, was elected Vice-president for Section H (Anthropology) to serve during 1914.

MR J. P. HARRINGTON announces that his recent extensive study of the languages of the Yuman and Chumashan stocks of California leads him to believe that these two stocks are genetically related, and that the relationship is traceable even in some of the more minute features of the structure.

We regret to record the death, on April 4th last, of Lamberto Loria, who had recently organized the Musei di Antropologia e di Etnologia of Rome and Florence, and, on June 5th, at Torino, of Antonio Marro, a former assistant of Lombroso.

At a meeting of the American Ethnological Society held at the American Museum of Natural History, November 26, Dr A. A. Goldenweiser read a paper on "Individual Names among the Confederated Iroquois."

The annual Huxley Memorial Lecture of the Royal Anthropological Institute of Great Britain and Ireland was delivered on November 14 by Professor W. J. Sollas, F.R.S., who took as his subject "Paviland Cave."

Dr Aleš Hrdlička, of the U. S. National Museum, has been named a titular member of the Société Impériale des Amis d'Histoire Naturelle, d'Anthropologie et d'Ethnographie, Moscow, Russia.

Dr Livingston Farrand, Professor of Anthropology in Columbia University, has been elected President of the University of Colorado.

Mr W. J. Wintemberg has been appointed preparator in archeology in the Geological Survey of Canada.

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