



AS-002126

CSL

R April 27

1905

C. S. L.

3

A MONOGRAPH

ON

GOLD AND SILVER WORK

IN THE BENGAL PRESIDENCY.

BY

D. N. MOOKERJI, M.A.,

ASSISTANT DIRECTOR, LAND RECORDS AND AGRICULTURE, BENGAL.

Delete Call No.



Calcutta:

THE BENGAL SECRETARIAT BOOK DEPÔT.

1905.



CSL

739
M 74 M

Published at the **BENGAL SECRETARIAT BOOK DEPÔT,**
Writers' Buildings, Calcutta.

—♦—
OFFICIAL AGENTS.

In India—

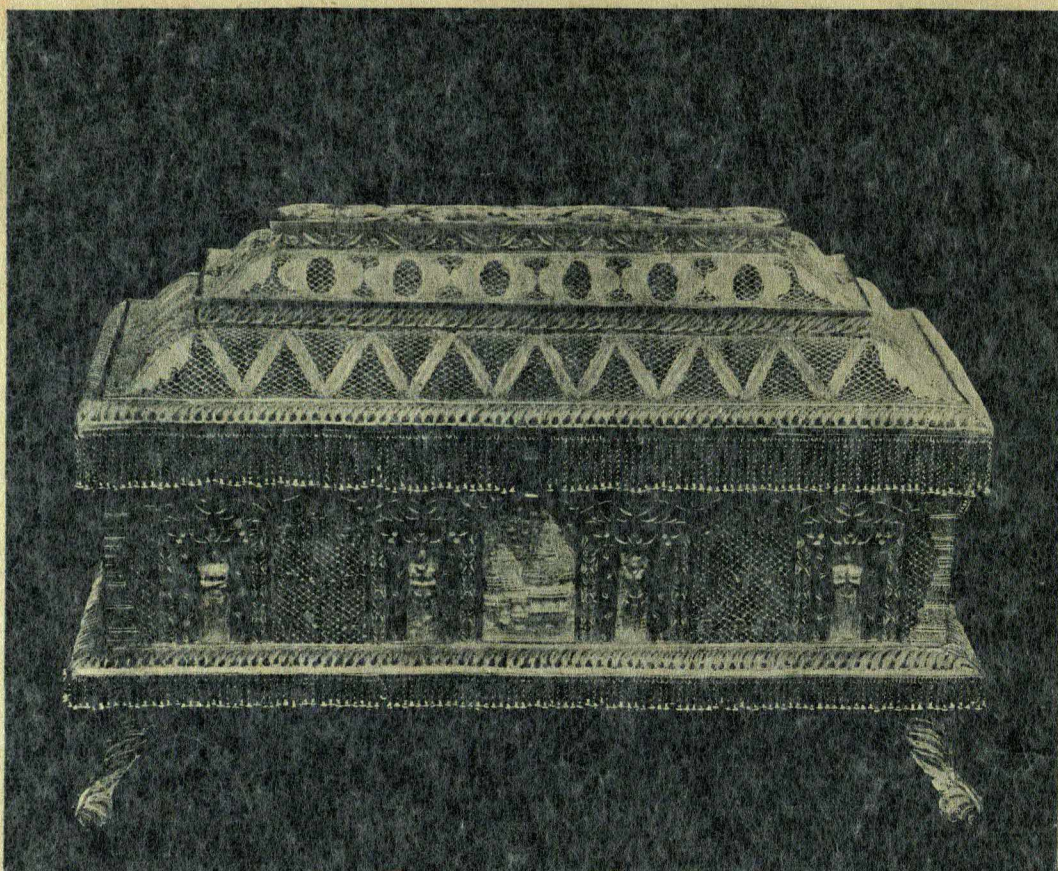
MESSES. THACKER, SPINK & Co., Calcutta and Simla.
MESSES. NEWMAN & Co., Calcutta.
MESSES. HIGGINBOTHAM & Co., Madras.
MESSES. THACKER & Co., Ltd., Bombay.
MESSES. A. J. COMBRIDGE & Co., Bombay.
THE SUPERINTENDENT, AMERICAN BAPTIST MISSION PRESS, Rangoon.
MRS. RADHABAI ATMARAM SAGOON, Bombay.
MESSES. R. CAMBRAY & Co., Calcutta.
RAI SAHIB M. GULAB SINGH & SONS, Proprietors of the Mufid-i-am Press,
Lahore, Punjab.
MESSES. S. K. LAHRI & Co., Printers and Booksellers, College Street,
Calcutta.
MESSES. V. KALYANARAMA IYER & Co., Booksellers, &c., Madras.
MESSES. D. B. TARAPOREVALA, SONS & Co., Booksellers, Bombay.
MESSES. G. A. NATHSON & Co., Madras.
MR. N. B. MATHUR, Superintendent, Nazair Kanum Hind Press, Allahabad.
THE CALCUTTA SCHOOL BOOK SOCIETY.

In England—

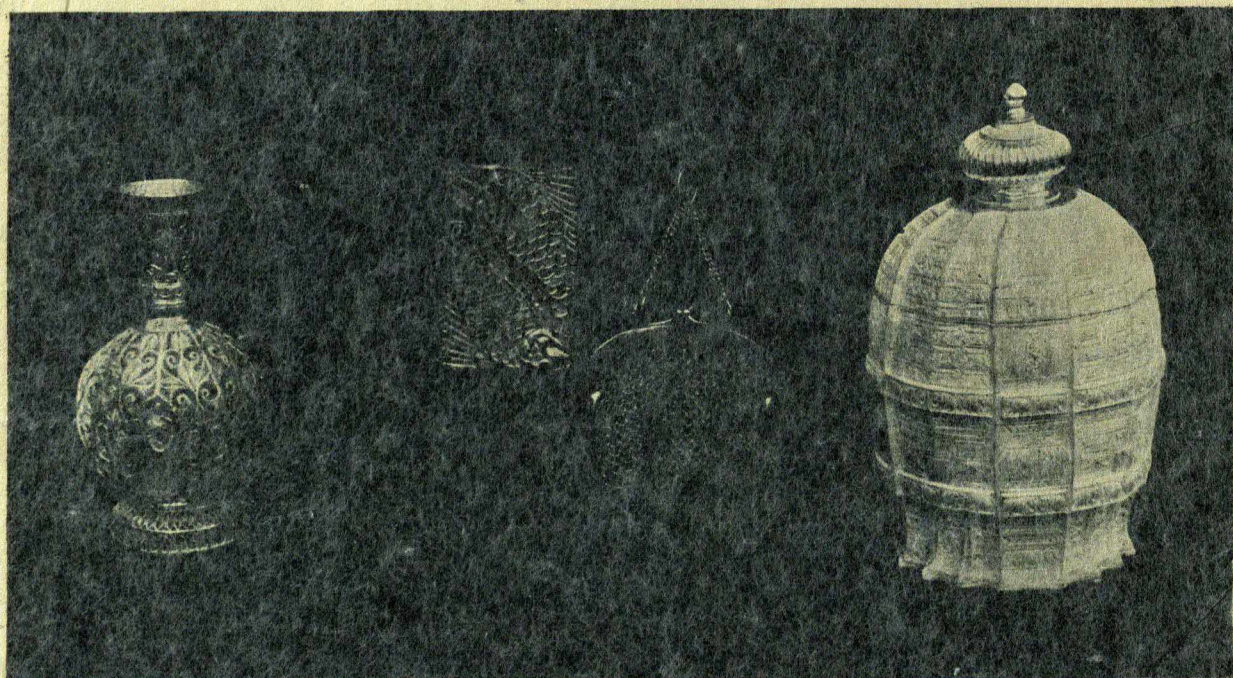
MR. E. A. ARNOLD, 41 & 43 Maddox Street, Bond Street, London, W.
MESSES. CONSTABLE & Co., 16 James Street, Haymarket, London, W.
MESSES. KEGAN PAUL, TRENCH, TRÜBNER & Co., Charing Cross Road, London.
MR. B. ALFRED QUARITCH, 15 Piccadilly, London.
MESSES. P. S. KING & SON, 2 & 4 Great Smith Street, Westminster, London.
MESSES. H. S. KING & Co., 65 Cornhill, London.
MR. B. H. BLACKWELL, 50-51 Broad Street, Oxford.
MESSES. DREIGHTON BELL & Co., Cambridge.

On the Continent—

MESSES. R. FRIEDLÄNDER & SOHN, Berlin, N. W. Carlstrasse, 11.
MR. OTTO HARRASSOWITZ, Leipzig.
MR. KARL HIERSEMANN, Leipzig.
MR. ERNEST LEROUX, 28, Rue Bonaparte, Paris.
MR. MARTINUS NIJHOFF, The Hague.



Casket.



Vase.

Cardcase.

Purse.

Powder-box.

From the Orissa Art Union, CUTTACK.



TABLE OF CONTENTS.

	PAGE
CHAPTER I.—Introduction	1
„ II.—Antiquity of the Art in India	16
„ III.—Alloys and Refining Processes	2
„ IV.—Implements and Working Methods	4
„ V.—Present Condition of the Art in the Province	6
„ VI.—The Goldsmith's Art under Native and British Rule	15
„ VII.—Conclusion: Indian vs. European Jewellery	17



A MONOGRAPH ON GOLD AND SILVER WORK

IN THE BENGAL PRESIDENCY.

CHAPTER I.—INTRODUCTION.

The Metals.—The colour, lustre and power of resisting oxidation which gold and silver possess have caused them to be valued from the earliest ages. Their malleability, ductility and power of taking a high polish are other qualities that render them peculiarly suitable for artistic treatment. One grain of pure gold can be beaten into leaves which cover a surface of 54 square inches and are only $\frac{1}{222,000}$ th of an inch thick. And the same weight may be drawn into a wire 800 feet in length. Silver is less remarkable for these qualities. It further labours under the disadvantage of getting tarnished by the action of sulphuretted hydrogen gas (forming sulphide of silver) which is always present in the atmosphere of inhabited places and is exhaled in minute quantities by the human body.

The World's Output of Gold and the Contribution of India.—In 1899 the total output of gold in the world was over 15 million ounces against less than five millions in 1881. The production in the United States increased during this period from one million seven hundred thousand ounces to three millions eight hundred thousand ounces. Undoubtedly the greatest gold discovery made in the latter half of the 19th century (1885) was that of Witwatersrand district in the Transvaal. In 1899 it yielded just a little more than 25 per cent. of the whole world's production. India has likewise been added to the list of regions not previously important as gold producers which now contribute to the world's output. Its active production began about the same time as that of South Africa. In 1903 the annual produce of India rose to over 600,000 ounces valued at about three crore rupees and a half. This came almost wholly from the quartz veins of the Colar gold-fields in Mysore, Southern India.

CHAPTER II.—ANTIQUITY OF THE ART IN INDIA.

Gold and silver were not only known in the Vedic period, but were worked into ornaments of various descriptions. Originally the word *loha* simply meant a metal, and gold was known as *yellow*, and silver as *white*, *loha*; but later on the word *loha* came to stand for iron alone (Dr. P. C. Roy—Hindu Chemistry).

Antiquity of Gold and Silver as Elements of Ornament.—Judging from the relics and records that have come down to us, passion for personal decorations seems to have assumed in ancient India the form of an inordinate fondness for gold jewellery. Both social and climatic conditions contributed to the development of this taste. It is in curious contrast to the general simplicity of Indian life, and did not escape the attention of foreign travellers like Megasthenes (310 B. C.)

