

TWO MEXICAN CHALCHIHUITES,  
THE HUMBOLDT CELT AND THE LEYDEN PLATE.

BY PHILIPP J. J. VALENTINI, PH.D.

I HAVE chosen for my subject two green stones, of the class known in archæology as Mexican Chalchihuites.<sup>1</sup> These stones are of the so-called *celt form*. Figures of men, symbols belonging to the Maya calendar, and various other objects, which admit of interpretation, are carved on their surfaces.

One of these Chalchihuites is known as the Humboldt celt. A Mexican gentleman, Sr. del Rio, made a present of this celt to A. von Humboldt, when he was engaged in his famous tour of exploration through Mexico, in 1804. Humboldt deposited the stone in the Royal Museum of Berlin, without commenting upon it. Lord Kingsborough took notice of this relic, and gave the first illustration of it in Vol. V. of his Collection. But it was not until 1875, that Professor Fischer, of Freiburg University (to quote his own expression), "succeeded in rediscovering the precious and forgotten celt on the dusty shelves of the Berlin Museum." Several years ago, the other Chalchihuitl was discovered by S. A. von Braam, a Dutch civil engineer, while opening a trench toward the Graziosa River, near St. Felipe, on the frontiers of Honduras and Guatemala. It was found, quite unexpectedly, at a very great depth below the surface. I am unable to give you more particulars connected with this valuable discovery, save that it passed into the Museum of Leyden, whose director, Dr. C. Leemans, at a meeting of the Congrès International des Américanistes, in 1877, made a report concerning it, which is printed in the Comptes Rendues, Tom. II., p. 283.

Copies of these two specimens, I now desire to present to our Society,—not the original Chalchihuites, but plaster casts taken from them in Berlin and Leyden. But as they were manufactured under the supervision of the museums named above, they are almost perfect FAC-SIMILES. They were presented to me by Prof. Fischer, who has shown deep interest in the origin and character of those antique stones and who desires me to make an explanation of the strange characters engraved upon them.

He labors under the impression that such an explanation, if possible, would contribute, in a certain degree, to unveil the mystery in which the origin, the peculiar form and shape, and the practical purpose of these celts is still enshrouded. I feel very much flattered by the confi-

<sup>1</sup> The singular of Chalchihuites is Chalchihuitl, and as I have never found the plural in its native form in any author treating on this subject distinctly, and as our grammars are very uncertain indications, I have given the plural the Spanish ending *es*, following the practice of other authorities.

dence he has shown in my explanations of Mexican hieroglyphics. The objects have been before my eyes for a long time, and indeed I think I shall be able to tell something about them. I only doubt whether my friend's curiosity will be satisfied with the results which I have reached, and also whether I shall be able to enlist your attention to the subject.

The explanation of the carvings requires a preface, which will contain the theory which Prof. Fischer has formed upon these and other Mexican chalchihuites, a theory which, on account of its novelty, its depth of research and surprising results, must necessarily make the starting point of my later remarks. Briefly stated, this theory is as follows: that these two stones, together with a few others of their kind, though they were dug from American soil, can not possibly be considered indigenous to this continent. This assertion is based upon the circumstance that in the North as well as the South of the whole American continent, no mine or rock has been discovered, from which, in a geological sense, the substance of these stones could have originated. This is the negative part of his argument. The positive one is, that a scientific diagnosis, which he made of the stones, points directly to a certain locality in Western Asia, this locality being the only place in which this variety of stones, from time immemorial, has been and still is mined, shaped, sold and employed in superstitious worship.

Here then, for the first time, after so many fantastic and vain speculations, the much agitated question of a prehistoric intercourse between Asia and America is approached in a new way, under the shield of correct methods, by a man trained in the school of severe analysis, from whom therefore, we may expect scientific evidence for his assertions. To give a full report of all the premises from which his surprising conclusions were drawn, would be interesting indeed; however it would exceed the limit of time allotted to this subject. Therefore, permit me to explain, in the form of a brief chronological synopsis, how it has come to pass that the simple Mexican chalchihuitl, by the lapse of time has grown into the prominence of offering a key for the solution of a prehistoric problem. The majority of these data are taken from Prof. Fischer's work on "Nephrite and Jadéite."

1). Green and blue glass beads were objects of a lively barter between the natives of Yucatan and the crew of Cordova's expedition, in 1516.

2). The demand for them increased, in 1517, on the Grijalva expedition, and could not be supplied on the third, in 1518, at the arrival of Cortés. The Spaniards were ignorant as to the ground of the predilection of the natives for these trinkets. A few sailors are said to have made a fortune by their sale and left for Spain.<sup>1</sup>

<sup>1</sup> Compare what *Bernal Díaz*, a soldier of Cortés' tripulation, says of this traffic, in his *Historia verdadera de la Conquista de la Nueva España*, chapters 1, 2, 8, 9, 11, 13, 14, 16, 25, 27, 29, 35, 40, etc.

3). Moctezuma, the captive, on various occasions, presents his jailers with small chalchihuites. Cortés receives two larger ones, each of which are said by Moctezuma to be worth two loads of gold.<sup>1</sup>

4). At the arrival of the chalchihuites in Spain, they are at once discovered to have nothing in common with emeralds or other jewels of green color.<sup>2</sup>

5). Learned people at this epoch, begin to recognize similarities between the green stones brought from Mexico and those imported by trade from Asia.

6). The conquistadores, attacked by an epidemic disease of the kidneys, are advised by the native doctors to wear the chalchihuitl. "He, who wears it when sick, is restored to health, and when healthy will remain so." The inquiring missionaries ascertain that the Goddess Chimalma has given birth to Quetzalcohuatl, the venerated American apostle, out of the substance of a chalchihuitl, that the stone, if laid upon the tongue of the deceased, will help the soul to pass the seven ordeals before reaching Quetzalcohuatl in heaven.

7). The same story of the magic and medical power inherent in the green stone is found by the learned Europeans to be also in vogue with the Asiatics. Quotations from the classic writers who gave these stones the name of Nephrite, *i. e.*, kidney-stone, serve to prove the assertion. The American chalchihuites begin to figure in literature and in mineralogical collections under the name of Nephrites.<sup>3</sup>

8). In the past three centuries, treatises on these green stones have been presented by fifty-one authors. The nineteenth century has produced the distinguished names of Leonhard, Ritter, Stolitzka, von Hochstetter, von Schlagintweit and Fellenberg among the Germans; the French have Damour and Abel Rémusat; the Americans, Squier, Dana and Pumpelly.

