

## THE STONE IMPLEMENTS OF ASIA.

BY HEINRICH FISCHER,  
FREIBURG, BADEN.

[This paper, from the pen of our distinguished foreign associate, Prof. Heinrich Fischer, of Freiburg, is a valuable and acceptable contribution upon a subject which has hitherto received but little attention. The Professor ranks as a very high authority in the matter of Nephrites and Jadelites, as the exhaustive treatise which he has published will testify; and his theory as to their original locality is now provoking discussion in the European Journals and "Zeitschriften" of Archaeology. In connection with this paper we will refer the reader to Dr. Valentini's article at page 283 of Vol. I. of the current series of our Proceedings.—PUB. COM.]

### INDIA.

THE comparative studies that I have undertaken into the form and substance of prehistoric stone celts, were greatly advanced in the past months by the receipt of various specimens from the interior of the East Indies. For these specimens I am under great obligations to Mr. Rivett-Carnac in Allahabad, who, during a visit to Germany made himself fully conversant with the many questions connected with such relics, and now, in union with Mr. Cockburn, devotes his time and energy to the meritorious task of bringing the prehistoric discoveries made in those countries before the eyes and to the knowledge of the scientific world. These gentlemen, moreover, were so kind as to present me with a number of East Indian stone implements, since deposited by me in our museum, and also to furnish me with a series of interesting notes which they took at the localities investigated. Mr. Rivett writes: "Mr. Cockburn and I in the last year had the good luck to unearth in Banda (a hilly district of the north-west provinces of the Indian Empire), west from Allahabad, a large number of ancient stone implements.<sup>1</sup> Most of them are stone axes or celts, of that shape which is so well known in Europe. The other specimens consist of stone hammers, ring stones and a variety of other implements, of which one portion

<sup>1</sup> I call attention to the fact that stone implements, taken from the same places, have already been illustrated and described in a work written by V. Ball. *Jungle Life in India*; London, 1880, 8vo. See my report on them in *Archiv für Anthropologie*, 1880, vol. xiii., pages 162-166.

possesses a rather cosmopolitan character while others are quite unique. We gathered more than four hundred celts, one portion of which are of a polished diorite and the others are chipped and of basalt.<sup>1</sup> We arrived at the conclusion that both varieties had been in use at one and the same epoch.<sup>2</sup> Implements of genuine palæolithic character made of quartzite are seldom found in the Banda district, but are found more numerous south of it. The celts vary in length and weight, from 12½ inches in length and 3 ounces in weight down to 2½ inches and ¾ ounce." The stone hammers, which are unique of their kind, and the largest and most remarkable celts, were presented to the British Museum<sup>3</sup> by Mr. Rivett. The director of the Kensington Museum has offered to have casts made of the most interesting specimens, to be distributed among the most notable museums and scientific societies.

In a comparison between a few rough specimens and the nuclei of jasper and hornstein with European and other silex specimens, it was demonstrated that the method of working this kind of mineral has been the same throughout the world. As to the nuclei, however, the puzzle as to how our predecessors succeeded in working them still remains unsolved. The endeavors made by the mineralogists of to-day to *shape them* have been in vain. Possibly, it was in the laborious way which I lately described in the "Correspondenz Blatt der Deutschen Anthropol: Gesellschaft, 1883, No. 2, page 11. The East Indian silexes

<sup>1</sup> Celts, said to be of basalt, were also sent to us. Upon closer examination their diagnosis gave us a very different result, about which we shall speak later.

<sup>2</sup> I was not a little pleased to learn that our East Indian friends arrived independently at the same result as we did concerning a contemporaneous use of struck and polished implements. With "Quartzite," I suppose certain varieties of flint were meant, for, at least in Europe, very few objects of this substance are termed quartzite by mineralogists.

<sup>3</sup> Upon preliminary information being sought for in London, we learned that the celts in question have not yet been subjected to any exact mineralogical examination. Therefore it remains undecided whether Nephrite or Jadeites are among them or not.



(chert) mentioned, which are almost equal to our jasper, were taken from nodules and bands met with in the Tirkhowan limestone; the agates came from the river beds which break through the Bewah-conglomerates, South Banda.

A larger collection of hornstone implements than has ever before existed was made by Mr. Cockburn. It exhibits the following characteristics: the scrapers and knives are of the same shape as those found in Europe; so also, in general, the celts. Certain specimens bear a striking resemblance to those silexes which up to this day are peculiar to Egypt (see Inkes Brown, in *Zeitschrift für Anthropologie*, vol. vii.). A third variety, rarely met, is termed by him "a saw-backed knife," and was recently found on the island of Melos. The rougher sorts of stone knives made of quartz, sandstone and basalt do not differ much from those which are still in use among the Australian savages.

The arrow-heads approach the American shape more than any other. This, however, is ascribed by Mr. Rivett to the fact that America has furnished us with more material for comparison than any other portion of the world. Both gentlemen arrived at the conclusion that these stone implements must have been in general use with the Kolairi and Dravidi aborigines, who inhabited the district of Bundelkund (environs of Allahabad) about the year 500 B. C. and who totally abandoned it about 600 A. D. In one of Mr. Rivett's letters a photograph was enclosed, representing a somewhat rude stone sculpture, which was discovered by Mr. Cockburn at Kalinjar. He assigns it to the seventh century after Christ. I am still expecting more particulars concerning this interesting discovery and I will then give a wood-cut of it, but for the present a short description must suffice. The sculpture represents the figure of a man, clothed with something like a shirt reaching to the knees, without sleeves and with a girdle around the waist; the feet are bare; the head is

covered with a high cap. The man holds in the right hand a large staff resting on the shoulders, and at the top of this staff is inserted an axe of obtuse, triangular form, and no fastening of this axe by cords is visible. The same figure in its left hand holds another instrument in a perpendicular manner and not reaching higher than the head. It appears to represent something like the pestle of a mortar and is encircled in the middle with a broad ribbon. Most of the implements mentioned were dug out from a Ganges alluvium, near Bundelkund, whose formation does not reach back to antiquity. The alluvium itself consists of a detritus of basalt, which crops out on the margin of the Jumna river.

