

in symbolism, the strange cargo of passengers, including a laughing iguana and a "shaggy dog," seem believable. Even the famed Bonampak murals and the beautiful Piedras Negras Stela 12 sculpture of prisoners do not match the aliveness of the god-headed men arguing (?) about the day's haul of fish. The bound individual, Fig. 9a, a recurring theme at Tikal, is portrayed in a realistic manner not seen in the stone sculptures. In this example the figure is not formalized, but is natural in posture, expression, and anatomical detail. He appears to be exactly what a person in this predicament should be.

All of the scenes require further intensive study to answer some of the many questions they raise: the origin and occurrence of the three types of canoes with their strange asymmetrical paddles; the identity of all the characters portrayed; an interpretation of the symbolism and the scenes in their entirety; the relationship of the scenes to the individual in whose tomb the bones were found; and still other questions which each of these answers will probably evoke. It is to be hoped that eventually the hieroglyphic texts will provide a key. Linton Satterthwaite has made a preliminary analysis, and supplies the accompanying note. He also collaborated in writing captions for some of the figures.

Little more can be added at this time regarding the functions of individual items in the collec-

tion, or of the collection as a whole. Similar artifact forms have been classified as "tools," such as awls, needles, perforators, pins, but it seems more likely that the Burial 116 collection represents a type of ceremonial paraphernalia or priestly implements rather than tools in the usual sense of the word. The Maya used human and animal bones for both ornamental and ceremonial purposes and they are depicted in scenes painted on pottery and in stone sculptures. Notable examples of carved bones have been found at Copan and at Chiapa de Corzo, and presumably bowls of ceremonial bones are shown in scenes carved on stone lintels at Yaxchilan and on Altar 5 at Tikal. It is suggested here that the collection from Burial 116 represents this type of priestly equipment, possibly used by the occupant of the tomb for ceremonial or divinatory purposes. As part of the collection, the plain bones pose a question. They show the same range of forms and conceivably they would have been inscribed later, had the priest not died. **21**

SUGGESTED READING

Three other tombs excavated at Tikal have been published in *Expedition*. These are: Burial 48, Early Classic, A.D. 457, in Vol. 4, No. 1; Burial 85, Late Pre-Classic, about A.D. 0, in Vol. 5, No. 2; Burial 77, Late Classic, about A.D. 750, also in Vol. 5, No. 2.

NOTE ON HIEROGLYPHS ON BONE FROM THE TOMB BELOW TEMPLE I, TIKAL

By LINTON SATTERTHWAITE

Hieroglyphs incised on bone artifacts from the spectacular Burial 116 below Temple I, Tikal, constitute a major increment to the corpus of Maya texts. In this note, references are to Figures in Aubrey S. Trik's account of their recent discovery in this issue of *Expedition*. They are unique in being a *collection* made by the Maya of the Classic period, and not a series selected out by scholars for their special purposes, and its potential value exceeds that of the sum of its parts.

In respect to quantity there are no less than thirty-seven texts and fourteen explanatory pictures. After allowing for duplications there are still thirty texts and nine pictures which are substantially different. To keep track of the texts each has been assigned one of thirty "Miscellaneous Text" numbers, with added letters to cover dup-

lications. Out of a grand total of 363 glyph-blocks only sixteen are missing or completely illegible, and 233 are damaged very little, or none at all. The existence of duplicates sometimes eliminates doubt, and gives a valuable lesson respecting permissible variation in drawing glyphs and pictures. The head of the long-nosed God B as portrayed in glyphs and pictures of Figs. 6 and 7 is a good example. On the other hand another unique feature may lead to error when reading damaged dot-bar numbers. These are drawn either as solid points and lines, or as outlined dots and bars. Partial erasure can lead to doubt as to how many dots or bars were originally intended.

