

Glances Backward and a Look Ahead

Behold I see the haven nigh at hand,
 To which I meane my weary course to bend;
 Vere the main shete, and bear up with the land
 The which afore is fairely to be kend.

—EDMUND SPENSER, *Faerie Queene*, Canto XII

THE METAPHOR shall be changed from Elizabethan to Maya; from sea lanes to forest trails. The *lubay* is reached; the time has come to put down our burden and look back over the course we have trodden. The way has been long, stony, and in places hard to follow. Floundering in more than one polemical morass, we have at times vainly thought to win salvation by grabbing the spiny trunk of that terror of travelers, the *kum* palm. What of the burden? We set forth with a triple *cuch*: to review what was previously known about Maya hieroglyphic writing; to set forth the properties of the glyphs and to expound such rules as govern the uses of affixes, the grammar, so to speak, of the written word; and to offer interpretations of glyphs hitherto undeciphered.

To this triple burden was added the *p'ic*, the extra load on top of the *cuch*. The poetical character of the hieroglyphic inscriptions, the mythological setting of the glyphs, and the general mentality and philosophical outlook of the Maya, as discernible in their literature, formed this weighty surcharge.

In this final chapter I shall not present a full summary, for the table of contents and the index are detailed and most chapters conclude with reviews of their contents. Instead, I purpose to outline what I regard as the most important contributions to our knowledge of these subjects in the preceding chapters, either made there for the first time or reproduced there in permanent form, although previously published by me in *Notes on Middle American Archaeology and Ethnology* or in *Theoretical Approaches to Problems*.

The remarkable feature of Maya hieroglyphic writing is its great flexibility. Because students have tended to concentrate on set ritualistic patterns, such as the IS, this has not been so apparent as wider research now reveals it to be. Nevertheless, even in those well-studied passages there is great diversity which familiarity causes us to overlook. Common words could be expressed by several glyphic elements and the choice could be expanded by the use of near-synonyms. The body of signs is greatly increased, perhaps doubled, by the Maya custom of having both a personified and a symbolic form for very many, per-

haps all, of their elements. Even wider latitude was permissible, for a glyph could be given a profile outline, which is conventionalized and does not resemble the true personification of the glyph (cf. fig. 40, 1-3 with fig. 40, 13, 50). This variability can be carried to great lengths: there are at least 10 distinct glyphs to depict the 360-day year, and considerable artistic latitude in depicting all of them was permitted; there are 13 distinct glyphs for the kin or period of 24 hours, and that number can be expanded to 20 if changes in affixes can be regarded as creating new glyphs.

This considerable range of interchangeability is further expanded by the groups of reciprocal synonymous and near-synonymous affixes. In Chapter 12 two of these groups have been discussed, and there are constant references to individual members throughout the book, for these affixes are the articulations of written Maya. The matter does not stop there; one meaning may be conveyed by a dozen glyphs, but any one of those dozen may have more than one meaning. The sign for jade not only represents that highly prized jewel, but stands for the day Muluc, "water," and is the symbolic form of the *xoc* fish, where it has the meaning of "count." Moreover, this jade symbol forms part of the normal glyph for the year of 360 days, which is called *tun*, "jade." As an element of the *tun* sign it has the extended meaning of "end" in the prefix or prefatory glyph of the twentieth day in the uinal, and it can also serve as the rebus of the suffix *tun* used to intensify the word to which it is attached, as in the glyph *kintunyaabil*, "prolonged drought." Finally, set in an oval of circlets the jade sign represents the month Mol and serves as an affix with the meaning of water. Thus, a very wide spread of meanings attaches to this single element.

Evidence is accumulating that the Maya used rebus writing to a considerable extent, employing a depictable object to represent a less easily reproduced homonym. Thus, the head of the *xoc* fish is used also to express the word *xoc*, "to count"; the sign of the moon, *u*, is employed as the possessive *u*, "of," or *u* as a means to convert a cardinal number to an ordinal; the glyph for the

