



A typical Late Classic Maya plaque-pendant,  
presenting a monumental motif, probably  
made in the southern lowlands.



A plaque suggestive of a Terminal Classic northern style.

## JADES FROM THE CENOTE OF SACRIFICE CHICHEN ITZA, YUCATAN

Tatiana Proskouriakoff

PEABODY MUSEUM OF ARCHAEOLOGY AND ETHNOLOGY • HARVARD UNIVERSITY  
CAMBRIDGE, MASSACHUSETTS, 1974

To the memory of  
**PROFESSOR ALFRED M. TOZZER**  
a great scholar and a most  
generous friend

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ISBN-0-87365-682-2

LIBRARY OF CONGRESS CATALOG CARD NUMBER 74-77555  
PRINTED BY HARVARD UNIVERSITY PRINTING OFFICE  
CAMBRIDGE, MASSACHUSETTS, U.S.A.

## FOREWORD

The Memoir Series of the Peabody Museum has a long and distinguished heritage. Begun in 1896 as the Museum started its major research in Central America, as it was always referred to in those days, the Memoirs have been almost exclusively the province of Maya archaeology, recording the work of E. H. Thompson at Labna and Teobert Maler in the Peten of Guatemala, as well as that of the Museum's major excavation at Copan. Only Panama, represented by the rich finds at Coclé, and Doris Stone's Costa Rica are the major exceptions to the Maya bias.

The Sacred Cenote at Chichen Itza, Yucatan, has been the focus of all the recent volumes in the series, and this one is no exception. However, with Gordon Willey's forthcoming Seibal volumes we shall return to the Peten of Maler.

The publishing of the Cenote material is a saga all its own, since the material has been out of the well now for nearly seventy years. The whole story of the Cenote, both its excavation and the analysis of the artifacts recovered, still remains to be told, not because there is anything to hide but because no one has yet taken the trouble really to make use of the large amount of documentary evidence currently available through E. H. Thompson's letters and notes. A recent discussion by Robert Brunhouse (*In Search of the Maya; the First Archaeologists*, 1973), is abbreviated and not entirely factually accurate. The introductions to the other Peabody Memoirs by Lothrop and Tozzer were understandably brief, although the analytical presentations were extensive (Lothrop, vol. 10, no. 2; Tozzer, vols. 11 and 12).

It is not appropriate in this foreword to enter into a long exegesis or defense of E. H. Thompson and the Cenote case. Some facts can be established: Edward H. Thompson was funded in his major work at the Cenote by private funds going directly to him from Charles P. Bowditch of Boston and Stephen Salisbury of Worcester. He reported on his work in letters to Mr. Bowditch and to Frederick W. Putnam, Director of the Peabody Museum, Harvard University.

Edward H. Thompson personally owned the site of Chichen Itza when he dug the Cenote; a legal case was brought against him by the Mexican government in 1926 following newspaper attacks focusing on the gold removed from the Cenote. In 1944, after Thompson's death, the Supreme Court of Mexico found in favor of Thompson's rightful ownership of the Cenote objects and therefore cleared the Peabody Museum title to hold this collection. In 1960, J. O. Brew, the Director of the Peabody, returned to Mexico approximately one-third of the Cenote gold as a gesture to promote international understanding, and these precious objects are now on exhibition in the National Museum in Mexico City.

With Lothrop's publication of the gold and Alfred Tozzer's detailed discussion of Chichen Itza as a whole, the jade has remained the largest single portion of the Cenote collection still unpublished. (Publication of the work of the late Jack Ladd on non-metallic and nonjade artifacts is planned for a future time.) In 1959, Tatiana Proskouriakoff began a study of 3,700 complete or restorable jade pieces and some 15,000 fragments. This long task has had Museum support through funds from the Bowditch publication fund via Professor G. R. Willey and from the Carnegie Institution of Washington through their salary support of Miss Proskouriakoff, our Curator of Maya Art. Funds for the actual publication have come through the generosity of the Tozzer family and an additional subvention from the Carnegie Institution. We are all deeply grateful for these generous and patient donations. The volume itself speaks for the dedicated scholarship of Miss Proskouriakoff and her success in dealing with these small but complex works of art. The Peabody Museum is proud to renew the Memoir Series after a lapse of nearly twenty years with this impressive work of scholarship and esthetics.

Stephen Williams  
Director

## PREFACE

The collection of jades presented in this report is part of a more comprehensive assemblage of objects dredged from the Sacrificial Cenote at Chichen Itza, Yucatan, by Edward H. Thompson, and acquired by the Peabody Museum of Archaeology and Ethnology, Harvard University, between 1910 and 1917. The Cenote, an immense natural well or sinkhole, is described and illustrated in *Chichen Itza and its Cenote of Sacrifice*, by Alfred M. Tozzer (Peabody Museum Memoirs, vols. 11 and 12, 1957). Tozzer discusses in detail the history and the archaeology of the site and describes the dredging operations that resulted in the recovery of the material. This included, in addition to a large number of jade objects and fragments, artifacts of stone, metal, wood, shell, bone, and other materials, even small fragments of textile. In volume 10, no. 2 of the Memoirs, Samuel K. Lothrop has described the metal objects. Joy Mahler has studied the textiles, and at the time of writing, the late John Ladd was preparing a report on the remaining artifacts.

The jade collection consisted in part of whole pieces, most of which were beads and other undecorated objects, and a very large mass of fragments. From time to time, various persons have worked with the collection, but the majority of restorations made before our work was begun are probably attributable to Frederick P. Orchard, preparator of the Museum from 1931 to 1958. Many pieces that he restored are now well known and have been widely exhibited and published. When I undertook to study and report on the jade content of the collection in 1959, under the auspices of the Carnegie Institution of Washington, it was my intention to describe the material in its current condition, assembling from the fragments only pieces of unusual interest, those which had hieroglyphic inscriptions or exceptional qualities of style. It was soon clear, however, that the huge residue of carved fragments contained so wide a variety of specimens not represented by whole pieces either in this collection or elsewhere, that to get any idea of the collection's original scope,

we would have to sort and reassemble as many of the fragments as possible. For several years I devoted a portion of my time to this work, for it proved difficult to find anyone capable or willing to undertake it. I was helped for a time by Clay M. Hall, who proved to be an able assistant, and who devised an ingenious set of adjustable compartments in which the pieces could be sorted and assembled.

As new pieces began to emerge, it became evident that the original catalog of the museum could no longer serve our purpose. In making a new catalog, I was fortunate to obtain the assistance of Mrs. Darlena Blucher, then a student at Brandeis University, and the present catalog is largely her work. Every piece which could be identified, with the exception of plain beads and other small objects, which were merely listed, was drawn by her and described on a card. The numbers of the original catalog were retained as far as was possible, and are identified by the letter "c" preceding the number. In this earlier catalog, different objects were sometimes grouped under one number, and although we have introduced some corrections, the inconvenience of miscellaneous grouping has not been eliminated entirely. The original catalog had 720 entries, of which 8 referred to jades found in lumps of copal. Our present catalog has added 424 entries. About 3,500 specimens listed are plain or conventionally decorated objects of adornment, such as beads, ear-plugs, nose-buttons, diadem discs, etc., well known in Maya archaeological deposits elsewhere. No great effort was made to assemble more than a sample of such objects or to reconstruct them, since they add little to our knowledge. We did the best we could, however, to fit together the numerous carved fragments, and though undoubtedly many have been missed, it is not likely that any significant assemblages still remain in the residue.

Nevertheless, very few pieces are even approximately complete, and the majority remained in disarticulated parts. In order to make the nature of their designs clear, it was necessary to reconstruct the



missing portions. Clay M. Hall was put in charge of this work, and developed various techniques, using Plasticine and latex molds to assure accurate placement of fragments. For the reconstructions he used Albastone, which is harder and more durable than ordinary plaster. When he left us in 1967, there were still many unreconstructed assemblages, and their drawing and photography created so many problems that I undertook to continue the work in the summer and fall of 1968. These later reconstructions are made with ordinary plaster and do not have the quality of Hall's work. The object, however, was not to restore the original appearance of the pieces, but only to clarify the nature of the surviving fragments. We have deliberately painted the reconstructed portions to contrast with the jade, but not so as to obscure the continuity of the forms. In the accompanying drawings, the reconstructed parts are indicated with stipple.

The illustrations were made by Avis Tulloch, Symme Burstein, Barbara Page, and Ann Bannister; the photographs, by Frank White and Hillel Burger. Since the main value of this report is the presentation of the collection so that it can be studied by other scholars, whatever merits it has lie largely in the skill, the talents, and the patience of my illustrators, and I am grateful to them for the scrupulous care that they took in executing this difficult work. Much of the expenditure for restoration of the jades and for art work and manuscript preparation was funded by the C. P. Bowditch Research Bequests for Maya Archaeology at the Peabody Museum.

I am also indebted to various scholars who provided me with comparative data and often guided my opinions. I learned a great deal from Elizabeth Lasby, who has studied Maya jades for many years, and in whose judgments I have the greatest confidence. I want to thank Dr. Clifford Frondell of the Harvard Department of Geological Sciences for identification of the material of several specimens and Dr. W. A. Crawford of Bryn Mawr for the spectroscopic analysis of others. Members of the staff of the National Museum of Guatemala have shown great courtesy in giving me access to pieces studied by Foshag, and Hattula Moholy-Nagy sent me an excellent set of photographs of jades from the excavations at Tikal. E. Wyllys Andrew IV permitted me to examine specimens from Dzibilchaltun, and Carlos Nottebohn of Guatemala kindly showed me many pieces in his collection.

Although this study is primarily descriptive, I have tried to summarize here what we know of the successive styles and techniques of carving in the Maya area, and wherever possible, to suggest the

place and time of the manufacture of individual specimens. To do this I have had to refer to a broad chronological scheme followed by most archaeologists today. Since this scheme will doubtless be modified and possibly even superseded in the future, and since this book may be consulted by persons not versed in Mesoamerican archaeology, I give here in condensed outline the names and approximate dates of the broad periods that are used to tie together sequences established locally. The preceramic and the post-Conquest periods need not concern us here. The span of time from about 1500 B.C. to A.D. 1500 is usually divided into three great eras: the Preclassic or Formative (1500 B.C. A.D. 200); the Classic (A.D. 200-900); and the Postclassic (A.D. 900-1500). The Preclassic can be subdivided into Early (1500-800 B.C.), Middle (800-500 B.C.), Late (500-100 B.C.), and Protoclassic (100 B.C. A.D. 200). The Classic era includes Early Classic (A.D. 200-600) and Late Classic (A.D. 600-900) and the Postclassic also breaks into Early (pre-Toltec and Toltec, A.D. 900-1200) and Late (A.D. 1200-1500). The dates are not only approximate, but controversial, and regional sequences do not always correspond to them precisely. The jade styles in the Cenote collection cover a span from the Middle or Late Formative (600 B.C.?) at least through the Early Postclassic (A.D. 1200). If there are any pieces of later manufacture, we have not been able to identify them.

The majority of the pieces in the collection were manufactured, not in Chichen Itza, but in the southern Maya area in the Late Classic Period. Next in numbers are pieces representing Toltec-period Chichen Itza and possibly pre-Toltec Yucatan and Campeche. Since there are no deposits of jade in the north, either the raw material was imported, or the Toltec maintained centers of manufacture elsewhere. Reworking of earlier pieces was widely practiced, especially, but apparently not exclusively, in the northern area.

The full geographical range of the collection is difficult to judge. A small number of pieces can be ascribed to highland Guatemala and to its Pacific slope. A lesser group of uncarved pieces pertain to the Olmec culture of southern Veracruz, though the locus of their actual manufacture is unknown, and the distribution of similar pieces covers virtually all of Mesoamerica. Equally widely distributed are small carvings in what is designated here as the "bib-and-helmet" style, belonging to an unknown culture, probably of Late Preclassic date, and there are a number of single specimens that may represent styles still unknown.

No other single collection covers an interval of

time of such magnitude or encompasses so many different styles of craftsmanship. The discoloration, the decomposition, and particularly the shattering, which has left so many pieces incomplete, will doubtless depreciate the value of this collection in

the eyes of art lovers and art collectors, but its size and range imbue it with a unique value for those who are seriously interested in the history of the lapidary arts of Mesoamerica or in the specific content of Maya culture.

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JADES FROM THE CENOTE OF SACRIFICE  
CHICHEN ITZA, YUCATAN

## I THE MATERIAL

In his article, "Mineralogical Studies on Guatemalan Jade," William F. Foshag (1957) presents a summary of virtually all that is known today concerning the mineralogy and history of Middle American jades, and it would be difficult to improve on his account or to add anything of value to it. I can only recommend his study to my readers and, for those who haven't ready access to his work, recapitulate some of its highlights, acknowledging my debt to his scholarship.

Jade was apparently not known in Europe, until Spanish explorers in Middle America became aware of certain green stones held in extraordinary esteem by people on the new continent. The earliest historians refer to the stone by its Aztec name *chalchihuitl*, or call it "emerald." Sahagun, writing in 1530, mentions a belief in its therapeutic value, but there is some question whether this belief originated in Mexico. It is known, however, that natives of Brazil used jade, probably in the form of amulets, to cure diseases of the kidney. The belief in its efficacy must have spread rapidly in Europe, for in 1565, Monardes wrote that jade had all but disappeared from Mexico, implying its exportation to Europe for medicinal purposes. Monardes calls jade *piedra de Yjada*, from which the modern term "jade" derives. In the next century, the term came to be applied to oriental jades, and scholars writing in Latin rendered it *lapis nephriticus*, later translated into English as "nephrite."

The discovery that two distinct minerals are involved is attributed by Foshag to Damour (1846, 1863), who seems to have been the first mineralogist to study the problem intensively and to distinguish jadeite and nephrite as two minerals classed together as "jade." Nephrite, a silicate of calcium and magnesium belonging to the amphibole group, is not found in Middle America. Its main sources in this hemisphere are in Brazil, in Alaska, in British Columbia, in Wyoming, and in California. A less compact mineral of the amphibole group, called "actinolite" has been identified in some artifacts from

Guatemala, and is sometimes erroneously designated as nephrite.

The mineral most prized as a jewel in ancient Middle America was jadeite. It is essentially a silicate of sodium and aluminum ( $\text{Na Al Si}_2\text{O}_6$ ), and is classed with pyroxenes. Its specific gravity is 3.30 to 3.36, and its hardness is 7 on the Mohs scale. It seldom occurs in a pure state and may contain significant amounts of actinolite or diopside. Its green color is attributed to minute quantities of chromium, though Washington (1922) has found chromium even in colorless jades. In addition, there may be inclusions of albite, muscovite, mica, quartz, or other minerals that alter the appearance and physical properties of the stone. Albite and diopside tend to combine closely with jadeite, and Foshag has distinguished albitic jadeite and diopside-jadeite as two subvarieties present among artifacts of Guatemala.

A third variety of jade, distinct from jadeite and nephrite, called "chloromelanite" was first described by Damour in 1881. It is usually very dark, almost black, in color and often occurs in the form of small celts in highland Guatemala. It is seldom used for ornaments, and has not been identified in the Cenote collection, though it may be present.

When Damour made his analyses of Mexican jades, native sources of the mineral were still unknown, and some scholars believed that the jade of Middle American workmanship had been brought there from the Orient in ancient times. In the 1880s, a lively debate went on between scholars who held to the theory of Asiatic origin, and those who believed that there were American sources of jade. No intensive effort, however, was made to find the sources. Zelia Nuttall's article, "Chalchihuitl in ancient Mexico" (1901), finally ended the controversy by showing that Aztec tribute lists indicated a strong concentration of jade in southern Mexico, pointing to native sources in that region. If any doubts remained, they were dispelled in 1910, when the geologist William Niven found nodules of raw jadeite in the rivers del Oro and de las Balsas in Guerrero, and

established once and for all the native character of the mineral. There have been sporadic reports of other such finds, but only in a few locations in Middle America has jade been reported in its mother rock. In 1927, de la Cerda claimed to have located a deposit near Zimapan, Hidalgo, which Mena reported, mentioning a similar find in Torreon (Mena 1927, p. 76). Although Foshag includes this report in his bibliography, he makes no mention of the finds, possibly because they have never been confirmed. Servin Palencia (1959, p. 383) mentions a mine in Zacatecas and notes that jade is obtained in the states of Queretaro and San Luis Potosi. In the Maya area, only one native deposit of jade has been reported so far. This was discovered by Robert Leslie at Manzanal, in the Motagua Valley, and was studied and described by Foshag (Foshag and Leslie 1955), and later by Spangler and others. The latter describe it as a tear-shaped body of albite and jadeite, 50 m in maximum width, and 500 m long. Recently there have been rumors of several other finds in the same general region, but I am not aware of any published reports on them. Jadeite usually occurs in deposits of serpentine, with inclusions of albite. Foshag's map, showing known occurrences of serpentine in Guatemala, indicates several other areas in this country where future finds of the mineral may be expected. Serpentine is known to occur in many locations in Mexico and is reported also from the mountains of British Honduras (Thompson 1964, p. 27).

Maya native and historical sources give us no information about jade-working. In the lowlands, it seemed to have been discontinued long before the Conquest, and the late material that we know from Guatemala is crudely worked and exhibits a definite decline in the craft. Even the word for "jade" in Maya languages is unknown. It is generally assumed that *tun*, defined as precious stone, meant more specifically "jade." Solis Alcala (1949) gives *yaaxal-tun*, but that is probably merely the Maya rendering of the Spanish *piedra verde*. No doubt there was a more specific term in the past, and perhaps, as in Mexico, different varieties were distinguished, but there is almost no chance that any of these terms have survived.

Sahagun, writing about Mexican crafts, among which jade-working was still important at the time of the Conquest, mentions at least two, and possibly as many as five varieties of jade that had distinct designations in Nahuatl. The more common jades were called *chalchihuitl*, which is described as green and not transparent, mixed with white, a description that fits well the majority of pieces in our collection. *Quetzalchalchihuitl* was said to be very green, the

best being transparent and unspotted, some having spots, blotches or streaks. Some of the finer, partially translucent material in our collection may belong in this category, though a sharp distinction is not apparent. There is some doubt about the term *quetzalitzli*, which is derived from *itzli*, *piedra de navaja*, probably obsidian. Sahagun describes it, however, as "emerald," the term he commonly uses for jade, and says that it was highly polished, flawless, and of great value. *Iztacchalchihuitl* is described as a stone like alabaster, but with veins of green and other colors. In the Florentine Codex (Sahagun 1950-63, book 11, p. 226), we read "and it is named *iztac chalchihuitl* because some [pieces] are really white, just like bird's eggs. But in some places a little herb-green, green, or blue is placed." Foshag suggests that this stone may be jadeitic albite, and the description in the Florentine Codex corresponds very closely to the material used for some of the carvings of the late "drooping-mouth" heads described on page 97. *Tlilayotitl*, a mixed black and green stone is also classed by Sahagun with *chalchihuitl*. It may be, as Foshag suggests, chloromelanite, but this is not clear from its description. Some very green jades with black streaks and spots may qualify under the given description.

Sahagun's terms give us only an intimation of what must have been a highly evolved vocabulary relevant to the art of jade-working in Mexico. Landa gives us no comparable information about the Maya, but certain parallel statements that the two authors make suggest that beliefs and practices involving jade in the two areas had a common ancient base, and were essentially similar. In addition to distinguishing different varieties of jade, Sahagun states explicitly that *chalchihuitl* was a sign of nobility, and that commoners were not permitted to wear it. Landa mentions no such restriction, but he also, though somewhat obliquely, associates jade with chieftainship: "The occupation to which they had the greatest inclination was trade, carrying salt and cloth and slaves to the lands of Ulua and Tabasco, exchanging all they had for cacao and stone beads, which were their money; and with this they were accustomed to buy slaves, or other beads, because they were fine and good, which their chiefs wore as jewels in their feasts . . ." (Tozzer 1941, pp. 94-96). The beads that were "fine and good" were almost certainly of jade, and are here stated to be specifically for the chiefs. Moreover, whenever Landa mentions "green stones" it is always in connection with gifts to important personages or with offerings to the gods. The beads that "were their money" were evidently of inferior stone, though this may have been a poorer variety of jade. Elsewhere, red shell

beads are mentioned as money, and it is even possible that Landa makes an error in this passage. However, he again mentions the use of stone as money, when he describes a burial custom: "Once dead, they put them in a shroud, filling their mouths with ground maize, which is their food and drink which they call *koyem*, and with it they placed some of the stones which they use for money, so that they should not be without something to eat in the other life" (Tozzer 1941, pp. 129-130). Landa is here describing the burial of a commoner, since he states that members of the nobility were usually cremated. Sahagun describes a similar custom practiced in Mexico, though he ascribes to it a different significance: "And when the chiefs and princes died, they laid in their mouths green stones. And those who were only peasants [they provided] only a [common] greenish stone or [a piece of] obsidian. It was said that these became their hearts" (Sahagun 1950-63, book 3, p. 43). This association of jade with the heart of nobility is corroborated by certain Aztec statues which show an indentation on the chest, which once held some sort of inlay. Though I know of no case in which the inlay survives, it is generally believed to have been of jade.

Jade also had an association with water, and it is said that the Aztec used the word for it as an honorific metaphor for "water." Thompson (1950, pp. 44, 49) identifies the Maya hieroglyphic sign for jade with the sign for the day Muluc, with the central element in the glyph for the month Mol, and with the lower half of the sign for *tun*, the 360-day year of the Maya, a homonym of *tun* meaning precious stone. The element consists of a circle with another small circle in the center, and sometimes with two small half-circles attached on the perimeter. This sign is sometimes seen on bodies of serpents, on various hand-glyphs, and, in the codices, on conventional depictions of bodies of water (Thompson 1950, fig. 14-3, 5). Thompson (ibid., p. 276) also suggests that the so-called "Kan Cross" sign may represent the color blue, and may stand for jade or turquoise. Although these signs may be symbolic of jade, we do not know how the word for jade was actually conveyed in writing.

Since historical sources give us so little information about jade in the Maya area, we must draw largely on archaeology for data on its value and uses. Its importance as a material is attested directly by finds of raw jade in ritual deposits. A large boulder of jade, weighing 200 pounds and showing only some saw-marks on its surface, was found buried under the stairway of Structure A-6 at Kaminaljuyu (Kidder, Jennings, and Shook 1946, p. 119). More recently, smaller waterworn jade stones were found

cached under late stelae at Seibal. Small irregular bits and pebbles of jade, as well as beads, are often included in minor caches, and very probably were used in curing ceremonies or in other shamanistic practices. Caches containing carved jades are less common, though there have been some extremely rich finds, notably the celebrated Cache 14 of jades, pyrite mirrors, and other objects found by A. L. Smith in Structure 2 at Nebaj (Smith and Kidder 1951, p. 30). This cache was placed under a stairway of a structure that showed a long series of rebuilding operations and contained several superimposed tombs. Some tombs earlier than the cache had been despoiled of their contents, and it may be that the jades of the cache were originally used in one of these tombs. Jades are most often found in interments, both as offerings and as adornments on the bodies of the deceased.

Unfortunately, many tombs are found despoiled of their precious objects. The tomb under the Temple of the Inscriptions at Palenque was a rare find (Ruz 1952a). Here, the skeleton lay in full regalia, the face covered by a mosaic mask of jade. On the chest was an elaborate collar of tubular beads, and there were ear-flares near the skull and rings on the fingers. A small carved pendant representing a deity also lay among the scattered beads. More recently equally lavish burials have been unearthed at Tikal. In one of these, wristlets and anklets of banded tubular beads remained in position with the skeleton.

These finds confirm and supplement what we already know from the many representations on stelae about the uses of jade in the formal costume of the highest nobility. Beads, for example, we know were used not only for simple necklaces, but also for elaborate designs of wide collars, as hangings attached to pectoral ornaments and belts, for wristlets and anklets, and even assembled in a sort of open net worn over skirts and capes. From the burials we know that the representations were somewhat idealized, for assemblages of beads were seldom as perfectly matched as they appear in the carvings. Beads were rarely graduated in size though large collars of graduated beads have been found in burials at Tikal. More often they were combined in contrasting forms, notably in assemblages of tubular and spherical beads. Objects of specialized form include flares, most often used in ear ornaments, but in smaller forms serving as links in assemblages, often retaining a tassel formed of three small tubular beads (pl. 41). Flat, plain, or decorated discs could be fastened on a headband, and may even have been used for serpent headdresses, such as were worn by warriors at Piedras Negras, though perhaps it is more likely that the overlapping discs of these monstrous

masks were made of shell or some other material. Flat rectangles may have been used on belts, and the larger paired varieties were probably ear ornaments of headdress masks. Jade nose ornaments of various forms are also shown on monuments. Small round ornaments worn on the alae of the nose also are represented at Yaxchilan and in Toltec Chichen Itza, though none of them seems to have been carved.

On the other hand, there are some objects for which it is difficult to find precedents either in representations on monuments or in accoutrement of interment. Chief among these are large plaque-pendants carved with human figures. They are usually bored horizontally, as if designed to be hung from a necklace, but we never see them used in this way on Maya stelae, and so far, they haven't turned up in burials. The use of small buttonlike objects, which were very common and have a wide distribution, also remains problematical. In Burial 5 at Piedras Negras (W. R. Coe 1959, figs. 47, 48), a number of these were incorporated in a headband, but the miscellaneous assemblage suggests secondary use.

The Sacrificial Cenote collection offers us few new data on the uses of jade, since no assemblages were recovered. The amount of material, however, permits some observations on the association of distinct jade varieties with certain styles and techniques of carving. Both Kidder and Foshag note that in Guatemala the quality of jades tends to differ in different regions. At Kaminaljuyu, Foshag distinguished seven varieties of jade, four of which were jadeites, and the others, diopside-jadeite, albitic jadeite, and chloromelanite. He observed that these jades fall into much more uniform and distinct classes than do the jades from Nebaj, and he was unable to incorporate the latter into his system.

Like the jades from Nebaj, which some of them resemble, the jades of the Cenote collection do not fall readily into the categories that Foshag established, and the mineralogical work that has been done on them is insufficient to suggest a more appropriate classification. Washington (1922) analyzed seven beads from Chichen Itza, and though he did not identify the specimens by catalog number or provenience, his results are instructive. He found that the percentage of pure jadeite in six of the specimens varied from about 62 to 81.7. The remaining specimen, described as a cylindrical bead of fine-grained gray-green stone, contained only about 25 percent of the pure mineral. The deficiency was apparently due to a high percentage of albite, about 63.5, which in other specimens did not rise much above 20. Diopside in the specimens he examined varied from 3.5 to 18.7 percent, the mode being between 11 and 12.

To what degree such impurities in the jades are responsible for the extreme decomposition that some of the jades from the Cenote have suffered has not been determined. Jade, itself, is known to be subject to alteration under certain conditions, and very probably the circumstances of deposition and immersion in contact with other materials had more to do with the character and degree of alteration in the Cenote specimens than did the composition of the material. Often fragments of a single piece differ sharply and abruptly in color, grain, and hardness, showing that the pieces were broken even before they were thrown into the water. In a few cases one can detect the marks of a sharp tool traversing a broken edge, but often the breakage was probably accomplished by burning at high temperature and sudden immersion in water. A few specimens were found imbedded in unburned copal placed in pottery bowls, but burning in such bowls could hardly have produced shattering such as we found. Sufficient heat may have been produced in the small ovenlike structure (1D1) that stands on the edge of the Cenote (Ruppert 1952, p. 6) to crack the jades even before contact with water, for we find blackening even on broken edges. The final process of discoloration and decomposition must have been gradual and due to chemicals present in the water or to direct contact with decaying matter, such as iron pyrites, for instance, which tend to produce a brown stain.

Pieces that were found unbroken and were not blackened by burning seem to have been less subject to decay, and some are probably virtually unaltered. A few of the finer jades that showed no sign of decomposition were partly coated with a black substance, which may have served to protect them. It is not known whether this substance was purposely applied, or if it is a residue from burning with copal or some other resin, a material that was exceptionally resistant to heat.

It would be rash to base a typology on material that has suffered so much alteration, but to avoid monotonous descriptive repetition, I have distinguished certain classes and varieties on the basis of their general appearance, with no implication that the classes represent mineralogical types. There are many specimens which I have been unable to classify, and it is quite possible that some varieties include materials of very different composition. Nevertheless, for some varieties we have a guide in their association with distinctive styles and techniques of carving, and the following list may give the reader a general idea of the character of the variations that can be observed. The color designations are taken from Ridgeway (1912) and are only approximate,

since the jade color is seldom uniform.

#### CLASS 1

This class covers a broad variety of jades, distinguished mainly by a speckled appearance of the green, and uneven color distribution. Seen under a glass, the polished surface tends to resemble a mosaic of crystals of varying color, form, size, and opacity, frequently with areas of opaque, grainy white, or with white specks or nests distributed through the stone. The surface may be finely cracked, and in some cases, the material is soft and apparently decomposed. Color varies from a pale gray with a mere tinge of green to deep Killarney Green, and may be distributed in conspicuous blotches or as an even, fine speckle. The translucency or opacity of the stone apparently varies according to the distribution and amount of white opaque matter and is probably strongly affected by the degree of alteration that has taken place. Gradations tend to be continuous and portions of a single piece may differ strongly in appearance.

For the bulk of the material of this class, varieties cannot be clearly distinguished. Three, however, may be significant:

Class 1a. A variety containing an unusually large amount of opaque white material, sometimes with decidedly spotty distribution of green. This variety occurs frequently with a style of carving apparently peculiar to northern Yucatan.

Class 1b. A variety containing large rectangular green translucent crystals and occasional large nests of coarse transparent colorless crystals. Observed mainly in large flat rings carved in the Toltec-Chichen style.

Class 1c. Dark green speckles in a network of very fine white veins. Observed only among carved tubular beads.

Wherever in the text the jade class is not specified, it may be assumed to be of Class 1.

#### CLASS 2

Jades of vivid, concentrated green. No grain is visible in the green, which tends to diffuse as it merges with colorless matter. Several distinct varieties may be distinguished.

Class 2a. Probably the finest of jades, a brilliant Killarney or Hay's Green, subtranslucent, with only occasional colorless patches and black blotches or veins that may be due to burning.

Class 2b. Bright tones of Cossack or Peacock Green, with conspicuous subtranslucent or opaque white areas.

Class 2c. Clear green blotches fading into a

dense white.

Class 2d. Subtranslucent deep green, with occasional areas of spotted or speckled color.

Class 2e. Diffuse mottled greens tending to have an olive tinge.

Artifacts of Classes 2a, b, and c are exceptionally well preserved and a number show remains of black coating. They retain a brilliant polish and the first two may correspond to the variety of jade that Sahagun names *quetzalchalchihuitl*.

#### CLASS 3

Jades of laminated structure. This class can be subdivided into distinct varieties, all of which are associated with the late technique of arc-drilling and are distinguished by their fine grain and sharp separation between green areas and white or gray portions of the stone. The green tends to be distributed in streaks rather than in spots or speckles and is frequently opaque.

Class 3a. Distinguished by a pearly gray back with occasional small opaque spots of white. Dark shades of Cossack and Meadow Green prevail, distributed in large areas, but occasionally spotty. The lighter portions tend to be milky and opaque. Fracture is characteristically sharp, or with a tendency to fibrous appearance. Some specimens lack the gray back, but can be recognized by their opaque bluish green tones, fracture, and surface distribution of color. This variety is associated exclusively with Late Classic picture-plaques of seated figures, of the type found at Nebaj.

Class 3b. Fine-grained Gnaphalium Green or gray with diffuse streaks of Zinc Green or Lily Green, and occasional streaks or veins of black. Sharp clean fracture. Associated both with Nebaj-type plaques and with terminal Classic arc-drilled heads of the "drooping-mouth" type.

Class 3c. Predominantly opaque white with surface tinge of dull Zinc Green or dark Sulfate Green of even tone. Some pieces have a thick layer of opaque green, which has a rough fibrous fracture. Associated with terminal Classic arc-drilled heads, and with Late Classic low relief figures on small plaques and pebbles.

Class 3d. Opaque Opaline, Deep Greenish Glauous, or Lichen Greens of even tone, sometimes combined with opaque white or layered on grayish fine-grained crystalline jade. One decomposed specimen shows nests of clear crystals. Other examples partially altered. Associated with late, thin, two-sided openwork plaques and similar carvings, with several tubular beads and plain discs and rectangles, and once with a somewhat aberrant picture-plaque of

Nebaj type.

Class 3e. Opaque white of inconspicuous grain with pronounced streaks of Glaucous, Motmot or Paris Green. White portion tends to decompose and is sometimes soft and powdery.

Discoloration and decomposition make it difficult to appraise the significance of the variations, but this class of jades as a whole appears to be distinct from the common class of speckled translucent jades used during the Late Classic Period, as well as from jades of even, brilliant color. I am uncertain, however, that Class 3e belongs properly in this group.

**CLASS 4 (two specimens only)**

Olmec blue jade, corresponding to Foshag's Type II. A pure jadeite, of a dusky blue-green or bluish gray-green, translucent, of even color, and without grain. Represented in two small pendants, one of which has a band of brilliant Meadow Green running through it.

**CLASS 5 (one specimen only)**

Olmec gray jade. Hathi gray, fine grained, subtranslucent, with diffuse, faintly mottled color and waxy polish.

**CLASS 6**

Other jades of diffuse soft color.

Class 6a (rare; ear-flares and spherical beads). Dark Greenish Glaucous to Gnaphalium Green, with pale, even color. Possibly Foshag's Type III. Sometimes dense with no visible grain; more often with mosaiclike structure on polished surface, resembling samples from Manzanal. Luster dull to brilliant.

Class 6b (very rare). Pale Gnaphalium Green with diffuse Russian Green patches. Polish waxy to pearly.

Class 6c (very rare). Sage or Andover Green, faintly mottled, subtranslucent with conspicuous white inclusions.

**CLASS 7**

Various jadelike stones and jades of poor quality.

Class 7a. Light Olive Gray to Pea Green, opaque, dull, with sparse micaceous flecks. Associated with bib-and-helmet heads.

Class 7b (one specimen only). Olmec dark streaked jade. Dusky Russian Green and black on opaque gray, streaked and spotted. High polish. Possibly chloromelanite??

Class 7c (beads only). Jasper or Porcelain Green fading into light Sulfate Green. Opaque, with good polish.

Class 7d (rare). Dense, fine-grained, probably originally white, but with brown patina. Often tinged with green. Jadeitic albite??

**CLASS 8**

This stone has not been identified, but is not jade. Opaque light Olive Gray, light Grayish Olive, or Pinkish Cinnamon, with patches of Russian Green, Terre Verte, or Bluish Gray Green. Associated with bib-and-helmet heads and related objects.

**CLASS 9 (one specimen only)**

Dark Danube Green, opaque, with no visible grain. Dull polish. Probably not jade.

**CLASS 10 (small beads only)**

Bluish gray-green, scaly surface with many bright flecks. Possibly Muscovite.

**CLASS 11 (beads only)**

Black or dark gray stone with conspicuous veins and inclusions of opaque white. When decomposed, this stone is brown and crumbly. Most specimens are burned, so that original color is uncertain.

**CLASS 12 (one specimen only)**

Light gray stone with very fine network of white veins. Probably not jade.

**CLASS 13 (one specimen only?)**

Soft dull green and gray stone.

**CLASS 14 (small spheroid and discoidal beads)**

Smooth white stones, possibly of different varieties.

**CLASS 15**

Decomposed jades.

Class 15a. White or cream, crumbly, sometimes with powdery surface, usually with some traces of opaque green.

Class 15b. Usually strongly warped. Drab gray light drab and darker shades on surface, which is often cracked or finely pitted, sometimes with traces of opaque lichen to Rejane Green. Broken edges appear fused and glassy.

Class 15c. Partially fused areas. Usually thin laminar of bright diffuse or even color, sometimes appearing in conjunction with crumbly white backing of Class 15a. Elsewhere as pieces fitting normal jade of Class 1.

**Unclassified gray, buff, and other undistinguished stones.**

These are too numerous and too various to be listed here. Like the marginal varieties of jade, they will be mentioned individually in the descriptive section. Such stones occur mostly in the form of beads and minor objects.



## II TECHNIQUES AND STYLES OF CARVING

It would be very convenient if we could organize the Cenote jade collection by regional and period styles and present it to the reader in its proper historical order; but with the knowledge we have, such an arrangement could cover no more than a very small fraction of the material, and is likely to be more misleading than helpful. Since there are no data on the spatial arrangement of the deposit to serve as a guide, similar objects have been grouped together without regard to any other consideration. Nonetheless, among the numerous carvings we do recognize certain distinct styles and can in most cases roughly conjecture the period of time and the region to which they pertain. This chapter will follow in sequence the major changes in jade-working in the Maya area, so far as we know them from archaeological associations, and will anticipate some of the observations presented in more detail in the descriptive text.

Style judgments are based primarily on three variables: the range of motifs and representations, the character of forms and arrangements, and the technique of workmanship. In some media these three components can be more or less independent, but with a refractory material like jade, technique imposes stringent limitations on the character of forms that can be produced and even on the possible choice of motifs, so that styles are best distinguished by details of workmanship. One can discern repeated efforts to transcend technical limitations and to produce freely conceived plastic and graphic forms in jade, both by mere application and skill, and by utilization of new tools and devices; but there is always concurrently an overriding tendency to surrender artistic purpose to technical economy and to exploit mechanically produced forms in their undisguised state. As a result, development is not unilinear, and contrasting schools may exist at the same time, but looking at the sequence as a whole, we can see that each age is associated with the elaboration and decline of specific techniques, and that these developments mirror fairly clearly the configuration of the major eras of culture that archaeologists have sketched out on other grounds.

Some schools of jade-carving clearly take their inspiration from monumental sculptures of their period and can be roughly dated by a comparison of details with those we find on monuments of known date. From such comparisons, and from archaeological finds of jades associated with other objects, we have inferred the general sequence of technical development, which can now be applied to those lapidary styles that have no clear connection with the monuments. The distribution of data, however, is still spotty, and the conclusions we draw today are subject to revision as new significant facts come to light.

We do not yet know where and when jade-working first began in Middle America. MacNeish reports finding jade beads at the end of the Early Preclassic Period (personal communication); but finds of this period are still so rare that we might justly say that we know nothing of the early stages of jade-working. Beads of other stone go back to preceramic times, and it is very probable that jade techniques were taken over from earlier crafts of stone-working and were quickly developed when sufficiently hard abrasives could be produced.

The best accounts of the basic techniques involved, insofar as they can be inferred from known objects, are given by Kidder, Jennings, and Shook (1946, pp. 118-124) and by Foshag (1957, pp. 44-57). They are based mainly on the study of Early Classic jades from Kaminaljuyu, in the highlands of Guatemala; but with minor qualifications, they probably apply to other Mesoamerican schools of carving. A more general description, and one of wider scope, is given in Easby and Easby's 1956 article, and Digby (1964, pp. 14-20) gives a description of the manufacture of ear-flares.

Since many early carvings retain in part the form of waterworn pebbles, Kidder expressed the opinion that jade was not mined by the Maya, but was gathered from riverbeds, the larger and more fully shaped pieces being cut from such boulders as the one found under the stairway of Structure A 6 at Kaminaljuyu. The discovery of a jade deposit at Manzanal suggested the possibility that such depos-

its were exploited by the Maya, though definite indications of mining activities at the site are lacking.

Jadeite is an extremely hard mineral, and could not be worked readily with stone tools. Sahagun, in describing the working of precious stones in Mexico, mentions the use of hard metal implements (Sahagun 1950-63, book 9, pp. 80-82), but this must have been a very late, probably even a post-Conquest innovation in the technique. The tools the Maya used were doubtless made of perishable, easily worked materials, so that they could be resharpened or discarded as they wore out, and the actual work of cutting and smoothing was left to abrasives used with them. A small cache of pulverized rock and bits of jade found at Kaminaljuyu may have served as such an abrasive (Foshag 1957, pl. 1).

At least seven essential operations are involved in the working of jade: fracture, grinding, sawing, grooving, incising, drilling, and polishing. Sawing, fracture, and grinding were used principally in the preliminary shaping of pieces; but sawing was also often used for laying out a design, and some small ornaments are carved entirely with the sawing technique (Lothrop 1936, figs. 60, 61). Saw-cuts made with a knifelike implement, probably made of hard wood, are wedge-shaped in section and straight at the bottom of the cut. In shaping a plaque, cuts were usually made from opposite sides of a raw piece of jade. They are seldom aligned perfectly, and most flat pieces show on their unworked faces slight ledges that had not been smoothed out. On many early pieces, and in some instances of later cross-cutting, the saw-marks do not meet and are separated by a narrow fractured septum. The fracture may have been made deliberately, but I am inclined to think that the broken septa resulted from a natural cracking of the material due to pressure and heat generated by the abrasive.

A narrower cut could be made with the use of a cord or agave fiber coated with abrasive. Such cuts leave a septum with slightly convex sides, most often seen on early plaques. Cord-sawing was apparently an ancient technique, and was used also to make interior openings in carvings. A small drill hole was made at the start for the insertion of the cord, and usually also at the termination. The cut is normally a little narrower than the drill holes, and is smooth and rounded on the edges, which are somewhat undulating and uneven. This technique is described and illustrated by Lothrop (1955, p. 48). Similar cuts made by the Maya tend to have sharper edges and show striations on the cut surface, indicating perhaps the use of a more rigid cutting implement. The Maya also made interior cuts by drilling a row of closely spaced very small holes, and smoothing down the

## TECHNIQUES AND STYLES OF CARVING

resulting ridges.

Grooving, in contrast to sawing, produces polished round troughs, and is especially well adapted to executing curvilinear designs. It was highly developed and widely applied during the Early Classic age of Maya culture. At this time, the grooves and ridges are softly rounded and lines show the free curvatures of manually controlled motion. Later, this technique was superseded by the application of mechanical devices, which produced sharper grooves with more precise and standard curvatures.

Incised lines are much finer and shallower, and are not polished in the trough. The edges and the floor tend to be irregular, suggesting that the lines were chiseled or scratched with a sharp tool of hard stone, rather than rubbed with an abrasive. Incising is particularly characteristic of early industries, and shows progressive deterioration in later times, as if, with the development of grooving with abrasives, the technique was neglected and allowed to lapse.

Since the surface finish of most of the pieces from the Cenote is marred by decomposition, we can make no original observations on polishing techniques. Kidder has suggested the use of leather with a fine abrasive, Foshag speaks of polishers made of jade and other hard stones, and Sahagun mentions various devices used in succession, ending up with fine cane. "They are polished, ground, worked with abrasive sand, glued with bat excrement, rubbed with a fine cane, made to shine" (Sahagun 1950-63, book 11, p. 223). West (1963) mentions the use of fragments of gourd in China, and Mesoamericans may also have availed themselves of this common material.

The operation that shows the most conspicuous changes in time is drilling. Both solid and tubular drills were apparently in use from the earliest time of which there is any information, but important advances were made later in the control of the drill, suggesting that twirling by hand was superseded by the use of some mechanical device, such as the bow or pump drill, and by improvements in methods of mounting the object to be drilled, and of steadying the implement. Various materials may have been used for the bit of the drill, but bones of small animals and birds were perhaps best adapted to the purpose. Holmes (1895-97, pp. 304-309) describes a fragment of a hollow bone drill found in the bore of an onyx or travertine plaque at Ixtapaluco, near Chalco, Mexico, together with traces of an abrasive. So far, very little research has been done on the various lapidary techniques used in Middle America, and observations remain superficial. By microscopic examination and experiments with different materials, much could be learned about the technical

## JADES FROM THE CENOTE OF SACRIFICE

development of the craft of jade-working.

By 800 B.C., when the so-called "Olmec" culture was dominant in Middle America, jade-working techniques were already highly developed and complex, and some of the most beautiful carvings are attributed to this era. Little, however, is known of the distribution of styles and workshops at this time. Vaillant found two jade beads and a beautifully worked pair of ear-flares in Late Arbolillo I burials in the valley of Mexico (Vaillant 1935, fig. 25). In Guatemala, a very finely worked figurine was found in a tomb with objects of the Majadas complex, which is now thought to follow immediately on the Las Charcas phase (Shook 1951). Recently, a pointed implement of jade has been reported from an early Mamom or late Xe stratum at Seibal, in the Peten. All these pieces appear to be related to the Olmec style, and may well be contemporary with it.

The type site of the Olmec culture is La Venta, Tabasco, to which archaeologists now ascribe dates between 800 and 400 B.C. Some authorities regard the Olmec culture as the "mother culture" of all high civilization in Mesoamerica, and although others consider this view extreme, there is no doubt that the Olmec style of sculpture had a deep and pervading influence on subsequent artistic developments in many areas. Jade-carving at La Venta was closely related to the style of its great monuments, and had already achieved the status of a fine art, but even minor pieces show certain peculiar characteristics of workmanship, and our identification of early jades often rests on little more than their resemblance to those of known Olmec provenience.

The figurines of La Venta, in the execution of human faces, show a full command of carving in the round. Small drilled pits in the corners of the mouth and of the hollowed eyes, and diverging saw-marks at the sides of the nose and mouth indicate a well established tradition in the primary layout of human features, which, however, is often masked by a high and exquisitely sensitive modelling of the relief. The bodies, in contrast, are starkly simplified. The limbs are freed by three undisguised wedge-shaped cuts, projected as grooves on the body form, and made, apparently, in a single operation. Other Olmec figurines are carved completely in the round, but the date of these is uncertain.

By and large, strong contrasts in relief, with little or no transitional modulation are characteristic of the Olmec and other early styles. The combination of relief with very fine incising is especially typical. Deep, rounded, and polished grooving, on the other hand, is unknown in the Olmec style. Nor was the tubular drill normally applied to carving, probably because it was efficient only when used on a flat

surface, and was not well adapted to rounded relief. It was almost certainly used in the manufacture of ear-flares, some of which are very precisely circular, and for cylindrical perforation of beads. Most of the perforations at this time, however, are sharply biconical, with bores that have a wide opening on the surface, and a very small one at the meeting of the drill holes, which tend to be rounded at the bottom. This suggests that a solid pointed drill was twirled by hand, with considerable sidewise play of the tool.

Typical of Olmec workmanship are several small pendants in our collection which have a polished concavity on one side (pl. 37a). These pendants are not bored from edge to edge, as are most of the Maya pendants, but have two sharply biconical perforations on the upper edge of the back. All are of unusual stone. One pendant in the form of a hatchet blade is bored from edge to edge and is made of Olmec blue jade (Class 4), greatly prized by collectors. Several other small objects because of their material, form, or technique of manufacture have been tentatively classed as Olmec, though we are not at all sure they were actually made in the Olmec region, and much less so that they were deposited in the Cenote in Preclassic times. A reworked piece of a concave pendant has been found in the ruins of Mayapan, and was evidently in use at a much later time (Pollock et al. 1962, p. 352). Another concave pendant comes from a Late Preclassic deposit at Dzibilchaltun (E. W. Andrews IV, personal communication). Evidently such objects remained in circulation for a very long time. It is interesting to observe, however, that none of these Olmecoid objects from the Cenote shows signs of having been burned or deliberately shattered, as do most of the later carvings. This suggests that occasional offerings may have been made long before the late cult of sacrifice was established.

Another group of early objects which remained intact, and which may represent a Preclassic industry, has a distinctive style designated here as the bib-and-helmet style, a name first given it by Elizabeth Easby and referring to two conspicuous features of its carved human heads. Objects carved in this style are scattered widely in Mesoamerica, but their cultural associations are unknown. A typical head was found with Early Classic, Izakol III, remains at Tikal (H. Moholy-Nagy, personal communication), but it is so different from other jades associated with this phase of culture in the Maya area, that it must be an importation, and very probably is a survival from an earlier age. No other examples that I know come from archaeological excavations, though I have been informed that similar heads were recently uncovered with Late Preclassic remains in the valley of

Mexico. In our collection, we have, in addition to typical heads (pl. 53a, nos. 1-6), a small figurine (pl. 52c, no. 9), a roughly triangular pendant with features indicated only by sawed lines (pl. 53a, no. 8), an undecorated pendant (pl. 36c, no. 3), and a monkey head (pl. 53a, no. 7), all apparently belonging to this style. The human heads wear a helmetlike headdress with a projection in the center, which recalls the helmets of the colossal heads of the Olmec, and have a plain biblike projection under the chin. The horizontal bore for suspension is sharply biconical, with unusually large openings, and is always placed high on the head. One of the distinguishing features of the style is the rendering of the eyes. They are lozenge-shaped, outlined with very fine incising, and have a small drilled pit in the center. The pieces look very worn, and, on some, the details of the eyes are obliterated; but, as is the case with the Olmec pieces, there is no indication of burning or deliberate destruction.

There are several other carved pieces, and doubtless a number of undecorated objects from the Cenote that may be equally ancient, but the Olmec and the bib-and-helmet styles are the only two that can be identified and assigned to the Preclassic era with any degree of confidence. The Chicanel period in the Peten and the Miraflores and earlier phases of Guatemala have yielded, so far, very few examples of carving. The rich tombs in Structure E III-3 at Kaminaljuyu had evidently been robbed of their best pieces in ancient times. Only a few beads, small uncarved pendants, ear-flares, and one mosaic composition forming a grotesque mask were left (Shook and Kidder 1952, p. 113). At Tikal, a fuchsite mask, technically a fine piece of work, but artistically undistinguished, was found in a late Chicanel-period tomb, and recently another has been reported. These masks exhibit the same combination of incision and relief which is characteristic of the Olmec and other early styles. Another good example of this technique is found on the figurine, also of fuchsite, from an Early Classic deposit in Structure A-XVIII, Uaxactun (Kidder 1947, pp. 47-48).

On these Preclassic pieces, the forms of incision and relief are simple and more or less independent of each other. At some unknown time, the Maya elaborated this technique to a high degree of perfection, integrating the incised lines with the modelled forms, and producing pieces of extraordinary quality. We have in our collection fragments of two very large tubular beads carved in this manner, which I have seen on no other examples of jade (pl. 45, nos. 1 and 8). The bores of these beads are approximately cylindrical and of unusually large diameter.

## TECHNIQUES AND STYLES OF CARVING

Although the designs are too fragmentary to be reconstructed, the manner of carving is so distinctive that it serves alone to define a style heretofore unrecognized. Very fine incision is used on these pieces to outline raised forms, which are gently rounded. Supplementary designs are incised on plain areas. These include U-shaped elements, cross-hatching, and possibly a figure or mask design. One of the beads (no. 8) shows tightly furled, slightly squarish scroll forms, accented by surfaces inclined toward the center. This immediately recalls scroll work on Miraflores monuments at Kaminaljuyu and on cut-out silhouette sculptures from the highlands. Cross-hatching is found here too, and also U-shaped design elements, which are characteristic of Late Preclassic sculptures in the highlands and at Izapa, on the Pacific coast plain. At Tikal, these elements, with the possible exception of the slanted-surface scrolls, carry over into the Early Classic Period on monumental sculptures at least until 9.0.10.0.0. On the other bead (no. 1) we find a Maya inscription, very finely incised and of a very early character, but more akin to lowland Maya inscriptions than to the Preclassic inscriptions of the highlands. This inscription is more fully discussed on page 203, but here we might note that the eyes of the human heads of the glyphs are lozenge-shaped and have a small pit in the center, like the eyes of the bib-and-helmet heads.

I would not venture to guess the date of these remarkable jade carvings, but it is evident that they represent a period of close contact between highland and lowland cultures. I am inclined to think, however, that this was not the period of Teotihuacan or Esperanza influences which have been noted in Tikal tombs near the end of the Early Classic era, but one much earlier, when, after the destruction of the great Preclassic cultures of the south, emigrating craftsmen may have stimulated the arts of the lowland cities.

If this is true, however, we have still to account for the greatly inferior carving that seems to be representative of Early Classic crafts, as we now know them. This carving is associated with intensive use of new grooving techniques in preference to shaped forms and incision. Such a change may be due to some basic innovation in the character of the implements used, perhaps the substitution of perishable materials for highly specialized and doubtless expensive tools of hard stone, and greater reliance on abrasive techniques.

Kidder has described Early Classic jades from Uaxactun, Nebaj, and Kaminaljuyu, and has defined a school of carving present in all these sites and also at Tikal and Copan (Smith and Kidder 1951, p. 33). "Early Classic carved jades from Nebaj," he writes,

"were executed in low relief produced by cutting away the stone from around the elements it was desired to delineate. A soft smoothness was achieved by a gentle rounding of the elements, all of which are in approximately the same plane and are uniform in value, i.e. none is emphasized by strong protuberance, by greater sharpness, or by more detailed treatment." This monotony of the relief is typical of Early Classic Maya work, and one might add that areas of background tend to be minimal, and that much of the design is executed in adjacent ridges and troughs. The carvings are usually made on beads or on small irregularly shaped pendants made from pebbles or cut into thick, roughly rectangular plaques and perforated horizontally near the top.

Kidder goes on to note the details of the human figure: flexed arms with clenched hands held back to back on the chest, jaguar headdresses, necklaces of large beads that fit snugly under the chin, and anklets of large round beads. He notes also conspicuous facial features: "The nose is T-shaped, the lines of the bridge turning outward at right angles to suggest the eyebrows. The mouth is a straight horizontal bar with rounded ends, an incised line indicating the division between the lips." Only two pieces from the Cenote fit this description: a carved bead-pendant (pl. 52c, no. 1), and a fragment of a flat pendant (pl. 56a, no. 1). One carved bead in the form of a skull (pl. 44f, no. 1) is carved with the technique of Early Classic times, though the date of its manufacture is less certain. A highland version of the style is readily identified in a profile face on another carved bead (pl. 44d). Typical irregularly shaped plaques with human faces and flanking serpent-heads, however, are entirely absent here.

Although standard Early Classic forms seem to be very weakly represented in our collection, we have a larger group of pieces which either retain the soft character of the Early Classic technique while introducing elements of design more characteristic of later times, or, on the contrary, show sharper and better modulated relief, but retain many early details. Standard Late Classic types thus appear to emerge gradually from earlier forms, and we cannot with any confidence give a date to such carvings, for there may be considerable time lag in the adoption of new conventions by different regional schools.

The most common form of such "transitional" carvings is a thick but flattened, roughly triangular pendant, made from a pebble that had been cut on the sculptured face to expose a green surface of the jade, and ground on the undersurface, which is usually dull and retains some convexity. A horizontal

bore runs parallel to the longest side (pl. 54a). Another form is that of a long horizontal pendant, something like a bead with an off-center bore (pl. 46a). Both kinds of pendant most often present a human face flanked by two profile serpent heads or god faces. The human faces vary. The simplest are laid out with two sawed lines diverging toward the chin and cross-sawed to form the nose and mouth. Eyes are rectangular or oval, with a horizontal slit indicating the eyelid. Other faces are modelled with more care and have eyes that are almond-shaped and outlined with conspicuous ridges. A tassel on the forehead and drilled earplugs appear on some of the pieces, presaging common conventions of a later age. In addition to heads, there are also full-figure pendants of "transitional" type, such as numbers 1 and 2 on plate 55b, which still place the hands of a figure back-to-back, but with the forearms horizontal just above the belt.

An especially interesting piece is number 1 on plate 68, a large flat plaque retaining roughly triangular form with grotesque profile heads at the upper corners, but representing a seated figure. It is intermediate between silhouetted figures and picture-plaques, standard forms of the Late Classic Period, apparently not yet fully differentiated when this piece was made.

How long such mixed types persist is problematical. Some features of the Early Classic styles, such as the necklace of large beads, and the serpents flanking the headdress, recur even on carvings that are apparently late. Others are discarded early and are never revived. The bracelets of large round beads, for example, are superseded in all regional styles by cufflike forms made of tubular beads. Anklets also take this form if they are retained at all. A central tassel becomes a standard feature of headdresses and is often connected to the earplugs with simple double bands and later with a band that curls above the earplugs. Some of the smaller heads have no headdresses, but merely an indication of hair. Forearms are normally placed horizontally above the belt, with palms facing each other and fingers touching, and legs may be sharply abbreviated or indicated by mere nicks at knee and ankle. No single set of conventions, however, applies to all the rich variety of forms and of schools of carving to which this period gives rise. There is also, at least for a time, a vastly expanded choice of motif and detail, giving a broader scope to individual and original conceptions.

The horizontally bored pendant remains the dominant functional type on which carving is displayed. It now seldom retains traces of the original form of the material but is completely shaped in a

## COLOR PLATES I-IV



## COLOR PLATES

Color Plate I: a. Jade Class 1, Late Classic Maya pendant (pl. 60, 1); b. Class 3c, Terminal Classic carved flat pendant (pl. 53b, 2); c. Class 2a, Late Classic dwarf figurine (pl. 57, 1); d. Class 3d, two-sided carving, god-mask (pl. 63b, 5); e. Class 3a, Terminal Classic picture-plaque (pl. 73, 2); f. Class 1a, two-sided carving (pl. 63a).

Color Plate II: a. Jade Class 2b, Toltec picture-plaque (pl. 78a); b. Class 1b, Toltec ring.

Color Plate III: a. Unclassified gray stone, small late Preclassic pendant (pl. 52c, 9); b. Jade Class 8, late Preclassic pendant (pl. 53a, 1); c. Class 8, late Preclassic pendant, monkey head (pl. 53a, 7); d. unclassified black stone pendant (burned) (pl. 52c, 8); e. Class 7d, unidentified style (pl. 53c); f. Class 9, small pendant, probably early (pl. 51b, 4); g. Class 7b, Olmec "clamshell" pendant (pl. 38a, 2); h. Class 4, reworked piece of Olmec "clamshell" pendant (pl. 38a, 5); i. unclassified stone, Olmec "clamshell" pendant (pl. 38a, 1); j. Class 5, Olmec pendant.

Color Plate IV: a. Jade Class 11, banded bead (pl. 21); b. Class 6a, ear-flare (pl. 30, 1); c. Class 3d, sculptured bead (pl. 28a); d. Class 3a, pebble-pendant, human head (pl. 53b, 6); e. Class 15b, Late Classic dwarf figurine (pl. 57, 5); f. Class 2e, round-relief pendant, human head (pl. 62a, 3); g. Class 2e, fragments of pectoral bead (pl. 45, 8); h. Class 6b, fragment of flared gorget (pl. 31a); i. Class 2e, fragment of pectoral bead (pl. 45, 3).

Photographs by Hillel Burger

Plate No.	Transparency No.	Museum Cat. No.
I a	T 00239 B	C/6100
I b	T 00260	C/6655
I c	T 00230	C/5975
I d	T 00265	C/6683
I e	T 00263	C/6770
I f	T 00233	/21995



Color Plate I





a



b

variety of ways. There are human heads carved in three-quarters round, approaching realistic forms of portraiture, heads of animals, grotesque masks of gods, and full-round figurines in the form of stocky potbellied little dwarfs. The earlier thick flat pendants with smooth, rounded backs are replaced by large sawed plaques, which branch off into two types: the silhouetted figure, often highly conventional and distorted in anatomical proportions, and the picture-plaque, which presents human figures in low relief on an open background, often resembling figures one sees on monuments.

In full Late Classic times, the primary layout of the human face is obscured by delicate modelling. The nose stands out in relief, and the alae are shaped or indicated with a curved groove. Browridges are softened, and eyes have the inconspicuous lids, the almost straight upper line, and the sharp outer corners so typical of the fully developed lowland styles. The mouth, too, is shaped, often in somewhat trapezoidal form, sometimes with the upper lip raised to reveal the teeth. Only inferior and small pebble-carvings occasionally still retain simple features based on straight lines.

Contrasts in relief are introduced to focus attention on the human face. Lines around the face and around the earplugs are deepened to give them emphasis, and some elements may be projected or even undercut to bring them out more strongly. All lines of relief are sharper and crisper, and contrasting treatment of elements creates secondary patterns in the designs. The most dramatic advances pertain to techniques of drilling. Longer bores are made possible by the use of thin, pointed drills, and also probably by improved means of mounting the carving and of articulating the drill with some mechanical device, such as the bow or the pump drill. This makes possible the boring of very thin plaques that utilize to best advantage the translucent quality of the finest material, a feat that probably could not have been accomplished by purely manual techniques. The tubular drill is applied to carving in a series of steps reflecting successive technical improvements in its use, and leading to the development of new standard designs.

Although the general outlines of these developments are fairly clear, it is difficult to trace the process of change in detail. Two pieces that can be assigned to the first half of the Late Classic Period show no conspicuous advance in drilling technique. One is the largest of the human heads carved in three-quarters round (no. 1, pl. 60). It has been shown to have been carved at Piedras Negras, Guatemala, between 9:13.14.13.1 and 9:14.18.3.13 (A.D. 706–729?) and clearly reflects the monumental style

of the site and the period. Its full modelling is typically Late Classic, but its outlines remain soft, and no use was made of the tubular drill in the execution of the design. Another, perhaps earlier example pertaining to the first half of the Late Classic Period is a large, very thin plaque (pl. 75a). A horizontal bore was not attempted, and the plaque was either suspended or sewn to a backing by means of small perforations on the edge. It shows a seated human figure, which in its slim proportions, its somewhat stilted pose, and its strongly deformed head and prominent nose, recalls the stucco figures of Palenque from about 9:10.0.0.0 to 9:13.0.0.0 (A.D. 633–692?). This may be the earliest picture-plaque that we have, and it is not unreasonable to suppose that the genre was inspired by the low-relief panels that decorate the buildings of Palenque. On this plaque, the tubular drill was used only to describe round elements, all other forms show the flowing curvatures of freehand delineation.

Probably somewhat later are such silhouette-plaques as number 2 on plate 67a, and numbers 1 and 3 on plate 67b, which may date from about 9:15.0.0.0 or 9:16.0.0.0 (A.D. 731–751?). One of the innovations that had taken place was the use of a double tubular drill to depict round earplugs by two accurately concentric grooves. Larger tubular drills were used to describe the arc of the chin and sometimes the underside of the headdress. To do this, the drills were apparently tilted in relation to the surface, for convex, raised forms are undercut slightly, while the outline of concave forms slopes toward the ground. Secondary trimming of surfaces and modulation of relief tend to mask these operations and they are not evident to the casual eye.

Far more obvious use of arcs made with a drill can be seen on low-relief silhouette-plaques, such as number 5 on plate 68, on which the body of the figure is formalized and often sharply abbreviated. On such plaques, grooves forming arcs are symmetrical in section, with no indication that the drill was held at an angle. This may have been accomplished by cutting the bit on a bevel and twirling it rapidly back and forth, probably with the aid of a mechanical contrivance, for the grooves are always sharp and exact. This technique brings jade workmanship into a new phase, which one might call the climactic phase of the Late Classic style, for after this, no jades of comparable quality appear in the southern lowlands. The importance of this technique was first brought to my attention by Elizabeth Easby, who had seen and studied many Maya jades. It is best exemplified by plaques of the Nebaj type, so called because they were found in an archaeological excavation for the first time in Cache 14 at Nebaj

a --- T00261 --- C/6666

b --- T00225 --- (no cat. No. piece was given to Mexico)



(Smith and Kidder 1951, pp. 35, 36). This cache was found buried in the stairway of a construction that immediately preceded the building of the Early Postclassic Tomb VIII in Mound 2, which contained a Tohil Plumbate vessel and gold ornaments. It was later than another construction containing Tomb IV, which can be correlated with Tepeu II remains in the Peten; but since in the course of rebuilding, earlier tombs were sometimes demolished and some of their contents were reburied, this does not give us a firm early limit for the contents of the cache. The time can be fixed, however, by the character of the figures portrayed on the plaques. Their fleshy build and their dynamic poses are like those of the figure on Stela 1 at La Mar, carved in 9.17.15.0.0 (A.D. 785?). I think we would be justified in estimating the period of manufacture of the plaques as correlative with what I have called the Dynamic phase of major sculpture: 9.16.0.0.0-9.19.0.0.0. (A.D. 751-810?), since they show many late features, but not the tortuous scroll forms and extreme exaggerations that characterize the work of Cycle 10. Easby (1961) reports two such plaques from the ruins of Tonina, and it is surmised that the locus of this climactic style is somewhere in the western portion of the southern lowland area, in the vicinity of the middle or lower Usumacinta.

Carvings of this type have been found far from their locus of origin. One is reported to have come from the ruins of Teotihuacan in the central highlands of Mexico. This dispersion poses interesting problems, for it is not congruent with our general impression of the isolation of the Maya lowlands in Late Classic times, and the narrow limits in pottery trade at that time. Western cities such as Palenque and Piedras Negras, however, seem to have been destroyed before the beginning of Cycle 10, and the stray pieces may represent the loot of early conquest.

Even more widely dispersed are pebble-carvings in very low relief, which Kidder has described as the "drooping-mouth" type (pl. 53b). One such piece comes from Monte Alban in Oaxaca, and there is a closely related Oaxacan style that uses much the same technique. The eyes, nose, and mouth of the human face are all depicted with simple arcs, and on the larger pendants the headdress is composed of the Late Classic central tassel and bands, which sometimes end in large scrolls above the earplugs. Above the tassel and bands, there is usually a three-part scroll or something resembling a plant motif. Kidder notes that such faces have very specific features in common with minor faces depicted on the Nebaj-type plaques. The scrolls, too, are delineated in similar fashion, curling tightly around a small pit,

and the jade used (Class 3) is similar and distinct from most Late Classic Maya jades. However, the use of unshaped pebbles, the highly standardized cursive style, and the flat relief of the arc-drilled faces suggest a decline in the craft that prompts me to attribute to them a somewhat later date. Smith and Kidder (1951, p. 37) report a variant of this type, of which we also have one example, in a Late Classic deposit on Finca El Paraiso, department of Quetzaltenango, Guatemala, but the sequence of remains here is not known in detail.

The progression from rounded to sharper relief, and the increased use of arc-drilling can also be observed on certain two-sided carvings described in detail by Elizabeth Easby (1961, pp. 66-71). The Ocosingo and Palenque specimens she mentions date probably from about 9.13.0.0.0 and are carved in much more rounded relief than the specimens from the Cenote. Our specimens are thinner and flatter. On some there is modelled relief and no conspicuous use of the arc drill, but the thinnest, flattest pieces, all made of jade of Class 3, use the arc drill freely and some are rendered entirely without relief by arc-drilling and straight grooves (pl. 63b, no. 5, and pl. 85b). The interior cuts of these very thin pieces are made by a series of small touching perforations which leave the groove with a scalloped edge when it is not subsequently smoothed. The motif is usually a god-mask, and in one case there is a bust of a human figure above the nose. The headdress, a rectangular cap, resembles those worn at Chichen Itza, and the scrolls, curled around a pit, are very much like those of the arc-drilled heads and picture-plaques.

By no means all the jade material from the Cenote can be fitted neatly into this outline of stylistic change, which pertains chiefly to the Classic styles of the southern lowlands, but clearly the representation of these styles is much stronger than other archaeological remains of Chichen Itza and pottery and other objects from the Cenote would lead us to expect. We might pause here to inquire when and how all these Late Classic jades from the south reached Chichen Itza, to be sacrificed in the Cenote. I would reject the notion that the site could have been a place of pilgrimage for people from the cities of the Peten in Classic times. Nor is there evidence of sufficient trade at that time to account for the presence of all this material. Certainly some of it could have been brought to Yucatan by emigrants fleeing from whatever disasters led to the final abandonment of the southern regions. I believe, however, that most of the pieces made in the south were used there and were duly buried with their owners in Classic graves, to be disinterred later

either by the marauding Toltec or by their regional allies, and sent to Chichen Itza as tribute or as gifts to its conquerors. The accessibility of late tombs would explain why the later phases of the Classic development are represented best, and why many burials are found despoiled of their contents.

In this connection, it might be pertinent to quote in full Sahagun's account of how the Aztec prospected for jade in Conquest times in Mexico (Sahagun 1950-63, book 11, p. 221-22):

Early, at early dawn, when [the sun] comes up, they find where to place themselves, where to stand; they face the sun. And when the sun has already come up, they are truly very attentive in looking. They look with diligence; they no longer blink; they look well. Wherever they can see that something like a little smoke [column] stands, that one of them is giving off vapor, this one is the precious stone . . . or something smooth, or something round. They take it up; they carry it away. And if they are not successful, if it is only barren where the little [column of] smoke stands, thus they know that the precious stone is there in the earth.

Then they dig. There they see, there they find the precious stone, perhaps already well formed, perhaps already burnished. Perhaps they see something buried there either in stone, or in a stone bowl, or in a stone chest; perhaps it is filled with precious stones. This they claim there.

And thus do they know that this precious stone is there: [the herbs] always grow fresh; they grow green. They say this is the breath of the green stone, and its breath is very fresh; it is an announcer of its qualities. In this manner is seen, is taken the green stone.

And how is it with the turquoise? It comes out of a mine.

The account is permeated by superstitious belief, but it is clear that the Aztec deliberately set out to find worked jades buried in caches and in tombs, noting the formerly occupied sites or cemeteries by a difference in vegetation. I would suggest that at a much earlier time under similar circumstances, when trade was disrupted and workshops could no longer get materials they needed or commissions for their work, people were looting former graves in the abandoned southern cities and selling their contents to obtain necessities of life. Just when this could have happened is open to question. Tozzer suggests that the intensive use of the Cenote as a place of sacrifice did not begin until after the fall of Chichen Itza, basing his conclusions largely on Brainerd's observation that there were few pieces of pottery of ceremonial character in the Cenote earlier than the "Late Mexican" period marked by the hegemony of Mayapan. However, the carved pieces found imbedded in balls of copal placed in pottery bowls were all undistinguished and of non-Classic workmanship, and Mayapan itself gave no sign of possessing such great treasures in jade as we see here.

Perhaps a change to offerings of pottery and copal was made precisely because fine pieces of jade were becoming increasingly rare at this time. I doubt that Mayapan could have commanded the wealth of tribute that the Classic jades represent, and since many Toltec pieces were similarly burned and deposited in the Cenote, I am inclined to attribute a large part of the Cenote deposit to a period of the city's greatest prosperity in Toltec times, especially since the widespread remains of the Toltec indicate that they had access to distant regions.

In addition to Classic pieces of jade with Peten affiliations, there are others that may be contemporary, but which come from regions surrounding the area of Classic development. These are more difficult to date because they do not follow closely the sequence of technical changes that we have observed, but at least some of them can be identified by their relation to known monumental styles. One such group of rather thick, large picture-plaques shows affinities with sculptures of northern Yucatan and Campeche, like them retaining some archaic features. The composition is normally a central figure, flanked by two minor ones, and is without the framing that characterizes Classic designs. The figures are freely distorted anatomically, and never wear sandals or anklets on their feet. The jade is often of inferior quality, and the style is conspicuous for its lack of fixed forms and its loose canons of draftsmanship. Dynamic and static poses are mixed; the arc drill seems to have been used occasionally but never consistently applied to the designs; and the soft relief with its indefinite outlines and lack of clear emphasis of detail has the same archaic feeling as do some of the sculptures of the Puuc, notably the small altars of Kabah and Labna. I tentatively attribute this style to western Yucatan or Campeche, and I believe it is late, though I hesitate to designate its period more precisely.

Another style, with even stronger affiliation to the sculptures of the Puuc is represented in fragments of two plaques, numbers 4 and 5 on plate 77. The figure on one of these plaques is reminiscent of the figures on the jambs of a building near the Coodz Poop at Kabah (Stephens 1843, vol. 1, pp. 142, 143), which in turn have many traits in common with Maya figures at Chichen Itza. On the back is an inscription comparable to others in northern Yucatan which diverge in various degrees from the Classic script. These pieces may pertain to the Toltec period or may immediately precede it.

We have noted earlier that there is at least one Early Classic piece that apparently comes from the highlands of Guatemala. Late Classic jades are virtually unknown from that region, and there is too



little monumental sculpture of that period in the highlands to permit us to identify them. A small group of carvings, however, strongly suggests the style of Santa Lucia Cotzumalhuapa and neighboring fincas on the Guatemalan Pacific coast. One of these is a picture-plaque representing a man holding a cacao plant, a typical product of the region (pl. 78b). The style of the carving is identical with that of certain Late Classic monuments there. Other pieces are heads in half round, less clearly linked with the monuments, but showing the same stern features and prominent brows (pl. 62a, nos. 6 and 7). No comparable jade carvings have yet been found in the coastal sites; but excavations have been limited, and one may hope that our identification of the style will yet be confirmed.

By present estimates, Chichen Itza was occupied by the Toltec and their local allies by about A.D. 1000 (some believe as early as 900). A vigorous new style of art and architecture developed but was apparently strongly centered in the capital city. Heretofore, towns in Yucatan must have had a high degree of autonomy, or they were organized into small local provinces ruled by individual families. Chichen Itza ruled a large part of northern Yucatan by the force of its strong military power and honored its armed warriors in great assemblages of sculptures and large paintings of battle scenes. The dress, the arms, and above all the symbolism of mythology associated with the warriors are virtually identical to the same features found at Tula, Hidalgo, and many of these traits can be traced back to the earlier city of Teotihuacan. In addition to the Toltec figures, however, Tozzer distinguishes others which he designates as Maya (Tozzer 1930), presumably former inhabitants of the city. My own view is that these people, too, were invaders, allies of the Toltec, possibly from the western coast of the peninsula.

It must be conceded to Kubler (1961), who maintains that the Toltec art of Chichen Itza developed indigenously, with little derived from the culture of Tula, that nothing comparable to the jade pieces of that period from the Cenote has turned up in the excavations at the Mexican site. On the other hand, the technique and the motifs of these jades are entirely different not only from those of the southern lowlands, but even from the pieces we tentatively attribute to the marginal northern style.

The forms include primarily large spherical beads, hollow globes with circular openings and a slit that makes them resemble metal bells, and large flat rings that may have been worn as gorgets or may have been attached to fans, staffs, or other objects. The salient characteristic of these carvings is the use of small tubular drills, both for removing material

to produce relief, and for hollowing out the globes. The relief is usually strong and sharp, with little modelling and much grooving. The use of the arc drill was not observed.

The rings present compositions of figures similar to those that can be seen in sculpture at Chichen Itza. There are typical Toltec warriors holding their feathered dart throwers, a representation of human sacrifice, and Maya prisoners of war. The subject matter of the beads and globes is emblematic. There are repeated representations of the feathered serpent, the bearded figure of Quetzalcoatl, a bird, and an animal emerging from a shell. Small isolated glyphs are sometimes included in the compositions. Although these pieces are artistically inferior to the best of the Classic Period, the proficiency required to hollow the globes was never achieved by the ancient Maya, in whose work we repeatedly observe difficulties in aligning long bores, and other minor imperfections.

The superlative craftsmanship of the Toltec in this regard is attested by a very thin picture-plaque, plate 78a, bored from side to side with a drill of minute diameter. This piece is apparently an importation, since it is different in style and technique from the other Toltec carvings. The design is executed entirely by simple sharp grooves, and background is indicated by cutting down the outer edge of a groove, rather than by depressing the surface. A thicker plaque (pl. 64b, no. 5), showing a feathered serpent, is also made with the groove technique, though there is in this case a small depressed area in the mouth of the serpent.

Although, in general, Maya and Toltec carvings are quite distinct, there is one apparent exception — an unbroken flat pendant, not, strictly speaking, a plaque, showing a typical Maya face in the beak of an eagle (pl. 64b, no. 1). Relief is combined with grooving, and arcs are made with a drill. The artist who made this piece was certainly trained in a Maya school, though the motif seems to be borrowed from a foreign style.

After the fall of Chichen Itza, which probably took place in the thirteenth century, lapidary industries in the Maya area rapidly declined. Few carved jades have been attributed to this era. The Peten presumably was long abandoned and reverted to forest. Mayapan, then the capital city of northern Yucatan, yielded only a few carved pieces of jade, all different in style and all probably preserved from earlier times. At Nebaj, pieces found in Postclassic remains were small, crudely carved, and without stylistic distinction. If there are any such late carvings in this collection, we have been unable to identify them. Earlier pieces no doubt continued to be valued

and circulated, however, and it may be that much of the reworking, patching, and cutting up of pieces was done during this period, though we cannot now be sure when any specific piece was altered.

Such secondary work on jades takes several different forms. In at least two instances (no. 1, pl. 73, and pl. 75a), a broken plaque had been mended by drilling small biconical holes opposite each other from the break to the back, so that a cord could be passed through them, and either tied or fastened in some other way, as by plaster or gum filling the hole. Clean breaks that could be mended in this fashion could have occurred accidentally when tombs collapsed, or even in the process of manufacturing; but it is also possible that some of the finer pieces were deliberately broken before being placed in a tomb, either to discourage looting or by way of ritual "killing." Pieces that apparently could not be repaired were simply smoothed at the break or sawed beyond the break (pls. 68, no. 5, 71c, no. 3, 77, no. 6). Many were cut up and utilized for beads or other small ornaments.

On some pieces, a new design was carved on the back, and the piece was simply reversed. On the back of the large twin plaques on plate 72, and of plaque number 1 of plate 76b, there are crudely drawn human figures. These show many archaic features, but their style seems to be provincial or degenerate rather than early. The arc drill is used freely and some of the earplugs are indicated with a double drill, which seems to rule out the possibility that these drawings are much earlier than the carvings on the front. The figures appear to be Maya, but the presence of a bearded figure suggests that they were carved either immediately before or after the Toltec conquest. Moreover, the squarish car-

touché of a face glyph on one of these plaques is a late feature.

Another kind of secondary work involves the reshaping of the entire piece. There are a number of small fragments and one partially assembled piece that had been reshaped and carved on the reverse in relief. In most cases, however, the plaque was cut in the silhouette of a bird, with tail feathers and other features indicated in a very simple way by sharp-edged grooves with the use of the arc drill (pl. 71a). We have no way of estimating the age of these recarvings. The bird motif occurs in original plaques as well, all of them seemingly of late, but essentially Classic, workmanship. The groove-drawing technique, however, in its extreme simplicity, suggests a time when the methods of earlier craftsmanship had long been forgotten, and the reworking, a lack of access to the raw material. I think we are justified, therefore, in ascribing the silhouettes to the Postclassic age, if not to its very late years.

This tentative summary is based on only a small part of the collection, and primarily on pieces which are related to monumental works. In time, archaeology can yield sufficient data to give us a clearer picture of the range of forms and carvings in use at different periods and in different regions, incorporating even plain uncarved pieces and giving us some notion of their use. Even now we are beginning to find large assemblages, such as that in the tomb of the Temple of the Inscriptions at Palenque and the more recently discovered tombs of Tikal, which are associated directly with ceramics of known date. The descriptive sections, which follow, are designed to facilitate comparisons and to aid in the recognition of styles and types that may be defined in the future.



### III PLAIN AND CONVENTIONALLY DECORATED OBJECTS

**3399 complete, 141 restored or restorable, about 12,800 fragments. Plates 2-41.**

Since jade was a gem of great value, it was not used by the Maya for the manufacture of tools and implements; and all the plain objects in this collection seem to be articles of personal adornment, amulets, or ornaments for attachment to scepters, fans, arms, or other paraphernalia of symbolic import. Most of the pieces were made to be used in assemblages, no longer restorable except by analogy with assemblages of similar objects found in tombs or represented in sculpture. We can usually recognize paired objects by their similarity in material, size, form, and decoration; but it is only exceptionally that we can conjecture what objects of different form could have been used together.

It is also only in exceptional cases that we can place objects in geographical space and in time. The sequence of technical improvements in Maya carvings now and then gives us a clue; but items for jade assemblages were probably much more widely circulated than carvings, which were made to celebrate an occasion or had specific ritual meaning, and probably have broader distribution and time range. Ancient techniques no doubt were still used in many peripheral workshops when the superlative craftsmen serving the needs of the ceremonial centers were adopting more advanced methods, and assemblages actually found in graves often contain items of diverse manufacture.

As a rule, Late Classic and Early Postclassic pieces can be recognized by very fine bores, sharp grooves, or angular forms. The bores of earlier pieces are likely to be broad at the opening and rounded at the point where the drill holes meet, but this technique may have persisted indefinitely in marginal regions and is not really a reliable criterion of early date. Another indication of advanced date is the use of a double tubular drill, which produced precisely concentric circles. The material itself may be another clue, if it can be associated uniquely with a known style of carving.

It is not feasible, however, to describe and appraise each piece individually, or even to isolate

groups of similar workmanship, because of their almost continuous variability. In the following descriptive section, the major criterion of sorting for purposes of description has been the criterion of functional form, taking into consideration also size and proportion, which often proves to be even more significant than basic design.

**UNDECORATED BEADS: 2614, 2 restored, about 8450 fragments. Plates 2-18; figures 1, 2a, b, c, f.**

Beads are the most common and probably the oldest articles of adornment invented by man and are the most numerous objects in this collection. They are worn almost universally and were also used as currency by many ancient peoples. Among the Maya, beads made from a red shell, probably *Spondylus*, were a standard medium of exchange, but Landa mentions also the use of stone beads, which may have been of jade, though this is nowhere explicitly stated. Jade beads do not seem to have been standardized in size, as we might expect if they were used as money, but, on the other hand, the fact that matched assemblages are very rare suggests that they were often bought and circulated singly and were not always manufactured for specific use. It is notable that they are seldom accurately shaped, although we know that Maya craftsmen were perfectly capable of shaping complex forms with great precision. This may be due to a reluctance to destroy precious material by overzealous trimming, and the irregularity may even have become a mark of genuineness, distinguishing true jade from inferior imitations. In any case, the Maya show little regard for the perfection of geometric forms, their arts being based mainly on organic motifs. Normally, beads of necklaces were not graduated and were only approximately matched. Recently, however, graduated assemblages were uncovered at Tikal, and these may have required beads made especially for the purpose.

There is some indication that sets of beads are

present in the Cenote collection, but attempts to reassemble them have not met with conspicuous success. One can select anywhere from two to half a dozen beads that are essentially identical, but on extending a series it is impossible to reach a definite limit. It is equally difficult to define clear categories of shape that have real significance. Purely for convenience in description, I have used an arbitrary metric criterion—the proportion of the length of the bore to the largest dimension at right angles to it—to define primary classes. If this proportion is 1:2 or less, the bead is classed as discoidal; if between 1:2 and 1:1, it is spheroid, even though its form may be nearly cylindrical or even prismatic. A proportion between 1:1 and 2.5:1 defines an oblong bead, regardless of its shape; and if it is greater, the bead is tubular.

One could subdivide these classes according to the form of the cross section and the curvature parallel to the bore, but the utility of doing so decreases rapidly with diminution in size, which is more directly related to function. In this collection, distinctive and precise forms are rare and seem to have little significance.

**Spheroid beads: 1945 complete, 869 fragments. Plates 1-13a.**

These beads have been called "globular" (Woodbury and Trik 1953), "semispherical" (Kidder, Jennings, and Shook 1946), and "subspherical" (Kidder 1947). Although the last is the term most commonly used, I prefer to reserve it for specimens that diverge from the spherical form merely by being flattened at the poles. Among specimens included in the spheroid group are some that approximate low cylindrical segments of tubular beads, and others of various prismatic and irregular forms that nevertheless are often included in assemblages predominantly of subspherical beads, and owe their shape more to the shape of the fragments from which they were made than to deliberate intention.

Spheroid beads range from 4 to 50.2 mm in maximum diameter, but the extremes of this range are exceptional, and all but four specimens are included in a range of 5 to 40 mm. The mode lies between 10 and 12 mm, the median is at 12.3, and the mean is 14.3 mm. The strong skew of these measurements is in part due to a number of unusually large, well-polished, almost spherical beads, of a sort that is rare in other collections. Similar beads, however, have recently turned up in Late Classic tombs at Tikal. The largest bead (pl. 2, row 1, 4th; fig. 1a) has a definite flat facet, so that it could be strung with somewhat smaller beads without breaking the alignment of the cord. Although not of

the best quality jade, it displays on its rounded surface a large speckled blotch of green and black, which gives it color and brilliance. Most of the other large beads are gray in color, with only rare tinges of green, and their distinction lies in the unusual perfection of their form and in their excellent polish. Among these most perfectly shaped specimens are two (pl. 2, row 1, 5th; pl. 4b, no. 3) of an evenly colored pale green stone (Class 6a) with a rare pearly quality of sheen, recalling samples from the natural deposit of jade at Manzanal, Guatemala. Another large and perfectly formed bead (pl. 2, row 1, 3rd) shows decomposition apparently due to burning but seems to have been made of the dubious jade of Class 11, which can be also seen among the smaller beads, and which, when it decomposes, turns to a soft brown or yellowish material. It seems that the Maya could not bring themselves to grind away green portions of a stone in order to achieve a perfect form, and that only jades of even tone or inferior material could be enhanced in value by the additional work entailed in their careful shaping.

The bores of the largest beads are either biconical or cylindrical (fig. 1a, b). Most biconical bores were made with a fine drill, suggesting Late Classic Maya workmanship. Some of the cylindrical bores appear to be merely enlargements of biconical drill holes, made to permit the passage of a thicker cord. Others, having orifices with sharp edges, may have been made with hollow drills, by which a core was removed (fig. 1b, pl. 3).

At least 14 of the larger beads with cylindrical bores ranging in diameter from 10 to 22 mm, must have been made with some special purpose in mind. Possibly they were ornaments mounted on a rod; but since the ridge left at the meeting of the drill holes was seldom smoothed off, and a close fit would not have been possible, it seems more likely that they were designed for some assemblage of objects or were intended to constrict a strip of fabric, just as, on Maya monuments, the end of a loincloth is shown sometimes constricted by a round ornament. Beads with large cylindrical bores have great antiquity and are reported from La Venta. However, in such early beads, the orifice of the bore tends to be rounded, and there is no indication of the use of a tubular drill. Nor does the sharp, large bore occur at Kaminaljuyu or at Uaxactun, but one is reported by Woodbury (Woodbury and Trik 1953, fig. 148a), who describes the bead as a ring, found in a late Atzan tomb built at the very end of the Early Classic Period or at the beginning of the Late Classic. Easby (1961, fig. 1e) shows one from Ocosingo. It is inscribed with a hieroglyph, and is Late Classic in date. Beads from the Cenote carved in the Toltec style, with sim-



ilar large, sharp-edged bores, are described later in this monograph, with other carvings.

Conical bores are extremely rare among the largest beads, and are apparently the result of unequal boring from the two poles (fig. 1a). Bores with large orifices and very small perforations are, understandably, also rare, since the large beads are heavy.

Among the larger beads, distortions of the normal subspherical form stand out as conspicuous aberrations. The most common distortion is a lateral flattening. Conspicuously aberrant are four beads: a hemispherical bead of soft brownish stone, not jade; a bead of irregular form, made of white, gray-veined stone, with traces of blue-green pigment, perhaps used in imitation of jade; a large, essentially cylindrical bead, poorly finished, with a bore showing repeated drilling; and a rectangular bead of black or very dark green stone with a large cylindrical bore (pl. 7a and fig. 1c, 2nd, 3rd, 5th and 4th from left).

Formal aberrations become more frequent and fall within the normal range of variation among beads of smaller diameter. Flattening at the poles is normal (pl. 7c), and is sometimes extreme. In beads of diameter below 30 mm, we begin to observe with increasing frequency a form with flattening at one pole and a peak at the other (pl. 7b). Forms approximating the cylindrical (pl. 7e) begin to appear as diameters fall below 20 mm, and increase in frequency. Some cylindrical beads may be sections of tubular beads, slightly retrimmed, and they often have almost cylindrical or slightly tapering bores. Among the smallest beads are many of irregular form, apparently made from tiny chips.

Biconical perforations predominate throughout the size range of beads, but it is probably well to distinguish between gradually tapering drill holes with small orifices at the poles, and those that taper more sharply and are rounded at the bottom, leaving large orifices at the poles, but only tiny openings at the meeting of the drill holes. The latter were probably made with a drill manipulated by hand. When made in small or discoidal beads, such drill holes are cup-shaped (fig. 1e). The "double-well" variety of bore, with a subsidiary central perforation, illustrated in Kidder, Jennings, and Shook (1946, fig. 46c) does not occur here. It can be noted that drill holes with wide orifices are often associated with inferior and rare varieties of jade. They may be merely inferior examples of Maya workmanship but could also connote early industries or workshops outside the lowland Maya region. Very fine bores, on the other hand, are probably predominantly Late Classic Maya or Toltec.

Cylindrical bores run to about 24 percent of the total if we include those that may result from the

retrimming of biconical drill holes. Disproportionately large cylindrical bores are not limited to large beads, but are also associated to some degree with small beads of cylindrical shape, which may have had a special function in assemblages (fig. 1f; pl. 8a). Conical bores, occurring in about 17 percent of the beads, are fairly common on small flattened beads that could have been cut from tubular forms, but they have an even stronger association with beads that approximate hemispherical shapes and are flattened at one of the poles only, from which the perforation is made (fig. 1g; pl. 8b). Such beads tend to occur in small groups that are similar in size and material, and probably are parts of assemblages. Although conical perforations seem to have been common at Kaminaljuyu and are extremely rare at Uaxactun and Piedras Negras, the specific form with a single flattened pole has not been described in either region, and we do not know if it has any geographical or temporal significance.

About 40 of the spheroid beads were observed to have subsidiary drill holes or pits (pl. 13a). The most common placement of drill holes is at right angles to the main bore. In 18 examples, drill holes are aligned and enter the main bore; in one example they miss the bore, forming an independent cross-perforation; in four, only one side of the bead is pierced. Smith and Kidder (1951, p. 53) illustrate the use of such a subsidiary perforation in the design of an Early Classic necklace. For another kind of perforation, tiny drill holes are made near the orifice of a cup-shaped bore, entering it at an angle, or in the side of the bead, often parallel to the bore. Perhaps such perforations were difficult to make, for there are seven examples which have only pits, as if the drilling had been abandoned. The pits, however, may have served some other purpose, such as inlay, or they may have been filled with an adhesive to attach the bead to some object.

On some spheroid beads there were incisions that seem to have been made, not as decoration, but as marks to locate a drill hole. Other small, rather flat beads have a line on one side which may have served as a guide for cutting the edge (pl. 13b, row 1).

Sorting beads by metrical classes permits a wide latitude of formal irregularities. Most of these irregularities are insignificant, but some may have had a purpose. At least seven small beads, most of them slightly flattened or of irregular shape, have a bore somewhat off-center, so that in an assemblage of smaller beads, they would hang down like small pendants (pl. 13b, row 2). Three small, polished, but otherwise unshaped beads of fine pale green jade (Class 6a) may belong with a set of oblong beads

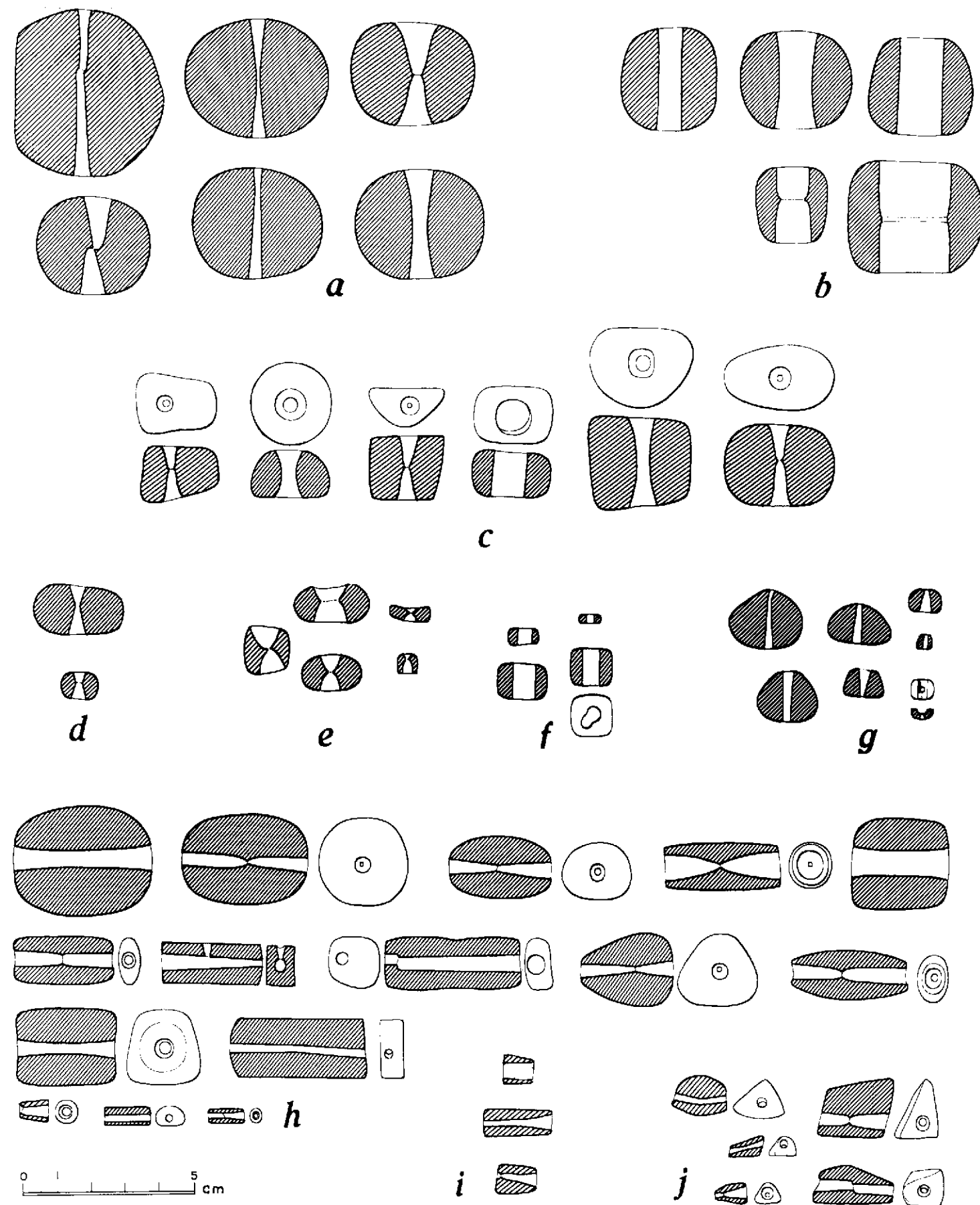


Figure 1. Sections of spheroid and oblong beads: a. large spheroid beads with biconical bores; b. same, with cylindrical bores; c. large beads of irregular form; d. straight biconical bores, with broad openings; e. rounded (cup-shaped) biconical bores, with broad openings; f. cylindrical bores; g. conical bores; h. sections of oblong beads; i. ends cut from tubular beads; j. oblong beads of irregular form.