The gods of the Rig-Veda constantly present themselves adorned with a variety of jewels. Rudra is described as "firm with strong limbs, assuming many forms, fierce and tawny-coloured, shining with brilliant golden ornaments." (Wilson's Rig-Veda, II, 221.) The Maruts, the Aswins, and even the Asuras have various ornaments and plenty of gold and jewels. The sage Kakshivat, the reputed author of several of the hymns of the Rig-Veda, prays for a son "decorated with golden ear-rings and a jewelled necklace." The references to jewellery in the Ramayana and Mahabharata are too numerous for

quotation. Sita is represented as "arrayed for her marriage with Rama in a light rosy-red *sari* embroidered with gold, with jewelled butterflies in her raven black hair. Her ears are resplendent with gems; she has bracelets and armlets and anklets of gold, and a golden zone binds her slender waist. She has jewelled rings on her fingers and golden bells on her toes that tinkle as she walks with naked feet." In the *Ayodhya Kanda* of the *Ramayana* the inhabitants of that city are represented as going out in procession with Bharata to seek Rama in the order of their trade guilds: jewellers, potters, ivory-workers, perfumers, goldsmiths, weavers, carpenters, painters, musical instrument makers, blacksmiths, coppersmiths, cutters of crystals, glass-makers, in-layers, and others. Again in the *Mahabharata*, at the gambling match at Hastinapur, Yudhisthira is described as losing "first a very beautiful pearl; next a bag containing a thousand pieces of gold; next a piece of gold so pure that it was soft as wax; next a chariot set with jewels and hung around with golden bells; next 1,000 war elephants with golden *howdahs* set with diamonds; next 100,000 slaves all dressed in good garments; next 100,000 slave girls adorned from head to foot with golden ornaments; next all the remainder of his goods; next all his cattle; and then his whole kingdom, excepting only the lands he had granted to the Brahmins." It would be a commonplace remark to say that all this need not be literally true in every detail; but it abundantly proves that at the time of the composition of these grand old epics gold and gem-set ornaments and plates were in common use in the Royal Courts of India. In the *Sarada Tilaka* (Wilson's *Hindu Theatre*, II, p. 385) mention is made of an Andhra lady "whose graceful ear is decorated with a scroll of gold, whose nose-ring, set with pearls, trembles to her breath; and over whose bosom spreads the saffron-dyed vest." In the first century, before the Christain era, Sudraka, in his play of the "Toy Cart," did not think it inconsistent to describe in the courtyard of a courtesan's house jewellers' shops "where skilful artists were examining pearls, topazes, sapphires, lapis-lazuli, coral, and other jewels. Some set rubies in gold, some string gold beads in coloured thread, some string pearls, some grind lapis-lazuli, some cut shells, and some turn and pierce coral."

Continuity of Indian Social Life, and with it of the Indian Arts.—In the *Nirukta* or Etymological Glossary of the Vedas, and in the Grammar of Panini, who is supposed to have lived in the 4th century B. C., the names of various kinds of jewels are given which are still the current names throughout India. But, though the names have come down in an unbroken tradition, fashion has changed the forms of many of them. The sculptures of Bhubaneswar, in Orissa, as pointed out by Dr. Rajendra Lala Mitra, afford us a pretty fair idea of what their shapes were twelve hundred years ago. The bas reliefs of Sanchi (150 B. C.) and Amaravati (second century A. D.) also exhibit specimens of a great variety of ornaments for the hands, feet, waist, neck, and head. On the whole there has been a gradual, steady, and marked advance towards refinement.

"The bangles, bracelets, anklets of Sanchi are the clumsiest possible. They are thick, rough, heavy, and almost devoid of workmanship. . . . The bangles and armlets of Amaravati, though mostly of the same patterns, are smaller, lighter, and neater, and the anklets are somewhat less ponderous. At Bhubaneswar they are not only reduced in size and weight but greatly improved in appearance."

But in many instances the very forms shown in the ancient sculptures have actually come down to us, and may be seen any day among the unsophisticated classes remote from towns, where modern influences on fashion have not penetrated yet. In India things move slowly. The life and arts here are still indeed the life and arts of antiquity.

CHAPTER III.—ALLOYS AND REFINING PROCESSES.

Alloys of Gold and Silver.—When pure gold is almost as soft as lead. Its melting point is somewhere between 1,200° to 1,425°C. The metal which is used by the goldsmith and for coinage is an alloy of gold with copper and sometimes with silver. This alloy not only melts more easily, but is also harder and does not so readily wear away when used. The yellow colour is

sensibly lowered by small quantities of silver and brightened by copper. In England the fineness of a sample of gold is expressed in *carats*, pure gold being said to be 24 carats. English sovereigns and half-sovereigns are made of 22 carat gold, or contain 22 parts of pure gold alloyed with 2 parts of copper (91.66 and 8.33 per cent., respectively). In the manufacture of English jewellery 15 or 12 carat gold is usually employed, but Indian goldsmiths generally use a much finer metal. Pure silver, though harder than pure gold, is yet too soft for ordinary wear. The addition of a few parts per cent. of copper considerably increases it in hardness and makes it more suitable for ordinary purposes. Alloys of silver containing 10 or 20 per cent. of copper are quite white. English silver coins contain 92.6 per cent. of silver and 7.5 per cent. of copper.

Solder—which plays such an important part in the manufacture of gold and silver articles—is an alloy with a much lower melting point than the stuff of which the body and parts are made. Small quantities of the solder with a little solution of borax are placed upon the parts that require cementing and melted under the blow-pipe. Solder for gold articles is generally thus made:—

Gold	...	...	...	16 parts.
Silver	...	...	...	1½ to 2½ "
Copper	...	...	...	1½ to 2½ "

No zinc is used in preparing the solder for gold in Orissa, but in Bengal from 1 to 1½ parts of zinc are added to the above.

But the percentage of gold in the solder is largely a question of remuneration. If the wages promised are low, the goldsmith pays himself by increasing the proportion of the cheaper metals.

The solder for silver articles is generally prepared thus:—

Silver	...	...	...	16 parts.
Copper	...	...	...	2 "
Zinc	...	...	...	4 "

Refining Processes.—Gold is separated from silver when the two are found in an alloy by beating it out into a thin sheet, coating it with a paste of common salt and brick-dust moistened with a little mustard oil or water, and burning it several times in a fire of cowdung cakes.

It may be interesting to observe that it is essentially the same method as was in vogue in Europe in ancient days. Strabo (first century A.D.) says that in his time gold in large quantities was refined by burning it with an aluminous earth which by destroying the silver left the gold in a state of purity. Pliny shows that for this purpose the gold was placed on the fire in an earthen vessel with treble its weight of salt, and that it was afterwards again exposed to the fire with two parts of salt and one of argillaceous rock.*

In Calcutta and other large towns gold is now separated from silver by the action of nitric acid. This is a modern method which our goldsmiths have no doubt learnt from the example of the European firms in which many native workers are employed. For this purpose the gold is first melted with some more silver and poured into a vessel of water when the mass breaks up into small particles (*pinjar*). The purer the gold, the larger is the quantity of silver required to mix with it. This is known as *quartation*, from the fact that the alloy best suited for the operation contains in every four parts three parts of silver and one part of gold. Thus, if it is about 15 carats, one and-a-half times its weight of silver will suffice; but if it is about 18 carats, double its weight of silver will be necessary for mixing with it. The small pieces obtained by pouring the melted alloy into water are next heated with strong nitric acid in an enamelled pot. The silver dissolves in the nitric acid, forming silver nitrate and leaving the gold behind in the form of dust; but the process has to be repeated four or five times before the dust is quite pure. The particles left behind are next melted in a crucible with a little saltpetre and borax, when a quantity of pure gold is obtained.

* The chemistry of the process is simple: silicate of soda was formed, and the chlorine being set free attacked the silver. The chloride of silver fused readily and dropped off exposing a fresh surface of the alloy to the action of the gas.

The silver is afterwards recovered by placing a plate of copper in the silver nitrate solution. The copper takes the place of the silver, copper nitrate being formed and silver being set free. The latter forms a deposit on the surface of the copper plate as a soft, fine, spongy mass. The common method of refining silver is by mixing it with its equal weight of lead in a pit lined with quicklime and ashes. A fire of charcoal is built upon the pit and blown into from above. The lead is oxidised to lead-oxide, which melts as it is produced, and is partly blown off and partly absorbed by the porous lining of the pit. When all the lead has been removed, the bare surface of the molten silver flashes out perfectly bright. This process is known in Europe as *cupellation*, and is carried out on a large scale in specially constructed reverberatory furnaces.

CHAPTER IV.—IMPLEMENTS AND WORKING METHODS.

Implements.—A request to see their tools is generally answered by the production of one or two coverless tin-boxes containing what may be shortly described as antique scrap iron. A small hole in the mud floor to do service as a furnace, an earthenware bowl and a couple of fans, generally innocent of handles, form the *tout ensemble* of the jeweller's shop. Technical skill and artistic perception are by no means wanting, and it is often astonishing to see how these men, working in a trying light with the crudest of crude tools in little huts a few feet square, turn out articles of exquisite design and perfect proportion. The tools are generally made by the goldsmiths themselves and are very much the same all over the Province. One of the plates gives some idea of those used in Cuttack.

The Processes.—The methods of producing works of art from gold and silver are as follows:—

- (a) Repoussé hammering (*nakashi* work).
- (b) Filigree or filigrane.
- (c) Engraving.
- (d) Die-stamping.
- (e) Damascening or inlaying (*bidri* work).
- (f) Casting or moulding.

(a) *Repoussé hammering or nakashi work.*—The principle of the process is very simple. When a thin sheet of paper is pressed with a blunt instrument against a pad a depression is produced appearing as an elevation on the opposite side. If a design is first traced on the paper it can thus be easily reproduced in relief. In the case of gold and silver a thin sheet of the metal is fixed upon a bed of *sāl* resin (exudation of *Shorea robusta*), brick dust and mustard oil melted together. This is known as *jow gālā* (Sanskrit *jātu*). As the composition cools and hardens it holds the sheet in position upon which the requisite design is now traced. A steel nail called *chhoni* and a small hammer are now used in making depressions on the sheet as required according to the design. The sheet is next taken out of the bed and remounted inside out showing the design in relief. The nail and hammer follow again depressing the ground still more and bringing the design out more clearly in all its details.

(b) *Filigree or filigrane.*—Cuttack is particularly famous for this style of work. A pretty thick wire is roughly produced by hammering the metal and then the wire is pulled through a series of graduated holes in a steel plate. This makes the wire finer and finer, till at length the requisite diameter is obtained. The wire is now cut up, bent and coiled into various sizes and shapes and arranged according to design on a piece of mica placed over a tin plate. The pieces are now soldered together under a blow-pipe one by one.

(c) *Engraving.*—Is done by cutting into the surface of the metal with small triangular pointed chisels according to designs.

(d) *Die-stamping.*—There are steel and bell-metal dies of various patterns produced by engraving. Gold or silver sheets are placed upon these patterns and on the top of the sheets a piece of lead. By gently hammering on the lead the gold or silver sheet below is pressed into the engraved pattern. A plain back is now soldered on to the stamped sheet and the space between the



front and back filled with shellac giving the article a solidity and enabling it to stand wear and tear. When the customer can afford to supply the metal in sufficient quantity for a solid article simple hammering over the die is enough.

The stamped surface is afterwards variously ornamented by repoussé hammering in the case of the thin sheets or by engraving and "diamond" cutting in the case of the solid pieces.

(e) *Damascening or Bidri work*.—This is a declining industry, practised only to a very small extent in one or two districts in Bengal, viz., Purneah and Murshidabad. It consists in in-laying gold or silver plates into a surface of vessels made of an alloy of zinc and copper. Various designs are engraved or carved on the surface and gold or silver plates cut in the exact measures are placed on the corresponding cavities and hammered in. Finally a permanent black colour is given to the ground with a solution of salammonic and saltpetre. The black colour of the ground shows off the gold and silver ornamentation by contrast. Vases, cups, *hookahs*, spittoons are thus decorated. The name *bidri* is derived from Bidar in the Nizam's dominions, the chief centre of the industry in India and, according to tradition, its original home.

(f) *Casting or moulding*.—Is hardly ever practised with gold and only to a very small extent with silver. A wax model is made and coated over with a thin layer of liquid clay. This is allowed to dry and harden when another layer of clay is put on and yet another till there is a pretty thick crust of clay on the surface. The whole is now heated in a fire when the wax melts and runs out through a hole left for the purpose, leaving a hollow mould of burnt clay. When melted silver is poured into the mould the original wax figure is exactly reproduced in all its details. Sometimes the mould is made of damp sand placed in two shallow iron boxes. In such cases the original must be of some hard substance. Impressions of the front and back are taken separately in the damp sand and the two halves are held in position by being firmly locked together after a hole is made in the mould to admit the molten silver. The metal is poured in and when it has had time to cool, the mould is broken up and the cast is obtained.