9). A new era of archæological research begins with the discovery of the lacustrine dwellings in Switzerland (1854.) A large number of small, middle and large sized Nephrite-celts are dredged from the bottom of the Helverian lakes. The questions are asked and discussed as to whether those lacustrine dwellers were aborigines or immigrants? Has Nephrite its origin in Switzerland in Europe, or if not, where?

<sup>1</sup> Bernal Diaz, *Historia verdadera de la Conquista de la Nueva España*, chapter 104.

<sup>2</sup> *Petrus Martyr de Angleria*, De Insulis nuper inventis. Dec. IV., Chapter IX., in which a report is given of the presents Cortés sent to the Emperor. . . . "also two chains of gold, whereof the one contained 8 luks, in which were set two hundred and thirty-two red stones, yet not rubies, and one hundred eighty-three green stones, yet not smaragds. Nevertheless these are in like estimation with them, as the others are with us."

<sup>3</sup> French, English and Germans call it *Jade*, a corruption of the Spanish name "*piedra de hijada*" (stone against the hip disease). The Persians call it *yeshm*, the Turks and Mongolians *klasch*, the Chinese *yu*.



Did the lacustrine dwellers procure the celts through mining or by trade, or did they bring them on a migration tour from distant localities? How was the Nephrite shaped to the form of celts, the diamond only being able to make an impression upon its surface?

10). Turkestan is pointed to as being the most probable home of the Nephrite. The journey of Stolitzka to discover the mines. The expedition of the brothers Schlagintweit to the same country, where one of them is beheaded by the sultan of Kaschgar. Robert Schlagintweit's researches in Kokhand. He asserts that Nephrite forms a system of massive rock, like sandstone, trap or granite, and is gathered partly from alluvial boulders, partly from the rocks themselves. The Emperor of China has in all time past been the monopolist of the Nephrite mines in Turkestan. Another home for Nephrite is found in New Zealand by von Hochstetter. A third in Irkutsk. It is by the specific hue of color that these three differently located Nephrites are discriminated.

11). Prof. Fischer begins to make the study of Nephrites a specialty. (1874.) The ideas he starts from: Mineralogy and chemistry are sciences auxiliary to archæology. The same species of stone, worked into the same shape, points to the same workmen. The Nephrite stone shaped by the ancient orientals to the form of a celt, is not only discovered in Asia, but also in Europe and America. Nephrite mines, however, are known to exist only in Asia. Therefore prehistoric communication by the Asiatics with Europe as well as America is suggested. All facts bearing upon the demonstration of the supposed fact must be gathered, critically weighed and put into the shape of conclusive evidence.

12). Prof. Fischer performs the task in three ways. FIRSTLY: He works out and publishes a bibliographical account, a kind of chronological catalogue of all that has been written on the *Green Stone* during 2180 years, from the Holy Scriptures down to the present day. About 260 passages are taken from the authors and commented on. The book is adorned with 135 cuts representing as many interesting green stones as the professor was able to secure in private and public collections. Curiously, green stones figure in literature under not less than 115 different names (misspellings of course included). This catalogue has the appearance of a picture book, reads like a romance of human superstition and yet is, actually, an impressive document of sober thought and science. It was published in Stutgard, in 1875, numbers 407 pages and bears the title, *Nephrite and Jadëite*. SECONDLY: The literary survey having been given, precise statements were required as to the mineralogical nature of the Nephrite, its specific weight, hardness, color, breaking, transparency, fusibility, etc. An analysis gained from more than one hundred specimens, resulted in determining three different varieties. The first was called *Nephrite* proper, the second *Jadëite*, and the third *Chloromelanite*. Nephrite belongs to Hornblende, is a very homogeneous mineral, its color is varied light green, and its specific

weight never exceeds 2.9. Jadëite and Chloromelanite chemically are entirely different from Nephrite, whose magnesia is represented by argillaceous earth, and are not so homogeneous; color spinage green; specific weight always exceeding 3.1—3.9. Chloromelanite is interspersed with yellow particles, sp. w. 3.32—3.41. THIRDLY: Interest in the solution of the problem, and confidence in the professor's skill and earnestness of purpose, assist him in securing the scientific control of almost all specimens of worked green stones, existing in the hands of private collectors and museums in Europe. When secured, his first operation was to separate as foreign to his consideration, all the stones which he recognized as Falso-Nephrites. To these belong the Serpentine, Saussurites, Orthoklas, Felsites and green Silicates, the latter being mostly represented by the so-called Mexican chalchihuites, whose mines are located in the "Cerrillos," of South Sta Fé, Mexico. He supposes the chalchihuites to have been substituted for the genuine and revered ancient Nephrites, at an epoch when the latter began to be scarce. Having excluded the Falso-Nephrites, the remainder of the genuine specimens was to be examined and classified, in the historical point of view. An examination then took place, how many of these specimens can be positively proved to have entered from Europe by trade, and how many of them are the products of exhumation from ancient ruins, tumuli or lakes.

The longed-for residuum represented the prehistoric Nephrites. There are about 189 specimens of the latter class. They show a remarkable similarity of shape, having either the form of chisels or of celts, and range from the length of 50<sup>mm</sup> to 390<sup>mm</sup>. The Nephrite variety has yielded the small sized specimens; the Jadëites, and Chloromelanites, the larger and compact ones. They are neatly polished and the edges are sharp and intact. None show ornamental carving, at least none of the European specimens. When arranged in mineralogical order, 77 were found to be Nephrites proper, 79 Jadëites and 33 Chloromelanites. Of the 189 specimens discovered, only 10 were taken from Central American localities. Of these, 7 are Jadëites and 3 Chloromelanites. Hence Nephrites proper have not yet been detected in America. As to the local and geographical distribution of these prehistoric relics, the following results were gained: Khotan in Turkestan appears to be their starting point. They cross the Iaxartes and Oxus rivers, pass below the Aral and Caspian Seas, along the Northern Asia Minor shores; bordering upon ancient Troy, they pass to the Peloponnesus, whence they direct their course to Crete, and not touching Egypt, pass from Greece to Italy,<sup>1</sup> whence they are distributed among the Helvetian lakes; thence they branch Northward to follow the course of the Rhine into Belgium, and Westward through Gallia Cisalpina and the Celtibe-

<sup>1</sup> A full report of *Dr. Dom. Lovizato's* recent discoveries of Nephrite, Jadëite and Chloromelanite celts in Calabria, was given in the *Correspondenz-blatt der Deutschen Anthropologischen Gesellschaft*, 1880, Ref., page 335.



rian Peninsula. England, Scandinavia, the heart of Germany, Austria and European Russia appear not to be touched by this route of migration.

