MIRRORS OF ANCIENT AMERICA

By Dr. J. Alden Mason

THE idea of a mirrorless world is far from being a purely hypothetical one; the human world was without mirrors for untold ages, and even today many savage peoples have never seen a mirror, start in surprise and fear when they first behold one, and know their own countenances only as dimly and vaguely outlined in the quiet waters of a pool. Artificial mirrors of any kind have been known for but a few millenniums, only a tiny fraction of man's age, yet such was the longing urge of mankind "to see ourselves as others see us" that mirrors are found among the first of the products of the earliest high cultures, those of Mesopotamia and the Mediterranean.

The manufacture of mirrors probably began with the discovery of metal working. The first man who hammered and cast copper could scarcely have failed to note its powers of reflection and thereupon determine to make for himself an object for that special purpose. The mirror of classical antiquity was doubtless perfected and somewhat standardized very early in the history of metal working, for it is found dating from early times in Egypt and Mesopotamia. The most artistic mirrors, however, are the Etruscan and the Grecian. They ordinarily consist of a thin disk of bronze, slightly convex and highly polished on one side, held by a projecting handle. Most of them bear on their reverse very interesting engraved scenes from classical mythology. Such a mirror is known as a speculum. In later and mediæval times small mirrors of burnished metal, generally of steel or silver, were carried by ladies of rank, and even today, similar mirrors are used under conditions where a glass mirror would be in great danger of breakage and irreplaceable, as every sportsman and participant in the late war well knows.

The common looking glass, it seems, also has an ancient history, since it was manufactured by the Phœnicians at Sidon and was mentioned by Pliny. These most ancient looking glasses were generally coated with tin. Apparently, however, mirrors of this type were less favored than the specula, possibly because they were thought to be less efficient, certainly because they were more fragile. The breaking of a mirror has always been considered an omen of ill fortune;

this superstition probably was due to the fact that mirrors were much used in divination, and to break one was to destroy the means of contact with the gods, and so to anger them.

The glass mirror was gradually improved until, about the beginning of the seventeenth century, it completely supplanted the speculum. In the Middle Ages it was backed with thin sheets of metal, generally of lead, but "silvering" with an alloy of tin and antimony was soon discovered to produce a superior result. Although the term "silvering" for the mirror backing apparently has always been employed, no silver was used until 1840 when the present process of using a thin coating of metallic silver came into use.

But throughout the ages of human development up to the Bronze Age, mankind pursued his tasks, his countenance only dimly reflected by inefficient means. These conditions persist in many parts of the world at present, for the Bronze Age was by no means a uniform historical period. In many places in the world, for lack of accessible copper, the natives have never passed through a Bronze Age. Indeed, in others, such as the Valley of the Amazon, stones are so rare or entirely unsecurable that the natives cannot be said to have attained even the Stone Age.

In America[1] in pre-Columbian days, glass and burnished steel were alike utterly unknown, and the use of copper and bronze was evidently of very late development and known only in very restricted regions. In Peru, the region where bronze was most used and where the material culture was probably the highest in ancient America, one of the most reputable of the historians of the time of the Conquest, Garcilasso de la Vega,[2] reports that mirrors of polished silver and of polished bronze were used by the women, the former by the nobility, the latter by the commoners. Men disdained to gaze into mirrors. Unfortunately, no silver or bronze mirrors have ever been discovered, a fact which has led some archæologists to discount the statement, despite Garcilasso's general credibility and the circumstantial nature of his account. The same historian claims that certain mirrors were concave and of such reflecting power that fire was kindled with them in certain ceremonies.

Practically all American mirrors, however, were made either of iron pyrite and its kindred marcasite, or of obsidian. Mirrors of

[1] An exhaustive monograph on "Mirrors in Pre-Columbian America" by MARSHALL H. SAVILLE is now in preparation as Vol. VII, No. 3, of the *Contributions from the Museum of the American Indian, Heye Foundation*, New York City.

[2] GARCILASSO DE LA VEGA, "Commentarios Reales," Madrid, 1722–23; lib. II, cap. 28, p. 70.

Aztec hieroglyph denoting mirror

both materials are found in Mexico,[1] in Ecuador and in Peru and the difference between those from the various regions is slight. Sahagun, to whom we are indebted for most of our information on the details of the life of the Mexicans before the time of the Spanish Conquest, devotes a portion of a paragraph to the stones from which mirrors were made. He mentions two, apparently pyrite and obsidian. One, he says, is white and makes beautiful mirrors which reflect perfectly; they were employed by persons of high rank, both men and women. Other stones (probably obsidian, but possibly a poorer quality of pyrite) are black and distort the countenance; these mirrors are made in various shapes as circular or triangular.