Silver cups, tumblers, dinner plates, *garoos* (spouted jugs) and *kalsis* (water pots) are common enough in the houses of well-to-do people; these, however, are not made by casting like bell-metal or brass utensils but by hammering the silver into the requisite shapes.

Colouring, cleaning and finishing.—For articles made of gold the process consists in melting together over a fire—

Salt (common)	...	...	...	1 part.
Alum	...	...	...	1 "
Saltpetre	...	...	...	2 parts.

and a little water. When boiling more water is added and the gold articles are put in only for 5 to 10 minutes. The articles are now taken out, washed with *nitha*-water and burnished with brass wire brushes. This makes the things very bright, but if kept too long in the solution they lose in weight, the gold getting dissolved.

In Cuttack a *paste* is made of these substances instead of a solution and the article to be coloured is coated with the paste and dried. If, however, the gold is more or less pure, the saltpetre is dispensed with, but in that case the article after being coated over with the paste of common salt and alum is burnt in the fire.

The chemistry of the thing is simple. The mixture sets free nitromuriatic acid (*aqua regia*) which dissolves the baser metals more than the gold. Thus a surface is obtained of pure gold even when the metal used is not pure.

In Bengal a high (almost red) colour is given to the gold articles. The colour lasts only a few months depending upon the amount of use. Even inferior gold looks as bright as pure gold under this treatment. It is done in this way: A couple of pieces of raw tamarind are boiled in their shells over a slow fire. The shells are then cast away and the pulp is mixed with a little water. A stock solution of common salt and alum is next taken and brought to a boil in an earthen pot. The tamarind water is now added to this, the requisite strength being ascertained by actual tasting. Just a trace of fine sulphur paste is added to this. After about half an hour while the whole is briskly boiling, the gold articles are put in and stirred with a wooden stick.

They are examined at first every minute, and later, as the colour comes on, almost every two or three seconds to prevent them getting overcoloured. When the right shade has been obtained, they are taken out and placed in cold water. Then they are wiped dry with a piece of cotton cloth. Lastly, they are put in hot sand to expel the water from inside the hollow tubes, if any. This colouring is much appreciated by Bengal women, but is not to the taste of women in other Provinces. The colour, as already mentioned, lasts only a few months.

Silver things (if made of pure silver) are cleaned by coating them with a thin paste of saltpetre and charcoal and then burning them over a fire. If, however, the silver is not pure, a little borax is also added to the paste. The process followed in Cuttack is to put them in a solution of ripe tamarind and then burn them. The process is generally repeated two or three times. They are next put in a boiling mixture of lime-juice and water. When lastly washed with *riitha*-water* they look snowwhite.

Silver things are also cleaned by boiling them in a solution of a bye-product or *gād* (acid potassium sulphate?) of nitric acid factories. The articles are boiled in the solution and then taken out and washed with cold water. This is a new process learnt by the native goldsmiths from the example of the European jewellers of Calcutta.

CHAPTER V.—PRESENT CONDITION OF THE ART IN THE PROVINCE.

Supply of Gold and Silver.—Besides what the country produces, gold and silver are imported by the Indian Exchange Banks. On an average English or Australian bar or China leaf (100 touch) sells from Rs. 24 to Rs. 25 per tola, while silver sells from Rs. 72 to Rs. 75 per 100 tola. Marwari merchants buy the metals from the banks and supply them all over the country. Besides these, old coins, especially Joypur mohurs, and modern English sovereigns are used in making into ornaments. Old ornaments themselves are also largely changed into new shapes and forms.

The material is generally advanced by the customers, but people who can afford to pay good prices for fancy work order them from Calcutta, Cuttack or Dacca. This discourages the local workmen who fall back upon the poor and the middle classes for their subsistence. For these reasons excellence of workmanship is sacrificed to the quantity of outturn, with the result that art becomes degenerated.

Census.—According to the Census returns of 1901 the total number of actual workers in gold, silver and precious metals was in that year 102,377 males and 2,654 females, besides 9,135 persons of both sexes who were also partially agriculturists. Thus the total number of workers were 114,116. These, together with their dependents, numbered slightly under three lakhs and a quarter. The number of men and women of the Sonar caste alone came to about two lakhs and a-half, showing that the trade is far from being a monopoly of the goldsmith caste.

In most districts the goldsmiths are greatly handicapped by the absence of a designer. It is inevitable under the circumstances that the imitative faculty should be developed at the expense of the creative. They execute orders, but do not launch out on a new idea, while they seldom or never turn out a piece of original work; they can copy even an intricate pattern wonderfully well. But unless they are making some new design to order, they have no pattern before them, and they make again what they and their fathers have made so often before.

The following is a description of the principal gold and silver vessels :—

The vase, dish, rose-water sprinkler, *attar* tray and *hukkas* are objects which the higher classes use in table service, or on occasions of weddings, or in ceremonials, such as darbars and formal meetings, and represent the plate of a European establishment displayed on special occasions. All Indian potentates

* *Riitha* is *Sapindus Mukrossi* or soap-nut.

have sets of more or less magnificence of silver, or gold-plated or gold, sometimes of gold inlaid with precious stones. The rich merchants and those accustomed to entertain visitors with some ceremony also have their modest equipment of silver platters for pan-leaf, boxes for the betel-nut, and a vase or bottle for *attar* of roses, and rose-water offered to the guest. The high European officials who hold darbars are also provided with sets of these necessary ceremonial accompaniments, and some of this plate handed down from the days when everything in India was done on a magnificent scale is very handsome.

Lord Clive used the darbar sets in the ceremonial receptions, and took them to England. The rose-water vases or sprinklers are used throughout India on occasions of weddings, nautch parties and ceremonial meetings; and visitors are served with betel-leaves and areca-nuts and *attar*, and are sprinkled with rose water from silver vases. Native visitors receive *attar* and rose water on their clothes, but European gentlemen receive their share on their handkerchiefs; and at the close of a darbar also the visitors are served with betel-leaves and areca-nuts, and are sprinkled with rose water from silver vases of this sort.

There is hardly an important village in the Province without a goldsmith's shop; but, despite the universality of the trade, there is nothing particularly noticeable in the style of the articles produced excepting in the two important centres of Cuttack and Dacca. An account is given below of the condition of the industry at these and a few other selected centres at the present time. Calcutta has naturally attracted to itself the best artists from the interior, and excellent specimens of gold and silversmith's workmanship can be seen in many places in the metropolis and its suburbs :—

CUTTACK DISTRICT.

Gold and Silversmiths as a Caste.—The gold and silversmiths of the district belong to the Baniya, Bais Baniya, and Subarnabanik castes as distinguished from the Gandharbaniks, and are commonly known as Baniyas. They pride themselves as belonging to one of the twice-born (that is, Vaisya) castes. They wear the *paita* or sacred thread on the occasion of their marriage, and get their daughters married between the ages of seven and eleven. Their widows do not eat meat and fish, and there is no widow-marriage among them.

About 400 families live in the town of Cuttack and about 2,000 families of gold and silversmiths live also in the interior of the district.

People of other Castes working as Gold and Silversmiths.—In the town of Cuttack there are some Brahmins, *saniyasis*, *gurias*, *telis*, and *jiyotishes* working as gold and silversmiths.

Goldsmith's Instruments.—The principal instruments used by the local goldsmiths are—(1) the *gharia* (crucible for melting), (2) the *haturá* or *haturi* (hammers of various sizes), (3) *sandasi* (tongs), (4) *nali* (blow-pipe), (5) *chēmtā* (forceps), (6) *nehi* (anvil), (7) *janta* (an iron bar with a series of graduated bores for drawing gold and silver wires), (8) *siāri* (heavy pincers for pulling wires), (9) *patangir* and *pilās* (light pincers for pulling wires), (10) *mekraz* or *kainchi* or *katri* (shears and snips), (11) the *kalam* (punch for chasing), of various sizes, (12) the *thosa* (an iron or bell-metal die with various engraved designs), (13) the *salai* (iron chisels for engraving), (14) the *bālāncha* (hand-brush made of hog's hair), (15) the *meghnāla* (mica plates over which wires are arranged for filigree works), (16) the *kansule* (a bell-metal cube for shaping round ornaments, e.g., *ghungras*), (17) the *goba* (an iron pencil-shaped instrument with a round top for pressing the metal over the *kansuli*), (18) the *moskola* (an instrument for polishing gold and silver work), (19) the *sohana* (file), (20) the *dhalā* or ingot-mould (a brick with a hollow in it for pouring in melted gold or silver), (21) the *umchi* (stone), (22) compasses, (23) the *tāra gora nali* (wooden cylinder about which gold and silver wires are wound), (24) the *hatol* (an iron needle over which gold and silver wires are wound for making chains).

Alloys.—The silversmiths by mixing zinc at the rate of from 4 annas to 6 annas weight in the rupee with *chandi* (or pure metal) make a kind of alloy known as the *kāmsār* or *mohurā*, and by mixing copper at the rate of from 4 annas to 6 annas weight in the rupee with *chandi* make another kind known

as the *kala* silver. Ornaments used by the poorer classes are ordinarily made of *mohurá* or *kala* silver. *Mohurá* sells at the rate of 9 and $9\frac{1}{2}$ annas and *kala* silver at 7 and 8 annas per *bhari*.

Filigree Work.—It is done with good gold or *chandi* silver with an alloy as noted below. A *bhari* of pure gold is alloyed with copper and *chandi* silver in proportions of 16 : 1 : 1. A *bhari* of *chandi* is similarly alloyed with copper in proportion of 16 : $0\frac{1}{2}$. The alloy is then made into a rough sort of wire which is passed through the *janta* (a bar of steel with bores of different sizes in it) and pulled hard till the wire lengthens. Four or five kinds of wires (*i.e.*, of different thickness) are thus made and cut according to sizes required.

Over a tin-plate a piece of mica is placed. The thick wires are then arranged over the mica plate according to the outlines of the design. The wires next in thickness are then placed near the thick wires as required by the design. They are then soldered with *pán*. Two or three of the finest wires are then twisted and heated and hammered gently on one side, so as to form a fine silver ribbon with a ribbed edge. They are then cut into bits according to the sizes required and bent according to the work to be done. Each bit of wire is then set for ornamental purposes in small coils in the midst of the previously set thicker wires. When the different kinds of wire have been arranged, they are cemented together with *pán* by putting the plate over the fire.

Exports and Imports.—No accurate information as to the quantity of gold and silver imported and exported can be had; but as a matter of fact about Rs. 1,00,000 worth of gold and about Rs. 3,25,000 worth of silver are imported into Cuttack annually, and gold and silver ornaments and fancy articles are exported not only to Puri and the Tributary States in Orissa, but to Calcutta, Delhi, Bombay, Cutch, Bangalore, Akyab, Mauritius, and other places.

Names of principal kinds of Ornaments, Plates, etc., made in Cuttack.—

I.—Ornaments for the head—

- (1) *Alaka* or *Sinti*, for the forehead.
- (2) *Chour Bhundi* (a hair-pin with four or five chains suspended from it).
- (3) *Guji Kathi* (a hair-pin worn above the *Chour Bhundi*).
- (4) *Maliká Karha Málá* (a string of buds of *Maliká* or *Eel* flower, worn round the tuft of hair).
- (5) *Mathá Mális* and *Deunriás*, of various sorts, worn round the tuft of hair.
- (6) Various kinds of flowers, *e.g.*, rose, *champá*, *chameli*, chrysanthemum, etc., of filigree work (used as hair-pins).

The above are made either of gold or silver.

II.—Ornaments for the ears—

A.—For the lobe of the ear—

- (1) *Ganthá*, three spiral-shaped ornaments joined together.
- (2) *Kantakari*.
- (3) *Chowki*.
- (4) *Kápa*.
- (5) *Gokhurá*.
- (6) *Champá*.
- (7) *Noli*.
- (8) *Ful jhumka*.
- (9) The *Kána* (shaped like the ears and worn over them).
- (10) *Makri*, of various sorts.
- (11) Earring.

B.—For the sides of the ears—

- (1) *Báwli*.
- (2) *Gourni Phásiá*.
- (3) *Firfirá*.
- (4) *Páta*.

C.—For the upper portion of the ear—

- (1) *Malkari*.
- (2) *Patá*.

The above are generally made of gold.