360-day period called the tun can also stand for *tun*, "end," or *tun*, used for purposes of intensification. Other elements may represent two or more homonyms, as, for instance the affixes *chac* and *yax*. *Chac* signifies both "red" and "great," and the corresponding affix can be used in either sense; *yax* stands for "green" and "new," and again the one corresponding affix can be used with either meaning. A symbol may also have a secondary value. For example, the sign for black not only signifies swart, but can be extended to cover anything associated with the underworld, the land of darkness: the sun, as lord of the underworld, is given black markings to indicate not that he is a blackamoor, but that he is temporarily in the nether regions. To avoid in part the danger of misidentification because of the multiple use of a single element, not infrequently it was placed in an inverted position or on its side to express some restricted meaning. Thus, the shell symbol in one position and with a certain postfix represents day (more probably sunrise or perhaps even night); inverted and with different affixes it serves on the monuments as the symbol for south (figs. 31,1-9; 41,28, 30,34,36). The Ahau sign has a number of uses beside that of its common function as the twentieth day. It frequently appears as an affix and then it is almost invariably in the inverted position (fig. 2,24-26). That inversion of an element is primarily to indicate a specialized use is demonstrated by the Ahau glyph itself; in a certain compound the Ahau rests in the angle formed by the thumb and forefinger of an outstretched hand, but the Ahau may be upside down or in its normal position (fig. 46,18-23). Similarly, in the codical form of the glyph for east the Ahau is usually inverted but occasionally it is in the normal position.

Glyphs which belong to a single clause can be fused or the first can become an affix of the second, both of which processes are to be seen in examples of Glyphs G and F (fig. 34,49,21), or, where one element is normally fused with another or is its infix, the two can be separated (fig. 32,47-53). Similarly, the elements which form compound glyphs can stand as independent entities. The order of glyphs in some compounds and clauses can be reversed without any change of meaning (figs. 33,36-38; 40,50-52; 41,6,20).

From this brief outline of some of the complexities of Maya hieroglyphic writing it is clear that one must depend on the context in deciphering a passage. For instance, one must decide from the rest of the sentence whether the head of the god with dots on his chin is to be read as the number 9, as the Chicchan god, as *yax*, "green" or "new," or as water, the element which that snake god rules. This head appears with the tied glyph in a clause at Palenque (fig. 3,7, Gl 4). We know that

this glyph never takes a numerical coefficient, but in parallel clauses it has instead the kan cross and water symbol prefix (fig. 3,3-6,8,9), and so we are justified in reading the head in this text as a sign for water. This same head appears at Copan with the sunrise glyph (fig. 31,51). That glyph can take a coefficient, but apparently only when the number is 1. As the sunrise glyph at Copan frequently takes the *yax* prefix (fig. 31,49,50), we can rest assured that here the head stands for *yax*, "new." Attached to the baktun glyph at the start of an IS, the head clearly should be read as 9. In all three cases the context makes clear which meaning is to be given to the head, but in many other instances one is less certain.

Presumably to avoid confusion in the sundry usages of the glyph of this god, the personified form of the day Chicchan is given the reptilian form of the god, and the supraorbital plate is emphasized, but in the codical glyphs this crosshatched supraorbital plate is transferred to the region of the temple. Thus, to clarify ambiguous readings the Maya created new variants, which, however much they may have helped the Maya reader, hinder our work of decipherment.

So far we have confined ourselves to a summary discussion of the properties of the main elements of glyphs; a word should now be said about new knowledge concerning affixes and infixes, without the study of the meanings and functions of which little further progress in our subject can be made.

In discussing rules of Maya hieroglyphic writing we laid great stress on affixes and infixes, partly because of their importance as the articulations of the writing, and partly because they have been so generally ignored and in some cases even dismissed as ornamental additions. It was possible to establish eight new rules which apply to those particles:

1. Some affixes have personified forms, and it is not improbable that future research will show that all could be personified, although that practice was not commonly followed. As examples of personified forms of affixes may be mentioned: the flattened fish-head as the personified form of the bracket with line of dots (fig. 5,48,49); and the vulture with *ti* frontal ornament, the head of the *xoc* fish, the Chicchan god of number 9, the manikin death god, and what is probably the youthful maize god as personified forms corresponding respectively to the *ti*, comb, *yax*, death eye, and *te* (2) affixes (cf. figs. 4,29; 2,30; 31,51; 4,7; 34,68 with figs. 2,44,29; 31,49,50; 4,9; 34,66).

2. Affixes and main elements can change places, the affix becoming the main element, and the main element a prefix or postfix. Usually when this occurs the affix is personified on changing to a main element (figs. 2,29-31; 34,59-63). An affix can become an infix (fig. 2,4-7,9,10), and an infix can be promoted to main element (fig. 32, 50,52). The mastery of this rule is of value in decipher-

ment, as we can now decide what affixes are essential to the meaning of a glyph. For example, it was formerly supposed that the comb affix was not an essential part of the month sign Mac because it is not always present. We now know that although it is absent as a symbolic postfix, it is present as a personified main element or as an infix (fig. 18,1-18) and so it is an indispensable part of the sign.