Obsidian is a dark volcanic glass, very hard and difficult to work, but taking a high polish. It was known in the Andean region as "Vulture Stone." Mirrors made of obsidian are generally rather large and thick, either rectangular or circular, and are less common than pyrite mirrors. A few have been found in the coastal region of Ecuador and Peru but the larger number come from Mexico.

Iron pyrite was the material most commonly used for mirrors in ancient America. Indeed, in the Andean region, so much was it employed that it received the name "Inca Stone." Pyrite frequently occurs in spheroid nodules two inches or thereabouts in diameter. When these nodules are sawn or split in half, the surface of the section polished, and suspension holes drilled in them, they make fairly effective mirrors. Numbers of examples of almost identical type have been found in Mexico and in Peru. They range from about one and one half to three and one half inches in diameter. Some of them have convex surfaces, their scope of reflection being thus greater, while others are quite concave, the supposition being that these latter were employed for the making of new fire.[2] One of the foremost of the Mexican gods was named Texcatlipoca, "Smoking Mirror," and is usually shown bearing a circular mirror from which smoke arises. In the drawings of him in which the mirror is shown from the side, it is apparently concave.

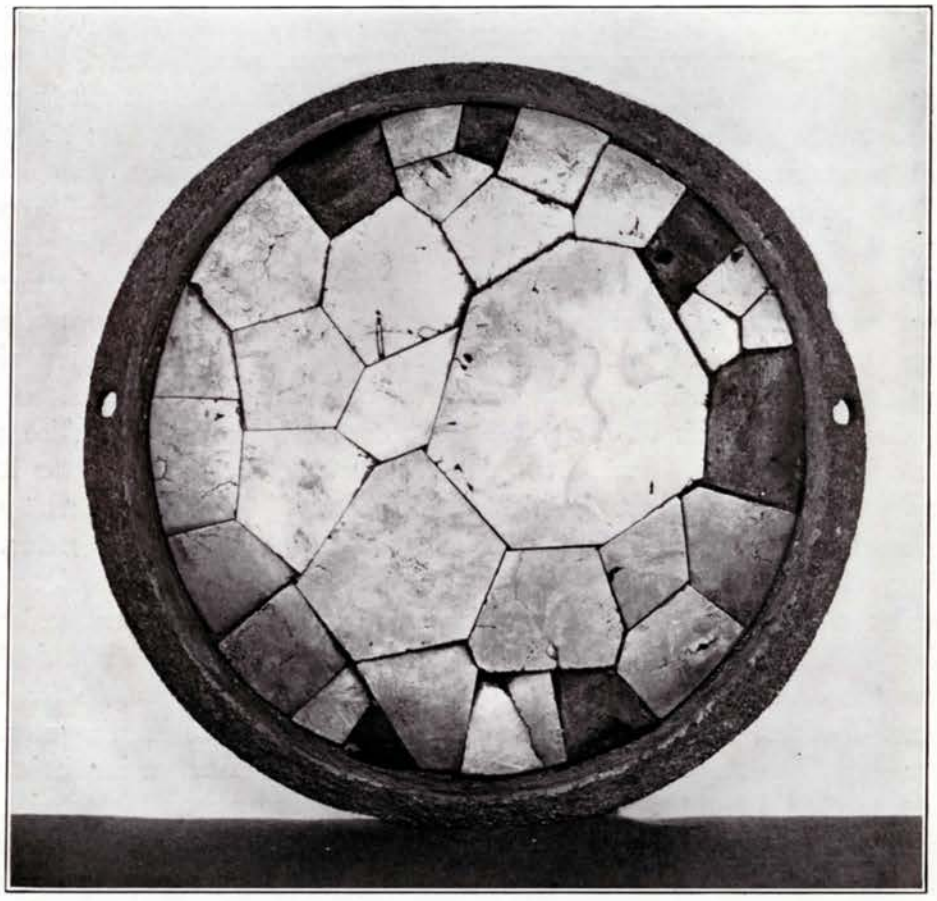
In Guatemala, pyrite mirrors were manufactured in a different manner, a mosaic being made of many thin plates of pyrite. Mirrors

[1] BERNADINO DE SAHAGUN, "Historia Universal de las Cosas de Nueva España" (in Lord Kingsborough's "Antiquities of Mexico," vol. VII, p. 398, London, 1831), lib. XI, cap. VIII, par. V.

[2] Cf. ERLAND NORDENSKIÖLD, "Miroirs convexes et concaves en Amérique," *Journal de la Société des Américanistes de Paris*, (n.s.) XVIII, 1926, pp. 103–110.

of this type are very rare and were apparently unknown in archæological museums until very recently, the present article being probably the first detailed published description of them.