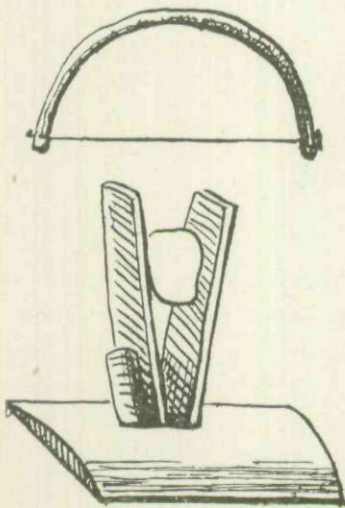
Here a few remarks of a germane nature may be of interest to the student. I would refer to the primitive way in which rocks and stones are lifted and handled in the Indies. They suggest the methods which the ancients may have employed in the construction of the menhirs and dolmens which are found not only in Europe but also in India. I quote these remarks from Mr. Ball's *Manual of the Geology of India*, a work which is not so well known to archaeologists as it deserves to be on account of its instructive contents. Discussing certain illustrations given in his work, Mr. Ball says: "Plate VIII. is a representation of a form of a frame which is used in Northern India for the purpose of lifting large blocks of stone. The first step in the construction of one of these frames is to lash two strong beams of timber on either side of the stone; they are crossed by other beams, and so on, till they come down to the bamboo cross-bars, each of which accommodates two coolies. Thus on their shoulders, a large number of men are enabled to bear each a fraction of the weight of a very large mass of stone. In general terms it is said that the weight of the frame is about equal to that of the mass to be lifted. That by some such arrangements the megalithic buildings of early times were supplied with stones, is very probable. Another method known to the natives for



moving large masses of stone, was to piece together very solid wooden wheels round the prismatic masses of stone which thus acted as axles. By means of strong cables worked by very crude forms of windlass, these were made to roll in the required direction; for a reproduction of a native drawing of this process reference should be made to the paper quoted below."

Mr. F. Jagor in Berlin, who in the *Correspondenz Blatt der Deutschen Anthropol: Gesellschaft*, vol. xiv., 1883, No. 7, page 56, calls attention to the passage above quoted, adds thereto the following remark: "In such villages of India as are built on rocky soil, the people select a proper place *in situ* for the purpose of sharpening their tools, and plunge the latter into natural clefts, which clefts, however, through constant grinding are hollowed out to such a degree as to form regular rills, the actual origin of which has been a puzzle to many travellers." (See Ball's *Manual*

[Cut 1.]



of the Geology of India, l. c., p. 561.)<sup>1</sup>

In a letter to this writer, Mr. Jagor also describes the process he had seen in Srinagur, province of Kaschmir, for cutting rock crystal by means of iron wire and emery. The crystal was wedged between two pieces of wood and the wire stretched into an elastic arc (see cut 1). Mr. Jagor finally quotes Ball, vol. iv., pages 507-514, on the cutting and polishing of

agate and jasper in India.

<sup>1</sup> As far as I know the author holds the position of an interpreter with the R. I. Embassy of Austria, in Japan.

## CHINA.

The subject of Japanese stone celts has been recently treated in a separate work (1879), upon which we shall report in a future article. Of Chinese stone celts and implements, however—at least as far as my knowledge goes—very little is known. Despite a correspondence extending over almost the whole of Europe, I was able to discover but a single specimen, which exists in the private museum of Mr. John Evans in London. It is described as being of nephrite; but upon an examination which I made of it, I think I am not mistaken in determining it to be of fibrolithe. What claimed my attention was its edge, which did not bevel gradually, but was straight, exactly as we are accustomed to observe in our lacustrine celts, and which circumstance is generally attributed to a continued sharpening of the edge. My knowledge of Chinese stone implements was recently much increased through the kindness of Dr. Paul Lohmann, one of my pupils, who visited London to continue his studies in archaeological mineralogy, and I shall comment briefly on the results which he gained in his search for Chinese stone objects in the London Museum. In the Indian section of the South Kensington Museum, under the direction of Sir Philip E. Owen, two idols are deposited, which were sent by Sir D. Forsyth from Jarkand and are probably of jade; also an ornament and a mouth-piece of jade (museum numbers 1939, 1942, and 1944). Until now, I have been only acquainted with nephrites taken from Jarkand (N. W. Khotan), and they were crude and unwrought specimens. The brothers von Schlagintweit, despite the efforts which they made, could not discover any traces in those quarries that nephrite had been wrought there, either recently or anciently. The specimens mentioned, therefore, appear to me to be the first instances of this mineral being there an object of workmanship.

In the new portion of the British Museum, at South



Kensington, in the Natural History Section, under the direction of Sir L. Fletcher, a small stone celt, said to be from China, is deposited. Its specific weight is 3.29 (Jadeite?), 12<sup>cm</sup> in length. Its basis is a dirty greenish white; the edge green white; its shape is as usual and it is not perforated.

In the Indian Section of the same museum celt-formed objects are also deposited, to which Dr. S. W. Burchell, who sent them from India, had called my attention. They are said to be made of jade; their mineralogical diagnosis, however, is as yet not definitely secured. They show colors varying from a dark coffee-brown to a yellowish green, and at least four out of every six are remarkable for being engraved with antique Chinese characters—the names of their former possessors. Stones of this sort are said to be very scarce. Their Chinese name is “Yao-chan,” medicine spattles, and they were used for cutting drugs. Dr. Lohman had the kindness to prepare for me a drawing of them. They are of almost quadrangular shape, perforated near their bases, either conically or perpendicularly; their edges run partly in a straight line and present sharp angles; where they are crescent-shaped the angles are rounded. There are specimens which exhibit different colors, as a clear whitish green at the bases and in the middle a dark, dirty or a black green, and others present a grayish cloudy basis and are of a coffee-brown color in the middle. In this connection a question arises, which has been often asked but has not yet received due consideration, viz.: Has China ever been explored sufficiently to know whether she had a stone epoch? and if she had not, did the people who are now her inhabitants pass through such an epoch elsewhere, from which we should be able to consider the specimens just described as possible relics brought by them as souvenirs from their ancient homes? We approach this question when we consider that Japan, China’s nearest eastern neighbor, is uncommonly abundant in ancient stone implements. \*