## JADES FROM THE CENOTE OF SACRIFICE

made from angular pebbles, described in the next section. Six others are almost triangular in cross section and show facets that may have been made deliberately (pl. 13b, row 3). Six are ends cut from tubular beads, and one may be half of a small spheroid bead (pl. 13b, row 4). The largest of these is an almost perfect truncated cone and may have been purposely shaped. Another, smaller, bead is biconical (pl. 13d). None of these variations and distortions of the spheroid form appears to define a significant type, and they probably represent either random variations or individual adaptations of particular assemblages.

### Discoidal beads: 27. Plate 13c.

As in most Maya collections, discoidal beads are few, and seem to represent only a limiting form of spheroid beads, which have a strong tendency to be flattened at the poles, especially when they are small. The diameter of these beads ranges from 7 to 12 mm, and their thickness, from 2 to 6 mm. Most of them were probably made from flat bits of material discarded in the manufacture of other objects, which were too thin to be perforated longitudinally but were salvaged because of their unusually fine color. Bright green hues predominate, and at least one of the smaller beads is obviously a reworked fragment, since it has one convex surface, and shows the trace of a groove on the other (fig. 1g). The largest bead, which is white, may have been included in a shell necklace, for which a discoidal form would have been standard. Ricketson and Ricketson (1937, p. 196) report an early shell and jade necklace from Uaxactun containing discoidal beads, but, judging from their photograph, at least some of the jade beads in it are subspherical. The degree of flattening at the poles of such small beads varies too continuously to permit a clear distinction of the discoidal form.

### Spheroid-section beads: 6. Plate 13f; figure 2c.

Smith and Kidder (1951, p. 41) call these "pendant-beads," but I hesitate to use this term, since it is even more applicable to beads with slightly off-center bores. In the Early Classic assemblage from Nebaj described in Smith and Kidder 1951, figure 63c shows the beads strung so as to present their rounded surfaces in all directions. Of the six specimens we have here, five are of this type, and the sixth is of the "shoe-button" variety, like that illustrated in Kidder, Jennings, and Shook 1946, figure 46d-f. Our specimens are not matched, all are small, and their rarity suggests that their occurrence here is fortuitous.

### Spheroid necked beads: 3. Plate 13g.

Beads of this form have been found at La Venta, and Drucker, Heizer, and Squier (1959, p. 152) suggest that they look like small low-necked jars, but since their perforations run from base to neck, it seems more likely that the necks were merely intended to keep the beads apart. Only one of the Cenote specimens is typical; the necks of the others are rounded and may be regarded as accentuated bands. The jade is inferior and somewhat decomposed. Nevertheless, these beads may very well be of Olmec manufacture.

### Spool-shaped beads: 6. Plate 13e.

These beads, of various sizes and proportions, are essentially cylindrical forms, slightly constricted in the middle, but some are spheroid, encircled with a wide shallow groove. The bores are biconical or cylindrical, tending to be broad in proportion to the diameter of the bead. This type of bead also occurs at La Venta but is probably not limited to Preclassic times.

### Oblong beads: 545. Plates 14-17; figures 1h, i, j, 2b.

Obviously the most common beads were of spheroid form. In this smaller group, we have beads bored in the line of their greatest dimension, but no more than 2 1/2 times longer than they are broad. Their shapes differ widely and almost continuously, with none that seems predominant or standard. Some beads of this group can be described as slightly elongated spheroid forms. One, in particular, a large bead, 37.5 mm in diameter by 41 mm in length (pl. 14, row 1, center), is essentially an irregular spheroid and could easily have been grouped with similar beads of slightly different proportion. Most oblong beads, however, tend to oval or barrel-like forms, sometimes broader near one end and tapering toward the other, the true barrel shape occurring only rarely (pl. 14, row 8, center). About 65 are strongly flattened in cross section (pl. 15, row 7). Eighty or more are tubular sections, and several of these, with one rounded and one straight end, and a conical bore made from the rounded end, were obviously made from longer tubular beads (fig. 1i). A large group, perhaps 20 percent of the total, comprises very irregular forms, usually angular, made from bits and pebbles that had been drilled and polished but only slightly trimmed, if at all. Most such beads are small, but among them there seems to have been at least one set of about 25 fairly large, angular, perforated pebbles of unusually fine jade, some of Class 6a, others of unidentified varieties (pl. 16a, rows 1, 2). Kidder, Jennings, and Shook (1946, p. 113) de-

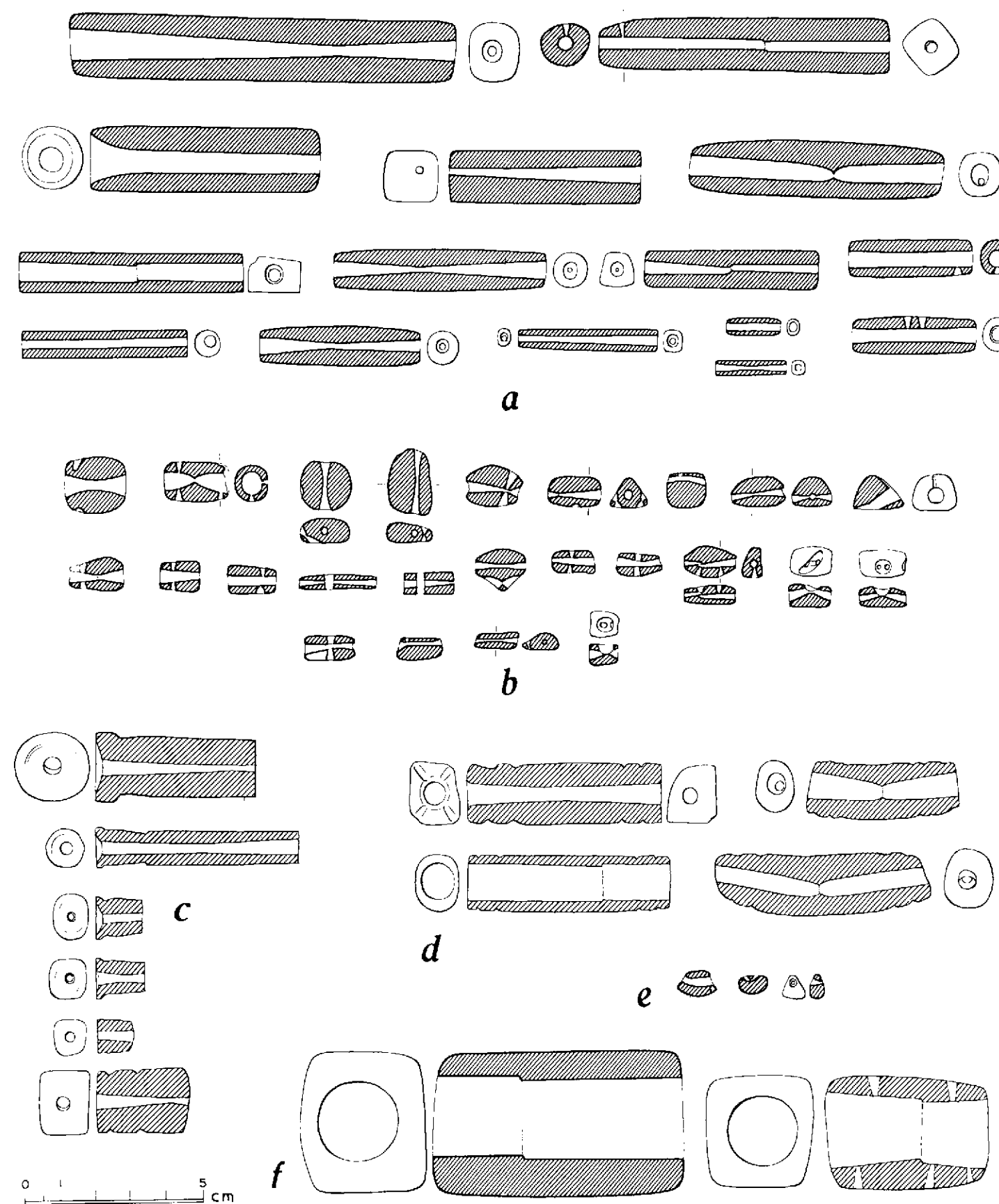


Figure 2. Sections of tubular and oblong beads: a. plain tubular beads; b. beads with subsidiary perforations; c. unusual forms of beads banded at one end; d. tubular beads banded at both ends; e. spheroid-section beads; f. large rectangular beads with broad cylindrical bores.

scribe such a set found at Kaminaljuyu and note its similarity to the beads from the Cenote. Three irregular spheroid beads, somewhat smaller than the oblong ones, may belong to the same set.

Oblong beads vary in length from 5.5 to 45 mm. The bores are preponderantly biconical, and in most cases straight-sided and narrow at the opening. Some drill holes with wide openings were observed, most of which were apparently reamed or otherwise widened to nearly cylindrical form. All conical bores seem to be half-bores of once longer beads. In most cases, the flat end of such refashioned beads, though polished, is uneven, suggesting that they were broken rather than deliberately cut.

Subsidiary perforations were observed on 20 of the beads (pl. 15, row 1, 16b; fig. 2b). Eight are biconical cross-bores near one end of the bead. Three are similar bores made near the middle, and two others are half-bores, piercing only one side. Other variations include perforations made in the sides of flattened beads, a bore made parallel to the original, perhaps to convert an irregular bead into a pendant, and a gash connecting two drill holes of a bore that failed to meet. Three of the beads have more than one secondary perforation.

Except for the group of fine angular pebbles that may form a set, no other matching sets or pairs were detected, and many of the larger and better beads of oblong shape are unique in material and shape. A number of pieces are obviously worked fragments of other objects, and later a number will be described that retain traces of half-obliterated carving.

**Tubular beads: 82 complete; 1512 fragments (including those of oblong beads). Plates 17b, 18; fig. 2a.**

There is no sharp transition from oblong to tubular beads. The forms of tubular beads are equally variable, though they tend to be more carefully made and more regular. Cross sections vary from almost perfectly round, through roughly square or rectangular with rounded corners, to sharply angular square and flat rectangular forms. Sides may be perfectly straight, as in cylindrical and prismatic forms, or may have varying degrees of curvature, from mere rounding at the ends to sharp curvatures that produce barrel-like forms. Lengths vary from 13 mm to 107 mm, and proportions have a wide range. Three of the shorter specimens have a cross-bore near one end, like some of the oblong beads. One has a perforation piercing only one side. No sets or pairs were observed, and many specimens appear to be unique. Three (pl. 18, row 2, center, row 7, right of center, and row 9, first) are made of jade of Class

11, but differ in design. Two others (row 7, center, and row 1, first) are made of a peculiarly translucent white and green jade tending to mossy hues, and are notable because they are almost precisely cylindrical. Pl. 18, row 10, right, is of jade of Class 6b, a rare variety that is associated with early crafts. The large proportion of rare varieties of stone represented in the bigger tubular beads and their comparatively small number suggest that in the best represented era, the Late Classic, banded forms tended to supersede the plain.

**Large rectanguloid beads, cylindrically drilled: 2 restored. Plate 24a; figure 2f.**

The larger of the two beads measures 77 by 42.5 by 36 mm, and has a bore 20 mm in diameter (fig. 2f, left). It is made of jade of indifferent quality (Class 1) and was assembled and restored from fragments. There are fragments of two or three other beads of the same sort but of slightly different dimensions. One restored bead (fig. 2f, right) is riddled with conical perforations. Obviously, these were not ordinary beads and their uses are problematical.

**CONVENTIONALLY DECORATED BEADS: 434 complete, 4 restored, 1490 fragments. Plates 19–25; figures 2c, 2d, 3.**

This class includes beads decorated in standard fashion with bands, longitudinal grooves, and simple geometric patterns. It does not include symbolic and representative designs, beads made from earlier carvings, or those showing vague and indefinite markings. Possibly when we know their distribution better, specific designs will identify periods and places of manufacture of conventionally decorated beads. We already have some indications of limited distribution of certain designs, but our coverage is not yet sufficiently comprehensive to permit us to rely on observations of absence of any form in a given class of remains.

**Decorated discoidal and spheroid beads: 122 complete, 2 restored, 146 fragments. Plate 19; figure 3.**

The most common way of decorating a spheroid bead was to divide its surface into sections like those of an orange by longitudinal incisions or grooves. On smaller specimens the lobes are often rounded and shaped, and in one case the grooves are widened to produce a fluted effect. Beads decorated in this way are not very numerous but seem to occur in deposits of various periods. The earliest we know are from La Venta; so the design must have considerable antiquity. On the majority of the larger beads, the grooves are made on a smooth surface. The

number of lobes varies from three to nine, but four is the most common number, being found on about half the 121 specimens decorated in this way. On four of the largest beads, 26 to 34 mm in diameter, the four lobes are indicated by double grooves forming bands (pl. 19, nos. 9, 10). On another bead, 24 mm in diameter, there are three sets of alternating double and single grooves. In some cases, the incisions are faint or extend only half the distance or less from pole to pole. On other beads, the grooves are broad and lobes are rounded, giving the beads the appearance of being shaped.

On five specimens, one or both poles are encircled by a groove delimiting a plain band that terminates the sectional grooves. One such bead is 42 mm in diameter and has five lobes (pl. 19, row 8, center); a fragmentary specimen had at least 14 (pl. 19, group 11), formed by deep rounded grooves, so that it may be described as ridged. One small bead has a band around one pole and a design of short broad grooves alternating with incisions at the other, so that it has the appearance of a six-petalled flower (pl. 19, group 11; fig. 3, lower right). On another bead with encircled poles, the grooves are interrupted at the equator, and one small bead is grooved latitudinally (fig. 3, upper right).

A different manner of decorating spheroid beads is represented by three examples that have three or four circles or projecting bosses ranged on the equator (pl. 19, row 8, left, fig. 3, left). These beads are all approximately the same size, 18 to 19 mm in diameter, but each design is different. One has circles with a small pit in the center, a band around one pole, and two subsidiary drill holes near the opening of the main bore. On another bead, the pits in the circles are enlarged to deep drill holes, and on a third, the circles are plain. Beads of this general design are reported from Early Classic deposits in the Guatemalan highlands, but not in great numbers, and it is not yet known where and when they were made. The jade of two of the three specimens in our

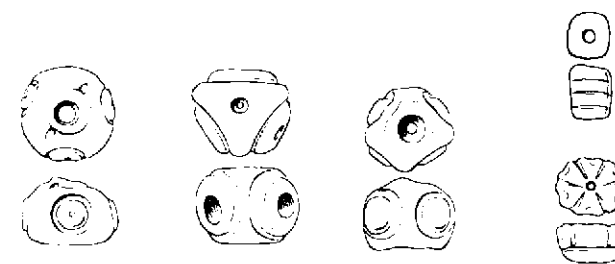


Figure 3. Subspherical beads with rare forms of decoration: three or four circle designs, horizontal grooving, petallike motif.

collection seems to have suffered considerable decomposition and is white and opaque.

**Oblong lobed and ridged beads: 18. Plate 20a.**

Most oblong beads are decorated in the manner of tubular beads and are described with them, but these are variants of the spheroid pattern, being lobed and ridged longitudinally with or without plain bands at the ends. Such beads are usually small (9 to 21 mm in length) and are likely to have more grooves than the spheroid forms, so that they often can be described as channelled or ridged. They are often of inferior or altered jade. One unusually large and well-preserved bead is 22.5 mm in diameter and 24.2 mm long. It has five lobes, is unbanded, and has a cross-perforation in the middle.

**Beads with bands at both ends, oblong and tubular: 91 complete, 2 restored, 3 fragments. Plates 20b–22a, 24; figure 2d.**

I am not aware of any report of banded tubular beads in Preclassic archaeological deposits. In the Maya area, such beads seem to have been rare even in Early Classic times, and on those found in the Esperanza tombs of Kaminaljuyu, the banding is most often made by a single groove near the end and only rarely by two grooves. The sculptured molding, consisting of a fillet and bevel, or flared end, apparently came into common use only in Late Classic times in the Maya area. Nevertheless, in this collection, we have some very large beads with sculptured ends, and these beads are inscribed with apparently very early hieroglyphs (see pl. 45, nos. 1, 3). The form, therefore, must have had an early beginning which is not yet well documented, and we are reminded of the hazard of drawing conclusions from our still very imperfect knowledge of the distributions of various jade objects.

Banded beads were used in various assemblages, such as ear ornaments, collars, wristlets, anklets, and so forth. Most of the beads in this group are symmetrically designed, but some are sculptured on one end only and are merely grooved at the other. Unfortunately such asymmetries are not always clearly intentional and do not serve well as a criterion of design. Contrary to expectation, there is no indication of pairing among the banded beads, and their sizes, forms, and materials show great variety.

The largest complete bead measures 90.5 mm in length (pl. 24b, no. 5). In section, it is rectangular with slightly rounded corners, 26.5 by 28 mm, and has straight edges and sculptured moldings at the ends. Among the fragments, there is one almost complete bead which exceeded it in length and must

have been at least 130 mm long (pl. 24b, no. 2), and there are bits of others that may have been even larger. Such beads were probably worn as pectoral ornaments, and some that were carved or inscribed will be described later.

Other unusual beads include one that measures 20 by 25 mm in section, but is only 50 mm long (pl. 24b, no. 6), an extremely flat rectangular bead (pl. 20b, no. 2), and another that may have been made from a sculptured plaque, for it has strange irregularities on the surface (pl. 20b, no. 3). Among fragments, we find some on which the fillet-and-bevel molding is reversed in direction, and the fillet on one of these is notched on the outer edge (pl. 24b, no. 9). On two fragments, the opening of the bore is encircled by a groove made with a tubular drill, and on one of these the end surface is worked in a design resembling petals (pl. 20b, no. 4). A third fragment shows a faintly hollowed end, and a fillet worked to resemble the twisted strands of a rope (pl. 20b, no. 6). There are other minor variations, but the fillet-and-band molding and the double grooves, sometimes cut so as to give the impression of a bevel at the end, are by far the most commonly used forms.

Three of the beads are slightly curved along the long axis and were apparently made to be used on inner strands of wide round collars (fig. 2d, right). The beads do not match, however, and could hardly have been used together in one assemblage. One of them belongs to a set of objects conspicuous for their unusually fine and well-preserved jade, with traces of black coating on the surface. Whether this was deliberately applied or is the result of burning with some sort of resin, it seems to have had the effect of preserving the jade from decomposition, though the jade itself, predominantly of Class 2, may have been resistant to alteration. There are in all about 25 banded beads of this kind of jade, two of which are banded at one end only and two which have designs on the shaft. There is no uniformity of cross section or treatment of the ends, but sizes have a limited range, and there are no unbanded beads of this kind. Lengths measure from 37 to 68 mm, and maximum cross dimensions from 13 to 20 mm. One bead has a central hole made into the bore and two subsidiary perforations at right angles to it (pl. 21, row 5, right). Among other objects of similar black-coated jade, there are an ear-flare (pl. 28, no. 11) with a fitting disc, a large plaque carved in the Toltec style (pl. 85a), and possibly a figurine (pl. 57, no. 1) though its black coating remains only on unpolished surfaces. Since the figurine seems to bear no stylistic relation to the Toltec plaque, we can hardly regard all these objects as parts of a single

assemblage, but it is possible, nevertheless, that they belong to one unusually rich deposit, and that they were all imports from highland regions.

Beads less than 30 mm long were very seldom banded at both ends, though we have a few such specimens, the smallest of which measures only 15 mm. Fairly large sizes and tubular forms tend to be standard for beads with two bands. Oblong beads tend to be small and banded at one end only. There is, however, represented among the fragments at least one unusually large bead of oval form, with triple bands at each end.

**Beads banded at one end, oblong and tubular: 191, 1341 fragments (including those of beads with 2 bands). Plates 22b, 23; figure 2c.**

These are more numerous than beads with two bands, and generally run to smaller sizes, ranging in length from 8 to 56 mm. They were mainly designed to hang with banded end downward from ear-flares, pendants, and other ornaments, which often have small perforations for their attachment. The banded end of some of the larger beads has a concavity evidently to accommodate a round bead which serves as a finial (see pl. 41). A number of these beads, particularly some that have well-sculptured moldings, were evidently made from beads that were originally banded at both ends. Two (pl. 22b, no. 1) are obviously cut from a single bead. Five others have very short shafts, the sculptured moldings taking up more than half the length (pl. 22b, row 3). One small bead is decorated with sharp notches on the circumference of its banded end (row 4, right). About 50 have only a single groove outlining a band, and among these are some of the largest. Most, however, are small oval or barrel-shaped beads, with faint incisions that appear to have been made as an afterthought.

Some of the variations in banding lead to specialized forms, but it is difficult to distinguish those that are really significant from random variations. On 12 beads, there is a projecting band at the very end of the shaft (pl. 22b, row 5), and at least three small beads seem to have been deliberately flared at one end. Several (pl. 22b, row 2) have a broad soft groove under the band, and approach the jar-shaped forms of La Venta (Drucker, Heizer, and Squier 1959, pl. 28). One that is long and bottle-shaped (2nd from left) is almost certainly related to the Olmec forms. It is made of dull green stone with scattered dark spots, unlike any other pieces here. More clearly specialized forms have been included with miscellaneous objects in another section.

Sixteen of the beads in this group have secondary perforations, most often cross-bores near the

plain end, though on some the perforation is in the middle or even near the banded end. Such perforations were probably made for specific purposes as need arose.

**Beads with decorated shaft, oblong and tubular: 12. Plates 24b, 25a.**

Twelve small oblong beads decorated with lobes or deep channels in the manner of spheroids have already been described. The five oblong beads of this group have shafts grooved obliquely. Two, pl. 25a, row 2, center and next right, are of very fine green and black jade and are banded at both ends. The grooving is soft, and the forms are rather irregular, a characteristic of Early Classic work that may carry over somewhat into the Late Classic. The smaller of the two beads has two subsidiary perforations: one a cross-bore at the broader end, the other a single drill hole into the bore near the other end. Another bead with rounded oblique grooves (left of center) is double-banded at one end, but only lightly banded at the other. A third, at the end of the row, is symmetrical. Two others appear to be fragments of tubular beads, unbanded and very faintly grooved. The conical perforation of the longer bead is made from its rounded end, and is probably simply part of a once biconical bore. The shorter bead, however, is conically bored from its flat end.

Conspicuous among the tubular specimens is a pair of large unbanded beads, deeply channelled or grooved longitudinally (pl. 24b, no. 8). The beads are not exactly the same size, but are both made of the same unusual jade, deep mottled green on gray, possibly somewhat discolored, for these beads were found in fragments and were probably burned before they were broken. They have very wide cylindrical bores; and although their design is simple, in material and workmanship they resemble certain carved beads which I ascribe to a very early period of Maya carving (see p. 85). The other specimens of this group are probably Late Classic, though one bead (pl. 25a, row 3, left) of rectanguloid cross section, decorated with a diamond pattern of intersecting oblique grooves, belongs to the black-coated set and may pertain to Toltec times.

**BEADS MADE FROM EFFACED OLDER CARVINGS: 21; 16 fragments. Plate 25b, c; pl. 20b, no. 3.**

All but one of the unbroken beads in this group are small and oblong in form. Some are banded at one end, and a few have subsidiary perforations or cross-bores. On one side (in exceptional cases on both) they show grooved arcs, lines, and vague indentations that seem to form no definite pattern and

sometimes overlap the bands carved on the ends. Only one of the designs can be interpreted as a rude representation of a face (see pl. 25b, row 4) and this may be entirely fortuitous. Evidently such beads were made from discarded bits of carving, probably mostly trimmed off but leaving the traces of the deepest lines. The largest of the complete beads (pl. 20, no. 3) has already been mentioned, another is 60 mm long, and, in addition to the bore, has two biconical perforations and a conical cross-bore, placed somewhat off-center, suggesting that it was left from the earlier carving (pl. 25b, no. 1). Among the fragments are some of larger tubular beads, most of them of flat rectangular section, having similar vague traces of carving, and apparently made from older plaques. Specimens on which the carving is partially preserved will be described with other carved beads. The only reason for setting off this group of beads from the plain beads is that they are sometimes described as carved, and although I believe that their irregularities are unintentional, it is always possible that they served some purpose not now evident.

**VARIOUS BEADLIKE FORMS: 47 complete, 10 restorable, 34 fragments. Plates 26a, b, 28.**

**Perforated segments of spheroid beads: 16 complete, 2 restorable, 13 fragments. Plate 26a, b; figure 4.**

Four of these objects (pl. 26b) are segments of a very large spherical bead, divided into five lobes by deep rounded grooves, with alternating lighter grooves. The original diameter of the bead was in the neighborhood of 55 mm, and the diameter of its cylindrical bore was between 20 and 25 mm. This bead was first sawed along two of its broader grooves, leaving a narrow broken septum along the edge of the bore. Other cuts, dividing the bead into five equal segments, were made both from the outer surface and from the bore, so that the break of the septum was about 3 mm from the edge of the bore (fig. 4). Two segments of the bead are badly broken, and another is missing entirely. After being cut, each segment was perforated with two pairs of drill holes made from the sawed surfaces and from the original bore at each end. These holes are well aligned, so that the bead can be reassembled by passing a cord through the perforations at each end of the bore, or the segments can be strung together to form a bracelet.

A similar segment of a smaller bead (pl. 26a, row 4, left) has a wider angle and represents about a third of the original. In this case, the bore was small, and only one cross-perforation at each end was required. The outer surface is trimmed by a small



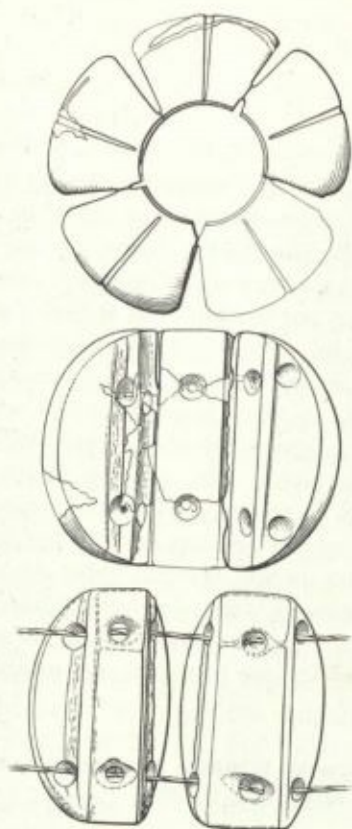


Figure 4. Large perforated bead segments, assembled to show manner of cutting and use.

band on the periphery, and a central band outlined by two grooves running at right angles to the perforations. This seems to be also the normal design for half-beads, of which we have 13, including three that can be paired with others. The bands always run at right angles to the perforations, which can be either perpendicular to the original bore, as in the examples just described, or parallel to it. This means that at least some of the segments were decorated after they were cut. In some cases the original bore was eliminated altogether, and in others it remains intact. Usually, the perforations are made in the sawed surfaces by two oblique, meeting drill holes. In exceptional cases, when the bore was large, the perforations were made from the cut surfaces into the bore. On one somewhat damaged specimen, several small perforations were made on the circumference. With the exception of the segments of the very large bead, all these objects are poorly finished and made of jade of inferior quality.

A set of six similar bead-segments and eight small ones were uncovered in a disturbed cache at Uxmal that probably dates from the beginning of the

Toltec period in Yucatan. They are described by Ruz as representing turtle-carapaces, and as forming a bracelet (Ruz 1952b, p. 62). To my knowledge, none has been reported from earlier deposits.

**Unidentified beadlike forms: 4.** Plate 28a, rows 1, 2; figure 5, left.

One of these is a small cup-shaped bead, unusually well-formed, with a slightly hollowed top (pl. 28a, row 2, right). Two others are essentially tubular beads, but so shaped that they appear to be cup-shaped beads like the one just described fitted into cylindrical beads (row 1). One can well imagine that they represent assemblages in which the parts were originally separate. The longer of the two is made of an opaque green jade, probably of Class 3. The jade of the other is more translucent and more granular. The fourth object is a bead with a bore of two diameters, decorated around the opening of the larger bore with a design of petals that extend down the shaft (row 2, left, and fig. 5, left). This piece was evidently designed for the insertion of some object into the cylindrical part. The jade is white, tinged with green, and probably somewhat altered. A tiny fragment, similarly decorated, suggests that this object was one of a pair.

**Tubularly drilled oblong beads: 12; 8 fragments.** Plate 28a, rows 3-5; figure 5, right.

It is not clear what purpose these little objects served. They were often made from ends of tubular beads, banded at the cut, and drilled with a tubular drill around the bore, leaving a deeply countersunk protuberance in the middle, which is often somewhat rounded. In five of the specimens, the bore is conical and made from the undrilled end. In others, it is biconical. Shapes and proportions vary. Five specimens are roughly cylindrical; one is rectangular in section, another tapers sharply toward the plain

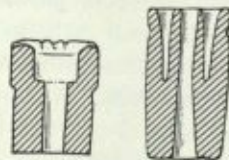


Figure 5. Objects manufactured from beads: bore of two diameters and concentrically drilled end.

end, and the remaining ones are low in proportion to their diameters, four being rounded or pointed at the bottom. These four are very similar to the

T 00232 ... C/5976  
T 00254 ... C/6592  
T 00237 ... C/6692  
T 00258 ... C/6638

e ... T 00235 ... C/5971  
f ... T 00257 ... C/6633  
g ... T 00249 ... given to Mexico -  
no longer at Uxmal  
h ... T 00248 ... C/6562

i ... T ... C/6563  
j ... T 00247 ... C/6561



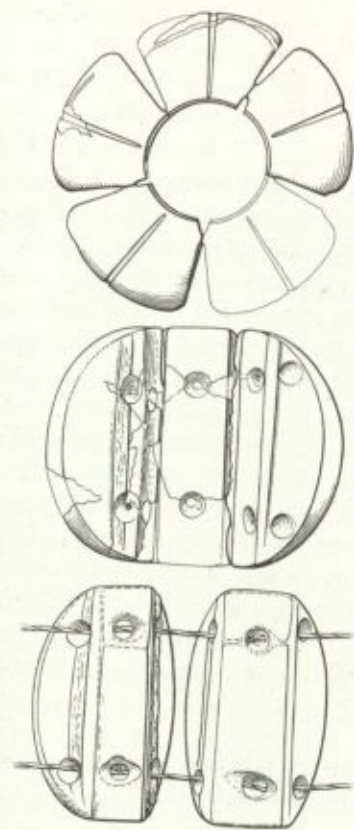


Figure 4. Large perforated bead segments, assembled to show manner of cutting and use.

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**Unidentified beadlike forms:** 4. Plate 28a, rows 1, 2; figure 5, left.

One of these is a small cup-shaped bead, unusually well-formed, with a slightly hollowed top (pl. 28a, row 2, right). Two others are essentially tubular beads, but so shaped that they appear to be cup-shaped beads like the one just described fitted into cylindrical beads (row 1). One can well imagine that they represent assemblages in which the parts were originally separate. The longer of the two is made of an opaque green jade, probably of Class 3. The jade of the other is more translucent and more granular. The fourth object is a bead with a bore of two diameters, decorated around the opening of the larger bore with a design of petals that extend down the shaft (row 2, left, and fig. 5, left). This piece was evidently designed for the insertion of some object into the cylindrical part. The jade is white, tinged with green, and probably somewhat altered. A tiny fragment, similarly decorated, suggests that this object was one of a pair.

**Tubularly drilled oblong beads:** 12; 8 fragments. Plate 28a, rows 3-5; figure 5, right.

It is not clear what purpose these little objects served. They were often made from ends of tubular beads, banded at the cut, and drilled with a tubular drill around the bore, leaving a deeply countersunk protuberance in the middle, which is often somewhat rounded. In five of the specimens, the bore is conical and made from the undrilled end. In others, it is biconical. Shapes and proportions vary. Five specimens are roughly cylindrical; one is rectangular in section, another tapers sharply toward the plain

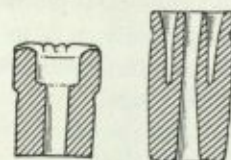


Figure 5. Objects manufactured from beads: bore of two diameters and concentrically drilled end.

end, and the remaining ones are low in proportion to their diameters, four being rounded or pointed at the bottom. These four are very similar to the





objects we class as "buttonlike objects," though they are somewhat smaller in diameter and have greater depth. All tend to be made of good, though not outstanding, jade.

**Nose-buttons: 15 complete, 8 restorable, 13 fragments. Plate 28b.**

These small objects are often made from spherical beads by cutting through the side into a cylindrical bore. Another form resembles a section of a tubular bead, though most cylindrical examples seem to have been specially shaped. Similar objects, found singly, have been called "septum rings," but there are at least four pairs in this collection, and if they are indeed nose ornaments, they must have been worn on the alae, like the buttonlike ornaments worn by Toltec warriors depicted at Chichen Itza. There is always a small perforation on one side of the slit leading into the bore, entering at an angle of about 45 degrees. The perforation is on the outer surface and must have been almost vertical if the bead was worn on one of the alae. A fine spine passed through the hole may have served to keep the bead in place. In one case, however, the perforation enters what was the original bore of the bead, and on an exceptionally large squarish nose-bead, it is on an outer corner, and could not have been used in this way.

There are two pairs of spherical nose-buttons, fragments of another pair, and five unmatched specimens. One pair and one single button are undecorated. Two pairs and four single specimens are banded with grooves encircling the openings of the bore. There are in addition one pair and two single specimens that are carved, and these will be described with other carvings (p. 87).

Of cylindrical and semicylindrical nose-buttons, there is only one undamaged pair, one fragmentary pair, and eight single examples. In addition, there are fragments of two unusually heavy squarish nose-buttons, a fragment of a smaller one, and a pair of tiny ones that seem to have been made from a single miniature banded cylinder cut in half. Only one of the specimens is complete, and this has a perforation on each side of the original bore, so that the identity of this pair as nose-buttons is somewhat in doubt. With the exception of this pair, and another specimen, the cylindrical buttons are decorated with bands at both ends, occasionally of fillet-and-bevel design.

The nose ornaments found in an Early Classic tomb at Nebaj (Smith and Kidder 1951, fig. 58b), and in a Late Classic burial at Zaculeu (Woodbury and Trik 1953, fig. 148b) do not have the perforation that is present in all the specimens from the Cenote, nor are they found in pairs. These nose ornaments

seem to have been worn on the septum of the nose, rather than on the alae. Our specimens are probably of later date. In sculpture, round buttons worn on the alae of the nose occur, though very rarely, at Yaxchilan and are more specifically associated with portraits of the Toltec. At least one of the sculptured pieces appears to be Maya, but probably all the carved specimens are Postclassic.

**EAR-FLARES AND RELATED FORMS: 19 complete, 20 restorable, 51 fragments. Plates 29, 30, 31a.**

**Earplug flares: 7 complete, 14 restored or restorable, 34 fragments. Plates 29, 30a, b, d.**

Considering the mass of material from the Cenote, and the frequency of ear-flares elsewhere, our collection is small and extremely varied. In general, the common varieties of ear-flares fall into two classes: those with a wide opening at the throat, and those with a throat less than 15 mm in diameter. Other distinctions, however, can be made on the basis of the curvature of the throat, the height of the neck, and the overall form of the face. In addition, there are marginal neckless forms, some of which seem to merge with a kind of cup-shaped "button," and others resemble a class of "flared rings," which were also probably parts of earplugs, but which in turn are difficult to distinguish from certain disc and button forms. Which varieties may have been used in earplug assemblages is a question to be answered, not by formal analysis, but by observation of their actual use in grave deposits. Our classification is a mere convenience for descriptive purposes, though I have tried to take account of the little that we know about the uses of the forms.

In normal wide-throated flares, we can distinguish two varieties: one that opens sharply into a flat face surface, and another in which the curvature of the throat fades gradually to the lip. Of the first variety, we have one pair and two single examples, each of completely different design and different material. Plate 29, numbers 1, 2 are a pair of round flares, closed at the bottom of the throat except for a small cylindrical bore. This pair, and number 3 have rounded throats, though the face is flat. Number 3 is open at the bottom, and is squarish in shape. It has two small perforations near the lip, as well as one in the neck, which was probably matched by another on the opposite side. Such perforations, though they are a convenient diagnostic feature of ear-flares, are not invariably present. Number 3, except for its flat face and squarish form, resembles Type A earplugs from Kaminaljuyu (Kidder, Jennings, and Shook 1946, p. 106). Number 4 is thinner and made of much finer jade. The juncture of the face



Color Plate IV

Plate IV

(no catalog no - piece was given to me)  
 a... T 00243  
 b... (given to Mexico - no longer at Museum)  
 c... T 00243... C/6229  
 d... T 00252... C/6616

e... T 00259... C/6643  
 f... T 00252... C/6591  
 g... T 00234... /22093  
 h... T 00242... C/6129

i... T 00236... /22001

Note... a + c are both on one 4x5 d + f



and the throat was sharp, and at least in one place was thin as a hair, which may account for the shattering that now makes it difficult to connect the two parts. The form of the face was round, and the neck was cylindrical. Two perforations in the neck are preserved and part of another, a fact which suggests that there were originally four.

More nearly analogous to Type A flares from Kaminaljuyu are two pairs and three single examples of flares that have outcurving throats and curved faces. The specimens of this class are all round and are smaller than the flat-faced varieties. Numbers 5, 6, 8, and 9 are two pairs that are probably typical. Numbers 8 and 9 are made of an unusual grayish stone with blotches of green on the surface. One of the pair is corroded and is buff in color and soft, with flakes of hard green remaining. Its neck is perforated from one side only. The other is also of rather unusual jade, with much more green, distributed in odd spotty patterns, and with conspicuous bright flecks in section. Number 11 is unusual in having a partly closed base into which can be fitted a small decorated disc. On the underside of the lip is a drilled groove about 2 mm from the edge. The flare is made of lustrous emerald-green jade (Class 2a), heavily coated with black substance, and may belong with the set of banded beads similarly treated. The two small biconical perforations in the neck are made on the angle it makes with the base.

Number 7 is made of a pale blue-green and gray jade, which is also somewhat unusual in quality. Its neck is low, cylindrical, and very thin. Number 10 is more sturdily made but is much smaller than the others. The reduction in size, however, is largely due to a narrow flare, the neck being only slightly smaller than that of other specimens in this group. There are the usual two perforations in the neck and one near the lip. Although the flares in this group are round, only the necks seem to have been shaped by tubular drills. The faces are all somewhat irregular. Even number 11, which is most nearly circular, probably owes the perfection of its outline to the drilled groove on the underside which served as a guide line. Even so, it has slightly flattened areas on opposite sides, suggesting that it was cut from a square piece that was trimmed no more than was absolutely necessary to give it circular form. We constantly meet with such indications of the utmost economy of material, especially when the jade used was, as in this case, of unusually fine quality.

The three decorated flares, number 12 on plate 29 and numbers 1 and 2 on plate 30a, are all square or rectangular, but one has a wide throat, while the throats of the other two are only a trifle more than a centimeter in diameter. The wide-throated flare is

decorated with a design of four petals, executed by alternating one broad with two narrow grooves. It is made of inferior gray-green jade and is poorly finished. Number 1 of plate 30a is similar to flares of Type B at Kaminaljuyu and is flat-faced and narrow-necked. It is made of a poor variety of Class 6 jade, is badly flawed on the surface, and is poorly polished even on the face. It is decorated with four simple diagonal V-shaped grooves. Number 2 is smaller but much better finished. Although its throat is small, the face is rounded. The jade is of a faintly speckled gray variety with tinges of green. The perforations in the neck are cup-shaped.

A marginal form of ear-flare, intermediate between certain bowl-shaped ornaments and flat flared rings, is represented by numbers 1-4, plate 30b. In front view, these forms are indistinguishable from normal flares, but they have no necks. The back surface is a flattened hemisphere, with a narrow projecting border on the edge on numbers 1, 2, and 3. The form is essentially like that of numbers 8 and 9 on plate 29, except that the flare is much narrower. The throat dimensions vary from 18 to 22 mm in diameter and from 9 to 14.3 mm in depth. Numbers 3 and 4 are not polished on the back and may have been imbedded in some other material which formed the body of the flare.

The formal and metric variations of ear-flares seem to form continuous series with several other types of ornaments, and it is difficult to draw limiting criteria for ear-flares as a class. The bowl-shaped flares just described represent one marginal form. The metrical limit is represented by three flares with diameters between 20 and 30 mm, plate 30d. These small flares are of fine jade and excellently worked. They have very low necks, and in two cases, perforations through them are visible in the throat. Number 3 has two perforations in the neck and four on the edge of the flare. Number 2 has two perforations: one in the throat, the other near the flare edge. Number 1, which is a fragment, has two perforations set close together in the throat, of which one is near a chip and may have been replaced by the other.

The fragments suggest further variations, not represented in restorable pieces. There are pieces of several small flares with much higher necks than we have observed on whole pieces. Among seven fragments of bowl-shaped flares, three have a constricted opening in the bottom, bridging the formal gap between such flares and certain "button" ornaments that have only a small perforation. At several points, the definition of what is an "ear-flare" becomes an arbitrary choice. Variations are not continuous but intermediate forms occur both in size and design.

**Solid disc ear ornaments: 1 complete, 3 restored. Plate 30c. (See also decorated forms, p. 36.)**

Various discoidal and flat rectangular ornaments were probably used in earplug assemblages. They are not clearly distinguishable from other flat pieces used for headbands, collars, belts, and other items of dress and are all discussed in a later paragraph. Number 4, however, has a sharp protuberance on the back, through which there is a sharply conical perforation connected with a much smaller perforation on the face. It can be quite legitimately described as a disc-flare. It is polished on the face only, and this fact, the shape of the bore, and the jade of Class 6b, combine to suggest that it is a piece of very early manufacture. Numbers 1, 2, and 3 are quite different. Their jade is the typical speckled Class 1 jade used by the Maya in the Late Classic Period. The protuberance on the back is slight, on numbers 1 and 3 even faint, and these discs show a perforation near one edge. Their identification as ear-discs is open to question, but number 2 is so similar to discs found in Burial 5 at Piedras Negras (W. R. Coe 1959, fig. 47g, h) at either side of the skull, that its function is reasonably certain.

**Flared gorget (?): 1 (incomplete). Plate 31a.**

This object is shaped on the back like a low-necked flare, but the opening is much larger than normal, and the face, which turns out sharply from the throat, is strangely irregular in shape. It could hardly have served as an ear-flare, and was more probably worn as a gorget, as apparently was a flared ring found on the chest of a skeleton in Burial 5 at Piedras Negras (W. R. Coe 1959, fig. 49e). Its jade, of Class 6b, suggests a foreign source and an early date of manufacture.

**Flared rings: 5 complete, 2 broken, 16 fragments. Plate 30e.**

This is a miscellaneous group of small objects marginal to better-defined types. Number 1 is merely an unusually flat small neckless flare with a rounded back. The others, however, seem to have been made from button ornaments by cutting out the center. The jades are various, and numbers 2, 4, and 6 are of inferior stone, probably not true jade. Numbers 5 and 6 appear to be makeshifts. The former could have been a button with a broken center, were it not for its four perforations.

**Small buttonlike flares: 5. Plate 31b.**

Like the above, these are marginal pieces. All are of inferior jade or other stone and are poorly finished

and irregular in form. The first three are essentially unusually small flares related to Type B of Kaminaljuyu. On two of them, the stems were broken or cut, and traces of perforations through the original neck are still showing. The two on the right have biconical perforations instead of flaring throats and both are slightly wedge-shaped. They could almost as readily be regarded as a variety of disc-button as included with flares, but the thickness of the one and the decoration of the other seem to relate them more closely to flared than to buttonlike or flat forms.

**Flared cylinders: 1 complete, 1 restored. Plate 31e.**

Fragments of an unusually large flared cylinder (and possibly of two) are conspicuous for their fine (Class 2) jade and excellent finish and workmanship. The maximum thickness of the walls at the beginning of the flare is no more than 4.5 mm, and lower, the walls are 2.5 mm thick. All surfaces, including the interior, are brightly polished. There seem to have been four evenly spaced perforations 8 mm above the base, and one was noted at 21 mm. Although the perforations have broad openings on the surface, as if drilled by hand, the quality of the jade and especially its thickness suggest a Late Classic date for its manufacture.

The other flared cylinder is much smaller and is made of white and green jade, partially decomposed but still retaining a polish. The form seems to have been rare and is perhaps merely a combination of a small flare with a cylindrical neck, normally made separately.

**VARIOUS CYLINDRICAL OBJECTS: 5 complete, 2 restored, 33 fragments. Plate 31c, d, f.**

**Plain cylinders: 2. Plate 30c.**

One of these is almost certainly the neck or stem of an earplug flare, though it has not been matched to any flare in the collection. It is a simple cylinder 25 mm in diameter, made with a tubular drill. Two small drill holes are aligned to form a cross-perforation.

The surface of the other cylinder is slightly rounded vertically near each end. It is made of unusually fine jade of Class 2, very similar to that of the large flared cylinder just described, speckled, but with a large amount of translucent green in its composition. Its function as an artifact is problematical.

**Banded cylinders: 1 complete, 2 restored, 30 fragments. Plate 31d.**

Like the first plain cylinder described, these, too, were very probably used in assemblage as necks of



ear-flares. Two of them, both fragmentary, form a pair. Their surface is slightly rounded, and they are trimmed with a band which is nicked at the top by a row of short grooves made on the inner surface, which is gently flared. The jade is opaque white with bluish-green speckle. There are two perforations opposite each other 6-8 mm from the base on each cylinder.

The odd cylinder is made of ordinary jade and is of just about the right size to have been used with one of the smallest flares. It has two perforations near the base, like the others, and an additional one just under the band.

**Low rings: 2 complete, 3 fragments. Plate 31f.**

The two complete rings are a pair. They may have been made from a single grooved bead, for the grooves on their rounded surfaces were not made in a single operation but were extended to one edge, and when the rings are placed together the original grooves can be made to match exactly. In size, these rings are just about right to be worn on a finger, and this may very well have been their function. The jade has suffered considerable decomposition.

In addition, there are three fragments of rings with a sharply curved inner surface. They are not identical, but all are carved on the same pattern: a rounded central band with oblique grooves forming a rope design, set between two triangular (bevelled) moldings. The narrowest of the three pieces apparently had two conical perforations set close together and made from the outer surface inward. The material of these fragments is badly decomposed.

**MINIATURE FORMS: 24 complete, 22 fragments. Plate 31g-k.**

These tiny objects, less than 20 mm in diameter, reproduce forms normally made on a larger scale. In this collection, the sizes of flared and cylindrical objects show a distinct discontinuity, which warrants the segregation of these small forms. The discontinuity is less clear in sizes of button ornaments and flat objects, and therefore miniature forms among them have not been distinguished.

**Miniature flares: 5. Plate 31j.**

Three of these are perfectly formed little flares, all of different material. The first is of Class 6 jade; the third of very dark green stone, perhaps chloromelanite, but possibly not jade at all; and the second of ordinary speckled jade, Class 1. This flare is decorated on its face with a petal design of alternating grooves and hollows. There are two fragments of

similarly decorated miniature flares but neither matches the complete specimen. All three of the complete specimens have perforations in the neck. Two other miniature flares are neckless, and shaped like the bowl-shaped ear-flares. They may have been made from small buttons. Both are of inferior opaque stone and poorly polished.

**Miniature flared cylinders, or flared beads: 5. Plate 31k.**

These little objects can only with some difficulty be differentiated from small oblong beads such as those on plate 22b, row 5, yet their imitation of flared forms seems to be deliberate. All but one have cylindrical bores with a flaring orifice at one end, and the two largest have cross-bores through their necks. The third in the row is of dull, light-gray stone. Others are of ordinary Class 1 jade.

**Low flared beads: 3. Plate 31i.**

The last in the row, though a tiny object, is shaped precisely like a neckless bowl-shaped flare. Others are less regular, but with definitely flared orifice. Two have perforations through their short and ill-defined "necks." All are of Class 1 jade.

**Miniature cylinders: 6. Plate 31g.**

Although many small oblong and spheroid beads are essentially cylindrical in form and some have large cylindrical bores, these cylinders are distinguished by their thin walls and flat ends. One is banded at one end and has rounded contours. Two are perforated near the base. Materials are variable.

**Miscellaneous flat miniature forms: 4. Plate 31h.**

The first is a small irregularly shaped flared disc, slightly hollowed on the face, made of an inferior pale green variety of Class 1 jade. The second is a small disc or ring with a gently hollowed face and small notches along one edge, and the third is a well-made flared ring or neckless flare. The fourth is made of a white stone, probably not jade, and has the form of a very low small flare or disc-button.

All these little objects may be merely marginal forms.

**BUTTONLIKE ORNAMENTS: 60 complete, 15 restored, 127 fragments. Plates 32-34a, 41A.**

Although we habitually refer to these little objects as buttons, the term refers not to their function but to their general form. They are usually round and greater in diameter than they are high, and their distinguishing characteristic is a central perforation

surrounded by a deep circular drilled groove, which leaves a countersunk protuberance. There are, however, many variations of this form. Some impinge on flat discs or rectangles; in others the protuberance in the middle is omitted, so that they resemble small flares or cup-shaped objects. Even square buttons are not unknown (pl. 41A, a, 4). We distinguish different varieties mainly by the form of the underside, which may be flared, rounded, or flat.

The function of these small objects is problematical. They are sometimes found in pairs and may have been included in ear-flare assemblages. Several of various designs are included with miniature flares in the head-fillet of Burial 5 at Piedras Negras, and Coe (1959, pp. 49-50) notes their similarity to elements of headbands depicted on Maya monuments. Their size range (14.5-40 mm) suggests that they were used in various kinds of assemblages.

**Flared buttons: 14 complete. Plate 32a.**

This form has a definite outcurving lip and a short "neck" or protuberance on the underside. The central perforation is usually conical with a wide opening at the base. There are three pairs here, and eight single specimens. The countersunk elements of one pair and one single specimen have been removed, so that only traces of the tubular drilling remain, and these flare-buttons resemble miniature ear-flares with closed bases. In addition to the central perforation, two specimens have a tiny hole near the lip. The neck of one specimen is grooved straight across. Superficially this groove looks like the traces of former perforations seen on small buttonlike flares, but it is of constant diameter and runs straight across, and reworking does not seem to be indicated in this case.

**Rounded-base buttons: 28 complete, 6 restored, 5 broken. Plate 32b, 33, 41A, a, 2.**

Twelve of these specimens have either a projecting band or a groove under the lip. One unusually large pair of this kind, 40 mm in diameter, may be a pair of ear ornaments. Others vary from 18 to 31 mm in diameter and 5 to 11.5 mm in thickness. Central perforations are usually conical, though occasionally cylindrical. Two specimens have a flat base and are essentially cup-shaped. One specimen has two very tiny conical perforations near the lip. In addition to the outsized pair, there are fragments of two others. Odd and inferior varieties of stone predominate, though most of the specimens are well polished. Conspicuous are dark gray white-veined stones and stones brownish in color, apparently discolored by burning.

**Flat buttons: 18 complete, 8 restored. Plate 34a, 41A, a, 1.**

There are no pairs in this group, and the shapes are miscellaneous, often rectanguloid. Some specimens are equivalent to small thickened discs or rectangular spangles with drilled decoration. Five of the specimens have a small perforation near the edge, enhancing the similarity. Maximum dimensions vary from 15 to 30 mm; thickness from 3 to 5.5 mm. One specimen seems to be unfinished. Its perforation is incomplete, and one edge is nicked, probably by breaks made in the process of drilling. Another was made from a discarded carving, traces of which remain on the underside.

Among the numerous button fragments we find variations not represented in whole specimens. For example, there is one large flat button, perhaps 43 mm in diameter, with two concentric drilled circles forming a high ridge around a central rounded protuberance. Two others were either made from carved pieces, or deliberately grooved on the underside. One of these, a button with a round base, lacks the characteristic central element. In a number of cases, the central element is missing, and it is impossible to distinguish such pieces from small flares with constricted or closed necks. There are fragments of one such pair of flares or flared buttons, 45 to 50 mm in diameter and 10 mm in height or thickness.

Most buttonlike objects reported have come from Late Classic and Early Postclassic deposits in lowland Maya sites. Their actual distribution may be much wider, but a concentration in this period and region is clearly indicated, and the large number in this collection is consistent with the preponderance here of Late Classic Maya and Toltec carvings.

**Deep square button: 1 restored. Plate 41A, a, 4.**

This form is represented by only one specimen and is evidently very rare elsewhere.

**Unidentified pieces of flares, buttons, etc.: 97.**

**FLAT UNDECORATED OBJECTS: 88 complete, 1 restored, 16 broken, 2292 fragments. Plates 26c, 34b, 35, 36, 41A, a, 3.**

**Thick, buttonlike discs: 4 complete, 1 restored, 1 broken. Plate 34b, 41A, a, 3.**

This group seems to include miscellaneous marginal forms that link small disc-flares and buttons with simple flat discs. They are thickened in the middle, slightly hollowed on the face, and usually have two perforations, one in the center, and a smaller one near an edge. Number 5, plate 34b is rectanguloid

in shape and lacks the edge perforation. Decorated pieces of this type are described on page 39.

**Round and squarish perforated discs: 65 complete, 12 broken, 995 fragments. Plate 35.**

Flat discs of this sort probably had various functions, but if there are different types among them, they do not stand out clearly. Discs that are almost perfectly round and have a single perforation, may have served as throat-discs for flares. Those with two perforations were probably sewn on fabric in overlapping arrangements, like sequins. On Maya monuments we often see discs forming a sort of diadem or headband worn under the headdress. Others decorate large pectorals of elaborate design, and at Piedras Negras, e.g., on Stela 7, there are huge headdress masks composed of overlapping discs. The noted tomb at Palenque yielded 41 discs apparently used in a diadem (Ruz 1952a, p. 99).

The specimens in this collection are either entirely flat, or have faintly convex surfaces and rounded edges. Some, evidently cut with a tubular drill are accurately round, but the great majority are somewhat irregular in form, and many are squarish with rounded corners. Of the complete discs, at least 50 have two perforations: one in the center, which is often cylindrical or biconical and sometimes rather large, and a smaller one usually conical and drilled from one side near the edge. Ten have two or more of the smaller perforations, and 14 have only the one in the center. The diameters of the complete pieces range from 14 to 48 mm, and their thicknesses from 2 to 4 mm. One round disc, the last in row 2, made from unusually fine green jade (Class 2a) is only 1.5 mm at its thickest point, and so thin at the edges that it is virtually transparent. Another very thin disc is reinforced at the center with a low round projection, so that it resembles a disc-button (row 8).

The material of the discs covers virtually all common varieties of jade and jadelike stones, with the exception of Olmec and possibly other early varieties, but by far the most common is the speckled jade of Class 1. Many pieces are badly decomposed, and a few fragments show the glassy fusion of Class 15b.

Among the numerous fragments, there are some from discs which are considerably thicker and larger than any that have survived as restorable specimens. These doubtless had a completely different function, but because of their fragmentary condition, it proves difficult to define them as a type. An attempt to piece together some of the larger than normal fragments produced only three partial specimens. One, 45 by 47 by 5 mm is within the normal range of variation, though somewhat thicker than most discs. It has one

faintly convex surface, and rounded edges (pl. 36b, lowest). Another, 48 by 52 by 5 mm, is made from a sawed slab of jade and is perforated from edge to edge a little above the center, so that it can be regarded as a round plaque (pl. 36b, center, second from top). Its center is missing, and we do not know if it also had a central perforation. Fragments of two other, considerably larger, discs do show a central perforation. One is 6 mm at its thickest point, and was at least 60 mm in diameter (pl. 36b, top center). The other (upper right) is faintly scalloped on the edge, and may have had the form of a quatrefoil. It is 5 mm thick, and about 80 mm in diameter. There is a possibility that this disc was one of a pair.

**Flat rectangles: 6; 398 fragments. Pl. 36a, b.**

The rectangular form is less common than the round, but rectangular spangles have variations precisely similar to those of discs, and there is no question that their uses and functions are analogous. In Maya sculpture, discs and rectangles occur in similar assemblages, rectangular forms tending to replace the round toward the end of the Late Classic era. The six unbroken specimens here range in size from 22 to 34 mm, and in thickness from 1 to 4 mm. Four of the specimens are of Class 1 jade; one is white, dull, and apparently decomposed, and another is of dull dark green stone with veins of black and of white. This last rectangle was apparently made from a much larger disc or was deliberately shaped in an odd form, for one of its sides has a decided curve. As in the case of discs, the fragments suggest a much larger range of dimensions. Fragmentary specimens include two pairs. One is a pair of normal rectangles about 32 by 34 by 3 mm, perforated in the middle and near one edge. Saw-marks can be seen on the surface. The other pair is somewhat larger, about 34 by 44 by 4 mm, and shows even more prominent saw-marks. There were three small perforations along one edge, one on each of the longer sides, and a central perforation nearer to one short edge than to the other. Decorated rectangles of this general form are known to come in pairs, and their designs suggest that they may have been used to represent ear-flares on headdress masks, or when attached to bands fastened under the chin to hold a headdress in place.

A fragment of large flat rectangle, 43 by 46 by 4 mm, shows a perforation in the center, another near the edge, and a third at the back of another edge. It is also bored from edge to edge by a very fine long drill hole, placed about 5 mm above the center. A square piece with rounded corners and a lightly convex surface, measuring 52 by 52 by 5 mm (pl. 36b, lower left), is considerably larger, and verges

on being a plaque. Other fragments indicate even larger forms. One partially reconstructed piece measures, in its fragmentary state, 48 by 78 mm (pl. 36b, upper left). If a drill hole on one of its broken edges was centrally placed, the piece must have been originally about 96 by 100 mm.

**Flat, shaped spangles: 8. Plate 36c.**

These little ornaments are not only much smaller than normal discs and rectangles, but lack the typical central perforation. Their greatest dimensions vary from 19 to 25 mm, and their thicknesses from 1.5 to 2 mm. Four are round or oval; one is rectangular; one irregular; one a crescent; and one a notched form. The crescent has four perforations. All others have one near an edge. All but the rectangle are of ordinary Class 1 jade.

**Flat rings: 5 complete, 3 broken, 117 fragments. Plate 36e.**

The diameters of these rings range from 16 to perhaps 50 mm, and their thicknesses from 1 to 5 mm. Although the larger rings tend to be irregular in form, the central hole was always drilled. Most often the inner edge is vertical, but sometimes it was left unfinished and shows a sharp broken edge and a slightly bevelled or even curved surface. Biconically drilled holes are rare but were noted on several fragments. The proportion of the central hole to the large diameter varies greatly. Some rings are very narrow; others, particularly some small specimens, are like small discs with unusually large perforations. Many rings have one or more small drilled holes near the outer edge. One ring, carefully shaped, shows a vague design of grooves on one face and may have been made from a discarded carving, since the design seems to bear no relation to the form and the drill hole cuts into some of the grooves (see also flared rings, pl. 30e).

**Miscellaneous flat forms: 34 fragments. Plates 26c and 36d, f.**

Two fragments represent either a pair of yoke-shaped objects or a single squarish ring with a channel cut out in one side (pl. 36d). Another is a corner of an unidentified form (pl. 36f, first in row). Four appear to be points of crescents, and four others, points that also may come from crescents but which have been somewhat trimmed. Two pieces are straight or very lightly curved bands (pl. 26c, lower left). Nine are stepped forms. In one case, the stepped form is in the shape of an inverted T attached to a disc (pl. 26c, top, center). Finally, there are odd fragments of unidentified forms, some perforated, others not. Some of the plain pieces may be bits of inlay or

mosaic, but it is evident that the common small pieces used for jade mosaic work are entirely absent here. This might be explained if most of our material comes from looted graves, for such mosaic could not have been recovered intact, and the pieces would probably have been reworked.

**Unidentified flat fragments: 748.**

**UNDECORATED PENDANTS, SPANGLES, ETC.: 53 complete, 4 broken. Plates 37, 38a.**

**Unshaped perforated pieces: 20. Plate 37a-c.**

Eight of these (pl. 37a) are irregularly shaped pieces with one flat sawed face. Four have one small perforation at right angles to the face, and four have several perforations near the edges and once also at the center. On three of the pieces the sawed surface bisects a former bore, leaving a deep groove. This surface is sometimes left unpolished, and is obviously the undersurface of the spangles.

Eight other specimens (pl. 26b) are flattish pebbles perforated near one end with a hole drilled at right angles to the face. They vary in size from 11 to 56 mm. Some may have been slightly trimmed, and it is possible that the second in the row was once shaped in the form of a tooth, or was chosen because this form was naturally simulated by the unworked pebble. The third seems to be a fragment of a small celt reshaped and perforated. The material is a compact gray stone — probably not jade.

The four remaining specimens appear to be pendants. With the exception of the tiny pebble, c, number 4, which has two perforations in line, these have bores running parallel to a flat side. Number 1 is probably part of the set of large irregular beads described on page 22). It differs from them only because its perforation runs close to one side, so that when strung with other beads it hangs down like a small triangular pendant. Number 2 may be partially worked, or more probably is made from an older carving. One corner seems to have been broken but was later smoothed. Number 3 is a fairly large pendant of odd shape, apparently in part worked and made of Class 8 stone, which is not jade. It belongs, almost without doubt, to the group of carvings here designated as the "bib-and-helmet" style.

**Tooth-shaped pendants: 9 complete, 4 broken. Plate 37d.**

The two largest appear to be a pair made from a single piece of stone. Besides a perforation at right angles to the face at one end, each has a smaller biconical drill hole at the other end, running from

the back sawed surface to the edge. These two pieces and the third, which is broken, are very similar to jaguar-tooth pendants reported from the Olmec area, although they are less well shaped and made of a different jade (Class 1). A smaller type of pointed pendant, of which there are nine examples, has a bore parallel to the flat faces. I seriously doubt that these are meant to represent teeth. They may be simply small points strung between beads. Five of these pendants show traces of carving and may have been made from earlier carvings or from discarded bits. The last specimen of this group (no. 4) is a small nicked form something like the small hooked pendants found with assemblages of tiny jade beads at Kaminaljuyu and at Nebaj (Smith and Kidder 1951, fig. 63a).

**Tool-shaped pendants: 5. Plate 37f.**

Number 4 of this group is a small pendant resembling a pestle in form, but this may not have been intentional. The others are shaped like celts or heads of axes. The largest (no. 1) is made of beautiful blue-green jade, Class 4, and is almost certainly of Olmec manufacture. I suspect that the others may also be very early, though similar forms occur in an Early Classic tomb at Nebaj, and are evidently not restricted to Preclassic times. The small axe-shaped pendant (no. 3) is made of brilliant green and white jade. A larger one (no. 5) is of decidedly inferior gray stone and resembles in workmanship carvings of the bib-and-helmet school. The smallest piece (no. 2) is also of poor material and is only roughly shaped.

**Concave-face pendants: 8. Plate 38a.**

These pendants are characteristic of the Olmec style and are sometimes called "clamshell" pendants. Normally they have one highly polished, slightly concave surface and are made to hang horizontally, suspended by two biconical perforations in the upper back edge. Number 2 is typical and is made of a dark mottled opaque jade. Number 5 is somewhat unusual in form and has only a single perforation. It is made of bluish translucent jade, Class 4, through which runs a streak of brilliant Meadow Green. Several pieces in this collection have been broken and reworked. Number 6 was apparently broken in half, and later smoothed on the broken edge. Another fragment, number 8, is the sawed-off end of another such pendant. On number 1 there is a subsidiary perforation near the bottom of the piece. This may have been made for the attachment of another ornament or may have substituted for the two original perforations after one of them was broken. The last

three pieces are all made of opaque, fine-grained stones that are not jade, and it is possible that drilling them was hazardous. It is remarkable that, in spite of their inferior material, these pieces were so carefully preserved. A fragment of a similar but much larger pendant, found at the ruins of Mayapan, was evidently still in use in Late Postclassic times.

Two of the pendants in this group (nos. 3 and 4) are unshaped pebbles, with faces carefully rubbed to a light concavity, and perforations made from edge and back, so as to be concealed.

Number 7 is more elaborate and is typically Olmec in design, workmanship, and material (Class 5). The back is smooth but unpolished, and drill holes, as in all the pieces of this group, are rounded at the bottom and meet in openings tiny in proportion to the large openings on the surface.

**Miscellaneous small ornaments: 11. Plate 37c.**

Most of these are reworked fragments. Number 2 is a fragment of a small button or ring-flare, smoothed and perforated. Number 11 may have been a tubular bead that broke in the process of being perforated for a trace of an incomplete bore remains on the back. Its jade is now badly decomposed. There are five small flat pieces (nos. 1, 4, 5, 6, 7), three of them with perforations and two without; a discoidal piece (no. 8) with a cylindrical off-center perforation and a partial cross-bore, probably cut from the end of a defective bead; and a humped little object with two small perforations (no. 3). The remaining pieces (nos. 9 and 10) are two tiny flat bits of brilliant green jade, one with a single perforation, the other, with four.

**DECORATED DISCS, SQUARES, AND BUTTONS: 29 complete, 63 broken or restored, 288 fragments. Plates 38b-41d, 41A, b, figure 6.**

Some simply decorated objects have been included with the specialized forms previously described. Among Type A flares and miniature flares, we have found flowerlike designs. Flares of Type B were decorated with simple diagonal grooves. It may seem inconsistent to set apart similarly decorated buttons, disc-flares, and flat forms to be discussed as a group, but the reason for this is that the design of all these forms is most often formed around the central drilled element that distinguished the buttonlike forms, and flat and three-dimensional forms tend to merge so that the character of the carving and its motif become more distinctive than the design of overall forms. There are two basic patterns of design, of which there are many variations. One is the flower

motif, or petal arrangement, already noted on some of the forms described. The other is the five-circle design adapted primarily to large flat rectangular forms. The two are occasionally, but rarely, combined.

**Five-circle designs: 2 complete, 17 restored, 44 fragments. Plates 38b, 39a.**

This design occurs most often on flat rectangular pieces, varying in size from 34 to 58 mm. Its essential elements are five circles, one at each corner and one in the center, usually connected by simple double bands. Sometimes petals are included between the bands radiating from the center. On others, the framing bands are missing, but a diamond form is interlaced with the radiating bands. The rectangles are always perforated in the center, and sometimes the central hole is quite large, like the throat of an ear-flare, as on numbers 8 and 9, plate 38b. The corner circles may be perforated also. Perforations on one or two sides are seemingly optional. The larger pieces of standard design are all executed in a soft rounded relief, characteristic of Early Classic work and the beginning of Late Classic. Variations on the design occur mainly on smaller pieces executed in flatter and sharper relief. Chief among these variations is the omission of bands (pls. 38b, no. 14, 39a). Three of these are round. Number 14 is not only rounded but convex on the underside, like a disc-button. The circles are made with a double tubular drill and trapezoidal forms are inserted between them. These forms appear again on numbers 12 and 13 but, in this case, the corner circles are omitted and the double bands retained. All pieces, except numbers 2, 3, and 4 on plate 39a, which are of unclassified jades, are of jade of Class 1. The habit of inscribing four circles on ear-flares is ancient and can be observed on Late Preclassic sculptures in Guatemala. On a monument from Kaminaljuyu (Kidder and Samayoa 1959, fig. 7) the earplug of the mask worn by the principal figure is rectangular and has four circles at the corners. Diagonal bands cross between the circles, but the central element is missing. Rectangles from the highlands of Guatemala with four circles and a large central opening, very much like those of our numbers 8 and 9 (pl. 38b), are illustrated in Kidder (1949, fig. 3b, e). On these pieces, the diagonals are missing. The standard design appears on a piece from Ocosingo (Easby 1961, fig. 1, H). Most of our specimens are probably Classic Maya and of lowland provenience. One fragmentary piece is inscribed with four finely incised glyphs on the back (pl. 48d, no. 5). This is a small rounded piece and appears to be aberrant.

**Rosettes with outlined petals: 6 complete, 29 restored, 99 fragments. Plates 39b, 40a, 41A, b, 1, 4, 5.**

This design is better adapted to round forms, though it was sometimes applied to rectangular pieces, too. It is much more common than the five-circle design and was used on a large variety of objects, varying in size from about 20 to about 80 mm in diameter. Typically, it consists of a countersunk raised center around a perforation, surrounded by four or five petals outlined by slightly raised ridges, and alternating either with smaller petals or with pairs of radiating fillets. The six-petal rosette (no. 1 of pl. 41A, b) is exceptional. There are many variations of this design, but the most radical occur more often on small buttonlike ornaments than on the larger pieces that might have been used for ear ornaments. The larger pieces are usually carved in soft rounded relief, but on some very flat pieces and on many of the smaller buttonlike discs, the petals are indicated by an arc drill, suggesting a late date for their manufacture. Normally, in addition to the central perforation, there is one small perforation near the edge, sometimes two, though on small buttonlike forms this tends to be omitted.

A pair of squarish disc-flares (nos. 10 and 11, pl. 39b) has a strong protuberance on the underside, and is probably designed to be worn on the ears. Number 1, plate 40a has a similar protuberance, but the majority of the pieces are either flat or convex. The fact that there are seven pairs in this group, and an eighth indicated by a fragment, suggests that these rosettes were not infrequently used in earplug assemblages. Only one pair (nos. 3 and 4 of pl. 40a) is carved on both faces, and the difference in relief indicates that the second carving may have been added later. However, number 4 of plate 41A, b also has an incised five-circle design on the back as well as a protruding, double-drilled center.

The most spectacular rosette is number 2 (pl. 40), which is slightly over 80 mm in diameter, and considerably larger than any of the others. In addition to the central perforation, it has two small holes made from the underside, flanking one of the petals. It is unusual for two holes to be close together, and this disc may have had a special and different use, attested also by its unusual size. The jade is opaque white, with surface tinges of green speckle. It is badly decomposed and does not show the nature of the original material.

Most objects with the rosette design which have been recovered from excavations pertain to the Late Classic Period, but a shell backing for an earplug from the Esperanza (Early Classic) phase of Kaminaljuyu (Kidder, Jennings, and Shook 1946, fig. 143d)

indicates an earlier origin for this design. It is possible that its great popularity in Late Classic times was stimulated by influences from Teotihuacan, where the four-leaf rosette is frequently seen in painting and sculpture. Maya examples are mostly from a later period. On Lintel 26 at Yaxchilan, the principal figure wears a diadem of rosettes, and the prisoner shown in the center of Stela 12 from Piedras Negras wears a rosette as an ear ornament. Elsewhere, rosettes are sometimes included in the design of head-dresses, as on Stela 62 at Calakmul.

**Variant rosette designs: 14 complete, 12 restored, 85 fragments. Plates 40b, 41b, c, 41A, b, 3, 6.**

Most variations on the rosette design are mere simplifications adapted to ornaments of small size. Raised outlines of petals may be omitted, simple drilled arcs may be substituted for petal outlines (plate 40b, numbers 9, 10), and in extreme examples the design may be reduced to radiating bands or grooves. An alternation of broad and sharp grooves produces forms such as numbers 1, 2, 6, and 7 on plate 40b, and numbers 1 and 7 on plate 41b. The design is reduced to simple bands on numbers 13 and 14, plate 40b, and numbers 3 and 6, plate 41b. Further reduction may lead to simple radiating grooves or lines (pl. 41b, nos. 4, 5, 8, 9, pl. 41A, b, 3) or to nicks on the edge (no. 2, pl. 41b). However, the derivation of these last simple designs from the petal motif is dubious. When there are only four grooves, they are invariably directed to the four corners of a squarish form. The fragment shown on plate 41c shows radiating lines at the corners and is clearly shaped like a rosette, and number 11 on plate 40b also shows this arrangement; but in most four-petal rosette designs, the petals are placed at the corners, and the radiating bands are directed to the sides. The four-groove design is therefore probably independent or derived from the diagonal bands of the five-circle motif.

Elaborations of the rosette are less frequent. Number 4, plate 40b introduces multiple outline of the petals, employing drilled arcs; number 5 adds a border, and number 8 multiplies the petals to the unusual number of seven. Number 12 combines the petal motif with the five-circle design, leaving the former dominant. Figure 6 illustrates another combination of the two motifs. Evidently the petal designs, the circle-and-band designs, and the radiating groove designs were coexistent and could be combined in various ways.

Number 3 on plate 40b is a unique piece introducing into the center of the rosette a design of entwined bands. It might perhaps be better classed with original sculptured pieces, though in general

form it clearly belongs with the rosette group.

The rosette shown on plate 41a, on the other hand, is standard in design but of unusual form, something between an ear-flare and a button. The single perforation in the rim, to which one could attach a hanging ornament suggests that it was designed to be an ear-flare, and a small fragment which could not be fitted to the piece indicates clearly that it was one of a pair.

With very few exceptions, all of which are small buttonlike pieces, the rosettes are made of varieties of Class 1 jade. It is probably safe to assume that most of them are Late Classic Maya pieces, and that those with flat but sharp relief, and especially those that rely on drilling to shape the forms, are concentrated at the end of the period, perhaps extending into the Early Postclassic, Toltec-dominated times.

**Star-shaped designs: 1 complete, 3 restored, 1 fragment. Plate 41f, 41A, b, 2.**

Number 1 of this group is very like a rosette design with pointed petals and appears to be one of a pair. Number 3 is more clearly star-shaped, and number 2 shows the star on a plain ground. The stars have 5, 6, and 7 points, so that no particular number seems to have been prescribed. It is unlikely that they actually represented stars, for the form is not found in Maya representative art, and may have been conceived as a variant of the rosette or as an abstract figure. Compared to the rosette and the five-circle designs, it seems to be rare. The small four-petal form (no. 6 on pl. 41A, b) is ambiguous but is here considered as a rosette variant.

**Cog-wheel design: 1 restored. Plate 41e.**

This small disc is decorated with a simple border and six small projections on the rim. There seem to be no others like it in the collection.

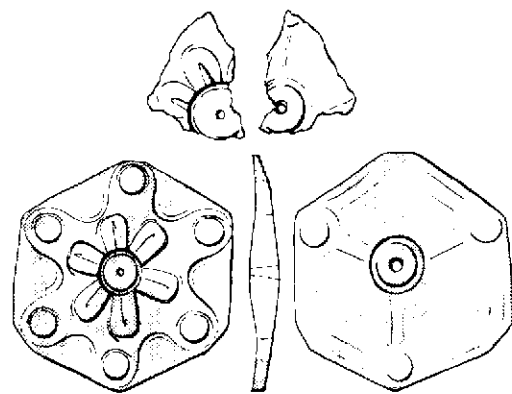


Figure 6. Suggested reconstruction of a pair of unusual "discs," carved on both sides.

**Small discs with concavity on face: 6 complete, 1 restored, 1 broken. Plate 41d.**

The form is identical to that of thick buttonlike discs described on page 33 and classed with other plain objects. Numbers 1 and 2 are probably a pair and are so similar in material to the small ear-flare on plate 40a, number 2, that the two could have been used in a single assemblage. The diagonal grooves seem to have been a standard form of decoration, but numbers 4 and 5 actually delimit petals, and number 8 has five radiating grooves. The concavity around the central perforation tends to enhance the effect of a flower design. Numbers 1-3 are devoid of color. Others are of the usual Class 1 jade.

**SMALL FLAT RINGS: 1 complete, 2 restored. Plate 41h. Rosette design: 1 complete, 1 restored. Plate 41h, 1, 2.**

These may well have been made from buttonlike rosettes with the center cut out, but they seem to have more petals than most of the discs and may represent a distinct form, though one which seems to be very rare.

**Rope and petal design: 1 restored. Plate 41p, 3.**

This piece, though the only one of its kind, is not unique in design. Another larger and somewhat more elaborately carved ring is illustrated on plate 47c, number 3, together with rings that have petal

and star designs. Although the larger rings are discussed with original carvings since each shows a different design, it is clear that these designs derive from the standard forms of more common objects.

**DECORATED FINIALS: 2 restored. Plate 41g; figure 7.**

The function of this pair of objects carved in the form of bifurcated scrolls is not at all clear. There is a main perforation running through the center, and the trace of another through one of the scrolls. Laterally, the scrolls are not symmetrical but are flatter on one side. Both were in fragments, and the jade had apparently suffered considerably from decomposition.

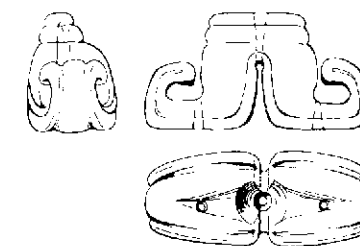


Figure 7. One of a pair of carved finials, reconstructed.

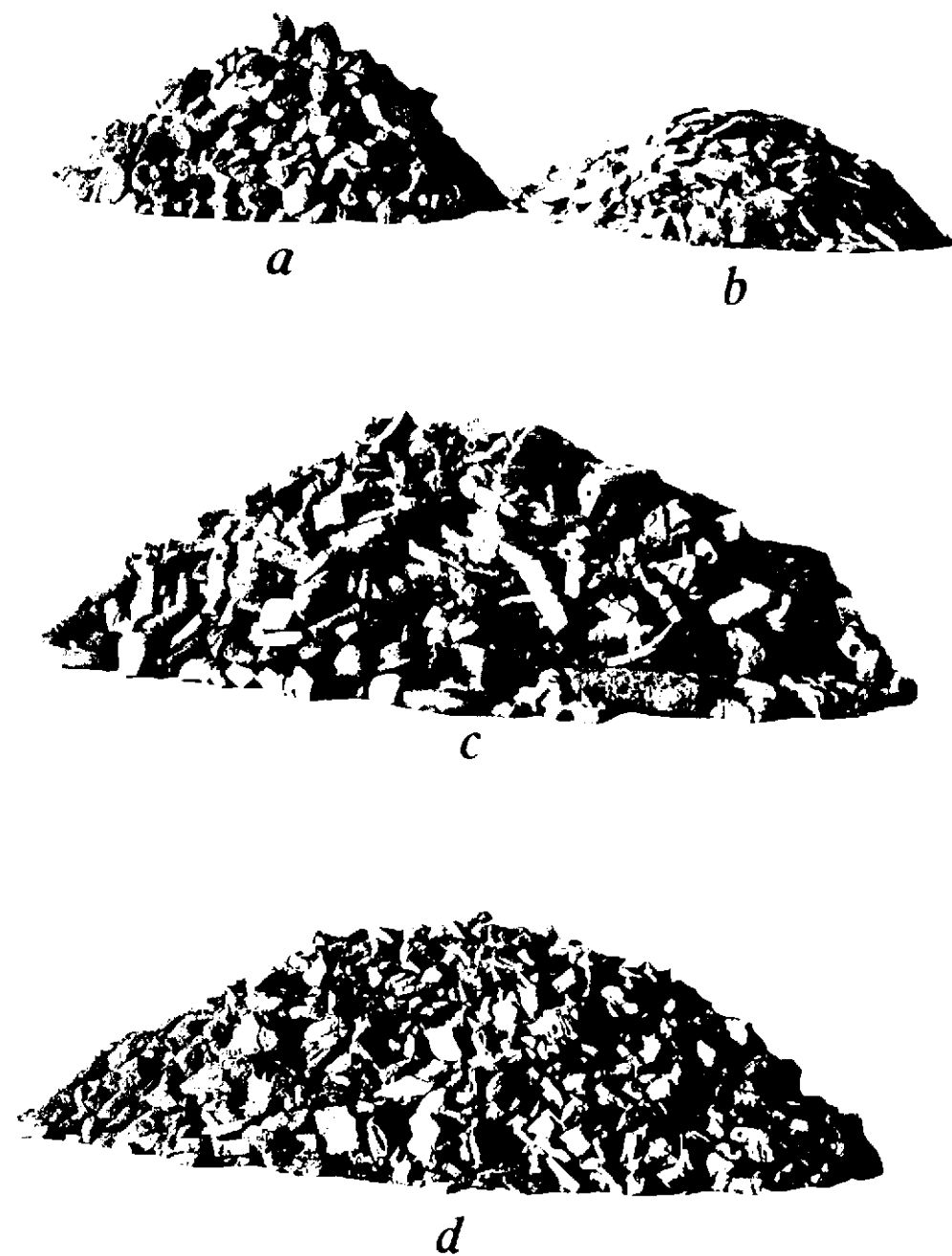


Plate 1. Preliminary sorting of beads and fragments, made at the time of accession:  
a. fragments of round beads; b. fragments of flat discs; c. oblong and tubular beads  
and fragments; d. miscellaneous carved fragments.

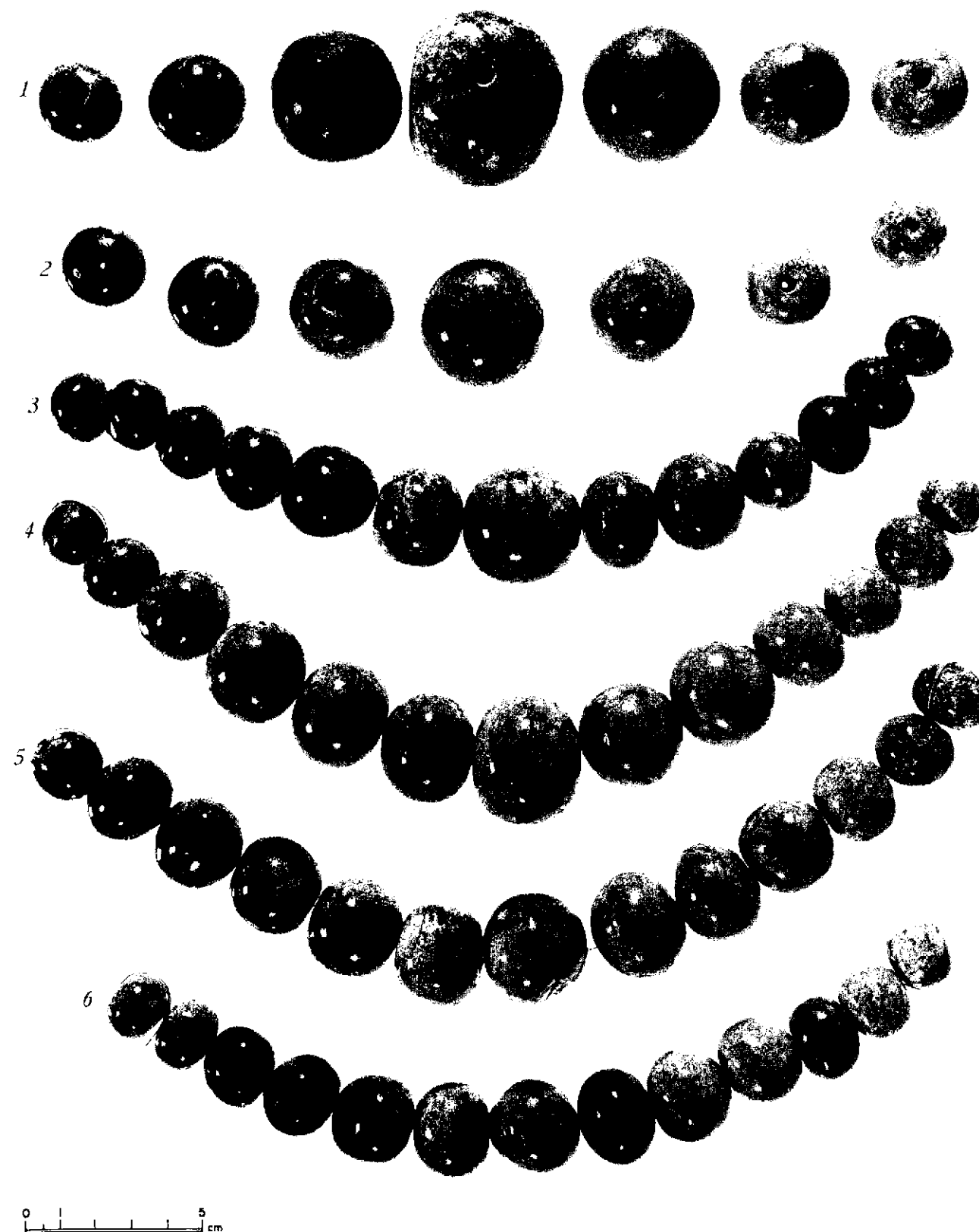


Plate 2. Large spheroid beads with fine biconical bore (see pp. 18, 19).

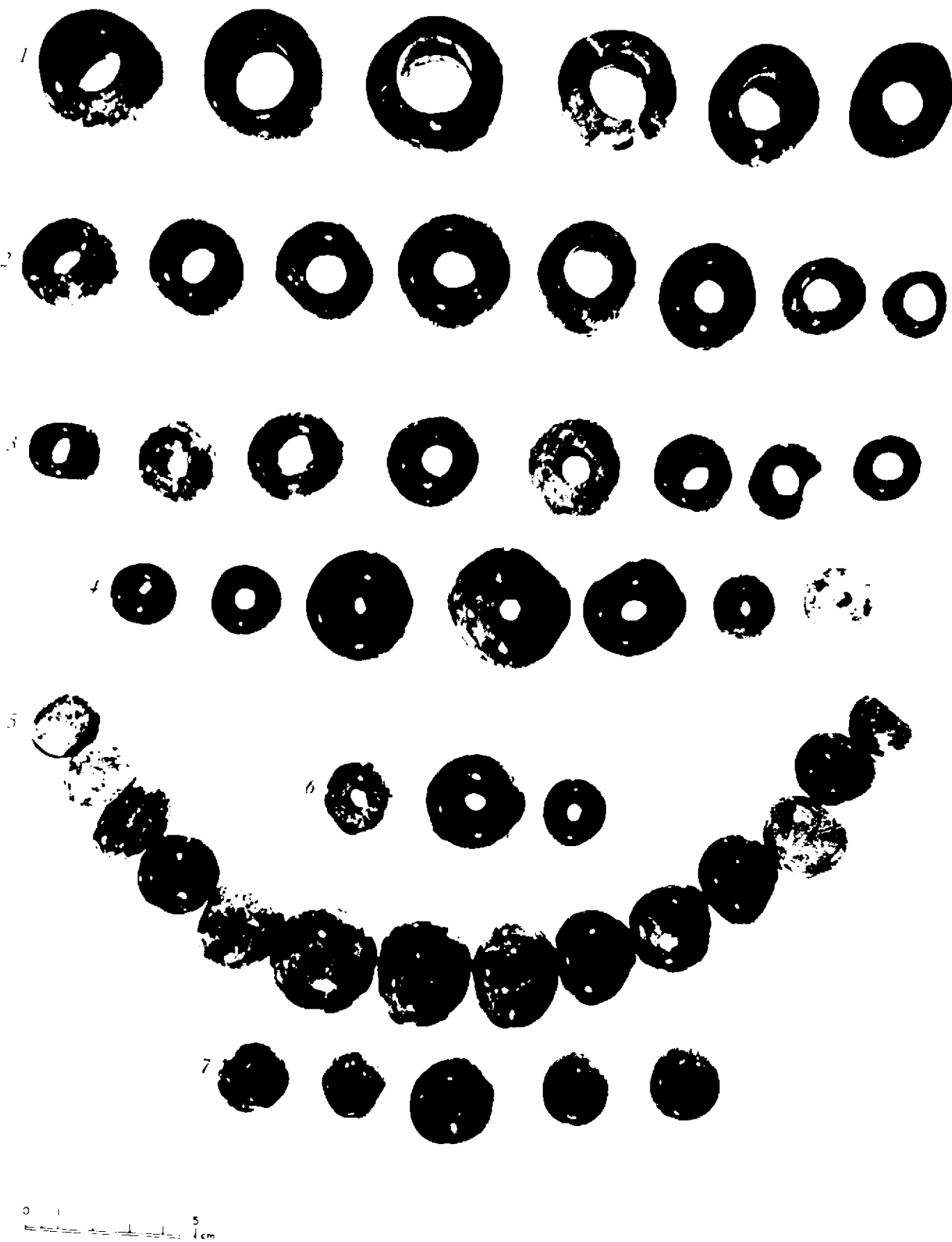


Plate 3. Large spheroid beads with cylindrical bore (see pp. 18, 19).

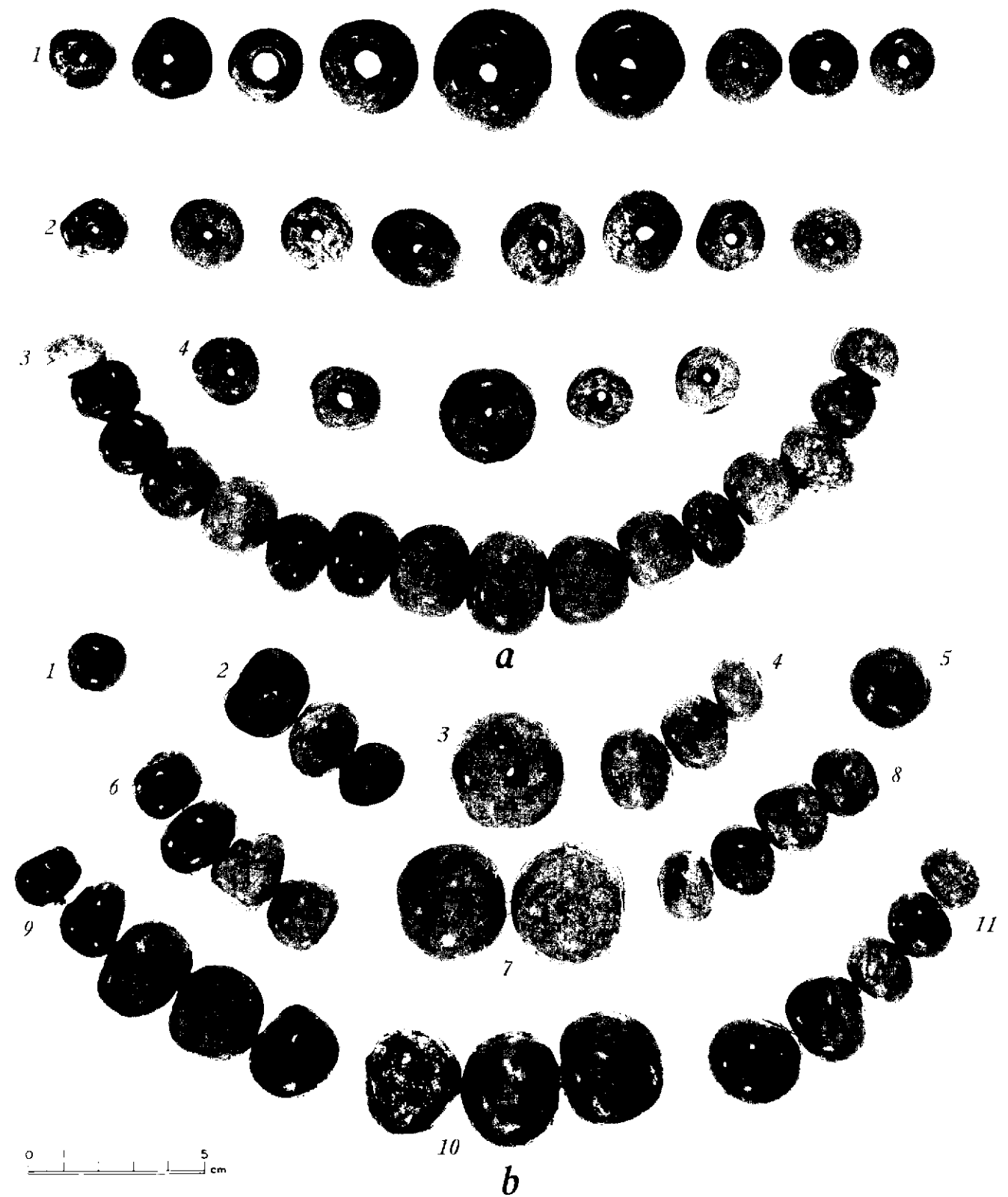


Plate 4. a. Large spheroid beads with drill holes rounded at point of intersection; b. large spheroid beads of rare varieties of stone (see pp. 18, 19).





Plate 5. Miscellaneous large spheroid beads (see pp. 18, 19).



Plate 6. Miscellaneous large spheroid beads; row 6 of decomposed material (see pp. 18, 19).