III.—Ornaments for the nose—

- (1) *Basuni*, a conical-shaped ornament worn through one nostril.
- (2) *Ful Gunā*, a circular-shaped ornament for the other nostril.
- (3) *Nātha*, a round nose ornament, made of various patterns.
- (4) *Mayur Guna*, a nose ornament shaped like a peacock.
- (5) *Nak Machi*, or a fly-shaped nose ornament.
- (6) *Nak Chabi*, or a nose ornament shaped like the flower.
The above are for the nostrils only.
- (7) *Dandi*, a nose ornament worn at the end of the bridge of the nose : it is shaped like a half-moon.
- (8) *Nolaks* (as in Bengal).

The above ornaments are made of gold.

IV.—Ornaments for the neck—

- (1) *Chābsiri*.
- (2) *Chick*.
- (3) *Kanthi* (a string of beads).
- (4) *Hārs*, of various kinds (neck-chains).

The above are made either of gold or silver.

V.—Ornaments for wrists and lower arms—

A.—Bracelets—

- (1) *Kharu*.
- (2) *Kangani*.
- (3) *Paincha*, of various patterns.
- (4) *Churi*, of various patterns.

B.—Armlets—

- (1) *Tara*.
- (2) *Bahu Suta*.
- (3) *Bida* (generally a string of old coins).
- (4) *Rasunia*.
- (5) *Taita*.
- (6) *Ananta*.
- (7) *Jasam*.

The above are made either of gold or silver.

VI.—Ornaments for the waist—

- (1) *Chandrahār* (consists of from two to five chains fastened together at the end).
- (2) *Gotha* (ditto ditto).
- (3) *Sutā* or thread (ditto ditto).
- (4) *Surjya Hār*, in one chain only.
- (5) *Bichha* in two or three chains.

The above are made either of gold or silver.

VII.—Ornaments for the ankles—

- (1) *Pancham*.
- (2) *Pāhura*, worn below the *Pancham*.
- (3) *Māla*, worn below the *Pāhura*.
- (4) *Bala*, which is shaped like a curve, worn below the *Māla*.
- (5) *Pao Padma*, which is an arrangement made to cover the feet entirely and connected with five *chutkis* or *jhuntias* (rings for the toes).

(The above are made of gold for use by the *ranis* of Tributary Chiefs only. People of other classes use the above made of silver only. They cannot use gold ornaments for the feet.)

In the interior of the district men of the Kshetriya, Khandait, Guria and Teli castes and Pandits or learned Brahmins use earrings of gold.

Silver Fancy Articles and Ornaments of Filigree Work generally kept for Sale in the Cuttack Market and their Price.—

- (1) *Attardan*, of various shapes. Price from Rs. 20 to Rs. 200.
- (2) *Golabas*, of various shapes. Price from Rs. 20 to Rs. 60.
- (3) *Rekabi* (plate), of different varieties. Price from Rs. 8 to Rs. 50.
- (4) *Singhasan* for idols. Price from Rs. 10 to Rs. 100.
- (5) *Jhara* with *attardan*. Price from Rs. 40 to Rs. 150.
- (6) Toy baskets. Price from Rs. 25 to Rs. 100 each.
- (7) Vases for keeping flowers. Price from Rs. 16 to Rs. 30.

- (8) *Pán Dibi* (betel case). Price from Rs. 10 to Rs. 20.
- (9) Necklaces with various kinds of flowers. Price from Rs. 10 to Rs. 20.
- (10) Belt. Price from Rs. 4 to Rs. 10.
- (11) Hairpins with flowers of various kinds. Price from Re. 1 to Rs. 5 each.
- (12) Bracelets, of various patterns. Price from Rs. 8 to Rs. 12 per pair.
- (13) *Churis*, of various patterns. Price from Rs. 12 to Rs. 20 per pair.
- (14) Brooches with figures of animals. Price from Re. 1 to Rs. 2-8 each.
- (15) Dolls, figures of animals, etc. Price from Rs. 3 to Rs. 6 each.
- (16) Buttons and studs for shirt. Price from Rs. 1-8 to Rs. 3 a set.
- (17) *Hookha* mouthpiece. Price from Re. 1 to Rs. 3 each.
- (18) Cigar-case. Price from Rs. 8 to Rs. 12 each.
- (19) Card-case. Price from Rs. 8 to Rs. 16 each.
- (20) Picture frames.

Orissa Art Union Factory.—But no account of the condition of the gold and silversmiths' craft in the Cuttack district will be complete without mention of the Orissa Art Union Factory of Mr. M. S. Das. In purity of design and delicacy of finish the articles turned out in this factory surpass anything that can be seen anywhere else in the Province to-day. Mr. Das has shown what may be achieved by combining the best hereditary training and talent of the native artist with modern mechanical aid. The venture is full of suggestion and indicates the path that has to be followed in the industrial revival of the country generally.

DACCA DISTRICT.

Such claim as Dacca can advance to industrial eminence must be based almost entirely on her skill in the textile arts. All her other industries have ever been subordinate to the muslin manufacture for which she is justly famous. And while it is difficult enough to trace out any history of the Dacca muslin industry, we are baffled at every turn when we attempt to get any clear idea of the former days of her gold and silver manufacture. Such of the old writers as mentioned Dacca thought her muslin worthy of, at any rate, a passing reference, but they tell us nothing of the gold and silver. Dr. Taylor, who enters into long details about the muslin, dismisses the gold and silver with a word. "The Dacca workmen," he says, "excel in filigree work. They make bracelets, neck-chains, earrings and other ornaments, and also vessels for *attar* and rose water, all of which are sent to different parts of the country. There are upwards of 300 persons engaged in this business in the city" Dr. Wise in his "Notes on the Races, &c., of Eastern Bengal" gives us a sketch of the Sonar castes, but we learn little about Dacca from it save that "In Dacca there are about 70 families (*i.e.*, of the Uttar Rarhi Sonars) who are employed as clerks, accountants and bankers;" so it appears they, at any rate, have abandoned the old employment of their caste; also "the Nadeya Sonars, driven from their homes by the Mahrattas, crossed the Ganges and settled in Dacca. The patronymics of this caste are Sil, Pal, Sena, Maulika, De, &c." But we cannot draw any inferences from the numbers of these names in Dacca to-day, as they are also patronymics of other castes. Dr. Wise continues: "While the *tik-sal* or mint was opened in Dacca, the Nadeya Sonars worked as *son-dhoas*, gold-washers . . . , but since its closure (about a century ago) they have worked as *son-dhoas* on their own account."

There is in Dacca no definite caste of gold and silver workers: any one who cares to learn may ply the trade. At one time it would appear the industry was in the hands of the Swarna Banik caste, but now the Karmokars are the leaders in Dacca, and we find Dhobeas, Napits, Kumars, a Bysak even, as well as Mussalmans engaged in it. This lack of exclusiveness has impoverished the artisans by removing all restrictions on competition, and as a class the gold and silver workers of Dacca to-day are poor and ignorant men. There are no real big men in the trade. But it appears that in the old days, whenever they were, the goldsmith was a rich man, fattening on the patronage of the local zamindars. Such an environment usually favours artistic progress, but it did not do so in Dacca either for the muslin or for the metals. In both we see that technical skill formerly reached a high point of excellence, but in the matter of ideas Dacca artisans have always been pious conservatives. It is astonishing how few changes we can trace. Some kinds of dishes that were once made of hammered work



are now made of filigree. We can see considerable improvement in the embossed work, but the filigree of to-day is not so good as the old filigree. Enamelling is growing in popularity, and in place of the crude attempts of former days we find some quite good enamel turned out now.

The Dacca smith is a clever workman. Many of the best craftsmen in the big Calcutta jewellers' workshops were born on the banks of the Booriganga.

While it cannot be denied that the Dacca smith seldom or never turns out a thoroughly well-finished piece of original work, it must in fairness be conceded that he can copy even an intricate pattern wonderfully well.

On the occasion of a procession much gold and silver work sees the light of day. We have a silver *howdah*, silver and gold *chowkees*, silver and gold embroidered trappings for elephants and horses, and many another structure. For these purposes filigree work is obviously unsuitable, as the aim of such things is striking and often garish effect—a thing rather beyond the scope of filigree work.

The most interesting branch of Dacca silver work is undoubtedly the filigree, and this is the branch of it which is known best out of Dacca. In the possession of the Dacca Nawab are large models of his various palaces, made by one Ananda Hari Rai, who is the best living filigree worker in Dacca. The same man also made two filigree elephants which went to Delhi on exhibition. Except for small ornaments, however, which are made very beautifully by some men, the finish of modern Dacca filigree will not compare for a moment with, say, Cuttack work. The commonest products of the filigree industry are ornaments and dishes, especially dishes to hold *attar*. These last are made like a bunch of flowers with the dish concealed in the middle; and this fundamental idea is embodied in many variations. The decay of filigree work is attributed to the lack of demand. But perhaps the real reason is lack of initiative on the part of the artisans. Popular taste being changeable, they ought to produce novelties and try to tempt the market. But they obstinately repeat the old ideas, the old patterns, and wait for commissions which come in ever-dwindling numbers.

Of the gold work there is little to say. Stone-setting and ring-carving are well done. The commonest products of the industry are rings, bracelets, earrings and other female gewgaws. There is nothing save some occasional striking piece of work that attracts special attention.

The numbers employed in the gold and silver work show that the industry is a flourishing one. In Dacca district the last census shows that well over 6,000 people earn their livelihood in this way—a number much greater than formerly. In Dacca City over 800 men are so employed, whereas in Dr. Taylor's time the number was 360. The great bulk of these 6,000 workers make only simple ornaments and utensils; in Dacca City alone is any fine work attempted. Thus the average earnings are small—some Rs. 15 to Rs. 20 a month. No profit is made on the metal, and the rate for simple silver work is three or four annas per tola. Of course for fine work as much as Re. 1-8 may be charged. The cost of working gold varies from Rs. 2 per tola upwards.

As an industry, gold and silver working in Dacca is anything but moribund, but it shows many signs of artistic decadence. Dacca smiths will not speculate, nor do they even try to secure a market by careful attention to orders. It is but few of them who have any stock to show, and even those few have very little. There is a considerable export of Dacca silver to other parts of India. Dacca-made silver *hookahs* are held in high repute, but the export of general work is probably not very great; for while we must make some distinction in favour of the goldsmiths, we can nevertheless generalize so far as to say that Dacca gold and silver work is inferior to that of many other places in finish and originality of ideas.

MURSHIDABAD DISTRICT.

Murshidabad was never famous for gold and silverware. In Muhammadan times, Dacca usurped for itself all honour in this respect. Whatever prosperity the industry enjoyed in former times is no longer increasing, and on the whole it is waning. The decay of the nobility and the migration of the people to healthier districts on account of malaria have served to discourage the craft.

Classes carrying on these Industries.—The main classes of people who carry on these industries are the Sarnakars and the Subarnabaniks.

Their Number.—The actual workers in this district number 106 only.

Their Social Position.—Generally the people who are engaged in these industries do not pretend to much respectability in society. Their social position is low. None of the higher castes will take water from them, while they take water and sweetmeats from any one except the very lowest classes.

Their Industrial Position.—The industrial position of the gold and silver-smiths in this district is not very satisfactory. The masters of the workshops are better off than the workmen, and their income ranges from Rs. 40 to Rs. 300 a month. The workmen generally live from hand to mouth. They, however, are generally contented with their earnings and do not try to improve their position. The average income of a workman is from Rs. 7-8 to Rs. 25 a month, according to individual proficiency in the art.

Manner in which Products are disposed of.—Except at Khagra and Kandi, the goldsmiths rarely keep ready-made articles for sale. They execute orders for articles, and sometimes their customers advance the metal for the wares. The wares manufactured are not for export, but for local consumption. Articles are also sold through middlemen in the interior of the district on commission sale from the principal shops. There are some people who buy ware from the shops wholesale and sell them with some profit to themselves.

Centres of the Higher Form of the Industries with Village Industries.—Gold articles are best manufactured at Khagra and at Kandi. In Kandi some of the workmen from Dacca have settled there, and are turning out good ware. The principal shop is that of a Brahmin, a local inhabitant: strange to say, he is probably the only Brahmin who manages a gold and silversmith's shop.