The same route was taken by the Jadëite-specimens, though their starting point was not Khotan. That they also came from the far East was plainly shown from the fact that they were found intermingled with Nephrite specimens as far as Asia Minor. Yet, that they could not come from Turkestan, has from the outset been maintained by mineralogists, on the ground that Jadëite is a mineral foreign to the geognostic structure of Turkestan. Chemically, Jadëite differs to such a degree from Nephrite, that the two varieties could not have grown together within the same structural compass. Ten years of most laborious research, of private travels, of correspondence with consulates, of searching in books of natural history written in all of the Asiatic languages have brought to light at last the home of the Jadëite. The Jadëite mines belong to the King of Burmah, whose dynasty, from time immemorial and entirely unknown to the European trade and scholars, enjoys the riches drawn from the monopoly of selling objects manufactured from this precious green stone. The name of the Province whence it comes is YUNNAN, and the mining district itself lies North of the city of *Bahma*. Foreigners have not as yet reached the locality. Traveling in Burmah is considered as dangerous to foreigners as it is in Turkestan. Yet the knowledge, which Prof. Fischer gained of the fact and the authentic proofs themselves, come from friends, resident for this and other scientific purposes in the Burmese capital. Burmah is the centre of Buddhism. It is a land of cloisters, in which the Buddha monk is trained for his future itinerant and missionary work.

The home of the Chloromelanite, up to the present day, has not been discovered, but the professor has reasons to believe it to be not far from that of the Jadëite.

We have still to consider the ten specimens of Jadëite and Chloromelanite, which are the products of exhumation from American soil. What route they took, remains, of course, a mystery. The scientific diagnosis made of them, agrees to a remarkable degree in identifying them with those assigned to the Burmese mines. A few of them also exhibit the Asiatic celt-form. Prof. Fischer is so cautious as not to say, directly, that they were imported from Burmah into Mexico in prehistoric times. But since the facts elicited by him stand out in bold and rather suggestive relief, we cannot help presuming that he thinks so. He *emphasizes* the fact that neither mines of Jadëite nor Chloromelanite have ever been discovered in America. If any exist the knowledge would have come to the surface. Their existence would not have escaped the notice of the vigilant native, nor of the Spaniards and the modern European dwellers. Should the massive rock still be covered with dense forests, fragments at least of the mineral would have been carried down the rivers in the form of boulders and pebbles. The natives, engaged in the worship of the green stones, would have

detected them and not have resorted to the employment of poor substitutes.

Thus much for Prof. Fischer's research and its results.

Let me now turn your attention to the objects themselves, of which I intend to speak. It can be observed that both stones are almost of the same shade of green color, the unity of the color being interrupted however, here and there, by flakes of a bluish hue. Both stones show the outlines of what in archaeology is known by the name of celt, and exhibit on their surface carvings of graceful execution. They appear equal in size, 222<sup>mm</sup> in length and 80<sup>mm</sup> in width. Yet it may be noticed that the top of the Humboldt celt is broken off. If restored the length of the celt would probably be 275<sup>mm</sup>. These are the chief points in which the two stones agree, and yet there are essential points of difference between them. The Humboldt specimen has the full form of a celt, namely that of a wedge. It is biconvex, with a thickness approximating to 34<sup>mm</sup>. The edge approaches the crescent form. The Leyden specimen, on the contrary, is almost flat and only shows the well known celt-form in its outlines, with an average thickness of 5<sup>mm</sup>. On closer examination a slight bevel will be noticed from the edges toward the axis, on both surfaces of the plate, exhibiting, therefore, rather a tendency to biconcavity. Allow me to make here a brief comment upon this circumstance. If we desire to make a success of the study of these mysterious stones, and allow them to tell their former history, we must necessarily seize upon the minutest mark they show, discuss it, and try to find an explanation. Let me, at this time, state the fact that by far the greatest number of chalchihuites gathered from the hands of the natives at the time of the conquest, and in the course of the following centuries, have turned out to be Falso-Nephrites. Genuine Nephrites must have been employed by the earliest generations, for they are discovered only in ancient graves, or in the soil at considerable depth, or at the foot of ruined buildings, of which the natives themselves attested that they did not know what kind of people built them. However, their cult, calendar, ceremonies and usages, so they acknowledged, were derived from ancient times. Among their ceremonies, as we learn, the entombing of the deceased with a green chalchihuitl on his tongue was considered a religious duty. A considerable number of green stones must therefore have been annually consumed. These statements together with those of Prof. Fischer, I think are sufficient to enable us to establish the following points. The historic natives used Falso-Nephrites, the prehistoric natives genuine Nephrites, in their sepulchral rites, and the custom, therefore, must have continued during long epochs of time. Now, the Nephrite mineral is foreign to the country. Though we do not know in what way the celts came hither, yet we cannot help considering them as imported. At a certain epoch, this importation must have ceased, and a period have been entered upon when the demand for them could no longer be supplied. The people,

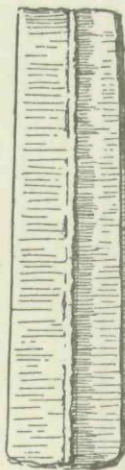


notwithstanding, would not give up the time-honored habit. In such an emergency, the most natural course was to devise a substitute, and to resort to the green stones found in the country itself. That this took place, we have positive proof. But there are also proofs existing that before taking a definite leave of the sacred relics, the worshippers still resorted to another and very obvious makeshift, and this is not a mere suggestion of mine, it is an observation of fact. I once had in my possession a chalchihuitl which was dug out in my presence, from an ancient Chorotegan grave (Nicoya, Costa Rica), and which at first sight suggested that it had been separated from another one of the same shape and size. The stone also approached the celt in form. It was 120<sup>mm</sup> in length, 32<sup>mm</sup> wide, and showed from all sides a thickness of 5<sup>mm</sup>. One side of it was elegantly polished. The other side displayed the working of an instrument, by which it had been sawed into two pieces.<sup>1</sup> The workman, as I perceived on closer examination, had begun to saw lengthwise, and when approaching the middle of the stone, he had stopped and had proceeded in the same manner from the other side, apparently in order to meet the first cut. In this, however, he did not succeed, and perhaps did not wish to. He seems to have preferred, at this point, to break the stone into halves, and that this had actually been done was evident from a ridge left standing in relief upon the axis of the stone. (See Cut 3.) Now, to me, the Leyden