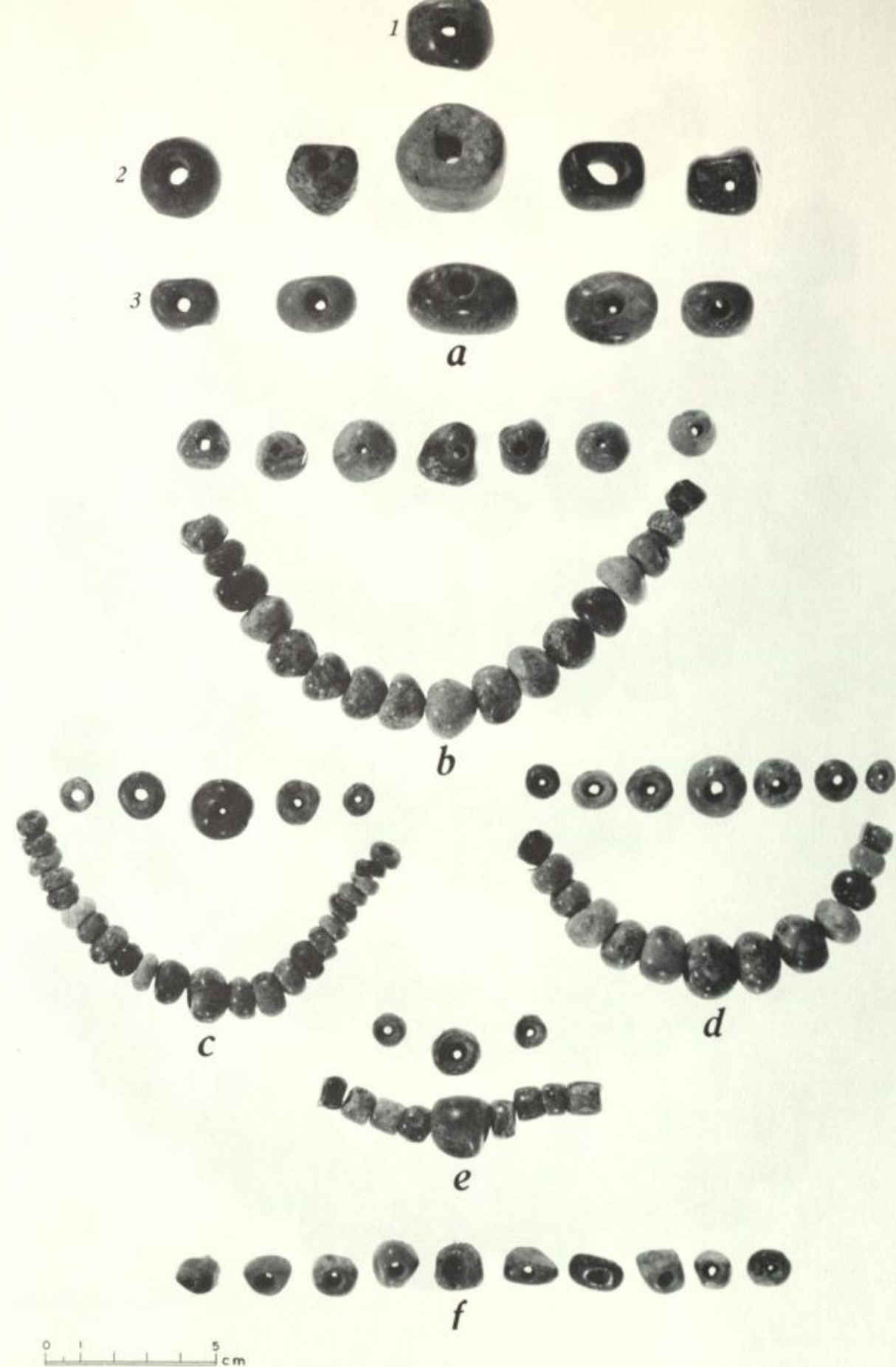


Plate 7. a. Large spheroid beads of strongly distorted forms; spheroid beads of intermediate size: b. with one flat facet; c. flattened at poles; d. normal form; e. subcylindrical; f. irregular forms (see pp. 18, 19).

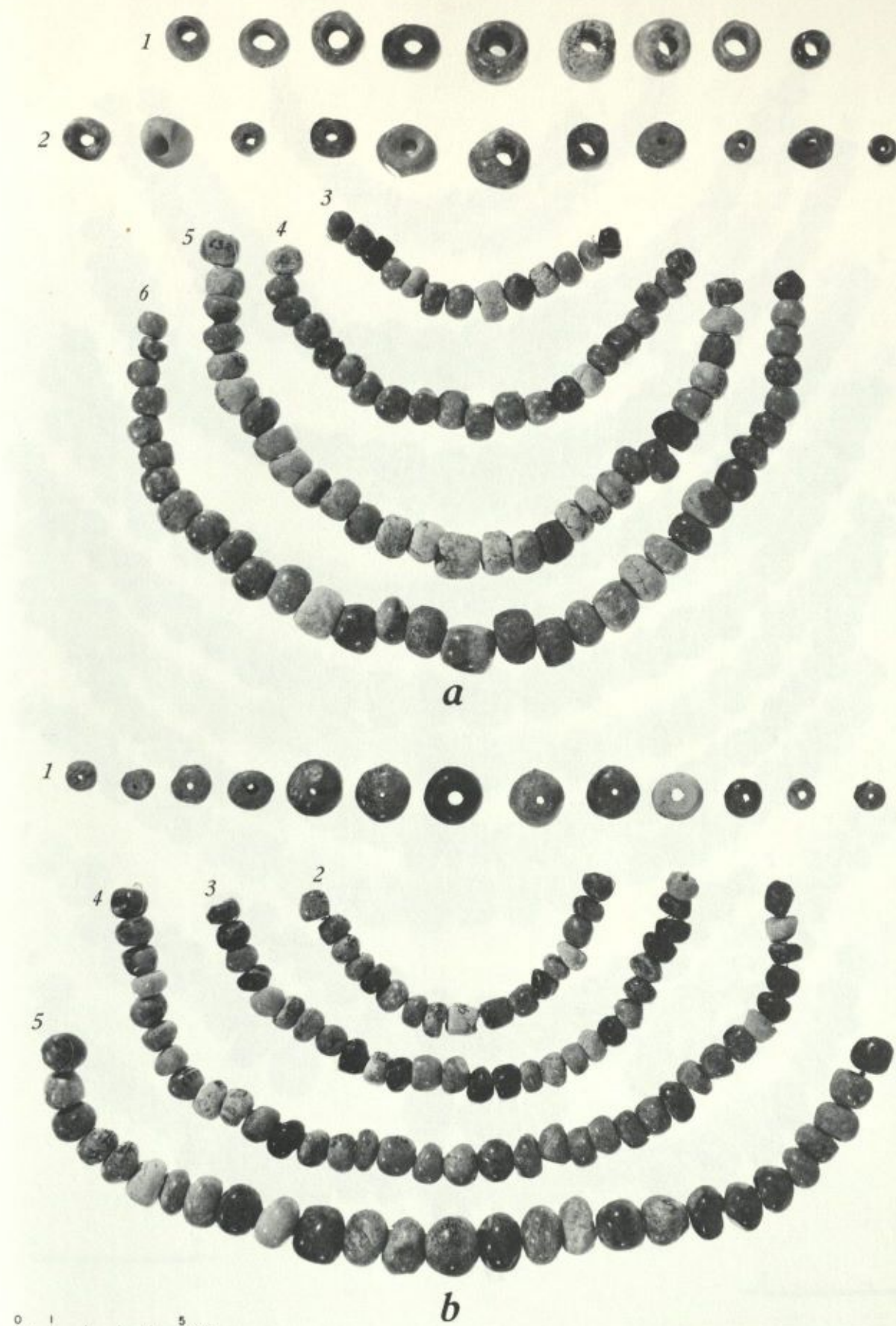


Plate 8. Spheroid beads of intermediate size: a. cylindrically bored; b. conically bored (see pp. 18, 19).



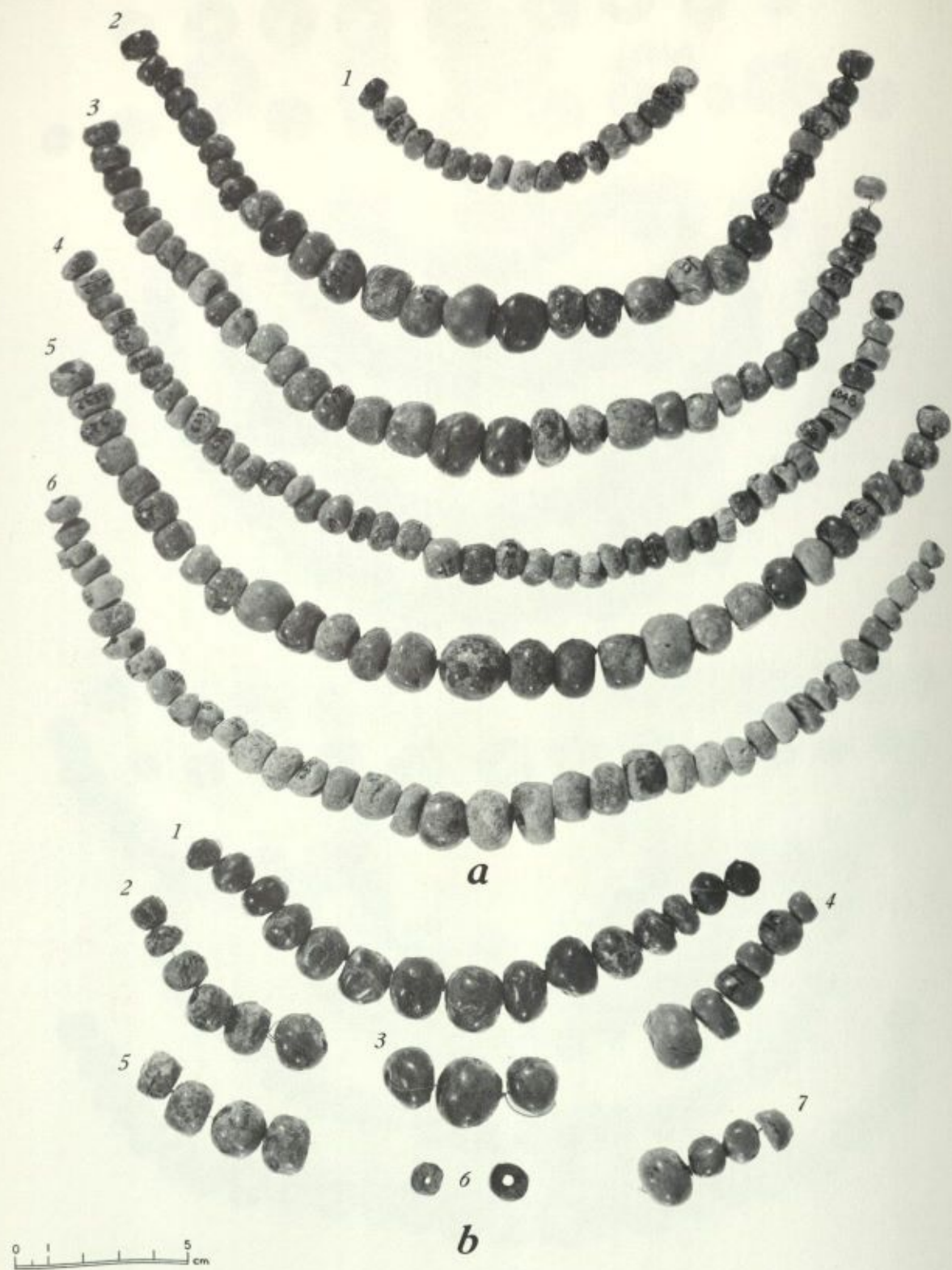


Plate 9. Spheroid beads of intermediate size: a. drill holes with wide openings and rounded ends; b. beads of unusual varieties of stone (see pp. 18, 19).

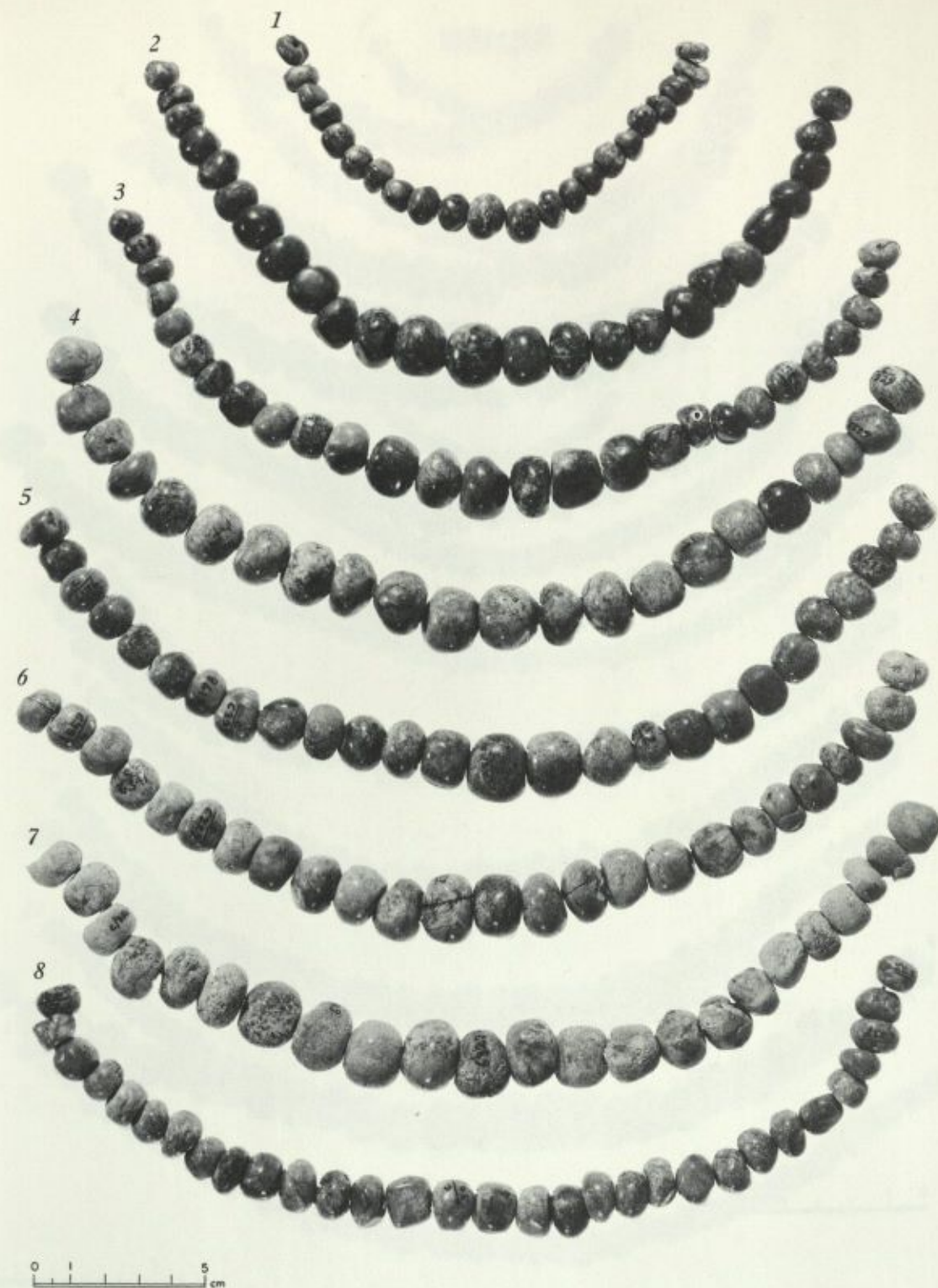


Plate 10. Miscellaneous spheroid beads of intermediate size (see pp. 18, 19).



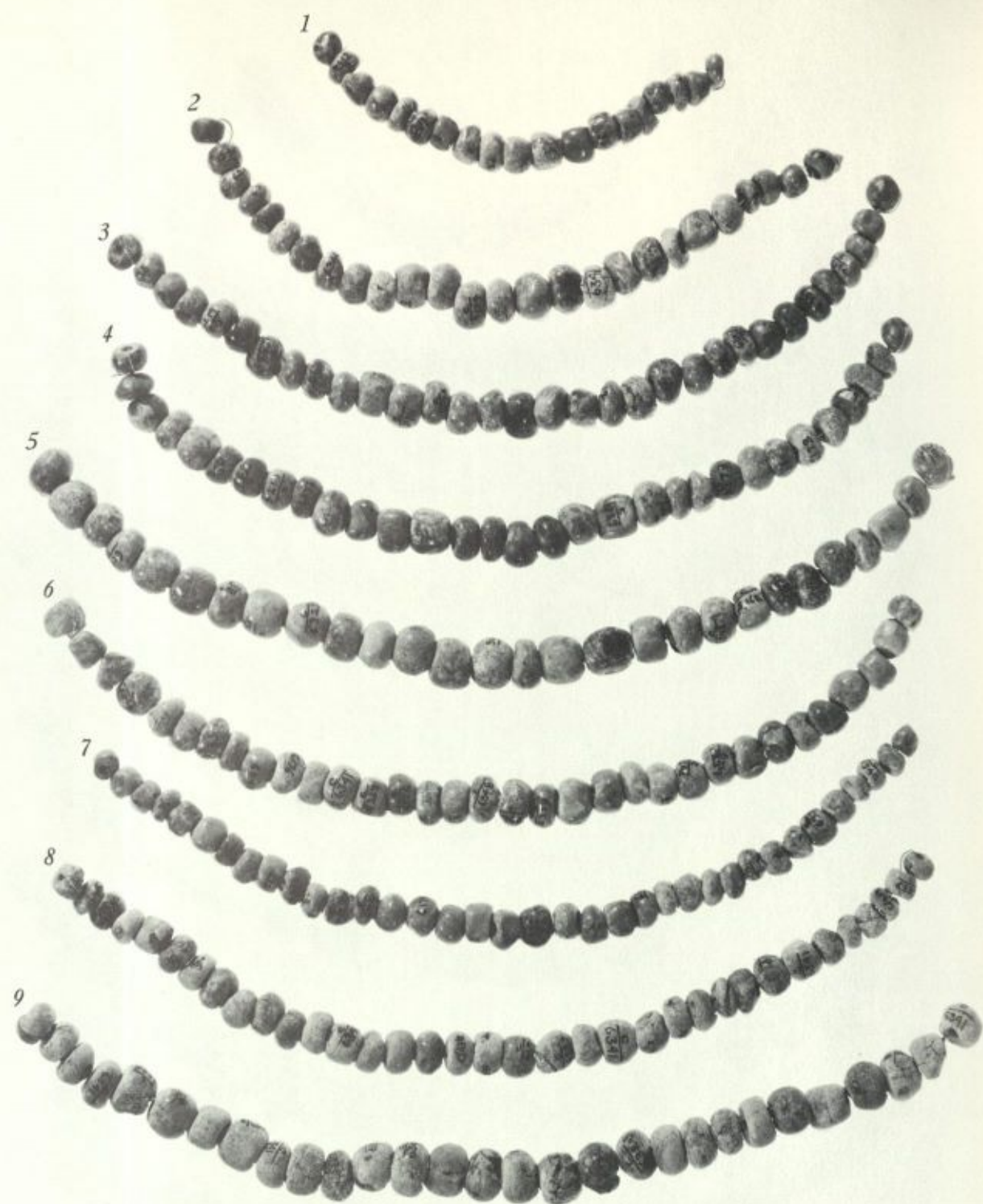


Plate 11. Miscellaneous spheroid beads of intermediate size (see pp. 18, 19).

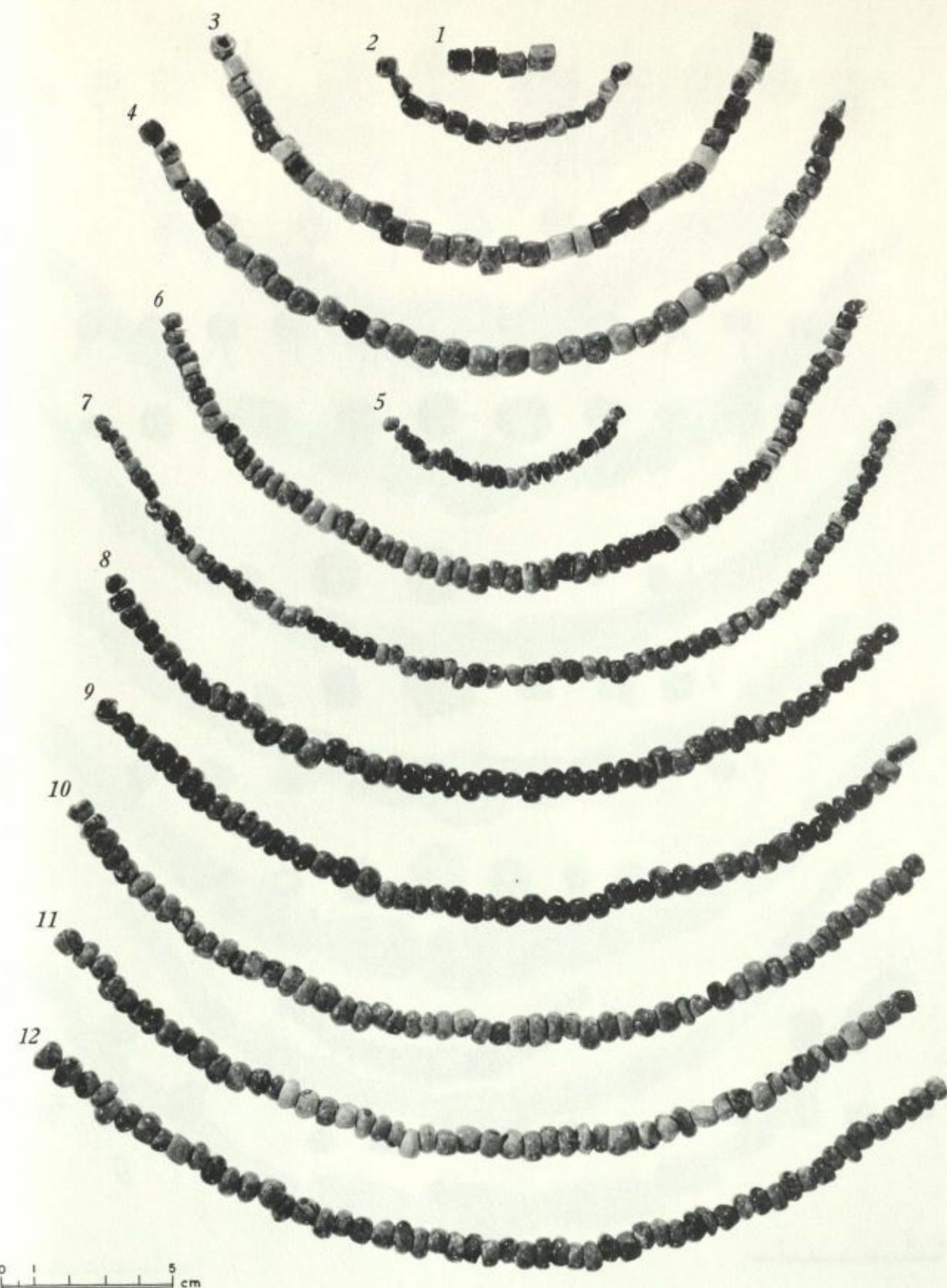


Plate 12. Small spheroid beads (see pp. 18, 19).



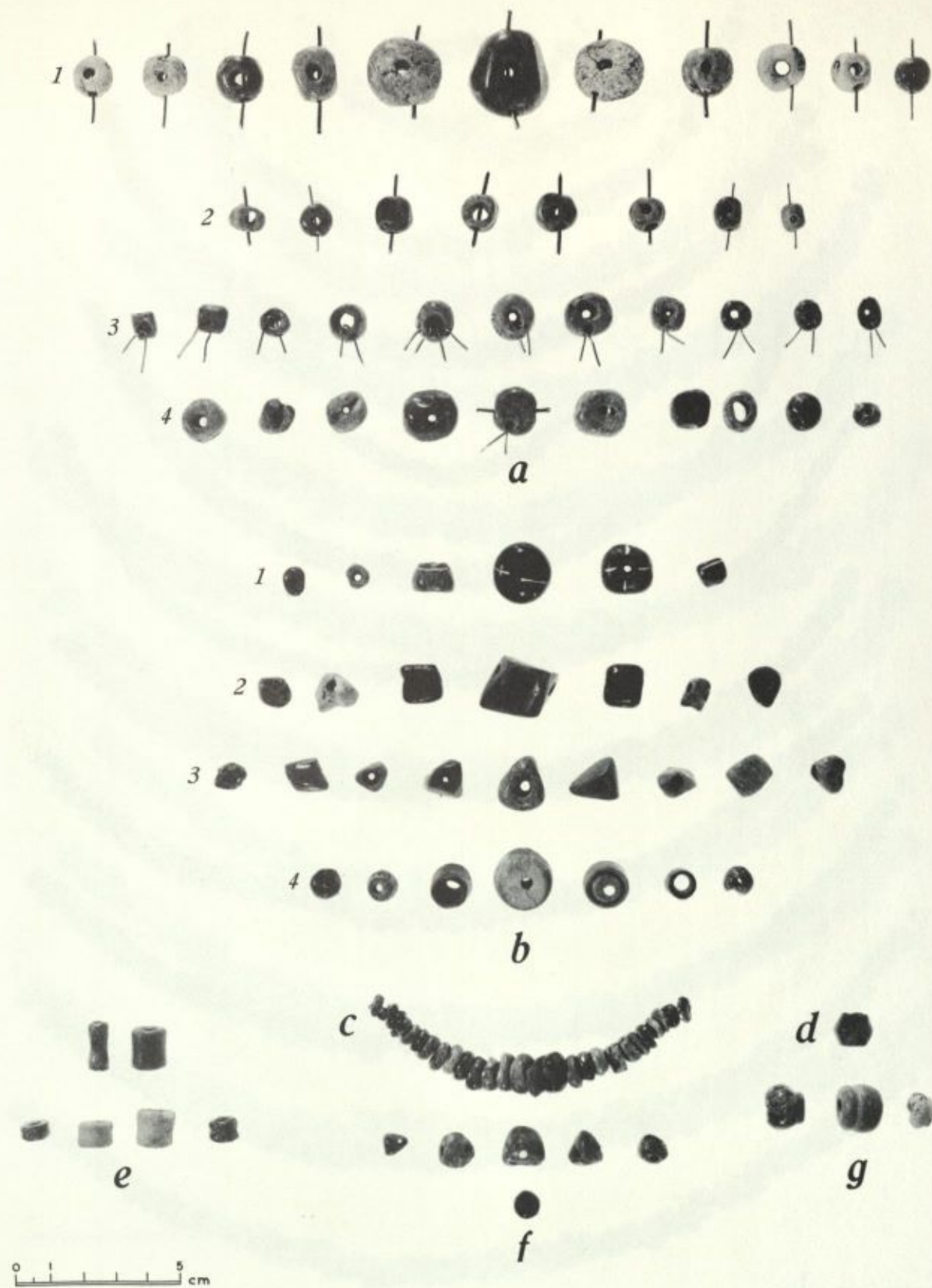


Plate 13. a. Spheroid beads with subsidiary perforations; b. spheroid beads with unusual features; c. discoidal beads; d. bead of biconical form; e. spool-shaped beads; f. spheroid-section beads (see pp. 18, 19, 20).

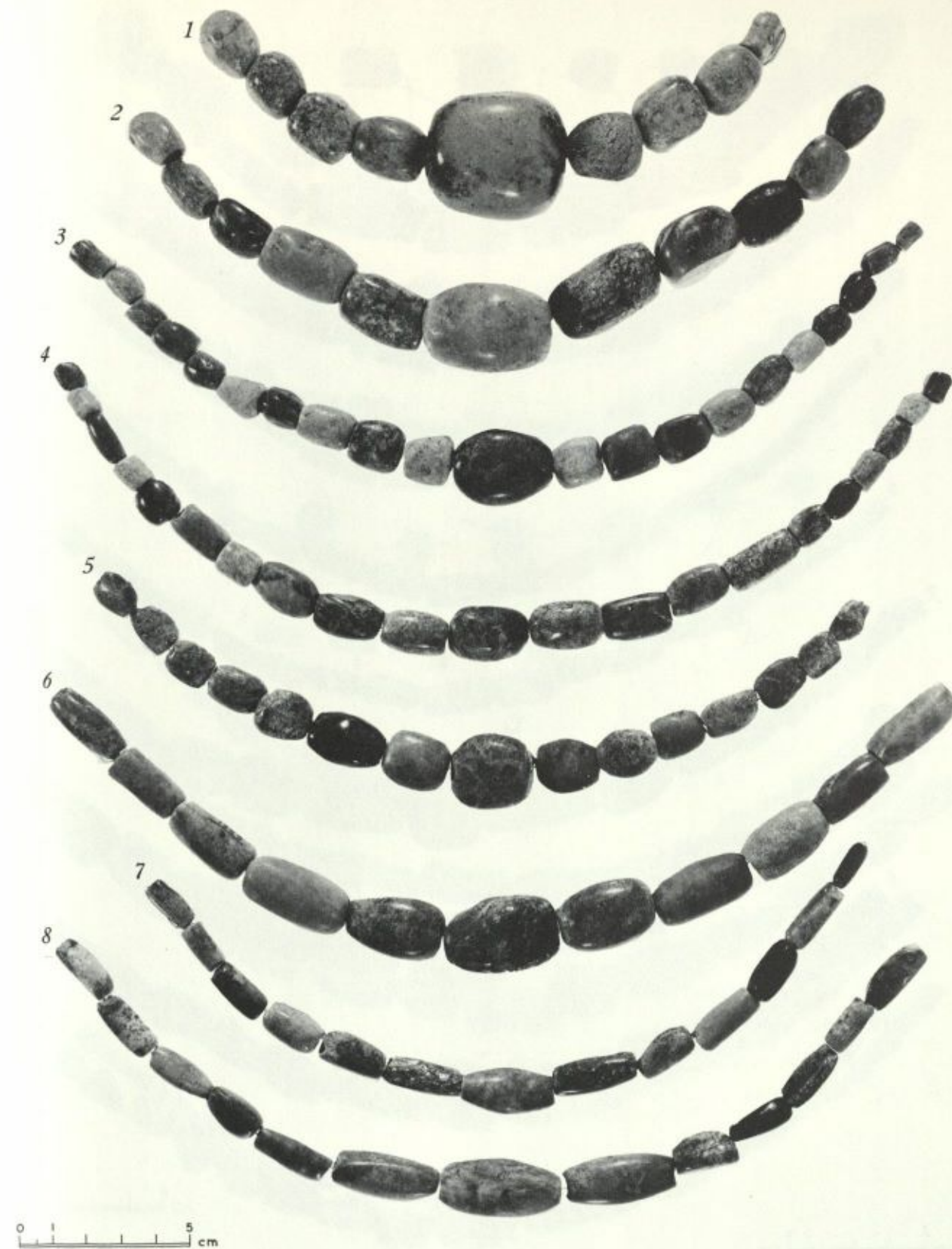


Plate 14. Plain oblong beads, forms approaching the spheroid and barrel forms (see pp. 18, 22).



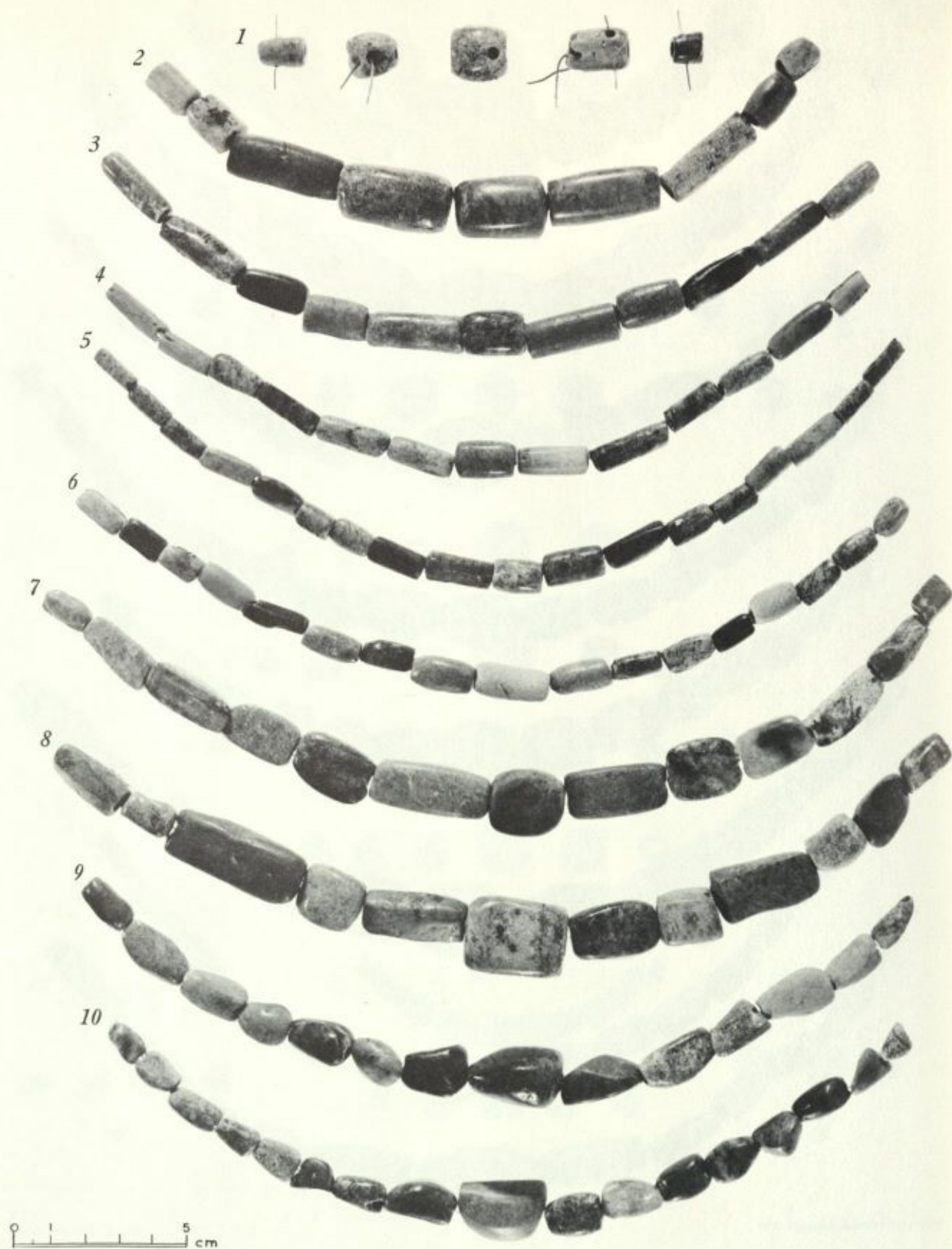


Plate 15. Plain oblong beads: row 1. with subsidiary perforations; rows 2-10 tubular sections, flattened, rectangular, and irregular forms (see pp. 18, 22).

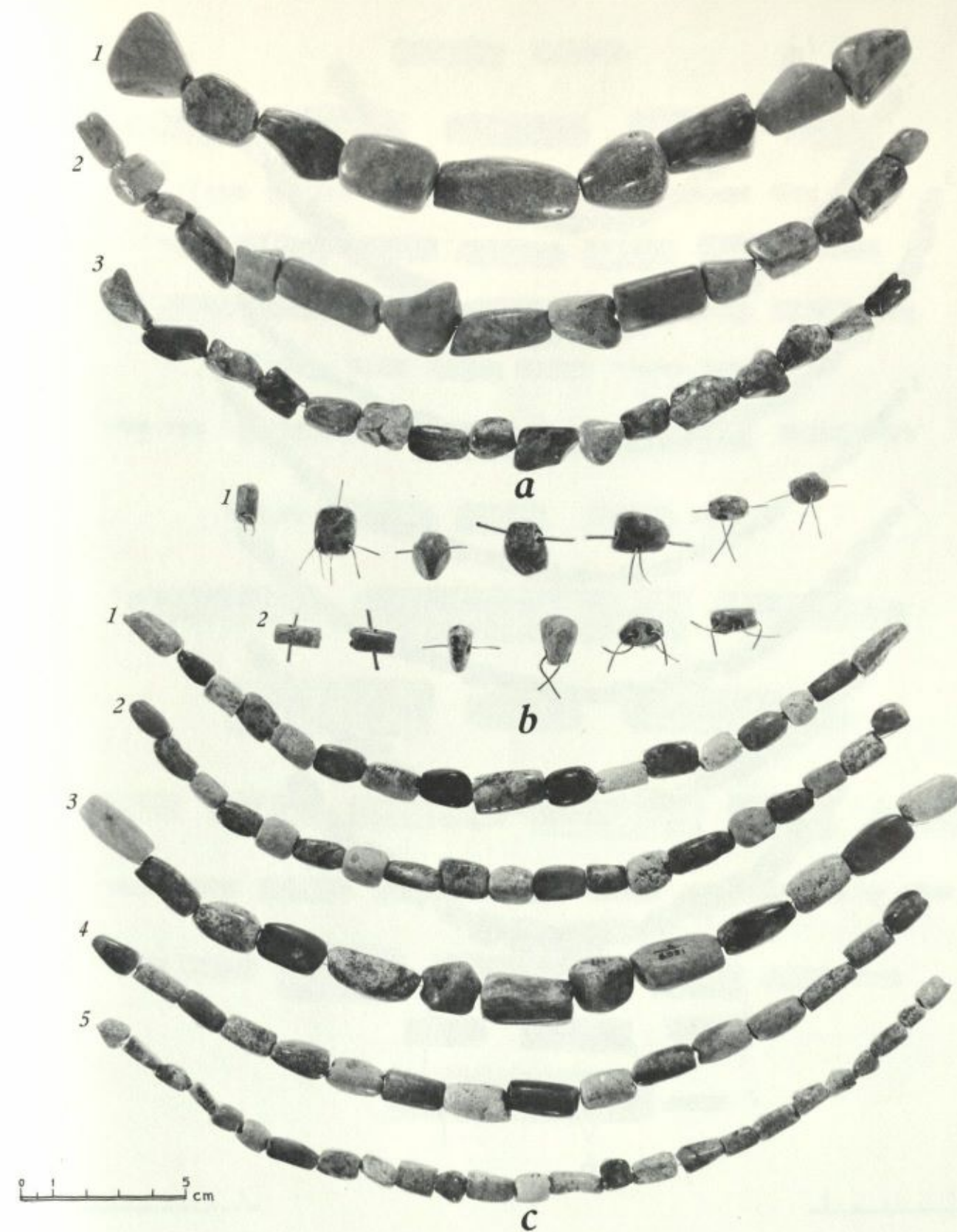


Plate 16. a. Set of angular and irregularly shaped beads of jades of fine quality; b. oblong beads with subsidiary perforation; c. miscellaneous oblong beads (see pp. 18, 22).



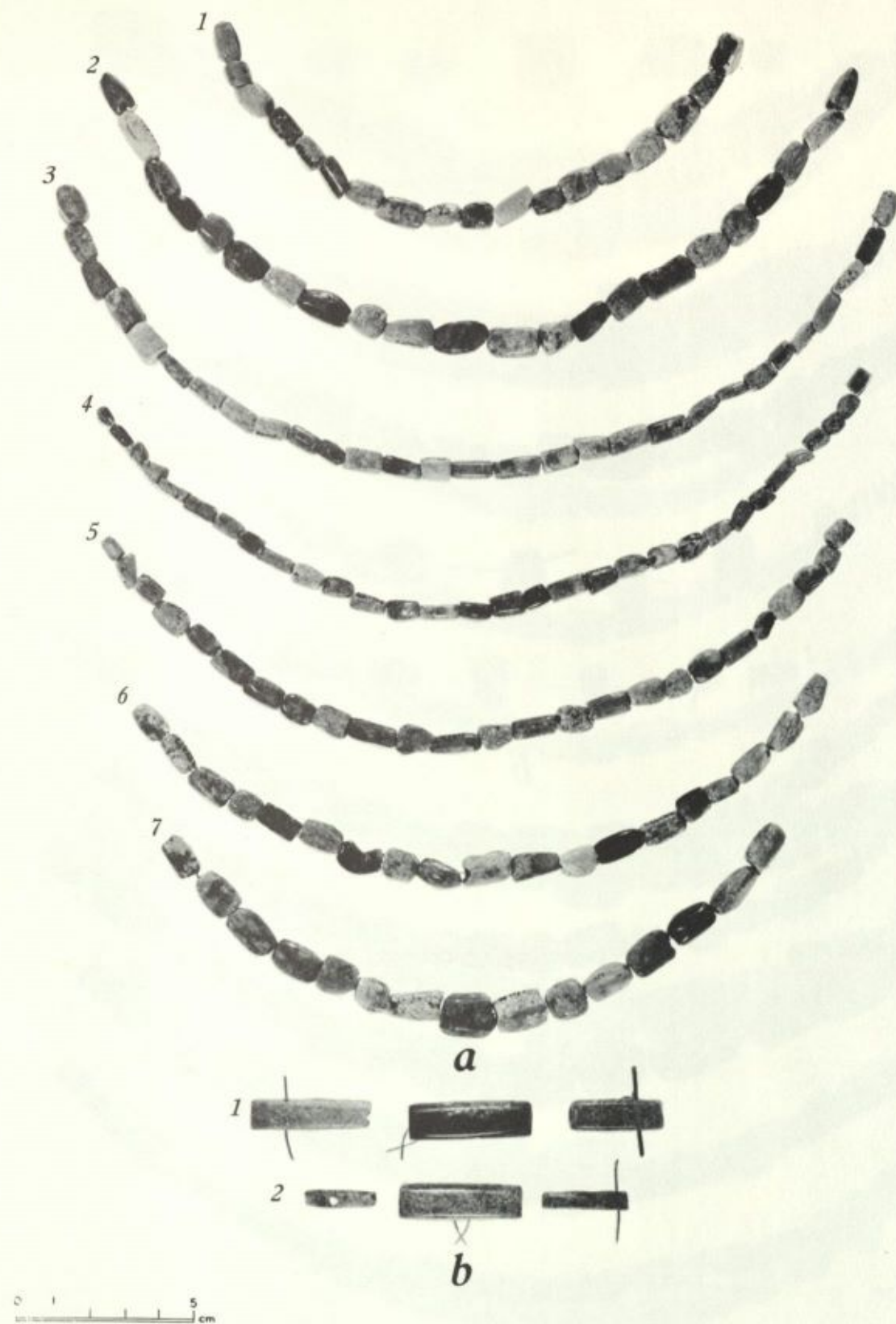


Plate 17. a. Small oblong beads; b. tubular beads with subsidiary perforations (see pp. 18, 22, 24).

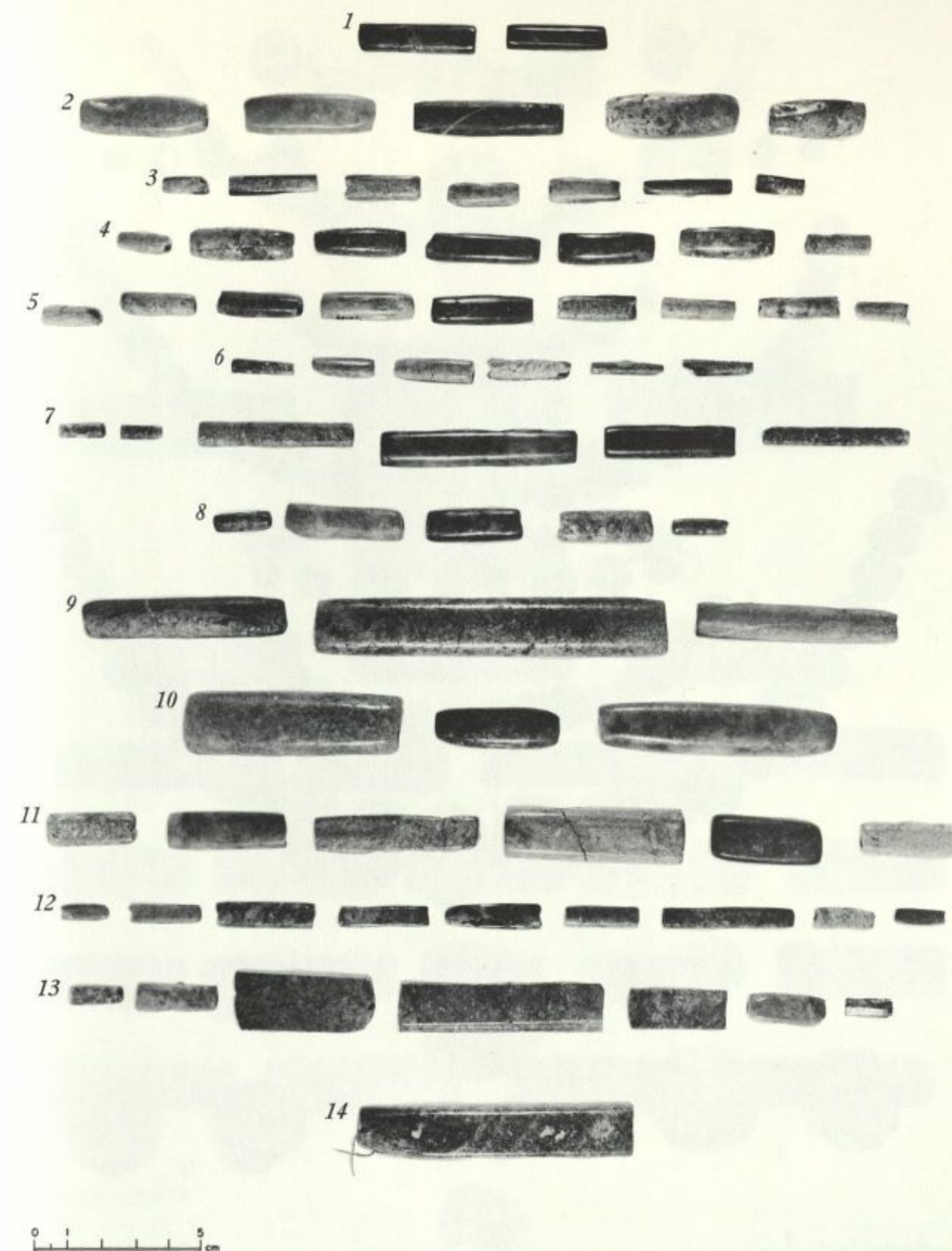


Plate 18. Plain tubular beads (see pp. 18, 24).



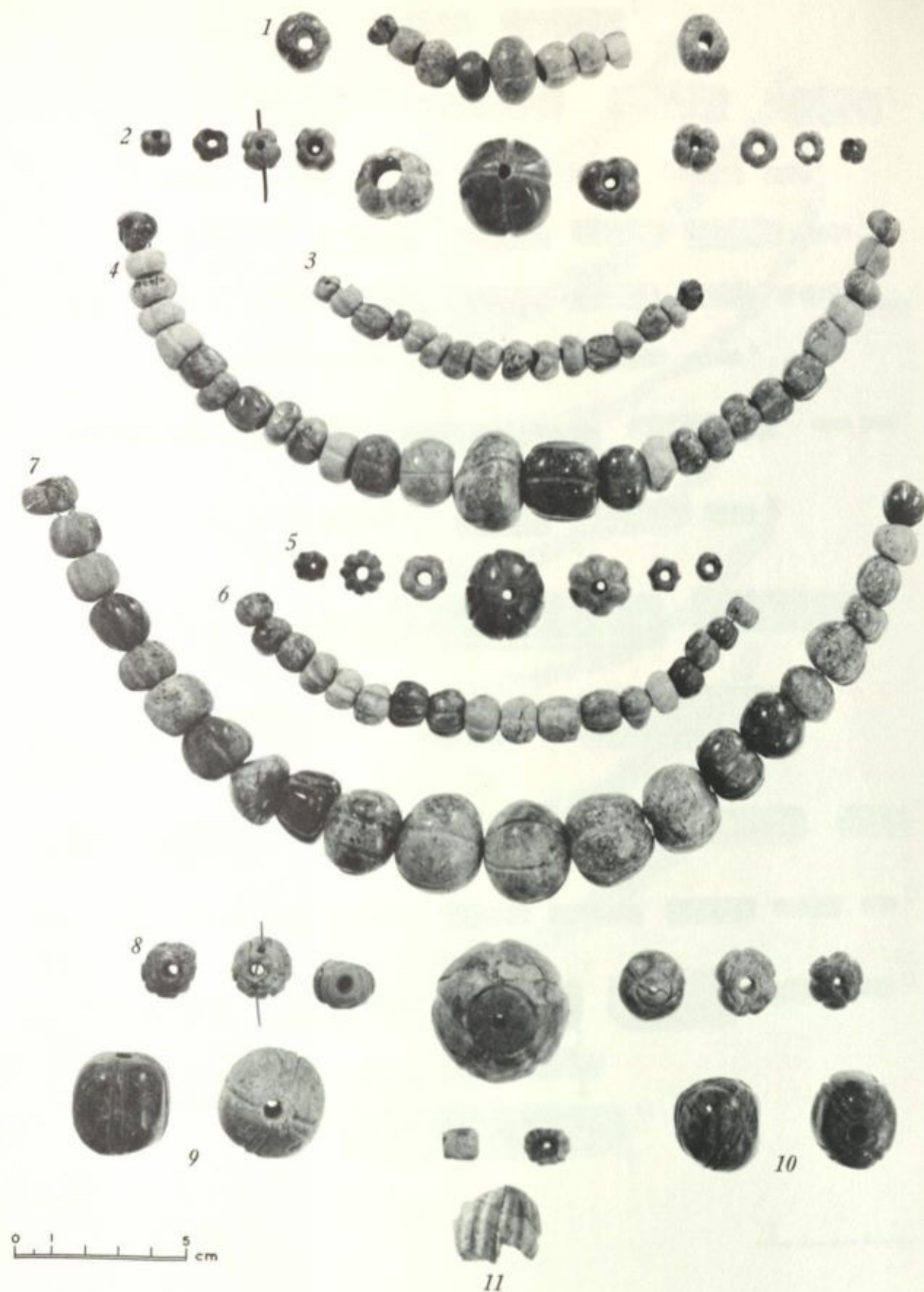


Plate 19. Decorated spheroid beads (see p. 24).

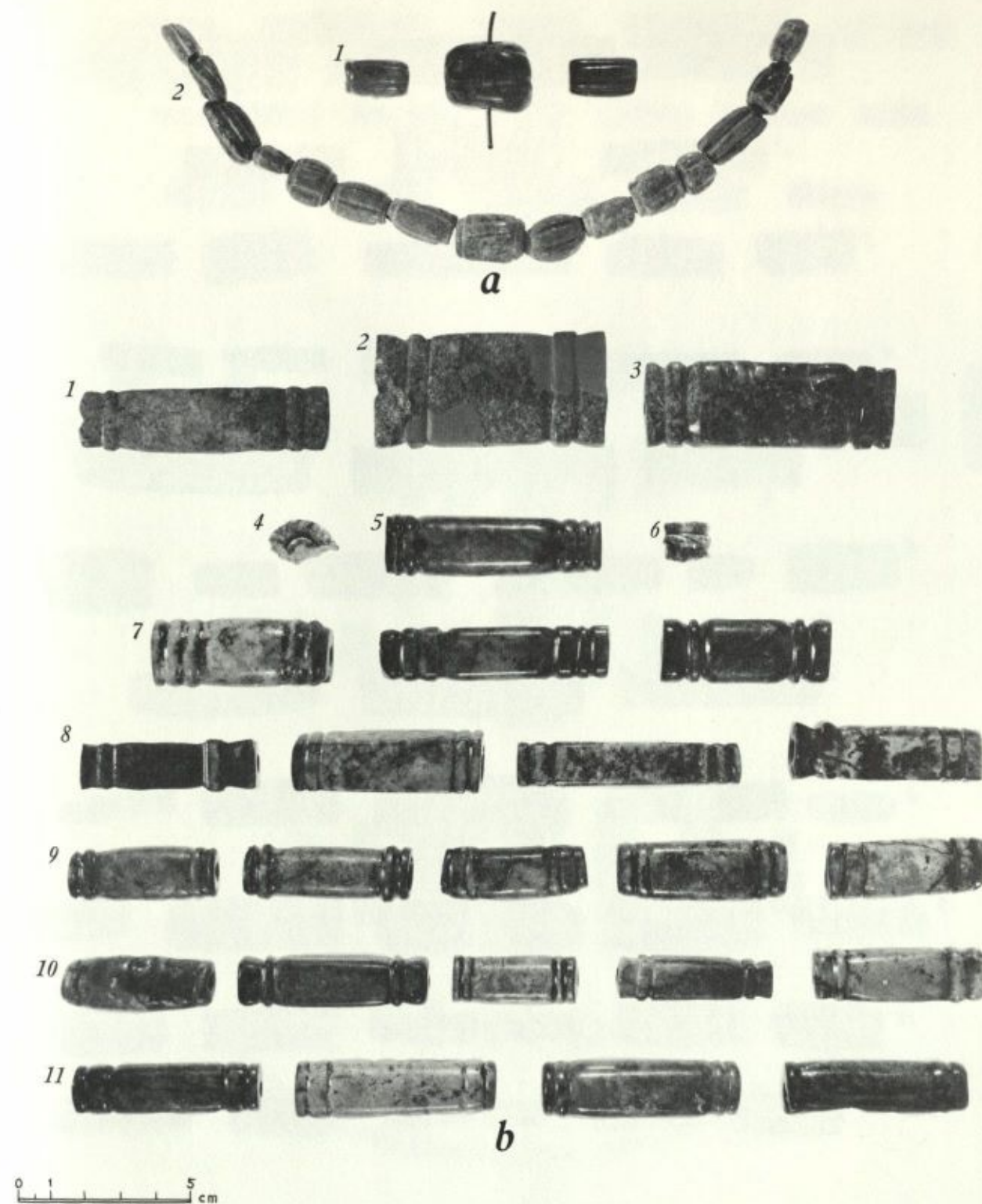


Plate 20. a. Lobed oblong beads; b. beads banded at both ends; no. 5 and rows 7-11: beads of exceptionally fine jade with traces of black coating (see pp. 24, 25-27).



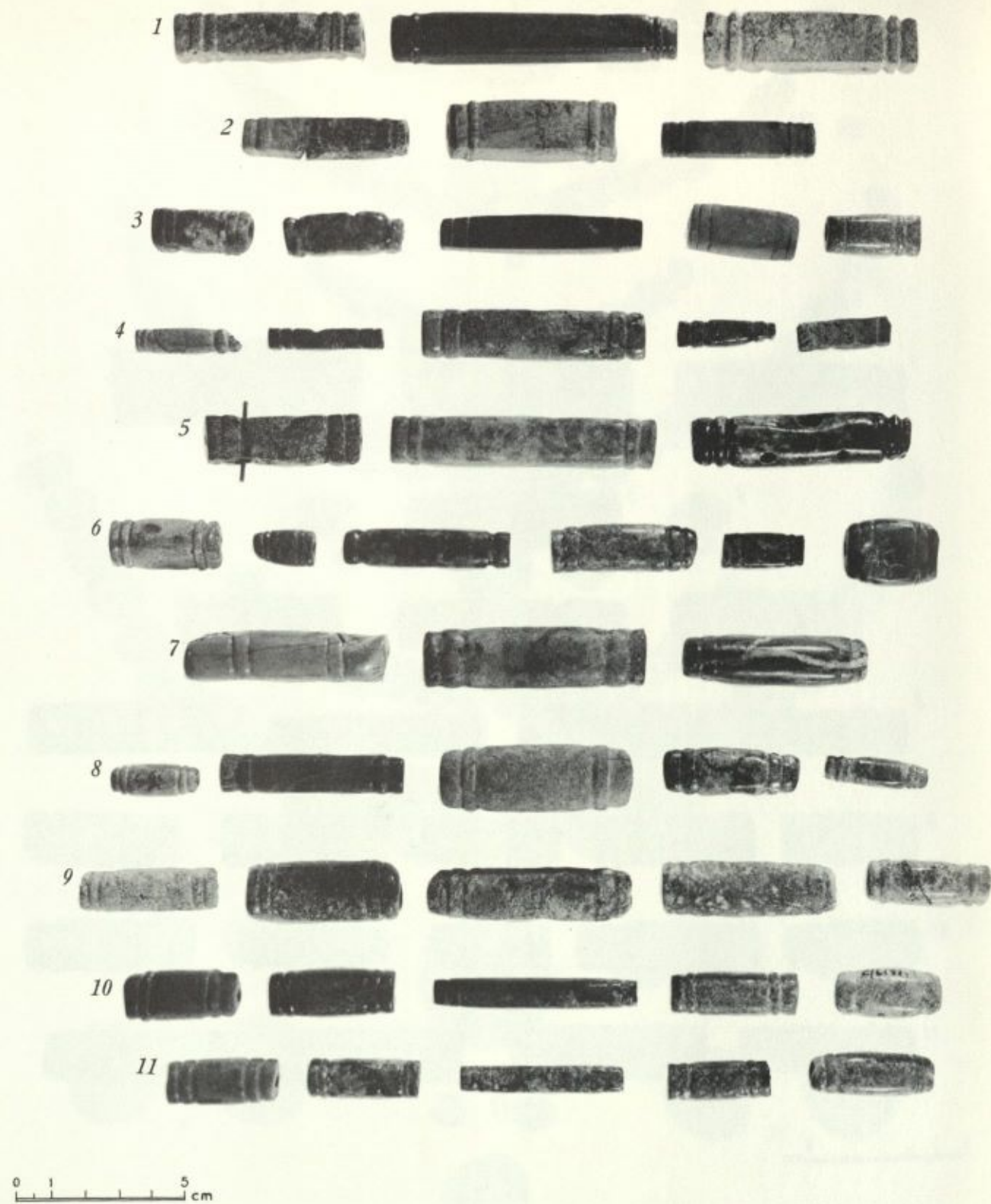


Plate 21. Miscellaneous oblong and tubular beads, banded at both ends (see pp. 24, 25).

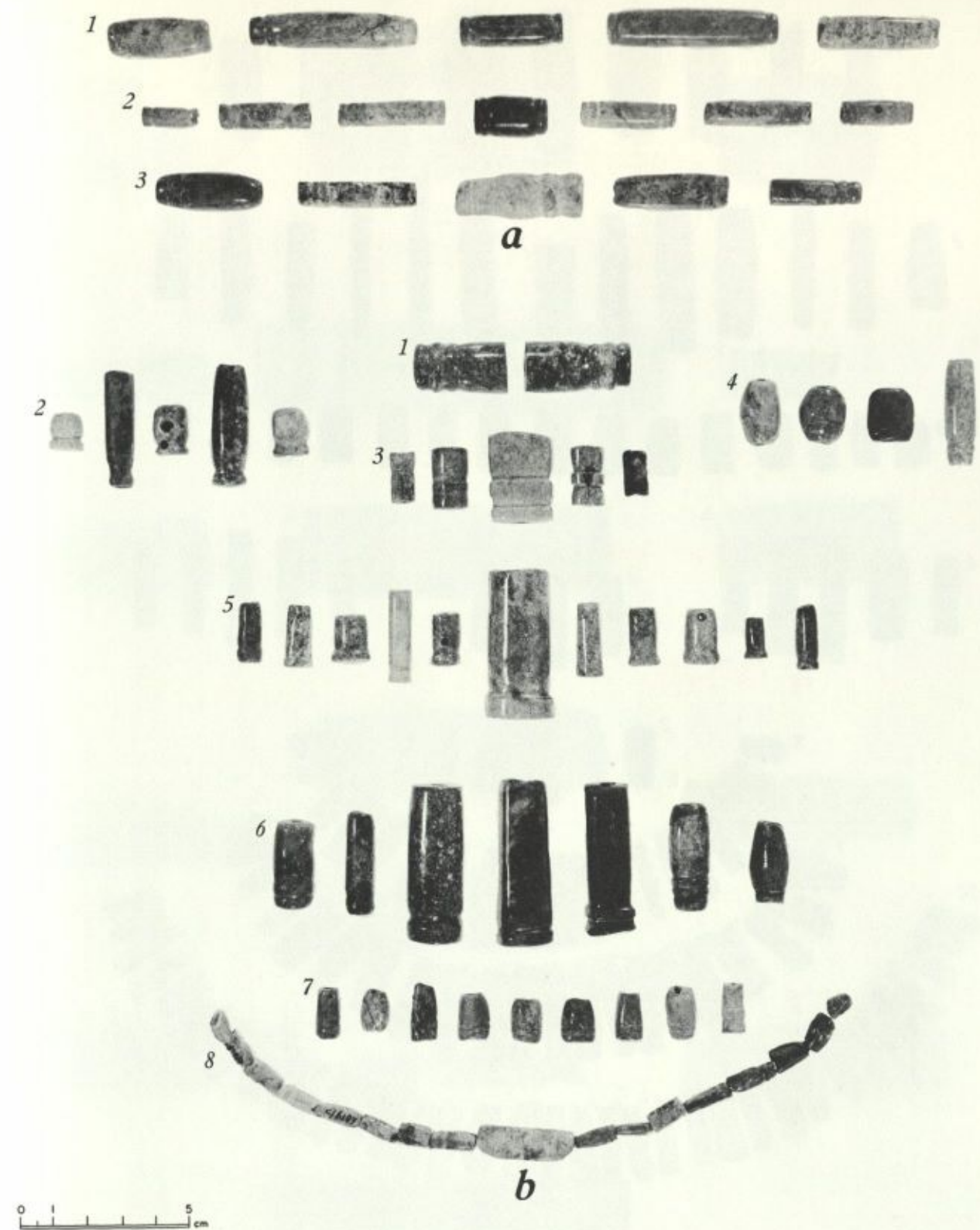


Plate 22. a. Beads banded at both ends; b. beads banded at one end only (see pp. 24-26).



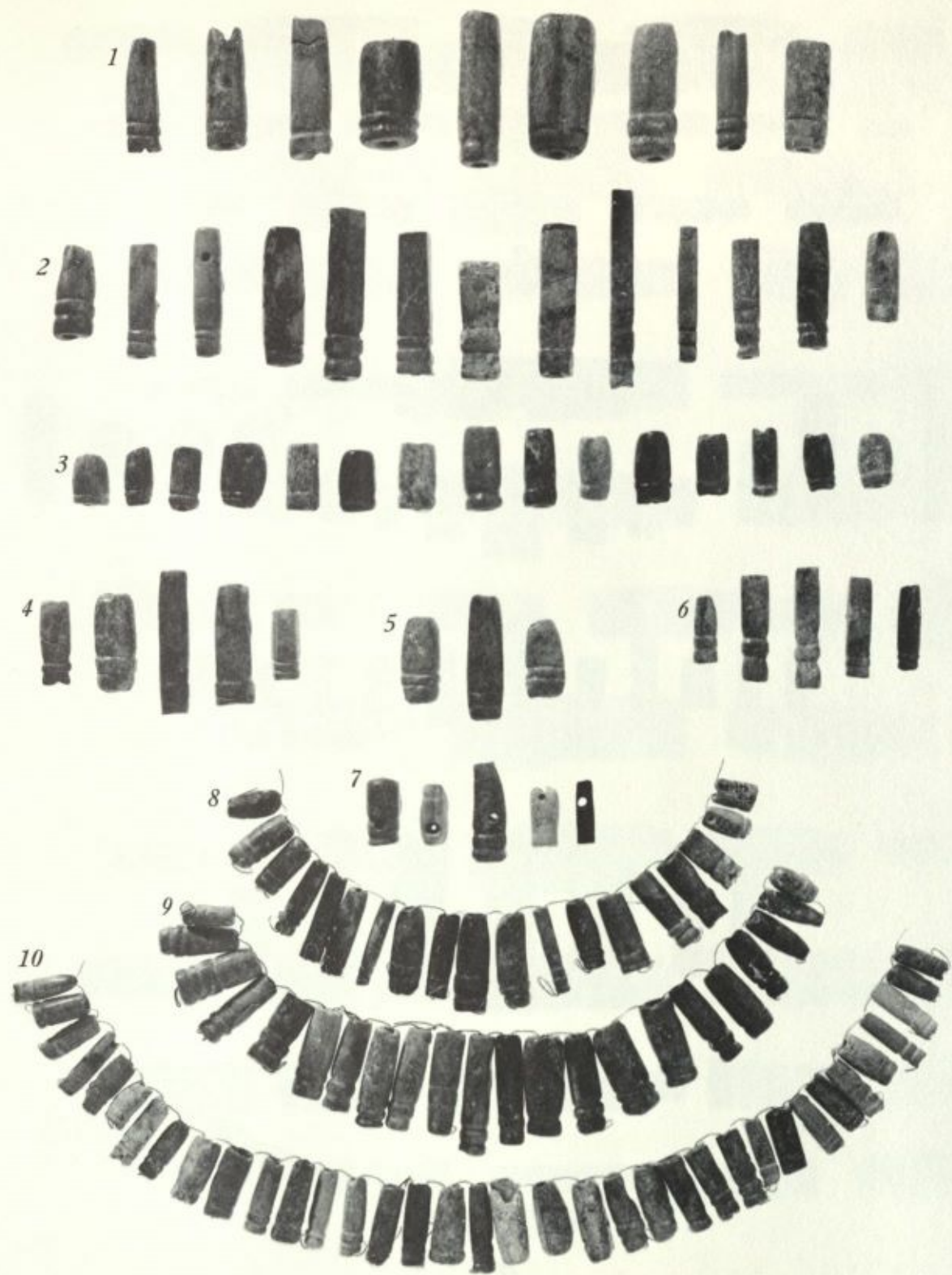


Plate 23. Miscellaneous beads, banded at one end (see pp. 24, 26).

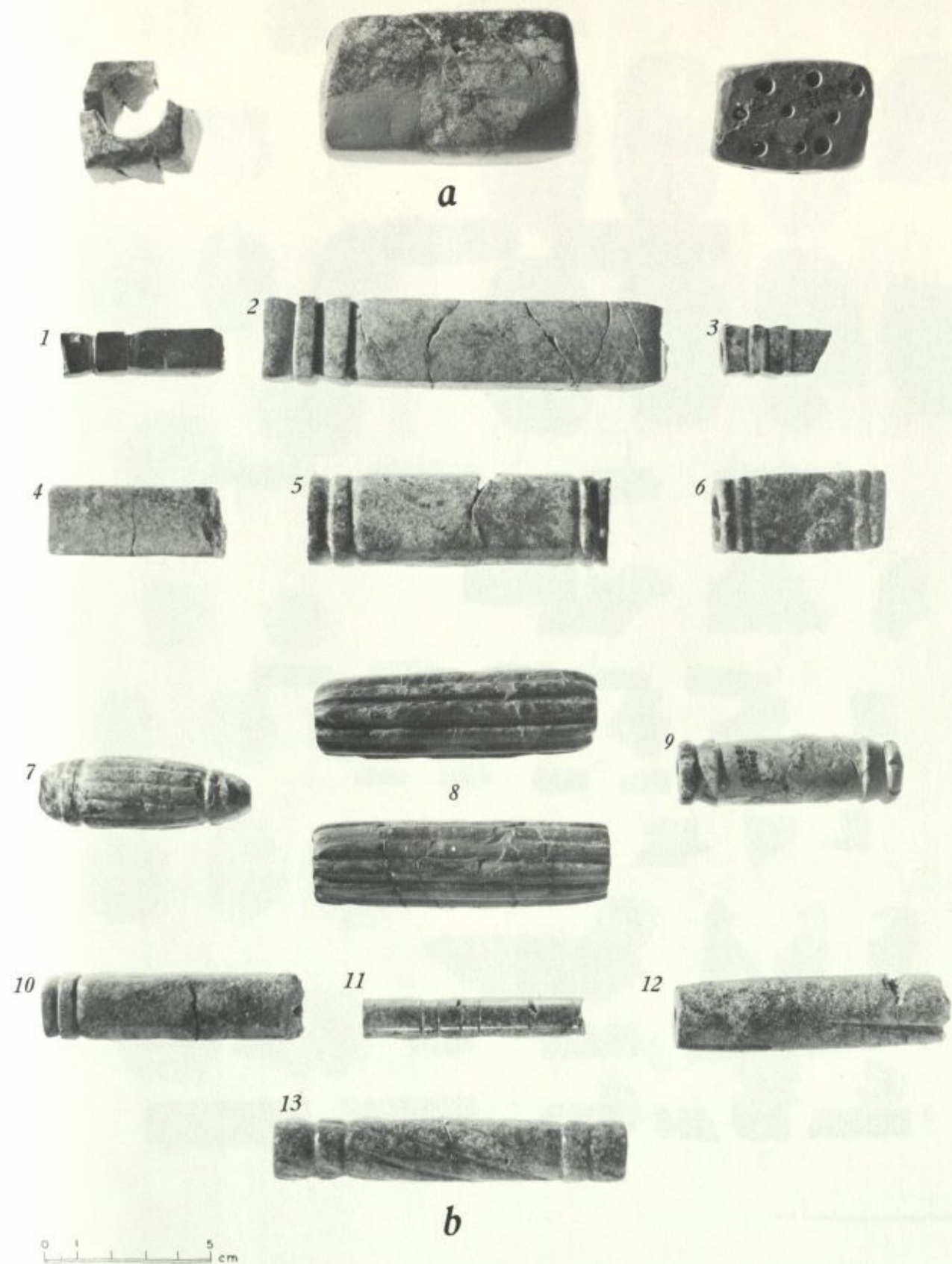


Plate 24. a. Large rectanguloid beads with wide cylindrical bore; b. various large tubular beads and fragments (see pp. 24, 25, 27).



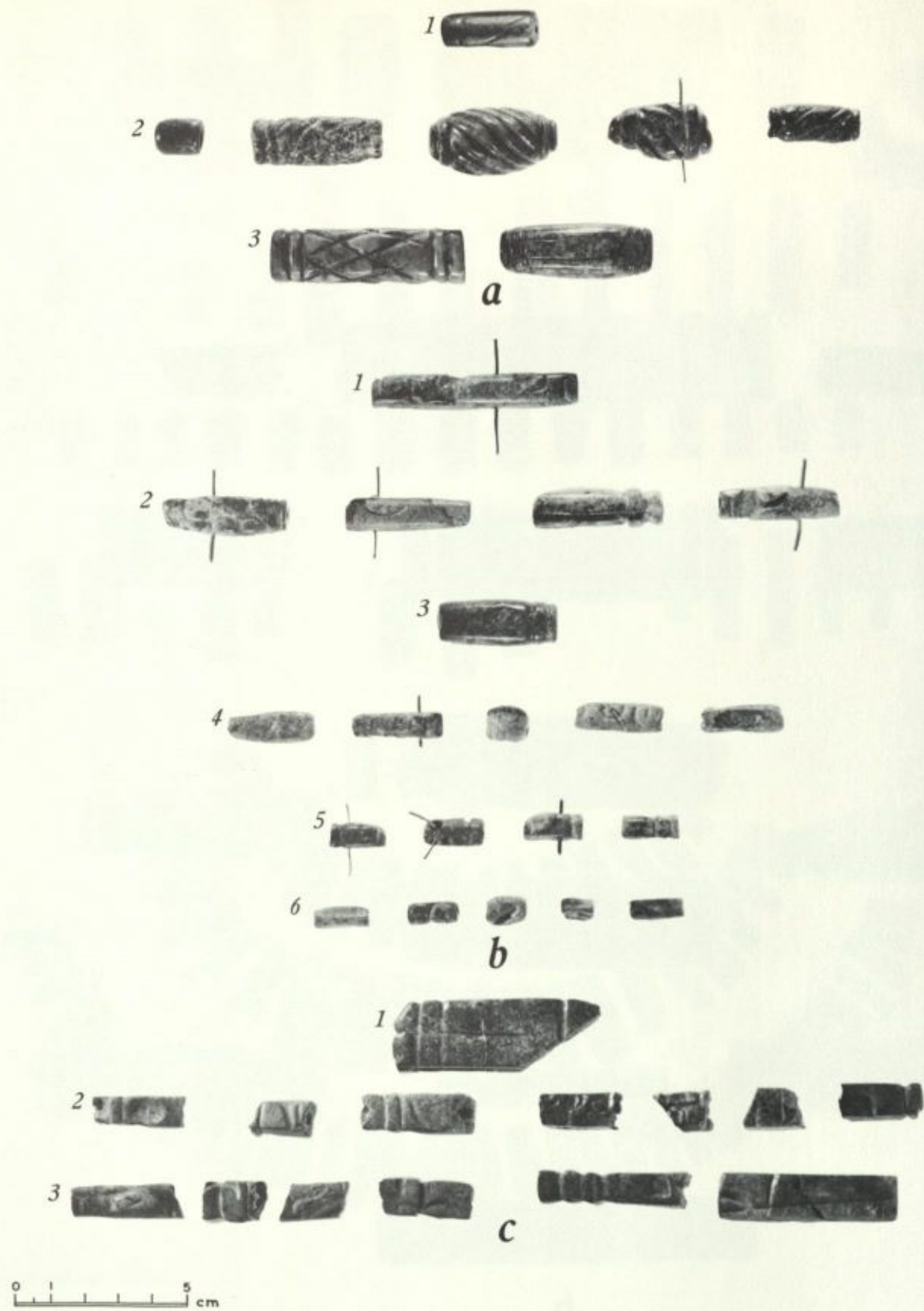


Plate 25. a. Beads with decorated shafts; b, c. beads made from older carvings, and fragments (see pp. 24, 27).

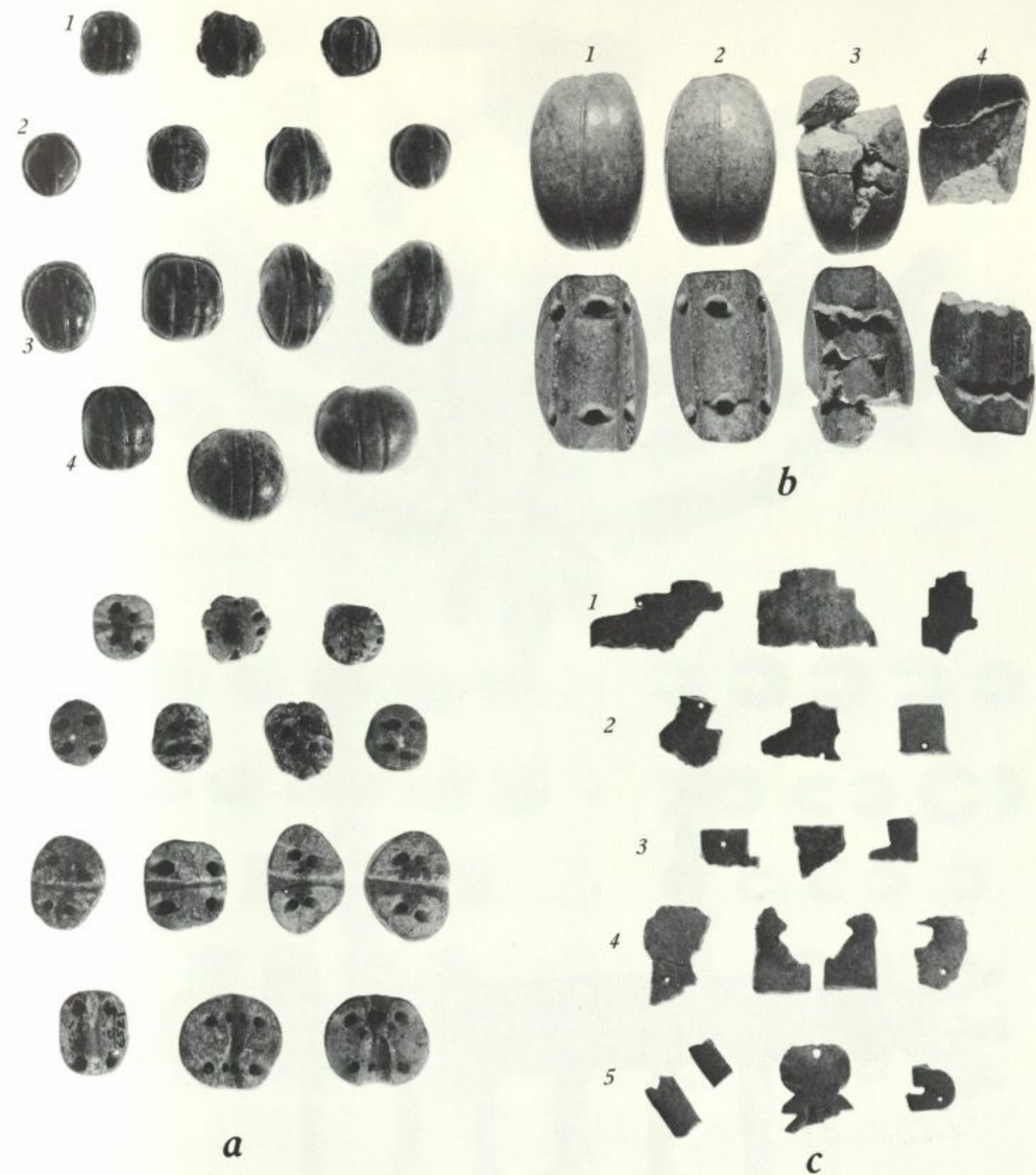


Plate 26. a. Perforated segments of beads; b. perforated segments of one large lobed bead; c. fragments of flat pieces (see pp. 27, 35).



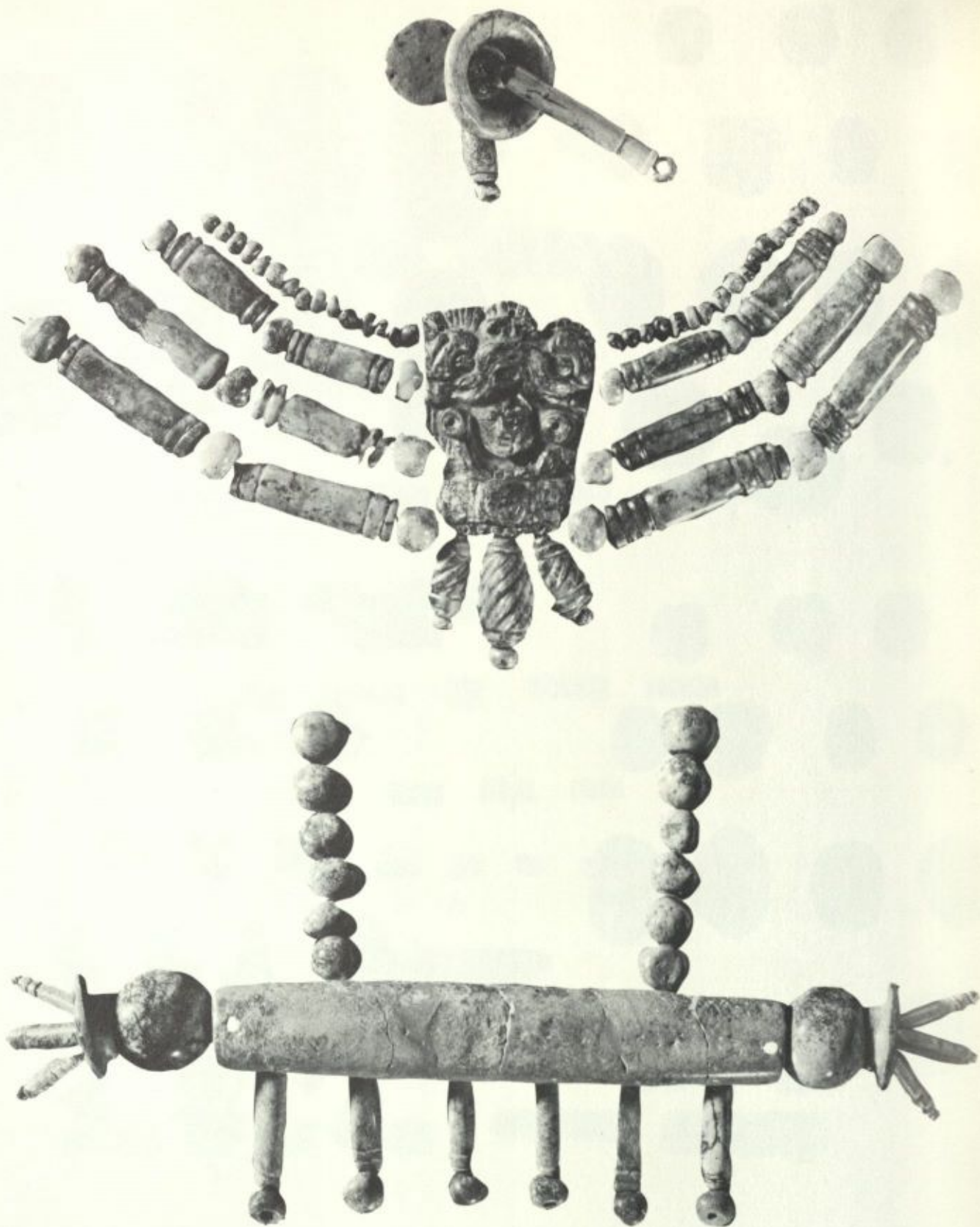


Plate 27. Suggested assemblages of earplug, collar, and bar-pectoral.

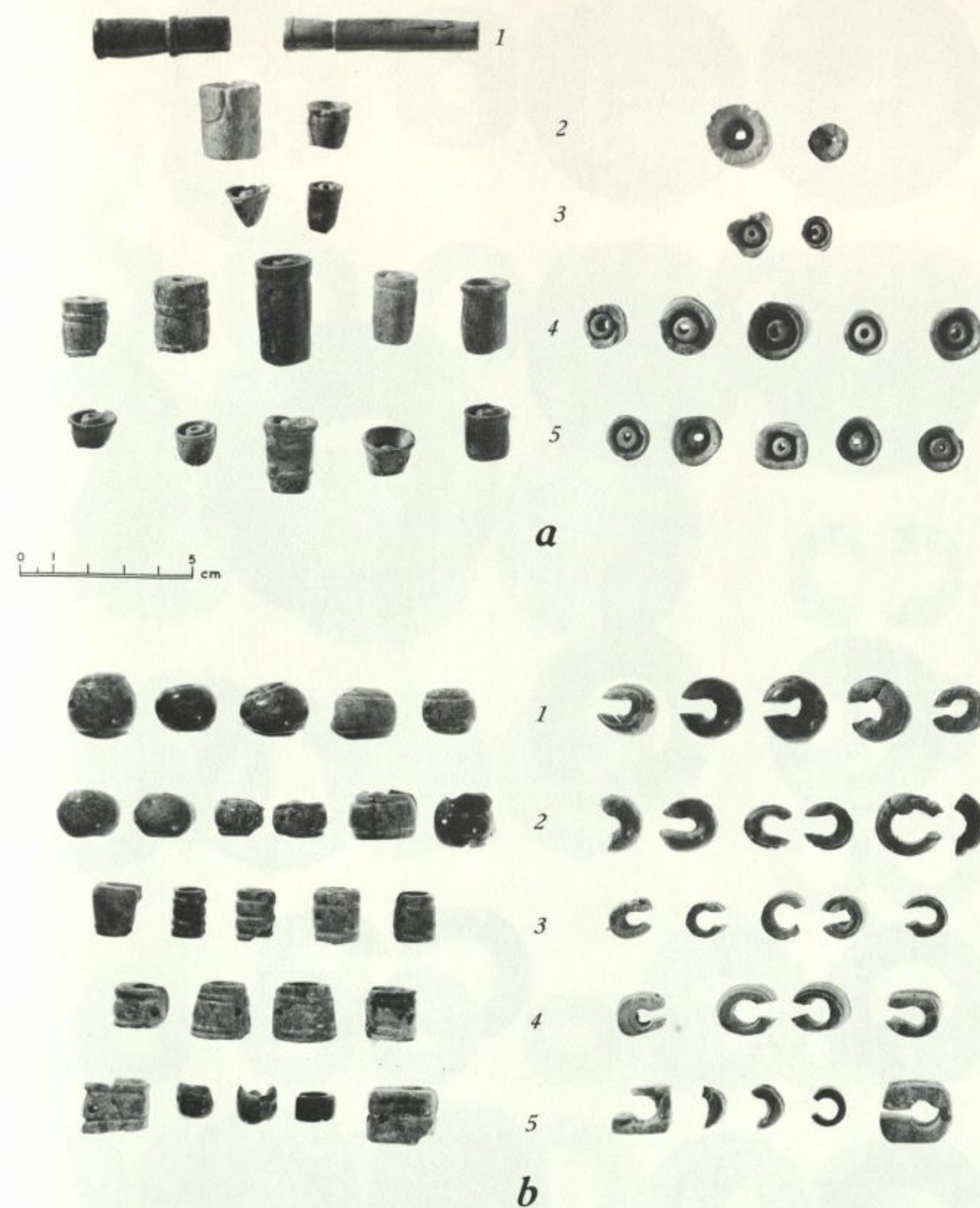


Plate 28. Objects manufactured from beads: a. miscellaneous forms and double-drilled beads; b. nose-buttons (see pp. 27-29).



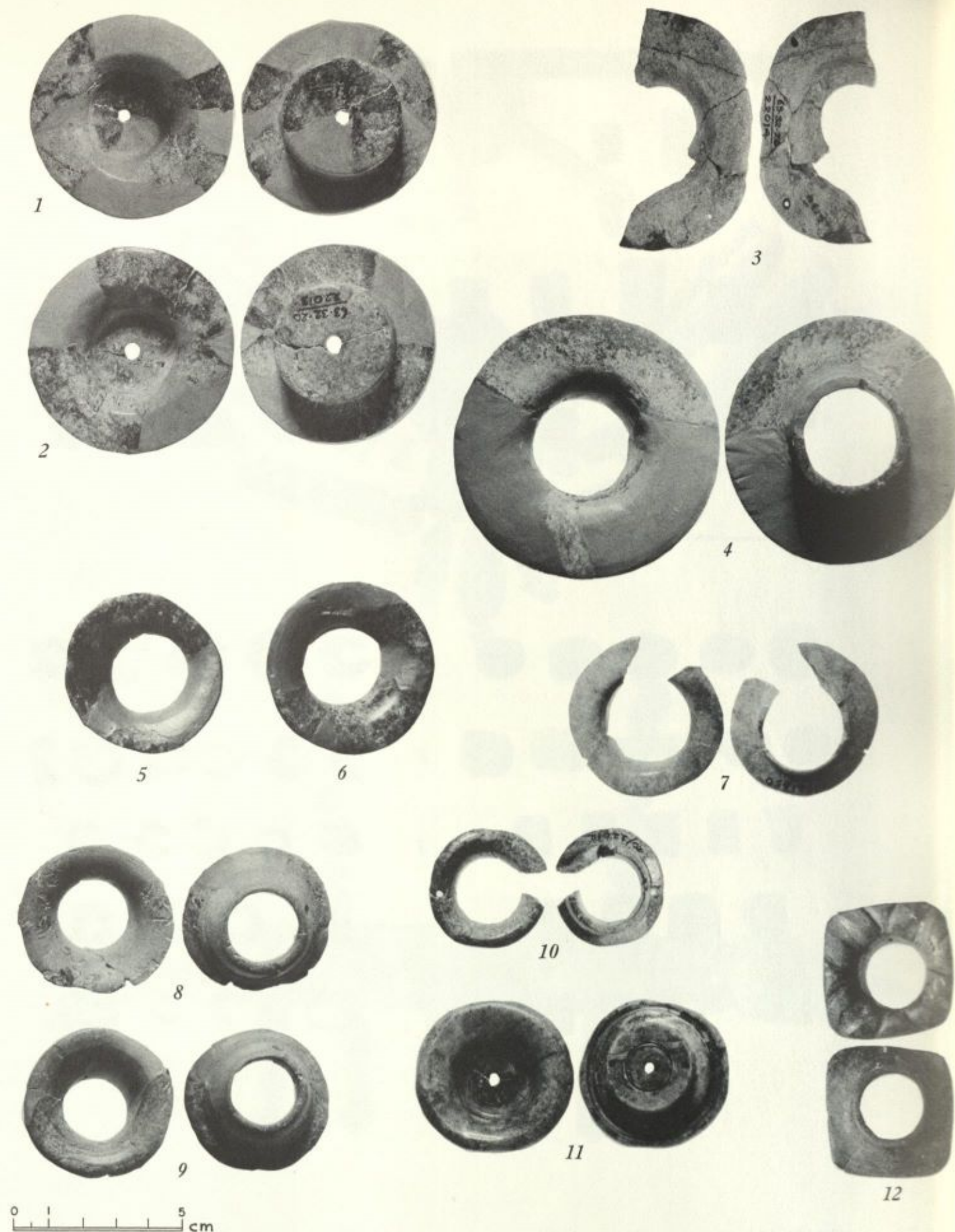


Plate 29. Ear-flares (see p. 29).

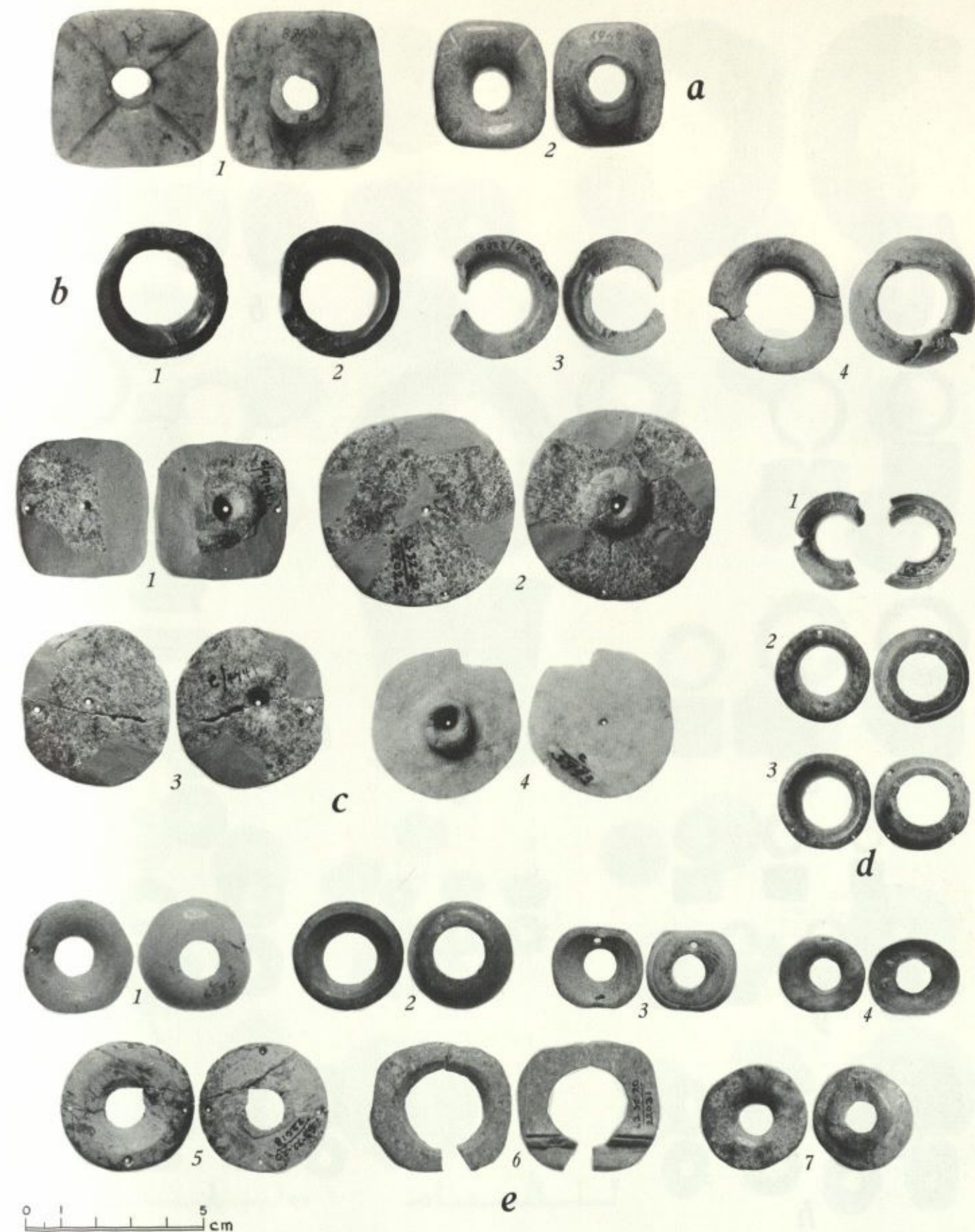


Plate 30. a. Type B flares with diagonal line decoration; b. neckless flares; c. ear-discs; d. small flares; e. flared rings (see pp. 29, 31).