Silver plate, cups, tumblers, etc., are best manufactured at Kandi. They are not beautifully carved, and in this respect are much inferior to Dacca-made ware. But the shape of the articles manufactured here is more graceful than those of Dacca, imitating as it does the famous brass and bell-metal ware of Khagra.

There are gold and silversmiths' shops at Jiaganj, Murshidabad, Azimganj, etc., but they are not worth mentioning.

Silver *balakata* (a kind of bracelet) is best manufactured at Pulinda in thana Barua in the Sadar subdivision. Silver *mal*, *tabij*, *chhond* (a kind of bracelet) are best made at Bhagirathpore, thana Jallangi, in the Sadar subdivision. The shopkeepers at Khagra and other places buy these ornaments from their manufacturers, and these village industries are famous in this district.

Below is a list of the principal articles turned out :—

Goldware.—(1) Bájoo, (2) Mákri (Jewish pattern), (3) Earrings, (4) Earrings with jhoor, (5) Earrings with stones set, (6) Plain jasham, (7) Star-pattern chain, (8) Star-pattern chain, (9) Star-pattern guard chain, (10) Dará Hár, (11) Tárer Choori, (12) Tárer Choori, (13) Choori with rose leaves, (14) Choori with potato leaves, (15) Chik, (16) Chik, (17) Ananta, (18) Bálá, (19) Bálá, (20) Bálá, (21) Jhoomká, (22) Jhoomká, (23) Hair-flowers, (24) Comb for hair, (25) Bálá, (26) Bálá, (27) Kángni.

Silverware.—(1) Abarjang Mal, (2) Pálang pátá Mal, (3) Pain-jor, (4) Elokeshi Mal, (5) Pán for head, (6) Altágote, (7) Kate, (8) Chandra Hár, (9) Mihi Hár, (10) Khalkhali Mál, (11) Bhágiráthpuri Mál, (12) Goláppásh, (13) Churi, (14) Hair-flower, (15) Tumbler, (16) Farshi, (17) Plate, (18) Bāti for hooka, (19) Dibiá for betel, (20) Cup.

PATNA DISTRICT.

At the marriage of a girl gold ornaments form the most costly portion of the paraphernalia and dowry. Gold ornaments are worn by certain classes of men also. Rajputs and Babbans wear gold necklace and armlets. A well-to-do gowala or dhobi wears, as a token of his affluence, gold ear-rings (one on each ear), a gold necklace, or a gold armlet or bracelet on the right arm.

There are certain ornaments, such as anklets with bells, which are not ordinarily made of gold. Vessels are not ordinarily made of gold.



The following is a list of gold ornaments with their weights and values:—

Name of ornament.	Weight.	Value.					
		Rs.	A.	P.	Rs.	A.	P.
Head—							
Mangtika	... 3 tolas	...	84	0	0		
Choti	... 4 "	...	112	0	0		
Tawiz	... 2 "	...	56	0	0		
Jhabea	... 2 to 3 tolas	...	56	0	0	to	84 0 0
Ear—							
Bali	... One weighing 3 mashas	...	7	0	0		
Putta	... " 4 "	...	9	0	0		
Jhumak	... " 1 tola	...	28	0	0		
Karanphul	... " 1 "	...	28	0	0		
Bala	... 3 to 4 masas	...	769	5	4		
Bijuli	... 2 " 3 tolas	...	84	0	0		
Sikri	... 2 "	...	56	0	0		
Nose—							
Nath	... 6 mashas to 1 tola	...	14	0	0	to	28 0 0
Besar	... 4 to 5 ratti	...	1	8	0		
Neck—							
Hasuli, phonk (hollow)	2 tolas	...	56	0	0		
Panchlari "	2 "	...	56	0	0		
Haikal	... One weighing 4 mashas	...	9	5	4		
Jugneo	... 3 mashas to 1 tola	...	7	0	0	to	28 0 0
Chananhar	... 10 to 16 tolas	...	280	0	0	"	448 0 0
Champakali	... 3 " 4 "	...	84	0	0	"	112 0 0
Mohanmala	... 1 " 3 "	...	28	0	0	"	84 0 0
Dalmala	... 10 tolas	...	280	0	0		
Sikri	... 10 "	...	280	0	0		
Satlari	... 4 "	...	112	0	0		
Loin—							
Kamarzeb	... 15 to 16 tolas	...	420	0	0	to	448 0 0
Kamardhani	... One lar (cord) weighing 3 tolas.	...	84	0	0		
Arm—							
Bazoo, phonk (hollow)	... 6 tolas	...	168	0	0		
" thons (solid)	... 10 to 12 tolas	...	280	0	0	to	336 0 0
Bank	... 4 tolas	...	112	0	0		
Joshari	... 4 "	...	112	0	0		
Naunaga	... 3 "	...	84	0	0		
Hand—							
Shamshabund	... 6 tolas	...	108	0	0		
Alibund	... 4 "	...	112	0	0		
Patri	... 4 "	...	112	0	0		
Kangan	... 12 "	...	336	0	0		
Barhalla	... 4 "	...	112	0	0		
Batana	... One weighing 1 tola	...	28	0	0		
Pahoonchi, phonk (hollow)	5 to 6 tolas	...	140	0	0	to	168 0 0
" thons (solid)	10 " 12 "	...	280	0	0	"	336 0 0
Bala, phonk (hollow)	... 1 " 6 "	...	28	0	0	"	112 0 0
Kara	... 30 "	...	840	0	0		
Finger—							
Arsi	... 1 tola	...	28	0	0		
Anguthee	... 3 to 4 mashas	...	7	0	0		
Ohahalla	... 3 " 4 "	...	7	0	0	to	9 0 0
Angushtana	... 6 mashas	...	14	0	0		
Pore	... 3 to 4 mashas	...	7	0	0	to	9 0 0
Feet—							
Kara	... 30 to 60 tolas	...	840	0	0	to	1,680 0 0
Ohahara	... One weighing 3 to 4 tolas	...	84	0	0	"	112 0 0
Pazez	... 30 to 50 tolas	...	840	0	0	"	1,400 0 0
Ghungroo	... 3 mashas each	...	7	0	0		
Total		...	7,687	2	8	to	9,686 0 0

Silver ornaments are used by those who cannot afford to wear gold ornaments. Among the respectable classes, ornaments worn on the ears, the nose and the forehead are never made of silver.

The following is a list of silver ornaments with their weights and values:—

Name of ornament.	Weight.	Value.					
		Rs.	A.	P.	Rs.	A.	P.
Head—							
Mangtika	... Rs. 4 to Rs. 5 bhari	...	8	12	0	to	4 11 0*
Chonti	... " 4 " " 5 "	...	3	12	0	"	4 11 0
Tawiz	... Each bead at annas 4 bhari	...	0	3	3		
Jhabea	... 1 bhari	...	0	15	0		
Ear—							
Bali	... 1 bhari	...	0	3	3		
Patta	... Annas 4 to 6 bhari	...	0	5	0		
Jhumak	... One pair at Re. 1-4 bhari	...	0	15	0		
Karanphul	... " " " " 1-8 "	...	1	6	0		
Bala	... Annas 8 bhari	...	0	7	0		
Bijli	... Rs. 2 "	...	1	14	0		
Sikri	... " 2 "	...	1	14	0		
Neck—							
Hanslee	... Rs. 10 to Rs. 50 bhari	...	9	6	0	to	46 14 0
Haikhal	... Each bead at annas 8 "	...	0	7	6		
Jagnoo	... Annas 8 to Re. 1 bhari	...	0	7	6	to	0 15 0
Chananhar	... Rs. 16 to Rs. 30 "	...	15	0	0	"	23 2 0
Champakali	... " 4 bhari	...	3	2	6		
Dalmala	... " 10 to Rs. 20 bhari	...	9	0	0	to	18 0 0
Mohanmala*							
Sikri	... Rs. 12 to Rs. 20 bhari	...	11	0	0	to	18 0 0
Satlari*							
Loin—							
Kamerzeb	... Rs. 16 to Rs. 30 bhari	...	15	0	0	to	28 2 0
Kamardhani	... " 16 " " 30 "	...	15	0	0	"	28 2 0
Arm—							
Bazoo	... Rs. 16 bhari	...	15	9	0		
Bank	... " 5 to Rs. 7 bhari	...	4	11	0	to	5 10 0
Joshan	... " 4 " " 5 "	...	3	12	0	"	4 11 0
Naunaga	... " 4 " " 5 "	...	3	12	0	"	4 11 0
Shamshabund	... " 8 bhari	...	7	8	0		
Alibund	... " 8 "	...	7	8	0		
Patri	... " 4 to Rs. 5 bhari	...	3	12	0	to	4 11 0
Kangan	... " 12 " " 25 "	...	21	4	0	to	23 0 0
Burhalla	... " 6 " " 7 "	...	5	10	0	"	7 9 0
Batana	... Each at Re. 1 bhari	...	0	15	0		
Pahounchi	... Rs. 12 to Rs. 20 bhari	...	11	4	0	to	18 12 0
Bala	... " 10 or " 12 "	...	7	6	0	"	11 4 0
Finger—							
Arsi	... Re. 1 bhari	...	0	15	0		
Anguthae	... Annas 8 "	...	0	7	6		
Ohhalla	... " 8 "	...	0	7	6		
Angustana	... " 8 "	...	0	8	6		
Pore	... " 6 "	...	0	5	6½		
Feet—							
Kara	... Rs. 30 to Rs. 60 bhari	...	28	2	0	to	56 4 0
Chahara	... " 16 " " 30 "	...	15	0	0	"	28 2 0
Pazeb	... " 30 " " 60 "	...	28	2	0	"	56 4 0
Ghungroo	... Each bead at annas 6 bhari	...	0	3	9	"	0 5 4½
Total		...	250	11	9½	to	569 3 4½

There are certain vessels and other articles which are made of silver—

Vessels.		Other articles.	
Atardan *	... Attar tray.	Asa	... Sceptre.
Gulab-pash	... Rose water vase or sprinkler.	Sonta	... Wand.
Pan-dan	... Pan-box.	Bullum	... Spear.
Phul-changer	... Flower vase.	Pankha	... Hand-pankha.
Tusht	... Tray.	Palang	... Cot.
Hukka.		Chauki	... A small plank.
Thal	... Hukka-stand.	Machia	... A stool with back.
Sarposh	... Lid of chilim.	Kursee	... Chair.
Mahnal	... Mouth-piece.	Howdah	... Howdah.
Vagaldan	... Spittoon.	Ornaments for horses.	
		Ditto for elephants.	

* These ornaments are not generally made of silver.



A silver set, consisting of a *pan*-box, an *attar* tray, a flower-vase, a rose water bottle with a tray, is usually presented as dowry by the middle class, while the more wealthy add to these a horse and an elephant with trappings and ornaments for both, and a silver tamdan or sedan, also silver sceptres, maces, wands and spears.

These articles are borrowed on occasions of weddings for display; and silver chairs, sceptres, maces and wands are kept by Rajas and Nawabs, and are lent by them on occasions of darbars.

The sceptres, wand and spear are carried by *asabardars* (sceptre-bearers) and chobdars when a darbar is held.

Gold and silver ornaments are principally made in the city of Patna, and there are gold and silversmiths in the mufassal towns, and every large village has a goldsmith. All works are executed in this district, but certain ornaments made in Cuttack are also purchased and liked for their design and workmanship.

MONGHYR DISTRICT.

The only place in the district boasting of any special industry in gold and silver is Kharagpur, a small town some 11 miles from the railway station of Bariarpur and 22 miles from Monghyr.

Any exact record of the advent of the jewellers to this locality it is impossible to obtain; but it is probable that their arrival dates from the beginning of the eighteenth century, and their continued existence is doubtless due to the patronage of the original Maharajas.

Of the two hundred souls now in the town, about one-sixth are actively engaged in the trade, out of which they make only a moderate living. That their profit is small may be concluded from the migration of several of the younger men to larger towns, where their skill is better appreciated and more liberally recompensed.

The majority of the jewels now made are bracelets, anklets with innumerable pear-shaped bells that tinkle musically, necklaces, earrings, belts and ornaments for the hair and forehead. A favourite means of enhancing the effect of the ornaments is to insert small cubes of gold and silver in the design. The surfaces of these cubes are brightly polished to resemble precious stones, and have an altogether dazzling effect when seen in the mass. Another equally common trick is to intersperse the jewel with small pellets of burnished silver. *Atardans* are also made.