## BABYLON.

In the British Museum, stone celts are exhibited, which were exhumed in the neighborhood of ancient Nineveh and Babylon (now Mugeyer, Kuyundschick, Tel Gara). A district is thereby represented, which though it has furnished us a large amount of stone cylinders,<sup>1</sup> yet up to the present time has not yielded stone objects of the celt form. It appears, therefore, as though the break hitherto existing between the East Indian celt region and the one discovered by Schliemann at Troy-Hissarlik, Asia Minor, may now be considered as closed, thus furnishing a proof of a non-interrupted celt-line extending from distant Asia westward to the shores of the Mediterranean. Nothing has as yet been heard of stone finds in Persia. Upon an examination of copies of the Mesopotamian specimens made by Dr. Lohman, I met exactly the same shape of celts and chisels as those dug out from our lacustrine dwellings in Switzerland and other places. The Mesopotamian celts are either long or short and more or less curving. Some are dull at their bases and others pointed. Of sixteen specimens only one celt and two staffs (Stäbe) are perforated; a few of them show clearly that they were wrought from rollers. Only one specimen appeared to Dr. Lohman to be of jade or nephrite. Their specific weight and petrographic character has not been stated, but the hardness of most of them was 7 or 7-8. Their colors varied from leek green to blue green, dark leek green, green with variegated specks, gray black and black. One portion of them is of slate-like structure. All this is, therefore, evidence of the fact that on the borders of the Euphrates and Tigris, as everywhere else, care was taken by the workmen to select for their implements the toughest and hardest materials in existence. Sometimes particles of

---

<sup>1</sup> Fischer and Wiedemann, on Babylonian Talismans, with 3 photos. and 15 wood-cuts: Stuttgart, 1881, folio (Schweizebart, publishers).



quartz glimmer, and pyrites of iron are recognizable in these stone implements. One small celt showed an edge ground over again, as is oftentimes observed in European specimens, and which was described in one of the Chinese celts of the Evans collection. The length of these celts varies from 3–12.5<sup>cm</sup>. There are two stone specimens, thin and of a staff-like shape, which seem to be ornamental. They are of a grayish green color, 9–11<sup>cm</sup> in length, and are perforated perpendicularly, which runs out conically on both sides. Their material is softer than that of the celts, the hardness being 5–6 or 6.

Among other ornamental objects may be mentioned a tablet, from Warka, South Babylon, of dark green soapstone(?) engraved with a figure representing a deity. An ear-shaped and perforated peg projects from the middle of one of the sides of the tablet. There is another object, also of soapstone(?) and of rough workmanship, evidently representing a human body, of which, however, only the head and the eyes are clearly discernible. It reminds me strongly of certain Mexican and Costa Rican idols, upon which I treated in a pamphlet on Mineralogy, a science auxiliary to archæology, in the *Archiv für Anthropologie*, 1877, vol. x., pages 177–214 and 345–357, with plates vi.–viii. and most of the cut on plate vi., fig. 20. Thus also a small serpent's head carved in quartzite, in the Babylonian collection mentioned, reminded me vividly of an animal's head from Costa Rica, which I represented in a cut, plate viii., fig. 250 in my *Bericht über eine Anzahl Stein Sculpturen aus Costa Rica*, in *Abhandlungen des Naturw. Vereins zu Bremen*, vol. viii., 8vo, 1881.

One of my correspondents in Mesopotamia, who is a physician in a Turkish regiment and who is enthusiastic in the collection of archæological objects there, informs me that collectors have a fair prospect for a rich harvest, since certain grounds are still entirely untrodden and untouched. I deem this communication worth bringing to the knowledge

of students, since as far as my information reaches, the prehistoric condition of Mesopotamia is still a great mystery to us. Of stone celts, I cannot sufficiently emphasize the fact, that they were found in a continuous succession from Eastern Asia westward into the very heart of Europe, and that they all agree in their material as well as their peculiar shape.

#### SIBERIA.

In the Proceedings of the Geographical Society of St. Petersburg, vol. xiii., Nos. 1 and 2, 1882, East Siberian Section, Protocol of September 13, 1881, a report is given in the Russian language on Tumuli graves in Siberia. From this we learn that Mr. Witkowsky, a member of the society, was commissioned to perform in the interests of science, the task of opening a certain number of Tumuli said to exist in the government of Irkutsk. Mr. Witkowsky found them located in the angle of a plain formed by the confluence of the rivers Kitoy and Angara. The Tumuli were arranged in a row, and upon opening one of them about twenty human skeletons were dug out, in more or less good preservation, with the bodies lying in a northeasterly direction. In the same grave were found the bones of animals which still exist in those regions, as the stag, the deer, the boar, the hare, the fox, the bear, the wolf, and also in large quantities the bones of the beaver, which animal, however, has completely disappeared from the valleys of the Angara river. Bones of domestic animals were not met with, a circumstance which is suggestive. The skeletons were not without the usual accompaniment of bone and hunting implements, almost all of them being polished and of simple ornamentation.<sup>1</sup> This circumstance induces us to think that they may belong to the neolithic

<sup>1</sup> Unfortunately, this topic was not more closely discussed in the quoted report, nor accompanied with illustrations.



epoch,<sup>1</sup> when man had not only already learned to form his tools by chipping, but had also developed a taste for rendering them attractive to his eye by giving them a lustre. I was convinced by Mr. Witkowsky's notice that the majority of these implements, and more especially those of a celt-form, had been manufactured of nephrite. For hitherto Siberian nephrite has cropped out in its natural state, but in this Russian province of Irkutsk (Berlaja, mountains of Sajan), scrapers, arrow and lance-heads<sup>2</sup> made of nephrite have also been discovered.