Since no similar collection is available for comparison, perhaps one should not be surprised at great variability within it. This surely

is something to consider in speculating on function. Fourteen of the thirty different texts contain dates, but sixteen do not. Among those with dates, there may be only one date—but there may be several, up to a maximum of six. One expects non-calendric glyphs whether or not there are also dates, but two of the multi-date texts of this collection are stripped down to chronological statements and nothing else.

One of these, MT-26 shown in Fig. 14, differs from all the others in consisting of three dates, each followed by an abbreviated time-distance measuring number. Patterns in both the dates and numbers prove that the owner of the collection was an expert in making esoteric calendrical calculations involving hundreds and (almost certainly) thousands of years.

Our dates are "Calendar Round" dates which, by the rules of the system, recur every fifty-two years. Their presence in nearly half of the collection links it to the inscriptions on major monuments. But here they are not fixed in time by an additional "Long Count" from a fixed point far in the mythological past. Perhaps we can supply the missing Long Count positions, but only by justifying several preliminary assumptions. For an exposition of the two sorts of dating see "Maya Long Count Numbers" in *Expedition*, Volume 2, No. 2.

In general these texts on minor objects are short, as one would expect, running from four to sixteen glyph-blocks. But there is a very striking exception, MT-28 (Fig. 15). Its sixty blocks make it longer than any text on a major Tikal monument of the Late Classic period. This must be the first time anything of the sort has been found in so unimpressive a setting.

Many of the shorter texts are broken down into groups of glyphs, especially into three pairs or three trios on the shafts of awl-like artifacts where space limitations cannot be the explanation. On the other hand we may also have continuous columns or rows. I believe a fair case can be made for regarding these groupings by spacing as functional, in the sense of "paragraphing," though the evenness and sizes of the spaces are probably in the realm of design for esthetic effect. This is something to keep in mind when studying the non-calendric glyphs. Several of these seem to have a special affinity for first or last place in a supposed "paragraph."

The new texts, with or without this special feature, will surely be useful in advancing our limited understanding of the non-calendric. The subjects dealt with in the tomb collection must differ considerably from those of the major

monuments. Nevertheless, and this is an advantage, overlaps can be detected in advance of decipherment. On the monuments one almost always finds chronology, and we have it, in somewhat simpler form, in nearly half the texts of this collection. Also, several glyphs which appear here have recently been singled out for special attention as they appear in the Late Classic monuments of Tikal. Among these are glyphs nicknamed "isolated katun," "Batab," and "Tikal Emblem No. 1," which are partially understood.

Recently Tatiana Proskouriakoff showed that two glyphs called "up-ended frog" and "tooth-ache" seem, at Piedras Negras, to belong with dates for real historical events. A popular account is given in her "Lords of the Maya Realm," *Expedition*, Vol. 4, No. 1. These two glyphs are known at Tikal, but not in this collection from the tomb. Their absence here tends to confirm the common-sense assumption that when the glyphic system was used to record dynastic events such as the birth or accession of a ruler, this would not be on minor artifacts destined for burial with him.

There are already indications that entirely new signs, and new combinations of previously known ones, are present in the collection. Some of the glyphic and pictorial elements as well seem to have their closest parallels far afield, in the much later augural tables in the paper manuscripts or "codices." This also points toward calendric divination behind these records, rather than real events. Texts and pictures alike are fascinating from many points of view. **21**



LINTON SATTERTHWAITE is Curator of the American Section of the Museum and a professor in the Anthropology Department of the University of Pennsylvania. He came to the Museum in 1930 as field assistant to Dr. J. Alden Mason who was initiating work at Piedras Negras, Guatemala, and continued work there as Field Director, 1933-39. Subsequently he excavated

Early Man sites in Wyoming (1940) and California (1944), but his principal interest has been in the ancient Maya civilization, and of late years especially in their hieroglyphic writing. The stelae and altars from Caracol now in the Middle American Hall result from Museum expeditions to British Honduras, of which he had charge (1950-53). Since 1956, he has frequently visited Tikal to study the inscriptions of the stone monuments there.