But the thing for which Kharagpur is most famous is the gold and silver fish with a small cavity between the head and the body used for storing perfumes. Large specimens of these fish are also occasionally used as caskets to present illuminated addresses in. The chief peculiarities of the fish are their extreme lightness and flexibility. The body consists of thinly beaten-out ovals overlapping each other. One edge of the oval is scalloped to resemble the scales of a fish, the plain half being hidden by the scalloped edge of the succeeding ellipse. These are loosely fitted on to each other and are kept together by fine wires running from the neck to the tail of the fish. As alternate scales are goldwashed, the combined effect of the gold and silver scales flashing in the sunlight is very pretty. The fish is usually built up from the tail, each successive ring being bigger than the last, till the required length is attained, and the head is then fastened to the last ring by two small hinges.

CHAPTER VI.—THE GOLDSMITH'S ART UNDER NATIVE AND BRITISH RULE

Different Styles in Indian Art and Result of European Influence.—Several distinct styles have contributed to the development of the decorative arts in India. There have been, for instance, besides the Aryan floral and animal forms, the fantastic forms of the Indo-Chinese immigrants into Eastern India, the archaic forms of the aboriginal races, and the Saracenic and Persian forms introduced by the Afghan and Mogul conquerors. But all these different styles have assumed a distinctive Indian expression. Now, however, under the influence of European society and the influx of machine-made articles of Birmingham and London, foreign forms of ornament are being introduced into

the country. Vases, trays, tea-pots and other articles for a drawing-room bric-a-brac are being produced by Indian gold and silversmiths, but they limp a long way behind the possibilities of the case. Such articles often betray a confusion of principles and a mongrel style which is an offence against good taste. In persuading them to fashion their goods to European uses, it may be well to allow Indian workmen to adhere to their own schemes of ornamentation. The Indian artizans have indeed a great genius for imitation. The trade in Cashmere shawls has suffered seriously by the quickness with which the Srinagar weavers have adopted the "improved patterns" set before them by the French agents of some Paris import houses. Again, in India, everything is hand-wrought. The greatest mistake the native gold and silversmiths can probably make is to try and copy the machine-turned articles of Europe. They can no more do it than perhaps any machinery in the world can rival the handiwork in their own special line. It is for refined public taste to distinguish between what things may be done by machinery and what things must be done by the hand. The following observations of Sir George Birdwood in this connexion are well worth serious attention:—

"The mechanical character of European manufactures requires a consistent general finish, which is quite out of place in the bold and freehand composition of the best native art work, in which finish is strictly subordinated to practical use and artistic effect; and, if a taste for mechanical perfection becomes prevalent with the spread of middle-class English ideas among the Princes and Chiefs of India, Indian wrought arms and jewellery will soon become arts of the past."

The Encouragement of Arts by Native Princes.—The great Native Princes and Chiefs were enthusiastic patrons of the decorative arts, and generally maintained in their palaces a large number of master-workmen. The latter received a salary and daily rations for their lives, and were provided with all the materials for their work. They received a present and an increase of salary for every fine work they produced. It was not only so formerly, but is still the case in India wherever the finest work continues to be produced, as the enamels of Jaipur, the damascened work of Hyderabad, and the shawls of Srinagar. From the *Ayini-Akbari*, or *Institutes of Emperor Akbar* (A. D. 1556—1605), written by Akbar's great minister, Abul Faz, we learn that the Mogul Emperors of Delhi maintained in their palaces skilled workmen from every part of India. It is said that Akbar once a week inspected the work of every artist, when in proportion to their individual merits they were honoured with premiums and their regular salaries were increased. In the workshop of the Imperial wardrobe the weavers and embroiderers of every country were to be found. The skill of the Imperial manufacturers also increased with their number, so that the cloths of Persia, China and Europe became drugs in the market. He had a vast establishment of jewellers, inlayers in gold and silver, damascene workers, enamellers, plain workers in gold and silver, and pierced workers, embossers, makers of gold and silver lace for sword-belts, stone-workers and lapidaries, and other artists.

Influence of British Rule on Art Industries.—But the tendency of British rule is to level down, so that while the lower classes are better off with greater security and an immense development of trade to assist them, the rich luxurious—often the idle—class, the supporters of art industries, is disappearing save in the Native States. In British territory the Court favourites, male and female (the patrons of the goldsmith and jeweller and of the worker in valuable tissues) are nearly extinct, or have little money left for such vanities. Many of the artificers and their descendants are turning to more remunerative employ, often to the railway workshops where the Indian craftsman—in patience, in temper, in delicacy of execution—is found almost without a rival." (*On some Specimens of Indian Metal Works*—By J. H. Rivett-Carnac.)

The native artizans are generally poor and require cash advances to purchase materials. Under the capitalist system of manufacture in Europe, the workmen receive wages, materials and implements from their employers, and turn out articles which it is the latter's lookout to sell where he can. Under the individualist system of production in India the case is entirely different. The workman has generally to procure his own materials, and has himself to sell the things when they are finished. But he is too poor to procure gold and silver and makes things only to order, receiving advances from his customers



for the materials. But to English people accustomed to get ready-made things for cash, the idea of making an advance to a poor native goldsmith is extremely repugnant. This is one important reason why our gold and silversmiths fail to secure orders from Europeans.

CHAPTER VII.—CONCLUSION : INDIAN *vs.* EUROPEAN JEWELLERY.

"New Jewellery" in Europe and the Traditional Industry in India.—Jewellery in Europe has entered upon a new era since the discovery of the diamond mines in South Africa. Diamonds are no longer the choice jewels of a privileged few: they are within the reach of moderate fortunes. As they fell in value and lost the prestige which made them an attribute of wealth, aristocratic taste gave a preference to trinkets which derived their value and character from artistic design. The neglect of the gems for their own sake is the note of the "New Jewellery" in Europe. The jeweller's art no longer lies in the mounting and setting of gems, displaying them to the best advantage. The craft has been revolutionised, and simple ornaments of gold and silver have been revived. Jewellery has risen from an industry to a high class art. But in India there is no spontaneity of inspiration and no true creation as in Europe, especially in recent times. The workmen seldom rise above the crystallised traditions of their craft. But they have inherited a system of forms and patterns based on perfect principles which they have learnt through centuries of practice to apply with unerring truth. As a layman, however, I naturally speak with extreme diffidence on this difficult question.

Varied Estimates of Indian Jewellery in Europe.—Referring to the celebrity which India has enjoyed from remote antiquity for the excellence of her ornaments, Mr. Maskelyne, in his Report on Jewellery and Precious Stones in the French Exhibition of 1866, says :—

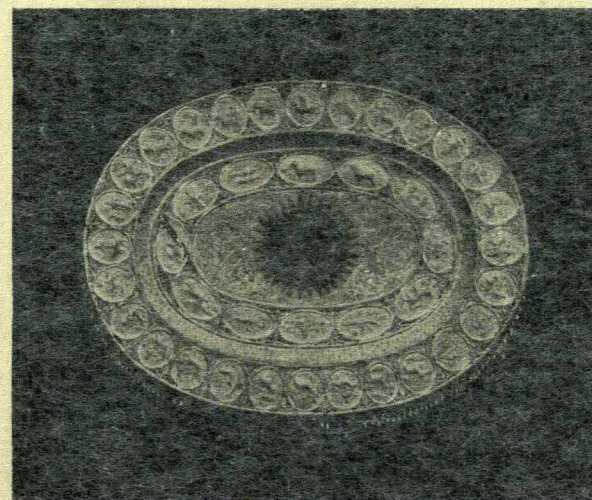
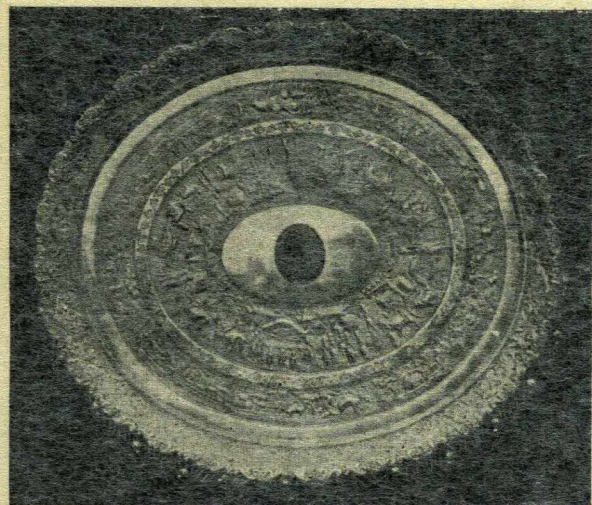
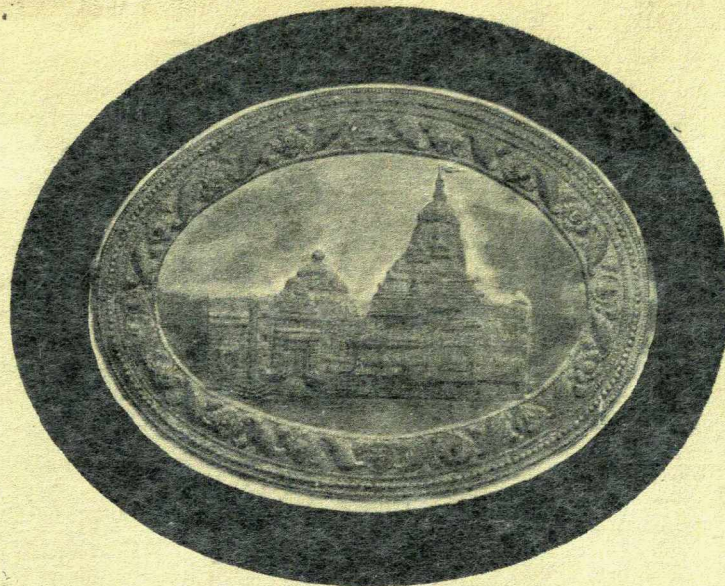
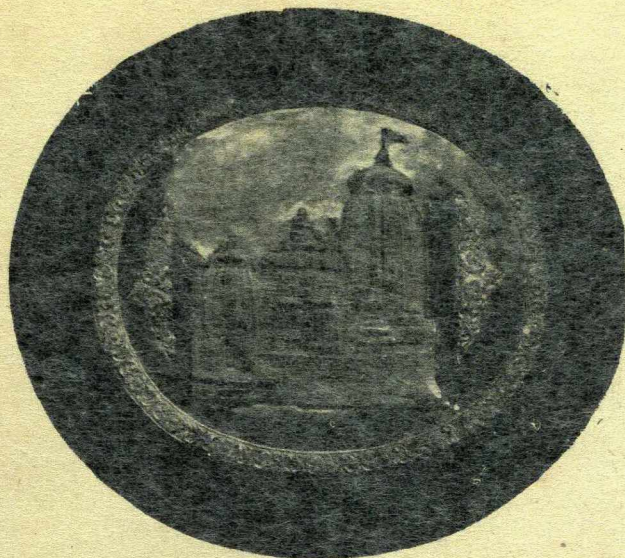
"It is said that even that delicate and most sensitive instrument of touch, the hand of the Hindu, is not sufficiently sensitive for fashioning the finest sorts of Indian filigree, and that children alone are employed in the manipulation of such a spider-web of wire. . . . This elegant primitive form of ornament probably reached its limits for delicacy and design at a very archaic period. . . . The Hindu artizan of our day inherits the methods and skill he uses by the direct descent of an immemorial tradition. . . . But there are other forms of the goldsmith's art scarcely less venerable than that of filigraves possessed of great native beauty and which also have survived in India through the long roll of centuries, inheritance of families and clans."