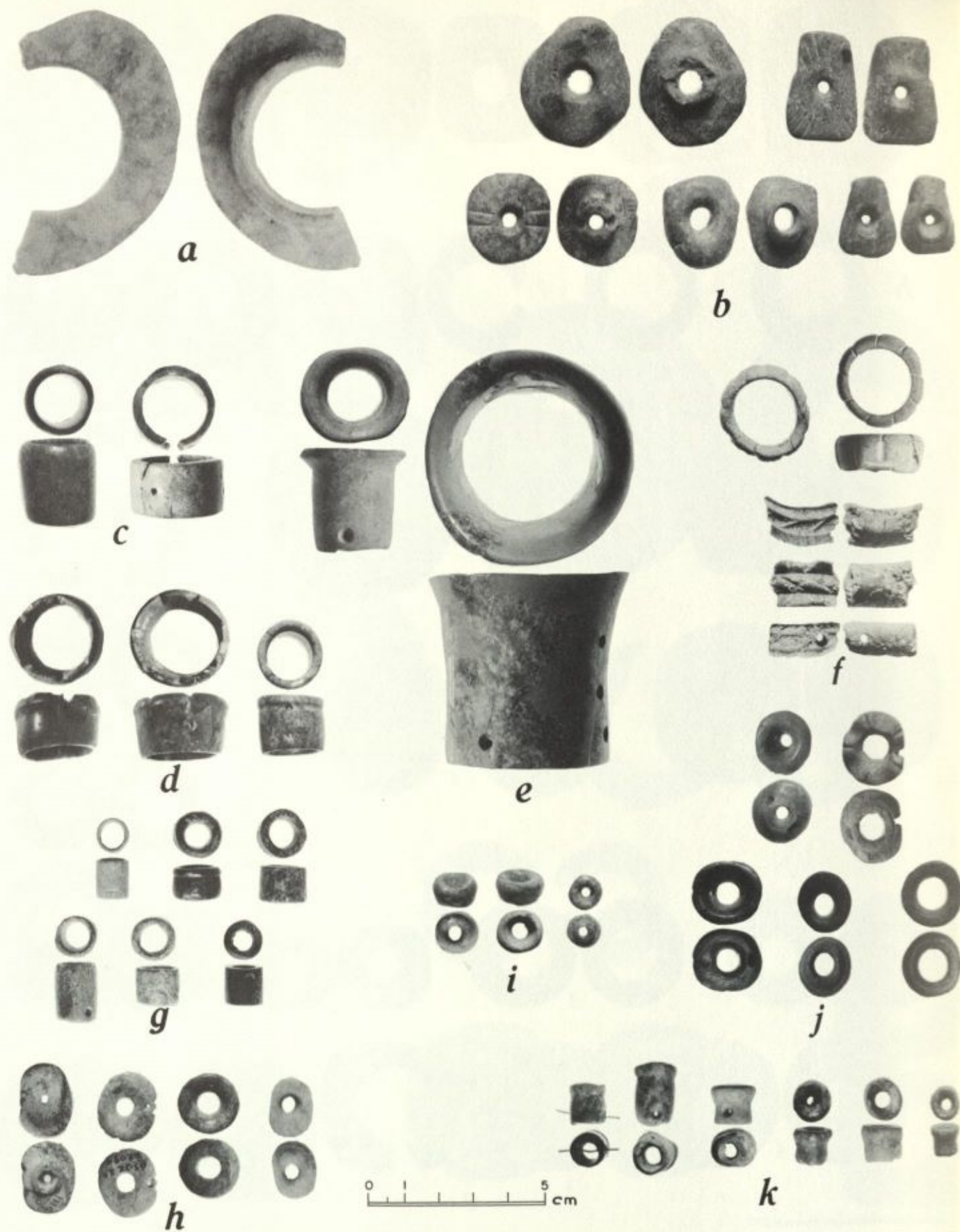


Plate 31. a. Fragment of large flared ring; b. buttonlike flares; c. plain cylinders; d. banded cylinders; e. flared cylinders; f. low, decorated rings. Miniature forms: g. cylinders; h. flared disc and rings; i. flared beads; j. flares; k. flared cylinders (see pp. 31, 32).

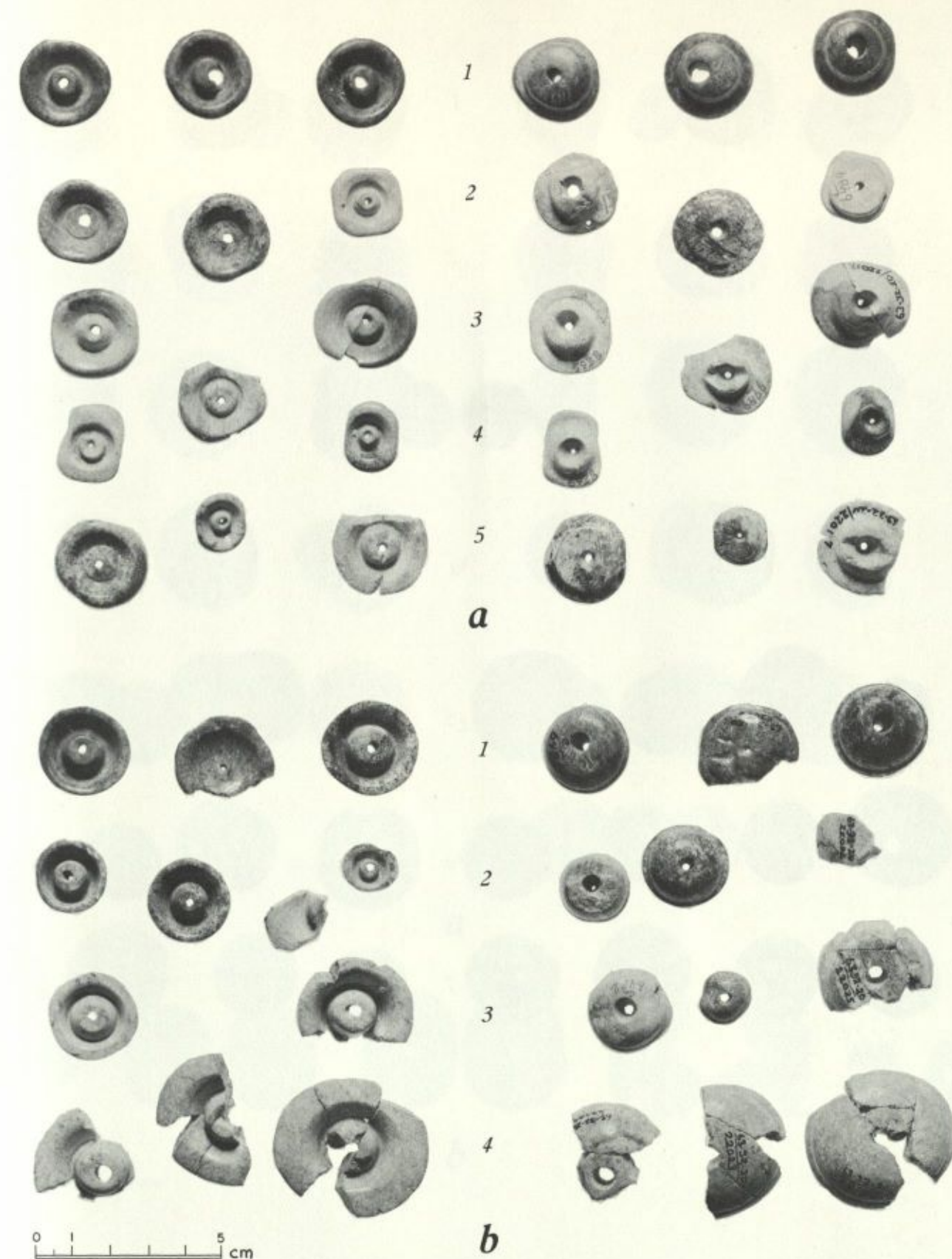


Plate 32. Buttons: a. flared base; b. rounded base (see pp. 32, 33).



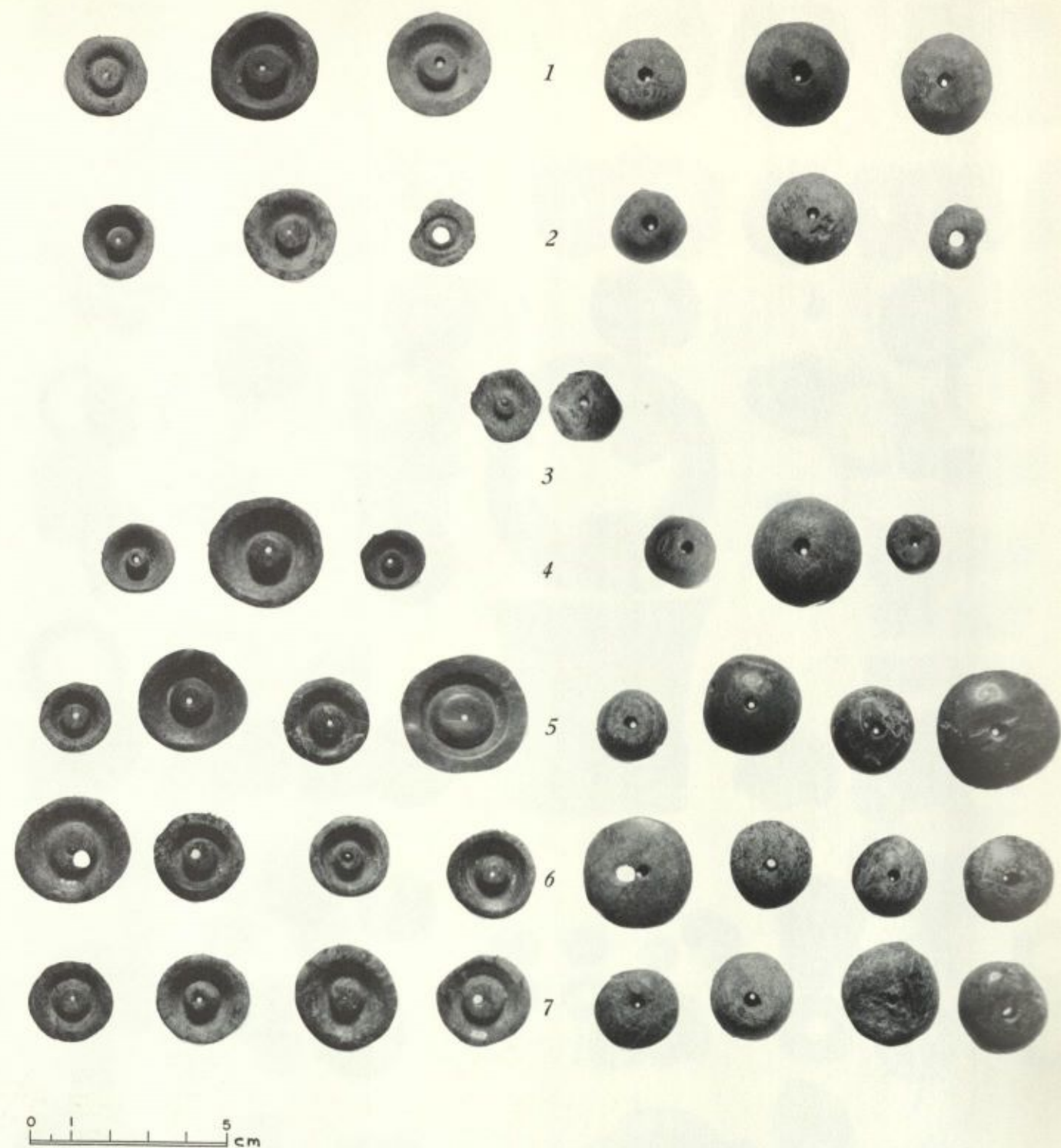


Plate 33. Buttons with rounded base (see pp. 32, 33).

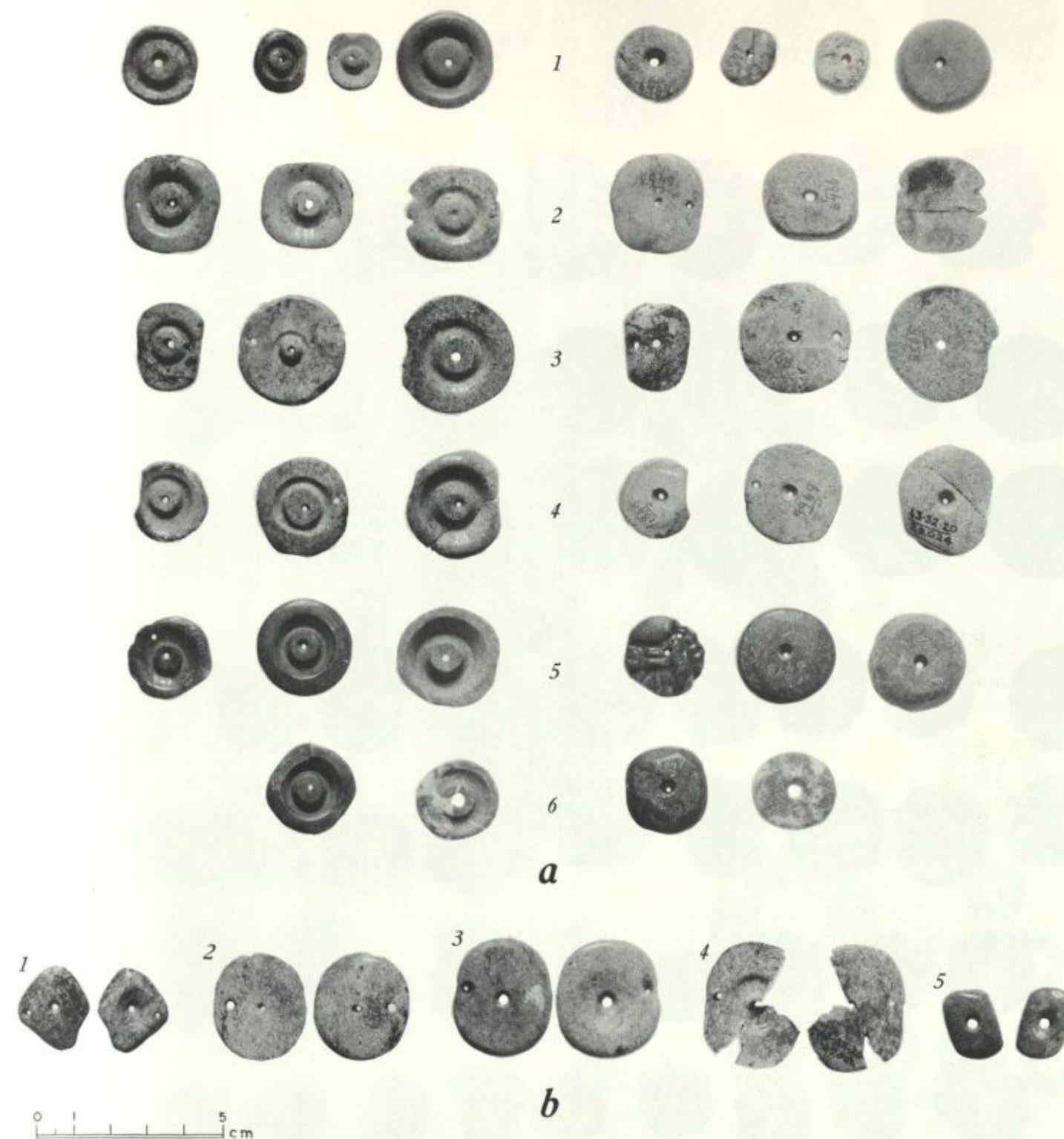


Plate 34. a. Flat buttons; b. thick buttonlike discs (see pp. 32, 33).



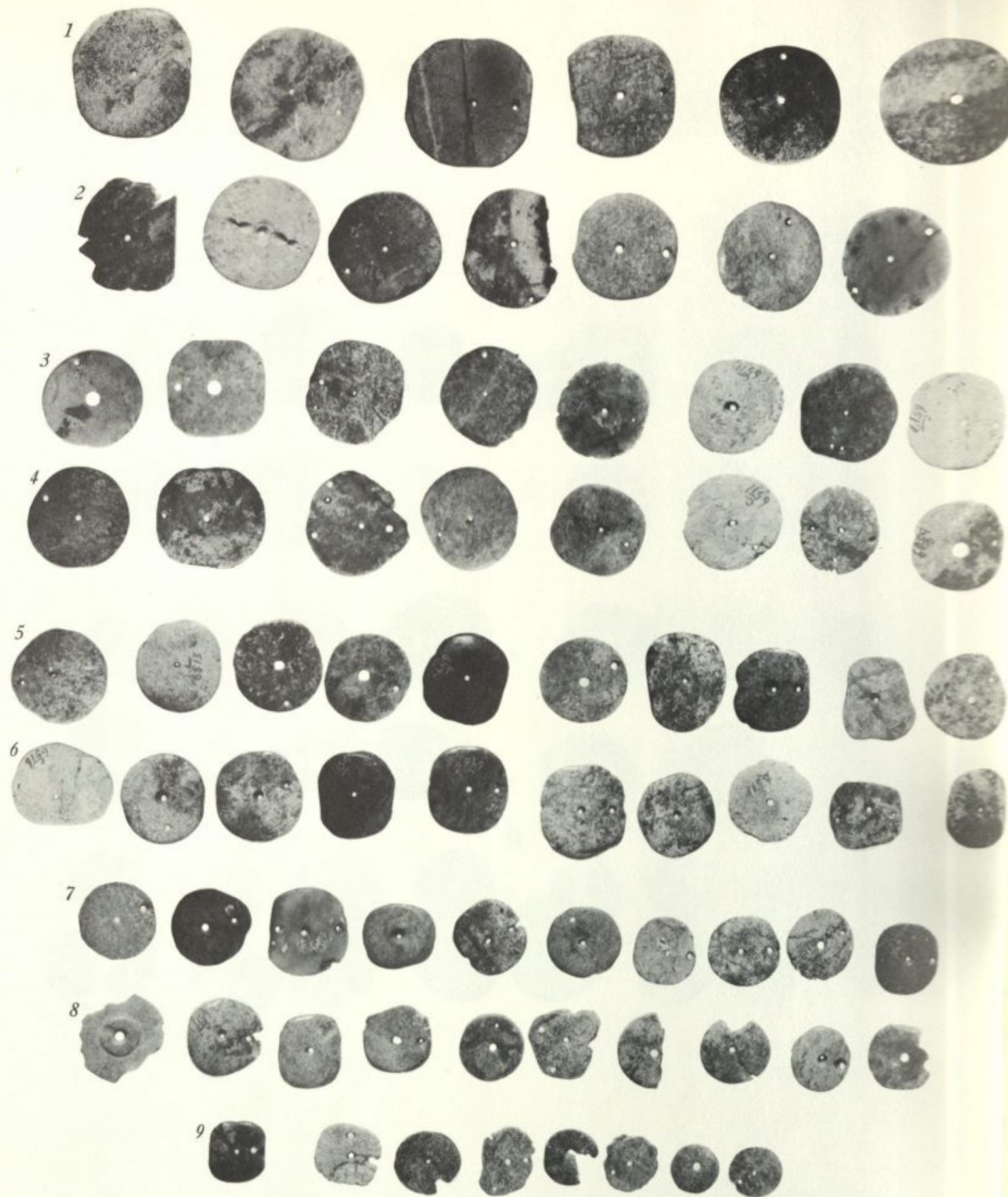


Plate 35. Perforated discs (see pp. 33, 34).

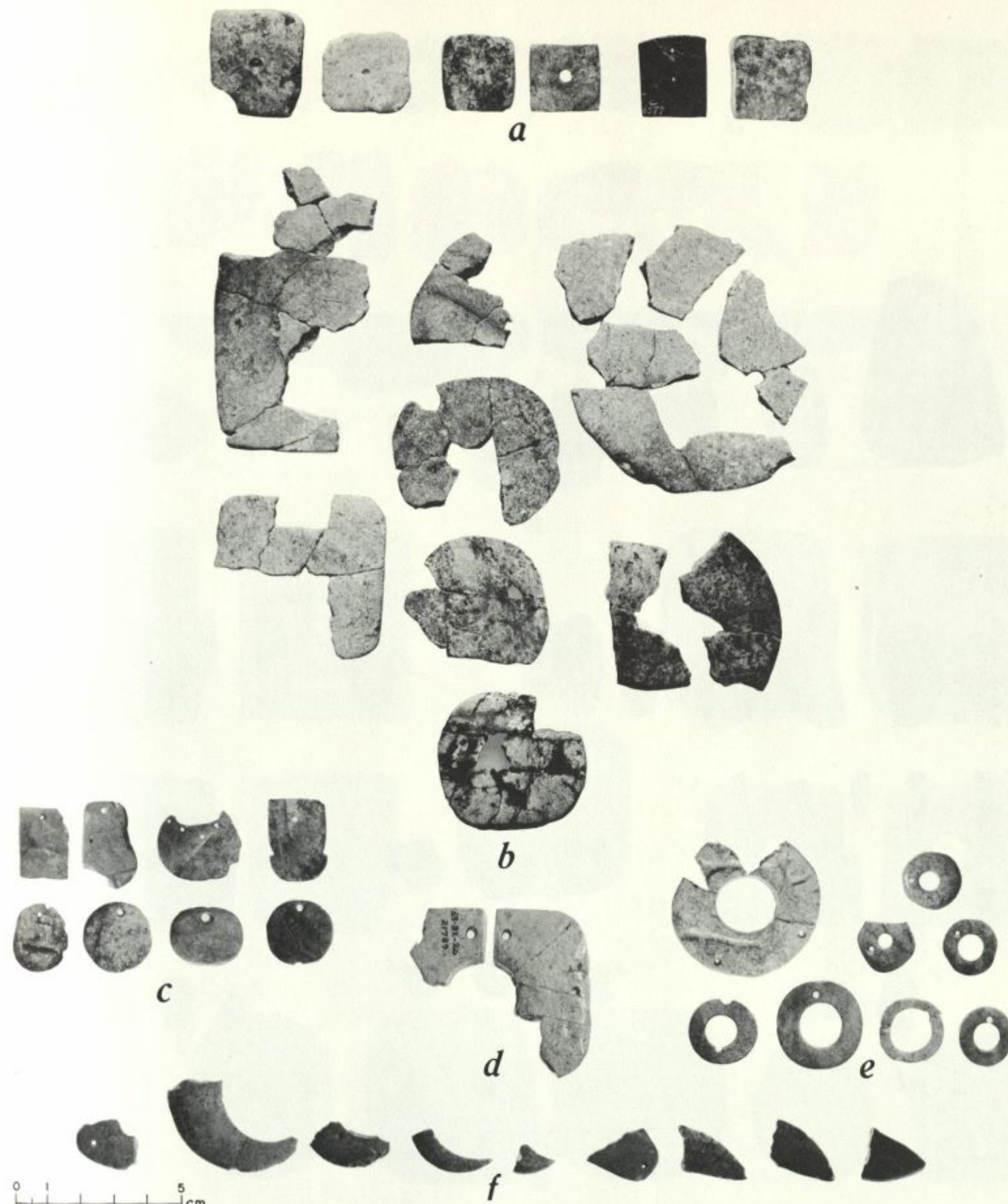


Plate 36. a. Perforated rectangles; b. fragments of large discs and rectangles; c. shaped spangles; d. fragments of cut rectangle; e. flat rings; f. fragments of crescents and allied forms (see pp. 33-35).





Plate 37. a. Unshaped flat perforated pieces; b. pebble-pendants with perpendicular bore; c. pebble-pendants with parallel bore; d. tooth-shaped pendants; e. miscellaneous small flat ornaments; f. tool-shaped pendants (see pp. 35, 36).

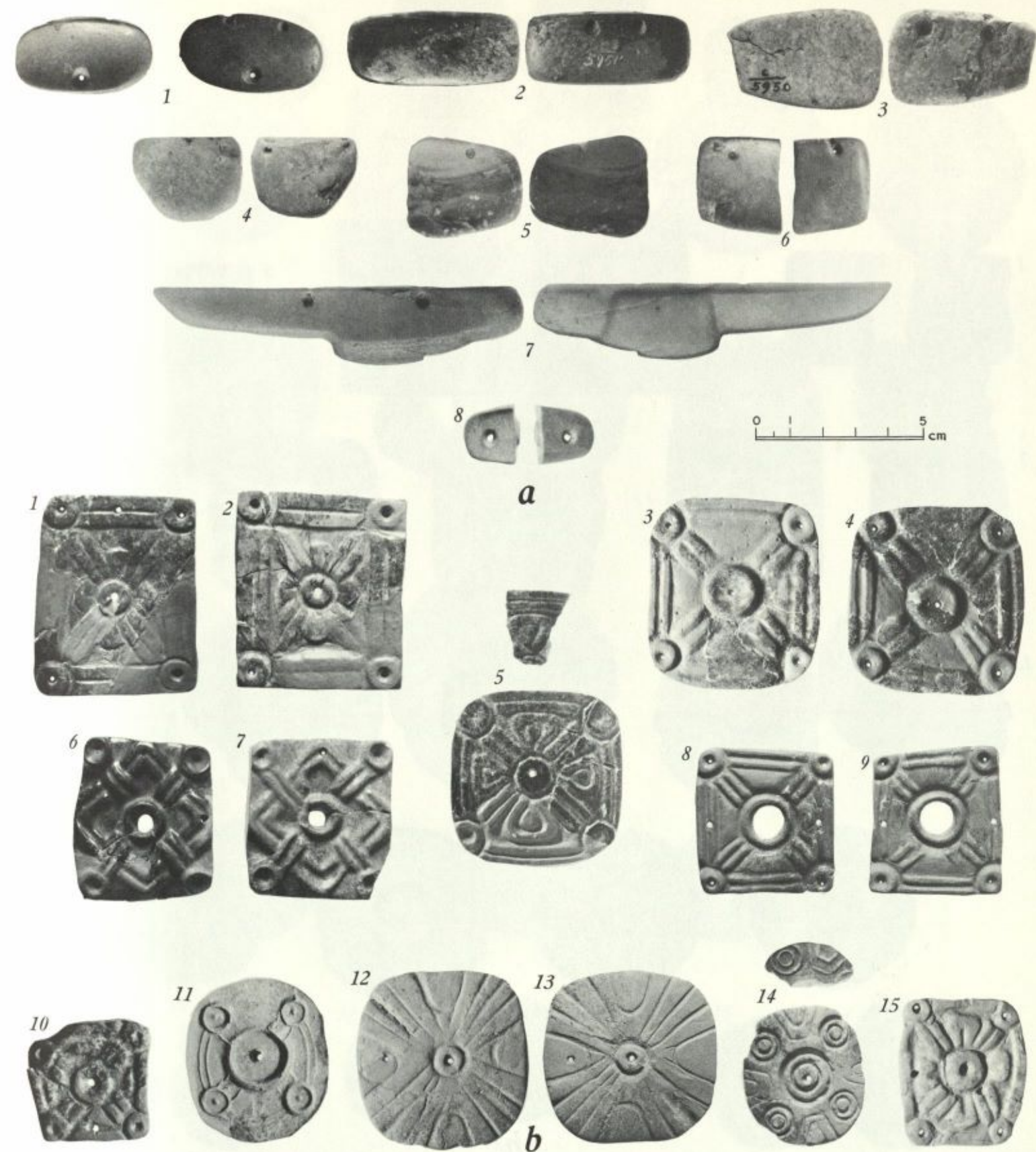


Plate 38. a. Olmec-style, concave-surface pendants; b. decorated rectangles and discs, five-circle and allied designs (see pp. 35-37).



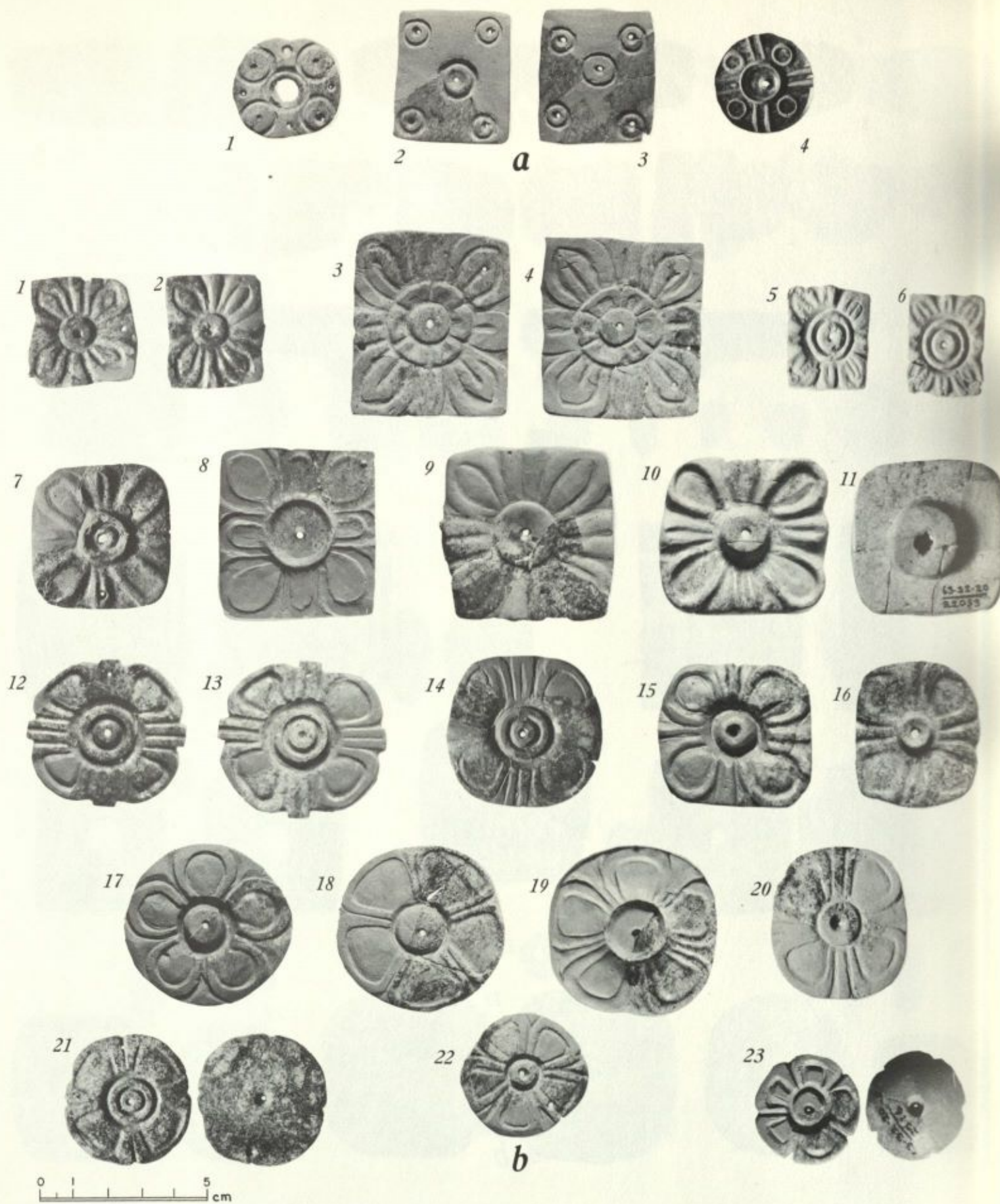


Plate 39. Decorated rectangles and discs: a. reduced five-circle design; b. petal designs (see p. 37).



Plate 40. Decorated discs with petal designs: a. normal petal motif; b. variants (see p. 37).



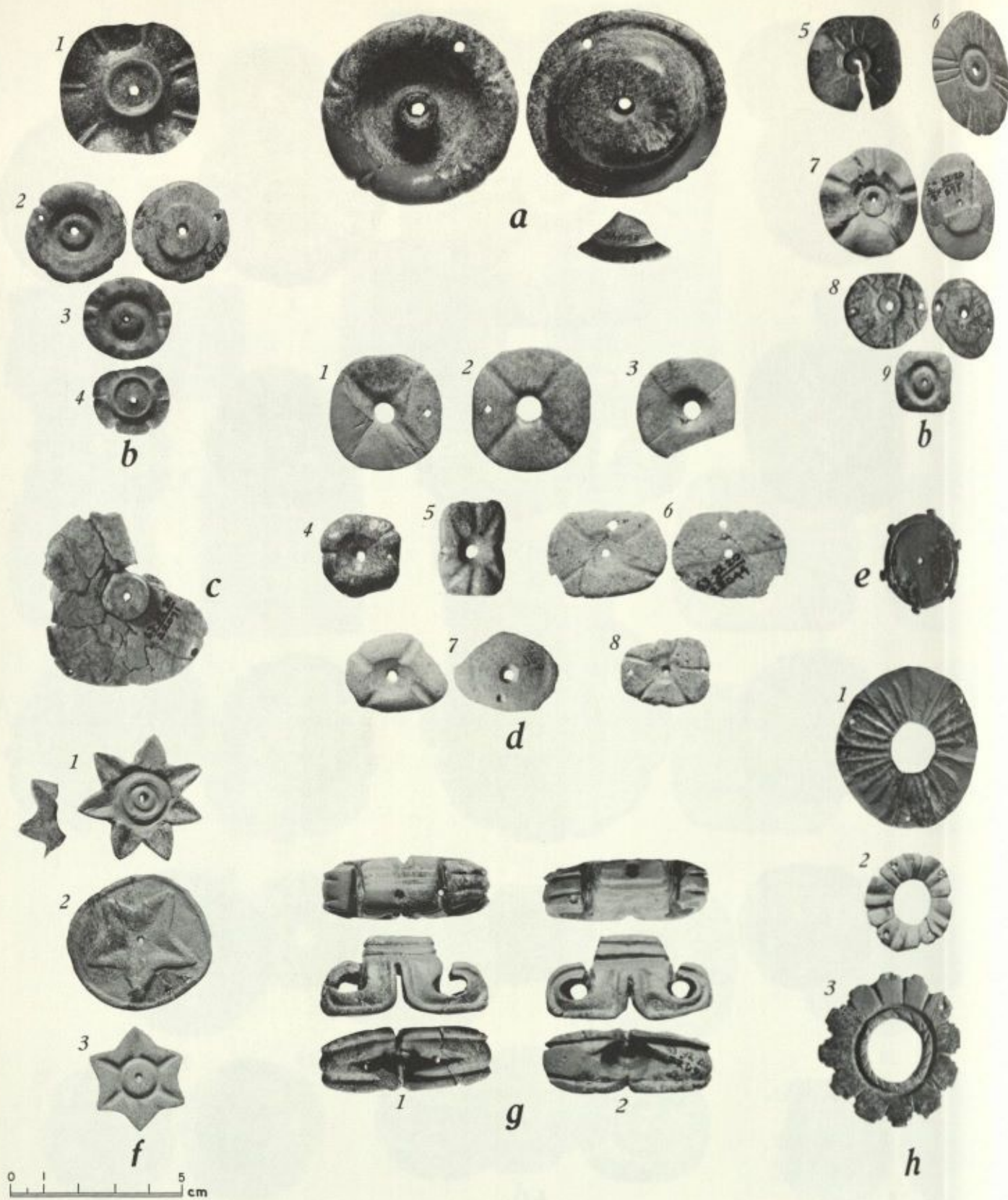


Plate 41. a. Large button or flare with petal design on rim; b. buttons with simplified designs; c. large button or disc with simplified petal design; d. flared discs with simple designs; e. "cogwheel" disc; f. discs with star design; g. pair of finials in the shape of bifurcated scrolls; h. decorated flat rings (see pp. 32, 33, 36, 38, 39).

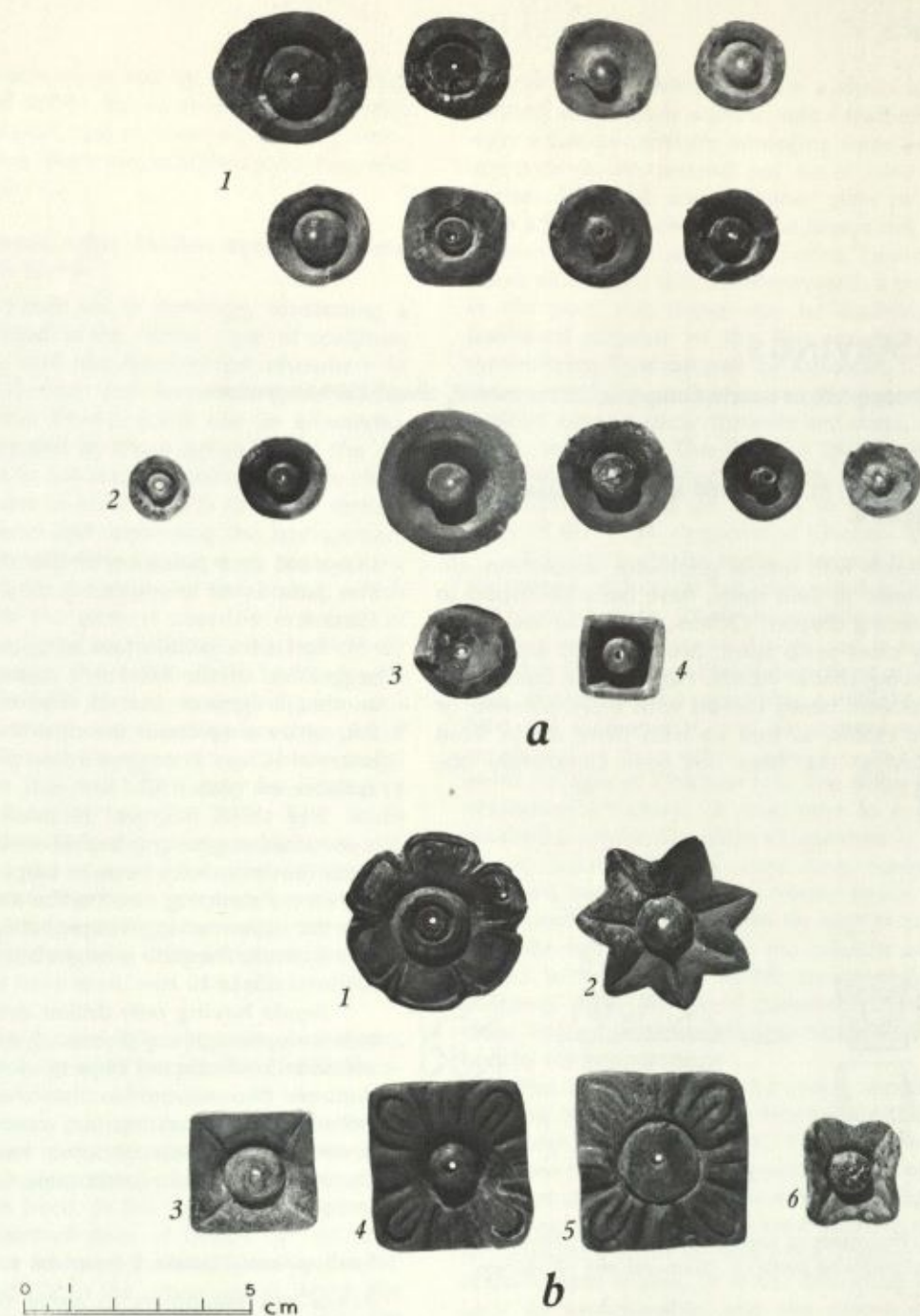


Plate 41A. a. Restored buttonlike ornaments; b. restored decorated rectangles and atypical discs (see pp. 33, 36, 38, 39).



## IV CARVINGS

505, 162 complete or nearly complete, 202 restored, about 2500 fragments

**CARVED BEADS: 51, about 100 fragments. Plates 42-45; figure 8.**

Beads with simple geometric decoration, directly related to their form, have been described in the preceding chapter. Others, converted into pendants by cross-perforation, are discussed with pendants having similar motifs. Here we are concerned with unaltered beads carved with representative or symbolic motifs, as well as with those made from older carvings that have not been completely obliterated.

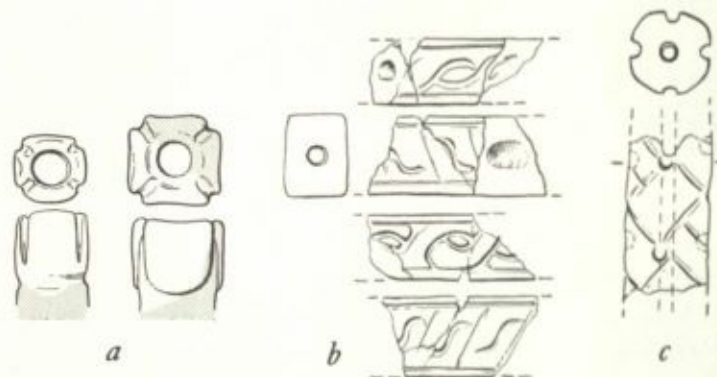


Figure 8. Fragments of carved beads: a. petallike ends of beads; b. guilloche motif; c. diamond and pit design.

**Beads made of reused carvings: fragments of 3. Plate 44a.**

One fragment of a large flat bead (no. 1) has a simple design of semicircles that can easily be mistaken for an original pattern, but one of the narrow sides was cut through a small biconical perforation, such as may once have been on the edge of a plaque, and the piece was probably a fragment altered to adapt it to the bead form. Though some of the curves seem to have been made with a drill, the relief lacks the

sharpness and precision of late drilling techniques. The jade is of mediocre quality, of the common Class 1.

Part of a profile face with overhanging brows, suggestive of the face of a dwarf, is preserved on another fragment (no. 2). The relief is sharp and flat, with conspicuous use of drills, and its style and material (Class 3) suggest a late picture-plaque such as those on plates 72-74.

The third fragment is small and shows only some lines suggesting featherwork and a round element that may have been an earplug. Part of a band-and-bevel molding runs on the three plain sides, so that the older carving was probably on the underside of the bead. The jade is bright but opaque green and white of Class 1.

Beads having only drilled or grooved marks of indefinite design are discussed with plain and conventionally decorated objects in the preceding section, on the assumption that the marks were not intended as decoration but were the result of imperfect obliteration of some earlier carving, thus characterizing the reused material rather than the intended form.

**Small spheroid beads: 2 complete, 1 fragment. Plate 44b.**

It was not customary to apply original designs to small beads, and number 1, which seems to represent a pair of round eyes, may be a part of a once larger piece, possibly a skull or a monkey head. The other two beads are carefully designed, one with a rope motif, the other with a similar design with tiny drilled circles made with a tubular drill and retaining a bit of the core. The incised, rather than grooved, lines on the former suggest an early date for its manufacture, as does the pale, diffuse color of the jade. The smaller bead is of fine black and green jade,

probably somewhat darkened by burning (Class 2). Beads of similar design, but of cruder workmanship and inferior material, said to come from San Geronimo, Guerrero, are illustrated in Lothrop, Foshag, and Mahler, plate 48.

**Large spherical beads, Toltec Chichen style: 2 complete, 18 restored. Plates 42, 43.**

This is a remarkable set of carvings, illustrating a style closely related to the Toltec style of sculpture at Chichen Itza, and not represented elsewhere in jade. The relief is sharp and deep, but there is little modelling, so that figures stand out in silhouette, with details executed by sharp grooving. If the arc drill was used, it is not readily apparent. More characteristic is the use of small tubular drills for removing surface material and depressing the background. Marks of these small drills can be seen both on the background and on the edges of the forms, which were drawn with the greatest possible economy of effort, and so designed as to utilize most efficiently the available space. The entire field is filled with figures, which include human or god figures, animals, the serpent, and occasional isolated glyphs of a non-Maya script which appears on Toltec sculptures at Chichen Itza and which may be related to that of Xochicalco (see pp. 209-210). The beads measure from 26 to 41 mm in greatest diameter, and slightly less along the bore, which ranges in diameter from 11 to 18 mm. The bores are nearly cylindrical but often have a ridge midway between the openings, showing that they were drilled from both poles. This form, as we have seen, was used also in Classic times by the Maya.

Although the general style of carving is uniform, we can distinguish by small peculiarities of delineation, such as the details of the serpent heads, two sets of beads each perhaps made by a different craftsman. One set is distinguished by serpents with a plain eye and a supraorbital plate lacking the usual scroll element in front. In this set there are at least three closely matched pairs of beads (pl. 42, nos. 1-4, 6, 7), another less well matched pair (nos. 8, 9), and an odd bead (5). In the other set, in which the iris of the serpent's eye is always shown and the supraorbital plate is drawn with a scroll, only one pair of beads is closely matched (pl. 43, nos. 1, 2). Two beads without representation of serpents (nos. 6, 8), and one (no. 7) on which the serpent head is missing are of uncertain affiliation but probably belong to the second set.

Serpents of the first set have either plain or, more often, feathered bodies. The motifs include: a single feathered serpent; two serpents with plain bodies; a serpent and a bird; a feathered serpent

and an animal emerging from a shell; a feathered serpent and a Maya warrior; and a feathered serpent with a batlike creature emerging from a shell. The serpents of the second set never have feathered bodies. They are always either plain or decorated with a glyph and circles. Some have a tuft of plumes on the tail, and some have rattles. Two of the serpents with tufted tails are shown with a bearded face in the jaws, and these may be equivalent to the feathered serpents in the first set, both probably symbolizing Quetzalcoatl or Kukulcan. In addition, there are flying anthropomorphic figures carrying various arms: a spear-thrower and darts, a shield, a knife, and a sling. The dress of the figures contains both Maya and Toltec elements and is essentially the dress observed on figures in sculpture, principally of the Maya, depicted at Chichen Itza.

The motifs clearly make reference to mythological beings and could be interpreted as having religious significance. Their composition, however, in pairs or sets suggests that their use is emblematic, and that they are not literal depictions of the entities they represent. The recurring combination of the bird, the shell-animal, and the serpent may refer to an alliance of three ethnic groups, or to three prominent lineages of Chichen Itza. The flying figure may symbolize a victory, or may refer to some distinguished ancestor. On plate 43, numbers 6, 8, 10, and 11, an isolated dot, in some cases marked with a crescent, appears close to a human figure. If this dot is a numerical sign, it might be read in conjunction with the figure as 1 Ahau, the calendar name associated with Kukulcan in his aspect of Venus, the morning star. The intent, however, is not entirely clear. For a discussion of other hieroglyphs on these beads, see page 210.

The material of all the beads shows signs of burning. All surfaces are either heavily blackened or bleached and decomposed. The beads of the first set seem to have suffered most, but it is almost certain that all the beads were deliberately broken and destroyed before being thrown into the Cenote. It is therefore difficult to determine whether they were actually used in sets, or if the distinction is relevant only to workmanship and the pieces were used singly or in pairs. They are certainly poorly designed for use in necklaces, and it is far more likely that they were either attached to articles of clothing or set on rods connected to some rigid object.

**Spheroid ring or bead: fragments of 1. Plate 44c.**

These fragments appear to be of early Maya workmanship, with its characteristic soft, rounded relief. One piece shows the chin of a face in full front view, two earplugs, and a collar; the other piece shows a



part of what may be a standard plait motif. The bore is unusually large, not cylindrical but ridged near one end, so that the piece could not have been worn as a ring. The jade is of Class 6c, faintly mottled and semitranslucent, with rare colorless inclusions. It resembles the jade of the Early Classic bead-pendant on plate 52c, 1.

**Ovoid beads: 2 complete. Plate 44d, e.**

Two beads of irregular ovoid form (pl. 44d, e), with large drill holes, almost certainly come from the highlands. One of these is almost oval in form, and is made of opaque gray and dark yellowish-green stone, the green concentrated on the surface, which is polished in contrast to the dull back. The bore is hand-drilled, with broad openings and rounded ends of drill holes. The carving, made with soft grooves, represents a profile head with a caplike headdress in the form of a scroll. It recalls a full-figure carved jade from Kaminaljuyu published by Kidder, Jennings, and Shook (1946, fig. 148, 1), and probably belongs to the Esperanza culture of the Guatemala highlands.

The other bead (e) is of light grayish-olive jade, with surface spots of deep malachite green. Its shape is irregular, and it has a sharply conical bore with a large aperture. The design is obscure, and the piece may have been reworked from an earlier carving.

**Carved tubular and oblong beads: 3 complete, 3 restored, fragments of 8. Plate 44f.**

Only three of the carved tubular beads are intact, and one other is sufficiently well preserved to be restorable. Two have only perfunctory designs. Number 4 shows perforations and pits on an undulating surface, perhaps a layout for a design which was never completed. The jade is of the rare Class 1c, finely veined and sprinkled with white, with a good luster. The other, (no. 3), of jade Class 2c, was heavily coated with black and clearly belongs to the set of similar beads shown on plate 20b. Grooved in the center is a tri-scroll symbol, well known in Teotihuacan and Oaxaca. This sign, however, appears also on a carved Toltec Chichen bead (pl. 43, no. 6) and was evidently known to the Toltec, though not often used. Nevertheless, its occurrence suggests a non-Maya origin for the entire set of the bright green, black-coated beads described on page 26.

Two other beads are carved in the shape of skulls, a motif often seen on pectoral ornaments worn by figures on Maya monuments. Number 1 seems to be early, judging by its sharply conical perforation and its soft, ridged relief. The hieroglyphs on the back, however, are not distinguishable as Early Classic (see p. 204). The jade is gray, mottled,

and speckled with pale green. It shows signs of having been burned, but retains a bright luster. The other (no. 2) is clearly of Late Classic workmanship. The features are brought out sharply by perforations through the bead, forming eye sockets and mouth. There are also small perforations through the septum of the nose and on the brows, and three larger biconical perforations crossing the principal bore from side to side. The jade is the usual speckled green jade used by the lowland Maya (Class 1) but of mediocre quality and rather opaque. The bead is complete, though it was broken into three separate fragments and may have been subjected to burning.

Other tubular and oblong beads carved in the form of heads usually have a cross-bore at one end and are described with pendants. It is remarkable, in view of the many plain beads preserved intact, that most of the carved tubular beads are represented only by small isolated fragments. Among these are a number that show a rope or plait motif similar to that of number 5. It is usually carved on beads of rectangular section and is sometimes combined with other designs. The flat grooving technique suggests that most of these beads are Late Classic or later, and one in particular, on which the arc drill was used, probably belongs to the terminal years of the Classic era (fig. 8b).

Another recurring form is a petal-shaped element, usually applied at the end of the bead (fig. 8a). A restoration of an earplug from a tomb at Palenque shows a possible use of this form (Ruz 1952a, fig. 13). The two restored beads (pl. 44, f, nos. 5, 6) include glyphlike forms, and number 7 carries an incised inscription in a rude and unfamiliar calligraphic style, possibly one of the variations used in late times in Yucatan (see p. 209). The sides of this bead are plain, but the back on all fragments is missing and could have been carved. The jade is opaque and of poor quality. Fragments of another bead, number 14, also show traces of glyphic characters. All these bead fragments are of ordinary jade (Class 1), except, possibly number 6, which, though badly burned, shows patches of translucent, diffuse color. Two enigmatic fragments, numbers 12 and 13, may be parts of beads or of more complex forms that have not been found.

Four fragments representing serpent heads, and two that may be parts of the tail of one of them, form a distinct group (nos. 8-11). They are made of opaque, spotty gray or white and green jade, and two are strongly darkened by burning. The designs are not typically lowland Maya in character, and the beads may have come from somewhere in the highland region. One of them probably represents a whole serpent. Others were evidently shorter, since

one preserves part of a double drill hole, which could hardly have been much deeper originally. Beads of similar form and motif but of different workmanship, from Nebaj, have been attributed to the Early Classic Period (Smith and Kidder 1951, fig. 55d).

**Large pectoral beads: 1 complete, 2 partly restored, fragments of 5. Plate 45.**

Maya figures often wear an ornament suspended from the neck by a cord or by a necklace of beads. This ornament sometimes takes the form of a large tubular bead with flares at both ends, from which project three small tubular beads (pl. 27). The beads about to be described may have been the central elements of such assemblages. Only one of them is complete, and no others are fully restorable, but they are of sufficient interest to be treated individually. One of the few Maya pieces in this collection whose provenience and approximate date we can ascertain is the large bead shown on plate 45, number 2. It is complete, although it was broken into seven sections and has a surface badly marred by burning. Hardly visible on this surface is a lightly incised standing human figure accompanied by a Classic inscription that includes the date 2Cib 14Mol (9.12.18.5.16), a date which is prominent in the inscriptions of Palenque, and is peculiar to the site (see p. 205). The face of the figure is carved in very low countersunk relief and carefully finished, but the rest of the body is incised with a rough and rather uncertain line. It seems that the left foot of the figure was originally drawn at a higher level and was later lowered. The figure wears a pectoral ornament with a central element designed like the bead itself. Two perforations were apparently for the suspension of the bead from a string of small spherical beads. On the opposite side, are six biconical holes for the attachment of small tubular beads, which hung down from the pectoral, and at each end are four holes to which large spherical beads or flared elements were fastened. The position of the incised figure between the suspension holes of the bead indicates that its purpose was not primarily ornamental. Very probably it was incised subsequently for funerary purposes, tending to confirm the inference that many of our pieces come from looted tombs of more southerly Maya cities.

Three essentially similar large unbanded beads, but with larger bores, are decorated with rounded oblique grooves and lighter incised or grooved lines. On the smallest of these (pl. 45, no. 7) made of predominantly white and pale green opaque jade, the lines and grooves are parallel and alternating. On numbers 5 and 6 (the latter not drawn) the grooves

run in opposite directions obliquely, forming diamonds, in which double lines alternate in direction so as to produce the effect of a plaited mat pattern. Both beads are made of rather unusual jade. Number 6 shows a reticulated texture, with very dark green spots in a fine network of white veins (Class 1c). On this bead, the fine lines are incised, not grooved as on the others. Number 5 is of a clear green and white jade with a scaly texture that shows a sparkle in broken section. All three beads are in fragments.

A unique design occurs on the large pectoral bead number 4 of plate 45. This bead is made of an opaque mottled green and gray jade (Class 2e). The green is of a dark dusky color, probably discolored. The form of its section is "superelliptical" or rectangular, and the design is executed in fine grooves on one of the narrow faces. The figure is a dart or arrow, with a decorated shaft composed of knots and discs. Some of the grooving is evidently made with a saw, for lines often extend beyond a corner they delineate. The discs are made with a drill, but their inner circles are not precisely concentric and tend to be somewhat irregular. This technique has not been observed on any other pieces in this collection, and the depicted form of the arrowpoint, apparently triangular with corner notches forming an expanding stem, is atypical of Maya or Toltec representations.

Number 3 is of the same dull blackish-green and gray jade. It is uncarved, except for moldings at each end and a column of very finely incised hieroglyphs, of which only parts of three now remain. The script seems to be a very early Maya script, similar to that on bead number 1, which is next to be described.

Barely half of the bead on plate 45, number 1 has been recovered, but when complete, it must have been an extraordinary piece of carving. The jade is probably the same as that of numbers 3 and 4 but seems to be of better quality and could be placed in Class 2a, for it has large areas of lustrous dark yellowish-green color. Originally it was probably even lighter in tone, as a small, fitting fragment that seems to have escaped discoloration was much lighter than the rest when it was first put into place. It has since darkened and matches the rest of the bead. The main part of the carving was on the missing portions of the bead, but judging by one of the loose pieces that clearly belongs to it, the design included a grotesque mask with drilled-out eyes. At one point in the bead is a drilled cross-bore, not round, but rectangular, as if made with two or four drill holes, and apparently incorporated into the cutout design, possibly as the mouth of the mask.



The technique of carving combines rounded relief with very fine incised lines outlining the forms and a stronger incision delineating subsidiary forms composed of circles, volutes, and U-shaped elements. Such U-shaped elements are distinctive of late Preclassic sculptures in southern Guatemala, in the highlands and on the coast, and are occasionally seen on Early Classic sculptures from the Peten, notably on Stela 31 at Tikal. Overlapping the coarse incising on the back of the bead is a column of extremely finely incised hieroglyphs, similar to those on bead number 3, but more freely drawn (see p. 203). The script contains a number of unfamiliar characters and appears to be very early, though it resembles the lowland Classic script much more closely than it does the Preclassic script of Guatemala on so-called "Stela 10" from Kaminaljuyu.

Even more remarkable are several carved fragments that may have been parts of another large bead, with thin walls and a very large bore, (pl. 45, no. 8). The relief is characterized by bevelled surfaces, particularly in the depiction of scrolls. The same fine outlinings on the bead just described is used on these scrolls, and the design includes cross-hatched U-shaped elements. A small part of a finely incised figure on the body of the bead may be part of a headdress of a human figure. Characteristic of very early design is the form of tubular beads depicted on the figure. They are shown with a circle at the end, rather than with a tear-shaped element, as in later times. The jade of which the bead is made is marred by burning but seems to be of the same variety as that of other early incised beads, light grayish olive, with bright blotches of Hay's and dark dusky greens. Nothing in archaeological finds prepares one to expect such a highly perfected technique of jade carving at such early dates as these beads appear to represent. It calls attention to a very serious gap in our knowledge of the early development of the Classic lowland styles and their relation to the Preclassic art of the highlands to the south.

The remaining fragments in this category are small pieces of large rectangular beads with lightly incised hieroglyphs (fig. 12, no. 19) almost certainly of Late Classic date. Aside from the inscriptions, the beads were probably plain, but no matching fragments have been found. The glyphs are mentioned on page 208.

**BEADLIKE PENDANTS: 4 complete, 2 restorable, fragments of 2. Plate 46a.**

Three of these (nos. 1-3) are small flat rectangular beads with bores slightly off-center. They probably

were used as central elements in necklaces, projecting down in the manner of pendants. Number 2 is made of a soft olive-green stone, not of true jade, and has on its face a rudely inscribed circle. Number 3 is of green and white jade and is marked with grooves possibly meant to represent an animal head. Number 1 seems to have been cut from a longer bead. It is carved in relief, with a figure that may be a stylized bat head, but the design is incomplete and its interpretation dubious. The jade is of medium quality, dull mottled gray and green of good luster; and the soft groove and ridge technique suggests an Early Classic date.

Number 4 is roughly triangular and is carved like a bundle wrapped in cord. Its biconical bore is close and parallel to one side, so that it, too, hangs like a pendant. At the opposite angle is a small perforation for the attachment of an additional ornament. The jade is white, tinged with a lichen green, and is probably decomposed, for it is very soft in places. It is probably of Class 3, and the sharpness of the grooves suggests a late date.

Three fragments (nos. 5-7) represent thick, long, horizontal forms, perforated longitudinally like tubular beads but with the bore nearer the upper edge. They are smaller than pectoral bar-beads and are carved more in the manner of pendants. The fragment number 5 was made from an earlier carving, which was reduced to the lower half of a human head and one earplug. Judging from its position, the bore, too, is original. The carving was made on a flat surface mottled with green, which is probably the reason why it was retained, for the rest of the pendant is an opaque and undistinguished gray.

On another fragment (no. 6), the central motif of a human face is complete, and at the left is preserved a grotesque profile of an aged face with a Roman nose and a large rectangular eye framed by a fillet below, possibly the face of a solar deity or of the old God D of the Maya codices. The pendant is made of whitish gray jade, sprinkled lightly with green grains on the surface. Number 7 was probably very similar, though less of it is preserved and the jade is badly discolored.

Number 8 is unique and entirely different. It is essentially a rectangular tubular bead, centrally bored, but with a triangular extension flush with the face, on which is carved a figure of a man with a sharply arched back and his head flung back over his shoulder. There is a small nick in the chest of the figure apparently made by a tiny broken perforation for a hanging ornament, and flanking it are two other small perforations which probably also carried pendant ornaments. The simple detail and the crude anatomical features of the figure pertain to a style

I have tentatively labelled Northern Provincial, because it recalls certain altars and panels of the Puuc region and Campeche (cf. Proskouriakoff 1950, fig. 93). The material (Class 1b), characterized by green angular inclusions, resembles the jade of rings and other objects carved in the Toltec-Chichen style, and although the carving technique is very different, I believe that the piece was made in Yucatan in Early Postclassic times.

**CARVED GLOBES: 5 restored, fragments of 1. Plate 46b.**

Hollow globes like these have not been reported from archaeological excavations, nor have any come to my attention that may exist in private collections. Similarly shaped beads with a slit, however, do occur in Guerrero, though their material and decoration is quite different (Von Winning and Stendhal [1968], no. 46). The manufacture of globes must have been an extraordinary feat and in view of their fragility, we were fortunate to be able to restore in part five specimens and to identify at least three others among the fragments. They range from about 3 to no less than 5.3 cm in diameter and their form suggests the form of globular copper bells, for there is a sawed slit across more than half the globe in addition to one or more round openings 15 to 20 mm in diameter, through which material was removed to hollow the globe by means of small tubular drills. Marks of these drills can be clearly observed on the interior of the globes. The slits are sometimes outlined by a narrow projecting lip, but in some cases were made through the finished carving (pl. 46b, no. 5), which, in any case, was probably done before the globes were hollowed out. The relief is somewhat lower and rounder than on the Toltec-period spherical beads, and shows less use of drills, though both the arc drill and the small tubular drill seem to have been used occasionally to touch up detail. The styles and motifs of the globes and the beads are similar but not identical, and both, without much doubt, pertain to Toltec-dominated Chichen Itza. On one of the larger globes (no. 1), we distinguish a Tlaloc mask, apparently part of a monster with clawed feline paws. Another globe (no. 3) shows two serpents and a hieroglyph similar to the hieroglyph associated with serpents on the beads. On other fragments there are figures of birds, and a mask with long tusks, probably representing Tlaloc (no. 5).

One of the globes (no. 2) is aberrant in design. Large areas are plain, and the traces of sculpture left represent a skull, of which parts of an eye and teeth are preserved. Number 6 seems to have been entirely plain, except for a small lip at the slit.

The material of the globes is generally of Class 1, but shows strong variations. Number 1 is of opaque speckled green jade, grading into semitranslucent areas of pure green. On number 3, areas of green and gray are sharply separated and both are opaque. Small flecks of micalike material can be seen in broken portions. All specimens show signs of having been burned, and many fragments are badly decomposed and are white and crumbly or blackened on the interior surface.

**CARVED NOSE-BUTTONS: 3 complete, 1 fragment. Plate 47a.**

These nose-buttons were apparently manufactured from spherical beads and are in every way similar to the plain and decorated nose-buttons described on page 29, except that faces are carved on one side. One pair (pl. 47a, no. 1) is identically carved with a drilling technique associated with the Toltec Chichen style, and made of dark gray-green jade similar to that used for Toltec rings and beads (Class 1b). Small perforations through the ears suggest subsidiary ornaments, but if, in fact, the buttons were worn on the alae of the nose as suggested, the heads would be upside down, and any ornaments suspended from the ears would hang in an awkward position. Nevertheless, it is hard to imagine in what other manner the nose rings could have been used. If they were instruments for the piercing of the ears, their position would not be altered.

Number 2 is made of lighter jade and represents a monkey. The eroded fragment number 3 at first suggests a Classic Maya style, but the eye is made by the intersection of two drill marks, and the technique seems to have been similar to that of the others.

**CARVED FINGER RING or FLARE-STEM: Fragments of 1. Plate 47b.**

The ring is incomplete and its form is not entirely certain. The design, also, is obscure, possibly abstract, or perhaps even reworked. It is possible that it was once the stem of an ear-flare.

**CARVED FLARE: 1 restored. Plate 47d.**

This was probably a large, very low flare, somewhat like the gorget found on the chest of a skeleton in Burial 5 at Piedras Negras, Guatemala, (W. R. Coe 1959, fig. 49e). It was made of a dark green and gray jade (Class 1b), not unlike the jade of the Toltec



rings described on page 88, and was worked in much the same manner. The design is incomplete, but portions of two serpent heads can be seen, their mouths wide open, like those of "earth-monsters" in Maya and Mixtec codices. Tozzer (1957, figs. 348-387) illustrates a variety of such designs. The Maya form usually shows one eye of the monster, as on this flare. Later Aztec forms and forms from the Guatemala highlands usually show both eyes.

**FLAT CARVED RINGS: 9. Plates 47c and e, 48a.**

**Small flat rings: 1 almost complete, 1 restored. Plate 47c.**

The two rings form a pair. Their simple, cutout, and grooved design clearly represents a knot. The loop is made by three conical drill holes, and the ends are sawed apart. The central hole of the ring as well as the small perforations opposite the knot are drilled from the underside. In places, the jade is badly burned, but where intact, it shows a bright Killarney Green speckle on white (Class 1).

**Large flat rings: 1 restored, 5 provisionally reconstructed, fragments of 1. Plates 47e, 48a.**

Three of the large rings are probably of Maya manufacture, and three are carved in the Toltec Chichen style. The three Maya rings are decorated with abstract forms, but the Toltec rings have scenic representations in bas-relief. All are fragmentary.

Ring number 3 of plate 47e is decorated with a band formed of a rope design between two gently rounded narrow fillets. The outer edge is made up of petals on some of which are small perforations made from the underside. Since the fragments are not articulated, we do not know the exact position of these perforations, but the ring apparently was sewn on a fabric rather than suspended. It is made of gray jade of good quality, lightly tinged with green.

Fragments, apparently of a pair (pl. 47e, nos. 1 and 2) are more crudely carved with an inner star design, simple concentric fillets, and a nicked edge. The pieces are difficult to fit into a single design, and there were probably two rings, as shown in the artist's reconstruction. Both seem to have been made from sawed pieces of jade, with one side considerably thicker than the other. On the underside of some of the thinner pieces are remains of Late Classic Maya glyphs (see p. 208). Other pieces show indefinite grooved marks. There is at least one small perforation near the edge, and two, somewhat larger, near the central hole, but it is not clear how the perforations were arranged. It is possible that the

arrangement matched that on Toltec rings and that these pieces could have had handles. The jade is opaque light speckled green, typical of Class 1.

The fragments of number 4 make up less than half of the piece. The form seems to have been a rosette with many petals, silhouetted and modelled in high relief. There are traces of carving on the modelled surface, however, that bear no relation to the design, and that may be remains of earlier work. The highly modelled surface seems to have been actually the back of the piece. On the other, are gently modelled petals around a central countersunk ring. This surface is more highly polished and was evidently intended to be the face. The jade is of poor quality of Class 1. In all three of the large rings, the central hole is from 20 to 25 mm in diameter and is made with a drill.

Toltec rings are quite differently designed, and are of distinctly different material, dark in color, often strongly grained, and containing a variety of crystalline inclusions, among them large nests of colorless crystals (Class 1b). The bas-relief is similar to that of the globes but somewhat sharper and deeper. One ring (pl. 48a, no. 1) presents a scene of human sacrifice, symbolized by the open chest of a supine figure. On each side is a Toltec warrior holding a spear-thrower and a dart. The reconstruction of this piece is not without flaws. The upper portion should be lower and flatter, and the featherwork, copied from Toltec beads, would have been better plain. It is also somewhat doubtful that Toltec warriors wore beards, though there is a suggestion of this on one of the fragments. The general nature and arrangement of the figures, however, is certainly correct, and since there are no demonstrable errors, we have let the reconstruction stand. The composition is very similar to that of the better preserved ring (no. 2), with the difference that here the prisoner is seated on the ground. The warrior on the right wears a "butterfly" or "bird" pectoral of typical Toltec design and carries a curved stick, like those of some of the figures in the Temple of the Warriors. The figure on the left is fragmentary, as are all the figures on the third ring.

These rings have larger openings than the Maya rings. The manner of their use is not clear. There seem to have been two large perforations at the top, and in two instances there are small perforations near the inner border. The overall form is not circular, but decidedly flattened at the top, where there is a plain area with the two larger perforations, suggesting the possibility that a handle of some sort was fastened there. One wonders if these rings were not used in some sort of assemblage with Toltec carved beads or globes. Although it has been sug-

gested that they were worn as gorgets, the plain area at the top, and the peculiar arrangement of perforations indicate that they were designed to be fastened to some object, perhaps a fan of featherwork surrounding the jade center.

**CARVED DISCS AND RECTANGLES: 25. Plates 48b, c, and d, 49a and b.**

These flat carvings are distinguished by a small central perforation, often with another near the edge. They are analogous to plain pieces of similar form and subsume at least three functions. The smallest discs were designed to fit into the throats of flares. Others, less regular in form, could have been used on headbands made of overlapping plain discs. The larger rectangular plaques tend to come in pairs and may have been elements used in the composition of masks, as decorated ear elements. Some resemble small plaque-pendants, but the perforation in the center suggests a different use. Most of the discs are only 2 or 3 mm in thickness, but the larger rectangles tend to be thicker, and there are exceptions even among the smaller pieces.

**Small discs and rectangles made from reused carvings: 2 complete, 3 restored. Plate 48b.**

One of these is a small disc cut from a piece of deep carving without regard to the original design, which represented a human face with a headdress (no. 1). It is only roughly shaped and has a single central perforation. The surface is darkened by burning, but on the back the jade exhibits a pale gray-green tinge evenly distributed and of a high luster. It is not clear which was meant to be the face of the disc. Another is a small rectangle made by quartering a larger piece with the conventional five circles decoration (no. 2). It also has a central perforation, and may have had one near the edge. The next two pieces make up a pair of rectangles that can be fitted together to form the lower part of a face with earplugs and a beaded necklace. The original piece was apparently quartered. It was made of gray jade of fine quality, with large diffuse areas of color (Class 2a). The last piece of this group is a small rectangle with two perforations. The cut on one side was made through another drilled hole, indicating clearly the reuse of this piece. The jade is opaque gray, white, and dark green, with conspicuous grain.

**Small flare-throat-discs: 1 complete, 2 restored. Plate 48c.**

One small disc (no. 1) is complete and was evidently designed to fit into the throat of a flare, like the more simply decorated disc in the ear-flare number 11 on

plate 28. All three carvings represent zoomorphic heads, two of them bird heads, and all are made of opaque white jade lightly tinged with green, probably of Class 3d, which is associated with very late Classic work. They are clearly distinguished from other carved discs by their very small size and by their perfectly circular shape, apparently made with a large tubular drill.

**Other small discs and a rectangle: 3 complete, 3 restored. Plate 48d.**

An unusual pair of small discs (nos. 1, 2) made by sawing a bead in half and executing the design on the flat sawed surfaces, retains the traces of the original bore of the bead. The undersurfaces are slightly convex, and the discs are thicker than usual. Also somewhat aberrant are the five small perforations at the edges of each piece. The designs, made with drills and showing sharp-edged grooving, are identical and represent fishes. The jade is of Class 3c: white, faintly tinged with green, suggesting the end of the Late Classic Period.

Number 3, on the other hand, may be an early piece. The well-polished jade, white, touched with bluish green is very much like jades of Class 6b. On the face, a vague profile is suggested by grooves. The design resembles some on Early Classic highland pieces, made with a saw and a tubular drill (cf. Kidder, Jennings, and Shook 1946, fig. 148c). Number 4 is made up of three thin, flat, disarticulated fragments which may actually represent two separate discs or a pair, for the form, as reconstructed, is somewhat irregular. The figure is the Maya sign for the planet Venus or for "star," as suggested by Kelley. Among miscellaneous carved fragments there is another example of the Venus motif, made on the reverse of some earlier carving. Number 5 is a single disc conventionally decorated with a five-circle design, but it is made of unusually fine jade and is included here because on the reverse it has a very finely grooved inscription, consisting of four groups of two hieroglyphs each. A small fragment of another disc or ring (fig. 9) bears similar hieroglyphs (see p. 208). Number 6 is a small rectangle of dark gray-



Figure 9. Fragment of small disc or ring with hieroglyphs.

green jade, perhaps somewhat discolored, representing the head and arms of a human figure. The



position of the hands is typically Late Classic, though the relief is softly rounded and made without the use of drills. There is a central perforation made from the face of the carving, and another just slightly below, made from the underside.

**Large carved discs: 1 complete, 4 restored, fragments of 1. Plate 49a.**

These discs are 4.5 to 6 cm in diameter and are identified by a central perforation made without regard to the design, which on all of them is a human face. At least two were made from earlier carvings and all could have been reworked.

The first (pl. 49a, no. 1) was carved with the aid of an arc drill, and all the arcs, except that of the chin of the face, are of equal diameter. The drill was not used for the eyes, which have a curious triangular form. This style is like that of a small pendant from Paraiso, Quetzaltenango, illustrated in Smith and Kidder (1951, fig. 4b).

A different style, reminiscent of full-face representations on late Maya plaques, is represented by four fragmentary pieces (nos. 2-5). At least three of these pieces, and probably all of them, have a central perforation and an additional hole near the edge. In addition, three have suspension holes placed just above the level of the eyes of the faces and made by drilling from the edge and at an angle from the back so that the drill-holes meet. Number 2 is the only disc that is almost perfectly circular, and unlike the others, which are made of ordinary Class 1 jade, it is of dusky color, with diffuse patches of dark green (Class 2c).

Number 5 shows carving on the reverse, possibly part of a bird design. It is not clear, however, which carving was original. Number 4 was almost certainly made by reshaping an earlier carving, since it shows only part of a face. Nevertheless, the symmetry of the design was retained, so that the mask of the headdress was centrally featured.

The final piece of this group, number 6, is an irregularly shaped fragment, probably also reworked, for traces of a bore remain on the reverse. The carving may be somewhat earlier than that of the others, since it has more rounded relief, is made without the use of drills, and has a profile serpent-head motif on the headdress. This disc is slightly thicker than the others but is clearly identified by its central perforation.

**Paired rectangles: 1 complete, 3 restored, fragments of 1. Plate 49b.**

It may or may not be significant that the larger discs appear singly, whereas rectangles of comparable size are paired. Each of the three pairs is carved in a

different style. Number 1, with its small matching fragment, is carved in a style I have designated as Northern Provincial, represented also by the pendant-bead (no. 8 on pl. 46a), and by several thick plaques (pl. 76b). The legs of the figure are typically short, sturdy, and thick-ankled and are set wide apart. No sandals or anklets are worn, and the dress lacks elaboration of jewels and other refinements. The position of the carelessly executed hands around the central perforation is somewhat like that of late Mixtec figures, which sometimes show a round pit below the chest. The relief is soft, and the drill was not used. The jade is a dusky gray and dark green, with good luster in spite of some evidence of discoloration by burning.

In contrast to this piece, the matching numbers 2 and 3 are rendered in the best Classic monumental style. Human profile faces are shown in the jaws of serpents, a motif that suggests idealized ancestor portraits. The carving is done mostly in shallow unpolished grooves and incised lines, but a slight relief is given to the human profiles, by rubbing down the edge of the groove that outlines the face, and by rounding its features. This technique was also observed on the inscribed pectoral bead from Palenque (pl. 45, 2), and in larger sculpture occurs on Sculptured Stone 1 at Bonampak, for which Thompson suggests the date 9.10.0.0.0 (Ruppert, Thompson, and Proskouriakoff 1955, fig. 16c). There is little doubt that these rectangles come from a site in the western Maya lowland. Unfortunately, the emblem glyph in the inscription on the back, though it resembles somewhat the emblem of Yaxchilan, has not been identified. Number 4 illustrates a later more specialized Maya style of silhouette- and picture-plaques. It includes one reconstructed piece and a small fragment showing only an earplug and part of the outline of the face. The jade is of Class 1, but very strongly marked with blotches of vivid green. The way that the surviving rectangle was cut shows that it was made by trimming a larger plaque, the trace of a former bore appearing on the back. One face was probably retained from the original pendant, and the other carved on a piece sawed from the back.

**MISCELLANEOUS FLAT CARVED ORNAMENTS: 36. Plate 49c and d, 50a.**

**Carved spangles: 9 complete. Plate 49c.**

These little ornaments are distinguished from discs by having only a single perforation at the top from which they were evidently suspended. Like many of the carved discs, they are incidental pieces, often

made from older carvings. Perhaps they were merely rejects of workshops, made into amulets to be attached to bracelets or to clothing. It is also possible, of course, that pieces were deliberately cut up and distributed as gifts or mementos.

The first can be recognized as a piece of a decorated disc or rectangle. Number 2 seems to represent a headdress of a human face sawed away at the forehead. Like the fragment of disc number 6 on plate 49a, it has two grotesque zoomorphic profiles near the top. The next piece (no. 3) is a fragment of a Late Classic picture-plaque, showing part of an arm and wristlet. Other designs are obscure. Number 7 originally had two perforations, but after shaping, one remained only as a groove on the edge. Numbers 8 and 9 are a pair of identical ornaments made by sawing in half a small pendant, the traces of whose bore remain on the back. A small perforation was made at the top of each piece for suspension, and at the bottom, three tiny holes to hold subsidiary ornaments. These perforations are all made from the sawed surfaces and did not belong to the original pendant.

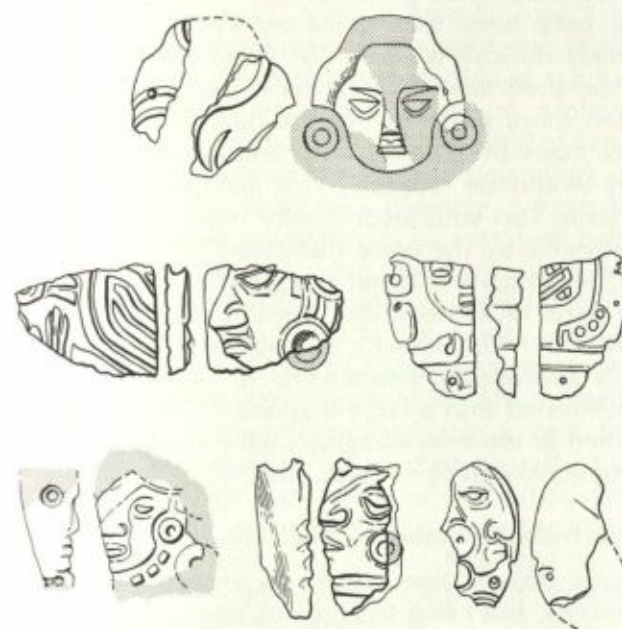


Figure 10. Miscellaneous fragments showing human heads.

**Other small flat ornaments: 15 complete, 8 restored, fragments of 4. Plates 49d, 50a.**

These miscellaneous small carvings may have anywhere from two to six small perforations, usually made close to the edge. Three are reused carvings

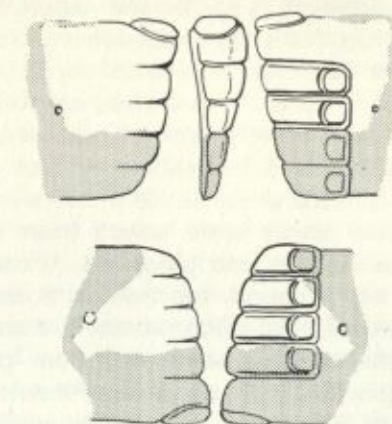


Figure 11. Fragments of a pair of carved hands.

of the Maya serpent-head motif, retaining enough of the design to make the identification clear. Number 1 was shortened by an oblique cut, and four small holes were drilled from the underside in addition to two original holes integrated with the design and drilled from the carved surface. Number 2 is part of a larger piece, showing only half an eye and part of the nose. Small drill holes, made from the underside, suggest that the carving was meant to be in view. The fragment number 3 could be broken from a larger piece, but the perforations suggest a use similar to that of others in this group. Number 5 was probably also recut, since it has the mark of a former bore on the underside and both perforations are made from the carved surface. The two circles, which may have been eyes of a former mask, were partly rubbed away in smoothing the upper edge. Numbers 4 and 7 represent bird heads: the first a hawk or vulture, the second a turkey. A saw-mark on the bottom of the first has not been removed and cuts through a former perforation. Number 6 may be another bird head, though its design is rather vague. Number 8, a serpent head, differs from most pieces of this group in having a convex rather than a sawed back.

The carvings described all present common Maya motifs of ritual import and are probably all Late Classic. Number 10, on the other hand, though carved only in silhouette with a mere indication of incised lines on both faces, can be identified as a simplified version of the so-called earth-dragon, such as we find on the well-known carving from Chuitnamit, Guatemala, (Tozzer 1957, fig. 376). It is almost certainly Postclassic and probably of highland origin. Several other thin, small pieces are carved on both faces. On number 9, representing a bird, the carving



on one face, however, is earlier and reused. Number 11 is carved identically on both sides, representing the head of a bat. One of two identical T-shaped ornaments (pl. 50a, no. 1) is incised on both faces. Although the other is incised on one face only, when the two are juxtaposed, the slits of the taus and the perforations coincide precisely, as if they were made before the two pieces were sawed from a single original piece. Another tau piece (no. 3) carved on both sides, has a round top, which is doubtless somewhat unusual. Plate 50a, numbers 4 and 5 are two oddly shaped ornaments that were probably used in conjunction with or as attachments to objects, either of jade or of some other material, for their shapes appear to have no meaning in themselves.

Small carvings of animals are not as common as one might expect. There are only four in this group (nos. 6-9). The first is very similar to one found at Nebaj (Smith and Kidder 1951, fig. 57g). The second represents a fish, and number 8 is probably a jaguar. The two last, of course, are animals often used by the Maya in a symbolic sense and in hieroglyphic writing. Number 9 is a fragment carved on both sides in the form of a fish. It is made of very fine lustrous green and gray jade, and the surfaces are rounded so that the carving is virtually in full round.

Two pieces represent the late arc-drilled style (nos. 10 and 11). The first is a "drooping-mouth" face, meant, apparently, to be a pendant, for it shows the marks of a bore on the back. The drill holes, however, did not meet, and probably for this reason the piece was trimmed down on the back and all around to a roughly triangular shape and perforated at the corners and at the bottom. Number 11 is a tiny piece in the same style, and may once have been a small pebble-pendant. It has perforations at the top corners, now broken. Both are made of Class 3 jade, the former considerably decomposed.

Other styles are represented in fragments of human faces (nos. 12-15). Number 15 is an exceptionally delicate relief carving of a human or god profile face, made in fine dark green jade. Unfortunately, it is incomplete.

A tiny rectangular piece (no. 16), having no device for attachment, may be a piece of mosaic carving. There are no others of its kind in the collection.

**ZOOMORPHIC ASSEMBLAGE CARVINGS: 21. Plate 50b-d.**

**Animals with missing parts: 1 complete, fragments of 3. Plate 50b.**

There are some small carvings in this collection that are difficult to interpret otherwise than as incom-

plete representations which were finished by attaching parts made either of other pieces of jade or of shell, gold, reed, or other materials. The most obvious example of such a carving is a small pendant in the form of a rodent head (no. 1), very probably a rabbit but without the large rabbit ears—in fact, without any ears at all. In addition to the normal bore of a pendant, this piece has a second parallel bore through which the ears may have been attached. It has been suggested that small pointed pendants may have been used for ears, but pieces of cut shell would have been equally appropriate.

Another piece of this sort (no. 2) is a flat pendant, carved on both sides, representing an iguana. This piece is broken just beyond the middle of the body, but it is still obvious that the creature was legless. Just at the break, however, there are traces of a perforation, and this could very well have served to attach the forelegs. A third motif is represented by fragments of two or three turtle shells carved in the round, one of which is almost half complete (nos. 3, 4). The plastrons are connected to the carapaces, but the interiors were hollowed out, and there are no traces of heads, legs, or tails. Nor are there any fragments that could conceivably have represented these parts. Of course the shell alone may have been used as an ornament, but the extremely difficult operation of removing the interior of the shell would hardly have been necessary. It seems more probable that the head, limbs, and tail were made of other materials and connected so that they would be movable. That composite creatures of some sort were occasionally made of jade parts is attested by the piece illustrated in Kidder (1947, fig. 36), which was found in a grave at Uaxactun with the parts in approximate position. Easby and Scott (1970, no. 190) identify it tentatively as a shrimp. With appropriate attachments it could have been transformed into a large dragonfly. The objects described in the next paragraph have suggested to me compound figures of other insects.

**Insect bodies?: 9 complete. Plate 50c.**

Similar objects have been elsewhere described as corncocks, but I find this identification totally unconvincing. A more satisfactory conjecture is that they are bodies of insects, perhaps bees, butterflies, or grasshoppers. Number 2 is particularly conducive to this impression. Such a use would explain the oddly placed pits, perforations, and grooves which would be incomprehensible if these were corncocks but which could have facilitated attachment of wings, feelers, and legs to give a reasonable facsimile of an insect. All the examples in this collection, though individually designed, are of the same dull white

jade (Class 3c) with tinges of green, possibly somewhat decomposed but still hard and firm.

**Dubious attachment pieces: 7, 1 fragment. Plate 50d.**

Number 1 is a tiny carving which at first I thought might represent the head of a pisote. It now seems more probable to me that it represents the head of an insect, though no bodies of matching jade have been found. Number 2 is a small bead on which markings suggesting a fish head can be made out. On a similar bead (no. 3) there are only vague markings, but it is possible that it, too, served as a head of some small creature. Another bead more sharply carved but equally strange in form is number 4. All these could be variant forms of insect carvings or elements of other creatures used in the design of headdresses or worn as ornaments on necklaces, capes, and other garments. Alone, their carving does not seem to produce any suggestive effect. It is somewhat different with other small zoomorphic carvings, which could have been used with some effect as pendants, though I suspect that they also may have been attached to larger assemblages. Number 5 is carved in the style of the insect bodies but is flatter in form and has different designs on the two sides. I suspect it is made from an insect body but was later refashioned to represent the head of a bird or turtle. The design is somewhat obscure and needs the context of an assemblage to explain it. Number 6, on the other hand, is a two-sided carving representing an animal head with a long snout, possibly a pisote. The large eyes, however, are peculiar, and if we ignore a suggestion of ears just behind them, it is not inconceivable that it too is an insect head. There are four perforations—one behind the eyes, a smaller one through the mouth, and two through the "ears." Number 7 is even more vague in its features, but may represent the same creature, and has two corresponding perforations. Both these pieces are very dubious as attachment parts, but it must be noted that they do not fit with other classes of pendants, and in this collection animal sculptures of this sort are extremely rare. A fragment (no. 8), probably a bird head with a broken beak, may also have served as an attachment.

**MISCELLANEOUS SMALL PENDANTS: 11. Plate 51a-d.**

**Shell effigy pendant: 1 complete. Plate 51a.**

Most Maya pendants are made to be suspended by a bore parallel to the face of the carving and near the top of the piece. Occasionally the drilling was unsuccessful and instead of the bore two biconical

holes were made from the sides and back approximately where the openings of the bore would have been. Tubular beads, however, were usually suspended from two holes made on the long axis, and this also was the method of suspension on the small carved shell pendant, plate 51a. The pendant is carved on both sides and represents a conch cut longitudinally so that the interior construction can be seen. It is a beautiful piece of work and demonstrates an interest in natural structure and proportion that is quite unusual in cultures as strongly preoccupied with ritual values as were the cultures of Middle America. Only two cultures could have produced this piece—the Aztec and the Maya, and since we have no evidence of Aztec jades in the Cenote, it is probably safe to assume that this was a Maya piece. A very small perforation near the end of the piece suggests that it may have been intended originally to hang in vertical position.

**Pendants with suspension holes at the corners: 6 complete, 1 restored. Plate 51b.**

These are all either reused or exotic pieces. Numbers 1 and 3 are poorly polished flat pieces of jade whose green portions have a bluish tinge. The original design on number 1 is all but obliterated, and it is probably a very old piece that remained in use for a long time. Number 3 is more carefully made and presents a regular pattern of lines on its face. The perforations, moreover, are concealed. A drill was used to make the central circle and the arc beneath it, but the workmanship is very poor and the stone is poorly polished. I have some doubt that the stone is jade.

Number 2 is a large, flat pendant made of jade that is green on the carved side and gray on the other. It is probably, therefore, made from a sawed piece, though the surfaces are gently convex and no saw-marks are discernible. The carving consists of simple grooves which depict a highly formalized face. The eyes are simple arcs and apparently closed. The nose is a triangle with the lower side curved. The mouth was laid out with drill holes connected by a curved line. Two pieces from Guatemala published by Kidder (1949, fig. 3a, h) are almost identical in design except for drilled round eyes. He suggests a "Mexican origin." The remaining pendants of plate 50b are all unusual, both in workmanship and in material, and probably came from outside the lowland Maya area. Number 4 depicts a hunchbacked dwarf figure carved on a flat pebble of irregular form, which was probably slightly trimmed to silhouette the carving. The figure hangs face down and is in a crouching position. The face is almost gro-



tesque, with a very large eye and no indication of a nose. There seems to have been a break here, later smoothed over. Hunchbacked figures in stone have a wide distribution in Mesoamerica and immediately to the south. In the Maya area they occur only in the highlands. The rendering of the piece suggests to me an early date for this carving. The material is an opaque dark green stone of even tone (Class 9), unique in the collection and probably not a true jade.

Two curious zoomorphic heads are made of thick pieces with a central ridge. One (no. 5) is a small tetrahedron made of plain translucent jade (Class 6a) and marked with two pits made with a fine drill, and nothing more. The other (no. 6) is a pentahedron made of dull gray material and has below the two pitted eyes a small gash indicating a mouth. It is difficult to guess what sort of creatures these two objects were intended to represent. They suggest to me aquatic monsters, and must have been great curiosities in the Maya area. In some other cultures, however, they may have had a more abstract meaning and may have represented supernatural beings. It is curious to note that the suspension holes were made with hollow drills. Since the drilling was not parallel, they meet to give only a tiny aperture and sometimes a remnant of the core remains projecting. This unusual type of drilling should fix the provenience of these pieces when we know where and when it was practiced. Number 7 was found in a bowl of copal. Its carving appears to have been made in a fine incision now nearly worn away. Suspension holes are sharply conical and placed on the long axis of the piece rather than at the corners. The jade is a very pale green, faintly mottled, and has little luster.

**Human figure pendant: 1 complete. Plate 51c.**

This is a small shaped piece with a suspension hole at the top. It represents a human figure with hands held under the chin, a position that recalls certain late idols from highland Guatemala. The material is greenish gray stone, probably not jade, and the design is made almost exclusively by straight-line incision. It resembles no other pieces in this collection.

**Horizontally drilled pendants, reworked: 1 complete, 1 restored. Plate 51d.**

The first (d, 1) is a pendant obviously made from an older carving. The design is drawn with simple grooves and represents the open mouth of a mask or god face. Although a tubular drill was used to make the circular elements, the execution is crude by Maya standards. Apparently the original design

was discarded, for, as the pendant now hangs, it is incomplete and is rotated to lie on its side. It seems that even after reshaping, the piece was cut in half, for the right side and bottom are bevelled and meet at a rounded corner, whereas the left side is a perpendicular cut, retaining traces of marks made by the saw. The material is a gray stone heavily blackened on the back surface.

The second piece (d, 2) is of finer gray and green jade and is strange in design, which seems to be a vague composition of arcs. In the lower right corner there is an element that looks like an eye, which suggests that this was once a carving, planed down and disguised by the later addition of arcs. The piece is very thin in section, but is nevertheless pierced by a very fine bore made from side to side. Three closely spaced perforations on one side, however, suggest that it was later turned to hang horizontally.

**SMALL HORIZONTALLY DRILLED PENDANTS (human motif): 64. Plate 51e and f, 52a-c.**

**Pebble-pendants (human heads): 15 complete, 3 restored, 1 fragment. Plate 51e.**

These little carvings, made on unshaped or only slightly altered pebbles, were suspended by a biconical bore near the top, made parallel to the face. On one flat pebble (pl. 51e, 2) the bore is interrupted by the emergence of the two drill holes on the back. Some specimens have a second bore below and parallel to the first, presumably for a second strand of small beads, or for attachment to other small ornaments. Four specimens also have a vertical bore, but this is probably because they were made from small irregular beads, and it may have no function. Sometimes small biconical holes were made in or under the chin for the suspension of minor ornaments. Although some of the larger carvings were made in essentially the same way, with only minor shaping of the material, the gradation in size is not continuous in this collection, and the group can be distinguished by the simplicity of the carving technique and the frequent irregularity of forms occasioned by the small size of the carvings.

Several distinct schools can be distinguished. Numbers 1-3 are small carved pebbles, probably of Maya workmanship, but very simple in execution. The eyes protrude and are oval or rectangular and bisected horizontally by a straight line. The noses and mouths are laid out with straight lines diverging downward from the brow. Numbers 1 and 3 are of opaque white jade; number 2 of speckled Class 1. Numbers 7, 8, 9, and 14 are distinguished by the fact

that the outline of the face is drawn on the pebble, leaving a narrow plain area framing the chin and cheeks. The lines delimiting the nose and mouth on these carvings are almost parallel, so that the features have unusual rectangularity. We do not know whether this manner has regional or temporal significance. Number 4, made of dark gray stone with a greenish tinge, has a triangular layout of the nose and mouth, and its helmetlike headdress, with a broad, plain central projection suggests an early date, or, possibly, a non-Maya origin. In contrast, numbers 5 and 6 can be identified with some confidence as terminal Classic, since the drilled arc is prominent in the rendering of their features, and since number 5 is made of Class 3 jade, commonly used at that time. Probably even later is a group distinguished by its cursive rendering (nos. 10-13). These carvings belong to a terminal Classic arc-drilled school better exemplified by large pebble carvings shown on plate 53b. They are also similar in material, which varies, but which, with the exception of that of number 13, falls generally into Class 3. The remaining pieces are individual in design and of uncertain affiliation. The high relief and natural rendering of numbers 15, 16, and 19, as well as their Class 1 material, place them with Late Classic lowland schools. Number 17 is of a duller white and green jade, and the carving suggests a Toltec style. The face is carved on an angle of the pebble, giving a false illusion of high relief. Another unusual piece is number 18, a fragment of a face showing an unusually pointed chin. Like that of the above, the stone is white and opaque.