3. Positions of affixes do not necessarily correspond to the order of words in the spoken language. For example, one affix, the *u* bracket, is nearly always a prefix, but another affix, the moon sign, with the same sound value is usually a postfix (fig. 11,37-41). In speech the possessive *u* precedes the object possessed and the possessor's name comes last. Accordingly, one affix corresponds in position to the spoken word; the other does not.

4. Under certain circumstances an affix can be transferred to an adjacent glyph (fig. 2,58-61). In some cases such shifts perhaps reflect slight variations in the spoken word, sometimes, perhaps, representing poetic license.

5. Usage had caused affixes commonly attached to glyphs in constant use to be generally restricted to either a prefixal or postfixal position, but they could be shifted from one position to another without any change in meaning. For example, on the monuments the comb is a prefix of the month Zec; in Dresden it is a postfix of the same glyph (fig. 16,45-52). Similarly, in a form of the hand glyph the "down-balls" affix is usually prefixed to the main element (fig. 42,61), but it can be postfixed (Dresden 15c), and the text indicates that there is no change in meaning. The double Imix glyph supplies another instance of a shift of this nature; the comb affix is normally a prefix of the second Imix, but it can be attached as a postfix to the first Imix (fig. 40,13-15). The crosshatched affix of the tun in Madrid, surely a numerical classifier, can similarly change from prefix to postfix (fig. 12,23,24).

6. Affixes, like main elements, can have varied meanings. The *te* (1) element is a good illustration of multiple usage. It may be the *te* numerical classifier (figs. 2,13-23; 12,21); it may have the meaning tree (*te* or *che*) (p. 56; fig. 62,1,2); it can stand for the grammatical suffix *te*, as in the glyph of Bolon-Yocte (fig. 12,16-18); and it can be an attributive affix to indicate a connection with vegetation or maize in particular (Dresden 37b). It is possible that it may also have been employed for the locative *te*. The positions of the affix in these sundry usages correspond to the spoken word: when used as a numerical classifier, it is correctly inserted between number and noun; when used as a grammatical suffix, it appears as a postfix; and when it is a substantive (tree), it is postfixed to the color, since in spoken Yucatec the adjective precedes the noun it qualifies. Thus we can conclude that sometimes the position of the affix corresponds to the spoken word; at other times it does not.

7. Affixes, like the proverbial flea, can have their own infixes or affixes, although the process can not be carried *ad infinitum* (cf. fig. 4,21 with 22 Gl 3; and 41,14-17 with 18,19,21). The glyphs for *chac zac cimil*, "great faintings," supplies a good example of secondary meanings attached to affixes. In this compound *chac* means "great," not "red," and *zac* denotes not "white," but something which is not quite the same as the word it qualifies,

approaching our use of pseudo. *Zac cimil*, pseudo-death, is defined in the Motul dictionary as fainting or heart attack.

8. There are indications, perhaps hardly strong enough to justify the term "rule," that whereas a noun is normally the main element and the adjective which qualifies it is the prefix, a stress on the latter in speech could be reflected glyphically by converting the adjectival prefix into the main element and the noun into a postfix. Glyphs for the red, black, and yellow trees (fig. 62,1,2) supply an instance of this: the trees (substantives) are expressed glyphically as postfixes; the colors (adjectives) are the main elements. Here, however, the ritual of the directional colors is paramount; the tree is of secondary importance.

Affixes deciphered positively or with reservations comprise prepositions, relationship terms, numerical classifiers, attributive signs confirming the identity of the main sign, elements specifying a particular use of the main sign, adjectives, and nouns (particularly when these are also found as main elements). I suspect that affixes do not represent verbs, although that suspicion perhaps may never be confirmed or disproved because of the indistinct separation between verbs and nouns which is a feature of Maya speech.

The same multiplicity of meanings attaches to some affixes as to some main elements, and again we are often at a loss which way to turn in those mazes of anagogy. The problem is complex, indeed, when an affix with several meanings is attached to a main element with the same ambiguous properties. Happily, glyph decipherment, like the biography of Chaucer, "is built upon doubts and thrives upon perplexities." In such cases the doubts and perplexities which we are fain to shun mirror the train of thought which we should follow, for therein are imbedded the poetry and mysticism of the Maya.