But, on the other hand, the jury on jewellery at the Great London Exhibition of 1851 actually wrote of Indian jewellery :—

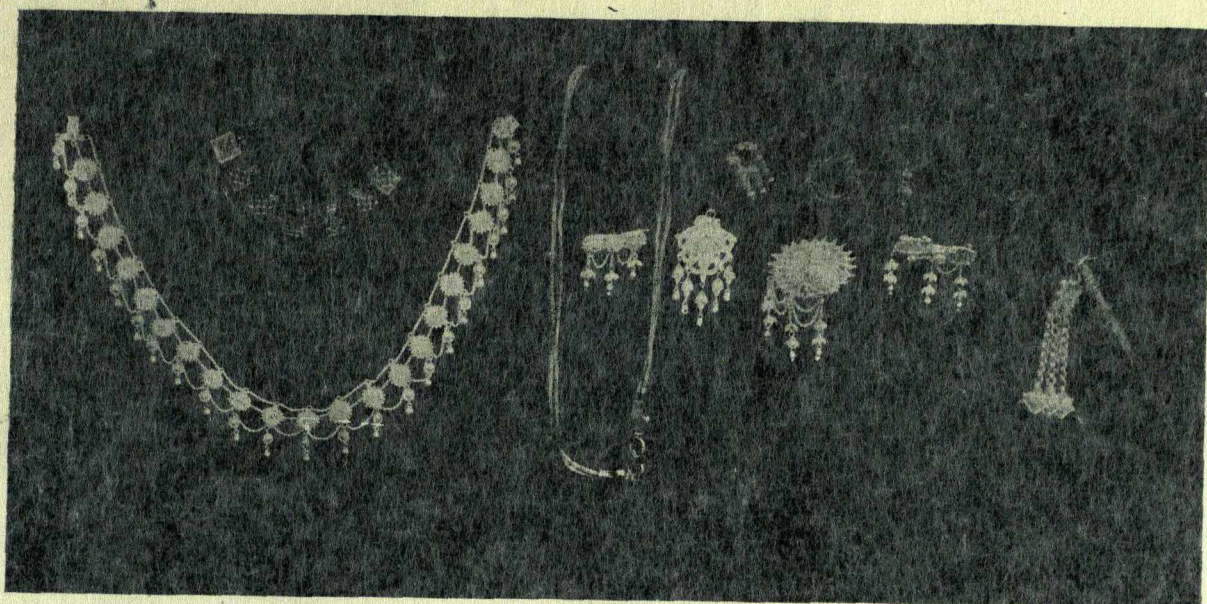
"It is sufficient to cast a glance on the exhibitions of India, Turkey, Egypt, Tunis, to be convinced that these nations have remained stationary from a very early period of manufacture. Some of them, indeed, develop ideas full of grace and originality, but their productions are always immature and imperfect, and the skill of the workman is called in to make amends for the inadequateness of the manufacturing process."

Sir George Birdwood's comments upon this verdict may not be without interest :—

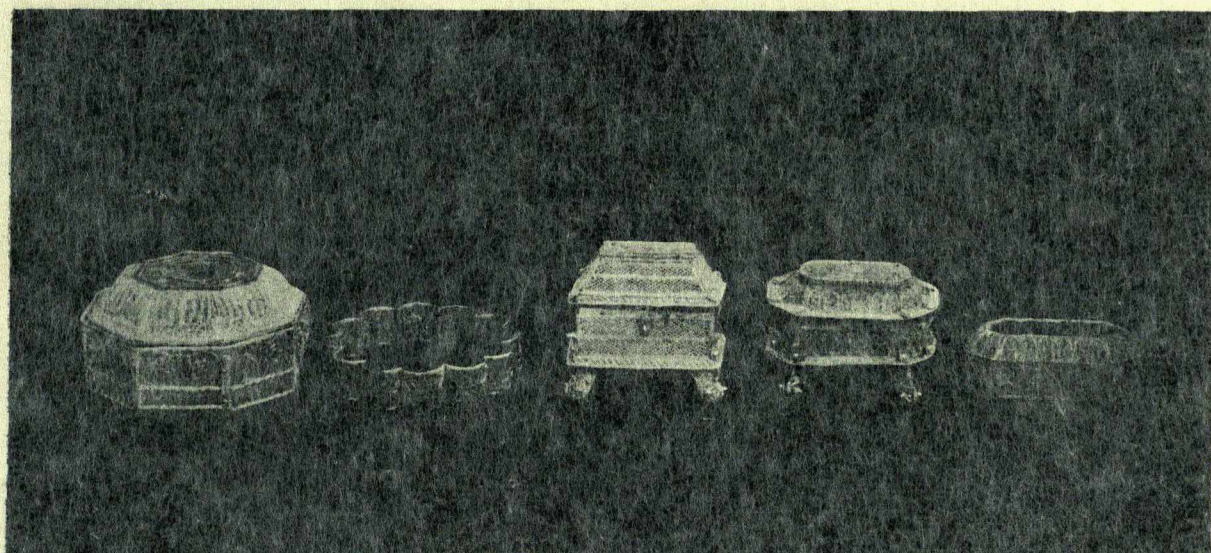
"Surely it is better to remain stationary than to fall, as we have done in England, from the thin, beaten silver of Queen Anne's reign and the designs of Adams, to the present unseemly deadweight silver and gold manufactures of Birmingham and London for which customers have to pay four times more than their value in weight (the cost of Indian jewellery being, on the other hand, from one-twentieth to one-fourth in excess of its net weight). . . . Nothing can exceed the skill, artistic feeling, and effectiveness with which gems are used in India both in jewellery proper and in the jewelled decorations of arms and plate."



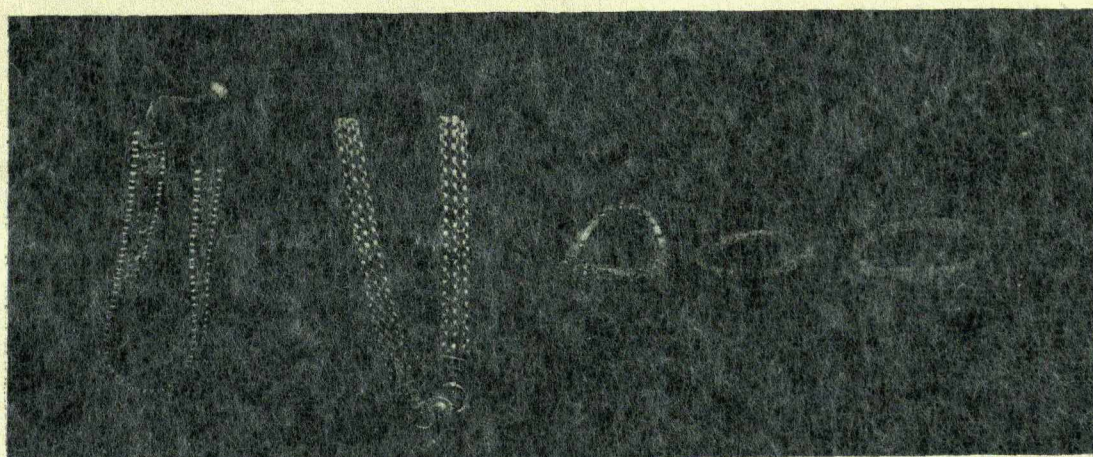
Medallions and Trays, Orissa Art Union, CUTTACK.



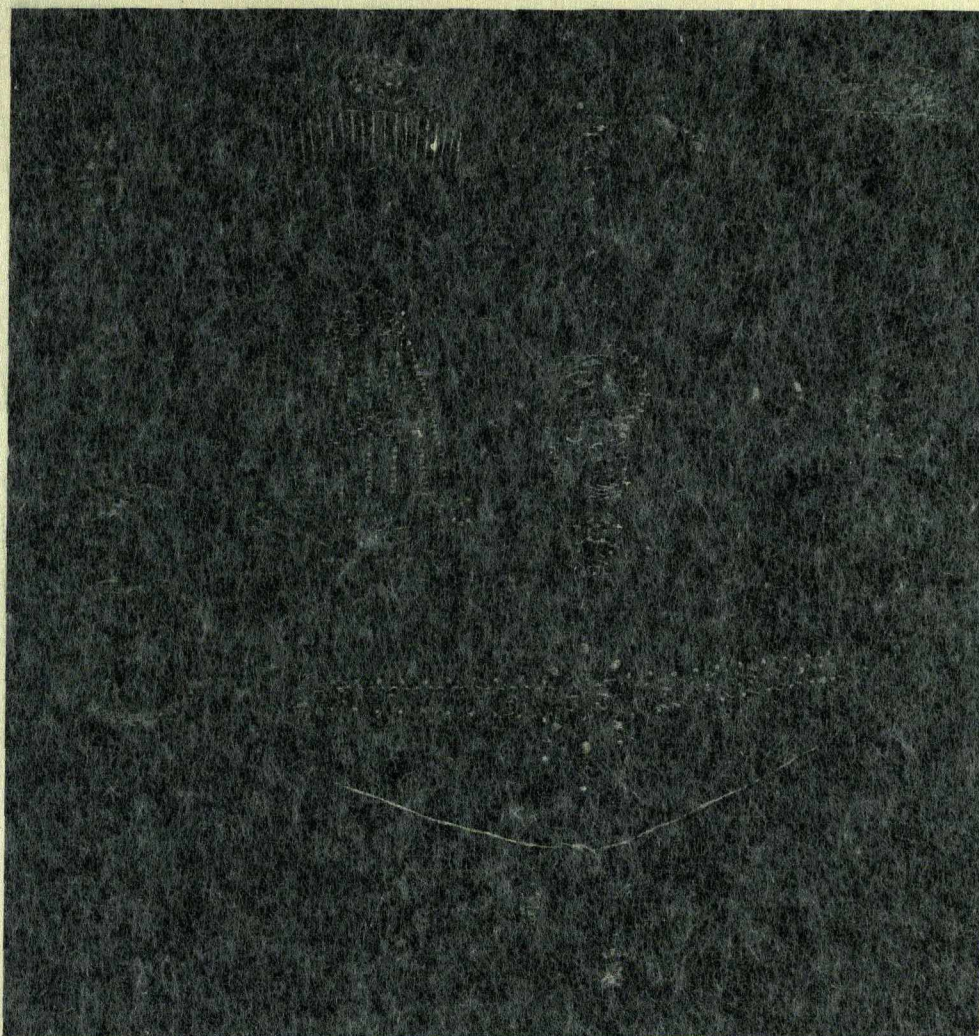
Neck and Hair Ornaments—CUTTACK.



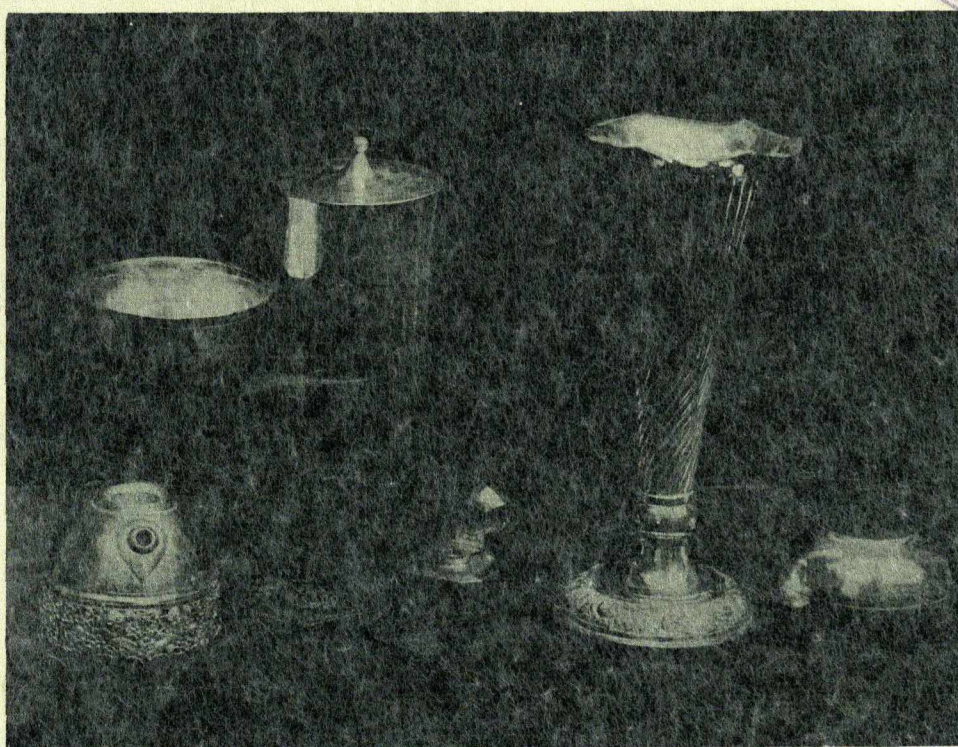
Betel Cases (*two incomplete.*)



Waist Ornaments and Anklets—BENGAL PROPER & ORISSA.