CUT 3.

tablet seems to be the result of a quite similar operation. I hold it to be the middle portion of a celt, sawed out, and then prepared for the carvings. That it belonged to a celt, like that of the Humboldt specimen, is readily seen by its outlines. If a tablet was intended, we can see that two cuts must be made, and *when wedged and broken* two ridges would have resulted. Had these two ridges remained upon the two sides of the tablet, it would have been easy to polish them away and thus procure a pair of even surfaces, such as a sculptor would naturally wish to obtain for his work. This, however, seems not to have happened. The ridges, I suppose, must have resulted upon the two convex portions of the celt, while the tablet itself displayed two corresponding grooves. To remedy this, the grooves were obliterated, and thus the sculptor obtained two even, though somewhat broken surfaces. It is only in this way that I am able to explain the existence of the peculiar bevels.

If I have dwelt so long upon this special point, it was because it is intimately connected with two others of the same kind, which, however,



NICOYA JADEITE.—Half-size of the original.

<sup>1</sup>On stone idols from Costa Rica, by Prof. Fischer, Bremen, 1881. "It was very interesting to me to find among the flat Nephrite amulets which Dr. Emil Riebeck has lately sent me from Asia Minor one which shows the same sawing together with the corresponding ridge."

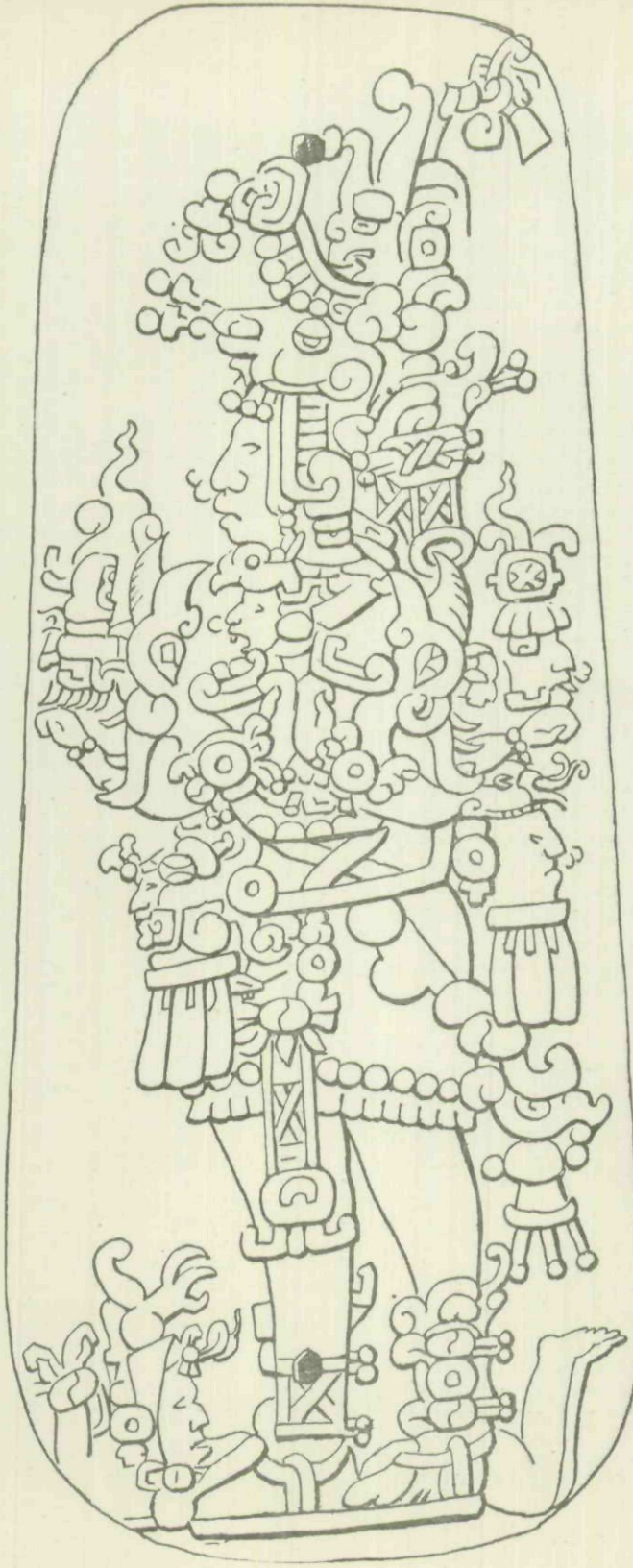


I am not able to explain. I mean the unknown method by which the cuts were made, and also the instrument with which a perfect polish was secured. Nephrites and Jadëites are of exceeding hardness. They hold the sixth place in the record of the mineralogist. It is reported<sup>1</sup> that a piece of Nephrite of 70 cub. cm, was subjected to a blow from a steel chisel set in an iron cylinder, and from the height of 35cm its fall upon the stone did no injury. On the contrary, the edge of the chisel was broken. Prof. Fischer has been active in consulting experts as to the means by which the workmen of ancient times could shape the celts, and to discover how they succeeded in carving upon the surface as minutely and accurately as if they had worked upon a brick of moist clay. There is an idea prevalent that the sawing of stones was practised by the Mexicans with a string and sand. I am unable to find the authority for the assertion, but I can quote a passage<sup>2</sup> from which we learn, that Moctezuma, at the instigation of the sculptors, made war upon Quetzaltepec and Tototepec, which provinces had refused to permit Mexican traders to explore their valuable *sand mines*. In order to obtain a thin slip from the samples for an analysis, the professor had to employ a diamond saw. Prof. von Schlagintweit suggests that the stones were shaped at the quarry itself, while they were still impregnated with the natural moisture of the rock. Should the knowledge of how these stones were shaped and carved ever come to light, the methods employed may prove to have been so simple that our philosophy would not even permit us to dream of them.