**Small bead-pendants (human heads): 6 complete, 1 restored, 1 fragment. Plate 51f.**

Made from more regularly shaped oval beads, these little heads are probably all of Maya workmanship. Numbers 1, 2, and 3 seem to be unaltered in general form and are carved in relatively low relief. All are of the speckled Class 1 jade, well polished, and with large areas of green. Numbers 4, 6, and 7 are carved in high relief and are flattened on the back. These are unquestionably Late Classic Maya and closely related to the monumental sculpture of the lowlands. The jade of number 6 is particularly fine and lustrous, with strongly blotched distribution of green and black, though this may be due to the effect of burning. The material of numbers 5 and 8, made from segments of long rectangular beads, is somewhat inferior. On number 5, an angle is used for the depiction of the face, and the opposing angle is rubbed down, to make the back a single curved surface. The back of number 8 is flat, and probably the original surface. This pendant has two cross-bores, one at the top and one near the bottom, with

a small drill hole entering the lower cross-bore on the center line of the back. There is an identical arrangement of perforations on a full-figure carving in the same style (pl. 52c, no. 4).

**Small shaped pendants (human heads): 5 complete, 12 restored, 11 fragments. Plate 52a, b.**

These small pendants take various forms. Some are thick and pointed at the end, as, for instance, numbers 1 and 2, which are probably of Classic type, though their heavily outlined eyes indicate that they were not derived directly from the monumental tradition. The nose and mouth of number 1 and the headdress of number 2 are missing, and they are not fully restorable. Number 3 is probably terminal Classic, carved with a limited use of the arc, however. The jade is light gray, opaque, and finely sprinkled with green. Number 4 is rather unusual. Its relief is very low and softly rounded, but it is made of finely grained gray and bluish green jade of Class 3, normally associated with later techniques. Number 5 is a fragment, round in horizontal section, but carved in low relief. It has a cross-bore near the tip and five additional small attachment holes. Numbers 6 and 7 are fragments of tiny faces, and their suspension bores, if any, are broken away, but one may assume that they were pendants, and they are interesting because in spite of their minute size, they are rendered in perfect detail. Number 6 is typical of Classic Maya work, and is made of strongly spotted white and green jade of crystalline texture. Number 7 is of more diffuse color (jade Class 2b), which in section sparkles with laminate surfaces. It has a curious rendering, with pits in the corners of the mouth and in the eyes. Another fragment of a small head (no. 8) also has some odd features, showing the mouth open with the teeth exposed, and oval protuberant eyes. It is made of unusual jade, similar to Class 6b.

Typical of the best Classic Maya work are two small pendants of flattened form (nos. 9 and 10), made of lustrous black and green jade (Class 2a). The former seems to have been retrimmed at the sides, which cut through two small perforations. Number 11 is made of duller, almost black, stone, and designed with simpler detail, though it, too, is without question Late Classic Maya. Number 12 is carved on both sides, but one of the carvings may be a remnant. Most of the headdress is missing, and its reconstruction is somewhat dubious. Others, such as number 13, are comparatively crude in workmanship and made of inferior material. Fragment number 14 has curiously round eyes and may be a non-Maya piece.

Numbers 15 and 16 are round in outline and apparently made from flattish pebbles sawed in half



and carved on the sawed surface. They are different in style and material, number 16 being sharply cut with the help of a tubular drill and severely simplified. The jade is Class 3, somewhat decomposed, and the two fragments of the piece are of sharply contrasting color. Other examples of this group show varying degrees of flattening, from the very round features of number 26 to the very thin and flat number 17, which may have been cut from a larger piece. The features of the face on this piece are typical of Late Classic lowland Maya, but a very simple unsymmetrical headdress links it with two carvings in the round (nos. 8 and 9 on pl. 62a) which may pertain to another style. The remaining pieces, with the possible exception of fragment number 23 are probably all of lowland Classic Maya manufacture. Numbers 21 and 25 are made of finer green jade than the others and are unusually thin in section, with extremely fine bores. The indentations on the back of number 21, and of number 7 of plate 51f are not the sharp hollows one sees on round relief carvings, but are shallow and somewhat indefinite. The markings on the back of number 21 recall the piece on plate 58b, number 1, a figure wearing a turtle shell on the back. However, they may be merely remains of an earlier carving. The fragments in plate 52b, judging by the high placement of their bores, are probably small heads rather than full figures. Both have the same unusual features: an open mouth with pits at the corners delineating teeth, and ear-plugs cutting deeply into the cheeks. Number 2 is of Class 6b jade.

**Full-figure rounded pendants: 3 complete, 3 restored, 3 fragments. Plate 52c.**

Full-figure pendants carved in full round are defined here as "figurines" and are discussed in another section. Some small pendants and even more frequently beads adapted for use as pendants, however, present the figure on one face only. Fortuitously, the four carved beads of this sort that have survived represent schools of carving that are probably sequent in time. Number 1, the largest of these, represents an Early Classic school. It is carved with shallow rounded grooves, and the face has a typical T-shaped nose, diagnostic of the early period. Its jade, Class 6c, is a very softly mottled dull green, which occurs here on two other pieces: a carved bead (pl. 44c) and a head in round relief (pl. 62a, no. 3). Number 3 of plate 52c is similar but may be somewhat later. Next in time is number 2, which probably dates from the inception of Late Classic. Its relief is still soft and low, and a row of glyphs preserved on the back shows irregular outlines, but the pose and accoutrement of the figure as well as the natural features of

the face are essentially Late Classic. Number 4 is nearer to later styles with their sharp lines and elimination of detail. It is of the same school as the two faces carved on the small beads numbers 5 and 8, plate 51f, and, like the latter, it has two cross-bores with an additional drill hole entering the lower bore. The jade is somewhat opaque, but of good quality, with prominent patches of green. Number 5 is carved in the very late drooping-mouth style. It is a defective piece, with a bore starting on the top of the head and emerging just under one eye. This may be a misdirected bore, but, more likely, it belonged to a bead from which the carving was made and was intersected by error in judging its direction. The figure is silhouetted, though there is no carving on the back. The jade is probably of Class 3, not of especially fine quality.

Of the remaining figures two are probably Classic Maya: the headless fragment number 7 and the lower half of a tiny dwarflike figure, number 6. Number 8, a stocky little figure with very rectangular features, little detail, and a bore made with a thick drill, is either very early or comes from another region. It is made of a dull stone, possibly blackened by burning. Number 9 is also made of inferior stone. The rendering of the eyes by small pits and fine lines, its headdress, and the high placement of the bore identify the bib-and-helmet style (see below). The legs of this small figure are bent and separated by an opening made by removing material between four small drill holes. This was done not by string-sawing but apparently by chipping, for the edges remain rough.

**SPECIAL PEBBLE-CARVINGS: 21. Plate 53a-c.**

**The bib-and-helmet style (human and monkey heads): 9 complete. Plate 53a.**

A distinct complex of traits distinguishes this group of pendants from others in the collection. Two varieties of stone were used, neither, apparently, a true jade. One is light gray or buff material, opaque, but with well-defined patches of lustrous blue-green or olive-green (Class 8). The other has a granular appearance with hues comparable to those of the first variety, but more finely mixed (Class 7a). The placement of the bore high on the head and its wide apertures are characteristic of the style. The heads tend to be narrow at the top and are often narrowed still more by the large apertures of the bores. The headdresses are helmetlike, with plain rectangular projections in front. Typical also are long, plain, slightly projecting ears, indicated by simple grooves separating them from a biblike collar under the chin. On numbers 2 and 3 these collars seem to be broken

off and the break imperfectly smoothed. Most diagnostic of all is the rendering of the eyes, made with tiny drilled pits surrounded by an incised outline. The incision was in some cases so fine that it is now scarcely perceptible, and in some examples the pits may be omitted entirely. It is remarkable that not a single piece of this group was found in damaged or broken condition, although those made of jade of Class 7a seem to be heavily worn or abraded. Number 1 is the largest and best executed of these carvings. The eyes are lozenge-shaped. There are small pits at the corners of the mouth and others indicating nostrils. The mouth, however, does not surround the pits but is a plain rectangular area bisected horizontally. The layout of the mouth and lips on this piece is triangular, though on most of the others it tends toward rectangularity. Although I have called this a pebble style, because in most instances there seems to have been little shaping of the overall form, at least two of the specimens (nos. 2 and 4) were made from sawed pieces, and the marks of the saw remain plain on the back. On number 7 the eyes are rendered by pits within deep hollows, but this is because the piece represents a monkey. Its brownish material, the biblike collar, and the high, large bore are, I think, sufficient to identify its style. Number 8 is a triangular pendant very crudely carved with a layout of a face which lacks definite features. It resembles in form certain shell pendants very common on the Veracruz coast. Its material, however, and the short, high bore justify its placement in the group. I am much less certain of number 9, which is a flat rectangular piece with a narrow raised ridge indicating the nose and mouth. Its jade is similar in color to that of the others but is mottled and more highly polished. Brows and eyes are scratched with an uneven line rather than incised or smoothly grooved, and there is a small pit in the center of each eye. Minute traces of red were observed in the lines and in cracks, but the pigment has not been identified. The characteristic rectangularity of the facial layout, its stark simplicity, and the pitted eyes justify the surmise that this piece represents a variant of the bib-and-helmet style.

One of the pieces (no. 6) was found embedded in a ball of copal, suggesting that it was deposited in the Cenote after the fall of Chichen Itza. A rather similar piece but of different material was found at the site of Mayapan (Proskouriakoff 1962, fig. 25b), again pointing to late associations. Nevertheless, at Tikal this style has been found in association with Tzakol III remains, and I am inclined to trust my impression of even greater antiquity for this group of carvings. The helmetlike headdresses, the long plain ears, and the combination of fine incision and carv-

ing all hint of a remote connection with the ancient Olmec culture of Veracruz and Tabasco. Easby and Scott (1970, no. 71) identify with the bib-and-helmet style a pendant of shell found with terminal Preclassic vessels in Tabasco (Stirling 1957, pl. 65), thus confirming a Preclassic date for this style.

**The drooping-mouth style: 4 complete, 7 restored. Plate 53b.**

Kidder has called these "drooping-mouth" heads and discusses their occurrence in some detail (Smith and Kidder 1951, p. 37). They are most often carved on pebbles and represent a distinctive style. There is a strong tendency to adapt the form of the carving to the shape of the material and to leave the edges rough and untrimmed. The pieces that are shaped are often ill adapted to the motif of the carvings and may have been manufactured previously. We have already noted a group of small pebble-pendants carved in this style (p. 95), as well as a small full-figure pendant. Larger pieces are more elaborate in composition but very similar in rendering.

Though there is variation in color and texture in the materials used, all are variations of Class 3 and are sufficiently similar to suggest a single source. Opaque white material predominates and usually has only small patches of green on the surface. There are also pieces that are green throughout, but they have a whitish opaque tone that clearly distinguishes them from the usual grainy Classic jades. Number 6 is of jade that may be classed as 3a, number 1 is 3b, and numbers 5 and 9 are 3e. All others are 3c, except number 10, which is of similar jade but gray tinged with green, with a diffuse streak of very dark green on the back.

The style is characterized by the use of tubular drills of different sizes, which produce arcs serving to outline the forms. This may have been accomplished by holding a normal tubular drill at an angle, provided the edge was properly sharpened, but it seems more likely that the bit was cut on a bevel and that the drill was held vertically and rotated with short back-and-forth movements. Whatever its nature, the technique was also used on Late Classic picture-plaques that were probably made in the Usumacinta region, but there it did not dominate the forms to the extent that it does on the pebble-carvings, on which the eyes of the faces as well as the nose and mouth are often made with perfectly circular arcs. The two styles can be linked by intermediate forms, such as number 6, but it is not yet clear whether the differences in style have chronological or regional implications.

Number 2 and fragment number 1 are the most typical and extreme examples of this style. The motif



is essentially Classic Maya: a human head with earplugs, a headdress consisting of a central tassel reduced here to a simple arrangement of arcs around a central bulge, and bands curving down and ending in scrolls over the earplugs. Above is a three-part scroll adapted to the form of the piece. This scroll is sometimes interpreted as signifying the young maize god, and on fragment number 9 is a more explicit depiction of a plant tending to support this view. Nevertheless, I find this interpretation highly questionable. No other deities are depicted in this style, and it seems hardly credible that it was entirely devoted to a single cult. The character of the design is strongly influenced by the technique and adapted to the greatest possible economy of labor, resulting in designs that show less variation than those of earlier work. I suspect that the style is derived from that of late seated-figure picture-plaques (pls. 72-74), for the scrolls are identically formed. They are bordered by narrow projecting fillets and are usually tightly curled around a small pit made with a solid drill.

Number 1 is carved on a rounded surface, and the flat back shows the marks of a saw. The carving on number 2, on the other hand, is flat, and the back is convex, suggesting that the sawed surface was used for the carving. The choice probably depended on which surface had the best color and texture.

Number 6 is much less typical and its style can be regarded as intermediate between that of this group and that of the picture-plaques. It is carved on a thick pebble in high relief, so that it creates the illusion of being carved in full round. The nose and mouth have angular forms and are not made with a drill. Much more detail is shown: for instance, teeth and hair are clearly indicated. Above the halo of hair, there is a remnant of a typical scroll with a pit in the center, and there are two minute pits in the mouth.

The remaining pieces show variations mainly adaptive to the form of the pieces on which they are carved. The headdress of number 10, however, is notable for its combination of a central tassel with the indication of a zoomorphic mask. A drill mark on its back was apparently made to connect the two halves of a bore which did not meet.

This is not the only indication of an apparent decline in craftsmanship evinced by this style. In the making of number 2, mentioned above, the artisan seems to have encountered even more serious trouble. The sequence of operations is not entirely clear. On the right side of the pendant are two suspension holes drilled from the side and back that would have made the pendant hang horizontally. Starting from the upper hole, a conical bore was made parallel to the face and another from the opposite side, but the

drill holes failed to meet. The attempt was apparently made and abandoned to make a groove across the back from the original hole. Instead, a deep, wide hole was drilled in the middle of the back, connecting the two halves of the unfinished bore. Strangest of all, there is a triangular perforation running through the middle of the piece. This, I believe, must be a saw-mark, made after the piece was broken for the purpose of reusing it in smaller pieces. This project, too, was apparently abandoned.

Numbers 3 and 11 are shaped pieces, but their forms are unique and were probably merely trimmed from fortuitously available pieces. The former has one rounded edge and three cut edges, and number 11 may not have been originally as symmetrical as our restoration shows.

Numbers 4 and 8 are made of dull opaque bluish green jade with no gray backing. Number 8 has a large inclusion, however, of smooth light gray stone, apparently a flaw on which, for some reason, the carving was not fully finished. These two heads and number 7 lack the scrolls on the headdress and over the ears, perhaps because they are small pieces and room was lacking.

#### Unique pebble-pendant: 1 complete. Plate 53c.

This piece conforms to no style represented in our collection. The tubular drill was used to produce arcs on the mouth, eyes, and head ornament but used imperfectly, leaving full circular marks where the design calls for arcs. The scroll on the headdress suggests a stylistic connection with the drooping-mouth type of heads, but the beard and the pointed chin are inconsistent with this style. Possibly the craftsman was attempting to imitate a technique unfamiliar to him. The material, too, is unusual. It is a thick piece with straight edges, of a dark brown tone probably due to discoloration. Although the material is hard, it does not seem to be a true jade, and is perhaps a variety of albite.

#### THICK SHAPED PENDANTS IN LOW RELIEF (human motifs): 33. Plates 54, 55.

This group comprises thick pendants, usually made from large pebbles that had been trimmed and rubbed down so that they have a nearly flat or slightly convex back. Included, however, are some pieces with sawed backs which are not sufficiently broad to be considered under the common designation of "plaques." The distinction is not altogether arbitrary, for the size and shape of the piece set limitations on the character of the designs. The group includes human heads, busts, and full figures, all except one

of standard Maya design. It spans the period from the late years of the Early Classic era to about the middle of the Late Classic. Although we cannot judge accurately the date of manufacture of jades because of their lasting and transportable qualities and because of the variety of regional schools, the shape of the earplugs provides a fairly reliable clue for a rough and tentative chronology. Earplugs of irregular squarish shape with a small pit in the center are associated with shallow, rounded grooving techniques and are characteristic of the Early Classic Period. They occur on one triangular pendant (no. 1 on pl. 54a), on a fragment of a pebble of indeterminate design (no. 8 on pl. 55a), and on two flat pendants (nos. 1 and 2 on pl. 55b) depicting entire figures. Deeply drilled, round earplugs with a concave surface are associated with designs featuring arrangements of circles with strongly modulated relief. These are traits apparently characteristic of the middle Late Classic Period, when contrasting relief was a prominent feature in design. Earplugs made with a double tubular drill are contemporary or later but are exceptional in this group. They occur on only three pieces: number 3 on plate 55a, which has a flat back and combines low with very high, crisp relief, number 7, a very fragmentary piece, and number 3 on plate 54b, which is carved in higher relief than is normal for this group. These three pieces are all aberrant in some respects and are clearly not representative of the group. With the invention of new drilling devices and the perfection of techniques, thick pendants were largely superseded by plaques, which were more economical in the use of material and of time required to shape them.

Nevertheless, the character of the relief does not depend solely on the improvement of tools and skills. Deep drilling could not be applied to river pebbles having only a shallow layer of color on an uneven surface, nor could such pebbles be cut without losing surface quality. We must therefore make allowance for the use of marginal materials and the adaptation of methods to their limitations.

#### Triangular pendants: 6 restored. Plate 54a.

Early Classic Maya plaques often feature a human head between two profile serpent heads or masks at the upper corners. This motif persisted in the Late Classic Period, particularly on thick pendants of roughly triangular form. These pendants tend to have low relief with rounded grooves, and some faces have noses with flaring alae that approach the Early Classic T-shaped nose, diagnostic for the period. It is possible that some triangular pendants are Early Classic in date, though others show some later fea-

tures. The most typical (nos. 1-4 on pl. 54a) are thick and have a convex back and rounded edges. Sizes run from about 50 to 70 mm in the greatest dimension. At the top is a biconical bore, and number 6 has, in addition, five small attachment holes on the sides and bottom.

Although similar in shape and in technique, these pendants vary in design and are made of different materials. Numbers 3 and 4 are of Class 1 jade, showing conspicuous grain, with green tones concentrated on the carved surface. Number 2 has an even dark brown patina, apparently due to burning, and seems to have been made of an even-textured stone of unusual character. The material of number 1 is a dull white stone, no doubt much altered by corrosion.

Smaller triangular pendants such as numbers 5 and 6 often omit the flanking masks or heads. The first of these is a delicately modelled carving made of jade of Class 3d of even light green color and is probably quite late. The second, though also Late Classic, may be somewhat earlier. Its face has a curious resemblance to the smiling faces of the gulf coast, though this may be fortuitous. It is broader and has a more pointed chin than most Maya faces, and the mouth is rendered with pits at the corners. On the back of this piece is a faint round indentation, a feature more strongly developed on Late Classic pendants carved in the round.

#### Thick, low-relief pendants with hollowed back: 2 complete, 1 restored. Plate 54c.

Two of these pendants (nos. 1 and 3) are trapezoidal in form and feature an arrangement of drilled circles which is typically Late Classic. They both have indentations on the reverse, obviating the necessity of a long bore and making it possible to connect two short drill holes made from the sides in a straight line. The smaller pendant has, in addition, two vertical drill holes at the upper corners. It is designed in the usual way, with the head and its headdress filling the field. The larger pendant presents the human head on an open field framed by a border, the lower edge of which is formed of the arms and hands so that the design is in effect a bust, although the simplified detail keeps the arms decidedly in the background. The pattern of the circles is stressed by their strong relief, and by the drilling of their central holes all the way through to the back. A similar emphasis on a pattern of circles is used on some Late Classic silhouetted plaques, such as number 6 on plate 68.

Very similar to these trapezoidal pendants is one of more complex form (no. 2). The indentation on the back was made with a large tubular drill, and



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the relief is made on a rounded surface, so as to produce the effect of deep carving. Like number 3 this piece has two vertical drill holes at the top and may also have had a horizontal bore, since fragments are missing in the location where one might expect to find it. There are small attachment holes on the three projecting points at the bottom.

Unlike the typical triangular pendants, these are made of uniform jade of Class 1 with no colorless backing.

The final piece of the group (no. 4) is an un-restorable fragment depicting a bust of a figure. Its jade is badly decomposed but shows only a thin layer of green on an opaque white body. On the back there is part of a deep rectangular indentation, and on the edge of the base, the remains of five or six biconically drilled attachment holes.

**Unclassified thick pendants (heads and busts): 1 complete, 6 restored, 7 fragments. Plates 54b, 55a.**

These carvings are intermediate between the small shaped pendants described on page 95 and low-relief heads carved on shaped plaques. They form a miscellaneous group, many of them too fragmentary to restore with confidence. The three shown on plate 54b retain some features in common with triangular pendants. Number 1 is essentially an unshaped pebble, probably cut on its carved side. Its quasi-triangular form may be entirely fortuitous. Number 2 consists of two disarticulated fragments and has an unusual headdress design that may include a bird whose wing and tail can be seen on the right. Number 3 appears to be a simplified version of the profile-serpents motif, with the human face carved in unusually high relief. This piece has a sawed back and concentrically drilled earplugs, and may represent a late survival of a trait originally associated with the earlier triangular pendant designs.

The examples on plate 55a are all fragmentary except number 1, which is nearly complete, but six are restorable. They represent no single type but are intermediate between the group of small pendants and the larger extended plaque forms. Two additional pieces of a more standard design (nos. 5 and 6 on pl. 56b) illustrate the continuity of size and relief but are not included here. Of the pieces on plate 55a, numbers 8 and 11 are probably Early Classic, but the design of number 8 is not clear, and number 11, a small bust-figure, is broken off at the top. They both show the soft relief of early carvings and retain the appearance of pebbles only slightly shaped. Number 8 is opaque gray on the back but has large areas of dark green lustrous color on the face. Number 11 is of dull gray stone, which may

or may not be jade, with a small inclusion of light green.

Number 3 is an unusual piece, combining high, even slightly undercut, relief of the headdress with low-relief rendering of the face. It is thick and quite flat on the reverse. The jade shows an even green speckle on the surface but is badly decomposed and crumbly at the broken edges. Numbers 4 and 5 may also be altered to some degree. They now show a white opaque surface with scattered patches of green. Number 5 exhibits an unusual treatment of the eye, which is protruding and drawn almost as a perfect circle with the lid marked off by a light groove. Number 10 is another unusual fragment. Its thickness at the broken edge and the placement of the bore suggest that it was once much longer, but the design is not that of a full figure. Probably, like the high relief fragment, plate 62b, number 8, or the plaque, plate 67a, number 2, this piece once showed a pectoral below the present break.

**Flattened full-figure pendants: 1 complete, 4 restored, 4 fragments. Plate 55b.**

These figures are carved on an extended field but are smaller and not so flat as those usually referred to as plaques. The back is often faintly rounded and the face usually has a thin layer of green, permitting carving only in low relief if the color is to be preserved. This is very evident on number 1, which has a shallow, diffuse layer of green on the surface. The relief is almost entirely limited to shallow, soft grooving, except on the features of the face. Though the central tassel of the headdress is more typical of the Late Classic Period, an Early Classic date is not precluded. Similar in technique and design, and probably also early is number 2, which seems to represent a woman in masculine dress. However, since there is no other representation of a woman in this collection, it is possible that the protuberances on the chest were not intended as sexual symbols. The conventional simplification of the human figure peculiar to the lapidary craft is well exemplified in this piece. The forearms are in horizontal position just above the belt, and the hands are placed palms up, as on most early pieces. The end of the loincloth hangs between the legs, which are greatly reduced in proportion to the body and are shaped by simple notches at the ankle and at the knee.

Another small pendant that may be early is number 8, which derives its design from larger triangular pendants with profile heads on the headdress. Below the diminutive and vaguely indicated legs of the figure, the field is extended to accommodate attachment of subsidiary elements. The position of the hands, which would help to date this

figure, is unknown.

On later pieces hands are placed palms down or inward, meeting on the chest with fingers touching, as on fragment number 4 and on number 5. The latter is designed like some of the much larger Late Classic plaques, with very abbreviated legs and a marked arrangement of three circles around the face. The eyes, however, are rendered in an early manner. Number 3 has a similar design of the headdress and a similar treatment of the eyes. It is a badly burned piece, and the central portion showing the hands is missing. There is an indication of the legs of the figure on the back as well as on the front, though on the back of the upper piece there is no carving.

Numbers 4 and 6 are typical of Late Classic Maya workmanship. The relief is sharp, and the face of number 6 is carved virtually in half round. The rendering of the features is also typical of the period.

Among the fragments, we find another greatly reduced body lacking a head (no. 9) and part of a larger figure which is entirely unlike the others (no. 7). The very high placement of the shoulders suggests a hunchback. The face is triangular, and the earplugs are placed above their normal level. The relief consists mostly of rounded grooves, and the material is gray with only traces of green on the surface. In addition to the principal bore, passing through the upper arm, there are small perforations along the edge.

**INTERMEDIATE UNCLASSIFIED PENDANTS: 8 restored, 2 fragments. Plate 56a-c.**

At the height of the Maya Late Classic Period, there appears to be a sharp distinction between heads carved in high round relief and large flat plaques usually showing marks of having been sawed on the back. This may have been due to new access to natural deposits of jade and less reliance on river pebbles as the source of material. There are, nevertheless, intermediate forms which are not easy to place in any distinct category. Plate 56a, number 1 is a fragment of a small sawed piece, clearly of the Early Classic Period. It shows on the back the characteristic trace of string-sawing in the form of a low projection with curved sides. What appear to be two marks of drill holes that did not meet suggest some reworking. A similar raised flange on number 2, apparently made by string-sawing, is horizontally placed to accommodate a bore. The carving on the front is crudely incised and gives one the impression that it may remain unfinished. The jade is gray with only the barest tinges of green. Number 3 is completely different. Although the grooving technique

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of its carving lacks the crispness of late Maya work, there is some use of the tubular drill, and the design appears to be standard. There is a suggestion that the piece was once thicker, for on the back there are traces of two former bores, in addition to an extremely fine drill hole, which may or may not have been run the whole width of the piece.

Plate 56b, number 1 is essentially a triangular pendant but more extended and apparently carved on a sawed surface, though retaining a certain convexity of the back. The design substitutes for the usual serpent heads two grotesque profiles of masks with upturned noses. The relief, though low and composed mostly of grooves, is to some degree modulated, and the double-drilled earplugs stand out sharply and are drilled completely through in the center. The material is gray, slightly greenish on the surface. The second piece is made of opaque white material with bright patches of green, and is carved with bold, sharp grooves. It, too, apparently derives from earlier triangular designs, with human instead of grotesque heads on the upper corners. The earplugs are drilled all the way through, but only on the upper heads are they double-drilled, like those of number 1. In both these pieces one feels a certain incongruity of forms and techniques, as if the craftsman was either experimenting with new ideas or not thoroughly versed in the canons of a particular style.

Numbers 3 to 6, on the other hand, repeat a single design with only minor variations, on pieces of different size and thickness. Number 3 is very thin in proportion to its size but has a curiously uneven back surface. The others are progressively thicker and in higher relief. All feature a mask headdress and a collar of petallike elements or of beads (no. 5). Number 6 is the only carving of this group which has a sawed back, and an oblique groove suggests that it was made from a reworked piece of material. With the exception of number 5, these pieces have been assembled from disarticulated fragments and some of the details of reconstruction remain questionable. Nevertheless, being very similar in design, they present an interesting series of variations in technique related to the size and form of the carving, the soft rounded high relief of numbers 5 and 6, the crisper lines of number 4, and the drilled arcs on number 3 corresponding to the progressively flattened work surface. Although there may be some chronological tendency expressed in this progression, it is clearly not a simple linear series.

Numbers 1, 2, and 3 could well have been included with Late Classic Maya plaques, which are described in a later section, but they are not typical and are better regarded as marginal examples link-



ing together various styles and forms.

The full figure in plate 56c is unique both in form and in design. Its face and arms unfortunately are missing, but it is unquestionably a late or terminal Classic piece, judging by the concentrically drilled circles and the sharp lines of its relief. The bent knees of the figure suggest a northern provenience. The material of this piece is quite unusual, apparently a variety related to jades of Class 3, especially on the back, where one sees a streaky distribution of color on an opaque background.

**FIGURINES: 16. Plates 56d, 57, 58a and b.**

Figurines, by definition, are human figures carved on front, sides, and back, though not always in full round. Most of them are made to stand independently, and all have a horizontal bore through the neck or shoulders by which they could hang as pendants. The majority belong to a Late Classic group representing dwarf figures, but there are at least three that are notably different.

**Early Maya figurine: 1 restored. Plate 56d.**

Although this is the only restorable figurine of its kind, there is a small fragment of another like it, which hints that it may be an early type. Its head is carved in the round, projecting strongly from the flatter body, so it is doubtful that it could stand free. On the back, the carving is minimal, merely outlining the legs and upper arms. The legs are very short and are separated by a simple gash. What most clearly indicates the early date of this piece is the position of the arms, one sharply bent at the elbow, the other extended downward, as on some very early Maya stelae. The rendering of the hands, with fingers curled around the thumb, is also characteristically Early Classic. The material is gray and lusterless with only tinges of green on the surface. The figure was evidently made from a large bead, for it has a vertical bore; but very probably there was another, horizontal, bore, either above the shoulders or through the headdress, where portions are missing. Earplugs are indicated by drilled circles with deep drilled indentations in the center. Eyes are protruding ovals with a horizontal gash, and the nose, though not strictly T-shaped, has strongly projecting alae. The head is disproportionally large, and this figure appears to be a prototype for later dwarf figurines, although it lacks their characteristic protruding belly and exposed navel.

**Late Classic Maya dwarf figurines: 4 complete, 6 restored, fragments of 3. Plates 57, 58a.**

In spite of the variety of stylistic detail that can be

noted in this group of figurines, the general pattern of their design is uniform. They present a squat, pot-bellied, little figure with an exposed navel. The legs are very short and are formed by two interesting grooves, one running from front to back and bisecting the base and another perpendicular to it on the front surface delimiting the feet. The arms are held at the sides. Elbows are bent, but hands do not meet in front, exposing and emphasizing the protruding belly. Accoutrement is usually simple. Some of the figures wear headdresses, but more often the hair is shown dressed to a crest that runs from back to front on the top of the head. Earplugs are sometimes worn, or the ears can be simple rectangles pierced near the lower edge. The belt is usually plain and worn low down on the hips, with a short apron touching on the thighs. At least one figurine wears a skirt. Two wear beaded necklaces and three a pectoral on the chest.

Numbers 1 through 6 on plate 59 are carved in full round. Numbers 7 and 8 are somewhat flattened on the back but still have a faint suggestion of silhouette. Numbers 1, 3, and 5 on plate 58a and the fragments (nos. 2 and 4) are entirely flat on the back, though the features of their bodies are indicated by grooves. The first figurine on plate 57 stands out from the others as an extraordinary piece. It is one of the few unbroken and unmarred pieces in this collection and is made of exceptionally fine green jade of Class 2a, with traces of a black coating which may have been caused by burning but which has not affected the stone. The carving is in full round, with deep undercutting and with perforations that separate the arms from the body. The figure wears an unusual serrated crest on its head, and the broad and prominent lower jaw gives its face a curiously foreign look.

Another fully round and well-preserved figurine (no. 2) is made from a bead. Half of its face is pitted with tiny marks made with a fine pointed drill, and pits were made also in the eyes to indicate the pupils. This figure may be wearing a skirt, though the intention of the carving is not altogether clear. A skirt may also be indicated on number 5, a figure which wears, in addition, wristlets, a beaded necklace, and on its forehead a headband made up of five circlets. A curious and unique treatment of the ears shows the lobes pierced, and the earplugs, which should be attached to them, resting instead on the cheeks. The jade of this figurine appears to be fused, and is glassy under a dull pitted surface. This kind of decomposition (Class 15b) occurs on a number of fragments and may have been caused by extreme heat, although probably only inferior jades would be subject to such alteration. Fragment num-

ber 3 is also altered to a rough, lusterless, and colorless surface, though it does not have the same glassy quality. The figure seems to have been carved on a round pebble, and its hands are shown with palms facing forward, as on the plaque, plate 70, number 3, carved in a style that I have ascribed to Campeche or to the northern Maya lowland.

Numbers 4 and 6 are both tiny figurines. The former is rendered in simple fashion, but the latter, in spite of its small size, is provided with a necklace, earplugs, wristlets, and a decorated belt. Almost the entire head is missing, and it was probably somewhat smaller, rounder, and more elaborately dressed than is shown in the reconstruction. The jade of this piece is of gemlike quality.

The back of number 7 is somewhat rounded, but shows clearly the mark of a saw, and the details of anatomy and dress are not carried all the way across. This figure wears a sharply projecting head-dress with a central tassel and has curiously triangular eyes, which one sometimes sees in association with a variant of the arc-drilled style (see p. 90). It is made of whitish jade sprinkled with pale green.

The largest of the figurines (no. 8), though it shows more detail on the back, is blocklike in appearance and has a glyphic inscription on the back, which, unfortunately, is incomplete. It is also made of light-colored, somewhat decomposed jade. This figure wears a crest on its head and an elaborate pectoral showing a human head with a mask head-dress.

The remaining figurines have flat backs, with simplified anatomical and dress features executed entirely in grooves. Number 1 of plate 58a is in half-round relief, and is unusual also in the shape of its head, which is narrower and longer than the faces of most of the figurines. Fragment number 2 is similarly half round and is distinguished by an earplug made with concentric grooves, which is unusual in this group. The remaining two figurines (nos. 3 and 5) are blocklike in form, and on number 3 especially, the design on the back is reduced to a conventional pattern. This figure, like the headless number 3 on plate 57, holds its hands palms forward. Number 5 (pl. 58a) is the only figure which wears a zoomorphic headdress and does not show the navel. The arms are also in an unusual position, apparently grasping the belt at the sides. The workmanship of this piece is cruder than that of the other figurines, and one might be inclined to put it in another class were it not for the very characteristic manner of depicting the legs and the feet, which links it with this group.

Figurines of this type have not been found, to my knowledge, in any archaeological excavations, but there is a similar figurine in the Medici Collec-

tion of the Uffizi Gallery. This figurine wears on its chest a pendant with an inscribed Ik (tau-shaped) sign, like those on the large pectorals pictured on plate 65b.

**Unusual fragments: 2. Plate 58b.**

Fragment number 1 on plate 58b is carved both on front and back and for this reason is included in the group, though only the head is preserved and it may not have been a full figure. Made of deep green, brilliant jade, this piece must have been very striking. The head is curiously hollowed in back, and on the shoulders are faintly incised markings of a turtle carapace. The principal bore was drilled at an angle, but an additional drill hole was made to level it. Three smaller biconical holes were made in the top of the head giving into the hollow and another was made in the shoulder. All this raises the suspicion that this piece may have been reworked and that the carvings on the front and back were not made at the same time. The low but strongly marked brow of the face and its prominent chin all bespeak a non-Classic style. In view of the frequent depictions at Chichen Itza of figures wearing a turtle shell on the back, it is possible that this is a Toltec piece.

Another unusual fragment, number 2, seems to be, on the contrary, a very early carving. It depicts the legs of a small figure in full round, standing with its feet turned out at an angle of 180 degrees. The legs are separated by a slit made from an initial perforation but extending only to the heels, which are connected. The arching of the foot on the bottom is a very unusual feature, and the anklets made of a single strand of beads are of a type associated with very early sculptures, particularly those of the Proto-classic Period. The jade is of unique quality of even, light grayish green tone and pearly luster. It matches no other fragment in this collection, with the exception of a tiny fragment that may be part of the head.

**ROUND-RELIEF PENDANTS: ANIMALS AND GROTESQUES: 29. Plates 58c, 59a-c.**

**Animal heads: 4 complete, 4 restored, 5 fragments. Plate 58c.**

Animal carvings are rare in the Maya style, and clearly recognizable carvings in the round include only heads of the jaguar and the monkey. The two jaguar heads are both incomplete. Number 1 was made from a large heavy bead of gray jade, at least 40 mm in diameter. Part of the bead was cut away to a slightly concave surface and made the back of the head. The front was deeply carved with free use of tubular and solid drills. The drill hole at the corner of the mouth is 10 mm deep, and an undercut was



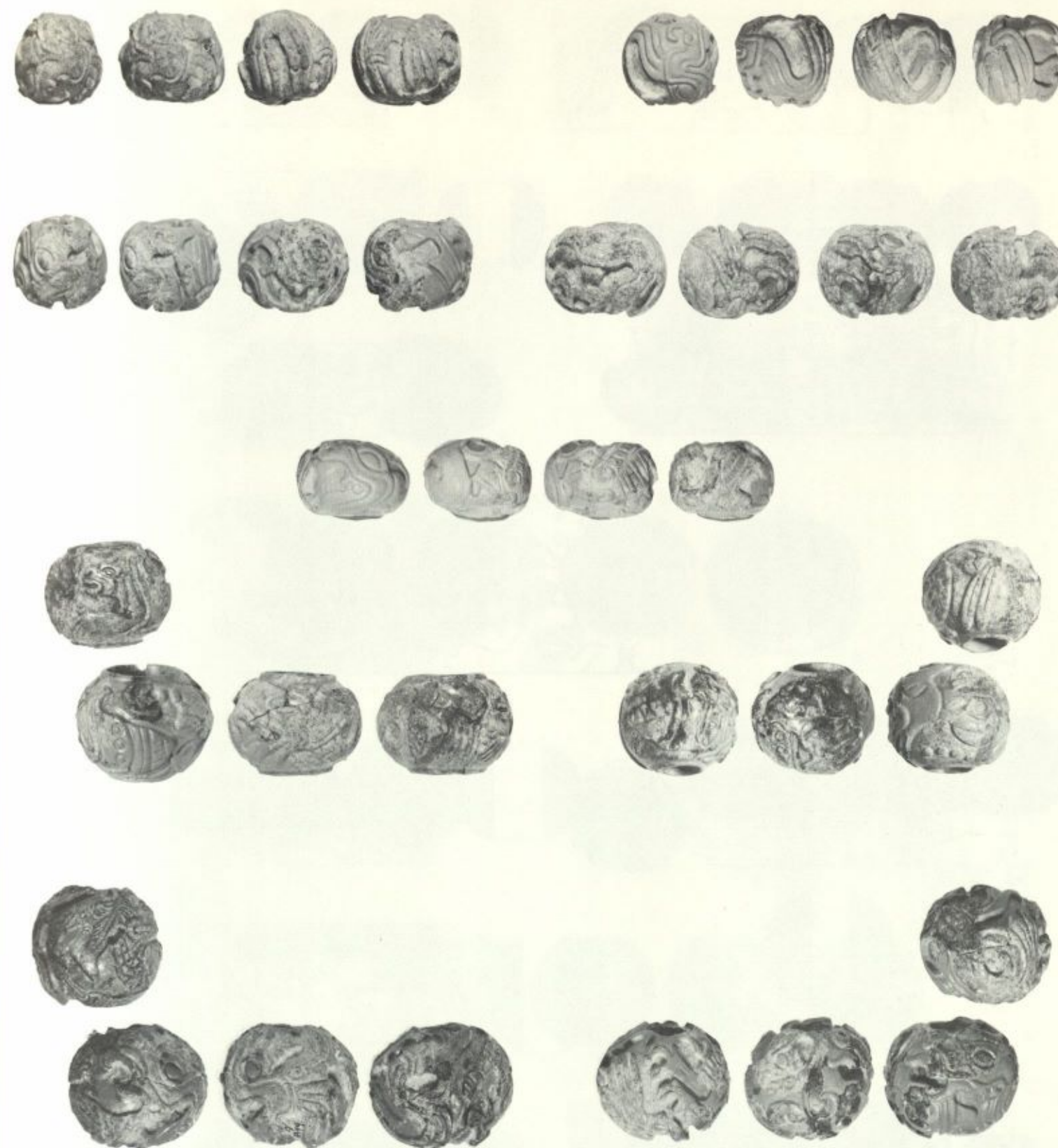
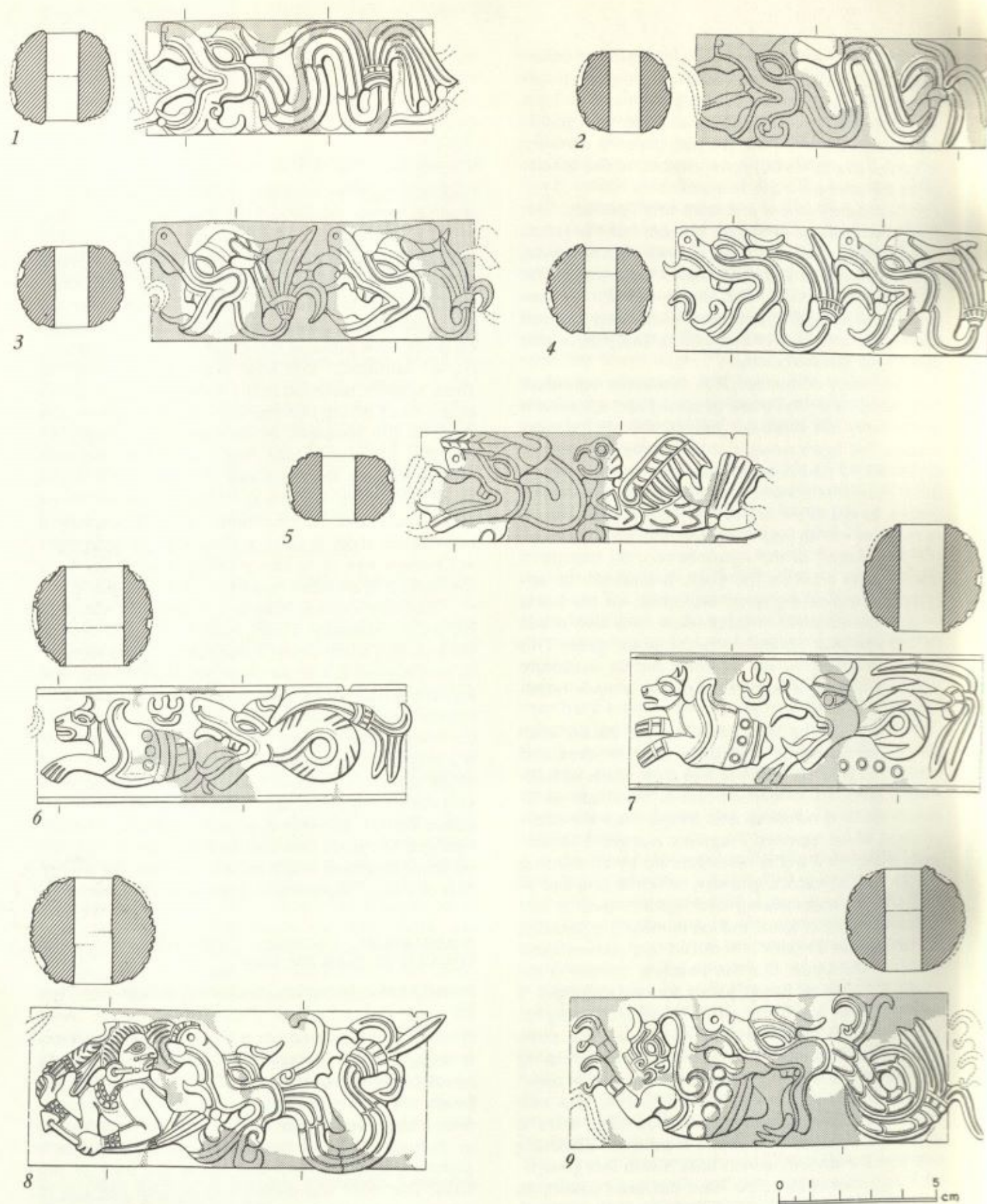


Plate 42. Large spherical beads, Toltec Chichen style (see pp. 82, 83).



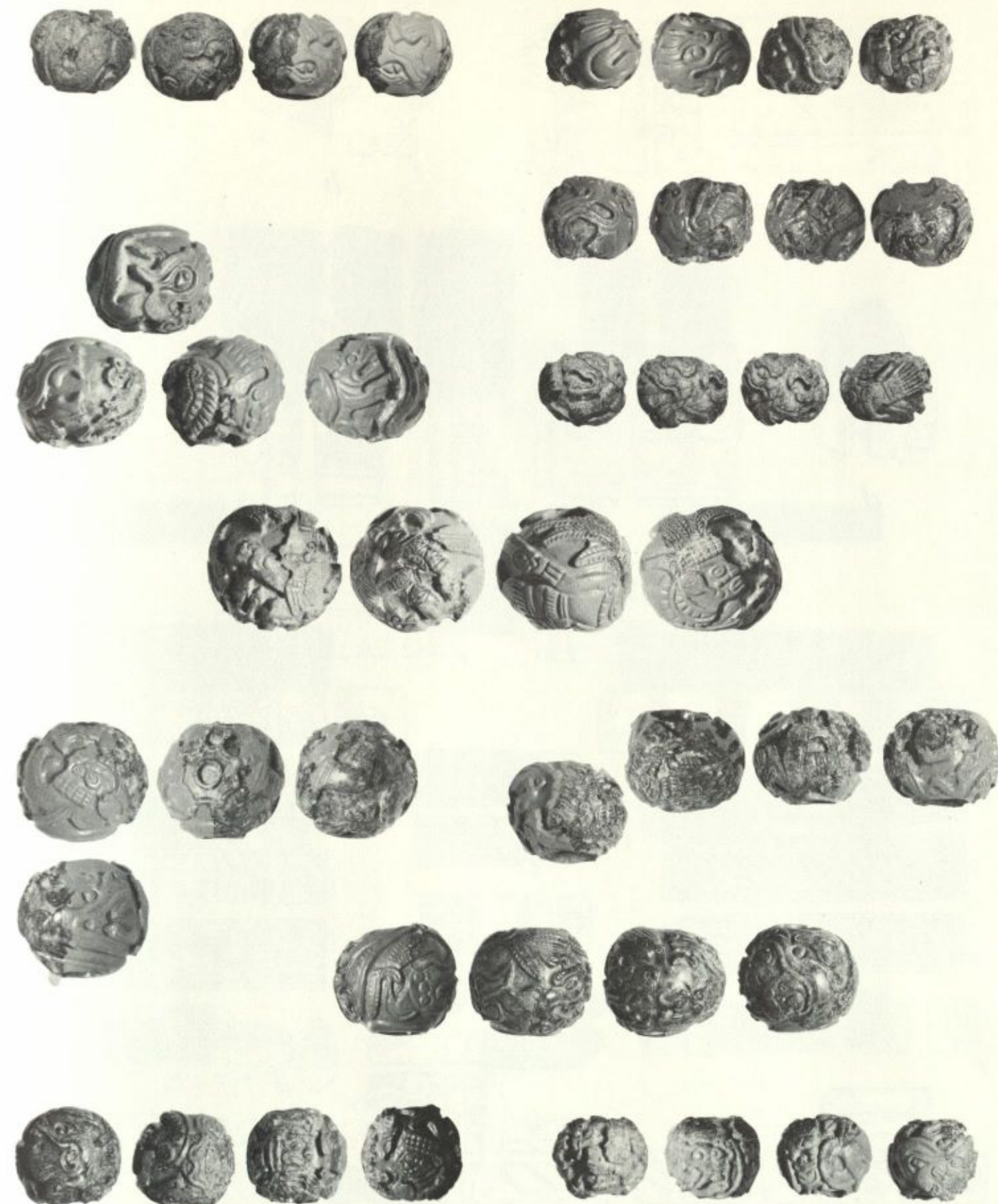
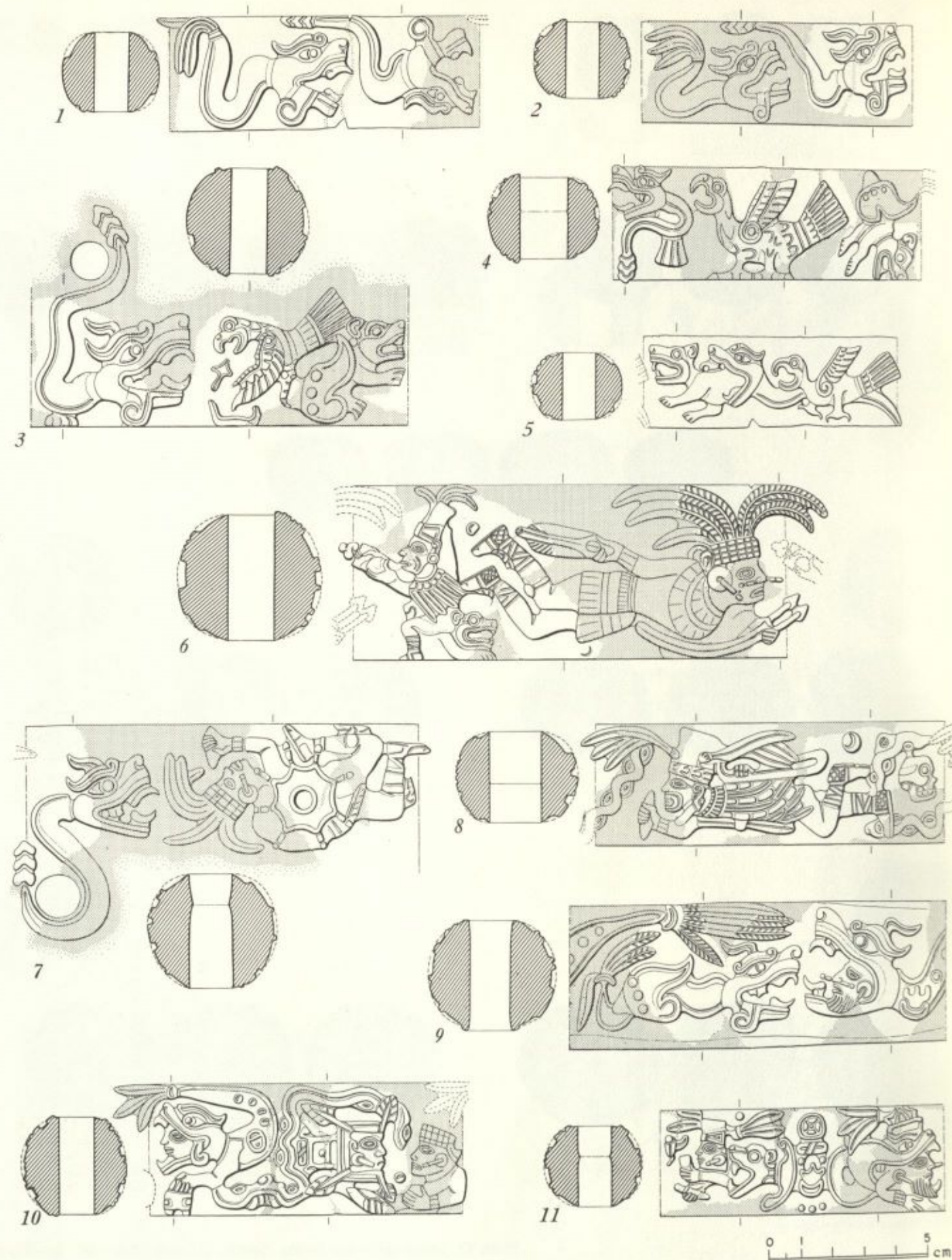


Plate 43. Large spherical beads, Toltec Chichen style, continued (see pp. 82, 83).



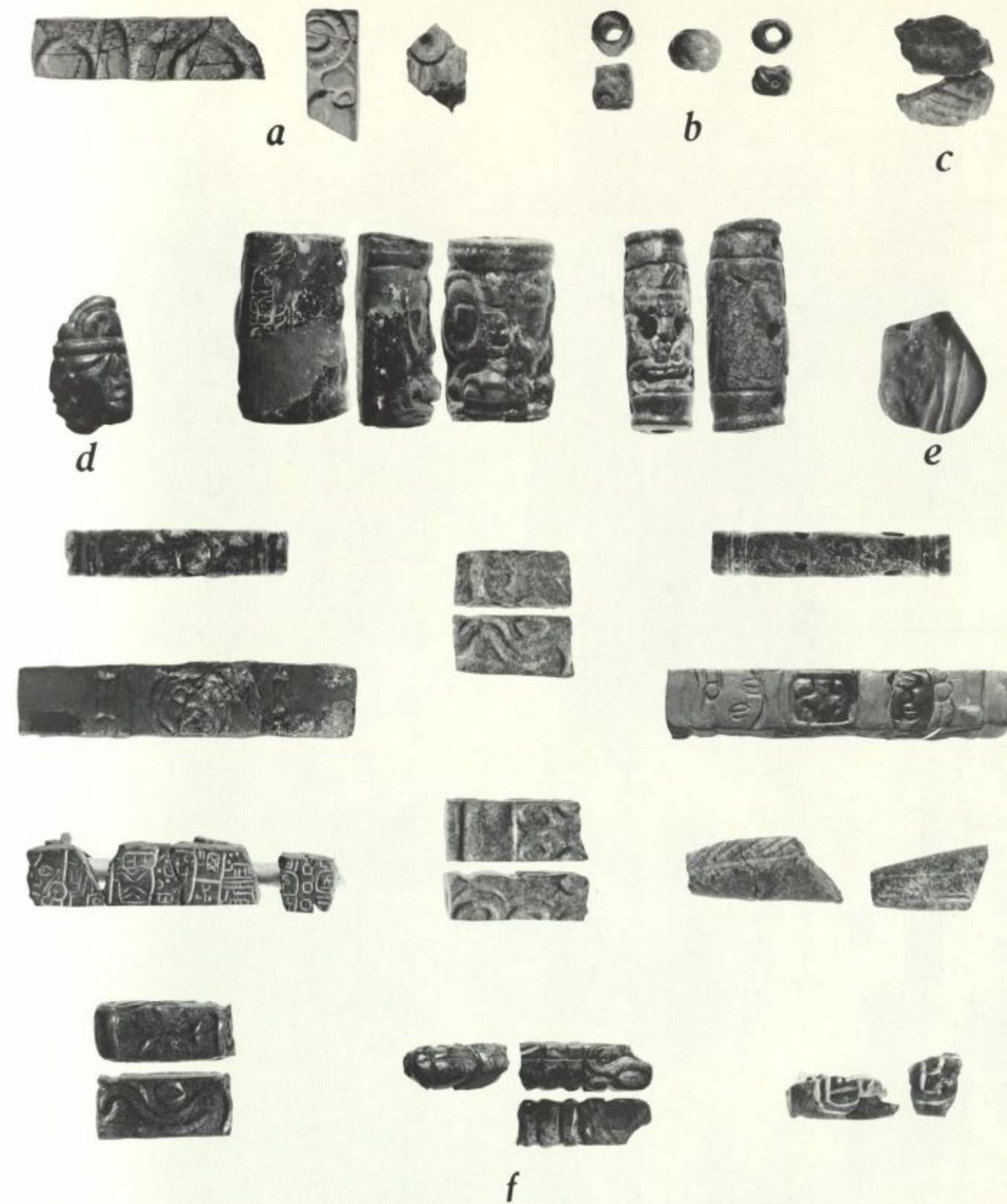
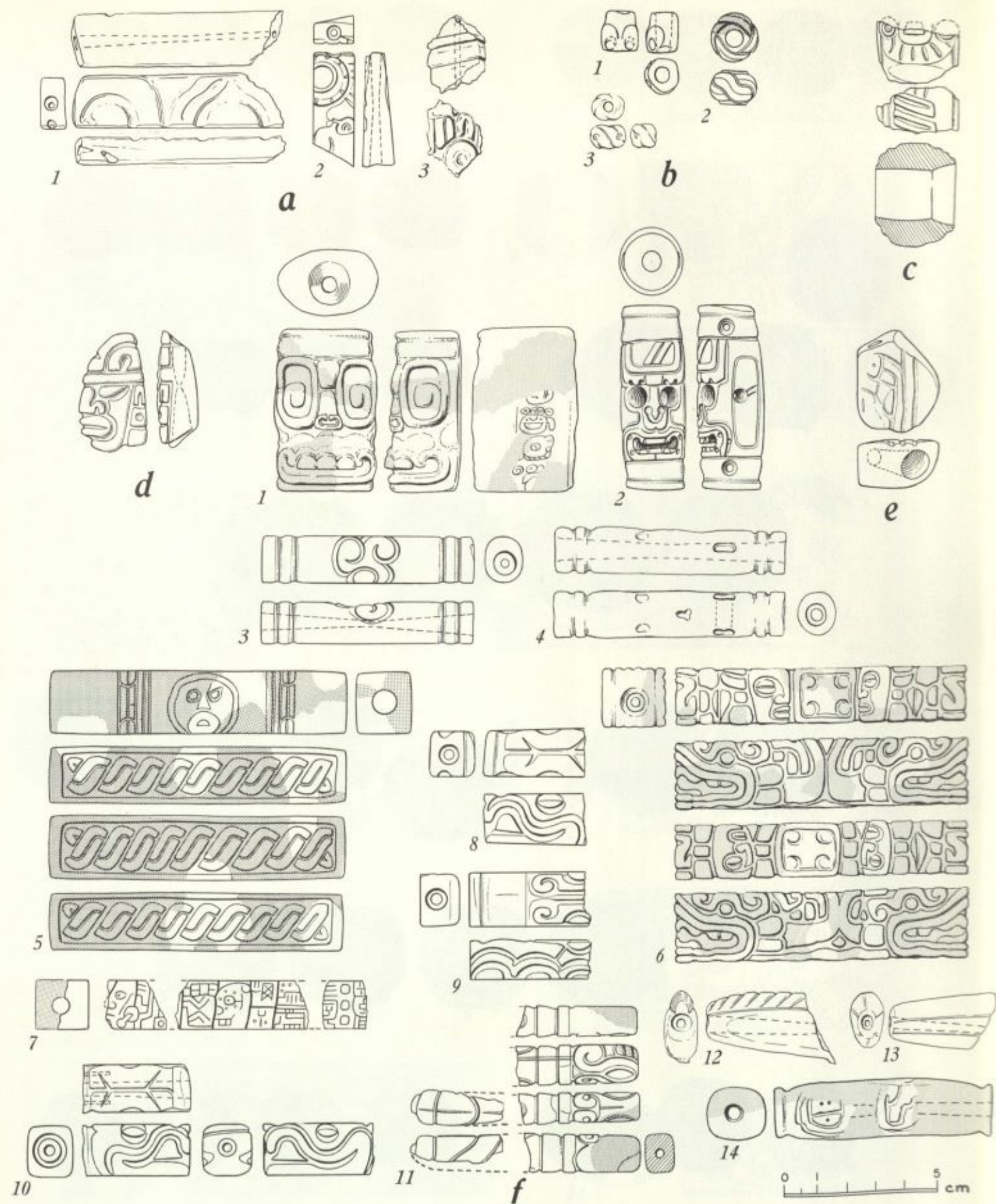


Plate 44. Carved beads: a. made of reused carvings; b. small spheroid; c. spheroid ring or bead; d, e. ovoid; f. tubular and oblong (see pp. 82-84).



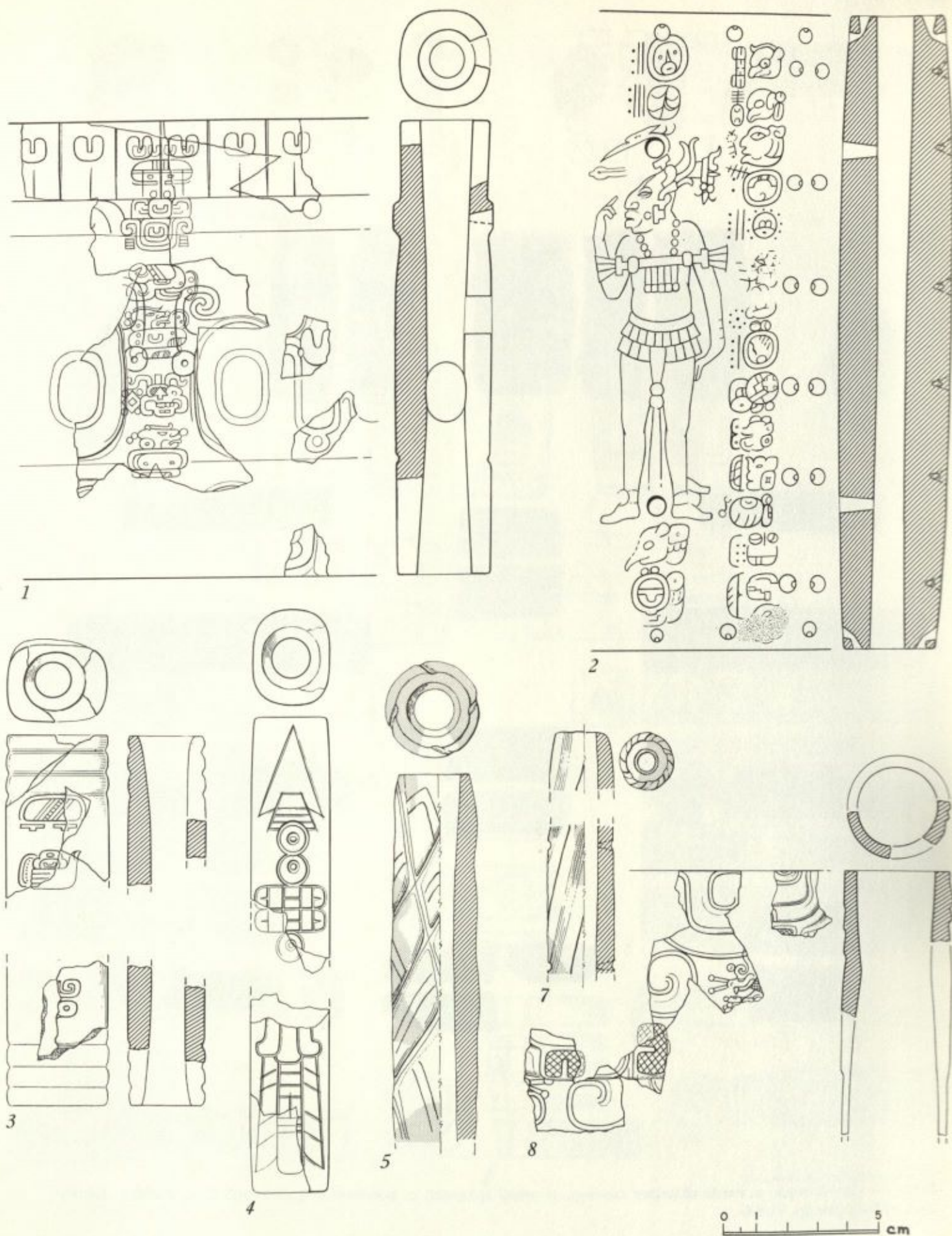


Plate 45. Large pectoral beads (see pp. 82, 85).



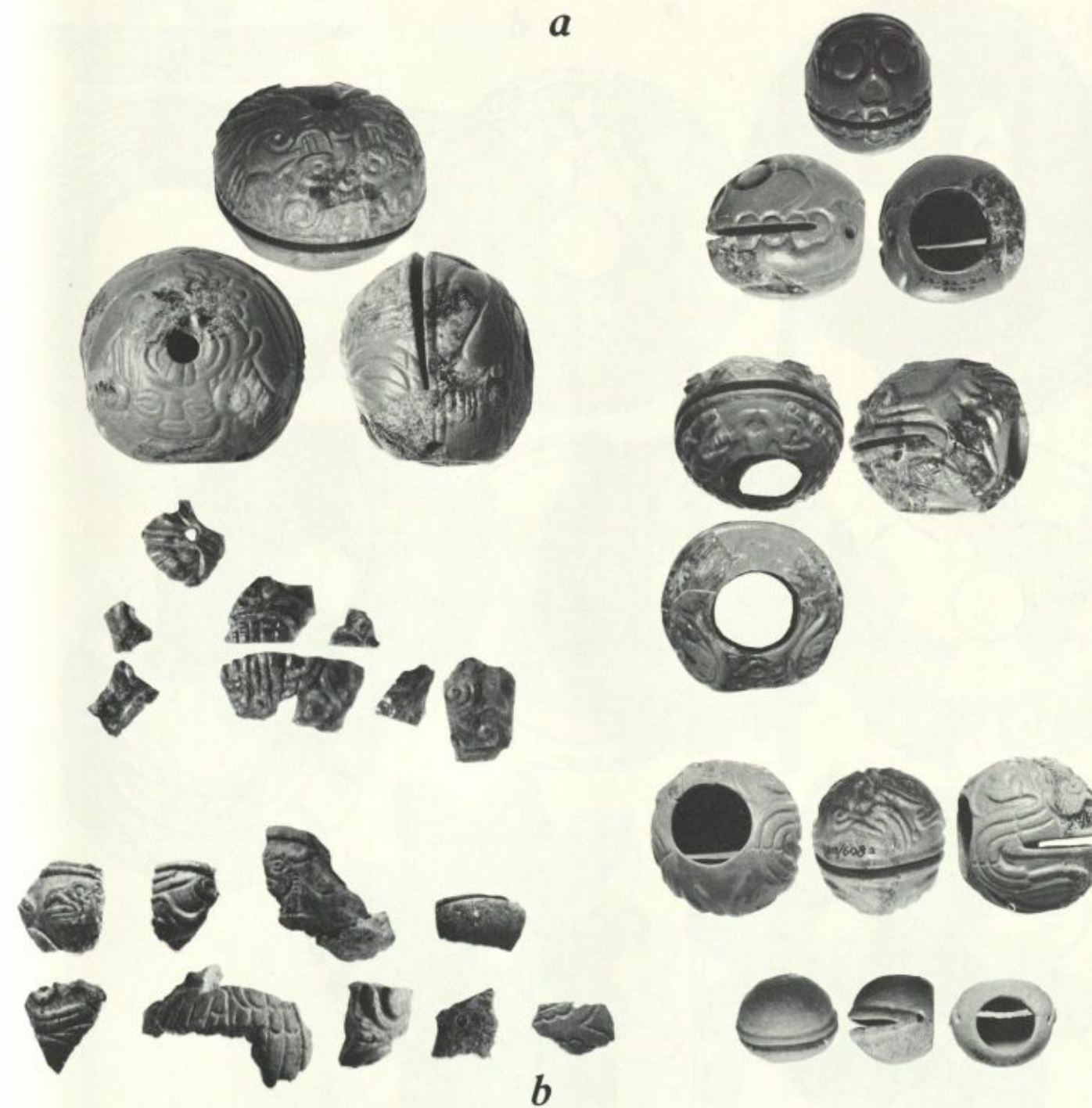
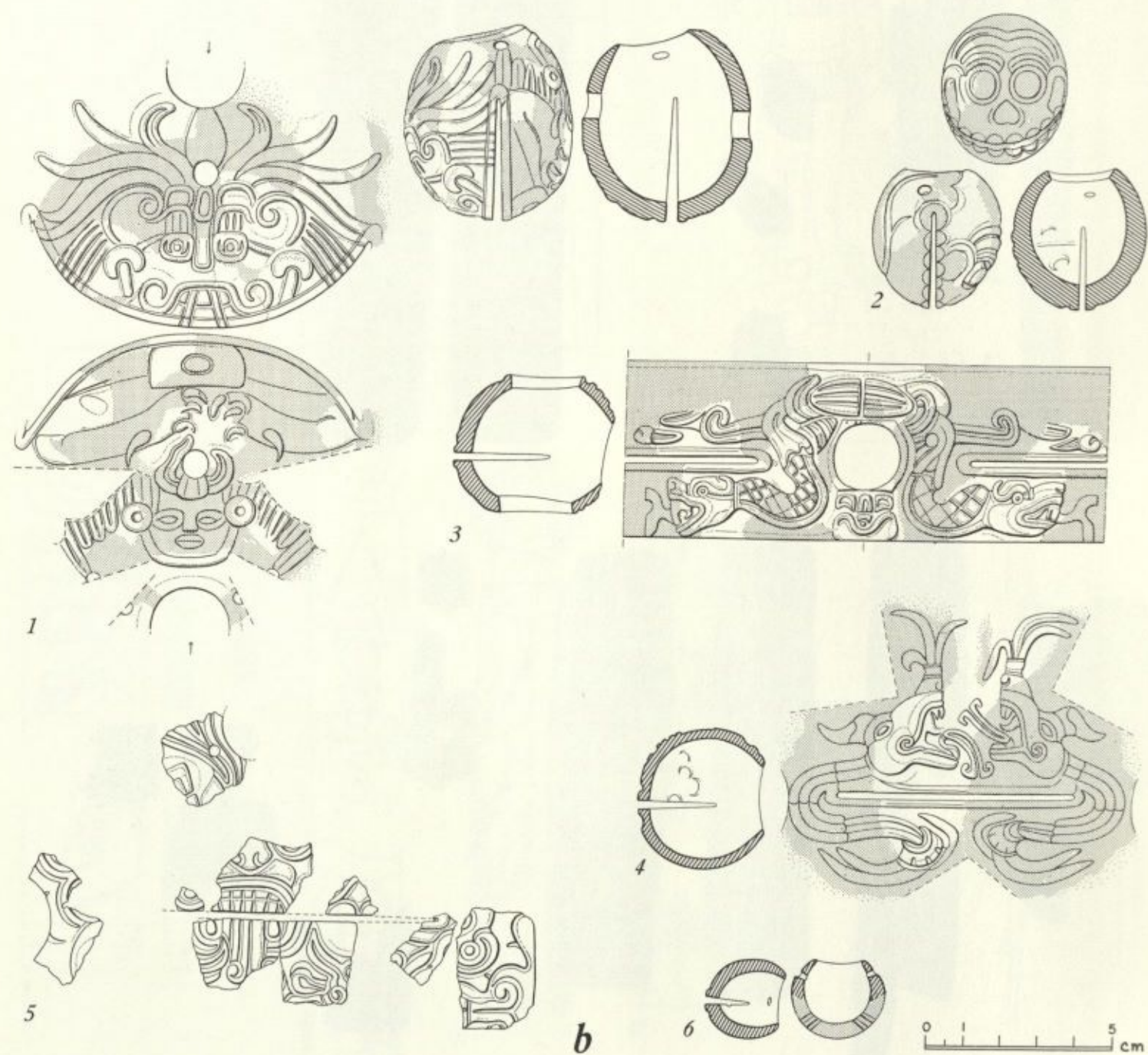
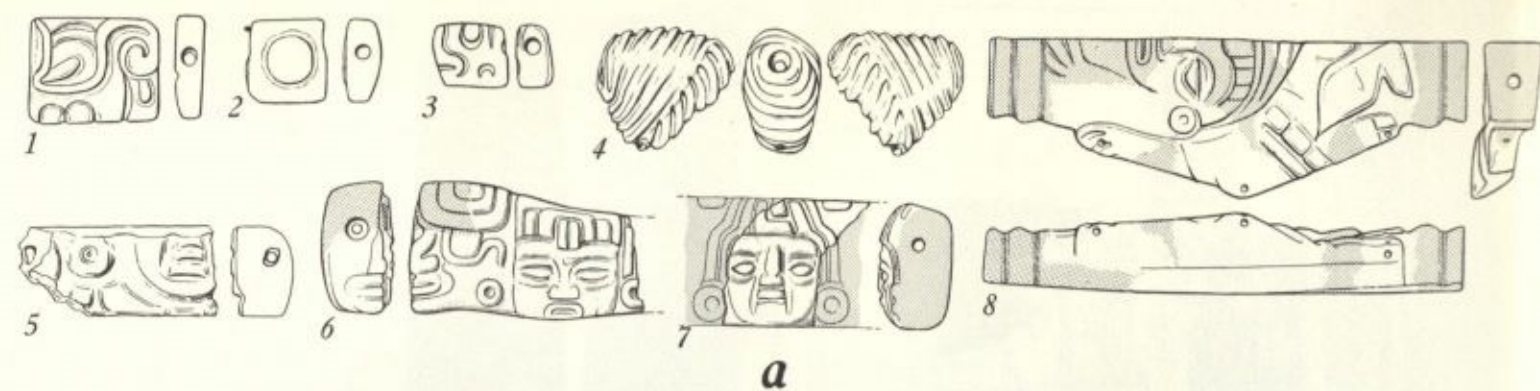


Plate 46. a. Beadlike pendants; b. carved globes and fragments (see pp. 86, 87).

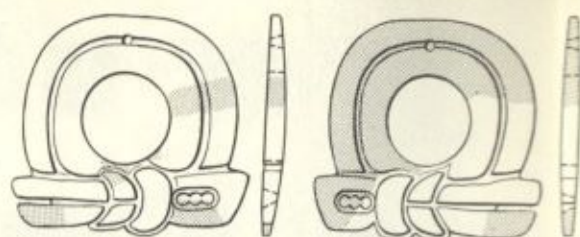




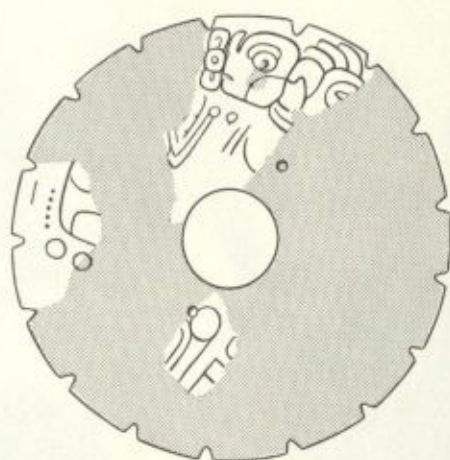
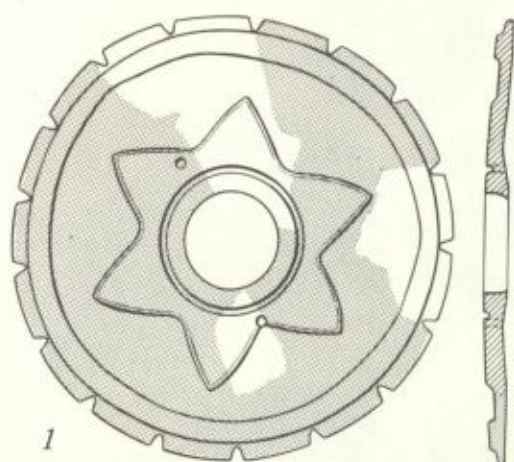
*a*



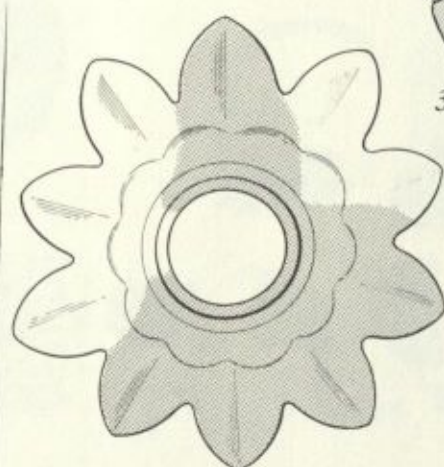
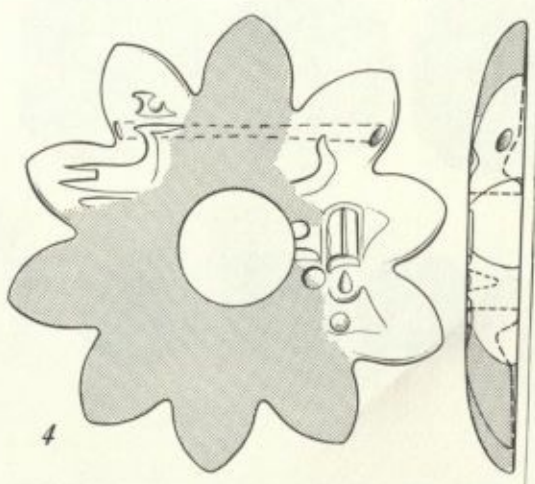
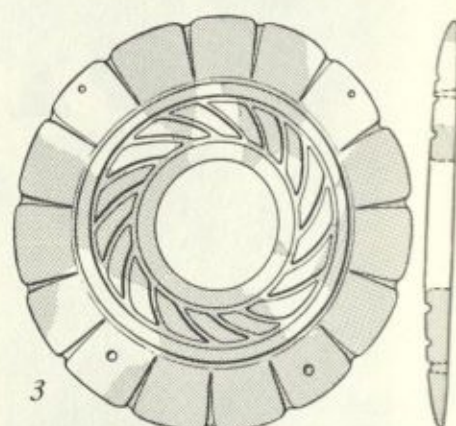
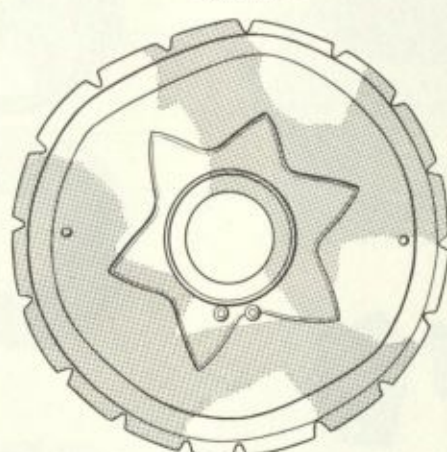
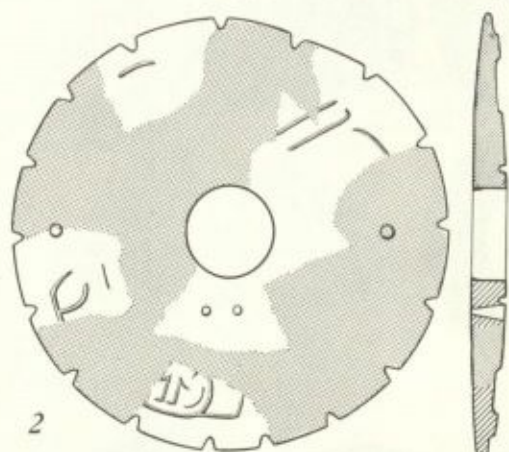
*b*



*c*



*d*



*e*





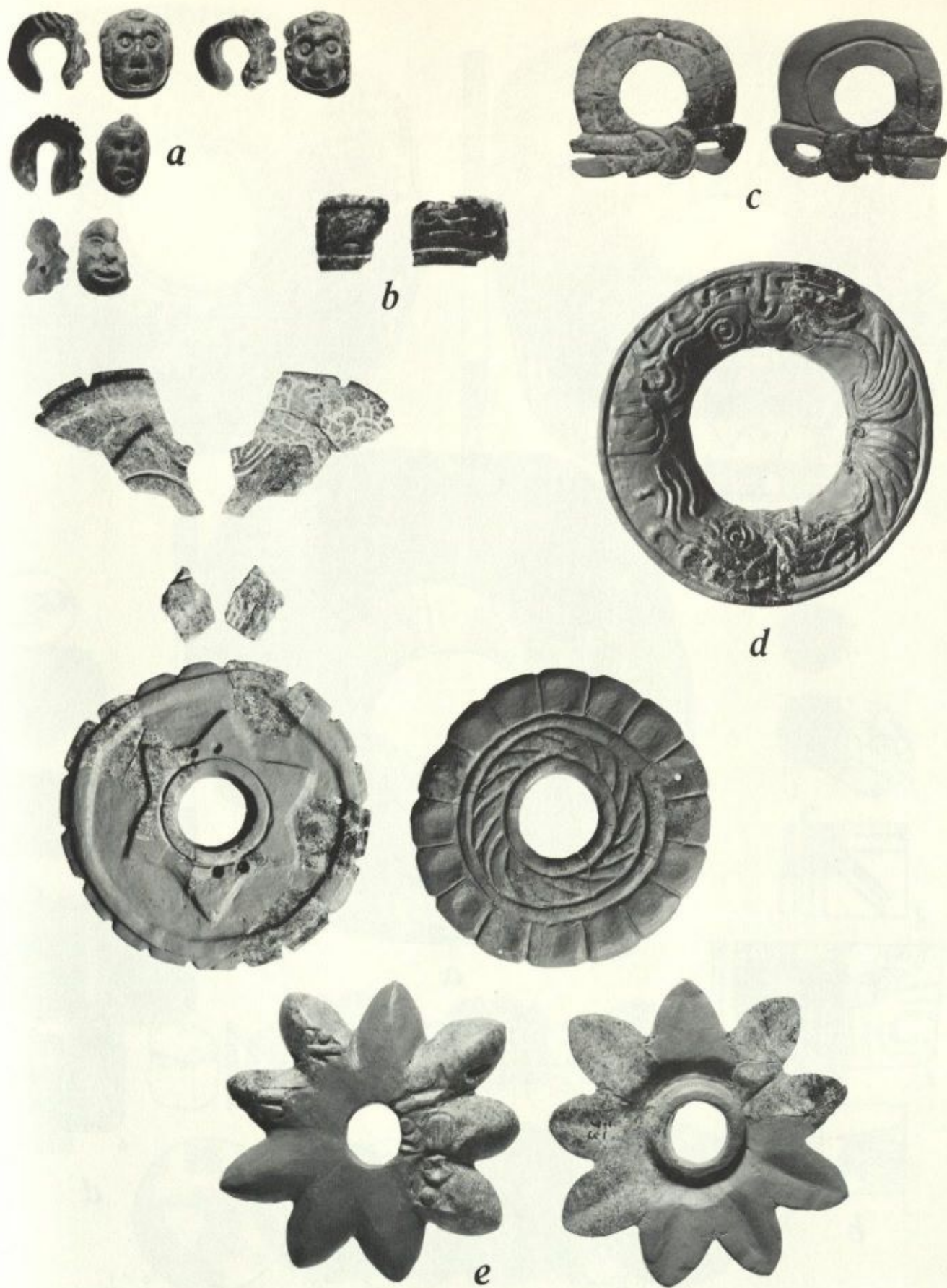


Plate 47. a. Carved nose-buttons; b. carved finger ring or flare-stem; c. pair of small flat rings; d. carved flare; e. large flat rings (see pp. 87, 88).







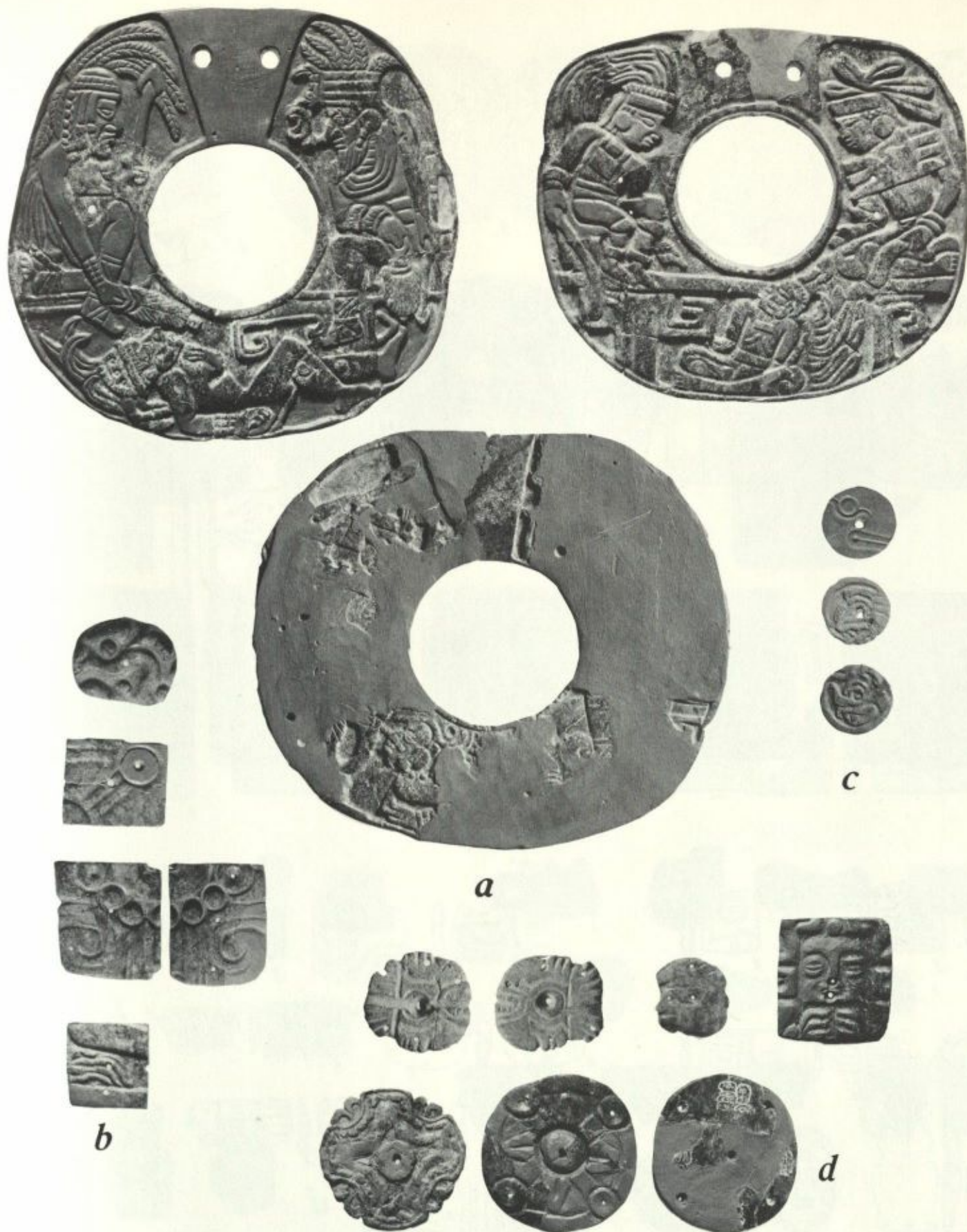
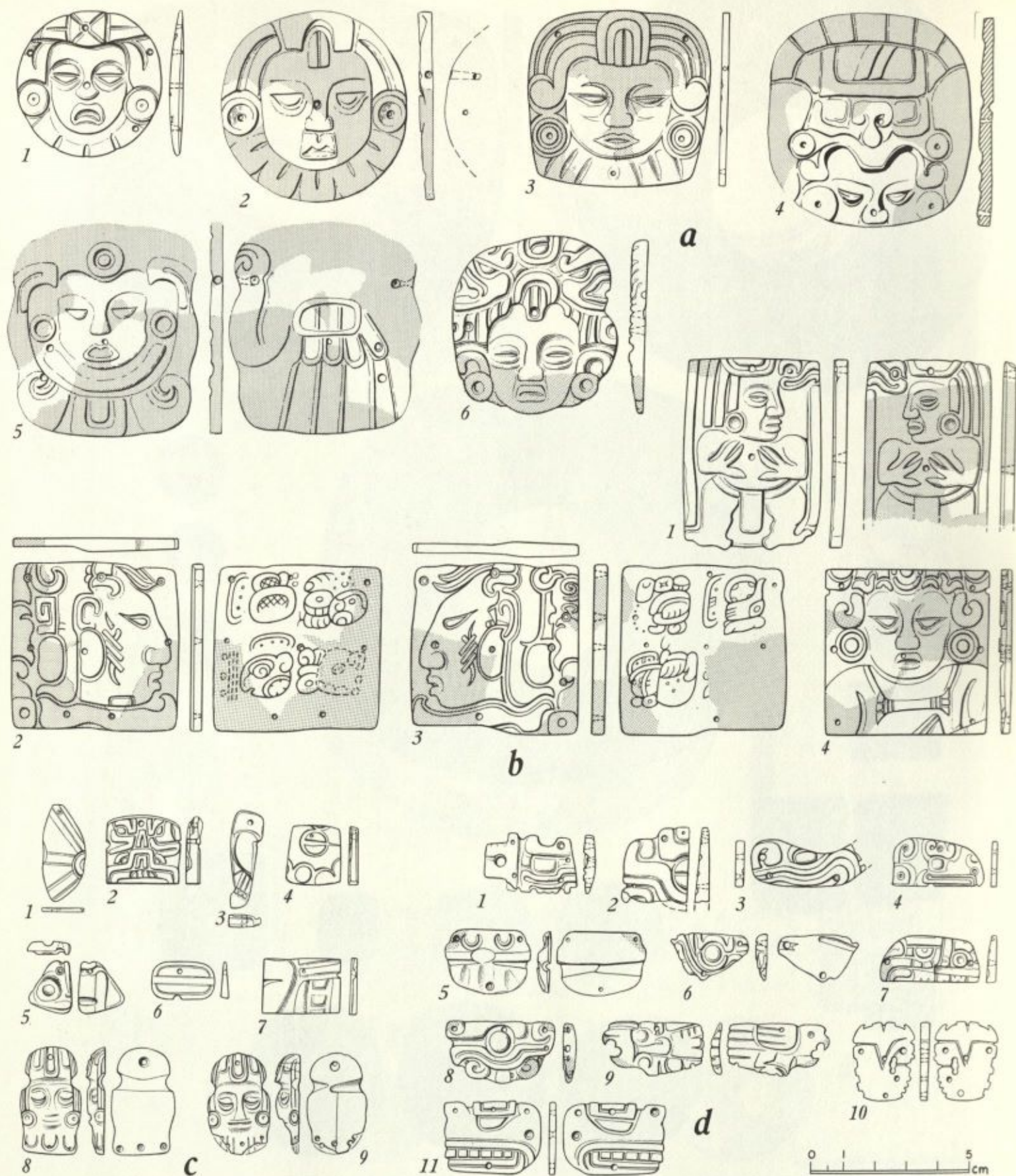


Plate 48. a. Large flat rings, Toltec Chichen style; b. disc and rectangles made from reused carvings; c. small flare-throat-discs; d. small discs and rectangle (see pp. 88, 89).







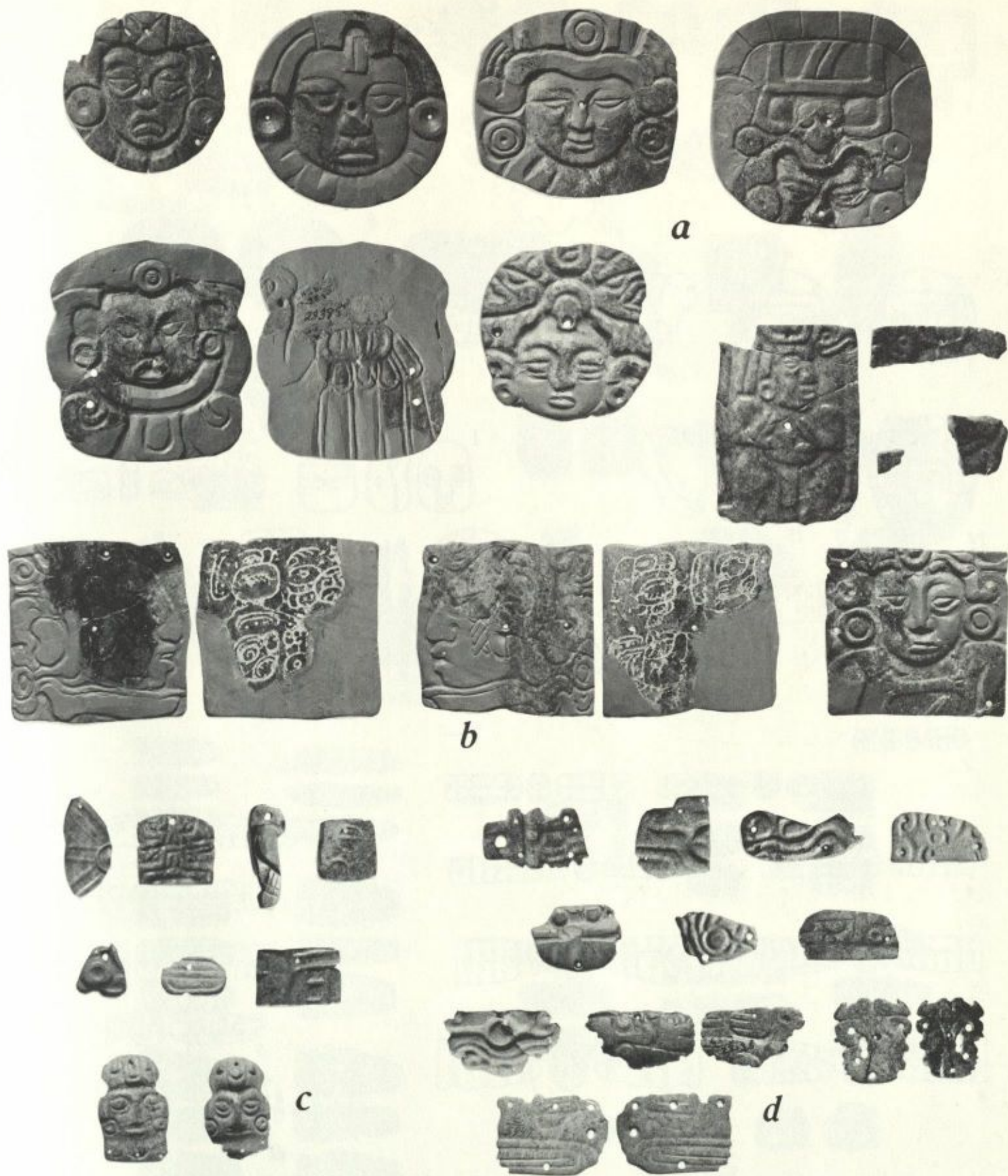
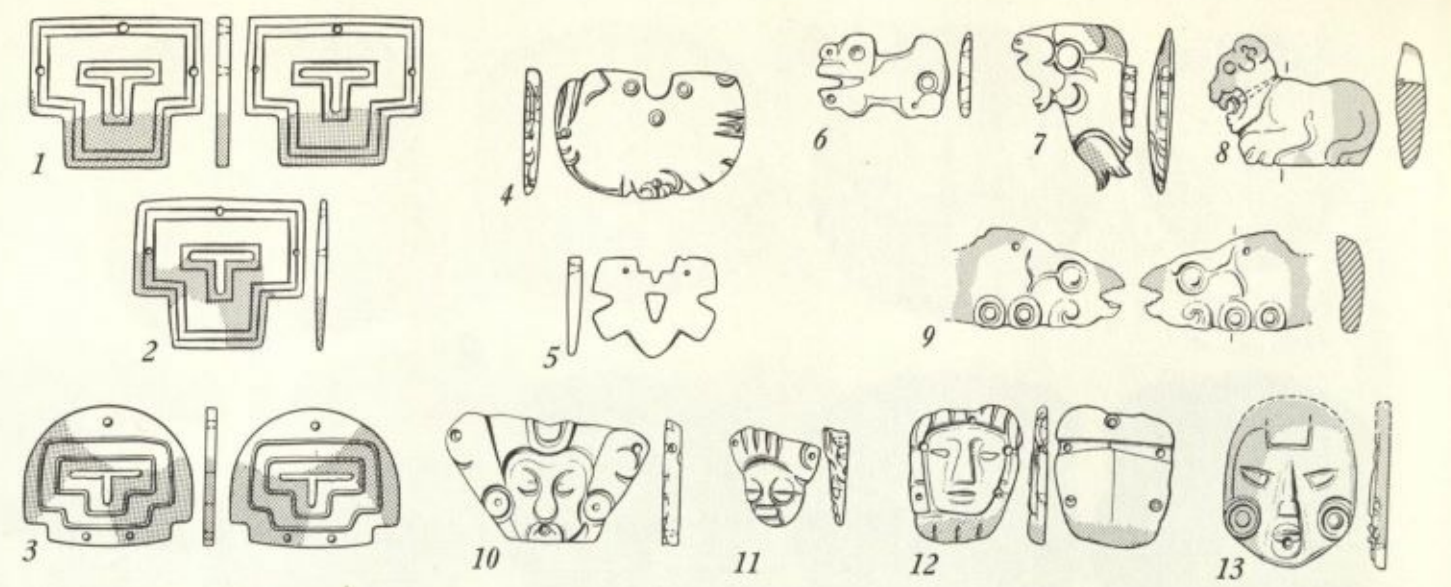
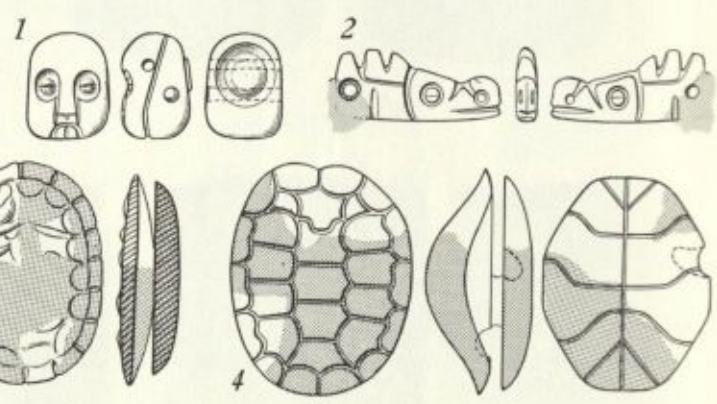
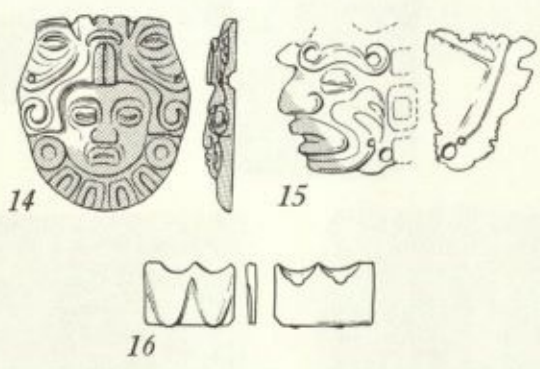


Plate 49. a. Large carved discs; b. paired rectangles; c. carved spangles; d. other small, flat ornaments (see pp. 90, 91).