Among the discoveries made on the Kitoj river were various implements and utensils manufactured from speckstone and slate. The discoverer collected more than one hundred and fifty specimens of this special kind, which he designates as ornamental objects or symbolical tokens, in which opinion he corroborates a previous report made by Mr. Poljakoff. And finally, together with these implements were found others made of bone, as celts, awls, fish-forks and needles, each set in a bone handle, knives and other ornamental objects made from the teeth and bones of animals.

Here I may mention a number of interesting Siberian objects made of stone, which it was my good fortune to examine through the kindness of the engineer, Mr. Inocense Lopatin of Krasnojarsk (Siberia), the same gentleman who had the kindness to call my attention to Mr. Witkowsky's report (just published in abstract in a Siberian paper, No.

---

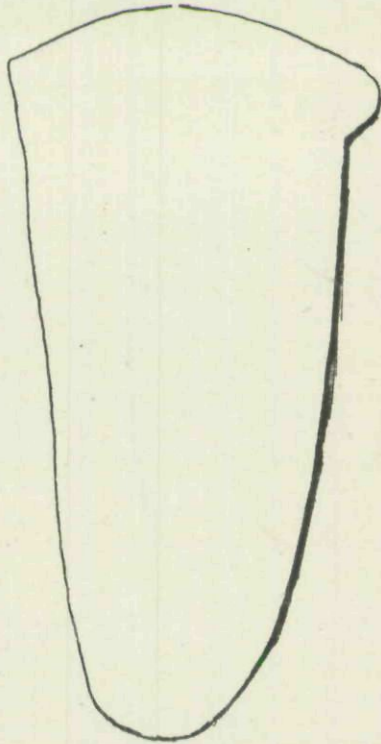
<sup>1</sup> Mr. Witkowsky is still under the impression existing among European archaeologists that every kind of mineral is capable of being worked by means of chipping or polishing. Prehistoric men were not in possession of steel hammers. Let some one try to chip a celt out of nephrite!

<sup>2</sup> It was very seldom that I met with arrow-heads made of other brittle mineral bodies than rock crystal, flint, jasper, obsidian or glass. I once had something similar from a Swiss palustrian collection (Dr. V. Gross, Neuville), the material being nephrite, length 47<sup>mm</sup>. I am besides acquainted with two delicately cut objects, of American origin, that looked like arrow-heads, and which, as far as I am able to remember, appeared to be wrought of crysofil (serpentine-asbestos).

43, 1883), and who sent me a few years ago for examination and analysis seven nephrite celts, collected in his distant abode, one of which he presented to our Freiburg University Museum. On his own arrival here, later, he brought me a few specimens of quite a new shape and of different material, to obtain their mineralogical determination. To secure fac-similes of objects so rare, I had imitations made of them for our museum. Three of the seven stone objects mentioned are of unquestionable celt-form, and two others which are chipped approach it only. The

[CUT 2.]

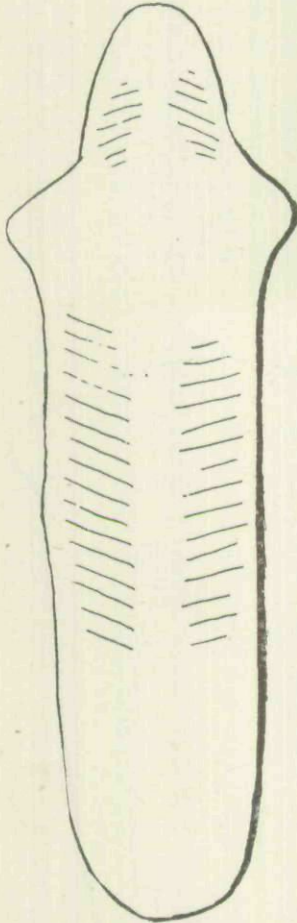
first of the three (see cut No. 2) has a length of 195<sup>mm</sup> and its greatest width is 95<sup>mm</sup>. It is almost flat, with a moderate convex swelling towards the middle. Its edge is semi-lunar in form, with two protruding hooks or wings. The color is yellowish gray, and specific weight 2.69; to judge from a thin section of a small fragment, the stone may be of felsite-tuff. The specimen was found in an upper stratum of earth near the village of Kegma (pronounced Kedshma), at the margin of the river Angara, province of Jeniseisk. The second of



these celt-shaped stones was found when digging a ditch near the river Tchadobetz, three wersts distant from where it empties into the Angara, at the village Zaledewo,



[Cut 3.]



province of Jeniseisk (cut 3). It is of a reddish color; its specific weight is 2.46; the substance is probably also of felsite-tuff. Its length is 240<sup>mm</sup> and its largest width equals 70<sup>mm</sup>. Its shape is somewhat peculiar, for while the end of this implement is conspicuously flattened, the rest of it, along its entire axis presents a kind of swollen back, with steep slopings. The upper part has also two wing-formed projections and the edge has not the semi-lunar but rather the lingual form. Both specimens, one and two, are chipped and not ground or polished. It is the peculiarity of the felsite-tuff, just as it is of the genuine jasper, that when chipped, it shows a conchoidal fracture with sharp edges, and it is also interesting to learn that the Siberian prehistoric man was careful to select this species of stone and to shape it for his purposes by chipping.

The third stone (cut 4) is similar in form to the second, save that it is shorter and wider, 200<sup>mm</sup> by 80<sup>mm</sup>; specific weight 2.91; color green; fusible before the blow-pipe to a greenish glass. Judging from the thin section made of a diminutive fragment, it seems to be of the variolithic species. It is said to have been brought from Kamtschatka by the grandfather of a cossack.

The fourth stone (cut 5) is four-cornered and tapers gently towards both ends. Its length measures 335<sup>mm</sup>;

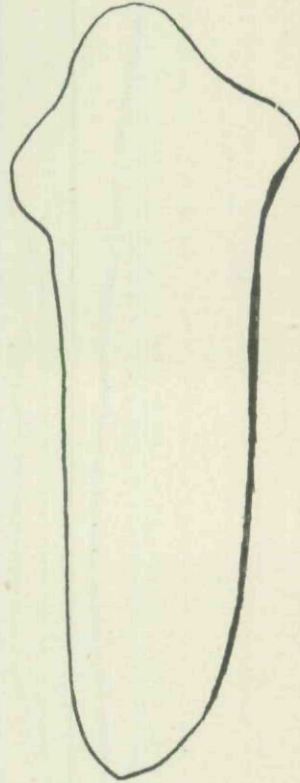
each of the four sides 40<sup>mm</sup>; of green color; specific weight unknown; not fusible; perhaps serpentine. It is found on the borders of the river Tehadobetz, at the village Saledejewo in the province of Jeniseisk.