I will now proceed to the explanation of the carvings on the Leyden tablet. On whatever part of our globe this tablet might have been exhumed, it must be recognized as of Yucatecan origin. The style of representing men and objects by the Central American artist is typical and unique. On the front of the tablet the figure of a man is represented. He stands clothed in sumptuous array, and in a soldier-like, erect position. His right arm is slightly thrown forward and on the back of his hand he holds a richly adorned vessel from which a flame is bursting forth. His left arm stretches backward and holds on the back of the hand a human head, on the top of which, I recognize the Maya symbol for the *day*, from which also a flame and smoke are

<sup>1</sup> See *Fischer*, Nephrite and Jadëite, page 294.

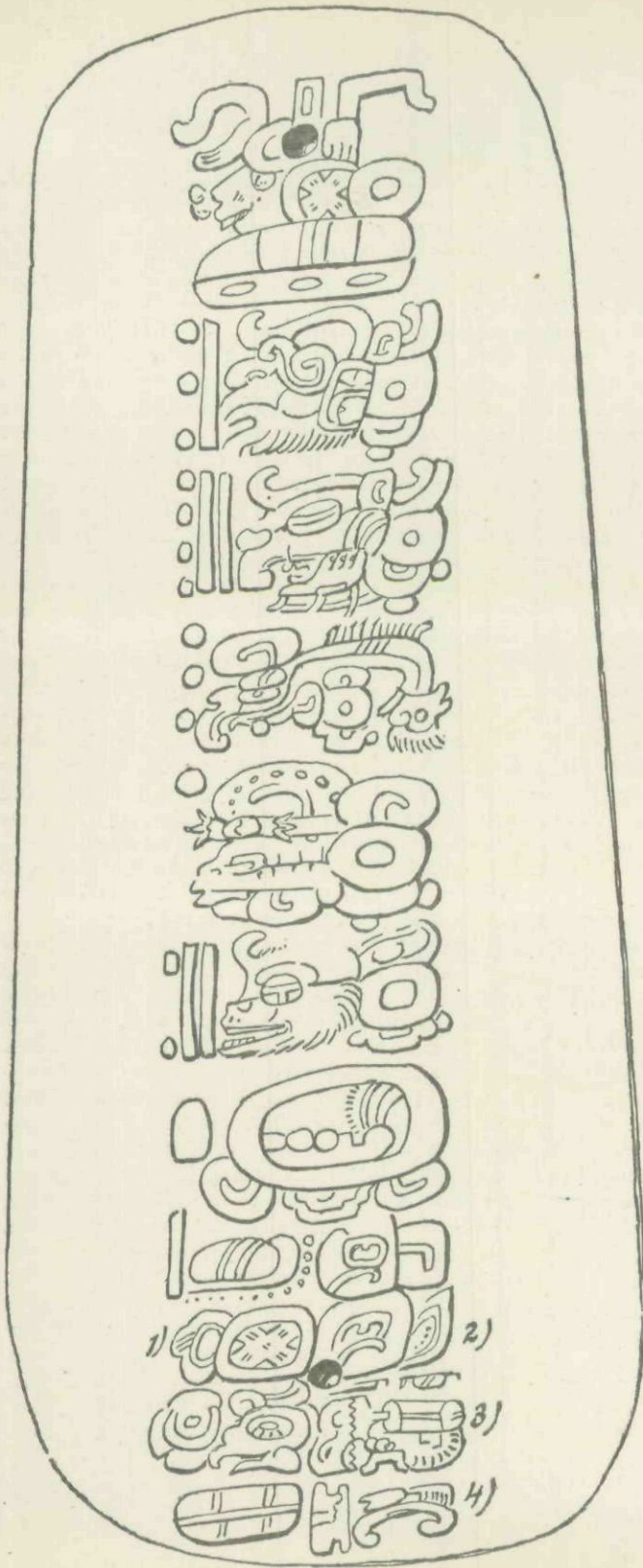
<sup>2</sup> *Diego Duran*, Hist. de las Indias d. l. Nueva España, Vol. I., Cap. LVI., page 442 (Edit. J. F. Ramirez, Mexico, 1867). "The stone-cutters and sculptors of the city of Mexico and Santiago, and of the other provinces, were advised that there was a kind of sand, very proper to work the stones in the province of Quetzaltepec and Tototepec, and also emery for polishing. They gave notice thereof to the King Montezuma and told him of the difficulties they had in obtaining these articles from those countries and the high prices that were asked for them. Montezuma brought the claim before his council and it was determined to send messengers to Tototepec. . . . When the old people and those of rank were looking at the destruction of their town and stronghold, they went to ask for peace and mercy and promised to make themselves tributaries to the king and city of Mexico." . . . .



FAC-SIMILE OF THE CARVINGS ON "THE LEYDEN PLATE," A CHALCHIHUITL DISINTERRED IN GUATEMALA,  
AND NOW PRESERVED IN THE MUSEUM AT LEYDEN.

(*Front Side.*)





FAC-SIMILE OF THE CARVINGS ON "THE LEYDEN PLATE."

(Reverse Side.)

curling in the air. Undoubtedly our hero is in the act of sacrificing. He speaks or offers a prayer, for we see the symbol of breath coming from his lips. Beneath his chin a small human face adorned with an eagle's head appears. From its position and other characteristics, I infer that the artist meant to indicate by this little head the clasp of a collar. Around the upper body and breast I notice two serpents coiling themselves. On the front and rear of his belt two human heads are fastened. From it a richly adorned scarf hangs downward, and on the side a string of heavy jewels with a tassel upon the end. The man wears sandals, and his feet are crushing the body of another man, who vainly strives with his opened hands to clutch the proud conqueror. Therefore, we have before our eyes the representation, not of a priest, but of a victorious warrior, who, laden with his bloody spoils, appears before his god with offerings of thanksgiving.