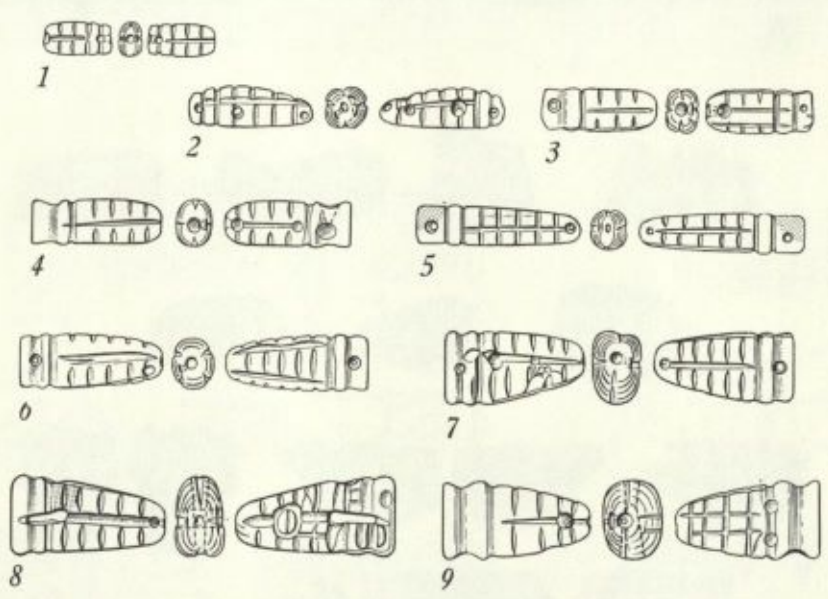




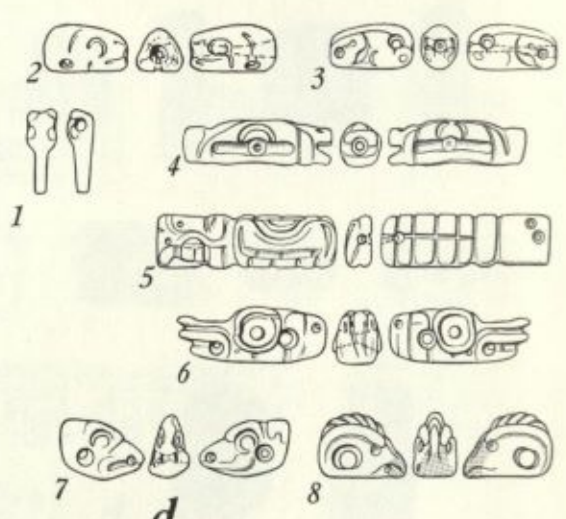
**a**



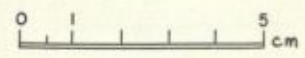
**b**



**c**



**d**





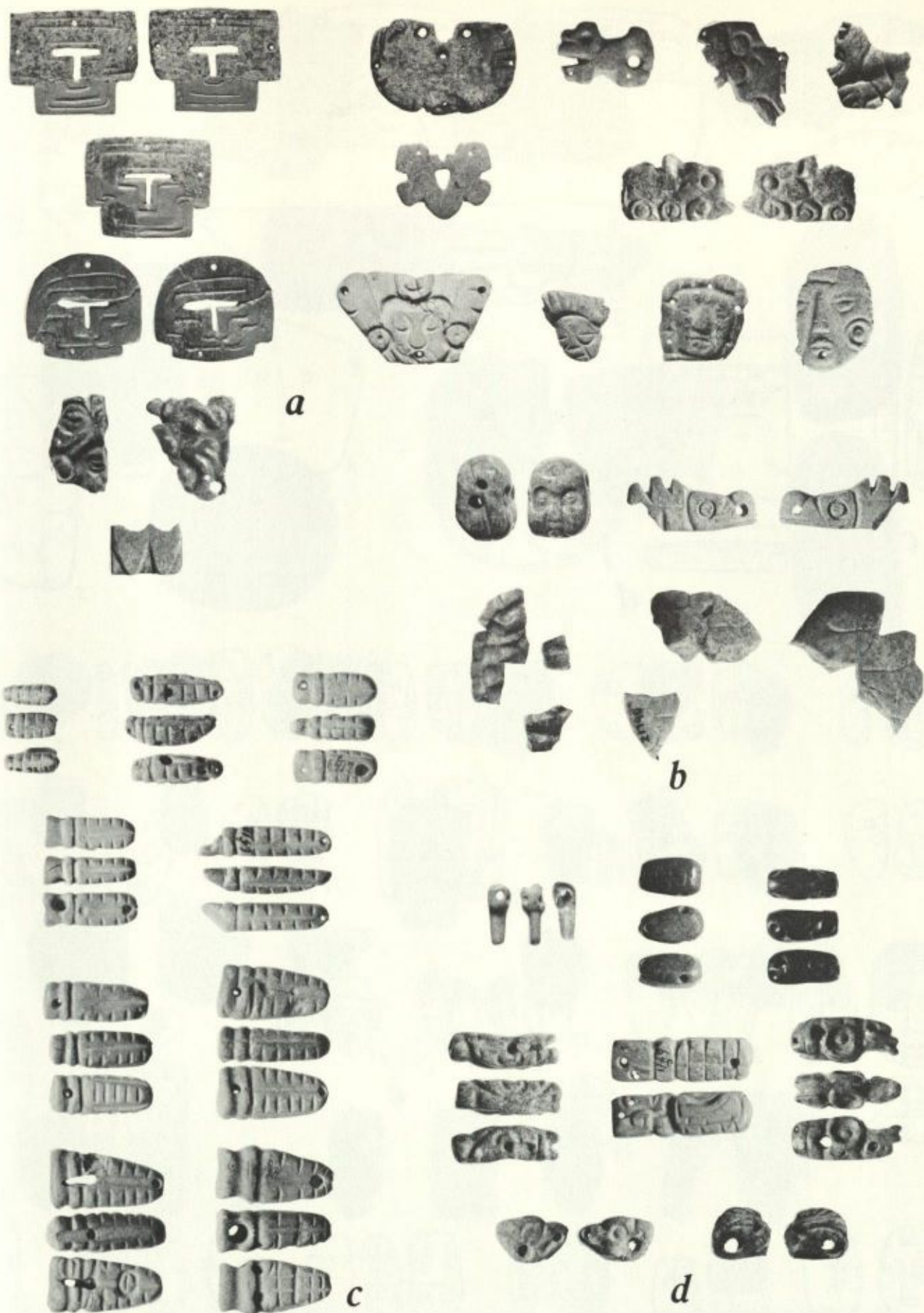
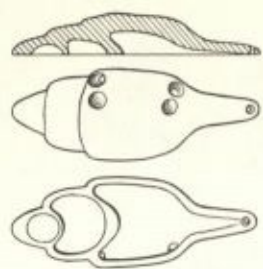
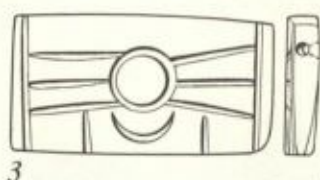
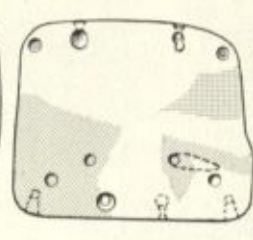
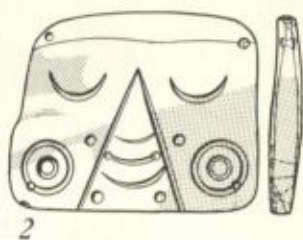
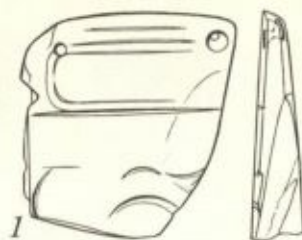


Plate 50. a. Small flat ornaments (continued); b. animals with missing parts; c. insect bodies (?); d. dubious attachment pieces (see pp. 91-93).

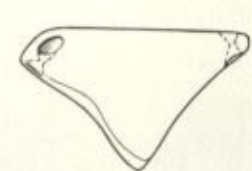




**a**



**b**



**c**



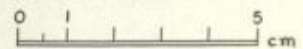
**d**



**e**



**f**





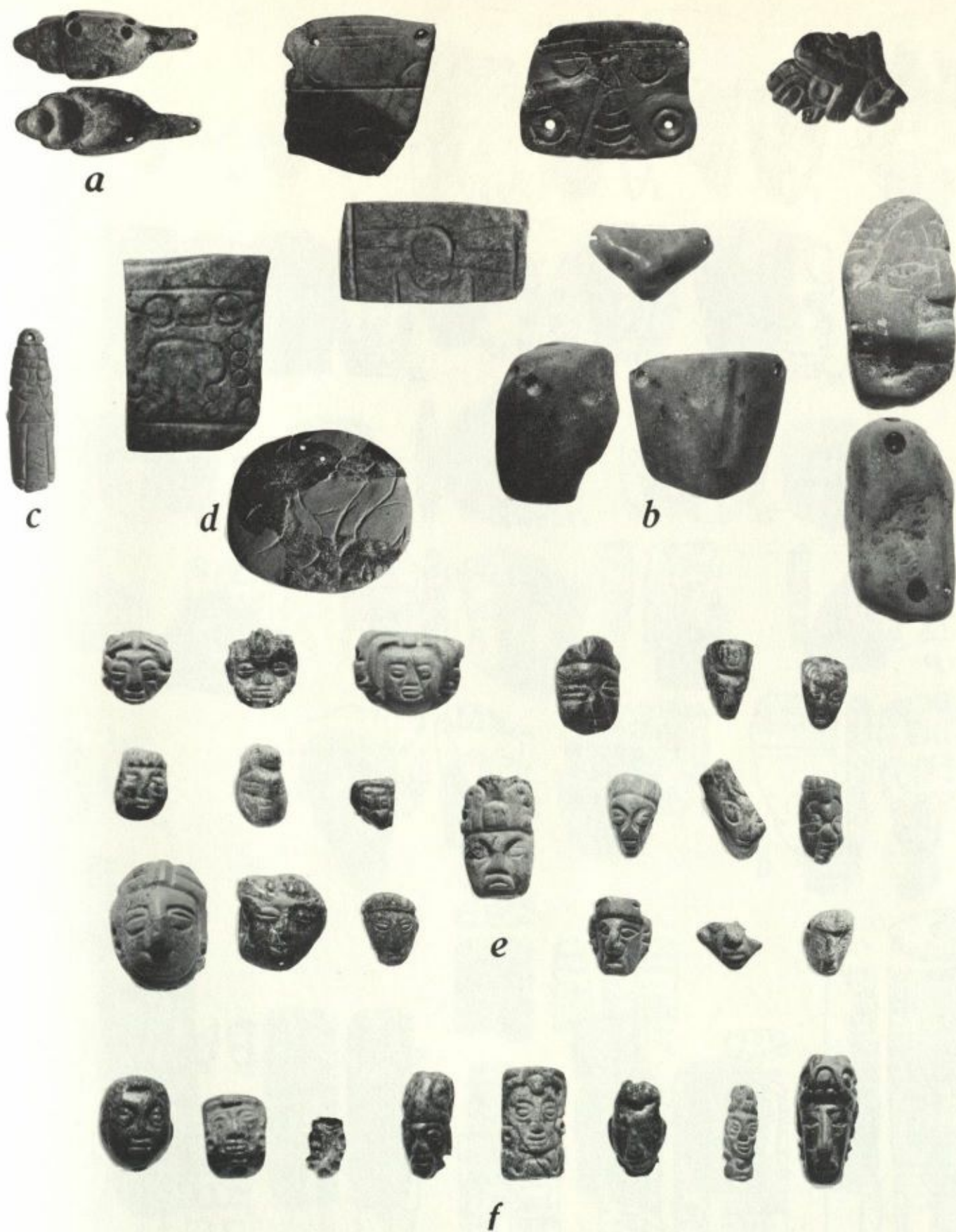
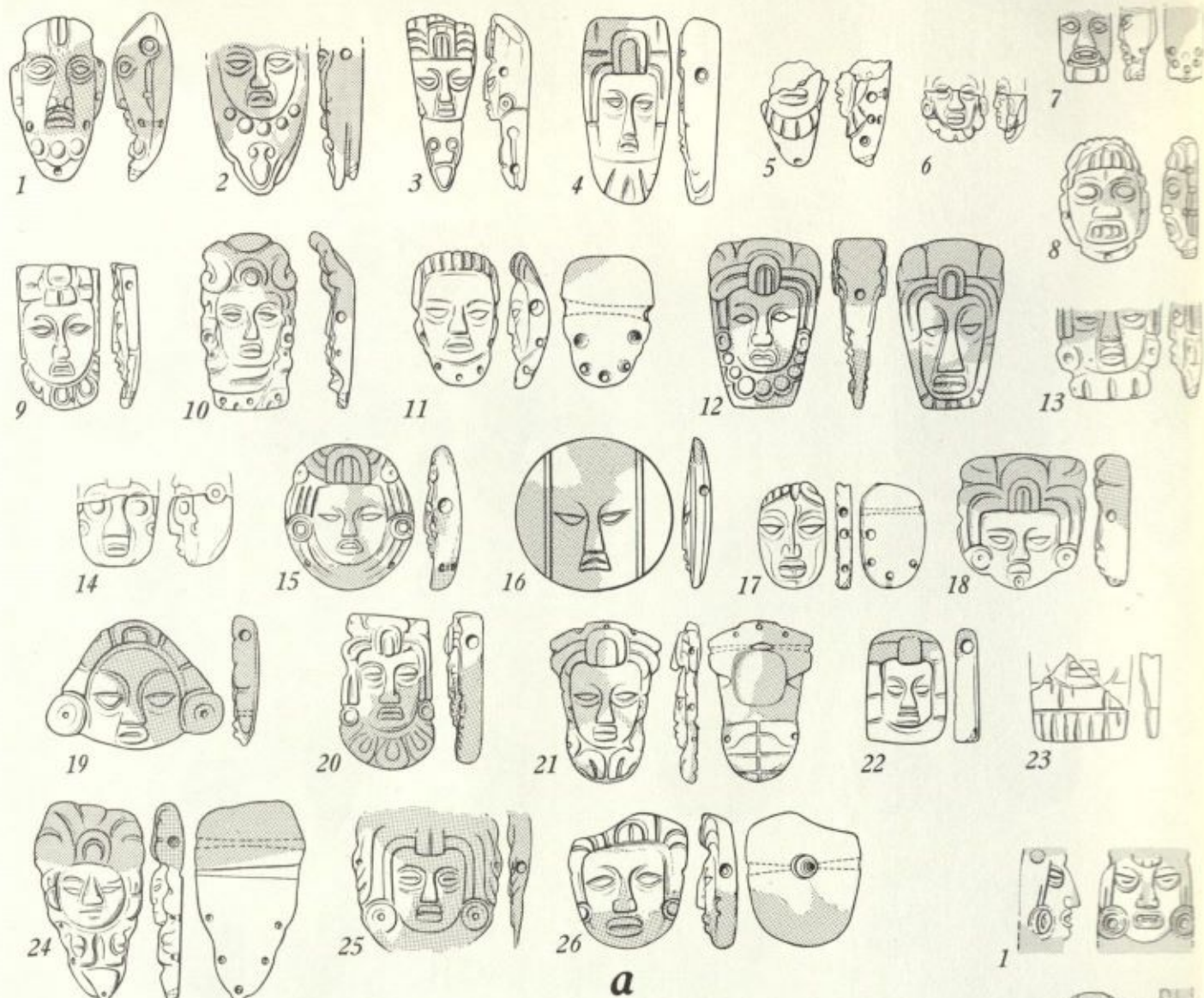


Plate 51. a. Shell effigy pendant; b. pendants with suspension holes at the corners; c. human figure pendant; d. horizontally drilled pendants, reworked; e. pebble-pendants, human heads; f. small bead-pendants, human heads (see pp. 93-95).

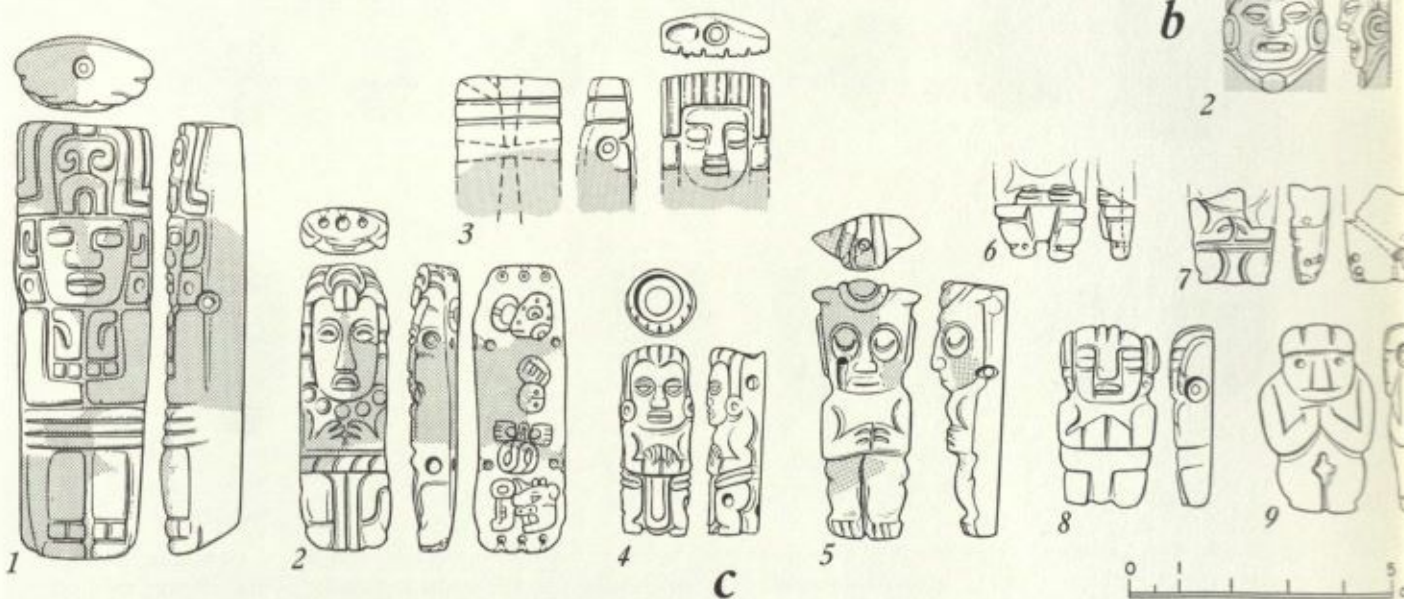




**a**



**b**



**c**





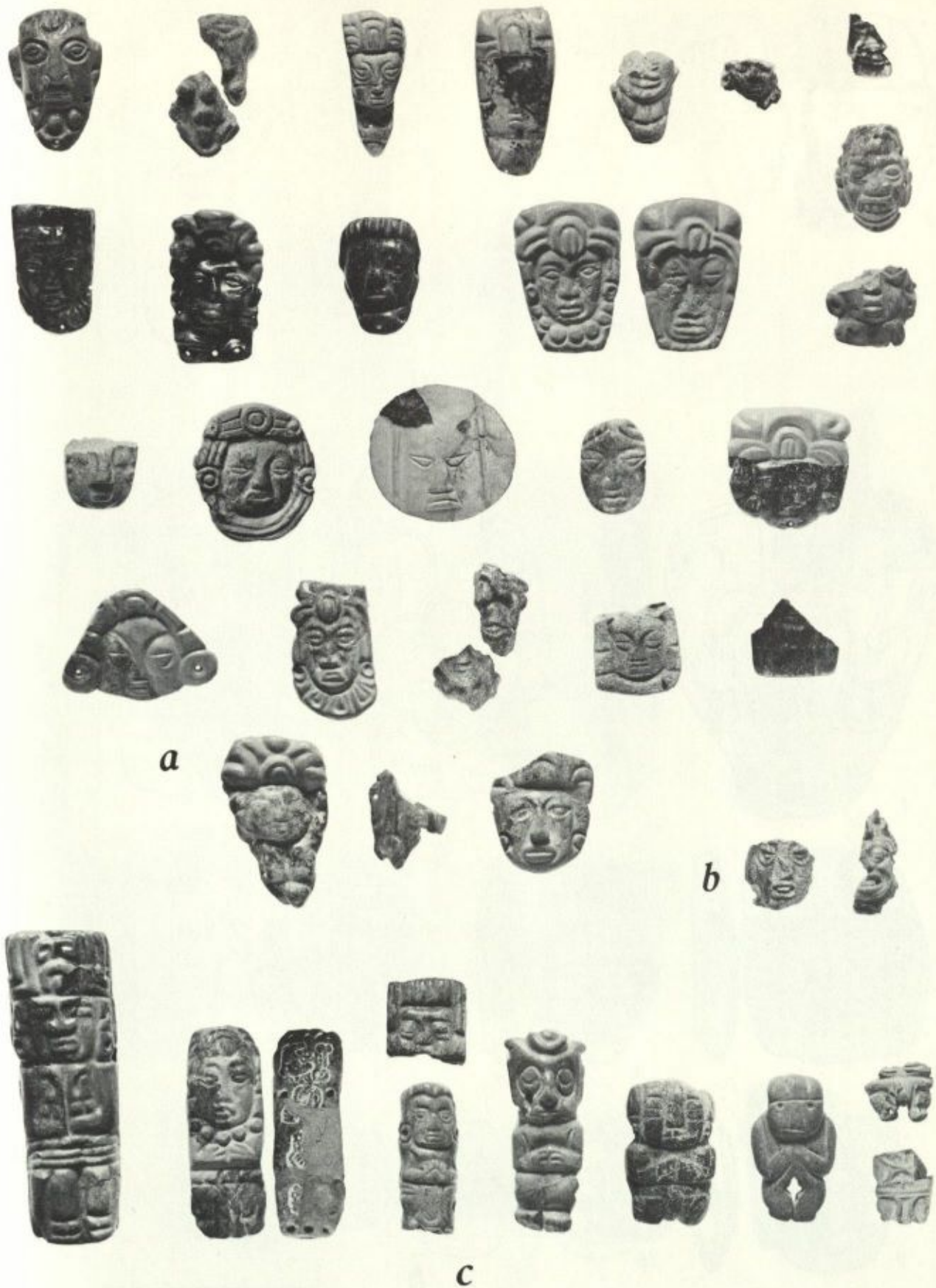
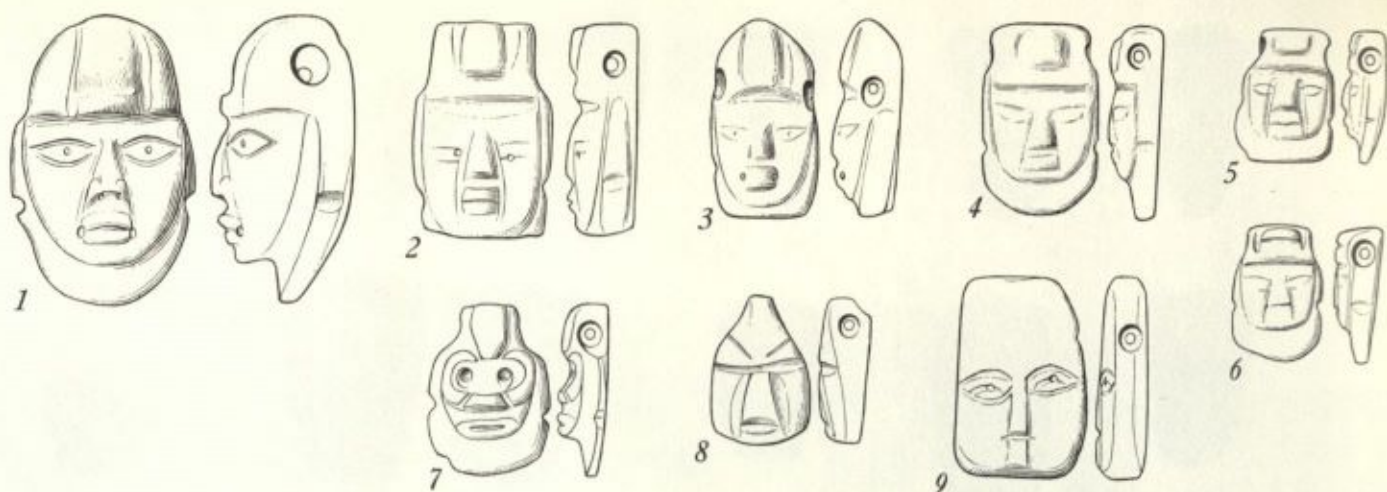
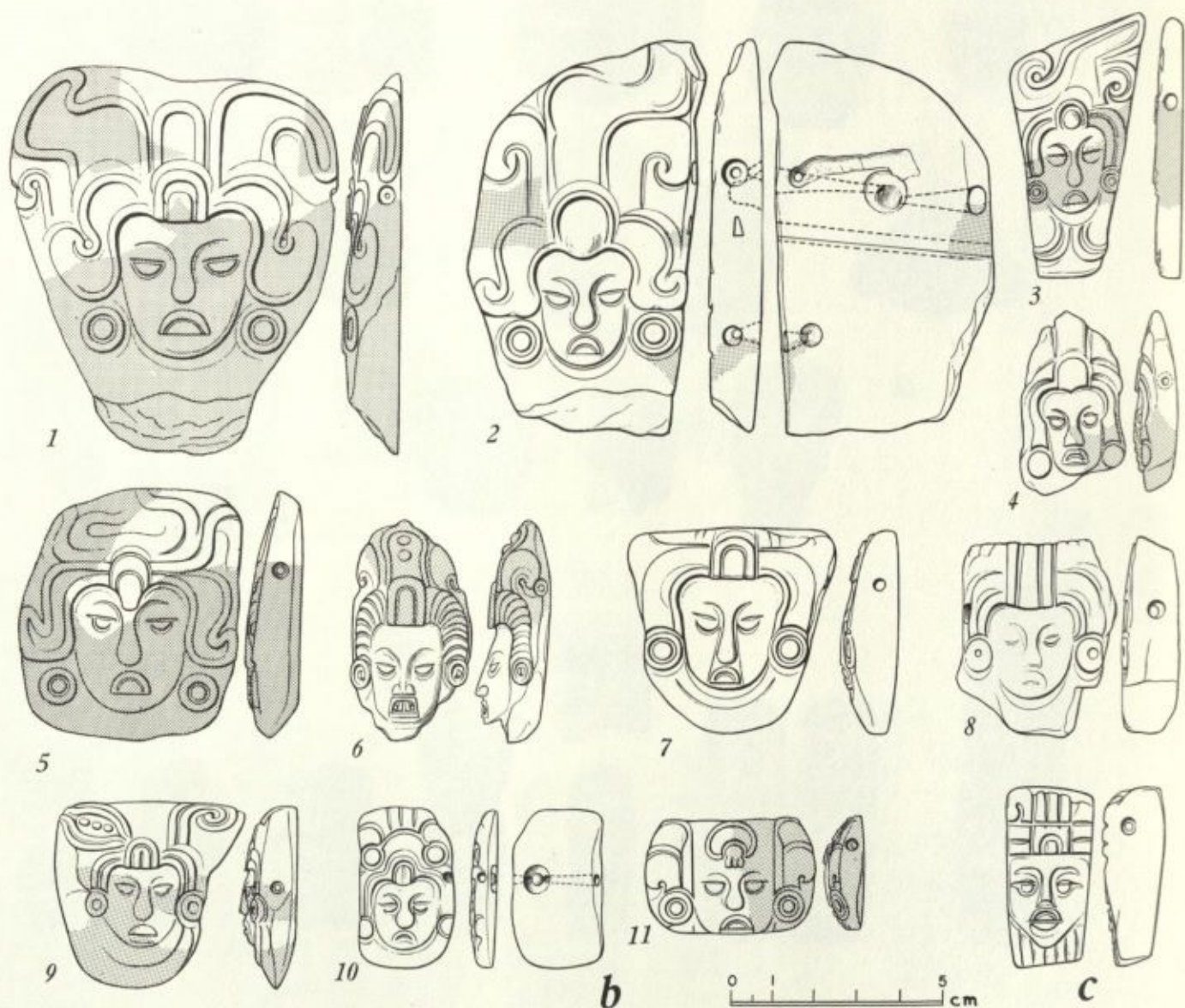


Plate 52. a. Small shaped pendants, human heads; b. fragments; c. full-figure rounded pendants (see pp. 94, 95).





**a**



**b**

**c**





*a*



*b*

Plate 53. Special pebble-carvings: a. the bib-and-helmet style; b. the drooping-mouth style (see pp. 96–98); c. unique pebble-pendant (see p. 98).

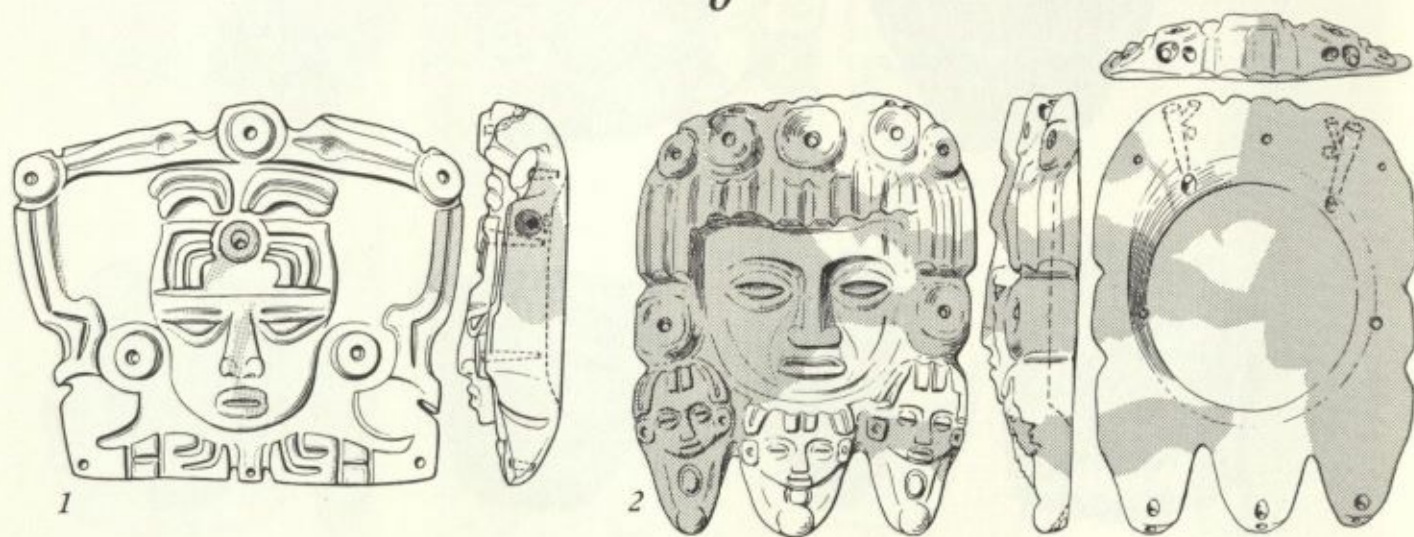




*a*



*b*



*c*

0 1 5 cm





Plate 54. Thick shaped pendants: a. triangular; b. with hollowed back (see pp. 98, 99).



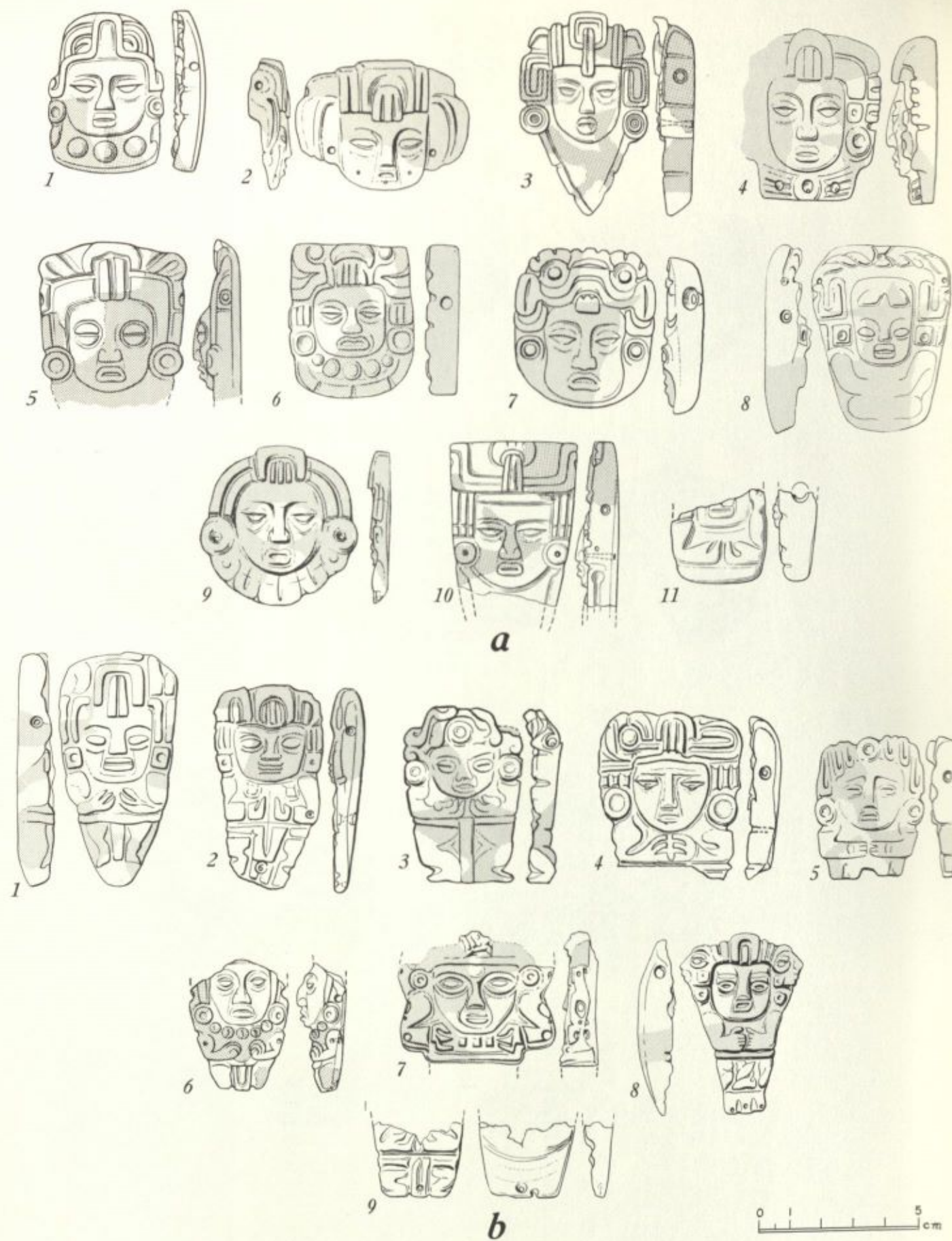


Plate 55. a. Unclassified thick pendants; b. flattened full-figure pendants (see pp. 98, 100).



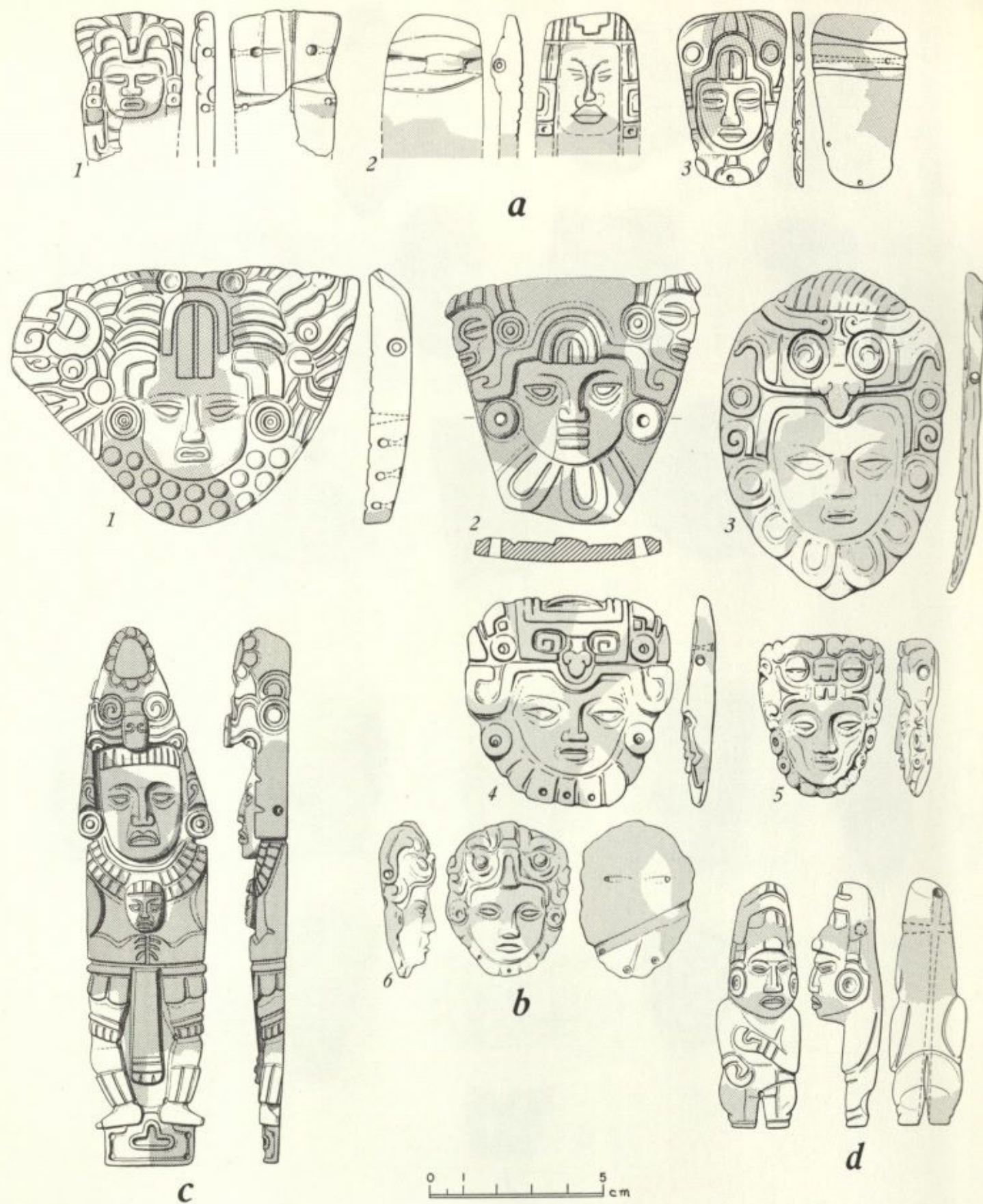


Plate 56. Intermediate and unclassified pendants: a. fragments of flat narrow pendants; b. various plaquelike pendants; c. full-figure, narrow plaque; d. early Maya figurine (see pp. 101, 102).





Plate 57. Late Classic Maya dwarf figurines (see p. 102).



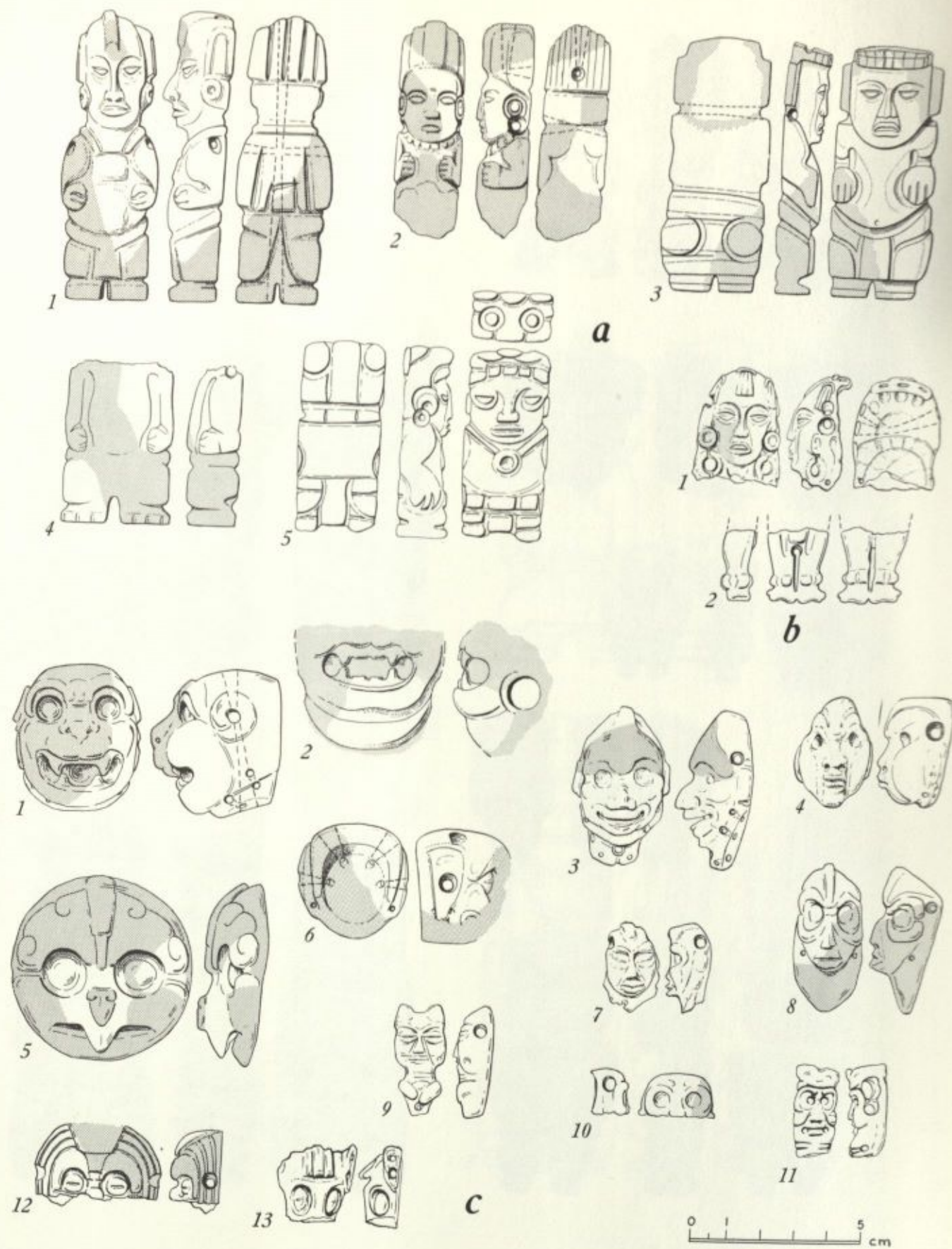


Plate 58. a. Late Classic Maya dwarf figurines (continued); b. unusual figurine fragments; c. animal heads (see pp. 102, 103).



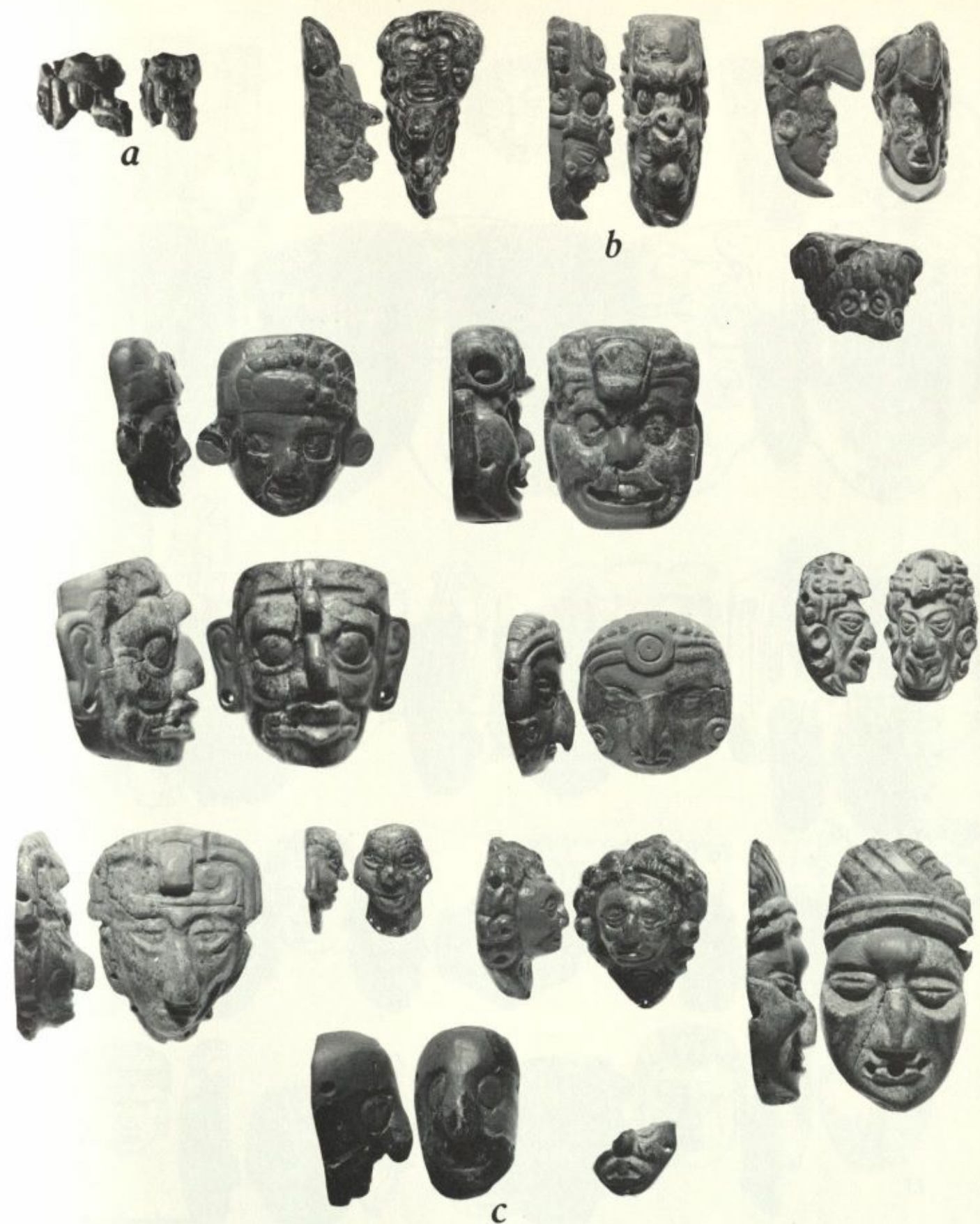
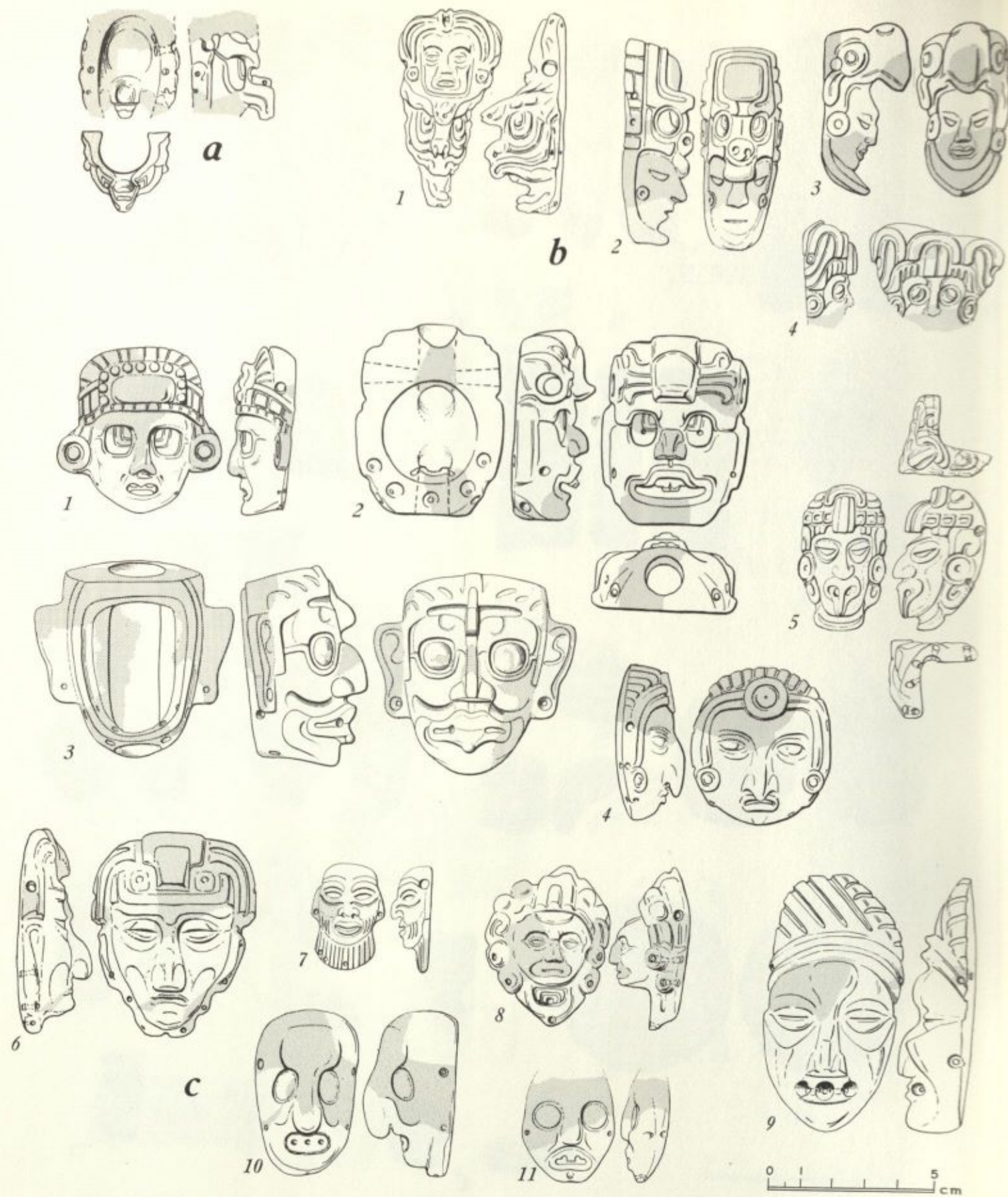


Plate 59. a. Small grotesque bird-mask; b. combined human and grotesque forms; c. anthropomorphic god-portraits (see pp. 103, 152).



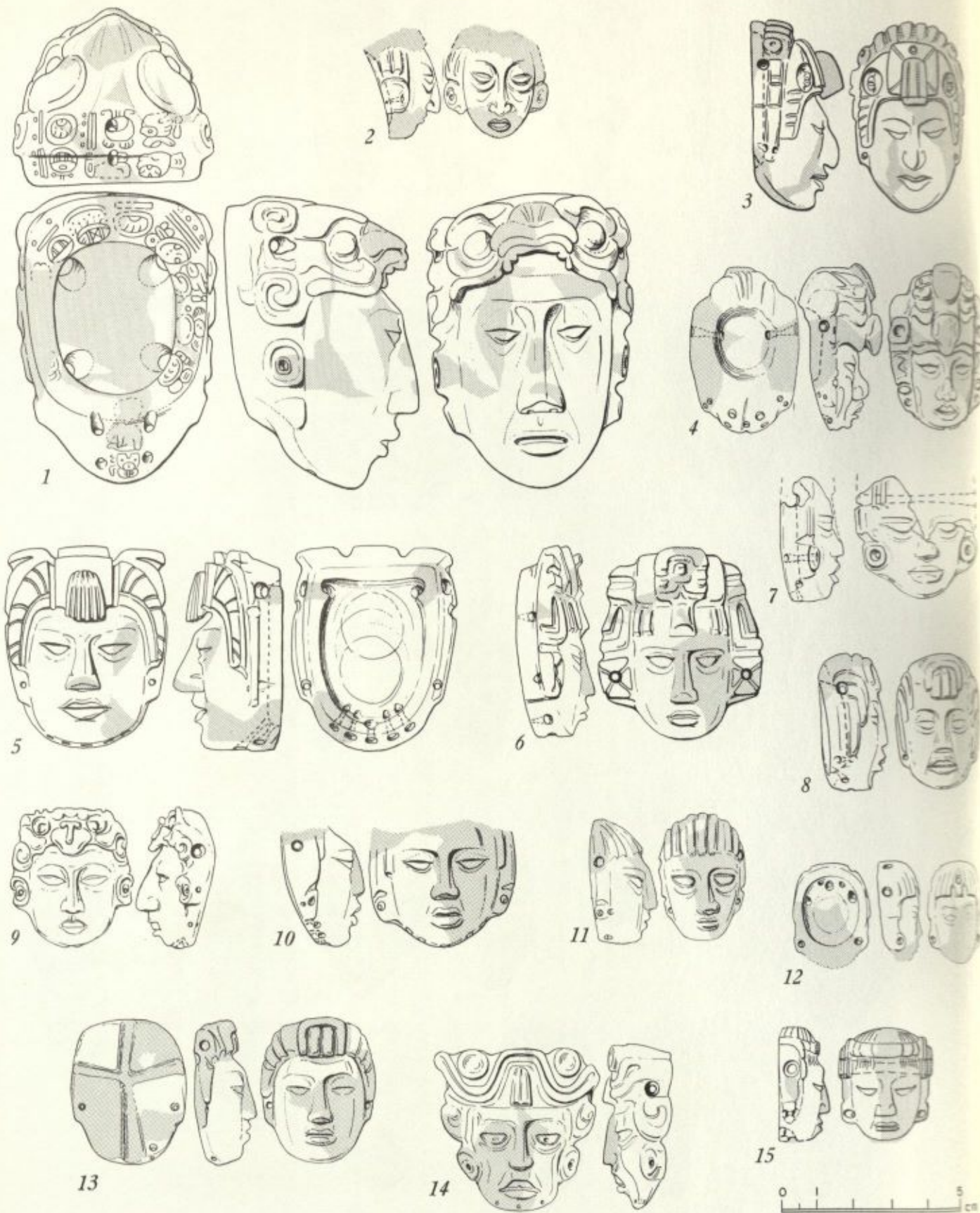


Plate 60. Round relief pendants, Late Classic Maya heads (see p. 154).



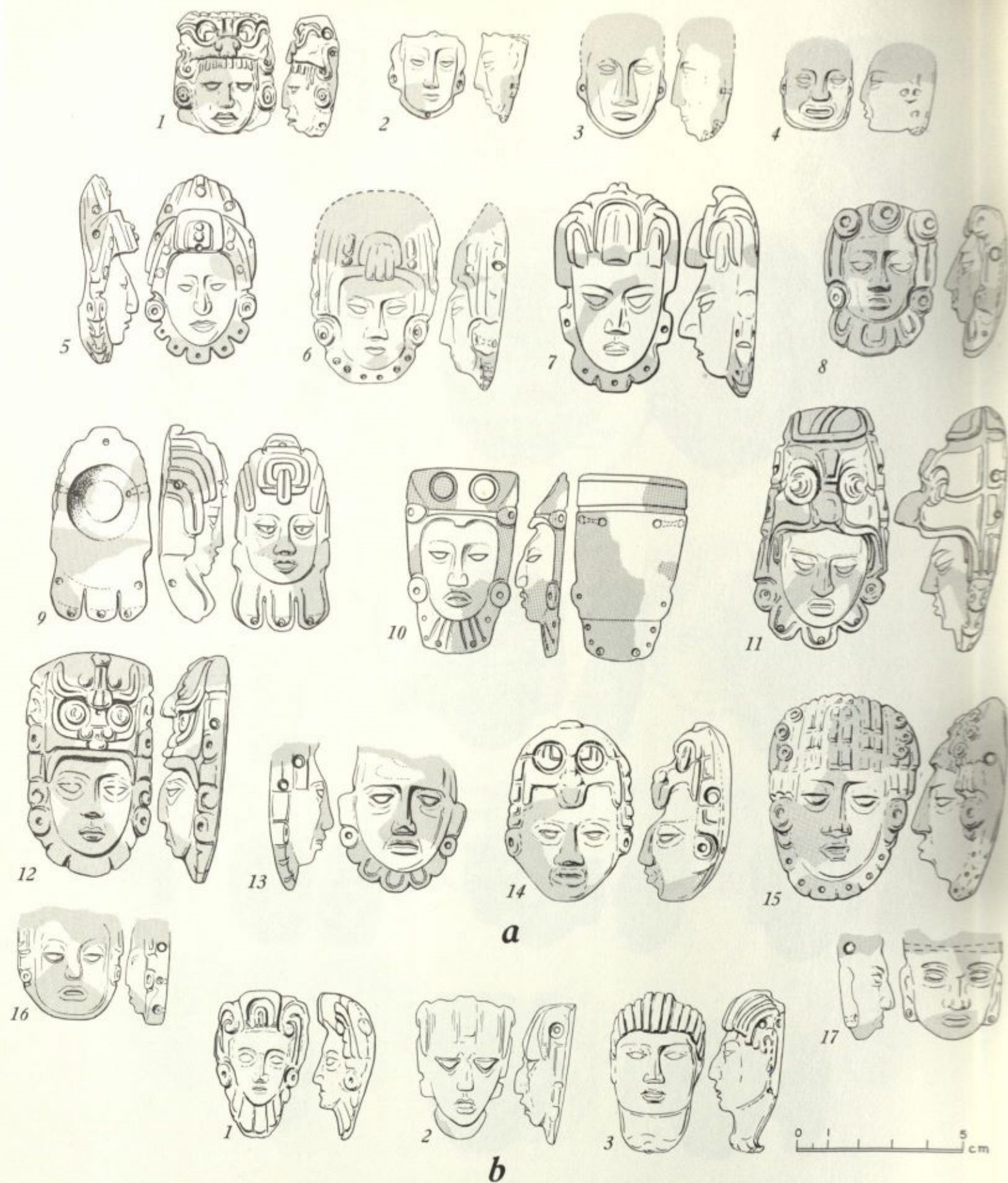


Plate 61. a. Late Classic Maya heads (continued); b. unusual and aberrant heads (see pp. 154, 155).



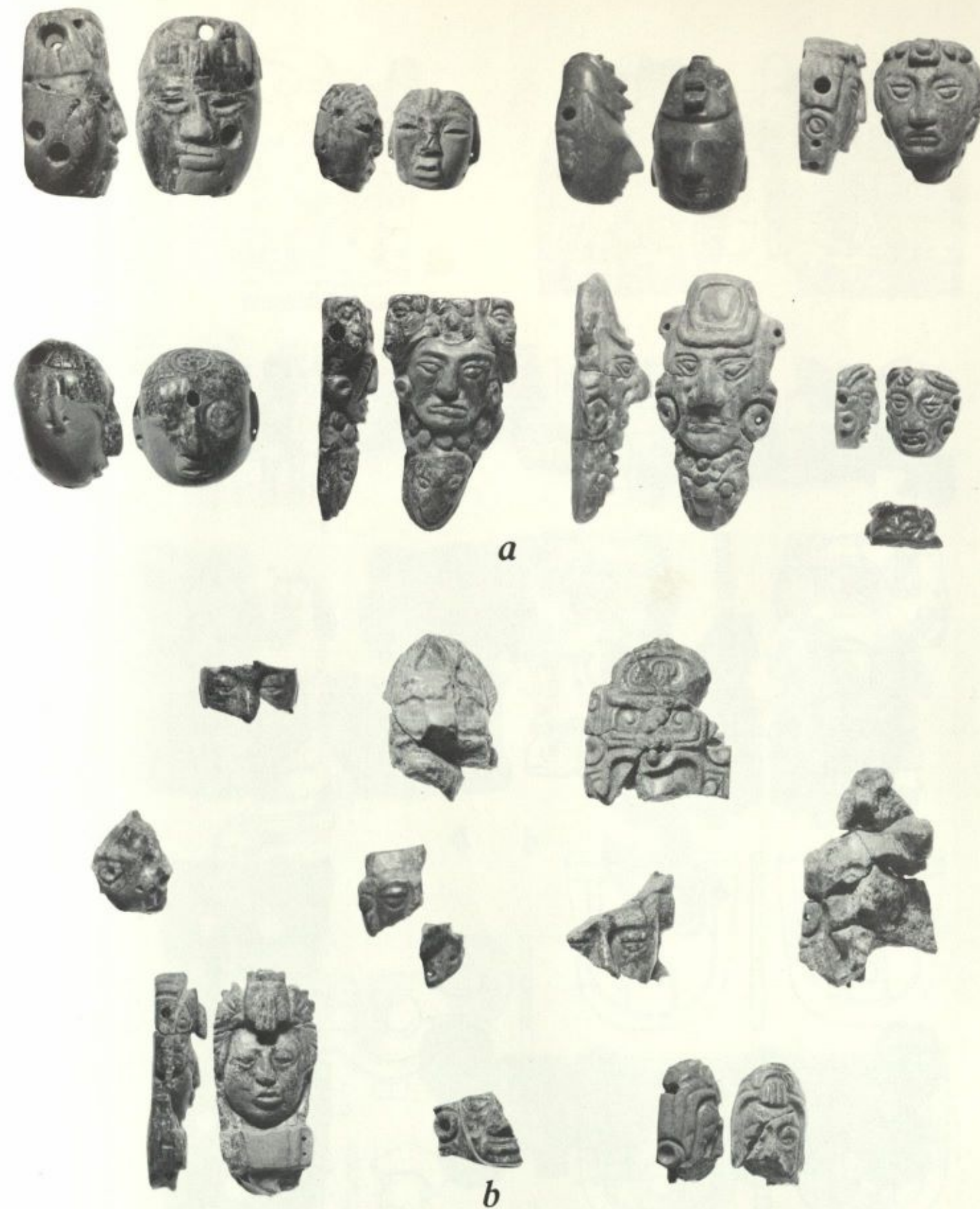
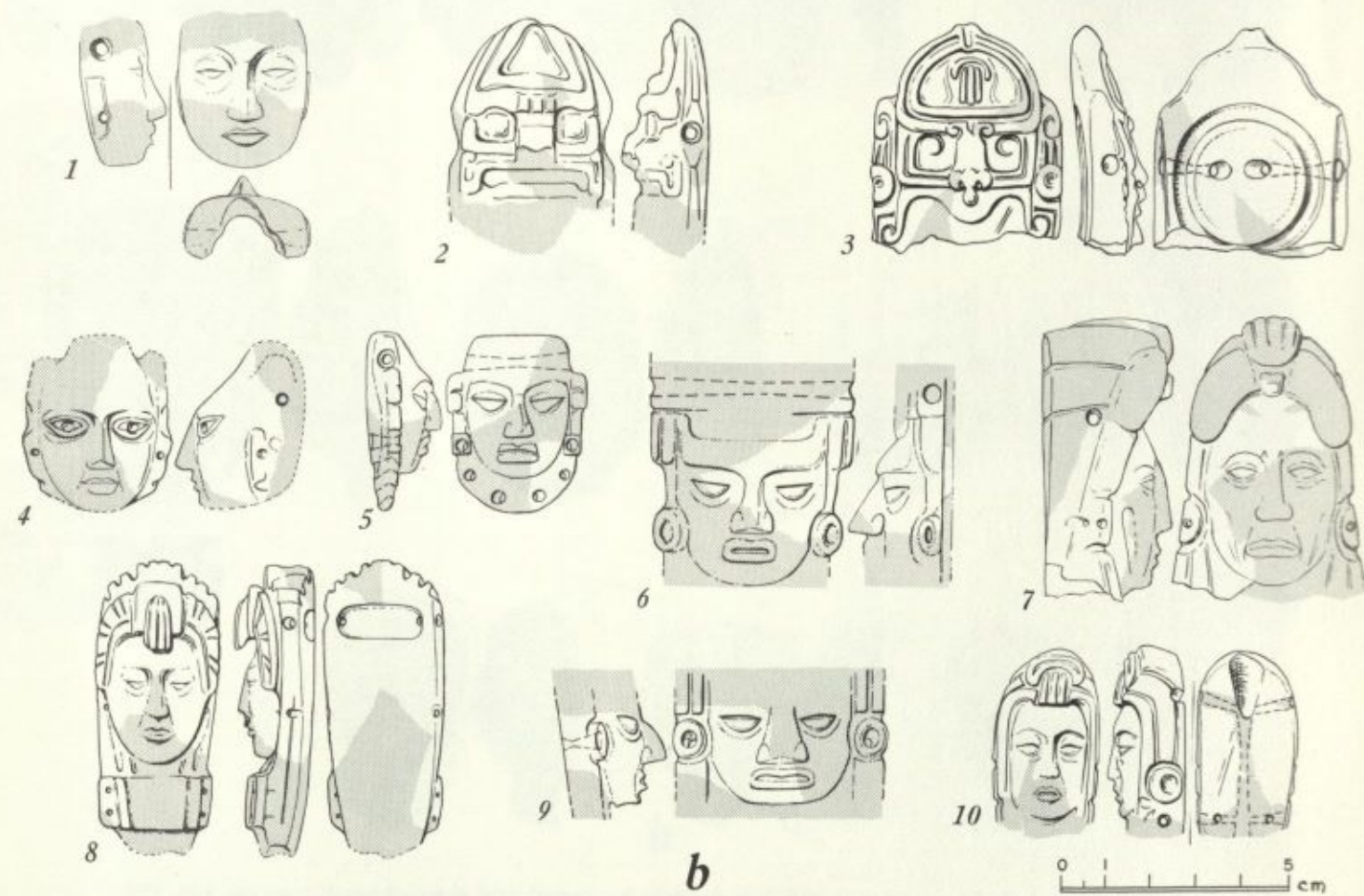
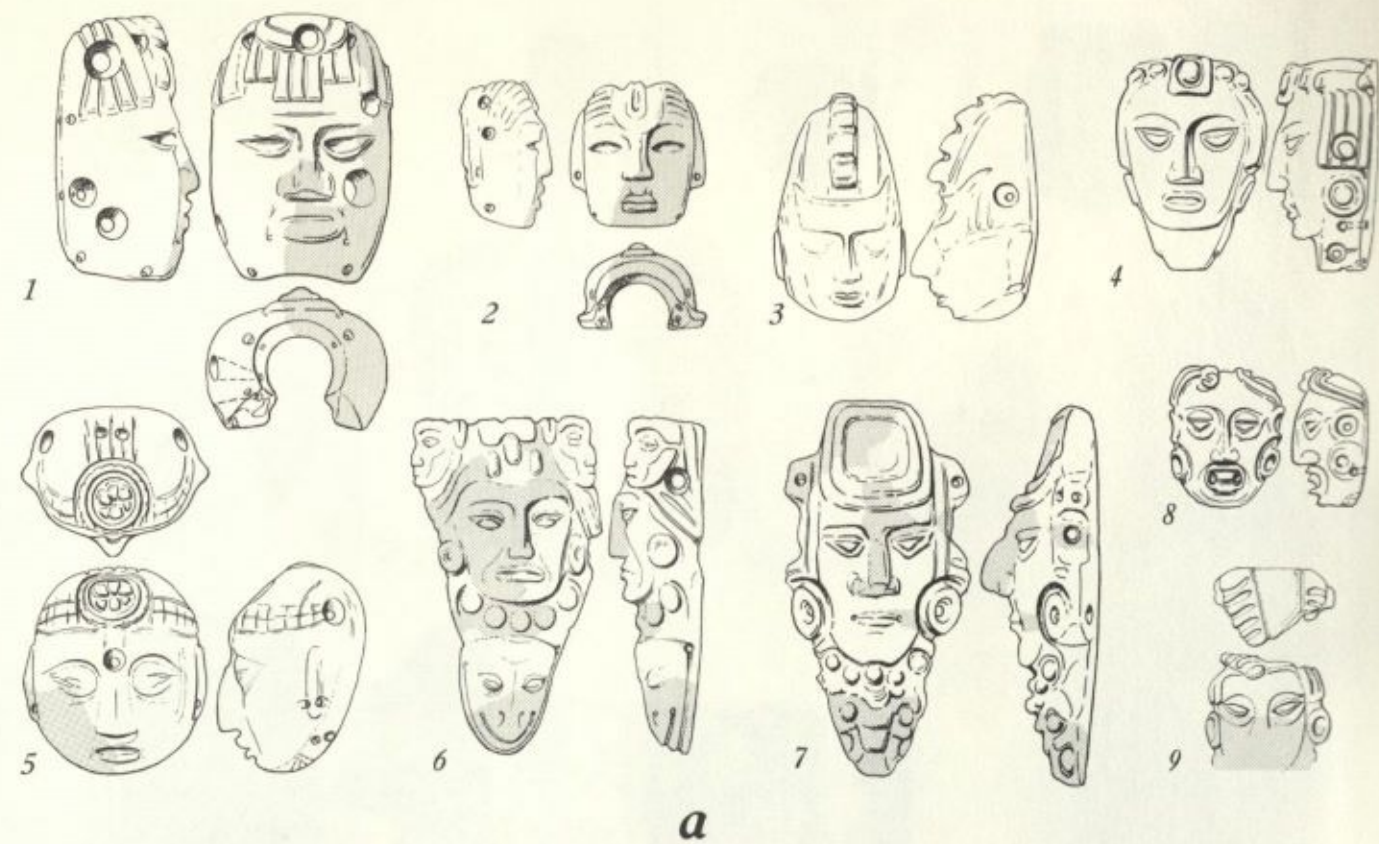


Plate 62. a. Unusual, aberrant, and non-Maya heads (continued); b. miscellaneous fragments of head-pendants (see pp. 154-156).



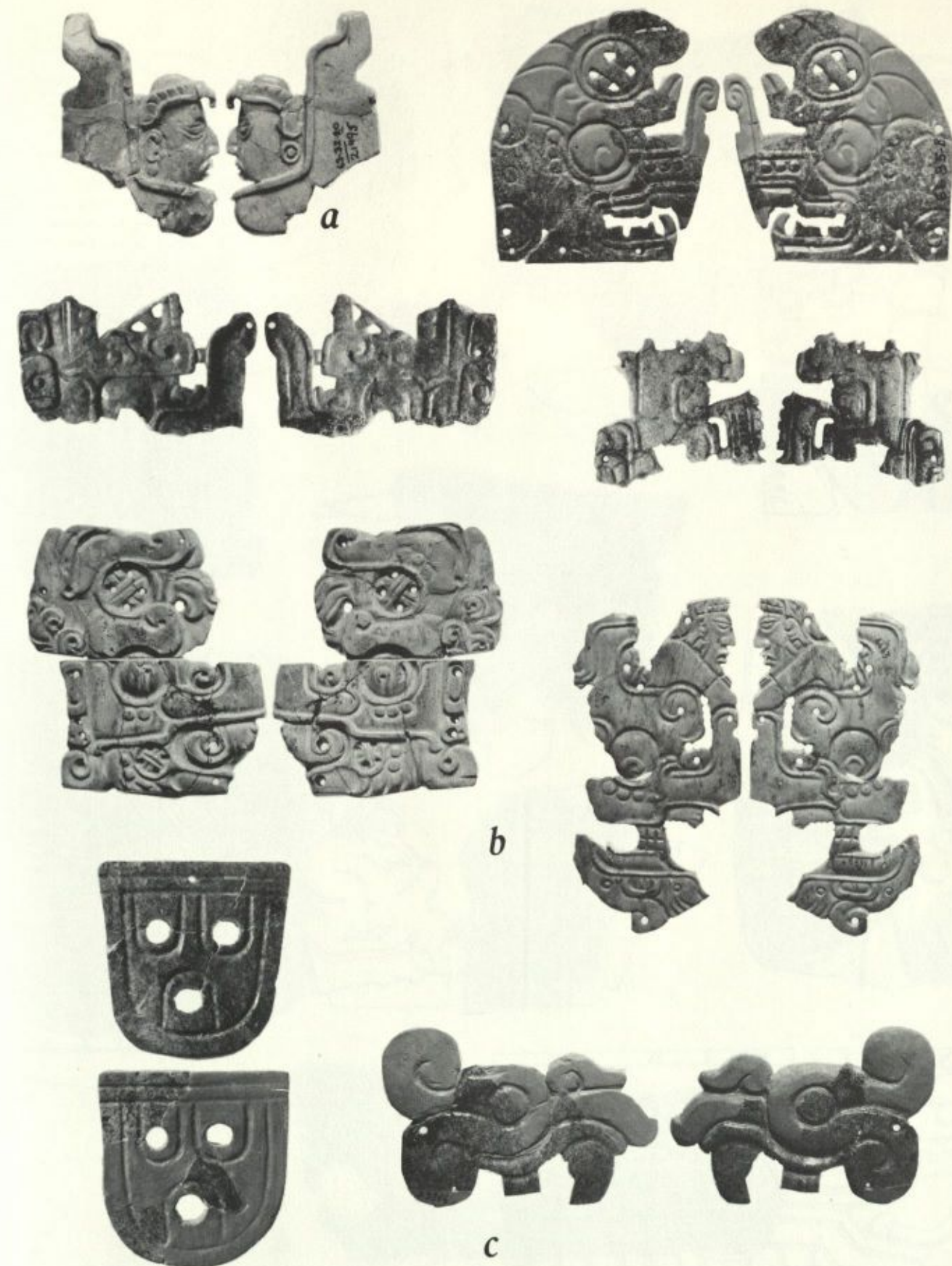
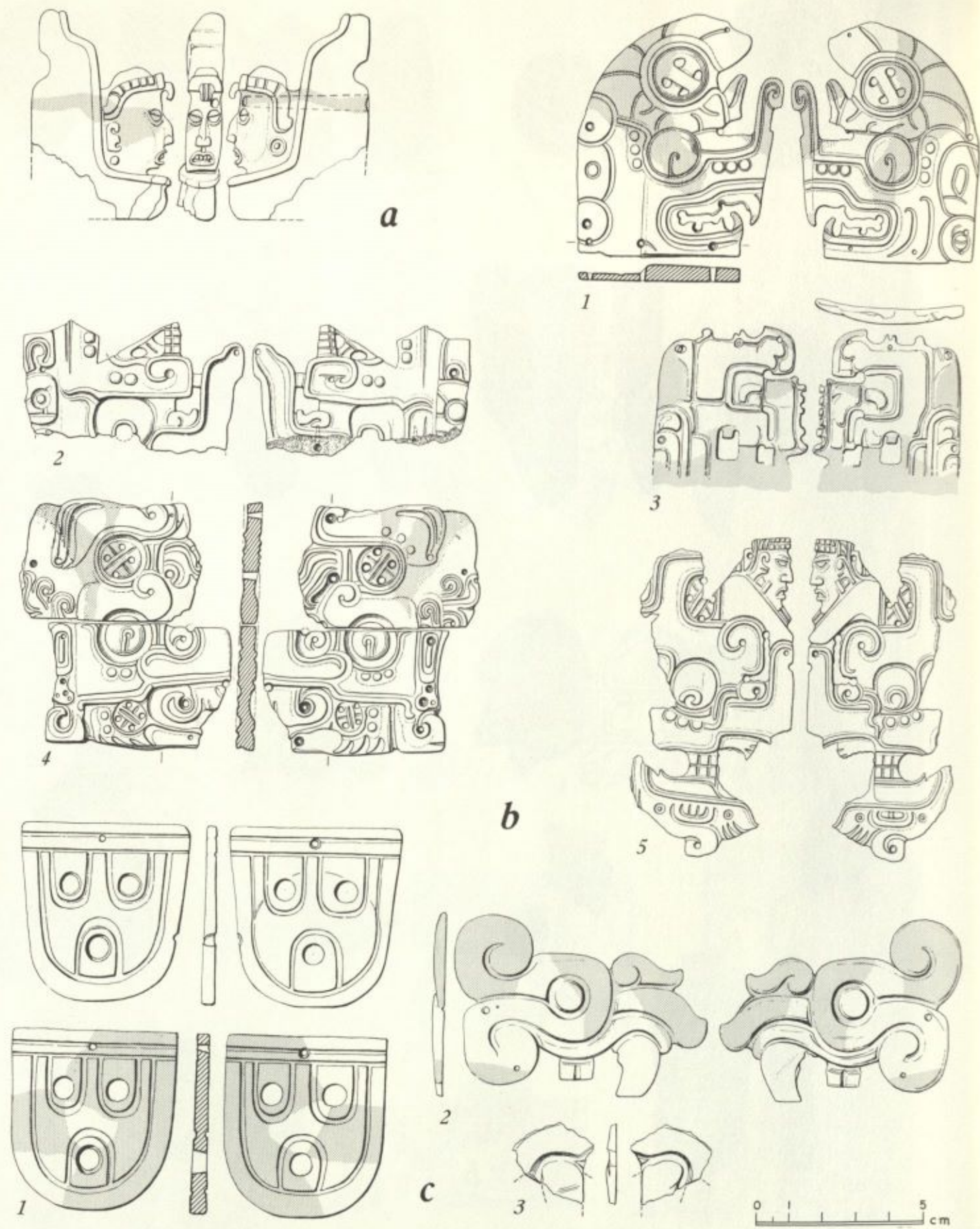


Plate 63. Two-sided carvings: a. thick, solid piece; b. god-masks; c. paired plaques (see p. 157).



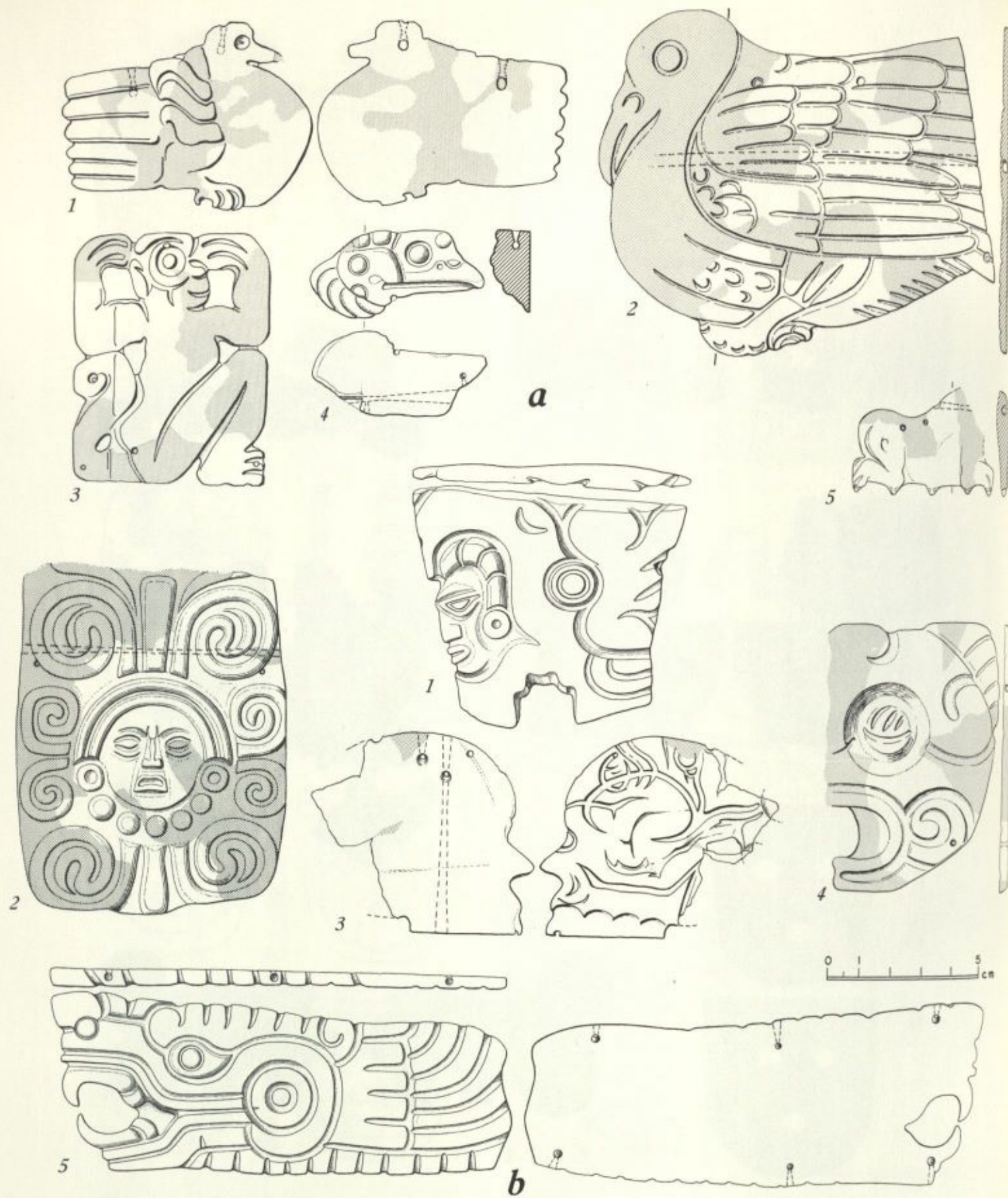


Plate 64. Carved plaques, miscellaneous motifs: a. zoomorphic; b. symbolic (see p. 158).



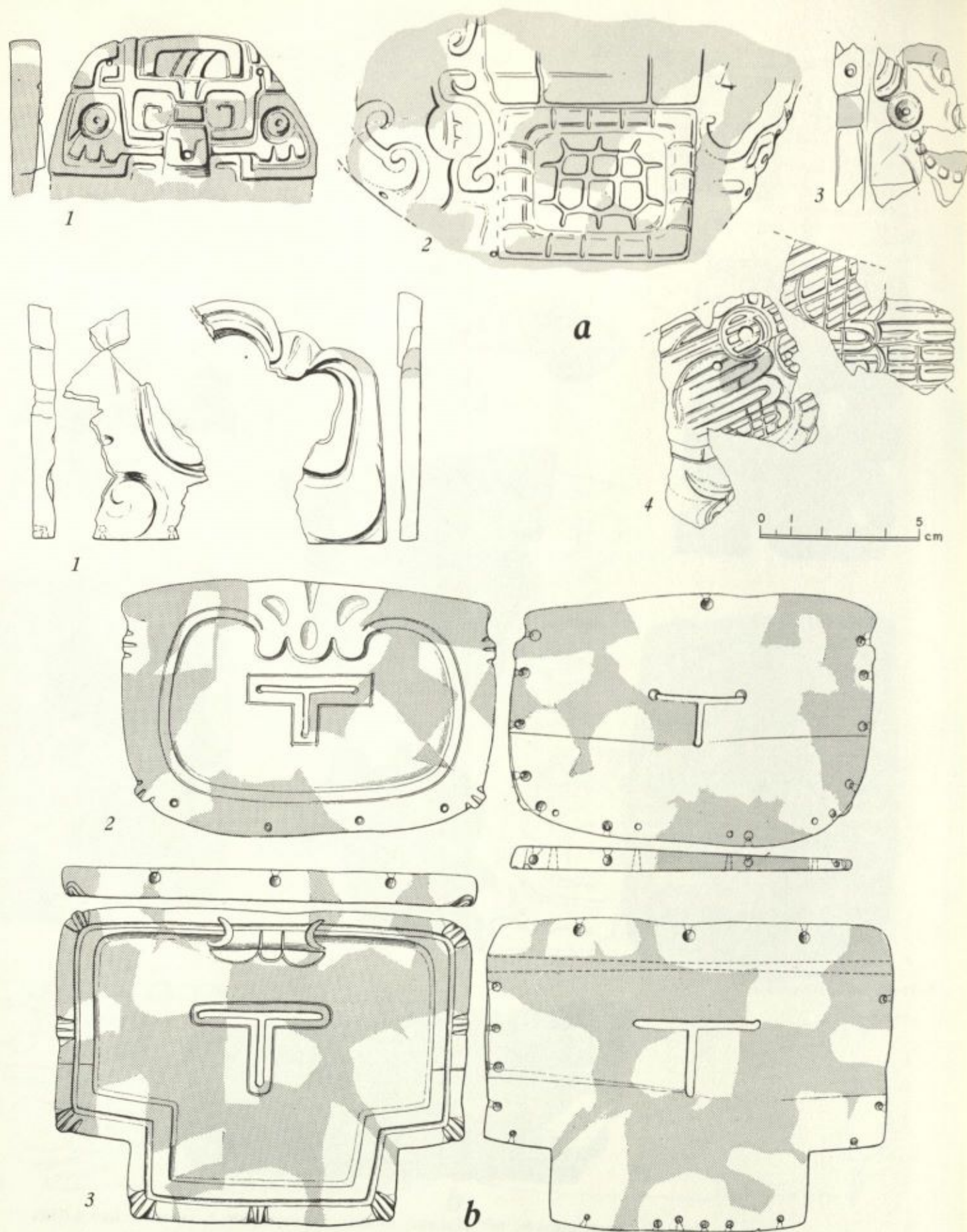


Plate 65. a. Symbolic motifs (continued); b. abstract motifs (see pp. 158, 159).



made behind the teeth. In the ear a drill hole was made for suspension. There were at least four small attachment holes in the under surface. Number 2 is only a small fragment of a similar, somewhat larger head, very badly decomposed. Number 6 could be another such jaguar head, were it not for the strange shape of the ear. Numbers 3, 4, 7, 8, 10, and 11 seem to be monkey heads, but it is sometimes hard to be sure, for some are quite anthropomorphic. Number 3 has nothing to distinguish it from a human head except its great round hollow eyes, very short chin, and grinning mouth. Number 4 is much more definitely a monkey. It is prognathous and has a characteristic crested head and drilled eyes. Its general form, however, is very typical of many small pendants representing human heads in the round. It is made of white opaque jade tinged with light green. Number 7, which perhaps should be classed as a pebble-fragment, has eyes that are essentially human, though there is a faint drill hole in the center. The crest and the lack of a chin, however, indicate a simian. The large bore, placed high on the head, recalls the bit-and-helmet heads on plate 53, but neither the material nor the workmanship matches that style. Number 10, a very small pendant with a deep round hollow in back, shows its simian aspect by large hollow eyes and a small platyrrhine nose, as does number 11, which is carved on a small oblong bead. Number 8 is an ambiguous creature. The eyes are surrounded by prominent ridges and there is a sharp crest that comes all the way down to the bridge of the nose and makes it look something like a bat.

Other animals include what may be the head of an owl (no. 5) and a fragment of the head of an unidentified creature (no. 13) with oval eyes, up-standing ears, and a mane on the forehead.

Of entirely different workmanship from all the others is an enigmatic little feline creature (no. 9). It is made of a light sandy-gray jade with a surface of brilliant green. The features of the face are strangely anthropomorphic, the triangular form of the nose and mouth being not uncommonly used to lay out a human face. On each side of the mouth small drilled pits make dimples in the cheeks. Tiny paws are folded on the chest. The carving resembles a house cat, but it is possible that it is meant to be a puma or even a jaguar cub and that it draws on the early symbolism of the Olmec. Like most of the pieces we have that have an archaic look, this piece is complete and unbroken. Number 12 may be merely a fragment of a headdress mask, though its contour and general features suggest another monkey.

**Small grotesque bird-mask: 1 fragment. Plate 59a.**

This little fragmentary mask is deeply hollowed out with tubular drills, very much in the manner used on Toltec hollow globes. Its style, however, is strictly Classic Maya. The hollow may have been made so that it could be mounted on a rod, but it also has the usual horizontal bore of pendants, so that it could be worn suspended. The features are those of the numerous small god-masks that adorn the costumes of stela-figures in the Late Classic Period. The eyes are those of the sun god and the beak is that of a bird. Similar heads are sometimes seen on manikin scepters or as the heads of the mythical sky-bird, but no one has successfully distinguished their symbolic variations.

**Combined human and grotesque forms: 1 complete, 2 restored, 1 fragment. Plate 59b.**

Number 1 on plate 59b shows the grotesque just described, with the addition of a human face above it. The piece is triangular in horizontal section, so that it appears to be partly carved in the round though actually the relief is low and rather monotonous. It resembles Early Classic relief in its use of closely placed grooves, but I believe that the style is provincial rather than early. Number 2 is the same grotesque apparently with a human head held in its beak. I am not altogether certain that the lower and the upper pieces belong together. The lower piece is badly burned so that the jade cannot be closely matched but the break of the upper piece shows signs of burning also and the two correspond closely in shape and size. Number 3 also shows a human face enclosed in the beak of a bird or possibly of a turtle, but in this case the representation is literal, if not altogether natural. The face is unfortunately badly damaged and the lower portion is missing. It is missing also in number 4, which may, however, represent only a grotesque mask. It was sawed from a larger piece, which probably was in the process of being trimmed.

**Anthropomorphic god-portraits: 1 complete, 9 restored, 1 fragment. Plate 59c.**

These human faces with grotesque or exaggerated features are usually considered to be portraits of deities. However, their symbolic function is not well understood and we know too little about ancient Maya religion to identify them. Their attributes often appear in varying combinations. Large squarish eyes with irises indicated in the inner corners, and filed teeth, as on number 2, are often associated with a sun god. On number 1, however, the square eyes

are associated with a mouth that shows only two teeth, a characteristic of God D of the codices. This piece is typical in workmanship of Late Classic Maya pendants but is made of unusual very dark green and black stone. In addition to a horizontal suspension bore it has three tiny attachment holes in the chin. Number 3 is even more difficult to identify. Its squarish eyes contain scrolls and are outlined on the underside by a fillet. The protuberance over the nose suggests that this might be the god for number 7, associated with the sun and the jaguar. The piece has a deep vertical hollow, suggesting that it was mounted on a rod, but in addition it has a shallower and broader depression, leaving a narrow ridge around the edge, through which the horizontal bore may have been made, though none is now in evidence. Such depressions are typical of a group of large human heads to be described later.