The fifth object (cut 6) is 368<sup>mm</sup> in length. It is almost flat, with a slight convex rising toward its edges. Its three projections are perforated. For what purpose it served we are unable to guess. It was found by peasants in an upper stratum of earth near the village of Irkineyewo, on the Angara river, in the province of Jeniseisk.

The sixth object (cut 7) is small, only 65<sup>mm</sup> long and has the shape of a spindle. It was probably an ornament. It was found on the surface of the soil near Krasnojarsk, in the province of the Jeniseisk. Its specific weight is 2.64; color violet gray; substance probably slate.

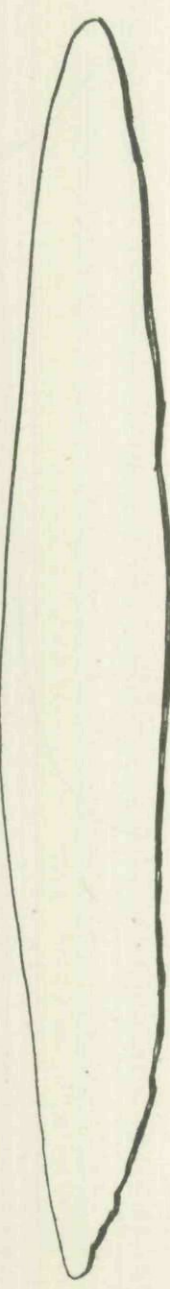
The seventh object (cut 8) is a longitudinally-perforated cylinder of 115<sup>mm</sup> in length and 33<sup>mm</sup> in diameter. Its color is cream yellowish (Radde's International Color Scale, 33.9). Its specific weight is 2.75. The surface is covered with punctured annulations. Its substance is agalmatolithe. It smelts before the blowpipe slowly to a white enamel. Close to it were found two perforated disks of the same substance; one 43<sup>mm</sup> in diameter, the other 41<sup>mm</sup> in diameter. These three pieces were discovered at

[CUT 4.]

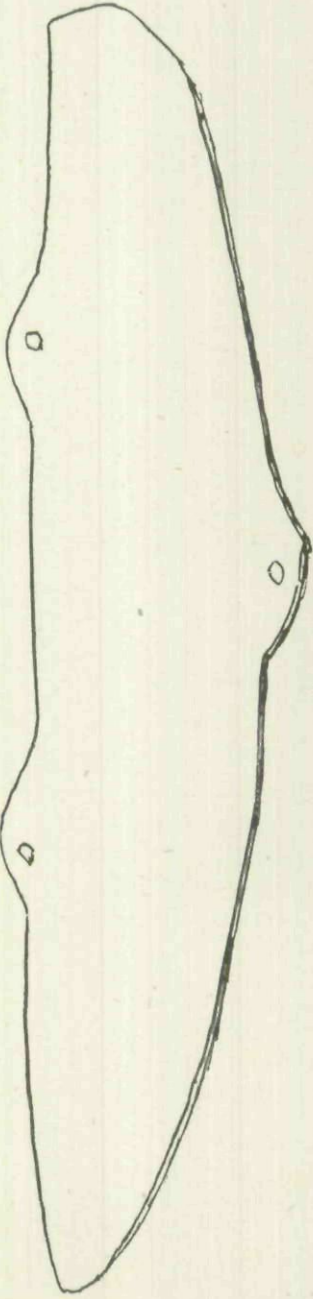




[Cut 5.]



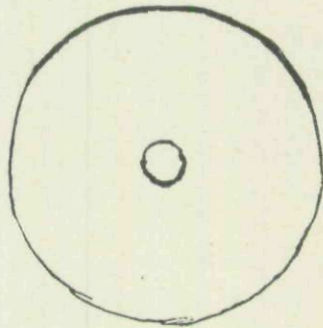
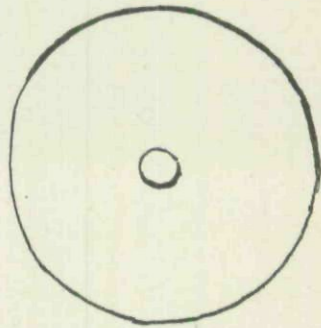
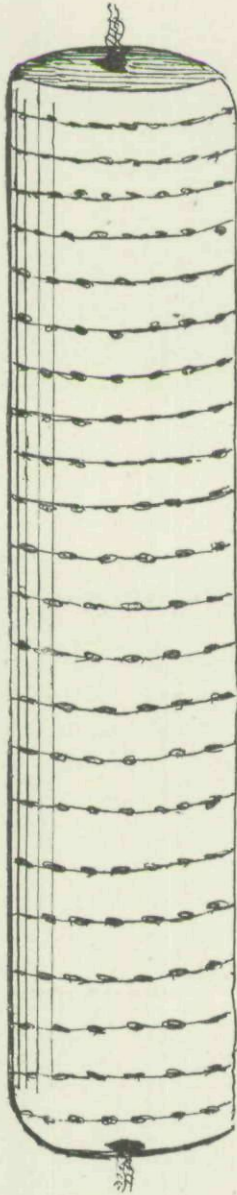
[Cut 6.]



[Cut 7.]



[Cut 8.]





the depth of six metres, whilst building a road near the city of Krasnojarsk on the river Jenissei.

As Siberian prehistoric objects are of very rare occurrence, I thought it would be of interest to explain them, and the more so as they may possibly present analogies to similar objects belonging in the Arctic regions of North America.

JAPAN.