The reverse of the tablet bears a record. We might suppose this record to contain a narrative of the deeds performed by our hero, but this would be entirely opposed to the Central American method of picture-writing as well as sculpturing. The picture should tell its own story; and in the present case, the man through the peculiarity of his surroundings, his attitude and emblems, is understood to plainly suggest all that we would explain by means of an inscription. As far as my experience has taught me, a record, attached to a special carving or mural sculpture, is a compound of very distinct and always returning elements. They are either cuts of living or dead men, heads of idols in grotesque human or animal form or sacrificial vessels and offerings, intermixed with calendar symbols, mainly those assigned to days. I hope at some future time, when prepared with an explanation of the Palenque slabs, I shall be able to give full proof for my assertion.

The record of the Leyden tablet is arranged in the form of a perpendicular column. Let us divide it in two portions. The one is simply chronological, the other of a mixed character. The first exhibits five symbols, each representing a certain calendar day. At the top, however, there is a picture, which does not belong to this class of symbols. It is that of a censer or brasier crowned with various emblems and the head of a man speaking. The Central Americans used two kinds of censers. One so formed as to be carried in the hand, and another which was not movable. It stood firm in the centre of the Temple and was about three feet in height. Of this latter class is the one engraved at the top of the column. It is very imperfectly drawn. However,

CUT 4.

(Frontispiece.)



(Page 345.)

PALENQUE BRASIER.

from the two illustrations (Cut 4), which are taken from the Palenque slabs (see J. Lloyd Stephens's *Incidents of Travel in Central America, Chiapas and Yucatan*, Vol. II., frontispiece, and page 345), and on each of which a brasier appears placed at the head of the record, you will



be able to form a better conception of how it would appear, if the carver had done his work with a little more accuracy. In these cuts we may distinguish the brasier, the cover with openings for the admission of air, and three feet to support the vessel. On a day of important religious ceremonies, the worshippers approached the holy vessel in procession, each one in turn throwing balls of copal and strips of rubber and paper through the openings upon the glowing embers.<sup>1</sup>

The five symbols that follow, are as I have said, representations of five calendar days of which I am able only to recognize the last, which shows the head of an ape, so clearly, that I think it was meant for the day Ape or *batz*. We know the symbols of the Maya days from Bishop Landa's works and illustrations. The same recur in the Dresden Codex and in that of Tró. But as these specimens are only outline drawings and of minute size, they fail to render the original image. The sculptors on the contrary, had more time and space at their disposal, and the importance of their work gave them the opportunity of elaborating the original size of the image with accuracy. These grotesque symbols are carved with more or less variations, upon the

<sup>1</sup> *Motolinia* (Fray Toribio de Paredes), Hist. d. l. Indios d. l. Nueva España, Tratado 1, IV., edit. Icazbalceta, p. 50: "These Indians always took care to provide their temples with abundance of wood. For in the yards and halls of their abominable worship, and before the altars of their idols, they kept burning certain brasiers of different form, and a few of them of very large size, during the whole day and night. *Torquemada* (Fr. Juan de), Monarquía Indiana, Vol. II., Lib. VIII., Cap. 9: "In these temples and before the altars, brasiers were standing, some of a circular, some of a square form. They were made of mortar, about three quarters of a yard high, and were kept burning day and night. Each hall and temple room had brasiers of its own, so that the priests and their attendants when they went to sacrifice, not only found material for light and fire, but also entered a warm room. *Acosta* (Joseph de), Hist. nat. y moral de Indias, Sevilla, 1590, Lib. V., Cap. 14: "It was the perpetual office of the priests to burn incense to the idols, which was performed four times a day, at sunrise, noon, sunset and midnight. At this hour all the dignitaries of the temple must rise, and instead of tolling a bell, a kind of trumpet or large instrument was sounded, accompanied by flutes, which gave forth long and repeated melancholy tones. After this, the one who was at service that week stepped in, robed in a white *dalmatica*, censer in hand, which he then filled with embers taken from the large brasier, which was kept burning perpetually, before the altar. In the other hand he carried a pouch, filled with incense, which he threw into the censer; which done, he entered the room in which the idol stood and incensed it with marks of great reverence. Then he took a cloth and cleansed the altar as well as the curtains." *Landa* (Diego de) *Relacion d. l. cosas de Yucatan*, ed. B. de Bourbourg, Paris, 1864, page 281: . . . . "they incensed the idols, the priest being the first to throw his own incense into the brasier. He was followed by all the attendants, and the chiefs being all of them placed according to their rank, stepped forth in order to receive from the hand of the priest above the balls of copal, which were given and received with as much gravity and devotion, as if they were holy relics. Then one after the other threw them gently into the brasier, and waited until they were entirely consumed."

Palenque, the Copan and the Ococingo slabs, and thus contribute to confirm the frequently noticed uniformity of the calendar system among the different Maya tribes. To those who are not specialists in the matter, and who wish to be informed on what ground I recognize these symbols to be calendar days, let me here state that they are characterized by the well known symbols for numeration, which are always found standing at the left hand of the days' symbols. The staff standing upright (Maya, *paiché*) means the number 5, each of the circles (Maya, *thuvun*), that of 1. Thus we have here the symbols for the eighth, the fourteenth, the third, the first and the twelfth day.

The second portion displays a group of objects which are of a mixed character. I am able to identify only a few of them. Those numbered 1), 2), 3), 4), appear to me to represent the symbol for *sun* or *day*, a sacrificial knife, a cylinder string and string of chalchihuites and a flower.

To place the sequel of the calendar days at the top of the record, and to follow by four or five rows representing objects of a different nature, seems to have been usual with the Maya artists. The Dresden and the Tró Codex show the same arrangement.

Viewing the carvings of the Leyden plate as a whole, we may be fairly entitled to assume that they were intended to commemorate the victorious deeds of some Yucatecan chieftain, who on the days inscribed, and in observance of the ritual requirements, had gone to the Temple to offer sacrifice and thanksgiving to his Gods.

Let us now turn to the carvings found upon the Humboldt celt. They, fortunately, do not bear the odd features of enigmatical symbols. They speak the intelligible language of object-drawing, and will for other reasons attract your interest.