Number 2 is one of the most interesting and puzzling pieces in this collection. As a portrait of the Maya sun god, it is typical, with its large crossed eyes and its filed teeth. Its workmanship, however, is most unusual, as is its mottled gray and blue-green jade. In the back is a very deep hollow, not flat at the bottom as is usual, but round. The piece is bored both vertically and horizontally with drill holes of unusually large diameter, and the conventional attachment holes in the chin have large orifices and are rounded at the bottom, intersecting in tiny holes. The headdress has a central panel or crest, and the ears are simple long rectangular projections with a perforation near the bottom. The mouth is formed by deep, sawed slits that penetrate into the wall of the hollow in back; and most curious of all, there is a round pit in the center of the eye, though the square iris is in the upper corner. It will be recognized that some of the technical features, the pit in the eye and the large bores as well as the inconspicuous ears and the central crest, are shared by this carving with the bib-and-helmet style (pl. 53a). This raises an interesting question: did early techniques survive in the Late Classic Period, is this a genuinely early carving, or is it an early piece reworked?

Number 5 with its beaklike mouth is apparently a representation of the Mexican god of wind, Ehecatl. This god was known on the Pacific coast of Guatemala, but appears there in somewhat different form. Nevertheless, the sharp brows suggest the style of Esquintla, and it is possible that this piece was made on the coast or in the highlands. The stone is colorless and opaque, and the shape of the piece suggests that it may have been made from a corner of a large rectangular bead. The deep relief is almost certainly

Late Classic or Early Postclassic.

Other human heads with distorted features are not so clearly indicative of the gods. Some may be merely caricatures of the human face, but I believe that all are probably derived from masks used in ceremonial dances. Number 4 is a round face with entirely human features, except for a very sharply pointed nose that overhangs the upper lip and looks like a beak. The undercut was made with a very fine drill. Five small attachment holes are spaced on the lower edge of the back, and three tiny drill-channels near these holes suggest that others had been broken so that the lower edge had to be reworked. The jade is well preserved but opaque and finely speckled.

Three pendants (nos. 6, 7, and 8) portray the features of an aged man. The first is Classic in material and workmanship, and indicates age in sunken cheeks, weak toothless jaws, and the bony structure of the face. A sign of some sort on the forehead under the headdress indicates the symbolic nature of the representation. The other two are more explicit in showing sunken eyes and wrinkled cheeks. This is a manner of representing age often seen in sculptures of the Esquintla region of Guatemala, and it seems likely that these pieces originated in the highlands or on the Pacific coast. Both are made of unusual varieties of jade: number 7 of a fine lustrous green jade of rare quality and number 8 of a duller pebble of dark but vivid green with a fine speckle.

Number 9 portrays a radical distortion of human features that suggests an even more remote origin. The sharply projecting cheeks recall certain stone masks reported to come from Guerrero and other parts of western Mexico, and I doubt that a Maya artist could have conceived this strange design. The hooked nose and the rendering of the mouth with three large drill holes that give the impression of missing teeth are indications that this too may be a mask of old age, but if so, the idea is conveyed in an entirely different idiom from that used by the Maya.

Two fragments of smaller heads may be related in style to this piece. On number 10 the mouth is rendered in the same way, with three drill holes, though they are very much shallower. The eyes seem to have been round, and the nose bulbous and protruding. The three fragments of this piece are not articulated and its reconstruction may be faulty. It is made of a dark green, very hard stone. The other fragment, number 11, was made from a gray-green jade pebble and is in less round relief. It has a similar bulbous nose and drilled pits in the mouth, though in this case four, merging in pairs. These drilled pits



differ from the usual layout marks and serve rather to outline the teeth than to place the corners of the mouth.

**ROUND-RELIEF PENDANTS: HUMAN HEADS: 54. Plates 60, 61, 62.**

**Late Classic Maya heads: 4 complete, 17 restored, 11 fragments. Plates 60, 61a.**

The human head is the most common form to be carved in high relief or on rounded forms. Such heads are sometimes hollowed in back, and often in such cases the horizontal bore pierces only the projecting sides. The indentation may follow the outline of the head, leaving only a narrow ridge of the original surface, or it may be a shallow drilled depression. The outstanding specimens of this type in the collection were probably carved on the lower Usumacinta. They can be distinguished by the oval form of their faces, narrow long noses, foreheads sloping back sharply, and small eyes placed close to the nose. Among these pieces, number 1, plate 60, is unique in size and workmanship. There is an inscription on the back, by which we can confidently determine that the piece was made at Piedras Negras sometime between 9.13.14.13.1 and 9.15.0.0.0 (p. 205). The use of small drilled pits at the corner of the mouth is rather unusual for this style; otherwise features of it are remarkably similar to faces that one sees on reliefs at Piedras Negras. Number 3, though much smaller, is identical in style, differing only in the headdress which combines a central tassel with the suggestion of a zoomorphic mask made by two deep drilled circles on each side. No earplugs are shown, but small holes in the lobes of the ears suggest that some sort of ear ornament was attached. Number 2, though only a fragment and smaller still, is doubtless of the same type. All three specimens are hollowed in back, and probably all had attachment holes under the chin, though only those of number 1 are preserved.

Other heads somewhat broader in proportions, some with hollows in back and some without but all showing the head alone with small attachment holes invisible under the chin, form a group with the Usumacinta pieces which is predominantly derived from the monumental style. Seven of the specimens can be restored with only a minor loss of detail. Eight have lost their headdresses and one lacks the lower part of the face. Four of the heads (nos. 4, 5, 6, and 7) are hollowed in back and have three or more attachment holes under the chin. Two heads with hollow backs (nos. 8 and 12), however, are rendered more simply. Their headdresses con-

sist of a simple tassel and an indication of hair. The face of number 8 clearly shows the triangular layout of nose and mouth that characterizes the lapidary technique. Although the form is rounded, the relief itself on this piece is very low and there is virtually no shaping of the piece. A vertical bore is exposed by the hollow of the back, suggesting the manufacture of this piece from a bead. Arcs made by a drill show how the hollow was made. Number 12 is the smallest of these heads and only a fragment. Its gray and emerald green jade is much finer in texture than the jade of the larger pieces. Such jade was apparently rare and was generally used for smaller pieces. The simple rendering has no regional or chronological significance. It is evidently a technical adaptation which was resorted to on smaller pieces to avoid too great a reduction of scale. The perforation in the forehead may have served to attach an element from which the central tassel emerges.

Heads that are not hollowed can have a convex, faintly concave, or flat back. Number 9 preserves the irregularity of the pebble from which it was made, but on the front it is carved in high relief with deep undercutting. The hollowed eyes were not polished and may have been inlaid. The jade is blotched with dark spots, but whether naturally or by discoloration it is difficult to tell. Numbers 10 and 11 are fully shaped but not hollowed. Numbers 13 and 15 are flat on the back, though at one time, the former may have been rounded. At least two intersecting bores sawed in half indicate that it may have been broken in manufacture and later planed, with a new bore made unusually high in the headdress. Number 14 has a heavy headdress in the form of the sign for the planet Venus or, as Kelley has recently suggested (personal communication), for the more general concept of "star." This head tapers towards the chin, and the attachment holes are drilled perpendicular to the face so that they are visible in front view. Four specimens (pl. 61a, 1-4) have a narrow band forming a collar under the chin. On number 1, this collar is divided into three parts, and once may have been longer. The piece is faintly hollowed in back, and seems to have had two suspension holes — one very near the top which may never have connected, and another under it opening into the hollow. This piece is exceptionally well carved, with the most minute detail, in spite of its size. The collars of the other three heads are the merest projections, probably to make easier the drilling of attachment holes in the chin. All three have lost their headdresses. Number 4 is rather more crudely carved than the others, with a tendency toward rectangular forms. Lacking the headdress, it is difficult to tell whether it conforms to the Classic canons of carvings or whether it is of

some other type.

The addition of a collar to the human face is often, though not always, accompanied by less rounded and less sharply projecting relief. Numbers 5, 6, and 7, however, are in half-round relief and resemble the collarless group from the Usumacinta. Only number 5, however, is hollowed in back, and that only shallowly. The detail and facial features of number 9 are executed in low relief, though the piece itself is fully shaped and hollowed in back. The indication of pupils in the eyes is unusual, though the piece is classic in design. Number 8, also hollowed, has a rendering intermediate between these two extremes. It features the circle design which is usually seen on low-relief pendants, and its bib design is also more typical of flat pieces (pl. 56b, 2 and 3).

The designs of headdresses and collars on such pieces vary. The principal headdress types are those that feature a central tassel and those based on the zoomorphic mask. The collars include indications of beads, divided projections of three or five elements, and biblike projections squared at the bottom or coming to a rounded point. The choice of different headdresses and collars in most cases seems to be a free choice of the designer, though the simple pointed bib probably occurs somewhat more often on small pieces and in some cases is merely the result of the overall tapering form from which the head was carved.

Most pieces in this group are more or less irregular or flat on the back. With number 10, the very flat back is the result of reworking, probably when the original bore failed or broke through the back. Instead, there are two biconical holes issuing at the back just below the original bore. The back originally was probably slightly irregular and tapering to the collar. Numbers 11 and 12, though flat on the back, are carved in half round. The emphasis on the headdress strongly recalls the style of the monuments. Number 12 is made from particularly fine translucent jade and, though fragmentary now, must have been a spectacular piece. The lower part of the face is gone, and the piece may have included more than the head alone. Number 13, which has lost both the headdress and the collar, was probably simpler in design, judging by the lower position of its bore.

Contrasting with the fine workmanship of these pieces is the less refined rendering of numbers 14 and 15, which are made from pebbles with a minimal shaping of the forms. The relief, nevertheless, is high, and the designs similar to those of typical Late Classic heads. Numbers 15 and 16 are fragments that cannot be classified by the treatment of the chin or of the headdress.

The material in this group is preponderantly of Class 1. It varies greatly but continuously, and this variation is probably increased by different degrees of burning and subjection to the destructive effects of organic and mineral remains in the Cenote. Some pieces, such as numbers 8 and 9 on plate 61a, appear to have suffered heavily from corrosion. Some, e.g., number 9, plate 60, are dark in color; others, such as number 15, plate 61a, contain large amounts of opaque white material. Number 4, plate 61a, is made of dull gray material of poor quality. Three specimens, number 12, plate 60, and numbers 16 and 17, plate 61a, are of jades that may pertain to Class 3, though none is typical. Number 14, plate 61a, stands out as peculiar in its dull color and texture and is the only piece that suggests a foreign source of jade.

**Unusual, aberrant, and non-Maya pendants: 6 complete, 5 restored, 1 fragment. Plates 61b, 62a.**

Numbers 1 and 2 on plate 61b are essentially similar to Classic heads, but are peculiar in the pointed shape of their faces and in the aberrant rendering of the eyes. On number 1, especially, the protruding eyes and the heavy brows suggest a possible connection with the Esquintla style of the Pacific coast. The large scrolls on the headdress, on the other hand, may be related to the style of the drooping-mouth heads, though they are made in a different technique. Number 3, though rendered with the delicacy of the best Classic work, is unusual in the heavy chin of the face and in the curious biblike extension under the chin. The tip of this extension turns back and is pierced for attachment of an additional ornament.

Two heads (nos. 1 and 2 on pl. 62a), both made with a semicylindrical hollow in back and probably manufactured from beads, are distinguished by the rendering of the eyes, which were cut down possibly for the insertion of inlay, though this occurs also on the thoroughly Classic head number 9 on plate 60. Both heads are of unusual material — the first of gray and dark green color with olive-tinged shades and smooth, mottled distribution; the second, of vividly colored apple-green jade fading into a speckled gray. In addition to the suspension bore and the small attachment holes in the chin, the larger of the two heads was pierced with at least six large drill holes, one of which was made in the left cheek just under the eye. It is difficult to find a sensible reason for this, unless it was to "kill" the object for purposes of burial. Another odd feature is a small pit below the corner of the mouth, which normally should mark its corners in the preliminary layout of the face. The lack of ears or earplugs and the very



broad nose are other unusual features.

Number 5 was evidently fashioned from a large spheroid bead in such a way that its bore emerges just above the nose. The design of the headdress and the rendering of the face are both unusual, especially the treatment of the eyes, very lightly incised on a ground delimited by a shallow groove.

Outstanding even among these radical departures from the Classic tradition is number 3 made of a smooth-textured, olive-green jade of unique quality, of Class 2e, most often associated with earlier work. The serrated crest on the head can be compared to that of an unusually fine and well-preserved figurine (no. 1, pl. 57). The head gives the impression of being unfinished, since the only indication of eyes is a very faint groove outlining the cheekbone, and the earlobes are not pierced.

A number of high-relief heads suggest, with varying degrees of clarity, provenience from outside the central Maya lowland, and more particularly from highland Guatemala and the Pacific coast. Most of the known jades from these regions are of Early Classic date, or of the beginnings of Late Classic. Comparison rests largely on the resemblance to larger sculptures, especially those of the Esquintla region on the coast, and it has been already noted that some of the god representations may come from this region (p. 153). The significant characteristics of these faces are prominent brows, strongly outlined eyes sometimes tending to triangular form, and faces tapering to a strong squarish chin.

These characteristics are best expressed on two pendants with long projections under the face: numbers 6 and 7 on plate 62a. The former is a thick blocklike pendant tapering to a point of triangular section on which is depicted an animal head. At the upper corners are two human heads, vestiges of Early Classic profile serpent designs. A very similar design was noted on a small full-figure pendant (no. 8 on pl. 55b). What links this carving with Esquintla sculptures is the grim expression of the face, the low forehead, the overhanging brows, and the slanting eyes. Something of the character of the two stone busts from El Baul and Pantaleon (Thompson 1948, fig. 10a, b) is reflected in this pendant. Number 7 is carved somewhat more crudely and its jade is badly decomposed, but in its general form and in the rugged character of the face it resembles the above and the two are probably examples of the same style.

More difficult to place, but also suggestive of a peripheral style are numbers 8 and 4. The sharp features of the former and the asymmetrical headdress distinguish it from the Classic tradition. There is only one other example of an asymmetrical headdress here, on a small fragment, number 9. The

depiction of the earplugs on the cheeks of the face recalls number 7 above, and the figurine, number 5 on plate 57, whose rendering is very similar. I can find no such close analogy for number 4, with its blocklike form, its very low forehead, and its beaded headband.

It is notable that a greater number of these rather unusual pieces remain complete and unbroken than of the more common Late Classic Maya heads. The materials, too, are more variable, suggesting a broader distribution in time and space. The difficulty of placing these pieces in their proper period and locale indicates how little we know as yet of the various jade industries that flourished in the several regions of the Maya area.

**Miscellaneous fragments: 10. Plate 62b.**

There are numerous fragments of faces and headdresses carved in high relief in this collection but only those that contain features not observed on reconstructed pieces need be mentioned here. Among these are two large mask headdresses that come to a high rounded peak (nos. 2 and 3, plate 62b). Number 3 is deeply drilled on the back with a large tubular instrument, and the central core is slightly countersunk and concave to allow the bore to be made in two unaligned sections. In the nose of the mask on the front is a biconical perforation. Fragment number 2 is flat on the back and is carved in softer relief, though with a strong projection of the mask nose. A carved jade head with a similar headdress was recently found in the Late Classic Burial 77 at Tikal.

Number 1, a portion of a Classic face, is made of an unusual jade that matches that of the large pectoral bead number 6 on plate 45A. It is deeply hollowed, and the trace of a bore in the hollow suggests that it was made from such a bead. Fragment number 4 is a portion of a head made in almost full round, and its notable feature is a large round pit made in the center of the eye. Number 5 is a small fragment of a head, finished but with no headdress, and number 6 is notable because of the straight brow and sharp straight nose of an otherwise Maya face. All these appear to be minor peculiarities of otherwise normal Late Classic pieces.

Number 7, although badly shattered, has been included because the rendering of the brow, the eye, and the earplug suggests that it may be another example of the Esquintla style; and number 9 suggests a Toltec physiognomy, although no other large, high-relief faces can be ascribed to this culture. Moreover, the jade of this piece is dark with colorless crystalline inclusions, like the jade of Toltec rings pictured on plate 48a.

Numbers 8 and 10 are fragments that were probably heads, though they are broken at the bottom. Both have unusual features. Number 8 seems to include a pectoral but has no indication of arms or a body. Its highly placed bore opens into a deep but narrow hollow on the back. Number 10 was clearly made from a bead, retaining its vertical bore still partly closed on the back, which is slightly concave. Below the earplug, two small drill holes meeting at right angles form an attachment hole indicating that the piece was probably never much longer than it is now.

**TWO-SIDED CARVINGS: 11. Plate 63.**

These carvings are more or less flat and carved identically on both sides. There seem to be two major varieties: one which is thick and has some measure of round relief, and another which is flat and in which inner parts of the design are cut out, usually by a series of closely placed drill holes making ridges that may be left or may be smoothed away. String-sawing seems not to have been used in the specimens here, although elsewhere this technique was used on very similar pieces.

**Thick solid piece: 1. Plate 63a.**

This piece represents a human head in profile within a form that simulates the head of a serpent, though all details are missing. The piece is very thick, and the head, though definitely flattened from side to side, is carved almost in the round with a very deep undercut of the tassel on the forehead. A bore made from one edge emerges on the forehead. The jade is mostly pale with brilliant green patches and crystalline inclusions. Although the piece is unique, several small fragments of similar heads in the collection show that there were others of the same type.

**Two-sided god masks: 1 complete, 2 restored, 2 fragments. Plate 63b.**

E. K. Easby (1961) describes two-sided mask profile carvings from Tonina and Palenque and discusses their use and the technique of carving. The Tonina specimens are carved in rounder relief than most of the pieces represented in our collection. Of the numerous fragments, we have been able to assemble only three pieces that are nearly complete. With a few exceptions, the remaining pieces are thin, and carved in sharp flat relief. Number 1 is typical. The cutouts are made by drilling small holes close together and breaking and smoothing the divisions between them. The edges of the cuts are sharp, and string-sawing was not noted on these specimens.

The standard design includes the St. Andrew's cross on the forehead, a large round or squarish eye in the form of a scroll, and an upturned nose. The outlining of forms by raised fillets decorated with three circlets is standard. Fragments numbers 2 and 3 show more modelling than is usual and may be earlier pieces. The modelling is stronger on one side than on the other, and number 3 departs considerably from the standard pattern of design.

Among the fragments are many made of jade of Class 3d, and these tend to be particularly thin and flat. Number 5 shows one such design nearly complete. The late date of this carving is demonstrated by its arc-drilled curves as well as by the character of the human figure on the forehead, whose cap and strong projecting chin suggest a late and northern origin.

Number 4, although it is of standard design, is much thicker than usual and does not use the cutout technique to any appreciable degree. It is in two pieces, having been sawed apart after the design was made. Part of the nose of the mask and a fang had been cut away and were not found. The jade is almost entirely without color (Class 3c) and has a dull finish. A number of fragments equally thick and of the same material appear to be parts of serpent heads, suggesting that this piece represents a definite variety or subtype of the mask group. The manner of the use of these two-sided carvings is problematical. Scattered perforations along the edges would normally suggest that they were sewn to some fabric, but since both sides were to be seen, there must have been some sort of open frame around them. What is suggested, in any case, is their incorporation into flat objects of some kind that could be handled and turned, rather than attachment to articles of dress.

**Paired two-sided plaques: 3 restored, 1 fragment. Plate 63c.**

Although the design on number 1 is strictly geometric and made with simple grooves and drilled holes, it nevertheless suggests the simplified versions of Xipe sometimes found in sculpture. The plaques are identical and were evidently used as a pair. The use of the tubular drill to make arcs suggests that they are late. These objects were evidently suspended by a single perforation at the top and hung loose so that they could be seen from both sides. One side of each is almost perfectly flat and more lightly grooved than the other, and in each case the drilling of the holes seems to have been made from the more heavily grooved side.

Number 2 represents a formalized serpent head with one large fang and no lower jaw. The drilled



round eye and the shape of the fang are not in keeping with the dominant lowland tradition, and our reconstruction of the piece is highly questionable. The piece is important, however, because it is unusual. The relief is modelled only on one side, the other being executed only in grooves, and the matching piece is so similar that it is possible this once was a thicker single piece, sawed apart and made into a pair.

**CARVED PLAQUES: MISCELLANEOUS MOTIFS: 17. Plates 64, 65.**

**Zoomorphic motifs: 1 complete, 3 restored, 1 fragment. Plate 64a.**

Animals were very rarely depicted on the larger Maya jades, but there are a number of carved fragments of birds, of which we have been able to put together only two incomplete examples, numbers 1 and 2 on plate 64a. The pieces of the former do not articulate, and not only is the orientation of head, breast, and tail very uncertain but most of the wing is missing, and the piece may have been larger than we have shown. The material of this piece is white and crumbly, so that it seems to have suffered considerable deterioration. It was suspended by two drill holes made from the back to the edge. The larger bird has two perforations at the top of the wing and at least one on the tail, but it also has a very fine horizontal bore running its whole length. The whole front of the bird is missing and the reconstruction of the head is entirely speculative.

There are at least three representations of birds made of plaques that had been turned and reshaped. These are not carved but merely silhouetted, with indication of the parts executed in simple grooves, and they will be discussed later (p. 174). The small bird (no. 4, pl. 64a) was also made from a fragment of a carved Late Classic plaque, apparently using part of the original carving. This preoccupation with birds seems to have been a late feature, probably related to the frequent use of birds on Toltec headdresses as an emblematic symbol.

The only other animal we could identify is a monkey on a very unusual, thin, cutout plaque (no. 3). This plaque has no horizontal suspension bore, but is pierced in several places along the edges. The cutouts were clearly made with the help of a pointed drill, and the carving itself is limited to grooves, with some rounding of the edges on the main lines of the design. In spite of the simple technique, this piece has considerable charm due to the skillful handling of the composition. A fragment of an unidentified animal (no. 5) is badly burned and lacks

a head. This fragment, like the large bird, had two perforations as well as a horizontal bore.

**Plate 64b, 65a.**

**Symbolic motifs: 2 complete, 1 restored, 6 fragments.**

It is somewhat surprising that the common heteromorphic design representing a human or deity head in the jaws of a serpent, used often on headdresses, does not occur here as an independent motif except on one pair of small rectangles (pl. 49b, nos. 2, 3). Two carvings in the round show the head enclosed in the beak of a bird (pl. 59b, nos. 2, 3). On plaque number 1, plate 64b, the bird is very probably an eagle, and though representations of eagles are very rare in Maya art, the enclosed head has unmistakably Maya features. The piece is unusual in other ways. Although essentially a plaque, it was not sawed on the back but smoothed down to a faintly convex surface. On the lower edge is a stepped cutout which was never polished like the other surfaces. The carving is executed largely in sharp-edged grooves and drilled arcs and circles, and this, together with the eagle motif, suggests that it is an early Postclassic piece, made perhaps after the eagle motif had been introduced here from the Mexican highland. Unlike most plaques, this piece had not been burned or mutilated.

Number 5 of this group is also complete though broken. It represents the feathered serpent, emblem of the Toltec, and it may have been carved in Mexico, for the technique of carving is very unusual and was observed on only one other plaque (pl. 78a), which is definitely of Toltec design. This technique consists almost entirely of sharp, clean grooves and drilled circles, with occasional broadening of one side of a groove to give emphasis to forms. A small depressed area in the mouth gives the only relief. Long drilling was not attempted, and the piece was apparently attached by six small biconical holes along the top and bottom edges, made from the edge to the back. The jade is of very fine quality (Class 2d). A small fragment, number 17 on pl. 80, may have been carved in the same technique. Number 2 is probably a much earlier Maya piece, though I know of no precedent for its design of a circular face framed by round volutes. There is, however, another plaque with this design (pl. 71a, no. 3), which seemingly had been reworked and carved on the other side with a human motif. It is tempting to think that the round face represents the full moon surrounded by clouds, but I have been unable to find verification of this suggestion.

Other symbolic pieces remain in fragments and have not been reconstructed. Numbers 3 and 4 are drawn with simple grooves on a flat surface. The

first represents a skull, but its vertically placed bore suggests that it may be only a headdress of a profile head which could then hang in proper position. The second seems to be part of a mask or bird head with lidded eyes.

Fragments of a mask (no. 1, pl. 65a) are made of fine deep green jade (Class 2e). The unsymmetrical form and the three perforations made without regard to the design suggest that the piece was reworked. The lower edge is broken and the mask may have been a headdress of a human plaque. Another fragment (no. 3) is unusually thick for a plaque, but this may have been due to the nature of the material. Although the face is a rich green, on the back are large white crystalline inclusions, which, by crumbling, have caused the disintegration of most of the piece. It apparently represented a full figure of a god or grotesque creature, at least in part human. Numbers 2 and 4 are enigmatic fragments that we have been unable to assemble fully or to restore. The central feature of number 2 seems to be a rectangle marked like a turtle carapace. Surrounding it are large filleted eyes and scrolls fitting no standard pattern. Number 4 suggests a bird motif, but there appear to be two independent superimposed patterns of grooves that form no coordinated design.

**Abstract motifs: 2 restored, 1 fragment. Plate 65b.**

The only purely abstract form that occurs on plaques is the tau or lk sign, which we found also on very small ornaments (nos. 1-3, pl. 50), on the back of a face-plaque (no. 3, pl. 60), and as a pedestal of a figure (pl. 56c). In sculpture, we find the tau-pectoral worn at Palenque by figures on the sides of the sarcophagus in the tomb beneath the Temple of the Inscriptions (Ruz 1954, fig. 6), by a figure on Altar Q at Copan, and by small dwarf figures on stelae of Caracol. The tau on the two plaques in our collection (nos. 2 and 3, pl. 65b) is cut out by making three perforations and connecting them by a slit. Since thick plaques are seldom carved with cutout designs, one wonders if the motif, which not only is a day sign but also can represent "wind," "breath," or "spirit," did not require the open treatment by its very nature. On number 2, the tau is enclosed in a glyphlike cartouche. This piece lacks the usual horizontal bore of plaques, though it was certainly thick enough to be safely drilled. Instead, small biconical holes are spaced at intervals on the back edges, suggesting that the piece was attached to some object, perhaps a fan, to which its motif would be very apt. Number 3, on the other hand, is perforated in the usual way close to the top and could have been worn as a pectoral. It has additional holes on the back edges, however, and since three of them are

broken, the bore and the use of the piece as a pendant may have been secondary.

Several fragments of a plaque with a cutout design (no. 1) show only a composition of scrolls. This plaque is black from burning, and since it is incomplete and its form is unknown, it could have included an animate form now missing.

**SILHOUETTE-PLAQUES: HUMAN MOTIF: 29, fragments 8. Plates 66-71a.**

Strictly speaking, a plaque is a flat piece of jade with both surfaces planed, and the word should properly apply only to carvings in very low relief. Included in this group, however, are some figures in higher relief that are nevertheless designed in the same manner. Plaques that depict the human motif are the most numerous by far and generally fall into one of two classes. The silhouette-plaque is shaped roughly to the figure, which in turn is adapted to the available space, so that the design fills the entire surface and its lines are extended over the edge to silhouette the figure. On picture-plaques, the surface serves as a background for one or more figures independent of its form, and there is usually some vacant ground. Frequently, featherwork or other subsidiary elements arranged on the border frame the design. Figures on silhouette-plaques are normally presented in full front view, but on picture-plaques, the face is more commonly turned in profile. Well-defined schools of carving tend to feature one or the other of the two types of composition, though there are some examples which could be placed in either category.

**Human heads and busts: 1 complete, 8 restored, 1 fragment. Plates 66, 67a.**

The silhouette-plaque is primarily adapted to full figure representations, but heads alone were sometimes carved on flat pieces, and the space was filled by the extension of the headdress and the addition of a necklace or collar. Number 1 on plate 66 shows the least distortion of the motif in its adaptation to a regular square form with rounded corners. The emphasis on sharp grooves, the earplugs made with a double drill, and the lozenge-shaped eyes identify this as a late carving. Number 2 is probably earlier. It has an uneven surface, and it is possible that it was originally a thick pendant that later was sawed through its horizontal bore. This left a very thin top, and suspension holes were drilled near the upper corners from front to back. The design of the headdress is a simple geometric pattern, though the face itself is carved in rounded relief. There are no attachment holes on the lower edge, but these may have been removed when the piece was sawed, for it is



clear that the beaded necklace was once complete.

Numbers 3 and 4 are more typical of faces carved on plaques and adapt the designs to the tapering form of the pieces by accentuating the long lines converging slightly downward. The headdresses are designed with scroll forms, but not in the manner or in the technique used on the terminal Classic drooping-mouth heads. The St. Andrew's-cross motif on the headdress of number 3, made with drilled pits between the arms of the cross, links this design with some of the two-sided carvings on plate 63. On the reverse is a tau-shaped figure that occurs as a cutout motif on plaques and small ornaments. The design here is made with drilled pits at the ends of the arms of the tau, though it does not pierce the plaque. The face of the plaque is somewhat uneven, and the relief is very low and softly rounded, probably to preserve as much as possible of the green color which tinges only the surface, the reverse being entirely of a light gray color. The material is very unusual and not matched closely elsewhere in this collection.

Number 4, in contrast, is made of a jade with vivid spots of deep green, and rendered in a curious mixture of sharp grooves and softly rounded forms that are obscured by the sharp contrasts of color. A large piece of the headdress is missing, and its design remains somewhat uncertain.

An interesting headdress design occurs on plaque number 5. Serpent heads like those that flank early headdresses as independent elements are here connected to form a ceremonial bar, decorated in the center by two rings. Though carved partly in high relief, this head is quite thin in places and was shattered into many small pieces. This is unfortunate, since the remains of an incised design and inscription on the back can no longer be made out clearly. This piece may have been thicker originally, since there is a trace of an earlier, poorly aligned bore, above the main bore that runs so close to the surface that it may have been partially open. This may be the reason for the perforation at the top of the head which supplanted the bore.

On number 6, the serpent heads are less conspicuous than the human heads held in their jaws, and one may recall that on a late triangular pendant (no. 2, pl. 56b) they were eliminated altogether. These are all probably Late Classic pieces, though the design originates earlier. Number 7 is a very thin plaque, typical of a late style of carving that uses little modelling in relief and depends heavily on sharp-edged rounded grooves. The large turns of the headband over the earplugs and the triangular form of the eyes of the central face are also late features. This piece has no horizontal bore, but was

attached by five or six holes skillfully placed at inconspicuous points in the design. Sometimes, in adaptation to the form of the pendant, arms are added below the head. Number 1 on plate 67a is a bust of a figure carved in deep relief, with forearms held horizontally and fingers touching in the Late Classic manner. The horizontal bore passing through the headdress, and drilled from either edge failed to meet in the middle, as so often happened in Maya carvings, and two small holes had to be made in the back to connect the two drill holes. Another bust (no. 2) is even more deeply carved. It has no arms, but substitutes instead a massive pectoral ornament. The jade is a beautiful green all the way through, mottled with both black and white. In places it was coated with a black substance, and resembles the jade of similarly coated banded beads, with which this piece could have been combined in a multi-stranded necklace or collar by utilizing the attachment holes on the sides (pl. 41). The two fragments, numbers 8 and 9 on plate 66, may or may not belong to a single piece. Whether number 9 was a bust or a full figure is not clear, and its listing in this group may be an error. However, the face is the only feature that is complete.

**Full figures: 5 complete, 13 restored, 1 partly restored, 3 fragments. Plates 67b, 68, 69, 70.**

The contrast between jades carved in the monumental Maya style and those following traditions peculiar to the lapidary craft is particularly conspicuous in representations of the full figure. One cannot fail to see in the pieces illustrated on plate 67b a reflection of figures on Late Classic Maya stelae. Although the proportions are distorted to adapt the figure to the form of a plaque, number 1 is a figure dressed in the full regalia of a warrior figure that one might encounter at Piedras Negras, with the lower jaw of a monster headdress hanging on the chest, and the upper jaw sharply upturned with a double scroll above. The rectangular shield is also characteristic of Piedras Negras. Although the jade is not as fine as that of the bust last described, the two pieces are very similar. Both are thick and are carved in high relief, and both have, in addition to a bore, attachment holes on the sides and bottom. Number 1 is carved also on the sides and on the back, but the representation on the back was either effaced or remained unfinished, for it shows only a vague silhouette of a seated figure in profile. The figure on the front is imperfectly silhouetted but is very closely adapted to the standard tapering form of Classic Maya plaque pendants.

Number 2 is more typical, being cut to the form of the figure. The addition of serpent heads to the

headdress seems to be a concession to the lapidary tradition. The lower half of the face of this figure has been lost, and an old photograph shows that the face had somewhat more delicate features than are shown in the reconstruction. The loss of this piece is the more unfortunate because the figure bears an inscription on the reverse, most of which is now missing. There is little doubt that these two pendants were carved at the height of the Maya Classic development, between 9.13.0.0.0 and 9.17.0.0.0.

Probably somewhat later (9.15.0.0.0-9.19.0.0.0) are two much thinner plaques carved in low relief, numbers 3 and 4. Although the latter is very fragmentary, we see the figure holding a manikin scepter, a common symbol of lordship or high office on late Maya monuments. On the former, the long-tasselled plumes swinging upward and downward, the three round heads on the collar, and the omission of sandals testify to a late date. In spite of the monumental motif, both figures borrow features from the lapidary style. The large round faces and the squat proportions of the figures are traditional in jade-carving. Shared with other jade designs are the double-drilled round earplugs, and the large scrolls emerging from the mask above them. Both pieces are made of very fine, lustrous jade of Class 2 and are masterpieces of design. Although conforming in general to the silhouette type of motif, they contain areas of ground and are not cut on the edges to the form of the figure. Technically, they may be classed with picture-plaques, but the ground areas are broken up so that their effect is minimized and the single figure virtually fills the space. Number 3 is pierced from one edge to the other with a horizontal bore. Two additional short drill holes from the edges to the back were made just above it. Plate 68, number 1 shows a different modification of silhouette-carving. Here masks and scrolls are added on the border to fill the field completely, and the figure itself remains independent of its form. This manner of composition is, of course, a carry-over from the Early Classic Period and is closely related to the composition of triangular pendants. This piece is almost certainly earlier than the stelalike figures. The pose of the figure and the object it holds recall the figure enclosed in a lunar cartouche on Sculptured Stone 2 from Bonampak, which seems to date from about 9.9.0.0.0.

The more typical silhouette-plaques apparently take their inspiration not from the stone monuments, but from the manufacture of small pendants on which the human head appears in exaggerated proportions, and the body is reduced to almost geometric form. Occasionally wristlets or even anklets

are shown, but for the most part, these details are omitted, the limbs are depicted in cursory conventional form, and attention is centered on the face and headdress, though the emphasis here also is on geometric pattern.

There seems to be no chronological significance in the preference for the monumental or the lapidary motif. Both show a comparable range of techniques. Number 3 judging by its soft outlines and the avoidance of circular arcs could be quite early. It is made of an unusual jade which varies in texture but in some parts resembles jades of Class 3. Numbers 2 and 4 were probably carved at the height of the Late Classic Period, and number 5 reveals its terminal Classic date in the conspicuous use of circular arcs, particularly the arc used to depict the mouth. The three-circle arrangement of earplugs and headdress is typical. This arrangement is seen also on number 6 which is probably the most successful and the most formalized composition of its type. Its originality lies in the introduction of curved lines into the pattern, eliminating the strong horizontal division of the figure by placing the hands apart, curving the belt, and reducing the legs. This piece is a true work of art in its transcendence of the limitations of a traditional pattern. The solution was less successful in such pieces as number 7, on which the legs of the figure are suppressed to such a degree that the intent becomes ambiguous. Number 1 on plate 69 appears to be the earliest example of carving in this group. Its material and its technique are very similar to those of the thick triangular pendants on plate 54a, and it may at one time have had the rounded back of such pendants. The carving on the back, which is in sharp, flat relief is clearly much later and is suggestive of a northern or western Yucatan style. The jade here is a dull gray, entirely without color.

Other plaques which similarly adapt the motif to a rectangular form are probably much later. Number 2 is very thin on one side, and shows extreme simplification of all the elements. There are small perforations from edge to back where the bore normally would have been, as well as perpendicular perforations at the base and on the sides. On number 3, a cutout area between the arms and the body helps to make a smooth transition to the lower half of the design, in which the legs of the figure are so reduced as to be barely recognizable. The band that serves as a headdress in this design is of a kind frequently found in the sculpture of northwestern Yucatan. Fragment number 4 represents another figure of this kind, and possibly also number 5. The heads and headdresses of both are missing.

A type which is either provincial or decadent



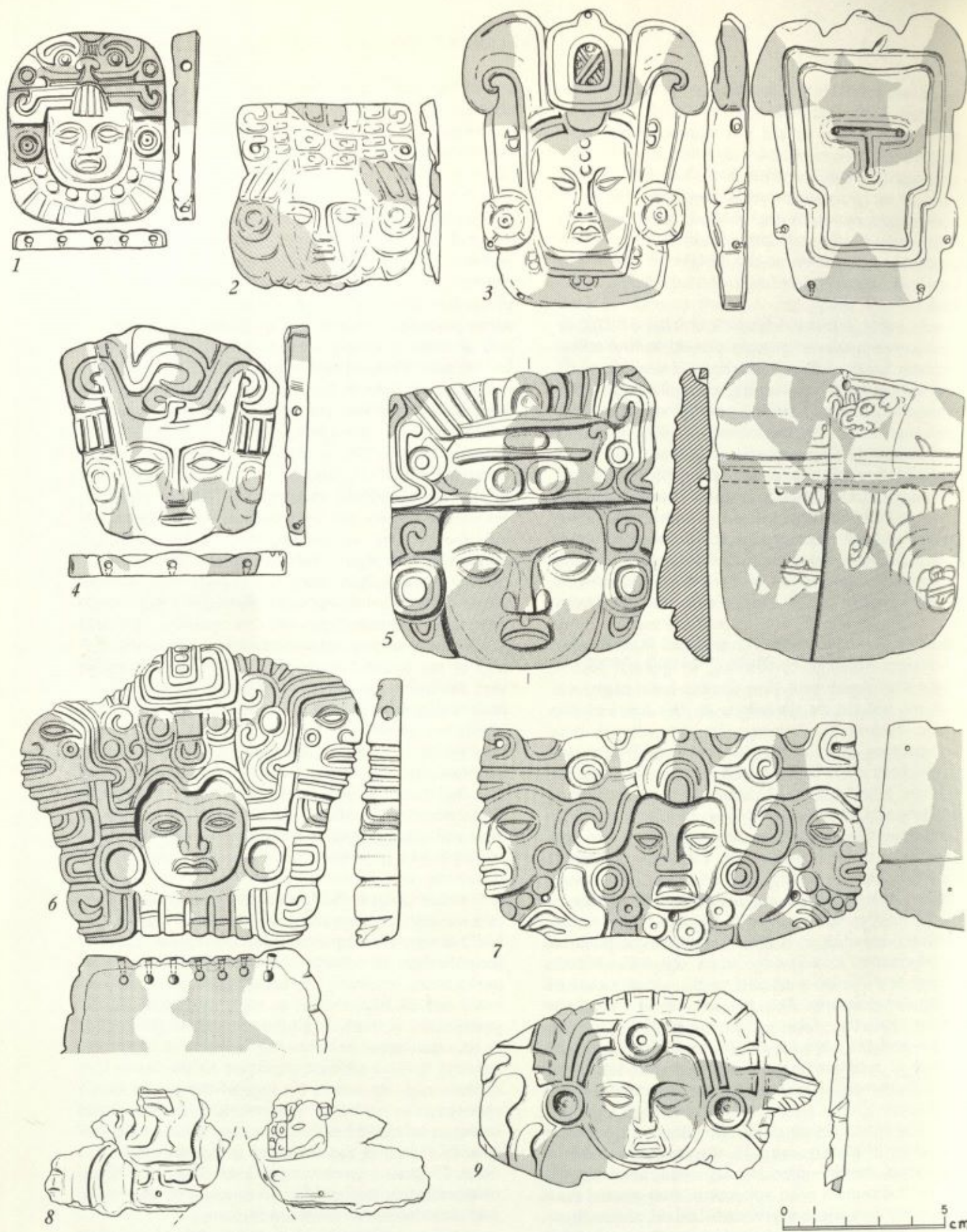


Plate 66. Silhouette-plaques, human heads (see p. 159).





Plate 67. Silhouette-plaques: a. human heads; b. full figures (see pp. 159, 160).



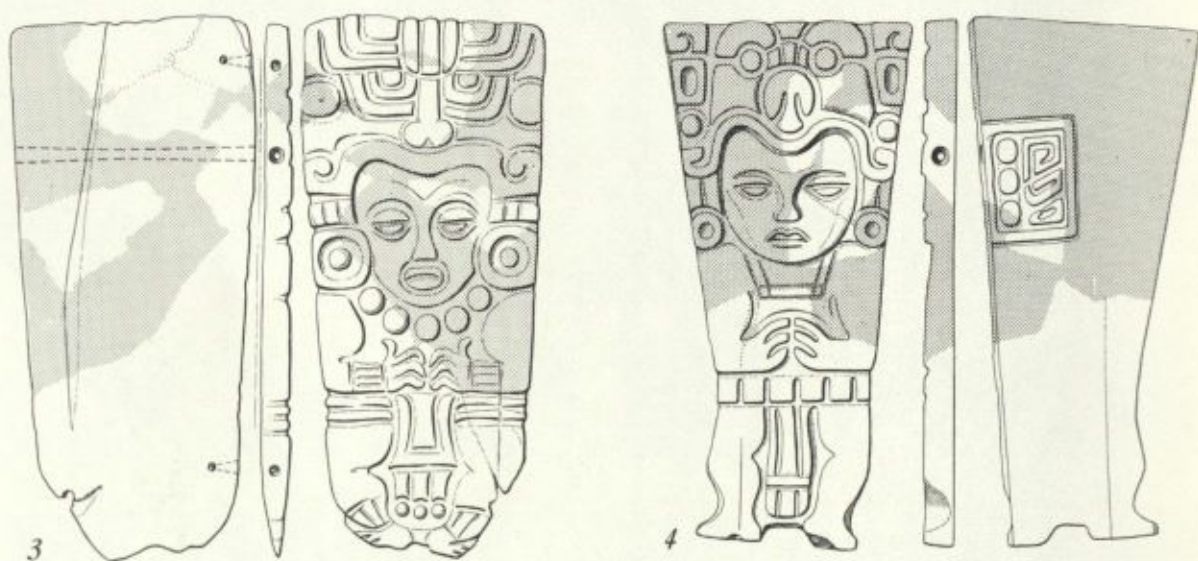
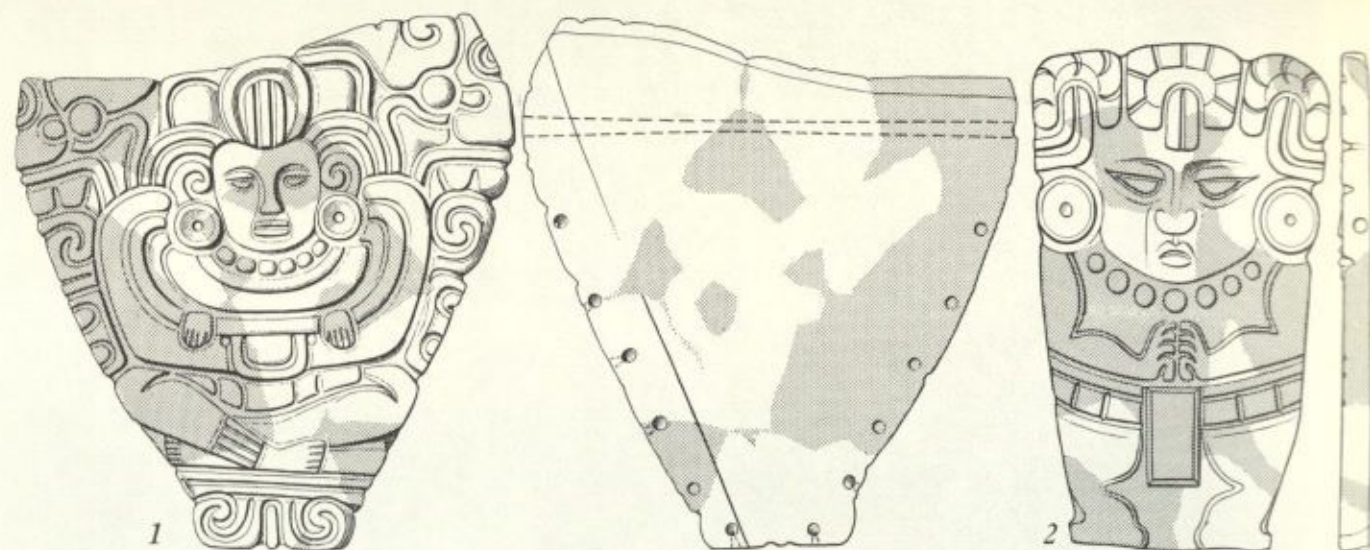


Plate 68. Silhouette-plaques, full figures (continued) (see p. 160).



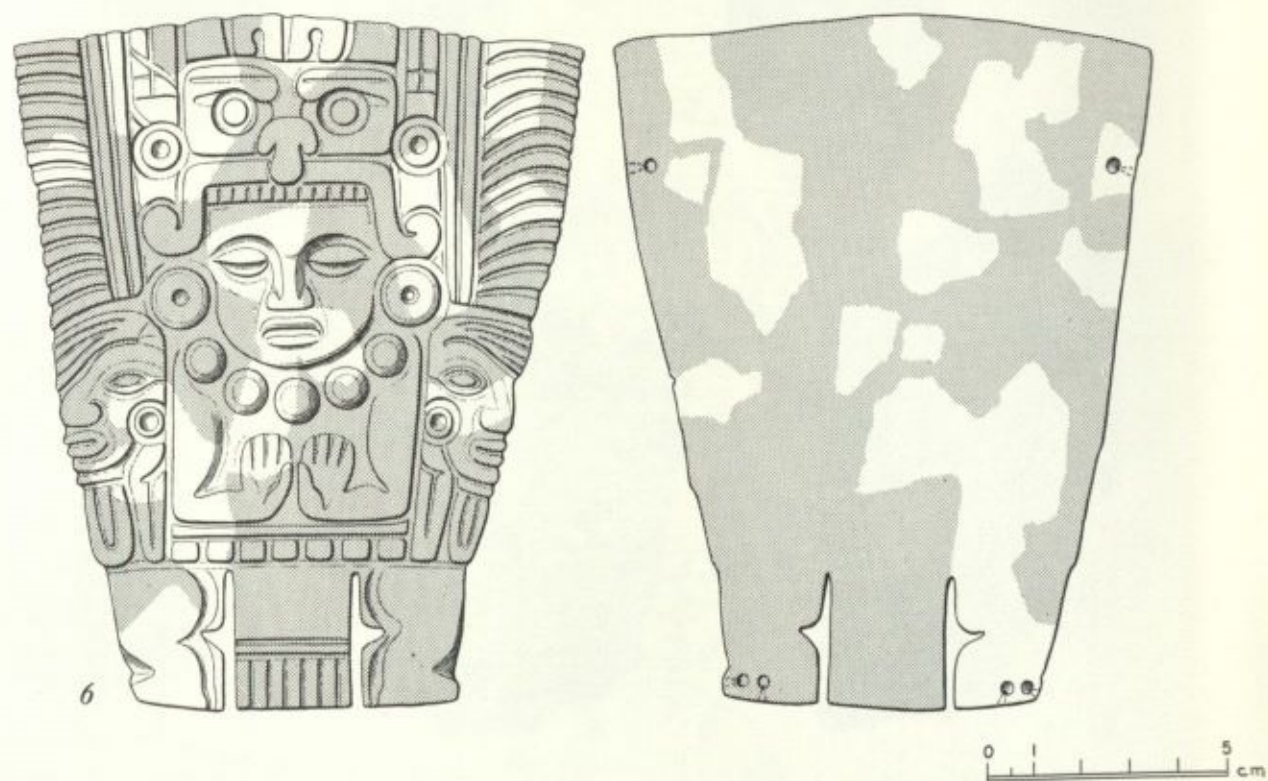
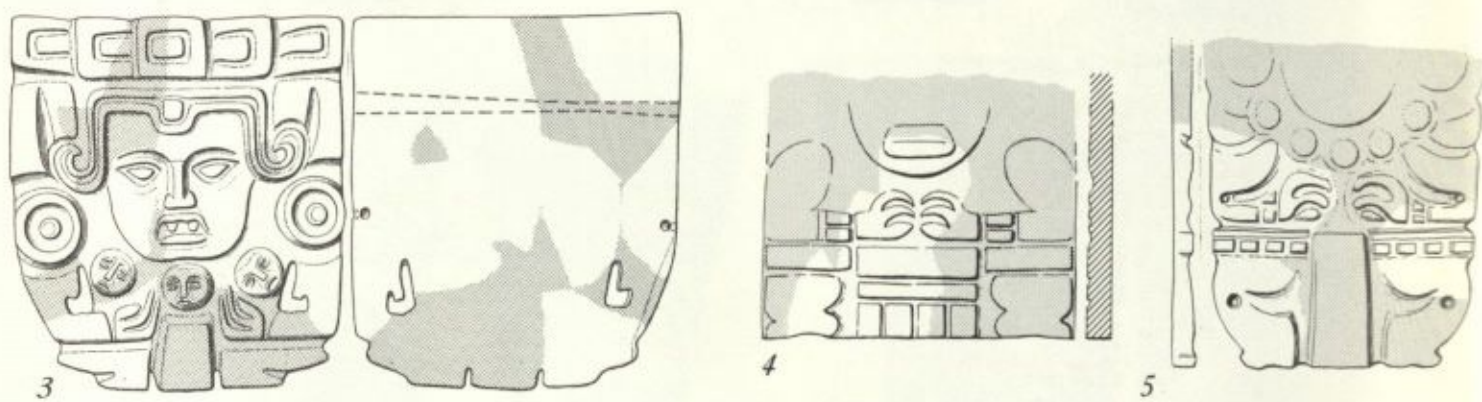


Plate 69. Silhouette-plaques, full figures (continued) (see p. 160).



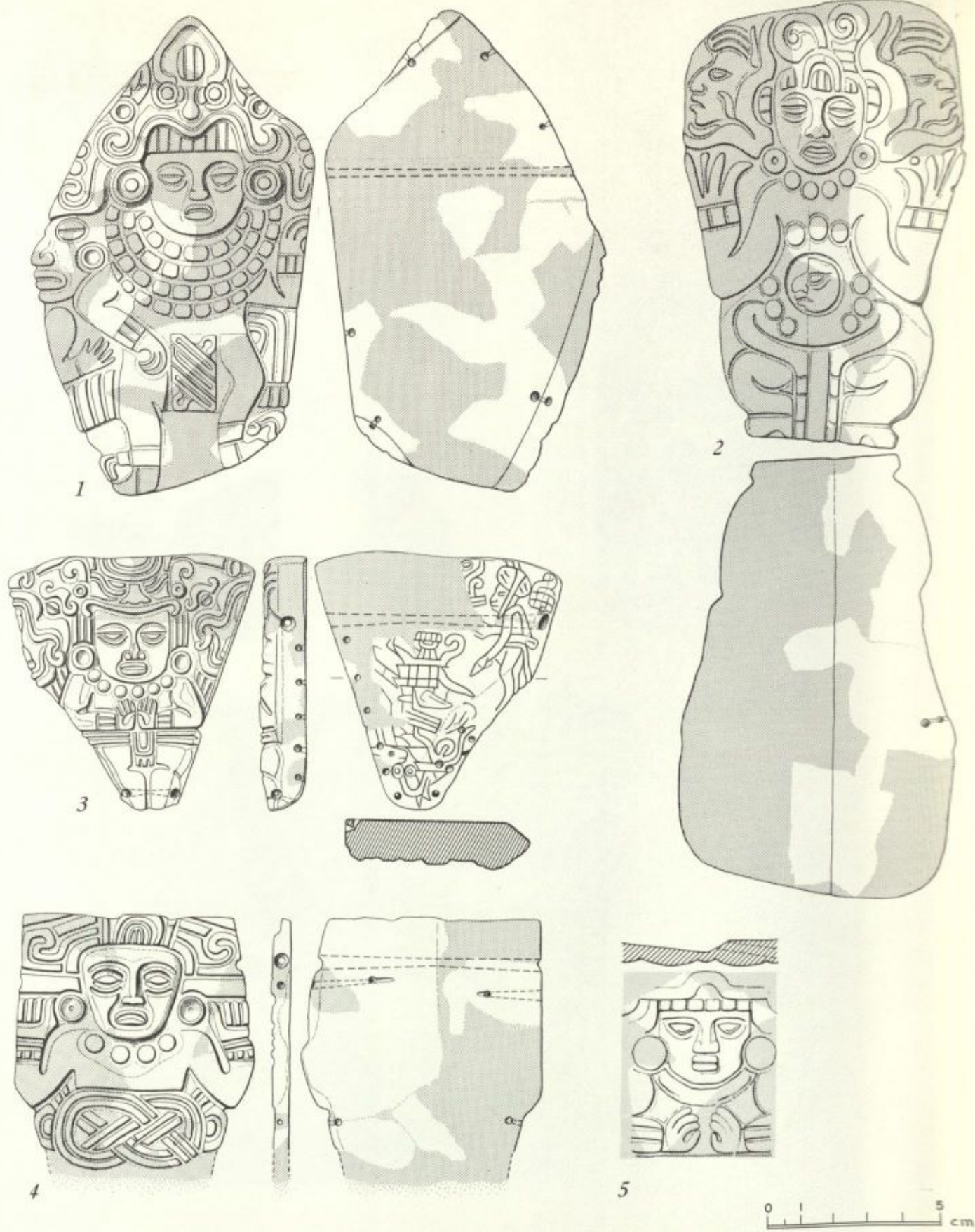


Plate 70. Silhouette-plaques, full figures (continued) (see p. 160).



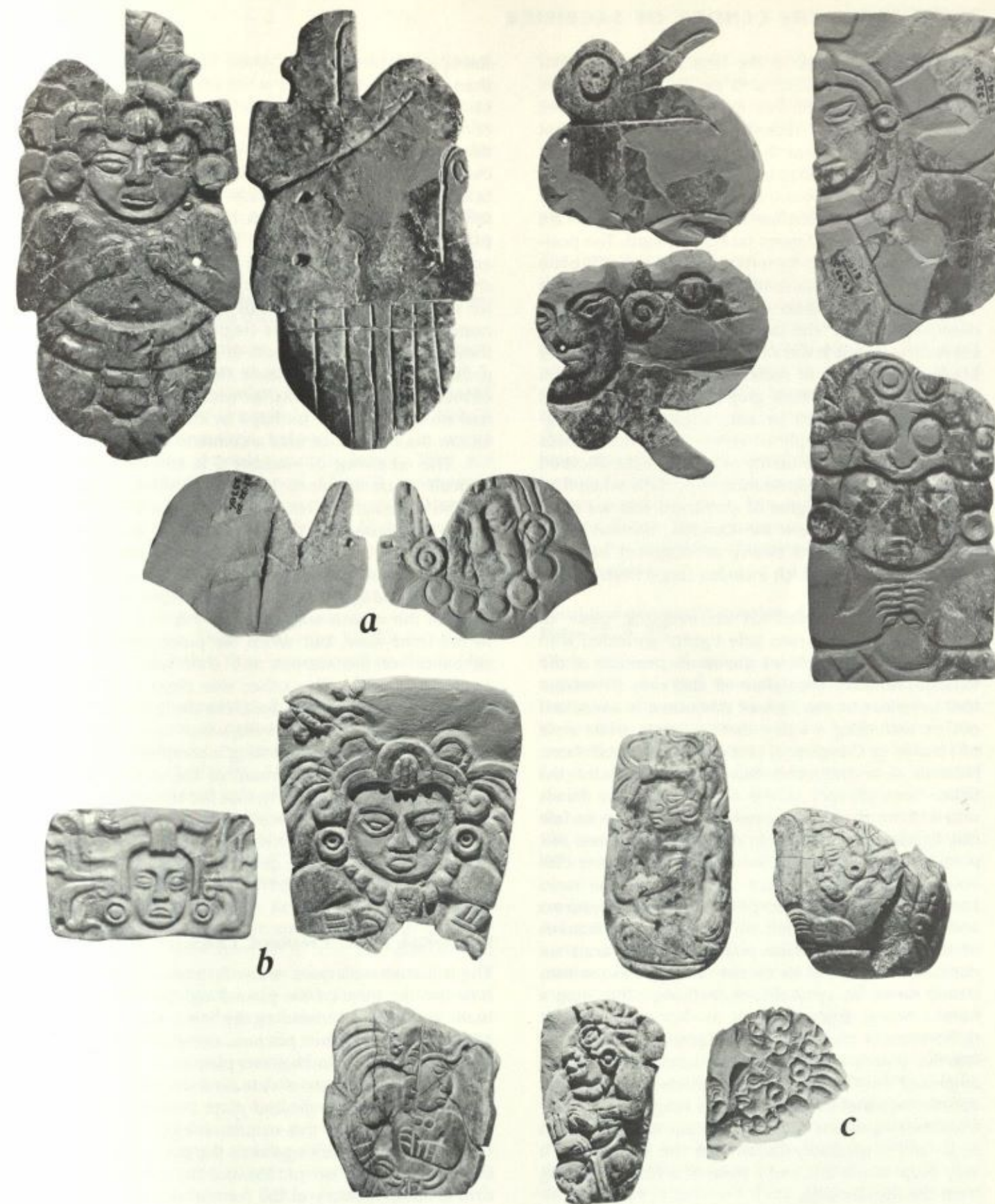
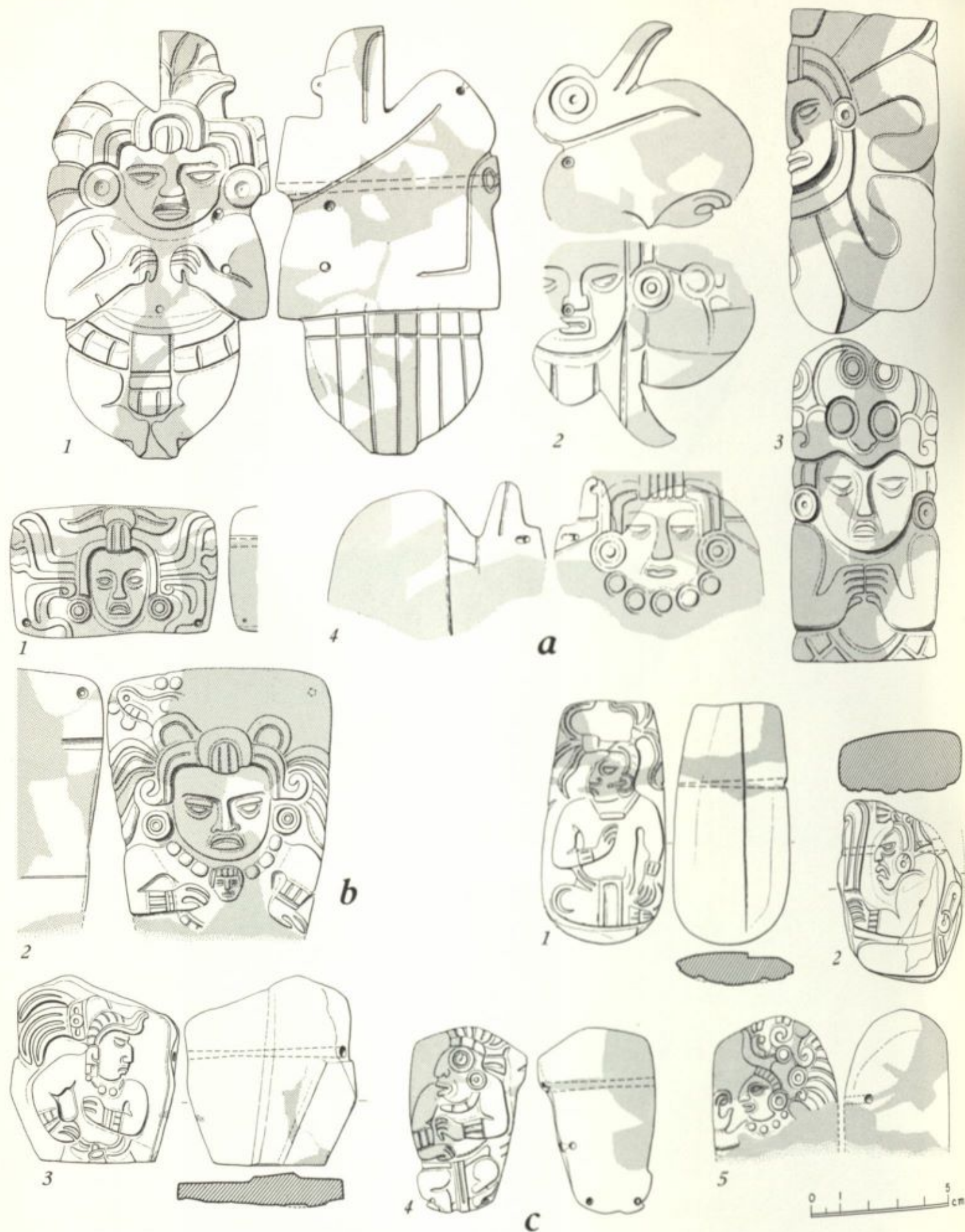


Plate 71. a. Recarved plaques and fragments. Atypical forms; b. intermediate between silhouette and picture types; c. small profile-head figures (see pp. 174, 175).



is represented in two of the largest plaques in this collection (no. 6, pl. 69, and no. 1, pl. 70). Unfortunately, both are broken into small disarticulated fragments, and our reconstruction of them is not very reliable. It is clear that the profile faces such as are normally attached to headdresses are here moved to shoulder height, but it is not certain whether they are intended to be ornaments worn on the back or are heads of subsidiary figures facing outward. The position of the hands, palms forward, on number 6, plate 69, has been noted on some of the figurines on plates 57 and 58, and occurs on another aberrant piece described below. The jade seems to belong to the usual Class 1, but it was noted that pieces with heavy blackening by fire in section were, on the surface, of an even and brilliant green color. On the right leg of this figure can be seen a joint of two fragments differing sharply in color. Such occurrences draw attention to the futility of basing a classification of jades on surface appearance, especially when they have suffered the degree of alteration that we often find in the jades from the Cenote. Number 1 on plate 70, however, is clearly of different material, possibly Class 1b, which includes large nests of colorless crystals.

Number 3, carved on an irregular piece of opaque, mostly colorless jade lightly sprinkled with green on the face, shows the same position of the hands as number 6 on plate 69 and may be related to it in style. On the back of this piece is an incised design, including a figure that suggests a late style of Yucatan or Campeche, probably made much later. Number 4, a fragment showing the arms of the figure bent sharply at the elbows and the hands raised to the shoulders, recalls a similar pose on late clay figurines from Jaina. In spite of its thinness this plaque was successfully bored, though shorter drill holes for suspension were made below the main bore. The horizontal design of the low headdress and the huge plaited belt are other unusual features of this design. A similar position of the arms on number 2, which in its cursive and grotesque rendering seems to symbolize something other than a human being, again suggests an advanced date. It is, however, a matter of fine judgment which of the last five pieces mentioned are merely aberrant examples of the Classic style and which may represent definite regional or period styles. Fragment number 5 seems to present nothing unusual except a plain collar and is probably Classic. On the back, it has a very deep saw-mark, and a trace of a bore emerging from the thicker side.

**Recarved figures: 2 restored, 2 fragments. Plate 71a.**

At least three silhouette-plaques seem to have been

reshaped as birds and adapted to quite another use than that for which they were intended. Number 1 on plate 71 is the only one of these that is nearly complete. It was a thick, heavy plaque of excellent deep green semitranslucent jade of Class 2a or 2b, carved in the standard Maya lapidary style with a human figure. The headdress was later cut to the form of the head and beak of a bird, and on the plain reverse, the lines of the neck and the leg and the feathers of the tail were added in simple sharp-edged grooves. Perforations were also made for suspension of the pendant horizontally. Although numbers 2 and 4 are mere fragments, it is clear that they suffered the same sort of mutilation. This was probably done in Postclassic times by some group of invaders or immigrants for whom the Maya motifs had no significance, perhaps by the Toltec, among whom the bird motif was a common symbol.

The recarving of number 3 is somewhat more difficult to understand, since both sides show incomplete designs. The original face was probably that which shows part of a round head surrounded by large plain scrolls which are bled out on the margin. This motif is similar to that of number 3 on plate 64b, though it is carved in sharper relief. The form of the mouth suggests that the face was once in full front view, but when the piece was cut, the silhouette of the mouth and chin was continued around the edge. The other side depicts a human figure cut just below the belt. The design is symmetrical, except for the headdress, which is cut in a curious way, the edge intersecting incomplete elements of the design. The placement of the single bore is what indicates most clearly that the silhouette figure was the final form in which the piece was used.

**ATYPICAL FORMS OF THE HUMAN MOTIF: 7. Plate 71b and c.**

**Intermediate forms: 1 restored, 1 fragment. Plate 71b.**

The silhouette-plaques show a mutual adaptation between the form of the plaque and the figure. Normally the figure dominates the form, but occasionally, especially on thin plaques, there are small areas of open ground. On the two plaques on plate 71b, the form of the plaque is virtually independent of the figure and the open ground plays a more important role. Number 1 is in this respect unique. In style and quality of jade it belongs with the pebble-pendants (nos. 5, 9, and 11 on pl. 53), but the use of the arc drill is not evident, and the form of the eye, as well as the modelling of the face, links it more closely with the Classic tradition and the picture-plaques illustrated on plates 72 and 73. It may have been a

small piece left from the trimming of a larger plaque and requiring an improvised design.

Number 2 represents fragments of a thin plaque of normal proportions, which is essentially of the silhouette type but which apparently presented the figure in a dancing pose utilizing considerable areas of open ground, especially at the top, where dynamic forms need the use of an open field. The design appears to be late, and may owe its character to the rising popularity of picture-plaque designs.

**Miscellaneous profile-head figures: 2 complete, 2 restored, 1 fragment. Plate 71c.**

These are incidental pieces, pebbles, or small plaques with figures carved on an open ground. Numbers 1, 2, and 3 are clearly related to the framed seated figures on what are commonly alluded to as Nebaj-type plaques, described below, as well as, more distantly, to the drooping-mouth heads. They are made of layered, even-toned Class 3 varieties of jade, though they differ in tone and texture. Number 1 is a lustrous gray, with patches of bluish green on the surface (jade Class 3a or 3e). Arc-drilling does not seem to have been used on this figure, and it lacks the grace and surety of line one observes on the larger plaques. The relief is low and entirely without contrast. These traits may be due to inferior workmanship rather than to regional or chronological factors.

Number 2 presents a hunchback seated in profile, a very unusual pose, probably resorted to in order to emphasize the deformity. The break in this figure shows clearly the fibrous quality of fracture in the green layer of jade of Class 3b. The third piece (no. 3) is of particular interest. It is a small, irregularly shaped plaque that may once have been larger. The figure, apparently standing, was cut off just below the waist. There is a light vertical saw-mark running down the center on the face of the piece, which could have been left from original shaping but may have been a later attempt to cut the plaque into smaller bits. The features of the face of the figure are Classic, though the eye and the mouth are arc-drilled, and the rendering of the ear and the knot of the headdress is typical of the seated figures on plate 73. What is most interesting about this figure is the design of the necklace, which consists of two circular elements hanging on a cord. Two circles sometimes appear on pectorals shown on monuments of Chichen Itza and Uxmal, and the double discs are prominent on sculptured columns from Structure 6E1 at Chichen Itza, which is a Toltec-period building with a Maya inscription (Proskouriakoff 1970, fig. 15).

The two remaining specimens of this group (nos. 4 and 5) seem to have been made of inferior ma-

terial and are badly broken and decomposed. Number 4 shows a masked personage or god-figure, and may come from Yucatan or Campeche. Number 5 is somewhat more Classic in style but too fragmentary to be identified with certainty.

**PICTURE-PLAQUES: 35. Plates 72-78.**

The term "picture-plaque" is used here to designate those carvings which utilize the extended field provided by a slab of jade as background for the composition of figures more or less independent of the form of the piece. Like silhouette-plaques, they most often have a horizontal bore for suspension, but if the plaque is thin, shorter biconical drill holes may be substituted approximately where the openings of the bore would have been. Some of the plaques also have attachment-holes along the sides and at the bottom for more complex assemblages. The picture-plaque is essentially a late form, and most of its designs derive from monumental styles of carving, though the influence of earlier lapidary styles is not entirely absent.

**Nebaj-type plaques: 3 complete, 4 restored, 6 fragments. Plates 72, 73, 74.**

These plaques all belong to one school of carving, apparently derived from the monumental style of the lower Usumacinta, though not necessarily made there. They are known as Nebaj-type plaques because the first specimens to be found in situ in the Maya area come from Cache 14, Mound 2, at Nebaj (Smith and Kidder 1951, fig. 59). The figure is usually shown seated in front view, but with its head in profile, and is framed by a border of masks and scrolls. All are made of special varieties of jades of Class 3, usually cut so as to have a surface of fine green stone on gray or colorless backing. When intact, this stone is lustrous and takes a high polish, but at least one variety of this material is subject to radical decomposition. This jade is similar to some used for carvings in the drooping-mouth style, which is clearly related to the style of the plaques. Both use a tubular drill to produce arcs, although in the drooping-mouth style, the technique dominates the design, whereas in this essentially monumental plaque style, it is used only as an aid in the execution of predetermined forms and becomes conspicuous only in the rendering of some details, such as the hands of the figure, which tend to be rendered cursorily. The drilling helps to produce sharp, clean relief, but there is considerable modelling also. The headdresses of the figures tend to be elaborate, but details of the body and its ornaments are simple, and subordi-



nated to the dynamic pose of the figure and the composition of the picture.

Two magnificent specimens carved in this style (nos. 1 and 2, pl. 72) form an almost identical pair, apparently carved from a single piece of stone sawed through a vein or lens of brilliant green jade. In overall form, the two carved surfaces are approximate mirror images of each other, but both figures face to the left. There is no formal frame to emphasize the pictorial effect, but the pedestals on which the figures are seated, and the scrolls, the grotesques, and the long rows of feathers issuing from the headdresses, surround the figure and effectively delimit the space. On the back of these plaques are figures carved in an entirely different style. Their postures are rigid, and anatomical detail is not so much curative as crude. The smaller of the two figures on the larger plaque wears a pectoral composed of two discs or beads, a feature found in Toltec sculpture at Chichen Itza and also on the smaller jade, number 3, plate 71c, which is in the general style of the Nebaj-type plaques. I suspect that the crude carving is Postclassic and is later than the figures on the face. The rectangular cartouche of a face-hieroglyph on the larger plaque is a good indicator of this.

Number 1 on plate 73 is perhaps the most typical example of a Nebaj-type carving in this collection. The drill work is particularly prominent in its rendering, producing forms that link it closely to the drooping-mouth style. The scrolls are made around a small drilled pit, and the pit at the crook of the right elbow was not smoothed away but was allowed to remain. The face of the figure is naturalistically rendered, but was laid out with a drilled arc and remains essentially circular. The shape of the hands is also strongly distorted by the use of the drill. This piece was apparently broken in ancient times in at least two places and later salvaged and restored. Several pits and at least two perforations were drilled in the long break that touches the right shoulder of the figure. Another perforation is visible in the break through the headdress, with a corresponding drill hole on the fitting piece. Since the holes were drilled from the break to the back, there is no question of their purpose, though we have no way of determining when the break occurred or when it was mended.

Number 2 demonstrates a common feature of this school, a puff or rosette from which issues a tuft of feathers. It is unusual for the figure to face to the right as it does on this plaque. Number 4 is unusually simple in design and its drill work is less conspicuous, but there is a suggestion in the incomplete elements on the border that it was once larger and had been cut down. The tendency to bleed the head-

dress out of the picture, however, is characteristic of this school of carving.

With the exception of number 1, which is made of Class 3b jade, these examples are of Class 3a. Fragments numbers 3 and 5 have a less lustrous surface and no colorless backing. They are flatter and thinner, but the nature of the designs and the relief are very much the same.

On plate 74, number 1, made of Class 3d jade, and number 4, a fragment of Class 3c, are carved on rounded surfaces and perhaps for this reason are less dominated by the arc-drilling technique. The former, however, is also more static in composition and more Classic in detail than most of the plaques of this group. Another group of disconnected fragments (no. 5) is badly corroded to a dull white material.

Number 6 was acquired by the Museum some years after the other pieces in the collection, and its almost perfect state of preservation raises some doubt that it actually came from the Cenote, though records indicate that it did. Its jade is of Class 3a but has a curious milky tone that distinguishes it from other plaques of its kind. Like one of the pieces found at Nebaj, it presents the figure in full front view. The pose of the figure is rigid and static, and the border is very simple. Where the drill was used, it tends to undercut the relief, as under the chin of the face, and it is used sparingly. It is possible that this plaque represents an early stage in the development of the arc-drilled school, when the technique was not yet fully perfected.

**Other Classic figures: 2 complete, 1 restored, 7 fragments. Plates 75, 76a.**

Very similar to the Nebaj type in composition, but different in technique and material is the seated figure shown on plate 75a. Its long torso, static pose, and strongly deformed head with a long nose suggest the style of Palenque. There is a large expanse of ground space outlined by a continuous border decorated with scrolls and circles. The plaque is very thin and has no horizontal bore, but there are holes through the border for attachment, two of them grooved as if for the fastening of the main suspension cord. Drill holes made near a break show that it was broken in ancient times and later repaired. The jade is lustrous white and green (Class 2b), with vivid green color distributed in conspicuous blotches. The broken edges show blackening, as if the piece had been subjected to burning. The arc drill was not used, and the relief is soft and rounded. One might suspect that this represents a prototype of the later carvings on plates 72-74.

Number 1 on plate 75b is in many ways similar

to number 6 on plate 74. There is a similar use of the arc drill and almost identical treatment of the elements of body dress. The material, however, is different (Class 1), the relief is much lower, and the exaggerated size of the head is a specific feature of the lapidary style. Fragment numbers 2, 3, and 6 show this to have been a standard type, probably roughly contemporary to the Nebaj group but made in a different region. Number 5 is a very similar rendering of a standing figure. As on most of the seated examples, the featherwork of the headdress serves as a partial frame, continued by a simple double fillet. The double-drilled earplugs, the long hangings from the belt, and the long tassels of the beaded featherwork, all suggest an advanced date in the Classic Period. The turned-up toes of the figure are peculiar, but occur on a fragment of another standing figure (no. 4) which had a wide frame, probably decorated with grotesque masks, but in a very curative and degenerate manner. This fragment is made of dark gray stone with marked veins and spots of white. The dark gray may be discoloration, but the veining and the general appearance of the stone are not duplicated in other carvings. The jades of the other pieces are variable, but of the general Class 1 of speckled green varieties. Number 6, however, has a colorless gray backing of strongly crystalline appearance.

Three fragments, which we have been unable to restore, exhibit a more ornate style, closely allied to that of monuments. Number 1 on plate 76a is a very thin plaque on which is depicted a dancing figure. It is badly discolored, but was probably a very fine piece. Number 2 has deeper relief, with much finer detail, and strong modulation. Unfortunately, not enough of it remains to suggest the overall composition of its design. Though broken into tiny pieces, and showing blackening in the breaks, it retains a fine pale green color speckled on a white ground. The third fragment is that of another dancing figure, with a minor figure under its outstretched arm. There is an inscription on the back, unfortunately not sufficiently complete to be useful in placing the carving (see p. 205).

**Marginal and unidentified styles: 4 restored, 6 fragments. Plates 75b, 76.**

Three of the picture-plaques, plate 76b, belong to a school of carving I have called "Northern Provincial." We have no evidence of its date or its locus, and the designation given it is based entirely on comparison with some sculptures in northwestern Yucatan. The silhouette-plaque number 6 on plate 69 clearly belongs to this school also. The school is characterized by rude distortions of the human

figure and simplification of facial features and clothing. The eyes are usually strongly outlined and lozenge-shaped, and the mouths are large and with openings indicated by almost straight horizontal lines. The design of number 1 is very similar to that of number 6, plate 69, with the important difference that the subsidiary figures on number 1 face inward and form a group composition with the main figure. There is virtually no open ground, however, and the effect is almost the same as that of a silhouette-plaque. On the gray back of this plaque is inscribed a bearded figure, with almost no relief. The crude execution of this figure, which nevertheless is made with the use of an arc drill, suggests that it is later than the figure on the front and represents a decadent style. It is not unlike the figures on the reverse of the two matching plaques on plate 72, and like them, is made on an unplaned gray surface.

Number 3 is a very thick plaque made of jade Class 1a, which contains a large amount of opaque white material. It represents a seated god-figure or masked personage, with a human figure on each side, highly distorted in proportions, and dressed in very simple clothing.

Number 2 is made of very strongly speckled jade of poor quality and is carved on both sides in the same style. The single figure has its legs bent and placed far apart so that the end of the loincloth does not overlap them. This manner is noted on some of the stelae from the Puuc region but also on silhouette-plaques in the Classic style. On the opposite face, two figures face each other. Their torsos are very thin, and their arms, held akimbo, are so crudely drawn that one can barely recognize the wristlets and hands. The figures wear skirts open at the front.

Probably related to this style are two partially reconstructed fragments, numbers 1 and 3 on plate 77. Little is left of number 1, and the articulation of the fragments is uncertain, but the disproportion of the torso and the legs is very evident. This plaque was evidently recarved, but the design on the other face is not clear, and the inscribed glyphs unfamiliar. The second fragment, number 3, is from a small, irregularly shaped plaque, apparently also made from an earlier carving, since there is a vertical bore that serves no useful purpose. The figure holds a dynamic pose and is distorted in much the same manner as the minor figures on the larger plaques. The jade is very green in spots, but only lightly speckled with green in others. Number 2, fragments of a plaque made of strongly blotched green and white jade, is carved entirely in shallow grooves with much distortion of the human form.

We find a different type of distortion on a figure



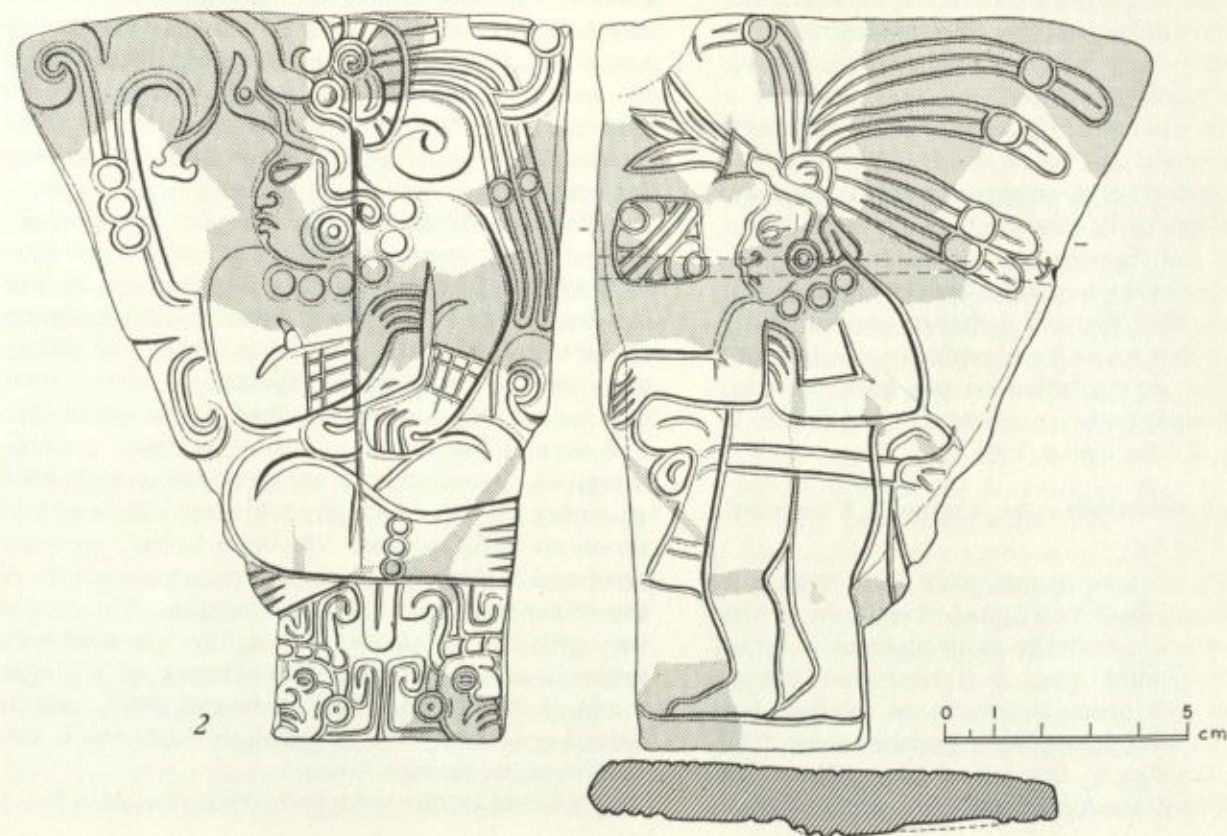
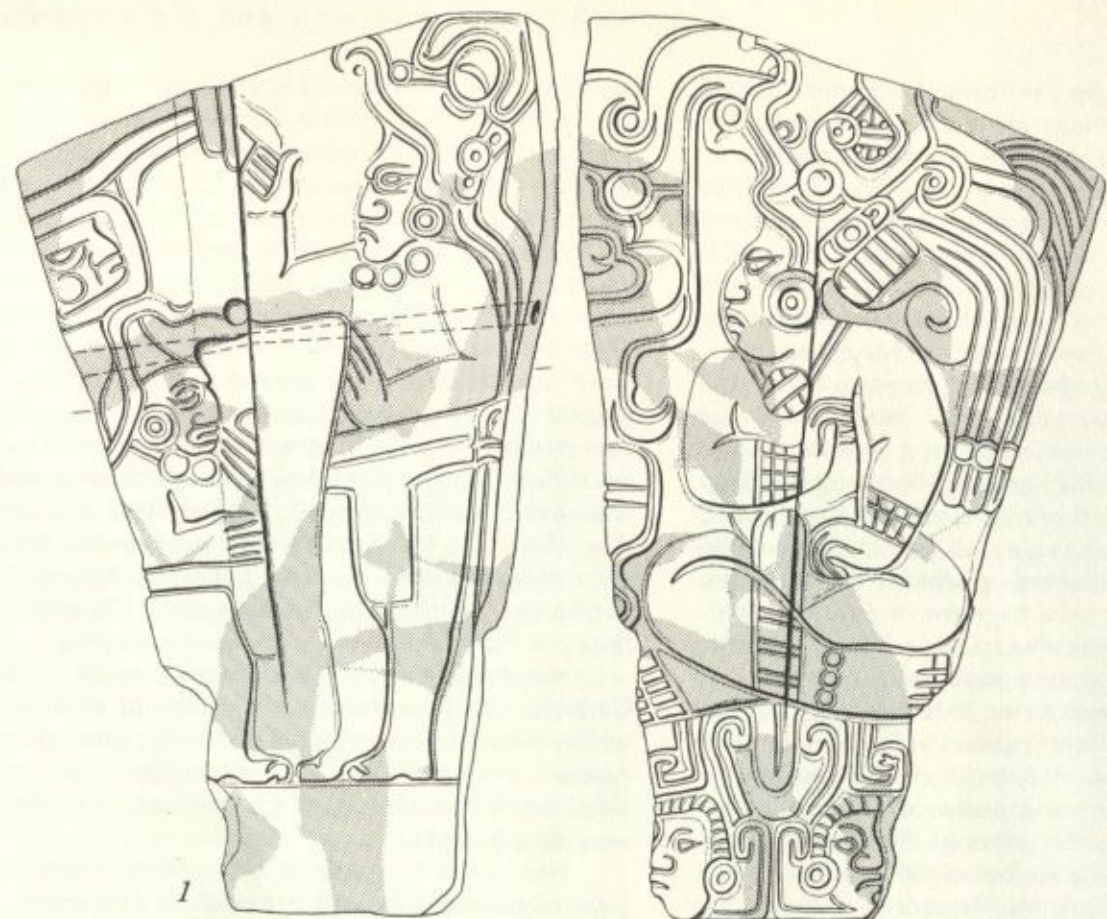


Plate 72. Two matching Nebaj-type picture-plaques with carving on the obverse (see p. 175).



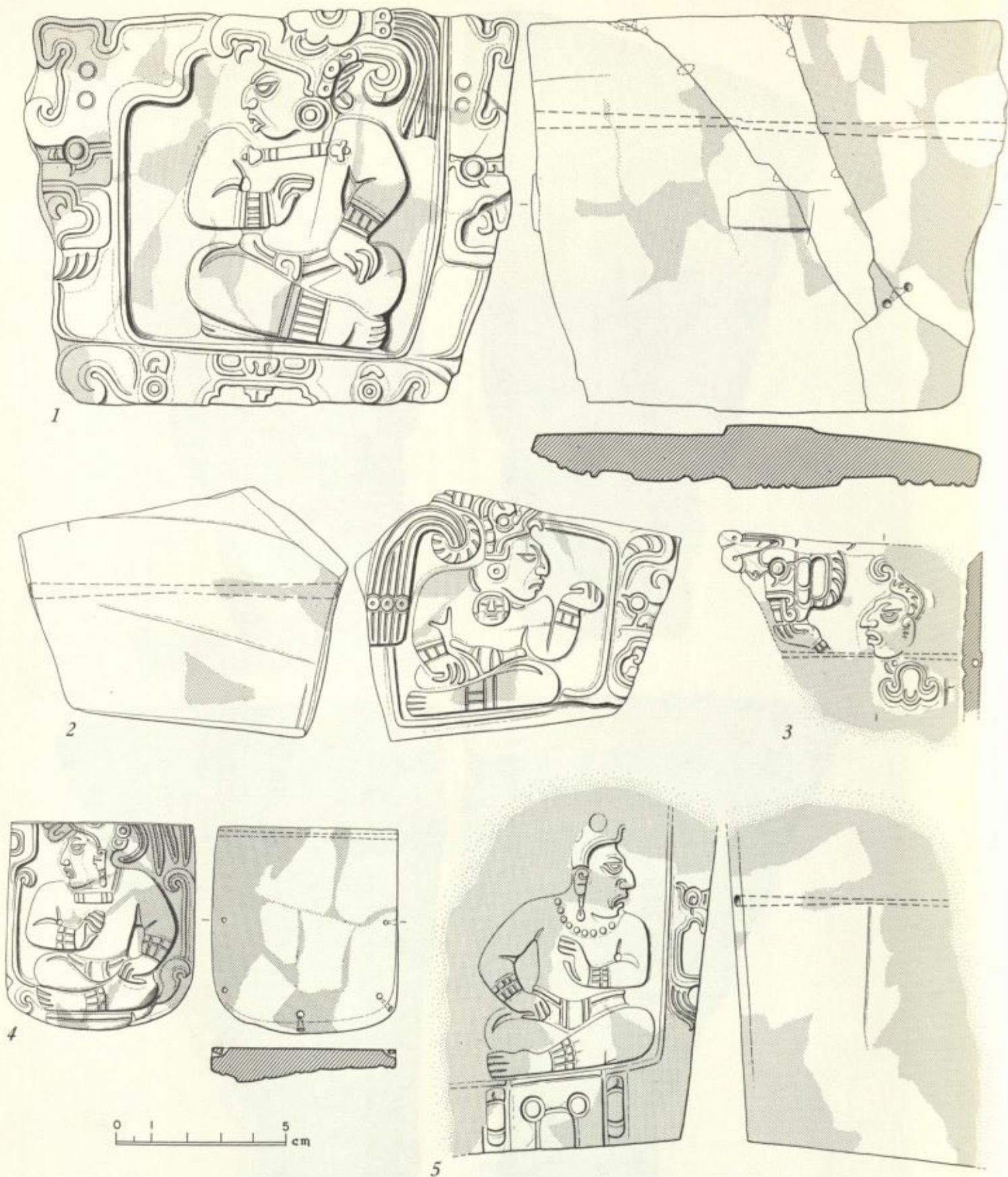


Plate 73. Nebaj-type picture-plaques (continued) (see p. 175).



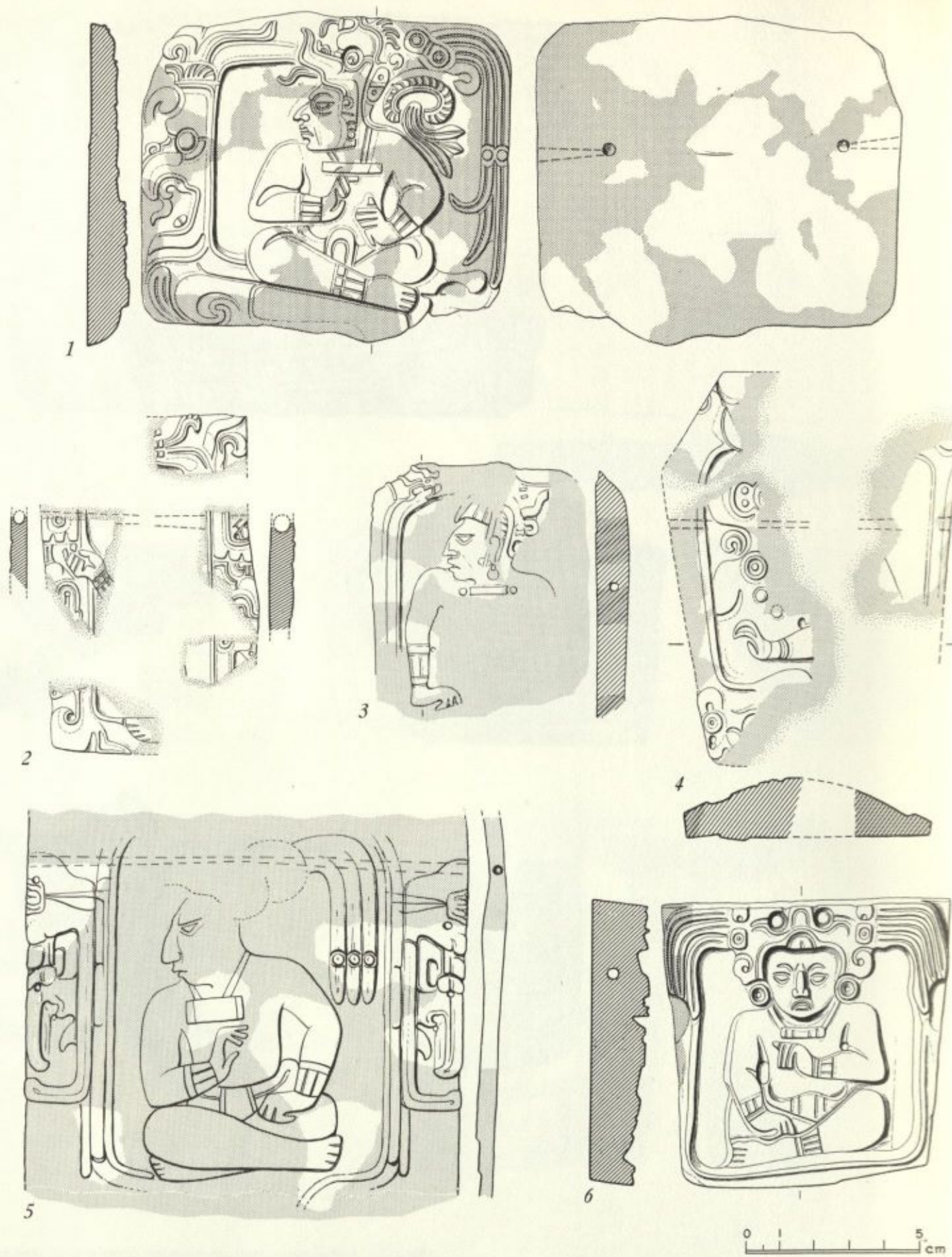
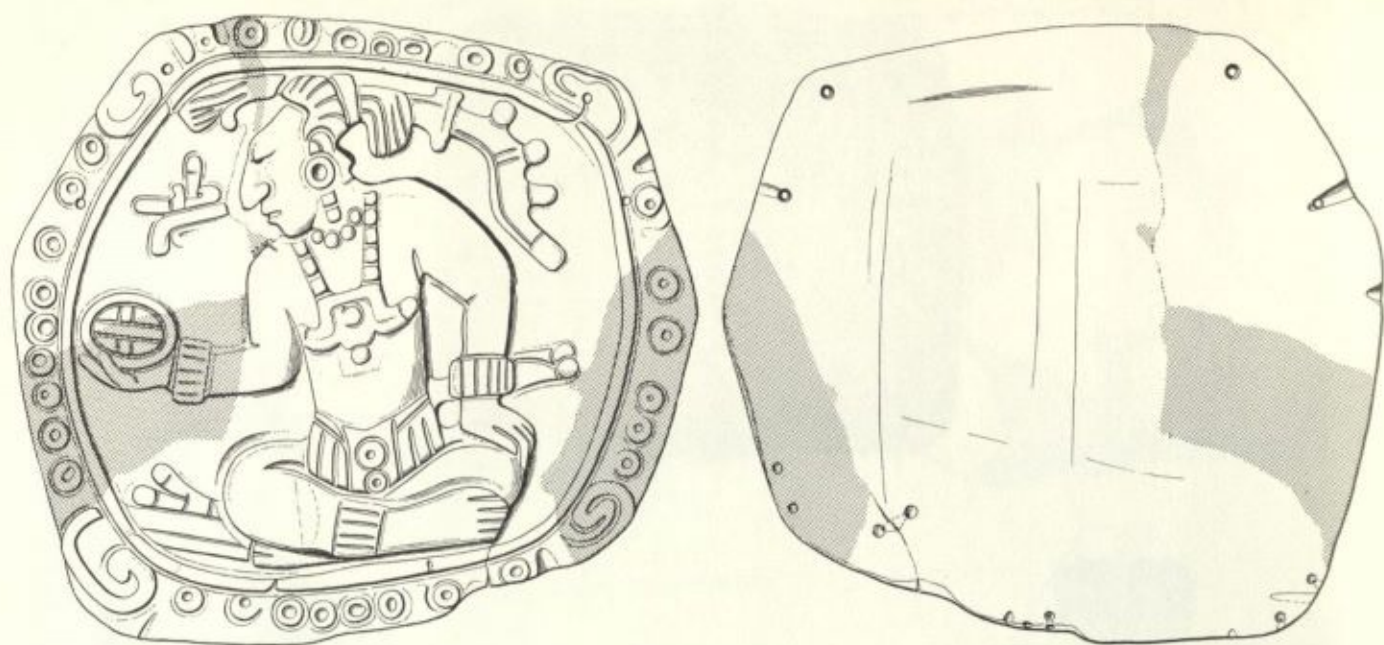
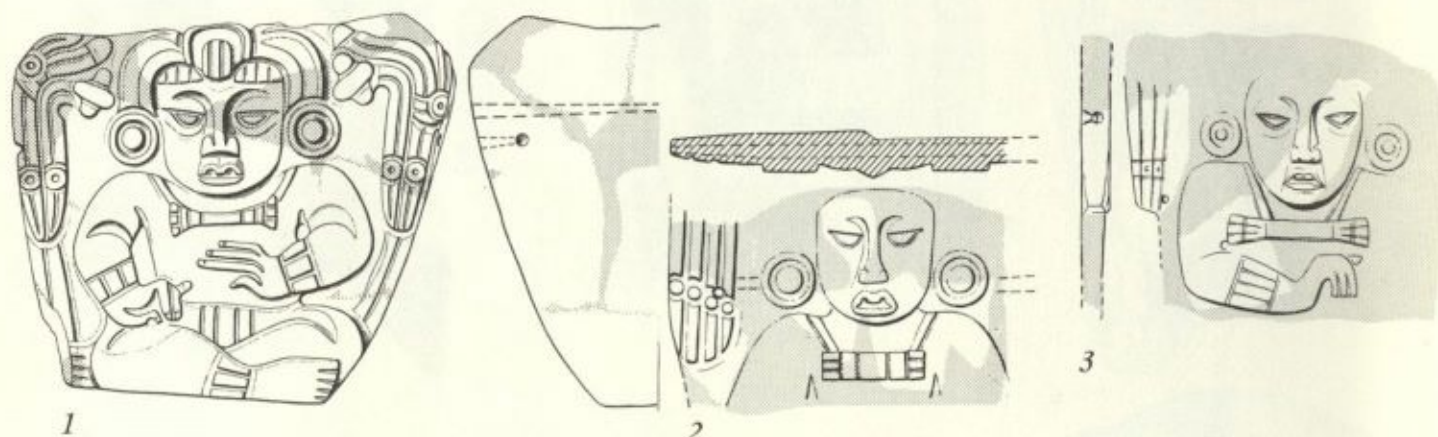


Plate 74. Nebaj-type picture-plaques (continued) (see p. 175).