Gem set Ornaments, CALCUTTA.



Cup.

Tumbler
with cover.

Hookah.

Match Box.

Ink Pot.

Vase.

Betel-case.

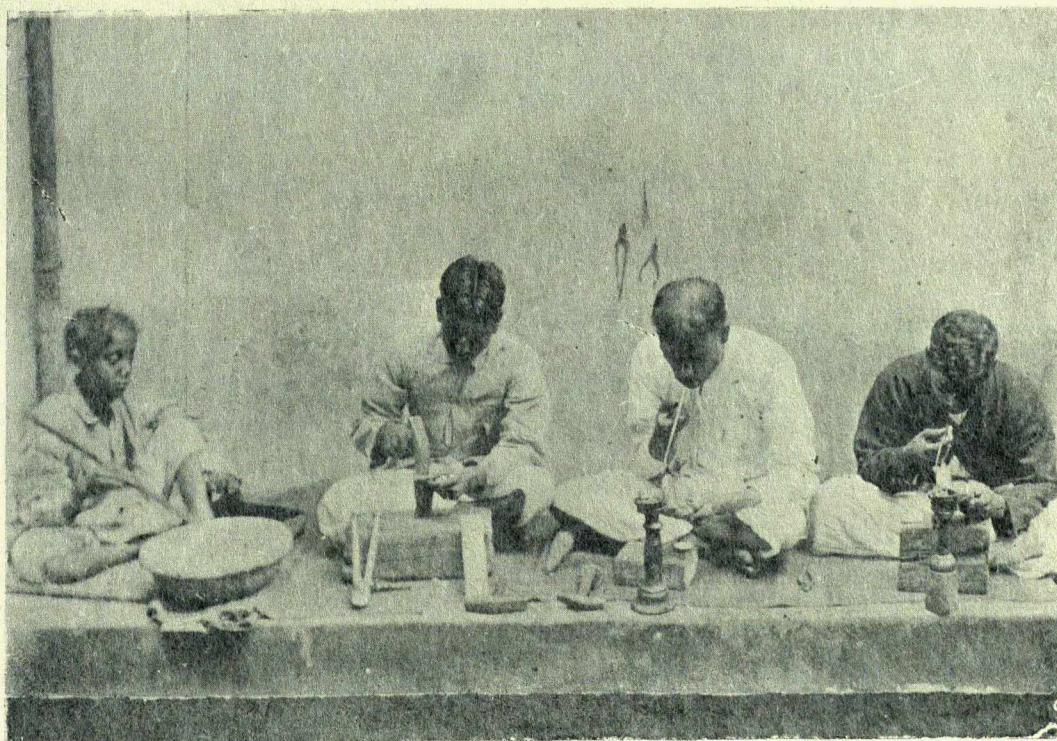




Designer.

Repoussé hammering.
CALCUTTA.

Transferring design
to metal leaf.



Burning.

Shape making.
CALCUTTA.

Soldering.

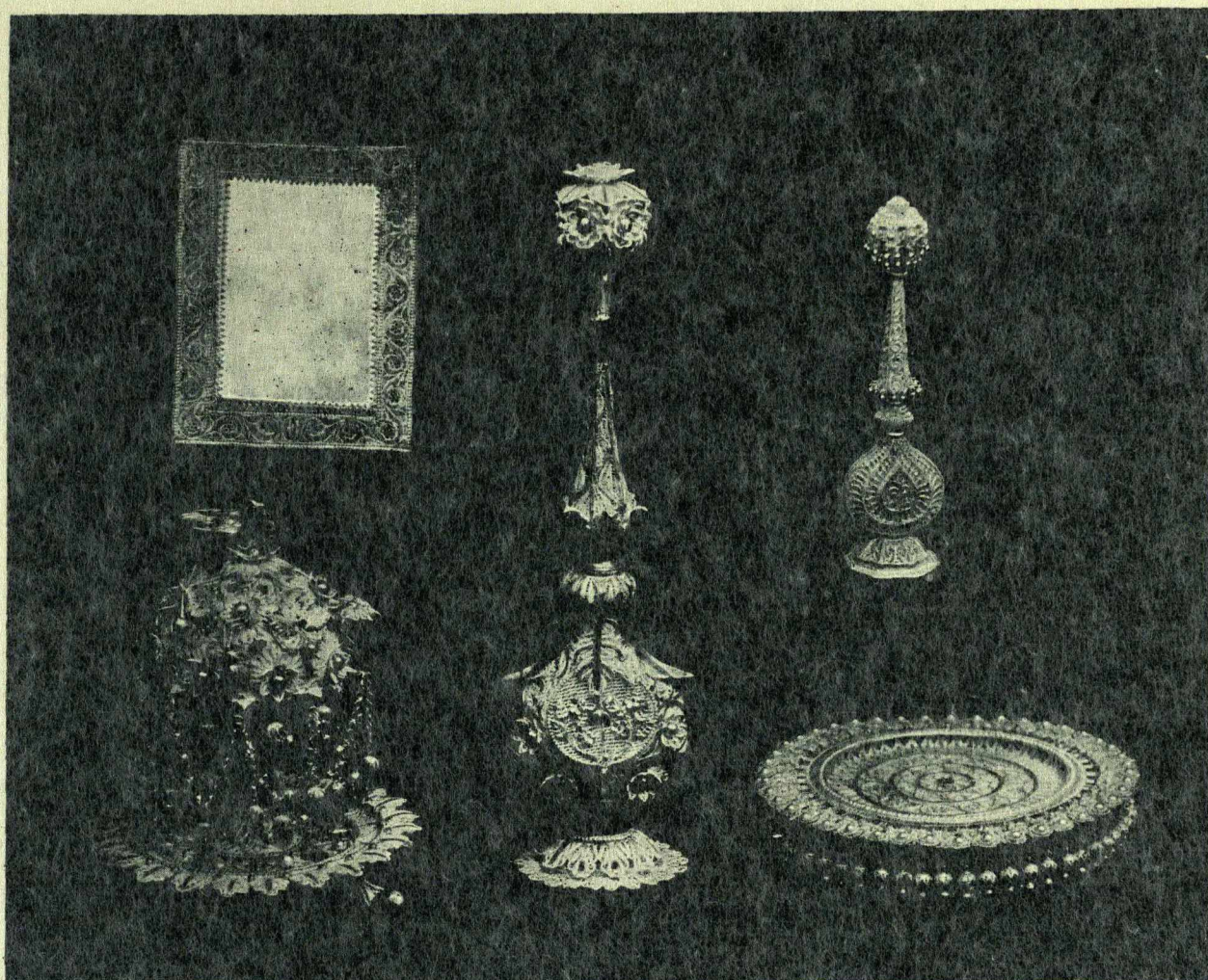
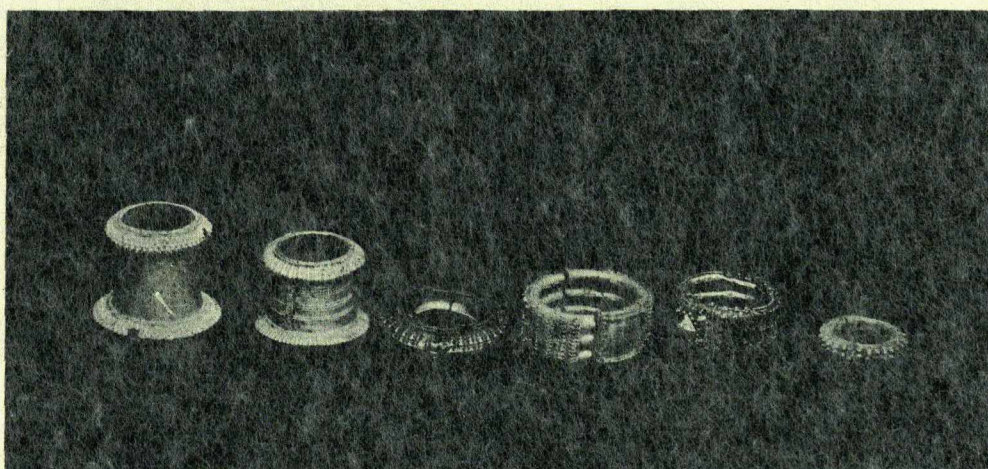


Photo-frame
Atar-dan. (*Scent-bottle.*)

Golab-pas.
(*Scent-bottle.*)

Golab-pas. (*Scent-bottle.*)
Pan-dan. (*Betel-plate.*)



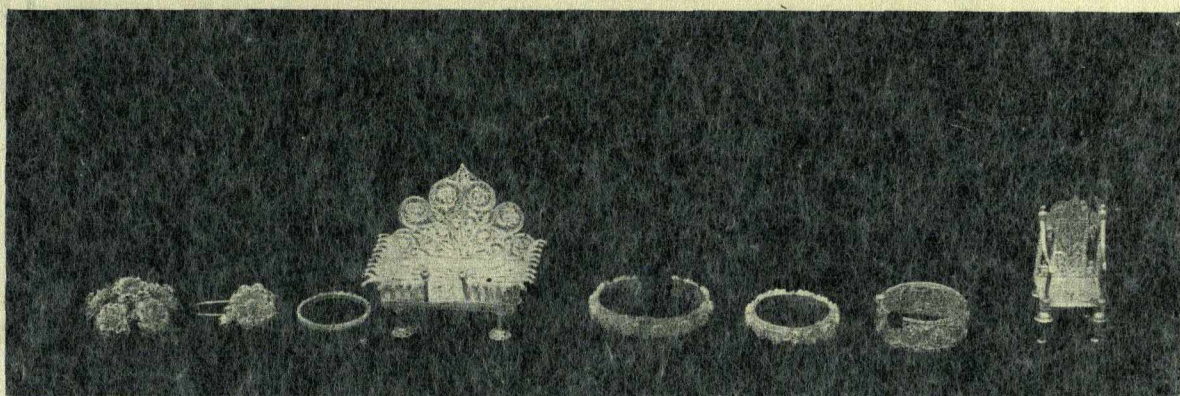
Common Wrist Ornaments, CUTTACK.



Wire Twisting for Filigree Work—CUTTACK.



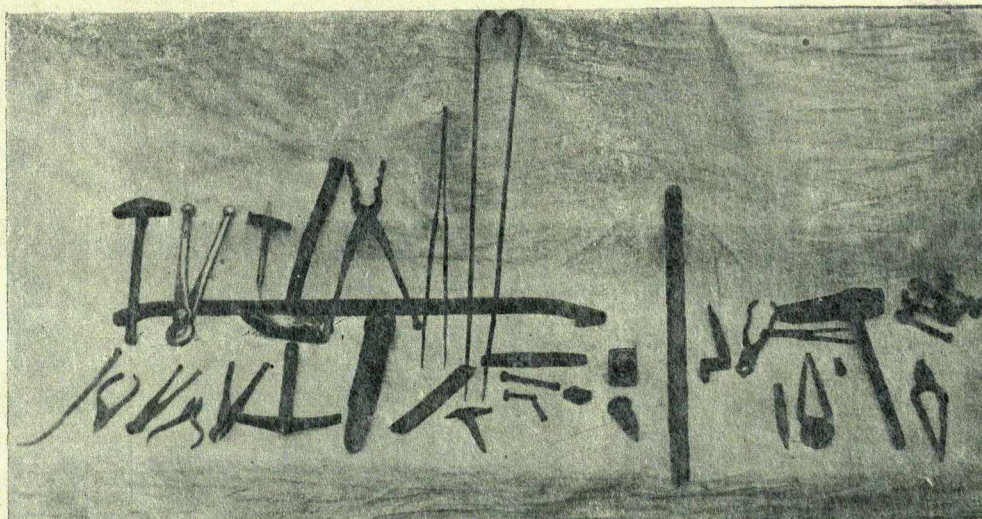
Burnishing and Final Cleaning—CUTTACK.



Filigree Toys and Ornaments—CUTTACK.



Goldsmiths at work—CUTTACK.



Goldsmith's Tools.