I will begin with those engraved upon the broad and lower end of the celt. The first object we meet, upon the left of the group, no doubt represents the hand-ballista, of the natives. The two portions of which the instrument consists are clearly delineated, the sliding board and the javelin. I am not aware that any specimen of the ancient Central American ballista has been preserved. Yet it is still in use with certain tribes of the Malayan and the Polynesian archipelago,<sup>1</sup> on the coast of Patagonia, in the Aleutian group, and in islands belonging to the Pacific Ocean. No specimen of it, however, has ever been discovered in the hands of the aborigines on the Atlantic side of our continent; a circumstance which I think is worth noticing. Oviedo<sup>2</sup> found

<sup>1</sup> See *O. Peschel, Völkerkunde*, 2<sup>te</sup> Aufl. page 351, die Aüstraliar. He quotes: Voyage of H. M. S. Fly, vol. I., page 112, Langsdorf's Reise um die Welt, Band II., page 40; David Cranz, Historie von Grönland, Band I., page 194; Tylor, Anfänge der Cultur, Band I., S. 67.

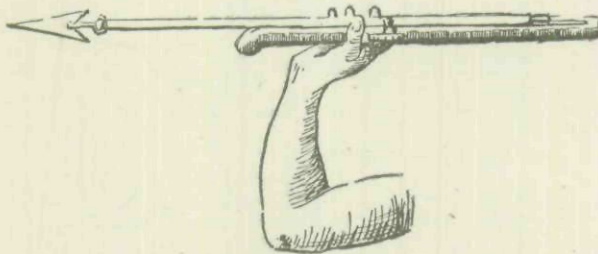
<sup>2</sup> *Oviedo* (Gonz. Fernandez de) Hist. Gen. y Nat. d. l. Indies, Liber XXIX., Cap. 26, p. 127. "In some sections of the country (Cueva) the Indians are of bellicose disposition, in others they are not. They never use the bow, but fight with macanas, long lances, and with arrow-like staffs, which are thrown from an *estorica*, which is a well





the hand-ballista in 1519 among the Cueva Indians (Western shore of the Darien-Veragua Isthmus), and gives a description of how it was handled and an illustration, which I have reproduced (see Cut 5.) It

CUT 5.



HAND-BALLISTA OF OVIEDO.

shows the shuttle-board and the slide upon which the javelin was laid, in order that it might keep in a straight course when thrown. The board was held, resting on the palm of the hand, and on the left side was a ring, through which the second finger passed in order to retain the shuttle-board more firmly in the hand. This ring is very clearly represented on the ballista of our celt, and that the point of the javelin was not of metal but of stone can fairly be inferred from the flaked form. Oviedo gives the instrument the name of *estorica*, a word which I have vainly sought for in the dictionaries of the Spanish language. Possibly this word is only the corrupted form of the corresponding Cueva term. Nor was I able to find this expression for it in the Spanish, Nahuatl or Maya languages. The English give it the name of *throwing-stick*, the Germans *wurfbrett*, and the French *chiroballiste*. You can readily imagine the astonishment of the natives, when they perceived the Spaniards armed with the cross-bow, and realized that, though using the *estorica* and bow and arrow from time immemorial, still no one of them had been clever enough to pass the bow through the *estorica* and make of the two joined together, the cross-bow. Allow me here to ask the question: At what period did the cross-bow come into use with European soldiers? And among what tribe or nation was the *chiroballista* found?

wrought wooden instrument, and which remains in their hand when the staff or dart is hurled. Like good marksmen, they knew how to strike their mark at any distance, at the right and the left and in a straight direction. Some of these staffs, when in the air, give a whistling sound, for at their ends something like a pigeon-holed ball is attached, which when the air with violence passes through the holes, produces a whistling noise. But they would practice only on some festival occasion, in order to parade their dexterity, and never when they are on the warpath, because the enemy would then be advised by the sound. If notwithstanding they do this, and throw the whistling dart into their adversary's camp, and mostly at night, it is to display their utter contempt." . . . . .



The second object shows the outlines of a harpoon. It is recognizable as well by its barb as by the ear, which, fastened to a shaft holds the hempen strap, by which the fish, the turtle or even the enemy, when struck, is hauled in by the man who hurled the powerful instrument. The shaft is not straight, but shows in the middle a slight curve. The practical harpooner can give a better account than is possible for me, of the usefulness of this device. It may have produced either a better aim or an easier hauling in. No reasons are apparent why this deviation from the straight line should be attributed to the uncertain hand of the carver. Wherever we look upon his work, it shows a full control of his hand and instrument.

In the third object I recognize the representation of a lasso, yet not that of the "*lazo de gaza*" (sling or loop), but rather the "*lazo de bolas*" (balls). It appears as faithfully copied from nature as it could possibly be done on stone. The lasso is represented in the main as it is to-day, and as every hunter and herdsman keeps it hanging from the "*solera*" of his hut, tied up, but ready for an emergency. The left and smaller portion of the picture gives the shorter coil of the lasso which is held in the left hand. The larger coil is that which before it is thrown is twirled over the head. When thrown from the hand, it unrolls in the air to land upon the head or body of the game, either entangling it or stunning it by the stroke of the stone ball, fastened at the end. The ball is fastened, as the picture clearly shows, by drilling the ball and passing the end of the lasso through it.<sup>1</sup>

<sup>1</sup> The subject of the *estorica* was discussed by Mr. Ad. F. Bandelier, in Art of War and Warfare of the Ancient Mexicans, Tenth Annual Report of the Peabody Museum, Cambridge, 1877, page 105, note 37. The author quotes three Mexican chroniclers, Torquemada, Mendieta and Duran, and after having analyzed the texts of the respective passages, arrives at the very correct conclusion, that the instruments of war described therein, cannot be interpreted to mean *ballestas*, and that they evidently refer to *javelins*, thrown by the hand and then drawn back by means of a strap fastened to the handle. The same author also refers to Oviedo's text on the *estorica*, that was found with the Cueva Indians on the Darien Isthmus. The reader, however, is left in the dark, whether or not the heterogeneous stock of Indians on the Anahuac plateau had been met armed with this weapon. It is surprising indeed, that no express notice of the *estorica* was taken by the chroniclers, and especially that Cortés and Bernal Diaz, two experts in the Mexican warfare and careful reporters, passed in absolute silence over the peculiar contrivance, which they needs must have seen in the hands of their opponents, and which for various reasons, could not have failed to attract their attention. But the existence of the *estorica* and its use by the Indians in Mexico is plainly stated in the account of "*the Anonymous Conqueror*," see Col. de Doc. Icazbalceta, vol. I., page 375, "*sus armas ofensivas son arco y flechas, y dardos que tiran de una ballesta, hecha de otro palo*; (and *javelins*, which they hurl from a ballista, made of another piece of wood). I was struck to find in the ancient Italian version of this report the word *mangano*, as I expected, instead of *ballesta*. *Mangano* has every appearance of having been the original and technical term for *Chiroballista*. How far back, I ask, can *mangano* be traced in the Italian language?