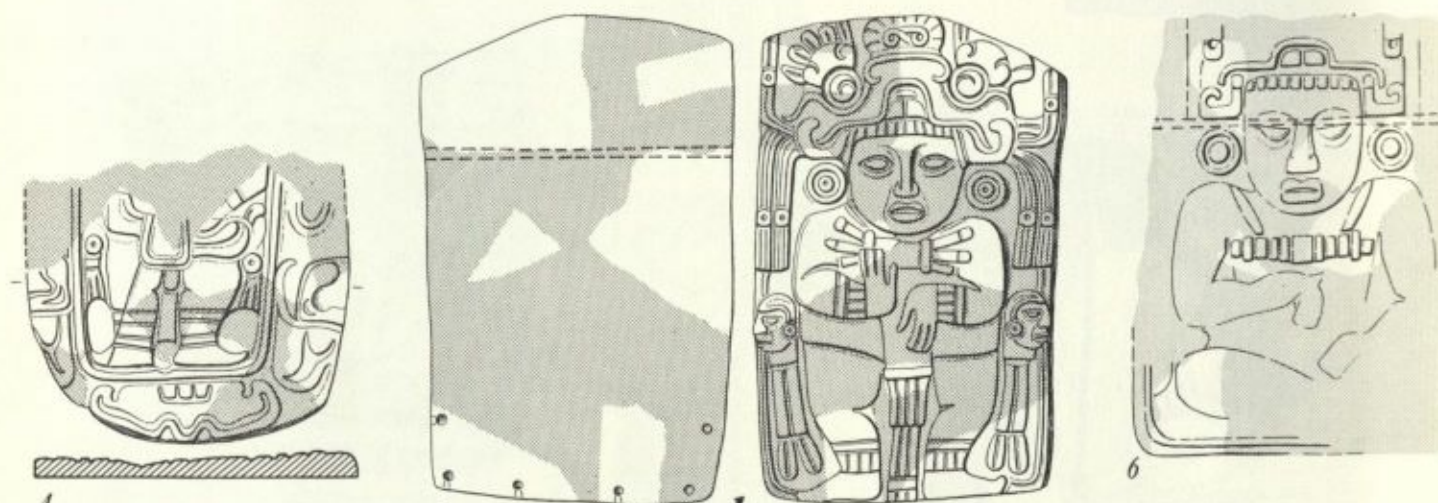
*a*



1

2

3



4

5

*b*

6

0 1 5 cm



*a*



*b*



Plate 75. Classic picture-plaques: a. framed seated figure, Palenque style (?); b. other Classic plaques and fragments (see pp. 175-177).



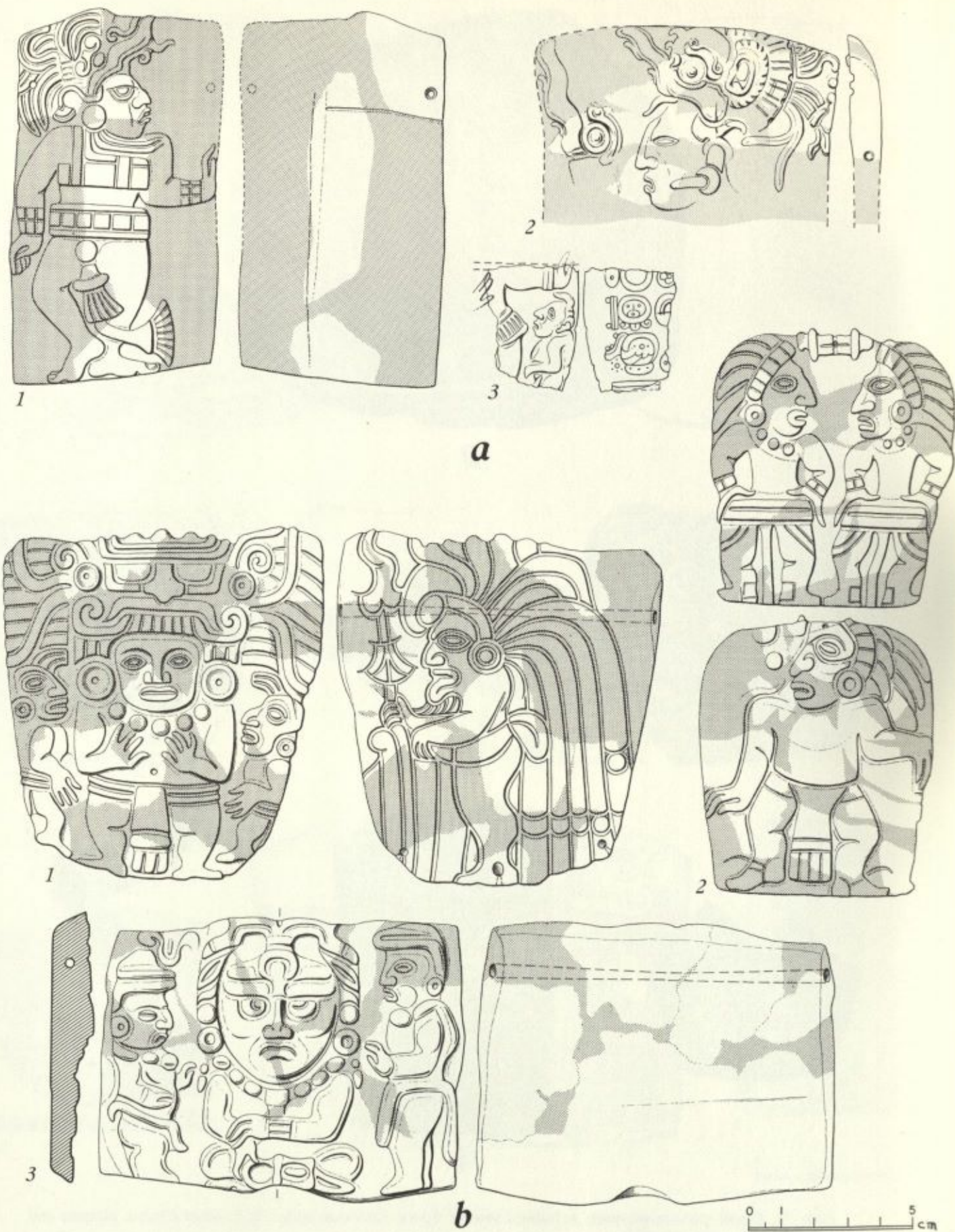
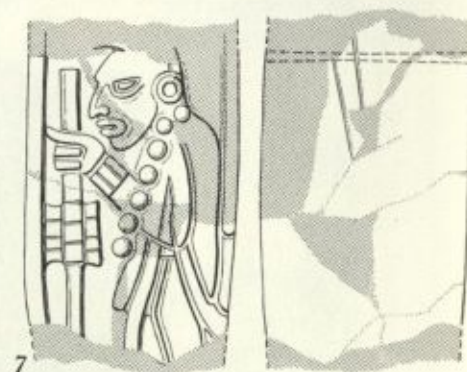
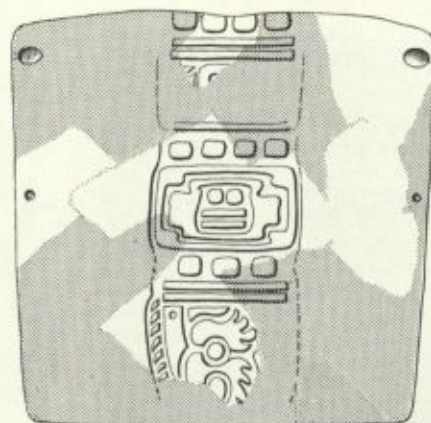
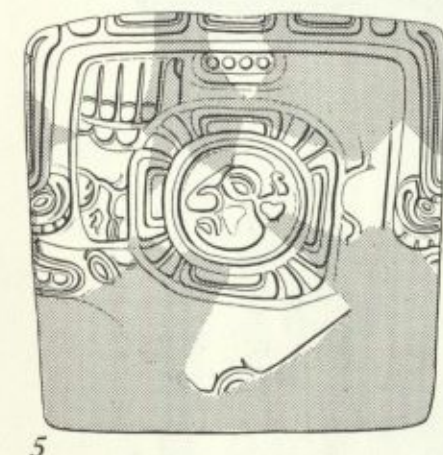
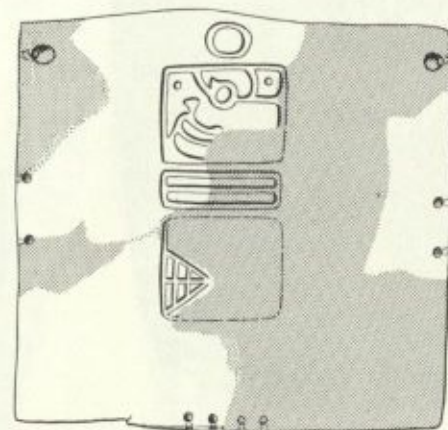
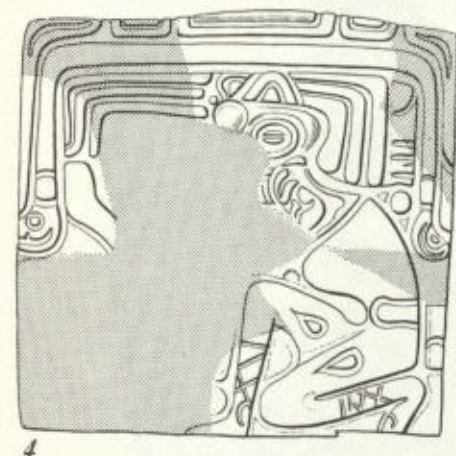
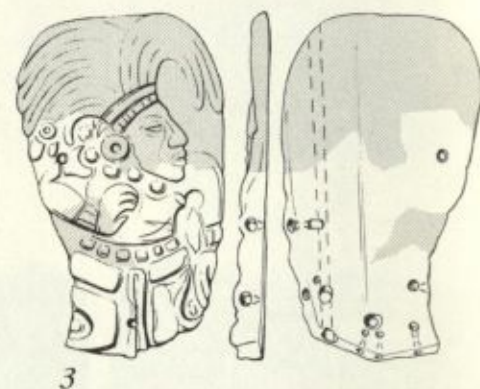
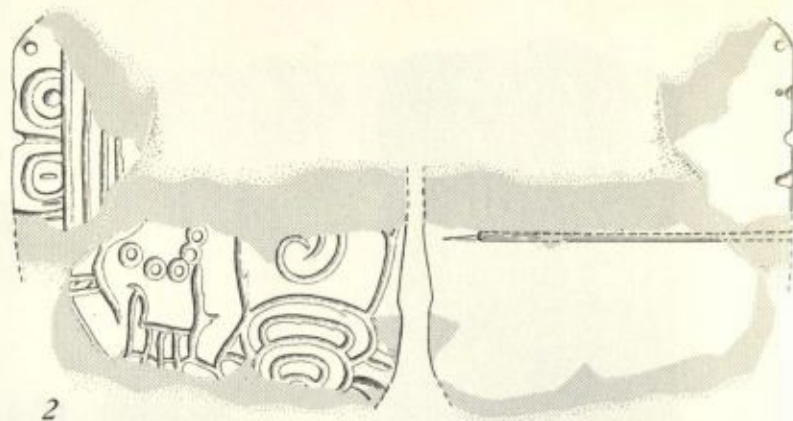


Plate 76. Classic plaques (continued); b. marginal plaques, "northern provincial" style (?) (see pp. 175-177).





0 1 5 cm

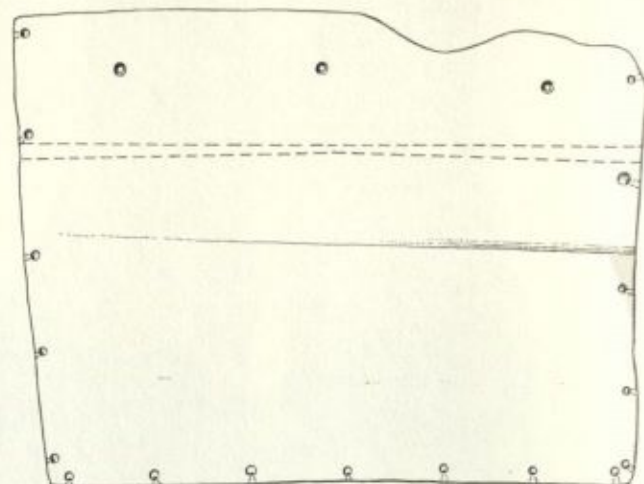


Plate 77. Picture-plaques, marginal and unidentified styles (continued) (see pp. 175-177).

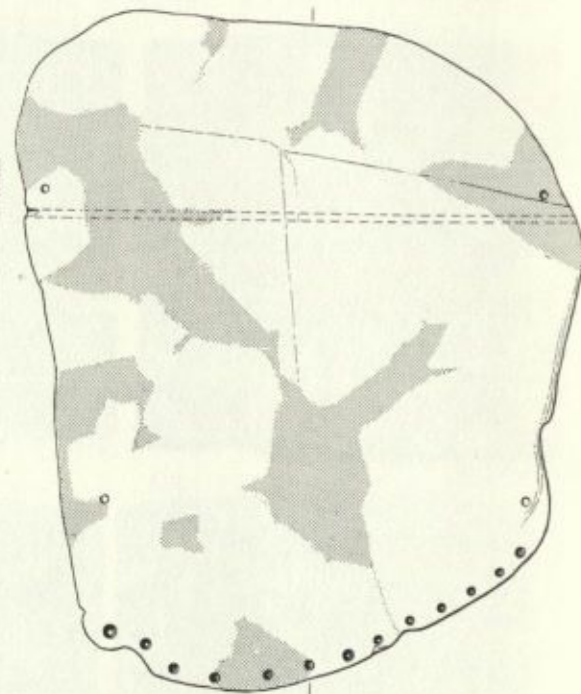




*a*



*b*



*a*



*b*

Plate 78. a. Toltec picture-plaque; b. picture-plaque in the Esquintla style (see pp. 175, 192).



on one of a pair of incomplete and enigmatic plaques (nos. 4 and 5, pl. 77). The very slender proportions of the kneeling figure on number 4 and the indication of leggings made of crossed straps is reminiscent of figures on the jambs on Structure 2A3 at Kabah. The figure has strange markings on its body and may be masked. The mate to this plaque features a quatrefoil design in the center enclosing a face that could be animal or human. There seems to be at least one animal figure in the surrounding design, but it is difficult to make sense of the surviving fragments. There is a row of carved hieroglyphs on the back of each plaque. The glyphs are unfamiliar to me but resemble some of the characters in obscure scripts one finds in the northern area. The technique on these plaques and the material (Class 1b) resemble those of Toltec designs, and I believe they could have been made in Toltec times somewhere in the northwest.

Another piece that strongly suggests Puuc provenience and is probably related to the Northern Provincial style is number 6. The relief is low and monotonous, and the rendering of the hands is stylized in a way that recalls gestures seen on figures of late incised pottery from Altar Verapaz. The body is incomplete, but the lower edge is not broken and it is possible that the piece was once larger, and later was cut or broken and refinished. Number 7, a thick but narrow plaque of fine green jade, shows a profile figure holding a staff. It is difficult to place its style, but it is certainly not Classic in conception and may be a Toltec period piece.

**Toltec Plaque: 1 complete. Plate 78a.**

The carving on this plaque consists only of grooves. Where there are areas of background, one edge of the groove is smoothed down so that, although there is no actual relief, there is a clear distinction between ground and figure. The picture depicts a Toltec warrior armed with a spear-thrower and two darts, seated on the body of a serpent that forms a partial frame around him. Around his waist he wears a belt with radiating points, suggesting that he may be a personification of the sun or of the planet Venus. The brilliant color contrasts of white and green in the jade (Class 2b) interfere somewhat with the effect of the delicate carving, but the workmanship is superb, and the piece is without doubt one of the most spectacular finds in the Cenote. Although it is nowhere more than 5 mm thick, it is pierced from edge to edge with a very fine horizontal bore. This bore may very well have been too fine for practical use, and there are in addition three drill holes near the top edge, and others on the sides and lower edge. The drill holes at the top are carefully placed,

one being precisely in the middle of the serpent's eye. I question that this piece was made at Chichen Itza. The technique is the same as that of the feathered serpent (pl. 64b, no. 6), but these are the only two pieces on which it occurs, and neither piece exhibits the drill work that characterizes the Toltec beads, globes, and rings found here. Both pieces were probably imported, although up to now no such work has been observed in the Mexican highlands or elsewhere.

**Esquintla Plaque: 1 restored. Plate 78b.**

The style of this plaque is unmistakably related to that of rock carvings found on the Pacific slope of the Guatemalan highlands in the vicinity of Santa Lucia Cotzumalhuapa. A human figure is depicted holding a plant that is very probably cacao, the main source of wealth in this region in ancient times. The facial features of the figure are characteristic of the Esquintla style, particularly the sharp chin, prominent brows, and sharp creases in the cheeks that give the face a stern, grim look which contrasts with the normally serene expression of Maya faces. Characteristic also is the position of the feet, which are turned into the plane of the carving so that all five toes can be seen. There seems to have been a hieroglyph in the right upper corner, now mostly destroyed, followed by a column of circles signifying a number. This was a common manner of recording names of days in the calendar of the region, but it is very probable that the day name is not calendrical and gives the name of the figure. No jades of this character have turned up in the recent excavations at the Finca Bilbao conducted by Lee Parsons, but if the plaque was not made in that region, the artist was certainly one of the sculptors of the many monuments found there. Most of these monuments date from the Late Classic Period, and some may belong to a period of contact with the Toltec.

The picture-plaque seems to have been almost exclusively a Late Classic Maya form for, with the exception of the Toltec and Esquintla pieces, all such plaques can be attributed to lowland Maya areas and none seems to show early traits. It is remarkable that no plaques of this kind have been found in the excavations of lowland sites, but perhaps this is due to their great worth in pre-Columbian times and the heavy robbing of tombs during the period of decline and abandonment of the Classic cities.

**MISCELLANEOUS CARVED FRAGMENTS. Plates 79-85.**

There are roughly 2500 fragments of carved pieces that could not be fitted into any meaningful assemblage. This means that the depths of the Sacrificial

Cenote still contain the remains of many jade carvings that some day may be recovered and restored. Many of the fragments can be recognized as pertaining to types already described here, though almost all exhibit interesting variations of detail. Plates 79 through 85 illustrate some of the fragments which show enough design to indicate their general nature.

Numbers 1 to 4 on plate 79 are fragments of pendants representing human heads that could not be restored with any confidence. Photographs of these fragments appear on plate 80 (nos. 1 and 2) and on plate 81a. The two fragments of number 3 (pl. 79) are shown in reversed assemblage on the photograph, since we were never quite sure how they were articulated. Plate 81a shows other fragments of heads in round relief, and 81b, of faces in lower relief. On plate 82a there are thin fragments showing faces and headdresses, and others appear in figure 10, and on plate 80, numbers 8-12. Most of these pieces and the bird forms (nos. 14-16, pl. 80) are well within the range of those that have been restored and show no very original features.

There are other fragments, however, that cannot be readily identified with known forms. Number 9 on plate 79 (no. 23 on pl. 80) is part of a design that seems to have no counterpart among restorable pieces. It might almost be interpreted as a hieroglyphic form, possibly Thompson's 680, the sign of the black God M of the codices. Number 10 on plate 79 (pl. 84b, upper left) is part of a thick plaque-fragment carved entirely with shallow grooves and showing a formalized grotesque human figure which recalls some representations on highland pottery vessels and is entirely inconsistent with lowland lapidary canons. The jade of this piece is also unusual, a subdued mottled green throughout that is not closely matched in Classic pieces. Another very thick plaque (no. 13 on pl. 79, also shown on pl. 84b) has a colorless backing and a speckled green surface. It is carved in very low relief, showing a profile face with an unusual forward-jutting chin. The fragment fits neither into the category of silhouette-figures nor into that of picture-plaques and remains an enigma.

The jade of numbers 11, 12, 14, and 15 (photos on pls. 81b, 83a, and 84b) is radically decomposed and shows no surface luster. It is difficult to be sure which of these pieces belong together. Numbers 12 and 15 are totally without color and have a dull rough surface (Class 15a). Numbers 11 and 14 show vivid but dull green patches and are both warped and somewhat glassy where they are broken (Class 15b).

Number 16 is a suggested reconstruction, put together from small, mostly disconnected fragments and is probably not wholly accurate. The themes,

however, are clear. On one face of the plaque is a standing figure of a Maya man, with a bird on one side and a dwarf on the other. Underneath is a single row of hieroglyphs. On the obverse is a double line of hieroglyphs below a seated figure leaning (probably somewhat less than we have shown) to its right. All lines are incised rather than grooved, and there is no relief. Deep horizontal saw-marks can be seen on both faces, and the thickness of the plaque varies from 7 to 1.5 mm, which may account for its very fragmentary condition. The remnants of the inscription are discussed on page 207, and photographs of the pieces are on plate 80.

Among other fragments that show rare motifs are silhouette fragments of jaws of serpents or masks (pl. 80, nos. 18 and 22), a pair of hands (pl. 80, nos. 19 and 20 and fig. 11) flat but silhouetted and carved on both sides, with a small perforation in the palm, a full round carving of what appears to be a scorpion's tail (no. 24), and a tiny arrowpoint (no. 25). Three fragments on plate 83a at the lower right are of some interest. They are made of grayish, undistinguished stone, and are thick and convex on the underside. The two below may be parts of a triangular pendant and a bust; that above shows part of what may be a prone figure in profile, and seems to be a unique design. Plate 84b is a miscellaneous group of thin plaque fragments. At the left is part of a silhouette-plaque and below, fragments of small tau-shaped ornaments. At the upper right is part of a Nebaj-style picture-plaque, which had been cut. It is placed incorrectly on the photograph — the cut should be at the top to place the figure in its original seated position. Below it, at the center right is another such trimmed fragment.

On plate 84a are shown some very thick pieces carved in high relief. It is strange that these massive pieces should appear as isolated fragments. The two at the upper left are made of opaque green jade of Class 3, as is the fourth in the row. The designs, however, do not yield a ready reconstruction and present some unknown features. In the row below is a very unusual fragment of something that looks like a very thick ring with a flange on which is an incised design. There are two fragments of apparently isolated hands, a tip of a shell, and at the upper right a very thick fragment of some large unidentified object that shows no carving at all.

Plate 85 is devoted to two-sided carvings, many of which are masks of the type illustrated on plate 63b. There are, however, other motifs that we have been unable to reconstruct. Of particular interest on plate 86a is a group of cutout designs contained in narrow flat rings. These very fragile forms apparently broke into tiny pieces, many of which are missing,



# JADES FROM THE CENOTE OF SACRIFICE

for no two seem to fit together.

The illustrated fragments represent only a small part of the total collection, but they make it quite clear that we have not recovered the full range of styles and designs that had been deposited in the Cenote. How much is still to be learned from this vast depository of shattered offerings is difficult to judge. The work of recovering material still left in the silted depths presents formidable difficulties, as has been shown by recent attempts to drain the Cenote. Assembling such fragments as can be recovered is perhaps even more discouraging, for the results often do not justify the time and effort. Never-

theless, there is probably a great deal still to be learned from disassociated pieces. Most rewarding, perhaps, would be a mineralogical study of the material that could reveal the range of sources available to the Maya and the possible loci of different styles. An understanding of the process of decomposition could correct our very rough classification of jade varieties and permit comparison with material found in a better state of preservation. Such studies, however, cannot claim priority today, and must be left to future generations, which may have more leisure to indulge private interests, with no immediate regard for social relevance or for practical aims.

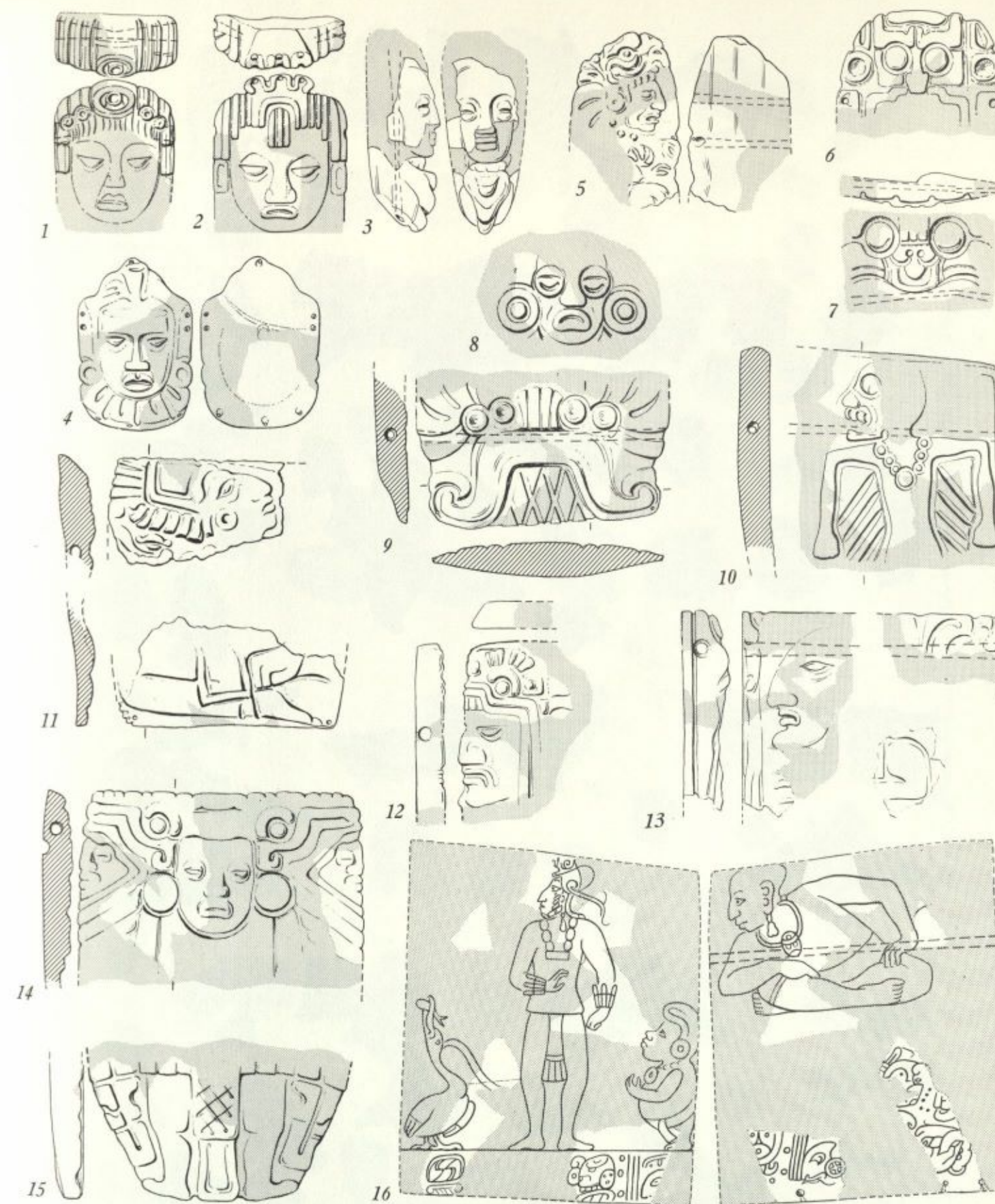


Plate 79. Partial and tentative assemblages of carved fragments (see p. 193).



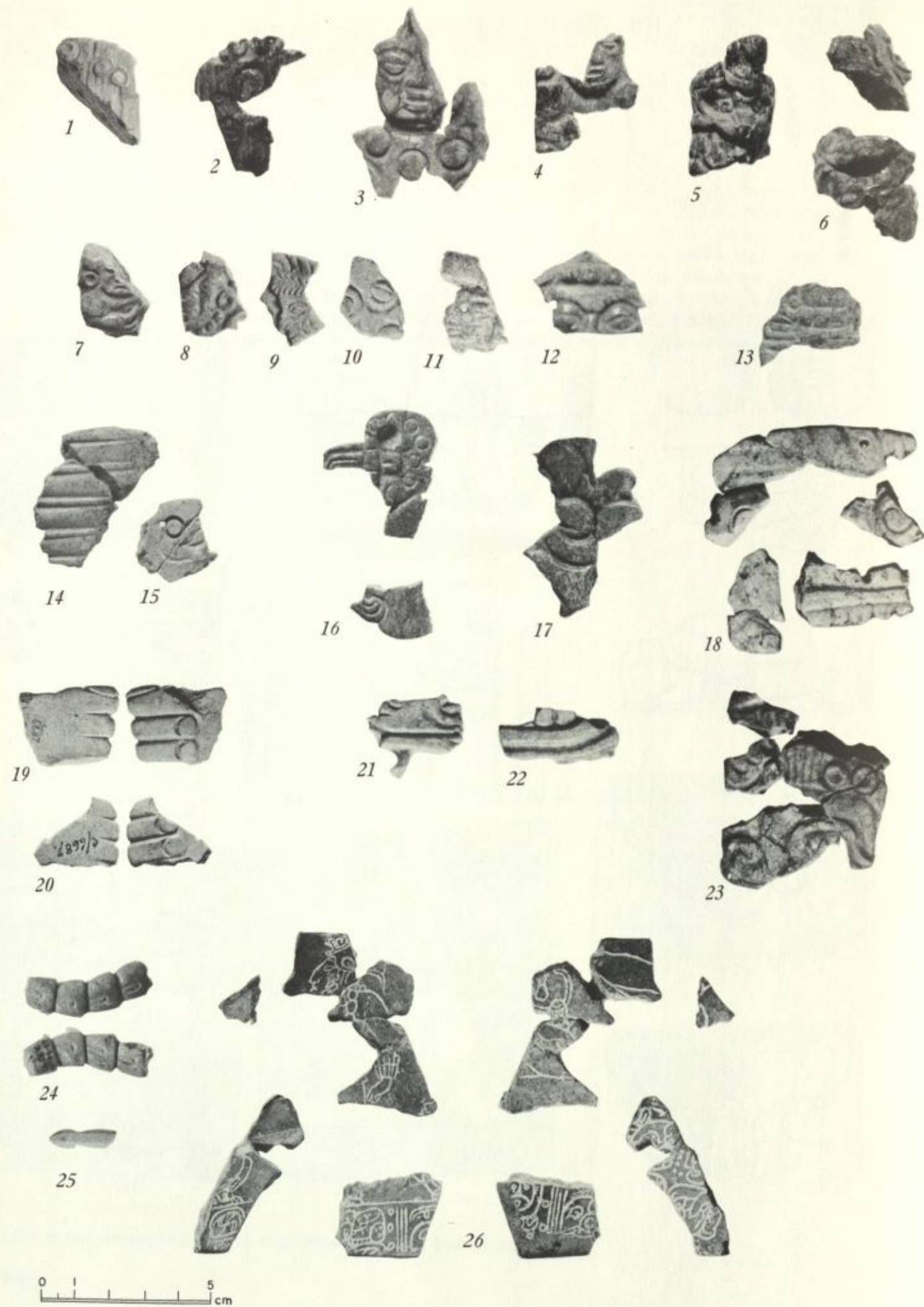
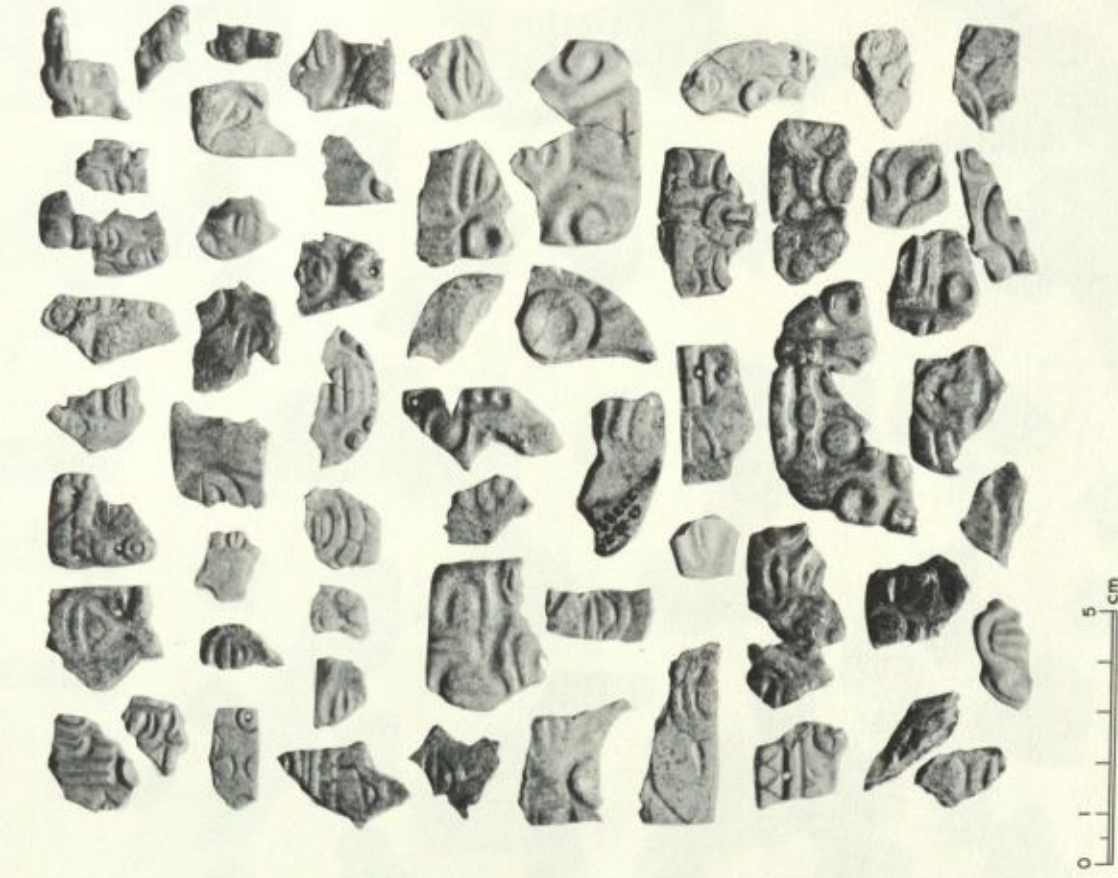


Plate 80. Miscellaneous carved fragments (see p. 193).

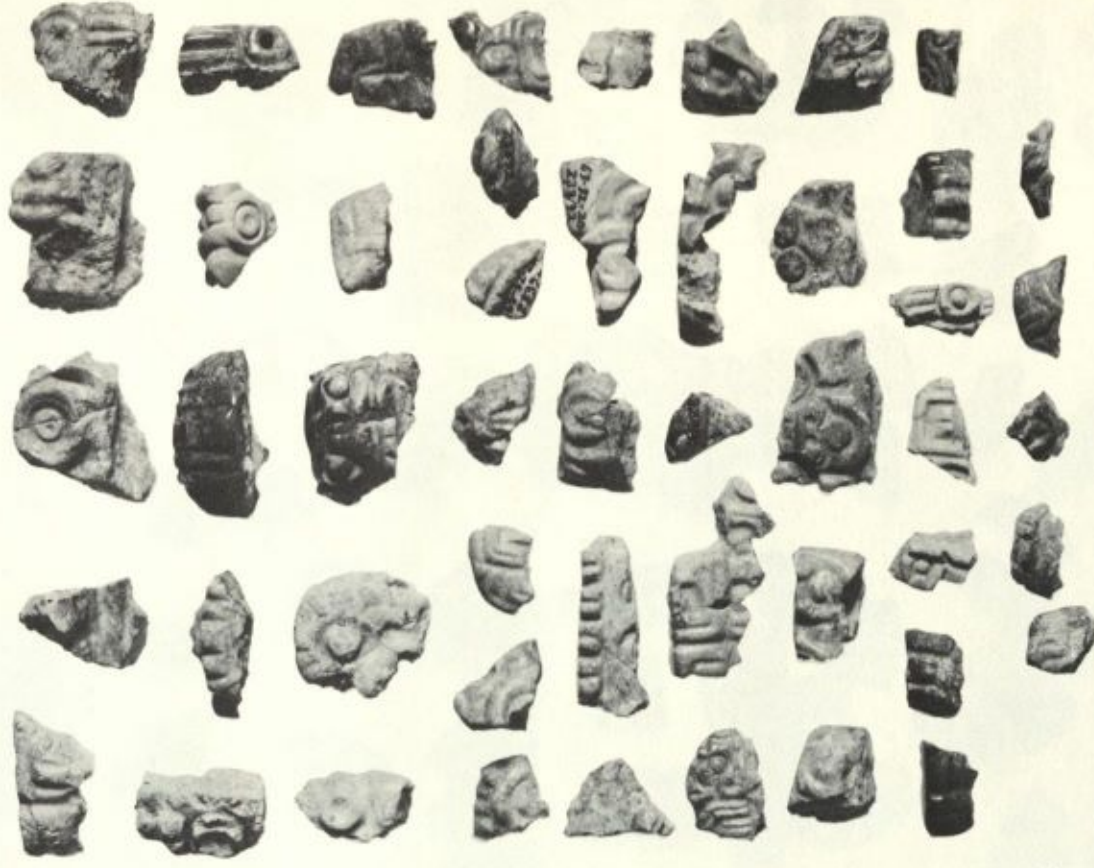


Plate 81. a. Fragments of human faces in round relief; b. fragments of human faces in low relief (see p. 193).





a



b

Plate 82. a. Thin, flat fragments with human faces and headdresses; b. fragments of headdresses (see p. 193).



a



b

Plate 83. a. Miscellaneous fragments, mostly picture-plaques; b. thin, flat fragments, miscellaneous motifs (see p. 193).



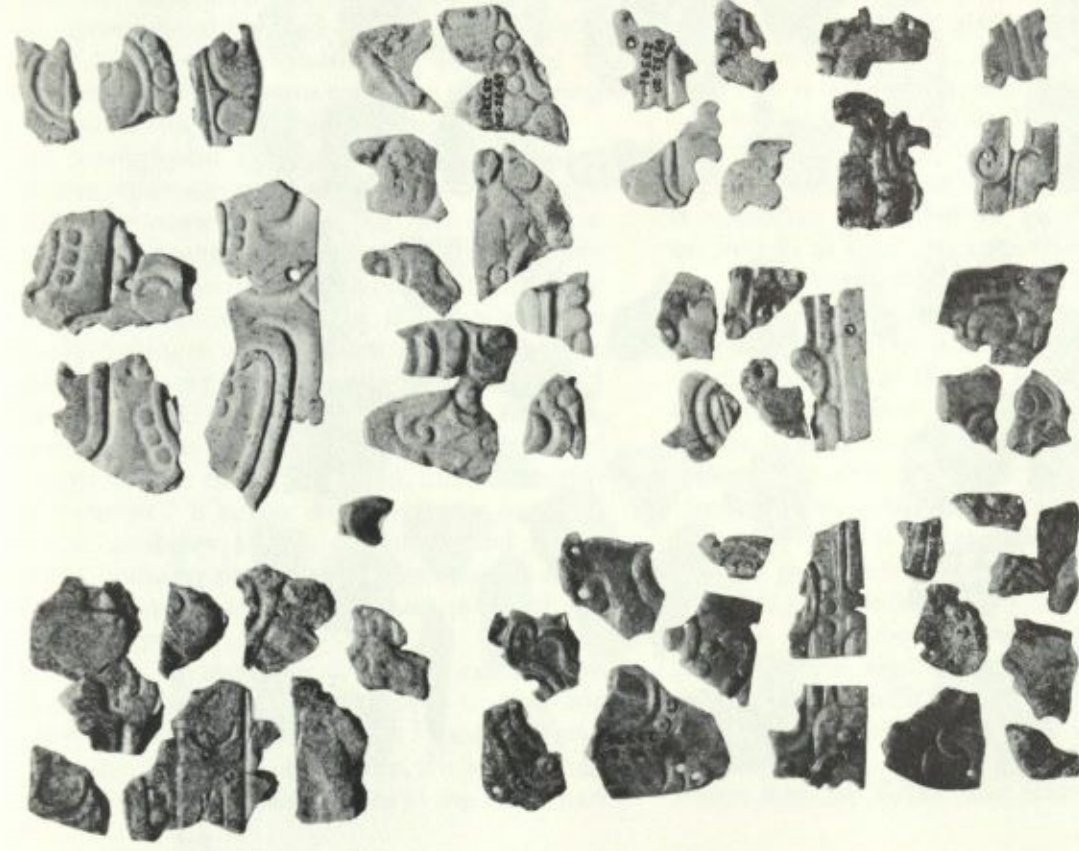


*a*

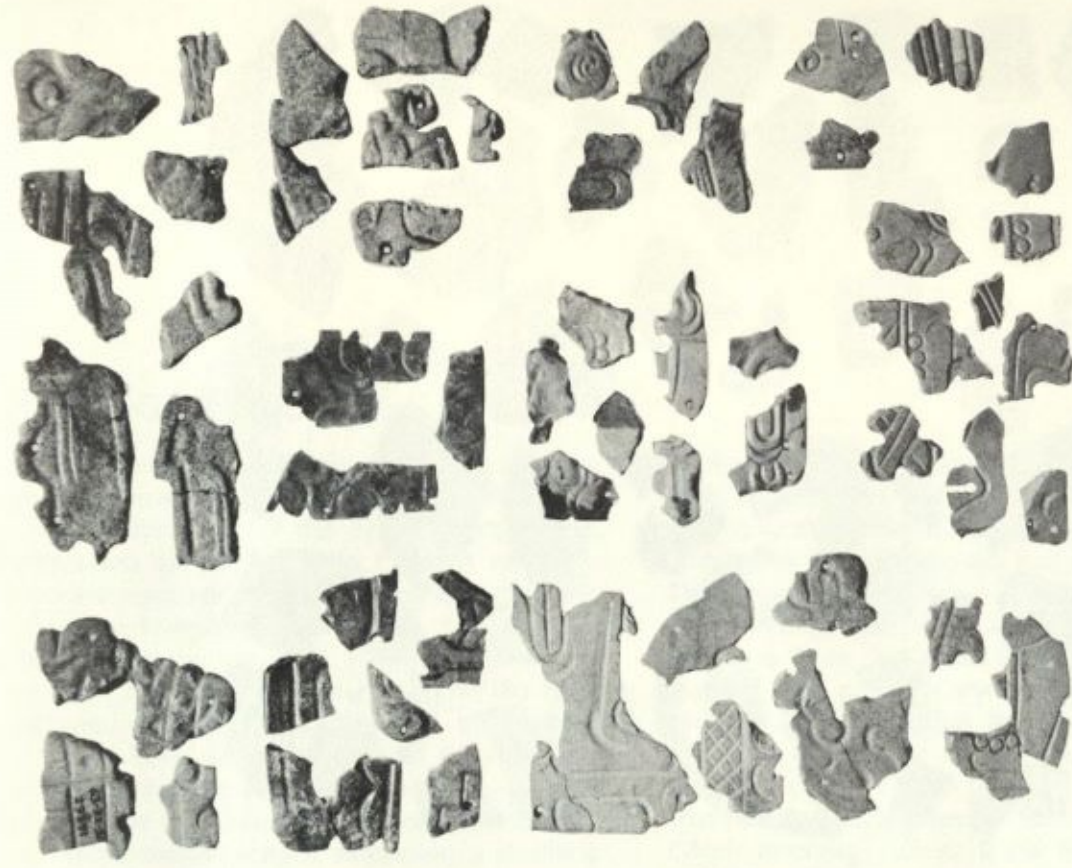


*b*

Plate 84. a. Unidentified thick and round-relief fragments; b. fragments of thick plaques (see p. 193).



*a*



*b*

Plate 85. a and b: Fragments of two-sided carvings (see p. 193).



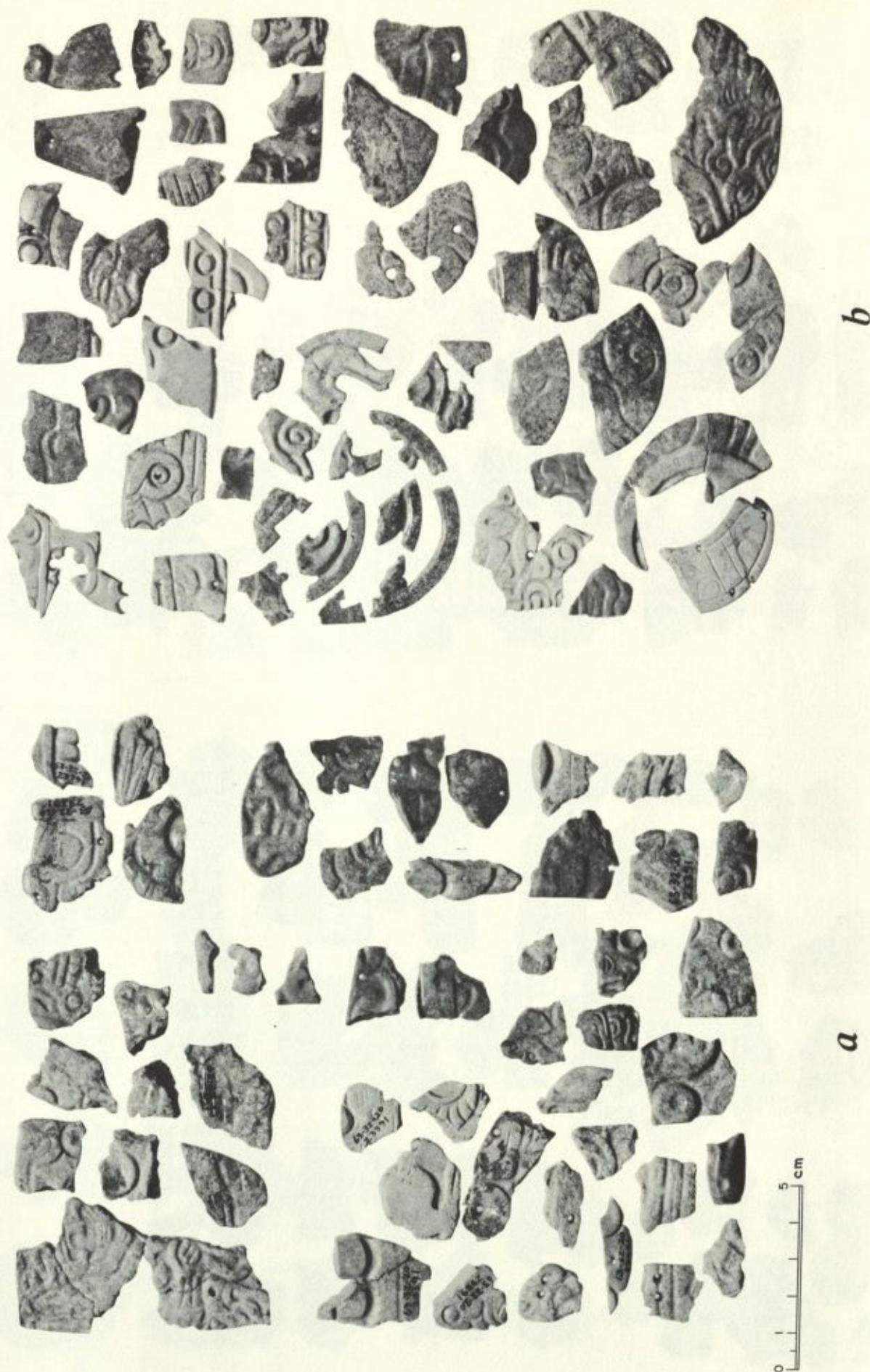


Plate 86. a. Fragments carved on both sides, but with different designs (recarved pieces); b. various unclassified fragments (see p. 193).

## V HIEROGLYPHIC INSCRIPTIONS

In the hieroglyphs of our collection we can distinguish three entirely disparate scripts: the script of the Maya, the script of the Esquintla style, and the script used by the Toltec of Chichen Itza. The latter two are represented only by single hieroglyphs which form an integral part of carved compositions. The Maya script, on the other hand, occurs in the form of brief texts, normally inscribed on the back of sculptured pieces. The calligraphy of most of these texts is very similar to that of Classic Maya monuments, but there are conspicuous exceptions, and one may be led to suspect the existence among them of independent scripts. However, a similarly wide variety of styles can be observed in monumental inscriptions of northern Yucatan, and though here we find somewhat different practices in calendrical notation and many characters that have no close analogues in Classic texts, the scripts of the northern area are generally considered to be merely stylistic variants of Maya writing, identical to the writing of Classic times in system and in referents and differing from it only in subject matter and form.

The hieroglyphic writing used by the lowland Maya of the Peten was relatively uniform over a large area and over many centuries, so that dating and placing Classic inscriptions precisely is difficult without the help of calendrical notations, and especially so when only small fragments of the texts are preserved. Nevertheless, we recognize a strongly archaic character in two texts in this collection, numbers 1 and 7 in figure 12. Both are inscribed on large tubular beads of the sort shown on monuments as being worn on the chest (pl. 45, no. 2). The inscription on number 7 is largely destroyed, but on number 1 it is probably almost complete, and shows clearly the character of the script, even though none of the hieroglyphs can be read, and many of the signs are strange.

Six glyphs arranged in a vertical column are preserved. The opening glyph appears to be a tun sign, with certain peculiarities such as the lack of a border on the upper half of the sign, the substitution for the usual circle and corner lines in the lower part

of the glyph of two small ovals, and the peculiar suffix of two lines diverging from the center. Above this sign, there were four U-shaped elements, of which only two remain, and part of a third. Although Thompson's affix 136 is similar, the U-elements of this affix are normally turned toward the main sign, not away from it, and the two signs are probably distinct. It is possible that the four U's should be read as a numeral, but this, too, seems unlikely, since the next glyph is preceded by two circles, a more normal numerical notation. A third possibility, that this glyph is a primitive form of the Introducing Glyph referring not to Initial Series but to some other count, is worth considering, though also very doubtful. The glyph that follows is partially destroyed, but seems to have had the coefficient "2." Its superfix contains the U-form and has no clear analogue in Thompson's list of affixes. The main sign again features the U, enclosed in a cartouche and partly surrounded by a fillet ending in two scrolls. This sign is somewhat reminiscent of Thompson's 680, the name glyph of God M of the codices.

The third glyph presents features that look deceptively familiar, but its identification is difficult. It resembles somewhat the glyphs at C19 and G15 on Stela 31 at Tikal, the latter transcribed by Thompson as 617:126:360? The scrolls encroaching on the main sign on the left, however, suggest that this sign may be T-565a. The prefix to this sign stands at the right, instead of at the left as is usual, and it is evident from the fourth and sixth glyphs, which contain human heads in profile, that the entire column faces to the right. The prefix is a bracket containing two circles and is probably to be read "u" (T-1), though its central notch is either missing or obscured by the broader grooves of the overlying design.

This prefix is repeated in the next glyph in combination with a human head. Together these signs prefix an oval sign containing the U-element, followed by the suffix T-88. The fifth glyph contains unique graphemes, and no part of it can be related to Thompson's list, except possibly the superfix which may be T-124. The main sign seems to be



some sort of grotesque head or skull, but the triangular arrowpoint and the postfix, a diamond with four attached circles, are forms unknown elsewhere in the Maya script. The sixth and last surviving glyph is again prefixed by a human head, but its form is not clear because of a break in the stone at this point. The superfixed heads do not appear to be numerical. They are more probably determinatives with reference to names of gods or men, analogous to the feminine heads that in later inscriptions seem to denote names of women.

If the second glyph in the column, with its coefficient of 2, refers to a date, and the third designates an occasion, action, or event, appellative glyphs may be expected to follow. The human profiles and the highly rare elements of the fifth glyph do indeed suggest that the last three glyphs either name or describe a personage, tribe, or deity. Thus, although the specific glyphs of this inscription are unfamiliar, the general sequence of forms is consistent with the character of later Maya inscriptions, and there is little question that the script is essentially of the Maya tradition.

My tentative opinion is that this script is Proto-classic or even Late Preclassic in date. The closest analogue to its style is that of the inscription on the well-known jade flare from Pomona, British Honduras (Kidder and Ekholm 1951, figs. 2, 3), which was found with pottery best ascribed to the beginning of the Early Classic Period. The scraping down of small areas that normally would be hatched or left plain, the distortion of the mouth, suggesting buccal masks, and especially the rendering of the eyes, which are lozenge-shaped with a small pit in the center, like those of the bib-and-helmet style, are characteristic of both inscriptions. There are also some parallels with the inscription on the Leyden Plate: the omission of the border on the upper half of the tun sign, the three-part superfix of the fifth glyph, very similar to that of the Initial Series Introducing Glyph on the Leyden Plate, and the use of U-shaped elements.

The glyphs of number 7, figure 12, are less cursive, but probably of comparable date. Only one glyph and parts of two others are preserved (see pl. 45, no. 3). The first glyph features a diagonal bar in a cartouche, with the suffix T-254. The second reads T-11.?:670, and the last, which is on a separate fragment shows only part of a suffix T-339 (?). Early forms of glyphs are often dubiously identified, since they usually differ considerably from later forms. Signs that appear to be new may be merely unfamiliar variants of others that are well known.

The technique of inscribing these glyphs is remarkable. Their line seems so free and so fine, that

it might have been drawn with a delicate stylus. Under x10 magnification, however, one can see that the sides and floor of the line are uneven, suggesting that it was chiseled rather than grooved and was probably then filled with some substance before final polish was applied.

After these beautifully executed inscriptions, there seems to be a long gap unrepresented by specimens of writing. The next style we recognize is essentially Late Classic, though one example on a bead carved in the form of a skull (pl. 44f, no. 1; fig. 12, no. 17) may be earlier. The glyphs are irregular in overall outline, and it is not clear whether there was only one column or two. They appear to be scratched on the surface but were probably roughly chiseled, and, in comparison with the earlier style, they present a rather untidy appearance. What is left of the inscription is faint and badly worn away. There are remnants of four glyphs, none of which can be identified, though the second may be a variant of T-507 with affixes 168 and 130. It is not clear whether the line at the left is the numeral 5 or part of the prefix T-12. The form of the Ich-ben superfix is of a simple type that normally connotes a Late Classic date.

Inscription number 6, carved on a bead-pendant (pl. 52c, no. 2), is somewhat clearer, though also partly destroyed. The first sign seems to be an animal head of some sort with a prefix, possibly T-17. The second is all but destroyed, but the third can be restored as T-74:676, a glyph which occurs also on Lintel 2 of Ikil. The last glyph is probably the head of a peccary, with the prefix T-87.

Inscriptions of the Late Classic Period vary from crudely incised notations mixed with nonglyphic designs, to beautifully executed glyphs in carefully squared blocks, such as we find on the finest sculptures. From the Period of Uniformity, we have two texts that can be placed and dated by their calendrical notations.

The earlier of the two (fig. 12, no. 2; pl. 45, no. 2) is inscribed on a large pectoral bead and is accompanied by an incised drawing of a human figure whose facial and body characteristics as well as costume suggest stylistic relationship with sculptures in the temples of Palenque. The inscription is faint and difficult to read because of many fine cracks in the stone and the obliteration of lines by wear. Some affixes, such as T-74.184 at B1 and T-286 at B3, can be made out, and one or two main signs: the Zotz glyph at B11, a possible Imix sign at B12; but most of the noncalendrical matter is at best dubious. The dates, however, though not altogether certain, are reasonably clear. The date just above the figure is 13Ahau 18 Kankin. Although there is nothing to in-

dicate that it is a Period Ending Date, its isolation and the fact that this date occurs in more than one text at Palenque suggest that it is the same 13Ahau that falls in 9.10.10.0.0. Next, at B4 B5 is another date that is prominent at Palenque, 2Cib 14 Mol. On the panel of the Temple of the Foliated Cross at Palenque, this date is connected by a distance number to the end of the thirteenth Katun, and has the Long Count position 9.12.18.5.16. Unfortunately, on the bead the two glyphs that follow are virtually destroyed, and definitive proof that the two dates record the same event is lacking. The day sign of the third date, at B8, is almost effaced but reads best as 9Manik. The month sign is unquestionably Pop, but its coefficient is not clear. It looks rather like a tun sign but lacks the prefix that would permit a reading of "completion." Alone it could signify 5, though this would be very unusual. A third possibility is that it is an imperfectly drawn "seating" or zero sign. The possible values nearest the 2Cib date do not offer an unambiguous choice:

9.12. 2.13.7 9Manik 0 Uo  
9.12.17.16.7 9Manik 5 Pop  
9.13. 2.17.7 9Manik 0 Pop

Although some uncertainty remains in this reading, this inscription and the presence of a very fine picture-plaque (pl. 75a) that reflects some stylistic features of the art of Palenque tend to indicate that Palenque was one of the sites either ravaged after abandonment or conquered by peoples who later took possession of Chichen Itza.

Another piece, even more readily placed, is the unusually large pendant in the form of a human head, possibly a portrait (pl. 60, no. 1; fig. 12, no. 3). On the top of this pendant and on the back is an inscription which is closely related to inscriptions on a group of stelae at Piedras Negras (Proskouriakoff 1944). Some of the inscription is missing, but what remains reads:

Top — A1, B1: 7Imix 14 Mac (9.13.7.13.1)  
C1, A2: T-218:24 13 tuns (completion of 13 tuns)  
B2: T-59?.168?.188? (after accession?)  
C2: (Unidentified animal head with infix T-521)

The inscription on the back rim begins at the lower left, but the first three glyphs are destroyed. Beginning with D4, we read:

D4, D5: 7 tuns; T-1?.44.563b (7 tuns from the anniversary rite?)  
D6, D7: 5Imix 19 Zac (9.13.14.13.1)  
D8, D9: T-218:24?; 1 katun (completion of 1 katun)  
D10: T-59?.168.188 (after accession)

Below the chin there were probably three more glyphs, although the first is gone and the second is a head too effaced to be identified. The third is a compound of the Ahau sign unfamiliar to me. Whether this group is to be read immediately after the inscription on the top or after the rim glyphs is not clear, but in either case it is possible that the two effaced glyphs referred to the name of the ruler the anniversaries of whose accession were being commemorated here.

This ruler (Proskouriakoff 1960, p. 458) is identified only by the date of his accession, but the record is clear. The latest monument at Piedras Negras that mentions him was erected in 9.14.15.0.0, and the next ruler acceded on 9.14.18.3.13 7Ben 16 Kankin. The inscription on the jade, therefore, could have been carved at any time between 9.13.14.13.1, the katun anniversary of accession, and 9.14.18.3.13, when the next ruler began his reign; and since the jade was very probably a funerary piece, we might assign it to the last hotun of the 15th Katun, which fell in the middle of the eighth century according to Thompson's correlation. In style it is entirely consistent with such a date; and Stela 10, erected some 10 years later, depicts an almost identical ornament attached to a cushion on which another ruler is seated.

There are two other inscribed dates on pieces in this collection, but these have not been placed in the Long Count. Figure 12, number 4 (pl. 67b, no. 3) is on the back of a Late Classic silhouette-figure, and reads 1Ahau 18 Kankin. Unfortunately, just beyond the date, the figure is broken. A fragment of its face, originally in the collection, has been lost. B2 is partly preserved and contains the sign T-153 or T-600 in somewhat simplified form. Below there is a well-known bone sign and two more glyphs, only the last of which can be made out. It has an Ich-ben superfix, and the element at the lower right may be T-188, but the compound does not add up to the affix cluster of accession. Considering the style of the carved figure, 9.15.3.5.0 seems to be the best position for the date, though 9.17.16.0.0 cannot be altogether ignored. At Copan, there are several dates that seem to fall one Tzolkin short of period endings, and one may wonder whether the earlier date has any connection with these.

On a small fragment of a picture-plaque which shows a dancing figure carved in a style that suggests northern Yucatan (pl. 76a, no. 3) is another Ahau date (fig. 12, no. 5). The best reading is 12Ahau. There is just enough of the next glyph to show that it was not prefixed by a coefficient that could refer to a day Ahau. If the Ahau date stands alone, it is very probably the name of a Katun; and if it is 12Ahau, it could



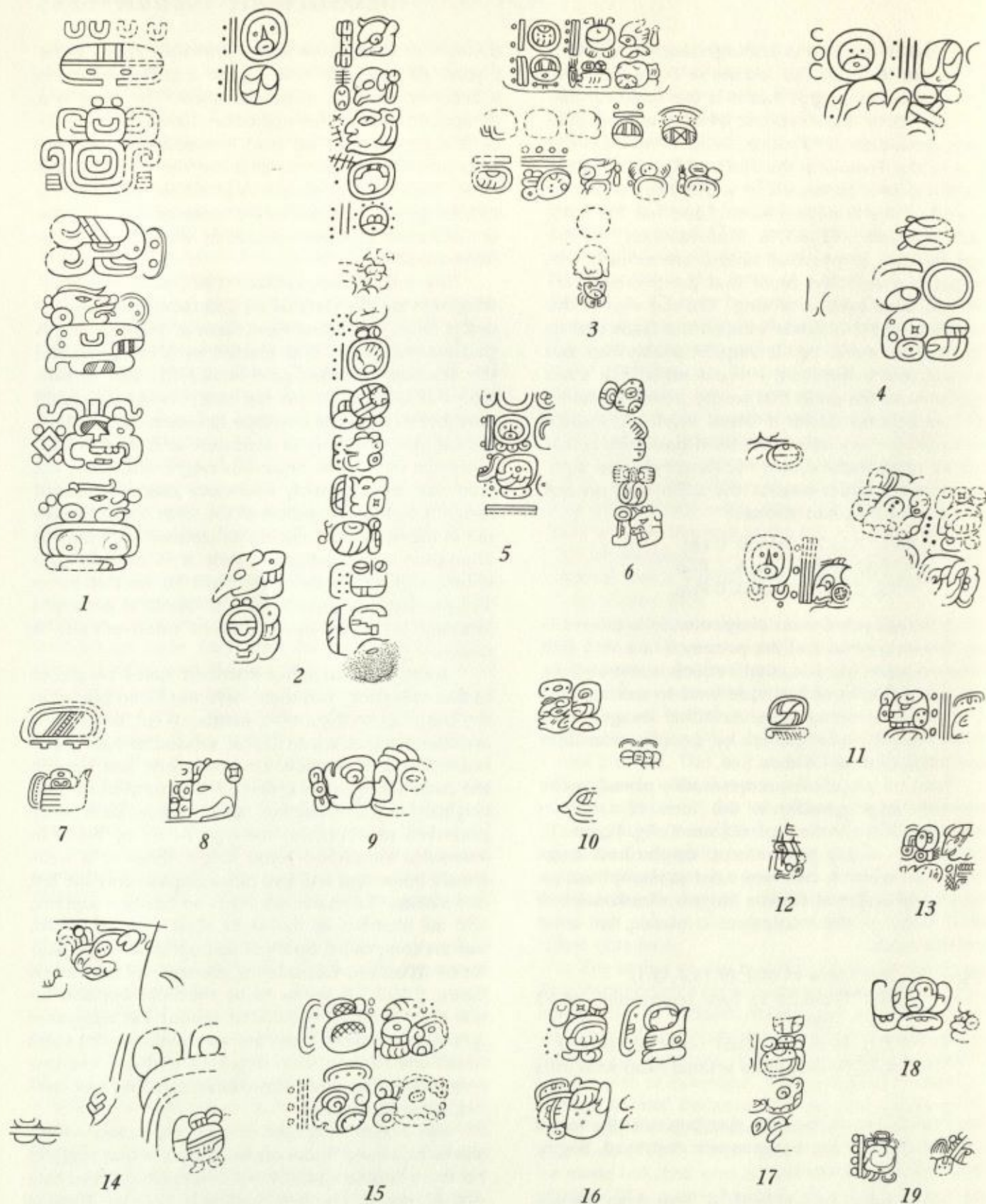


Figure 12. Classic Maya inscriptions on Cenote jades.

be either 9.11.0.0.0 or 10.4.0.0.0. Neither date, however, is congruent with reasonable estimates of the style of the carving on the other side. It is just possible that the day coefficient is 7, and that the Katun indicated is 10.0.0.0.0. A coefficient of 10 in the second place below the Ahau date supports this interpretation, but it is also consistent with the date 9.17.10.0.0 12Ahau 8 Pax, and it is this date which is most consistent with the style of the figures. The one noncalendrical glyph which is preserved is unfamiliar.

There is another day Ahau (fig. 12, no. 11) on a fragmentary inscription on bits of a plaque with incised figures (pl. 80, no. 26). The coefficient of the day and the month sign are both gone. The glyph that follows is a Jog sign (T-757) with a coefficient of 18, an expression that Kelley identifies as the name of a ruler of Copan (Kelley 1962, fig. 2). The superfix of the Jog sign is missing, but a comparable glyph on the other face of the plaque has the superfix "u" (T-1), which also occurs in at least one of Kelley's examples, though it is lacking in others. Preceding this Jog sign there is a skull glyph, suggesting death, and far off to the left is an introducing glyph of a distance number indicating that there may have been more than one event recorded in connection with this personage. Though the glyphs shown on the fragment at the upper right are largely destroyed, they are suggestive of a relationship with two other inscriptions. The lower right-hand glyph on this fragment is T-1030m or l, known as the "Batab glyph." Above is an animal head followed by what was probably an emblem. Although only the eye and the ear of the animal are preserved, the elements projecting from its forehead suggest that it is the same toothy animal as that on inscription number 14, with prefix T-58 (zac). This latter inscription is in very poor condition, since the large pendant on which it was carved (pl. 66, no. 5) is badly shattered and its jade is heavily decomposed. There seems to have been a horizontal row of glyphs at the top; and below, some sort of design, part of which is a large cartouche (T-58?) with an infix of an unknown Emblem glyph. A much better preserved inscription on the back of a jade pendant, reproduced in figure 13 with the kind permission of its owner, Elizabeth K. Easby, permits us to restore some of the missing glyphs and to relate the inscriptions 11 and 14 to the one on 15 and 16. The pendant had evidently been trimmed or recut, since the upper line of glyphs is mutilated and incomplete. The first two glyphs, however, are clearly the two at the lower right on number 11 of figure 12: the skull glyph and the 18 Jog glyph (T-757). Following this is a coefficient of 12 or 13 attached to a broken glyph. Below the Jog

glyph and slightly out of line is the toothy animal of number 14 with prefix T-58, followed by an Emblem glyph, which is very probably the same Emblem as in text number 14, and certainly the same as the opening glyph of number 16. Rectangles numbers 15 and 16 (pl. 49b, nos. 2, 3) form a pair, and their inscriptions probably read as one text. The two opening glyphs are of unknown significance. The next lacks a prefix but can be restored by analogy with the Easby jade as T-XVIII.11:757 — the 18 Jog glyph — followed by prefix T-58, whose destroyed main sign was undoubtedly the toothy animal sign of number 14. On number 16, we see the Emblem of the Easby jade and the beginning of a new clause introduced by a familiar hand-sign glyph with a Kan-cross infix. The last surviving glyph is unknown, but its main element resembles the so-called fist sign, which appears to be often associated with names of deceased persons, and the motif on the face of the squares, showing human heads in the jaws of serpents, suggests posthumous portraits and is consistent with the presence of this glyph in the text.

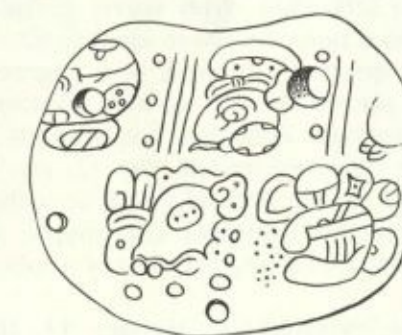


Figure 13. Inscription on a jade pendant owned by Elizabeth K. Easby.

The Easby jade is said to come from Guaymil, a small island off the western coast of the Yucatan peninsula. Mrs. Easby has also pointed out to me the occurrence of the same combination of the 18 Jog, toothy animal, and Emblem in a somewhat longer text inscribed on the back of a small jade figure said to come from the island of Jaina and now in the American Museum of Natural History in New York. Thus, there are five related inscriptions on jades from the northern Maya area that apparently pertain to the same, so far unknown, site. Although the 18 Jog glyph has been identified by Kelley (1962) as a name of one of the rulers of Copan, the combination of glyphs is different in the Yucatan examples and whether there is any relation between the two sets of inscriptions and the two individuals



that appear to be named in them remains an open question. The design of all the jades appears to pertain to the Late Classic Maya tradition. They all differ, however, in technique and in composition. The similarity of the inscriptions does not necessarily indicate the locus of their manufacture, but does, perhaps, imply a single locus of their original deposition or use. The Easby jade was subsequently reworked. The inscriptions of others may have been added later. Only number 11 is clearly designed as a unit, suggesting that it was designed in situ and for a specific purpose. The place indicated by the Emblem glyph has not been located, but there is a good chance that monuments bearing the same phrase may some day be discovered in situ.

The remaining Classic inscriptions from the Cenote are fragmentary and bear no dates or Emblems. On pieces of a large flat ring (pl. 47e, nos. 1, 2) one can observe incisions, some of which seem to be parts of hieroglyphs. One only is clear. It is the common Zotz glyph with the prefix T-61 or 62 (fig. 12, no. 9), which sometimes appears with groups of glyphs designating minor personages in a composition. The following glyph seems to be a bird head, but I have been unable to identify it.

Faintly incised on the back of a fragment of a large carved plaque (pl. 66, no. 8) is another glyph that may represent Zotz, the bat, though of this identification I am less certain (fig. 12, no. 8). The glyph appears to be isolated, with no others immediately around it. Another Zotz glyph, number 12, is on the back of a tiny fragment of a face carved in low relief.

With the exception of number 11, the Late Classic inscriptions so far described are poorly executed. Perhaps they were made on used pieces specifically for funerary purposes by local craftsmen who were not professional lapidaries, for on some small fragments we find beautifully rendered glyphs far more in keeping with the standard of craftsmanship displayed by the carvings. On a fragment of a thin plain disc (fig. 12, no. 13), one can recognize Thompson's "forward count" glyph. To the right is a strange animal head, but the order of reading was probably down and to the left, where there may have been a date. A partial glyph at the lower right may contain the bone sign T-570, with prefix T-12 and an unknown superfix.

On the underside of another fragment, apparently part of a button or ring, is a beautifully executed glyph: T-181.?.1016a.19:23 (no. 18 and fig. 13). It was apparently once a part of a row of glyphs on the periphery, for part of another glyph, perhaps an animal head, is still preserved.

Some even more delicately incised glyphs (fig.

12, no. 10) are on the reverse of a disc carved with a five-circle and rosette design (pl. 48d, no. 5). Originally there were four glyphs spaced evenly on the periphery, but of two of them very little remains, and all are difficult to make out because of their minuteness.

Finally, on two fragments of large rectangular beads there are remains of inscriptions, only one of which can be recognized. This is a beautifully executed "shell" variant for "day" used in secondary series, with a prefix 9 and a superfix 0 (fig. 12, no. 19). Normally, it is the month sign and not the day that bears two numerals of the secondary series, so that the reading is somewhat doubtful here.

Although the number of Late Classic inscriptions is small, it is nevertheless considerably greater than that of any other period or style, in keeping with the general observation that the Late Classic style is better represented in the Cenote jades than the Toltec or later styles of Yucatan. Among the marginal scripts that appear to derive from the Classic style but have their own strong peculiarities is one that features large square glyphs carved in plano-relief. One example (fig. 14, no. 3) is carved on the back of a silhouetted figure (pl. 68, no. 4) which shows the late use of the arc drill. The glyph is isolated. It has a coefficient of three and is composed of two hand signs, one over the other, with a scroll above them. The superimposed hands appear in the Dresden Codex on page 4 and elsewhere, but not, to my knowledge, in combination with the scroll and a numerical prefix.

Two other examples of the plano-relief script occur on a pair of plaques which I attribute to a late phase of the Puuc style (pl. 77, nos. 4 and 5), a phase that may extend into the period of Toltec incursion. On plaque number 4, figure 14, there seem to have been only two glyphs. One is a bird head with a coefficient of 1 above it. The coefficient of the other seems to have been 10. Neither of the glyphs can be identified as signs of the Maya calendar. The partially destroyed glyph has a small part remaining that suggests it may have been sign T-592. Thompson lists this as occurring with a coefficient only once, on a fragment of a pottery box from Chajcar. I am inclined to think that a date may be recorded here, but in some calendar other than the Classic Maya.

Two glyphs on the companion piece (no. 5) are preserved, but their position and a fragment of a numeral suggest that there were originally three. These glyphs, too, have unfamiliar forms. The first is a quatrefoil enclosing two circles and two bars. With a little stretch of the imagination one can see in it a resemblance to an Ahau sign (T-542b) or to

the rare Katun substitute T-855. The second glyph is a zoomorphic head of some sort, difficult to identify since it is incomplete. The two coefficients suggest a calendrical expression but do not yield a wholly satisfactory reading.

Also in plano-relief, is an inscription on the back of a dwarf figurine (pl. 57, no. 8; fig. 14, no. 2). The large glyph at the top is almost entirely destroyed. In the lower block there is a highly formalized "9 sky" glyph, followed by a partly destroyed glyph which contains an animal head or a mask.

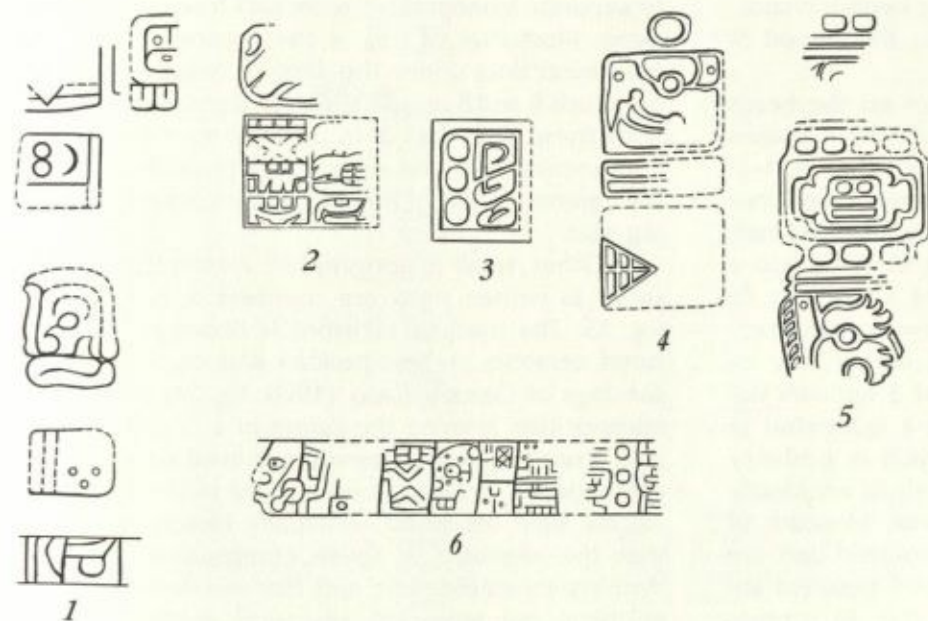


Figure 14. Aberrant Maya inscriptions on the Cenote jades.

A different script is found on fragments of a long rectangular bead (fig. 14, no. 6). The articulation of the three pieces is uncertain, and most of the signs are strange. On the largest piece, one can distinguish a skull with dots around the eye socket (T-1048). Just behind it is a small inverted Ahau, but the sign above is unknown, perhaps a variant of T-586 or 669b. On another fragment there is a human head in profile; and on a third, the numeral three attached to one of two flanking glyphs of unknown form. The inscription is made with rough incised strokes, and the glyphs are separated by single lines, so that they tend to run together, as on some late inscriptions of northwestern Yucatan.

Finally there is a badly mutilated inscription (no. 1) on loose fragments of a plaque that had been recarved and that remains incomplete (pl. 77, no. 1). At the upper right is an Ahau glyph with its coeffi-

cient cut away by a deep gash. It is the only glyph that we can recognize. Other glyphs are of unfamiliar simple forms that remain unidentified. The non-Classic character of the glyphs is consistent with the character of the carving on the opposite side, which is probably late and peripheral to the center of Maya culture.

Some of the carvings in the Classic tradition are inscribed with a marginal script, e.g., the silhouette-plaque and the figurine with glyphs in plano-relief (fig. 14, nos. 2 and 3), but the Classic script is associated exclusively with Classic carvings. Most of the

carvings that one can attribute to marginal or to foreign regions are without inscriptions. Of the several pieces that may represent the Esquintla style of the Pacific coast of Guatemala, only one bore an inscription (pl. 78b). All that now remains of it is the numeral of large circles that once followed a glyph in the upper right corner. The circles are plain, as on Monument 2 of El Baul (Thompson 1948, fig. 8c), but the arrangement and the style of carving are unmistakable.

The Toltec of Chichen Itza were not in the habit of including texts with their figures, and in the few instances that such texts occur in Toltec buildings, the characters and the associated figures are Maya. However, single signs of an entirely different script sometimes appear with Toltec figures, apparently identifying them by name, title, or tribe. The glyphs associated with Toltec warriors all seem to be picto-



graphic, but with one figure in the Lower Temple of the Jaguars there is a formal sign enclosed in a cartouche and accompanied by a bar-and-dot numeral placed under the sign. Caso (1928, fig. 3, and 1962, p. 60) has identified this glyph with the day-glyph A of the Zapotec, found also at Xochicalco and Chalco.

Similar glyphs on the jades are all from large carved spherical beads and hollow globes. Although the closest analogues of the script are found on Zapotec carvings attributed to the Early Classic Period, the technique of carving on the beads and the prominence given the feathered serpent suggest that they were carved much later and that certain characters of the early script persisted into the period of Toltec expansion.

The sign that appears most often on the beads is in the form of a trident figure set into a hollow base—Caso's Glyph D. This sign (fig. 15, nos. 1–5) occurs with representations of serpents, and once on the body of a serpent that holds a bearded face in its jaws. In this context, it seems to have had a numeral attached to it, since part of a dot can be seen to the right of the sign, and on two other beads it is loosely associated with 4 dots, which may be numerical. In number 4, the numeral 3 appears below, and the glyph is preceded by a quatrefoil in a cartouche with the numeral 7, which is probably glyph I of the Zapotec. Both of these signs are clearly shown on "Lapida 1" in the National Museum of Mexico (Caso 1928, fig. 81). The decorated bars are similar and the dots with the inscribed crescent are typical of both styles. Another sign (no. 6) consists of a cartouche enclosing a horizontal bar with a dot below it. It also is associated with a numeral 4, and resembles the Mixtec sign for "star." In number 5, these two signs seem to be combined. This design is from a hollow globe (pl. 46b, no. 3) and is also associated with serpents. The lower part of the glyph

and any coefficient it may have had are missing.

Another form that resembles an eye or star motif is associated with a decorated numerical bar for 5, and the entire motif may be a glyphic composition (fig. 15, no. 6, and pl. 43, no. 10). The glyph is attached on the right to a human head partly surrounded by three sides of a square with leaves at the corners. On the opposite side is a curious undulating band of small oval elements that may represent eyes, the whole perhaps depicting a starry sky. On bead number 8 (pl. 43) the same design encloses a skull, which may or may not serve as a hieroglyph. In many of these designs it is difficult to separate iconographic elements from hieroglyphic signs. Illustrative of this is the occurrence of single numerical dots under the feet of two flying figures on beads 6 and 8 on plate 43. No signs are associated with these dots, but it is possible to read them in conjunction with the figure as representing 1Ahau, the calendar name of Kukulcan in his aspect of morning star.

Other small iconographic elements that may serve as written signs are numbers 8, 9, and 10 in fig. 15. The trilobed element is common on decorated ceramics at Teotihuacan and on the Zapotec carvings of Oaxaca. Caso (1928, fig. 24) shows it in composition forming the name of a month. Writing and iconography had never achieved complete independence in Mesoamerica, and in these compositions they are fused unusually closely. I suspect that the elements in these compositions are predominantly emblematic and that the themes are not mythical but represent historical entities such as tribes, military orders or alliances, lineages, or clans. The compositions themselves seem to represent a sort of pictographic writing, with signs serving as supplementary elements to identify figures, and perhaps having no independent milieu in which they could function alone.

CATALOGUE NUMBERS OF ILLUSTRATED CARVINGS

Plate 42

1. c/6353
2. c/6355-a
3. c/6066
4. c/6346
5. c/6355-b
6. c/6348
7. c/6345
8. c/6349
9. c/6350

Plate 43

1. c/6068
2. c/6072
3. c/6071
4. c/6070
5. c/5969
6. c/6347
7. c/6352
8. c/6351
9. c/6344
10. c/6354
11. c/6067

Plate 44

- a. 1. 23418
2. 23422
- b. 1. c/6367
2. 22136
3. 22130
- c. 22089
- d. c/6600
- e. c/6075
- f. 1. 21802
2. c/7638
3. c/6792
4. c/6206
5. 23414A
6. 23419
7. 22002
8. c/6307
- 9–11. 23416
- 12, 13. 23436
14. 23425

Plate 45

1. c/6125
2. c/6318
3. 22001
4. 22000
5. 21917
6. 22003 (photo only)
7. c/6303
8. 22093

Plate 46

- a. 1. c/6442
2. c/6078
3. c/6294
4. c/6407
5. 23422
6. 21889
7. 21890
8. 21996
- b. 1. c/6086
2. 23409
3. c/6085
4. c/6083
5. c/6084
6. 23410

Plate 47

- a. 1. c/6641
2. c/6430
3. 22008
- b. 22092
- c. 22085
- d. 22090
- e. 1, 2. 22088
3. 22086
4. c/6573

Plate 48

- a. 1. c/6678
2. c/6677
3. c/6676
- b. 1. c/6121
2. 23381
- 3, 4. 21989
5. 22096
- c. 1. c/6688
2. 23377
3. 23378
- d. 1, 2. c/6119
3. c/6614
4. 23373
5. 22095
6. 21987

Plate 49

- a. 1. 23362
2. 21938
3. 21984
4. 21985
5. 23385
6. c/6657
- b. 1. c/6679
2. c/6684
3. c/6126
4. 21986
- c. 1. c/6545
2. c/5948
3. c/6559
4. c/6580
5. 21993
6. c/6547
7. c/6579
8. c/6098
9. c/6612
- d. 1. c/6557
2. 23404
3. 23395
4. 22099
5. 22101
6. c/6409
7. 22100
8. 21991
9. 22135
10. c/6558
11. c/5947

Plate 50

- a. 1. 23393
2. 23394
3. 23393
4. c/6552
5. c/6554
6. c/5949
7. 23398
8. 23400
9. 23399

10. c/6628

11. 21920
12. c/7407 I
13. 21988
14. 21914
15. 23403
16. 23402
- b. 1. c/6097
2. c/6408
3. 21791
4. 21790
- c. 1. 21803
2. c/6419
3. c/6417
4. c/6416
5. c/6418
6. c/6415
7. c/6414
8. c/6413
9. c/6124
- d. 1. c/6560
2. c/6186
3. c/6391
4. c/6410
5. c/6411
6. c/6123
7. c/6396
8. c/6106

Plate 51

- a. c/6122
- b. 1. c/6127
2. 21990
3. c/6582
4. c/6633
5. c/6567
6. c/6099
7. c/5930
- c. c/6334
- d. 1. c/5946
2. c/6441
- e. 1. c/6093
2. c/6609
3. 21873
4. c/6610
5. c/6601
6. c/6606
7. c/6603
8. c/6608
9. c/6394
10. c/6091
11. c/6605
12. c/6096
13. c/6090
14. c/7407 N
15. 21837
16. c/6602
17. 21872
18. 21871
19. c/6607

Plate 52

- a. 1. 21835
2. 21836
3. c/6624
4. 21901
5. 21839
6. 21870
7. 21818
8. 21863
9. c/6611
10. c/6627
11. c/6599
12. 21907
13. c/7407 Q
14. 21874
15. 21919
16. 21909
17. c/6613
18. 21912
19. c/7407 P
20. c/7407 R
21. 21910
22. 21908
23. 21918
24. 7407 S
25. 21913
26. 21915
- b. 1. 21867
2. 21842
- c. 1. 23415
2. 21815
3. 21942
4. c/6635
5. 21816
6. 21810
7. 21817
8. c/6638
9. c/5976

Plate 53

- a. 1. c/6592
2. c/6095
3. c/6087
4. c/6595
5. c/6092
6. c/4656
7. c/6598
8. c/6597
9. c/6596
- b. 1. c/6654
2. c/6655
3. 21891
4. 21883
5. 21893
6. c/6616
7. c/6648
8. c/6650
9. 21892
10. c/6632
11. c/6108
- c. c/5977

Plate 54

- a. 1. 21887
2. 21888
3. 21886
4. 21885
5. 21878
6. 21879
- b. 1. 21882



Figure 15. Hieroglyphs and iconographic elements on carved beads and globes believed to be of Toltec-period manufacture.



# JADES FROM THE CENOTE OF SACRIFICE

2. 21895
3. 21877
- c. 1. c/6644
2. 21875
3. 21876
4. 21881

## Plate 55

- a. 1. 21921
2. c/7407 O
3. 21897
4. 21896
5. 21855
6. 21916
7. 21884
8. 21894
9. 21911
10. 21898
11. 21880

- b. 1. c/7407 H
2. 21922
3. 21923
4. c/6652
5. 21933
6. 21814
7. c/6102 C
8. 21905
9. 21904

## Plate 56

- a. 1. 21899
2. 21900
3. 21902

- b. 1. c/7411
2. 21926
3. 23392 B
4. 23392 A
5. 21861
6. 21827
- c. 21813
- d. 21807

## Plate 57

1. c/5975
2. c/6640
3. 21806
4. c/6105
5. c/6643
6. 21805
7. c/6629
8. c/7641 A

## Plate 58

- a. 1. c/6088
2. 21811
3. c/7641 B
4. 21804
5. c/6639
- b. 1. c/6615
2. 21809
- c. 1. 21792
2. 21797
3. 21793
4. c/6594
5. 21800
6. 21796
7. c/6604
8. 21794
9. c/6637
10. 21795
11. c/6401
12. c/7407 F
13. 21801

## Plate 59

- a. 21788
- b. 1. c/6587
2. 21799
3. 21798
4. c/7407 G
- c. 1. c/6620
2. c/6621
3. c/7407 L
4. c/6625
5. c/5978
6. c/7407 C
7. c/7643
8. c/6622
9. c/7407 A
10. c/7407 B
11. c/7640

## Plate 60

1. c/6100
2. c/6626
3. 21819
4. c/6094
5. c/6584
6. c/6619
7. 21820
8. 21832
9. c/6586
10. 21821
11. 21831
12. 21833
13. 21830
14. 21823
15. 21822

## Plate 61

- a. 1. 21826
2. 21824
3. 21825
4. 21838
5. c/6618
6. c/6631
7. c/7642
8. 21843
9. c/7407 D
10. 21828
11. c/6102 A
12. 21844
13. 21829
14. c/6102 B
15. 21834
16. 21860
17. 21866
- b. 1. c/6588
2. c/6589
3. c/6630

## Plate 62

- a. 1. 21826
2. 21854
3. c/6591
4. c/6585
5. c/6617
6. 21864
7. 21865
8. c/6593
9. 21841
- b. 1. 21845
2. 21858
3. 21857
4. 21846
5. 21840
6. 21851

7. 21847
8. 21856
9. 21859
10. 21852

## Plate 63

- a. 21995
- b. 1. c/6623
2. 23396
3. 23396
4. c/6680
5. c/6683
- c. 1. 21992
2. 23396-a
3. 23396-b

## Plate 64

- a. 1. 21949
2. 21950
3. 21954
4. 21962
5. 21953
- b. 1. c/6665
2. c/6658
3. 21957
4. 21956
5. c/6664

## Plate 65

- a. 1. 22102
2. 21994
3. 21955
4. 6130-A
- b. 1. 21961
2. 21959
3. 21960

## Plate 66

1. c/6103
2. 21924
3. c/6653
4. 21925
5. 21928
6. 21927
7. 21936
8. 21994
9. 21939

## Plate 67

- a. 1. 21930
2. c/6646
- b. 1. c/6645
2. c/6103 A
3. c/6659
4. 21965

## Plate 68

1. c/6110
2. 21929
3. 21932
4. c/6660
5. c/6647
6. c/6656
7. c/6649

## Plate 69

1. 21948
2. 21946
3. 21934
4. 21944
5. 21938
6. c/6681

## Plate 70

1. 21979
2. 21935
3. c/6651
4. 21937
5. c/6130 B

## Plate 71

- a. 1. 21931
2. 21943
3. 21940
4. 23386
- b. 1. 23383
2. 21941
- c. 1. c/6101
2. c/6661
3. c/6662
4. 21972
5. 21973

## Plate 72

1. c/6669
2. c/6671

## Plate 73

1. c/6668
2. c/6670
3. c/6103 C
4. c/6663
5. c/6673

## Plate 74

1. c/6672
2. 23388
3. c/6104
4. 21964
5. 21970
6. c/10107

## Plate 75

- a. c/6667
- b. 1. c/6674
2. 21963
3. 21968
4. 21983
5. 21966
6. 21967

## Plate 76

- a. 1. 21977
2. 21975
3. 21971
- b. 1. 21974
2. 21976
3. c/6675

## Plate 77

1. 21969
2. 21981
3. 21982
4. 21978
5. c/7407 E
6. 21980
7. c/6130 C

## Plate 78

- a. c/6666
- b. c/7410

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