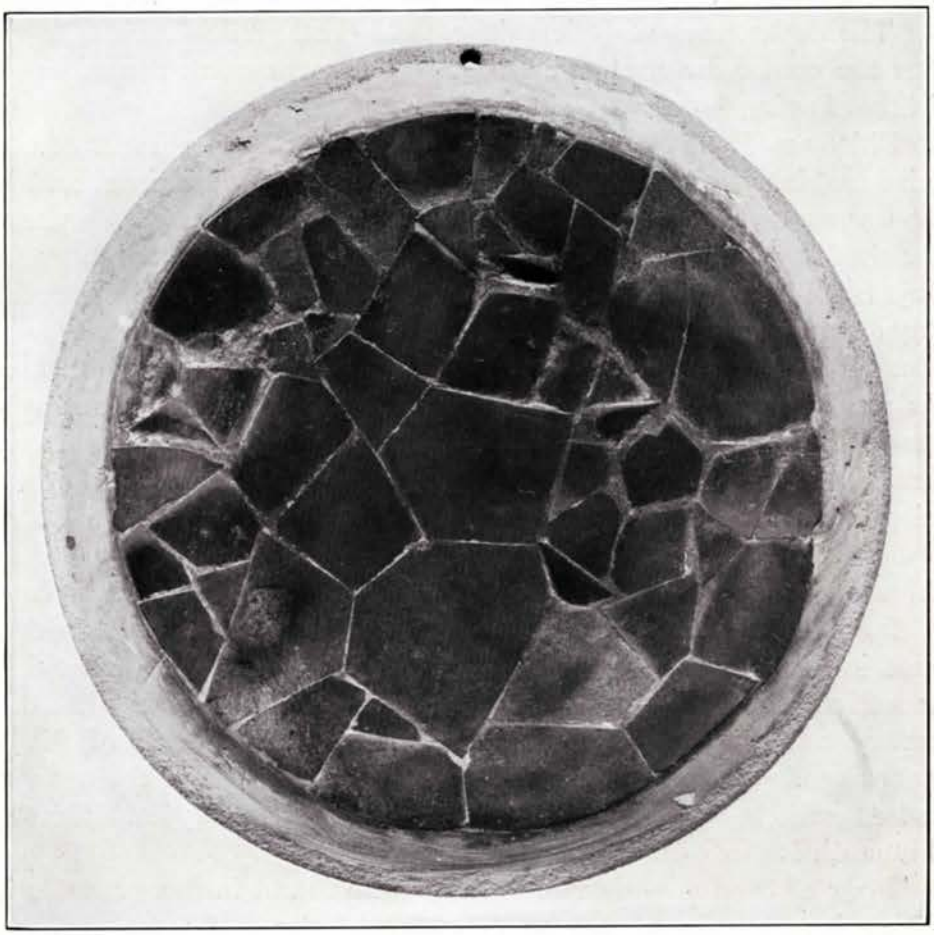
In his work, "Turquoise Mosaic Art in Ancient Mexico," *Contributions of the Museum of the American Indian, Heye Foundation*, New York City, Vol. VI, 1922, pp. 50, 51, fig. 7, Marshall H. Saville,



Pyrite Mosaic Mirror from Guatemala.

referring to excavations conducted by him in 1902 in graves and tombs in the mound of the great temple or teocalli at Cuilapa in the Zapotecan region of Oaxaca, Mexico, speaks of excavating a grave containing the skeleton of a child at a depth of six feet below the apex of the mound. He writes, ". . . the most interesting objects recovered were a pair of small disks of pottery, upon the flat upper surfaces of which were cemented small pieces of very thin, highly polished hematite, placed in mosaic. These last were undoubtedly

mirrors, although from the small perforation in the center of each, we are inclined to regard the pair as having been used also as ear-ornaments. One of these specimens should be in the Museo Nacional of Mexico where it belongs; the other is in the American Museum of Natural History. The latter, now illustrated for the first time (Fig. 7), is an inch and three quarters in diameter, and an eighth of



Pre-Columbian Circular Mirror of Pyrite Mosaic.