Beneath the picture of the lasso is the representation of three cudgels or war clubs. They are identical with those used by the Mexican Nahoas.

I cannot certainly decide what was intended by the fifth object, though I think it is a variety of the hand ballista.

Respecting the sixth object I think I am not deceived in saying it was designed to represent an oar. The accompanying cut is taken from the Dresden Codex and will explain my grounds better than any words of mine. (See Cut 6.)

When carving this little catalogue of instruments of war and sport, it would be surprising if the Maya artist had been unmindful of the great national game, which was celebrated on solemn occasions and in which the leaders of the tribes alone were allowed to take part. I refer to the game played in the *Tlachco*, a kind of Tennis Court. This building consisted of two thick walls, extending to a considerable distance and exactly opposite to each other. At the height of twenty feet from the ground, two massive stone rings were fixed into the walls; through these rings the contestants strove to throw a rubber ball, nearly as large as the opening in the ring. A picture of the building and of the stone rings can be seen in J. L. Stephens's *Incidents of Travel in Yucatan*, Vol. II., page 303, which I will not reproduce. Now, looking at the head of the lasso, I suspect that the artist wished the rubber ball to find a place in his collection. Had they been drawn, perforated, as is the one at the end of the lasso, we would be apt to take them for "*bolas*" in reserve. But since they are not, they must needs mean something akin to the group, and I trust I have not gone too far astray in my interpretation.

Above these three balls two human arms are represented in a folded position. The left (upper) arm is bandaged, whilst the forefinger of the right hand of the other arm is pointing to the spot and even touching the bandage. I shall revert to this subject when giving the explanation of the carvings as a whole.

At the head of this picture another group is apparent, a hand with outstretched fingers. No comment upon it is needed. But the other objects require an explanation, and in order to get at their meaning let me refer to what I have said about the sacrificial ceremony before the brasier in the Temple. In the three balls I incline to recognize the copal or incense balls, which each of the worshippers threw into the brasier. If this interpretation is accepted, we can easily see that the object on which the balls reposed was meant for the

CUT 6.



CANOE AND OAR.  
From Dresden Codex.



brasier itself. The outlines are the same as those of the large brasier, represented in Cut 4, save that the artist has not taken especial care in the delineation of the details. The other three comblike objects which surround the brasier appear to be imperfect representations of those lateral shields standing at the sides of the Palenque brasier, the meaning of which I am yet unable to fathom.

We come now to the last and most conspicuous object carved on the celt. It represents that portion of the dress of the Yucatecan chief, which, in addition to the head-dress or the plumed helmet, was considered to be the emblem of his privileged rank. It is the ornamental scarf (*matli*) which with the noblemen reached as far as the short tunic, with noblewomen and priestesses as far as the gown, viz. to the ankles. I trust that you will accept this explanation, after looking at the cut of the Leyden celt, where you will find the chieftain adorned with a similar scarf. You will find it also on all the monolithic statues of Copan, of which Stephens in Vol. I., page 135-159, Incidents of Travel in Central America, Chiapas and Yucatan, has given so faithful pictures. The scarf shows always on its front a cross, drawn within a circle. The Copan statues show it also. On our celt we have the scarf displayed in its freshness, just from the hands of the manufacturer. It appears spread out. Therefore the lateral fringes do not hang downward. It shows the girdle, which is possibly a succession of golden clasps, with the showy buckle in the middle. It stretches from the neck over the breast.

This is as much as I am able to understand of the entaglios of the Humboldt celt, taking for my guidance comparison with known objects. Should you desire me to write an explanatory legend of the whole of this carved text, it could be expressed in the following language: The man, in whose tomb the sacred stone was laid, stood high in rank and personal achievements. He never failed to appear before his gods to *burn the incense on the temple's brasier*. He caused his arms to bleed and sacrificed his blood by sprinkling it in the glowing embers. When he entered the *tlachco* court, his was the victory. Like darts, his balls of *hule* were flying through the ring. He had no equal in bringing to the ground his foe by the *tlacochli*, and when he seized the *oar* and went upon the river, he was certain to bring home the sweet turtle quivering on the *barb of his harpoon*. Great was the strength of his arms; the heavy *cudgel* was the toy of his youth. There was no deer so distant nor its legs so fleet, that his eyes could not spy or his *lasso* reach.

Permit me to close this paper with a few brief considerations.

What purposes was the Humboldt celt and all the others of its kind destined to serve? The theory that it was the prehistoric war weapon *par excellence*, fortunately, has been disposed of, together — I beg leave to say — with its ingenious originator, the Antiquary. From holes bored at the top of these celts, it was inferred that they were suspended from the neck as badges of authority, and the name, *ceremonial celts*,

has come into use with the Germans, who most unfortunately have translated it with *prachtbeil*. Other students designate the celt as an ancient instrument for splitting, chiselling, polishing, flaying and similar domestic work. There is evidently more common sense in this explanation than in the former, and I am willing to accept it, provided it shall be confined to the large number of celt specimens, which are of lesser dimensions than the Humboldt celt and its particular associates. The multiform variations, in which those smaller specimens appear, indeed, offer strong testimony to their usefulness in man's more primitive stages of industry. But, if I look at our strong, massive specimen and consider that there exist still others of its kind, and even of a much larger size, I feel positively at a loss for a suitable explanation and still more at a loss to state the special work these large thick celts were able to perform. They lack just the quality which would make them an implement or tool. They are not handy.

I must leave you with the riddle still unsolved. However, I trust, some one will come with clearer eyes than mine, and teach us what idea presided in the prehistoric mind, when shaping the stone in the ingenious and yet the simple form and figure of a *wedge*, the father of all tools existing.

NOTE.—I feel it my special duty to express my warmest thanks to Mr. Stephen Salisbury, Jr., of Worcester, Mass., for the kindness he has shown me in revising the English of my manuscript, and seeing the essay through the press.

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Pl. V.



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