Dr. Emil Riebeck on his return from Japan had the kindness to present me with a pamphlet, of the existence of which I fear there is almost nothing known among the students in Europe. Its author is Henry von Siebold, and its title is "Notes on Japanese Archaeology," with special reference to the stone age; twelve photographic plates; Yokohama, 1879; folio; Typography of C. Levy. The text covers only twenty-two pages, and after an introductory preface (pages i-iii), it treats of stone implements and stone weapons as found in Japanese graves and caverns; of ancient Japanese pottery, of stone and bronze objects, clay figures (Tsuchi Ningio), and closes with a description of the photographic plates, which are of extraordinary beauty. The author of this valuable treatise had a large number of stone implements, collected in different parts of Japan, at his disposal, which furnished him material for comparison. These specimens belonged to a later period, were well polished, nicely adorned and perforated, and came from the southern provinces of Japan, while those of less workmanship, according to the author's comparison, were products of northern Japan.<sup>1</sup> The far greater portion were discovered in the neighborhood of the sea, perhaps on account of the easier subsistence of life near the great waters. The author enumerates nine provinces particularly abundant in such finds, but as they

<sup>1</sup>The question, objectively taken, would be whether northern Japan was not the home of such minerals as are most apt to be worked by chipping, and southern Japan the home of such siliceous minerals as invite polishing.

were discovered by accident, and as scientific methods and plans of exploration are still lacking, no conclusion can be reached as to which portions of Japan were most populated in the stone age. A rich domain is here afforded for a mineralogical examination of the stones employed — of their respective homes, barter, traffic and international communication. We further learn that nephrite, of which there are mines in Japan — a fact lately discovered — is the material most frequently employed in manufacturing hammers,<sup>1</sup> celts and various ornaments. The author thinks that this mineral was imported in raw pieces from China and Corea, where it is common. He calls attention to the fact that the localities where prehistoric objects, made of indigenous Japanese stone, were found do not correspond with those places from which it was originally extracted.<sup>2</sup> Furthermore, he found that only the smaller implements, as arrow and lance-heads, were made of flintstone, an

---

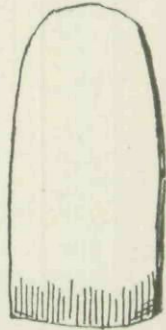
<sup>1</sup> Hammers, properly speaking, made of nephrite, I have never heard of as coming from any portion of our globe, nor does the work show any illustration which would suggest that form which we call a hammer. Moreover, we cannot but notice that in the description of the plates (pages 19-22) in which for every figure the English as well as the Japanese name is noted as well as the locality and the material, only nine pieces out of one hundred and thirty-seven are quoted as wrought of nephrite. Among these are the *Magatama* and other objects of diminutive form, but not one single celt and still less a hammer. The long experience I have had in the diagnosis of nephrite has made me somewhat sceptical, and I must here confess that without the given statement of hardness, specific weight and other chemical diagnosis, I would not be warranted in believing that any of the quoted specimens are real nephrite. I must say the same of the nephrite said to exist in Corea. The correspondence which I have with Eastern Asia and other oriental places has shown me the misuse made in giving the name of *jade* or *yü* to minerals, which on a later investigation must be classified quite differently. As valuable therefore as our author's work may be in all other points of view, I am unable to accept his statements regarding nephrite and the requisite of a warranted diagnosis of nephrite, since the quoted specimens are so much the more desirable as they afford the premises for a conclusion as to whether a prehistoric connection with China has really existed. If mineralogy aspires to share in the solution of archaeological questions, she must inexorably hold fast to the postulate of warranted diagnosis.

<sup>2</sup> The same happens with the Eclogie celts in Europe, as is shown by one of my pupils, Dr. Paul Lohman, in *Neues Jahrbuch für Mineralogie*, 1884, Band 1, Seite 83, s. 99.



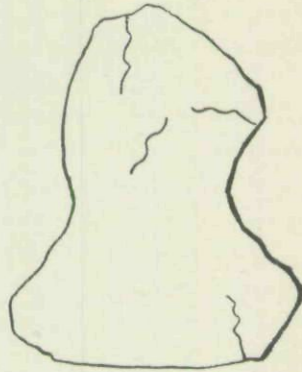
opinion contrary to that held in Europe. As for the rest, however, he observed a marvellous congruence between Japanese stone implements and all others found on the surface of the globe; and that which struck him most, was that Japanese celts were identical with all those with which we are acquainted. These celts are considered by the natives of Japan as implements belonging to a remote epoch and curiously enough they call them "raifu," which translated means thunderbolts. After giving a very plausible description as to how these instruments were "flaked off" from large blocks of stone, the author passes to what he calls "the period of polished stone." To this period belong such objects as small chisels, in the manufacture of which great care was bestowed upon the preparation of their edges, both sides of them appearing to have been polished. Opposed to this was the fact that an instrument, also of celt or wedge form which the Japanese call "*Kitsune no paña*" or "fox plane," was found, and also another—the *Kitsune no nomi* or fox chisel (cut 9). [CUT 9.]

Their edges were ground sharp and only on one side, similar to the Japanese knives of to-day and the planes and chisels of our carpenters. This kind of celt, however, is rare and was discovered exclusively in the province of Noto. The plates published by Mr. von Siebold show a considerable difference in the sizes of the celts. They vary from 15 inches down to 1½ inches. According to the author, the smaller celts were in all probability used for sculpturing pottery, opening shells and the like. He proves that these celts, when used, were stuck into handles of wood, horn and bone, for some were found still inserted in wood and horn fastened with bark and split bamboo cane. Sometimes the edge alone was polished, while the covered part was left rough, as was formerly observed in European and American celt chisels.



(Cut 10.) In this cut a curious specimen of stone implement is given, which the author found in great quantities imbedded in shell and stone-heaps, and which the natives of Japan also discovered in other of their provinces. Near the Tsukuba mountains, Province of Witachi, there are roughly hewn pieces of stone on an average 3-5<sup>cm</sup> in length, bound together, so to speak, in the middle and having the edges on two sides of irregular shape. The Japanese call them "*fundon ishi*," pound stones, on account of their similarity with Japanese weights. In all probability they were fastened between two pieces of wood and used as a double-bladed chisel or axe, as the sharpened edges seem to prove.