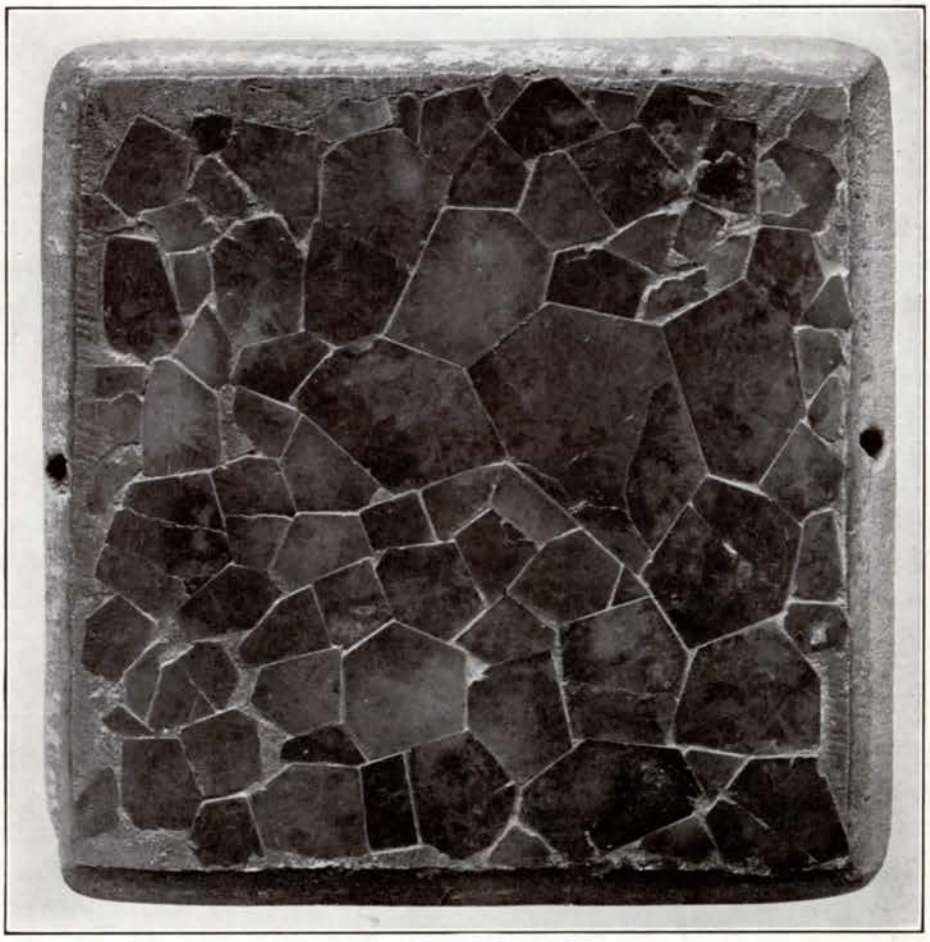
an inch in thickness." This specimen, although much smaller than those in the Museum of the University of Pennsylvania, is apparently of quite similar type. The Museum of the American Indian has recently secured a mosaic mirror from Arizona which, judging from photographs and descriptions, is identical with those in the possession of the Museum of the University of Pennsylvania, a remarkable instance of aboriginal trade.

These mirrors occur within a very limited region, their manufacture being probably conditioned by the natural occurrence of suitable nodules or large crystals of pyrite. Iron pyrite or as the mineralogists term it, iron disulphide, FeS_2, is most frequently found crystallized on schistose or slaty stone, and generally with its surface oxidized, that is, rusted, to limonite, or ferric hydrate.

The department of Quiché in central Guatemala seems to have been the center for the manufacture of these mosaic mirrors, most of them having been found in the ruins of ancient villages between the Chixóy and the Koopóm rivers. The latter is an affluent of the Chixóy which is one of the names for the upper Usumacinta, and is also known as the Quimalá or the Negro. This region is at present inhabited by the Ixíl Indians, who speak a language of the great Mayan stock and whose ancestors played a part in the wonderful Maya culture which flourished in pre-Columbian days throughout most of Guatemala, Yucatan and parts of southern Mexico and western Honduras. In this Ixíl-Quiché region are found no marvellous cities with majestic buildings such as Palenque in southern Mexico, Quiriguá in Guatemala, Copán in Honduras and many cities in Yucatan, but the occurrence of mounds and pyramids of regular shape, subterranean vaults displaying excellent structural and architectural features, occasional sculptured statues and bas-reliefs, and especially the beautiful pottery and other small objects found in the stone-lined graves attest the high grade of culture which the ancient population had reached. These ruins apparently dot the country but are for the most part small, unknown and of slight importance. Generally they are known by the name of the nearest modern village or plantation, such as Chipál, Koopóm, Kixpék, Chihuatál, Ratinlixúl.

Four of the finest mosaic mirrors were found in one grave in a mound in the ruin known as Kixpék and three of these are here reproduced. They had been placed with a burial in a chamber-grave made of stone, which, unlike the majority of graves in this region, had neither caved in nor been despoiled. They lay in a row across the end of the grave in front of the body, all traces of which had completely disappeared. The dampness of the soil had, as in every similar case, caused the plates of pyrite to become loosened from their base, but, since they were undisturbed, it was possible to replace them and to restore the mirrors almost perfectly.

Three of these mirrors are discoidal in shape, the fourth one rectangular or square. Fragments of mirrors from other graves indicate that those of rectangular shape are always in the minority. This square mirror (N.A. 11610) measures four and three quarter inches on each side, while the circular ones (N.A. 11613, 11611 and 11612) measure respectively six, four, and three and three quarter



Rectangular Pyrite Mosaic Mirror

inches in diameter. The thickness of each is from three eighths to one half inch. The bases of all four mirrors are made of a rough porous pumice or tufa, relatively fine grained and with a pinkish gray tint. The stone is probably a product of fine volcanic ash, a formation which is doubtless common in this region of frequent volcanic activity. The bases of mirrors from other localities are more often made of sedimentary rocks, such as shales and indurated shales. The

sides of these bases are always sloping and beveled, those of the square mirror having a double bevel, and all possess drilled holes for suspension by means of which they were probably worn on the person, serving the double purpose of ornament and mirror. These suspension holes vary greatly in location. Most frequently two small holes are drilled close to the rim and at opposite points; often, however, a pair of holes is placed near the rim, and a large hole in the exact center is also common. Twin perforations near the center and connected by a groove are found occasionally.

The reflecting surface is made of a mosaic of many thin slabs of iron pyrite cut into polygons, the rectangular mirror consisting of about eighty pieces, the large circular mirror of fifty three. These plates of pyrite vary greatly in size and are of myriad shapes, no two being alike, just as no two crystals are alike in nature. The largest plate found, unfortunately not a part of a complete mirror, measures approximately two inches in width and two and a quarter inches in length. Also this is the piece which has the largest number of angles of those counted, nine in all. Five or six is the usual number of sides and angles, four being apparently the minimum. The fact that pyrite is a crystal and has a natural cleavage with flat surfaces and straight edges rendered the work of fitting the mosaic together simple, but even so it must have been a wearisome task to grind the edges to fit those of the neighboring plates and so to make a perfect surface. The work, however, was admirably done. All edges are perfectly straight and make tight junctions with their neighbors. Much of the original perfection has, naturally, been lost in the course of years and by restoration. The edges have rusted and chipped, a few pieces have been lost, others cracked and many doubtless incorrectly and irregularly replaced, but the restorations are admirable enough to suggest the perfection which must have characterized the undamaged specimens. The plates on the peripheries of the circular mirrors were cut with their outer edges in an arc so as to form a complete circle. The thin edges were in every case beveled so that although they fitted tightly together at the upper surface, the lower edges were sufficiently separated to permit the cement in which they were set to push up in wedge-shaped partitions or walls between the plates, thus cementing them more tightly to the base.

The average thickness of these mosaic plates is one eighth inch, the thickest measuring about three sixteenths. The upper polished surface is apparently the natural cleavage plane of the crystal, being

thus perfectly smooth and capable of taking a high polish. The lower surface is less even and frequently includes a thin layer of the shale which formed the foundation of the pyrite crystal. In other cases, such as that of the largest plate before mentioned, the slab was apparently sawn off from a large pyrite mass, the sawing having been from two sides with a line of breakage in the center.

Their age, you ask? Of course, that is often the point of maximum human interest. Unfortunately, archæological objects in America—excepting only the dated stelæ and other monuments from the Mayan cities—are undocumented, as are all other objects from all peoples who lack a written language. Their age, like their use, must be assumed. In the present case, it cannot be great—recent as compared with Tutankhamen, yesterday as compared with the earliest Sumerians of Ur, a moment ago as compared with the men of Neanderthal, Heidelberg and Trinil. That is, their age must be measured in centuries, not in millenniums. The high standard of the art and technique of the ceramics, jade, copper and gold ornaments and other objects accompanying the mirrors indicates a late period. Moreover, iron pyrite is not a stable mineral, oxidizing or rusting quickly in damp ground, and completely disappearing within a few centuries. We are probably safe in stating that our mirrors do not greatly antedate the Spanish Conquest in approximately 1525. They may, however, be somewhat older. When archæology in America shall have been studied as intensively as it has been in Egypt and in Greece, we shall, at least in the regions of higher culture in Mexico and Central America where we have the dated Maya monuments as criteria, be able to date with approximate accuracy the type of ceramic, new art motive, improvement in technique, and other points of cultural development, but that time is not yet. Before it can come, we must have much more careful exploration, excavation, research, study and publication.