[Cut 10.]



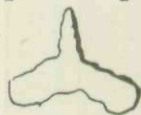
In the description of the plates accompanying the pamphlet, much attention is paid to the substance of the stones themselves. The mineral and species of rock used as material for these objects are noted as being of various kinds. For the purpose of easy examination, I shall arrange the celt-like objects mentioned according to their mineralogical nature. Among them, the andesite, a volcanic product, plays a considerable part. Sixty-four per cent. of the 166 objects represented on the plates—and hence 107 celt-like objects—are made of andesite. Most of them are but rudely worked and only a few of them have partly sharpened edges. There are also fifteen arrow and lance-heads cut out of andesite, which, just as in Europe and America, are always chipped and never polished. Among these objects are a great number which are of delicate workmanship, which elsewhere, as in Finland, was bestowed exclusively on silex, obsidian and glass. If the diagnosis of our author is correct, we feel



safe in drawing the conclusion that andesite is worked in the same manner as flintstone, that is, that it does not leave sharp conchoidal fractures. There was, therefore, no occasion to grind and polish the surfaces of large celts or chisels and this operation was also unnecessary with smaller pieces, as lance and arrow-heads and the like. Andesite is found in Europe, mainly in Hungary, *Siebenbürgen* and in the *Siebengebirge*, yet so far as I have learned from specimens that have come to my hands, it has not the polish or even fracture of the cryptocrystalline flintstones and amorphous obsidian, but rather the rough fracture surface of the phanomere rock, i. e., a rock the elements of which are of easy recognition. Whether the *Japanese andesite* presents the same quality, I am unable to state for lack of autopsy.

A few words more must here be said on the Japanese arrow and lance-heads. The natives call them, without discrimination, *ya-no-ne-ishi*, which means lance points. Only when they are of considerable length do they employ the word *ishi-yari* or stone lance. The lance points may be divided into two categories. One portion of them were destined to be set directly into the hollowed shaft of the lance. The other, which is only found in *Yezo*, *Saghalien* and the *Aleutian islands*, appear to be first set into a short socket of bone and then introduced into the shaft of the lance. As to their shape, we may distinguish such heads or points as are of elongated, oval form (see [Cut 11.]

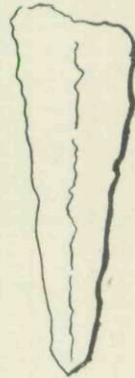
These are considered to be the most ancient. They are the most rudimentary, the easiest to be worked, and were either set into the hollow shaft or fastened to it by bark or string. There are others of more delicate workmanship whose half-moon shaped edges are swelled more in the middle. Up to the present day, the *Ainos* of *Yezo* shape them into the same form, employing for that purpose the hard material of the bamboo, and more rarely



iron. Specimens were noticed in the same locality which were chipped from flintstone. Another form, quite new to us, was observed in Kamtschatka, which is employed in hunting the sable, and presenting, so to speak, a stem with [Cut 12.] a knob at its head (see cut 12). [Cut 13.]



In cut 13 a very delicately worked lance-head, of the three-sided bayonet form, is represented. Of the material from which these lance and arrow-heads are made, the flintstone is predominant.<sup>1</sup> The rest are of obsidian, agate, crystalline-rock, opal, slate, etc. The Japanese connect these lance-heads with various and curious traditions. For example, they say that yearly a large host of spectres, wrapped in dark storm-clouds, rush over "the island of the lance-heads" in the province of Dewa. During their transit, these lance-heads, of various materials, are strewn in large quantities over all the country.<sup>2</sup> A book is referred to in this connection, written by a Chinese author, having the name of "Nihon go Ri," in which it is stated that in the years 839 and 885 B. C., a storm had raged over the district of *Akumi* in the province of Dewa, and after it the palace of Akita was found to be literally covered with these implements, and since that time the inhabitants of Dewa have taken the habit



<sup>1</sup> The illustrations given of these arrow and lance-heads show that none of the specimens are polished, but all are chipped just as in Europe and America. With this additional observation, in Japan, another and very valuable proof is given to an old assertion of mine that the finest specimens of stone implements were only obtained through skilful chipping, and that polishing does not represent in any particular a higher or later stage of civilization.

<sup>2</sup> This tale again reminds us of the myth of the Amazon stones in Brazil, as reported in my work on Nephrite, pages 125, 221, and in the *Archiv für Anthropologie*, vol. XII., 1880, pages 7-28, with plate, page 10. The mysterious amazons assemble around a lake to celebrate a festival of atonement. After a few days, when the waters of the lake are smooth like a mirror, they throw themselves into it to bring out of it the *muirikitaus* (stone idols), which figure in that country as talismans.

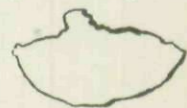


of rushing out of their houses after each storm to examine whether they can find any of these relics on the surface or by digging for them. They would then pulverize them to sell and use as a precious remedy (compare nephrite pulverized in various districts of Asia). Dangerous abscesses are not allowed to be opened except with this kind of lance-heads. A singular form of small stone implement, which I have never heard mentioned in any other country, is that which the Japanese call *tengu-no-meshigni* (rice spoon), and *Kitsune-no-gni* (fox rice spoon) (cuts 14 and 15). They are extremely small, some formed like a shell, others like a boat, and they seemed to have been inserted into a wooden handle. The material is of the hardest stone, and the edges are not sharpened by grinding, but by mere chipping. They predominate in the northern provinces of Japan.

[Cut 14.]



[Cut 15.]

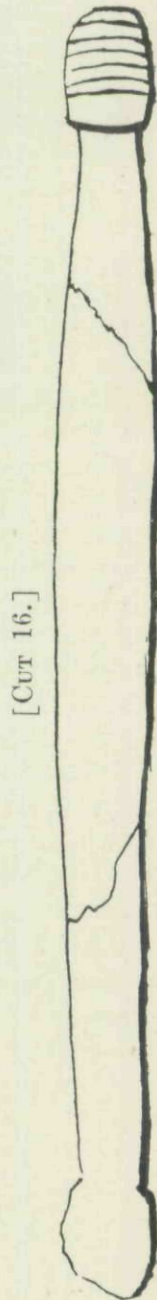


To other rare stone objects, yet never found in a perfect state of preservation, belong the so-called *Rai-jo* or thunder-mallets. Their length is often three feet or more. Some say that they were used as weapons, others as tokens of dignity. Against the former opinion is advanced the fact that the material in which they are worked is soft, and they are also of thick substance, which seems to forbid their being handled with ease. Some of them show a knob at the one end, and others have a knob at both ends, with ornaments on their surfaces. Instruments of similar shape, however, of wood are observed among the *Ainos*. They often present a finely sculptured ornamentation and are used by the chiefs of the villages, who employ them when called upon to settle a quarrel. (Cut 16.) (In this cut they are represented in diminutive form.)<sup>1</sup>

<sup>1</sup> In the description of the plates are named as such, slate, tuft, basalt and gneiss.



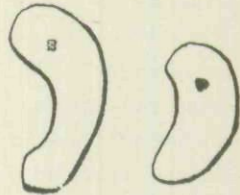
Another very rare stone implement may be mentioned, which the Japanese call rai-tsu-chi or thunder-hammer. It has the shape of a thick spindle, is well pointed at both ends and has two short swellings in the middle, which suggest that it was held fastened at its ends and employed like a double pickaxe as a formidable weapon of attack. Mr. Siebold is of the opinion that the knowledge of Japanese stone implements would increase in value if similar material could be gathered, pertaining to similar epochs, from the neighboring countries, as from China or Corea in which, undoubtedly, a similar progress from the stone to the metal age must have taken place; but with this difference, that in the latter countries we were not compelled to search beneath the layers of centuries as in Japan, but rather beneath those of thousands of years and more. There are tribes in China who, up to the present day, would not make use of metal implements but stick to their ancient stone material, and we are told by Chinese writers that people who employ metal to-day formerly used stone. In *Loochoo*, as well as on the Bonin islands (the latter strange enough to say do not reveal any traces of a former population save that which they received a few years ago), in Tsushima and on various of the smaller islands, which are links in the chain stretching from the Philippines northward to Kamtschatka, stone implements have been discovered which are different from those of Japan only in their material.



On pages 15 and 16 the Japanese stone ornaments are described, from which we will quote what seems to be of most interest. They appear to pertain to a more recent epoch, for they are found in graves together with metal or preserved in earthen vessels. The peculiar ornaments called Magatama and Kudatama may be mentioned. The Magatama (compare note on page 195) are beads of semi-lunar shape, perpendicularly perforated through the thickest part, the centre of the perforation being narrower than that of the ends, hence fully corresponding to the prehistoric borings of Asia, Europe and America. Their size varies from  $\frac{1}{4}$  to 4 inches and the substance is usually of nephrite (see note on page 195), crystal, agate, serpentine, amethyst, jasper or sometimes soapstone and clay. Their shape is shown in cut 17. The author

[CUT 17.]

thinks that some object is hidden in the representation of the symbolical objects of which this amulet is composed, and suggests the symbol for the male and female organs, the Chinese yin and yang.



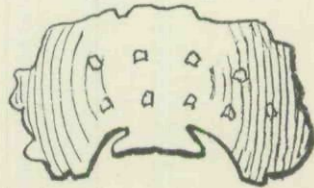
In the Chinese province of Kiansu, he met people who wore them as an ornament in their head-dresses. It is mentioned in the most ancient Japanese historical records and it is still seen in Loochoo, but it is met with only in those countries where Jimina Tenô and his descendants founded settlements,<sup>1</sup> yet never with objects which show their Aino origin. The author sets a great value on this ornament and is of the opinion that further research concerning it will disclose to us the real origin of the Japanese nation. He points to the fact that the *magatama* is one of the three insignia of the Japanese emperor, which insignia are the *sword*, the *mirror* and the *magatama*. The insignia are not of arbitrary introduction but of holy

<sup>1</sup> Without statement of which epoch it was.

inheritance. The magatama is interpreted to mean that the Emperor should rule with mildness, and with temper as pliant as its form but in substance as firm as the material of which the magatama is made. Ancient drawings represent the magatama as in alliance with the Kudatama, concerning which mention will be made later. The beads are strung on thread in greater or smaller quantity, and tied to the girdle of the warrior or around the neck but hanging down to the body. Only persons of rank seem to have used them. In the Japanese annals they are mentioned in various places. Recently they have been found preserved in the so-called Spinto shrines together with the precious *kudatama* which are jewels of a cylindrical form. Both are put into earthen vessels and placed in the grave of the dead. The Kudatama are always of cylindrical form and vary much in size. The largest specimen noticed by the author was four inches in length by one-half an inch in diameter, and their perforation shows the same method of boring as above described.<sup>1</sup> The material is mostly serpentine, but there are rare specimens of rock crystal.

Among Japanese antiquaries, the so-called *scki-kento* or sword-guards, of which cut 18 is an illustration, still are in high repute. Their form is that of a half globe, the surface being neatly polished and furnished with incrustations of small knobs or plates. Some savants insist that these half-globes were used as sword-guards; others, however, have their doubts as to their having been used for such a purpose, since they are only discovered beneath the ground upon which the shinto-altars were erected. Their material is usually not of the hardest, as there are found specimens of them of soapstone.

[CUT 18.]



<sup>1</sup> This was observed also on ornaments coming from Asia Minor.



Mr. Siebold's work must be received with pleasure and gratitude by all students of archæology. By it may be formed an approximate idea of the earlier and the later stone ages in Japan, based upon an original, circumspect and many-sided research, which is happily supported by a thorough knowledge of the Japanese language. The work also contains an interesting report on Japanese gold, silver, bronze and pottery ornamentations, the illustrations of which are given in the additional plates.

Copyright of Proceedings of the American Antiquarian Society is the property of American Antiquarian Society and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.