This vast and important field of glyphic research has been neglected; students have turned to the arithmetical and calendrical aspects of Maya writing, treating those subjects more and more as though they were problems in ballistics or cryptography, soluble only by slide rule or calculating machine. Interesting as it is to speculate on methods the Maya may or may not have used to measure the length of a lunation or of the solar year, it is well to remember that in Maya eyes the moon was a vivid personality, whose unhappy story has shaped Maya thinking, and the sun was a hero, whose guises and contacts are embodied in the glyphs. The Maya attitude toward solar eclipses was far removed from that of the modern astronomer who checks his stop watch and the shutter of his camera as, businesslike, he awaits an event which may supply him with material for a new paper. Only by leaving the streamlined structure of modern research and knocking at the door of Maya mysticism and poetical

fancy can one hope to understand Maya literature; one does not pursue Ariel with a repeating rifle.

One notable outcome of this study has been the establishment beyond serious question that the 13 days from Caban to Muluc inclusive are representations of the gods of the numbers 1-13. This is of transcendent importance not only because it yields many clues to the meanings of glyphic elements, but also because it is a reflection of the peculiar integration of the same divine elements in various combinations, so well typifying Maya thought and practice. No other people has developed toward time and its many divisions that mystical and spiritual attitude which the Maya evolved; nowhere else in the world, so far as I am aware, have the periods of time, from the day upward, been not only deified, but given active personalities and the most important parts on the divine stage.

The contrasting attitudes of Maya and Aztec to the days demonstrate the spiritual differences between those two cultures. Both peoples derived their sacred almanacs from a single source. The Maya held the days to be living gods, whereas the more materialistic Aztec regarded them as a string of names of animals and objects. The fourth Maya day was the day of the maize god; the fourth Aztec day was lizard: the twentieth Maya day was the sun god; the twentieth Aztec day was flower. The Maya days remained divinities; the Aztec days had been secularized. It is a situation comparable to that which has arisen in the western attitude toward St. Nicholas. To Latins and Slavs he is the patron saint of children and sailors, around whom many charming legends have clustered; to peoples of north European culture he has become a somewhat derisive and potbellied patron of extravagance, an unrespected tool of shopkeepers. The attitudes reflect the spiritual content of the two cultures.

The 13 day gods of the Maya, playing their collective and individual parts on the Maya stage, are seldom in the wings; as a reflection of those activities, they permeate the glyphic writing, for the hieroglyphs embody the thoughts, the beliefs, and the imagery of their users. The sun god is not only the sun; he is the day Ahau; he is the number 4; he is the patron of the month Yaxkin; he is the 24-hour day; he is the redundant sign which in Yucatan identifies the day glyph; and, with added attributes, he is one of the lords of the nights. Moreover, his profile can be used as part of the glyphs for east and west, for Yaxkin, and probably for the kin part of any glyph. In the form of Ahau he has many other functions, most of which are still unknown. Thus there is an extensive series of glyphic forms in which this one god appears, and in each case we are dependent on the context or affixes for indications as to how the glyph is to be read. Although the sun is probably the day god most

extensively used in glyphic writing, his 12 companions also reappear in numerous combinations. Only by careful scrutiny of every source on religion and folklore can we hope to follow the mental processes of the Maya who, to his way of thinking, logically assigned a wide range of subjects to the sway of each of these primary gods.

Maya mysticism is well exemplified by the poetical concept of the passage of time as a group of bearers, each with his period on his back, whose stages in the diuturnal march were the *lub*, the resting places of the porters. This charming fantasy, too, is preserved in the hieroglyphic texts, such as full-figure IS, and may also be retained in an abbreviated form in the use of the knot element, as in Glyph F. The combination of water symbols with the moon sign in some variants of Glyph D of the lunar series is another instance of a religious concept embodied in the glyphic writing, for it surely refers to the belief that at the time of conjunction the moon went "to her well," probably the Maya equivalent of the Mexican Tlalocan, "the land of rain." The dog, as a symbol of the underworld and of fire, supplies two more cases of the incorporation of religious belief and legend in the glyphs; the glyph of the Moan bird, both in its function as a rain symbol and in its variant form, the "13 layers of heaven," perpetuates the cosmological beliefs of its creators. The number of such instances could be greatly expanded. The need for spading among familiar glyphs to uncover their mythological and metaphoric roots is the reason for the lengthy and, I fear, arid discussion of day signs, month signs, and the component elements of the IS in Chapters 3, 4, and 6. In excuse, we may recall that arid soils commonly retain much mineral wealth.

The poetical character of the inscriptions is present not only in the origins and uses of individual glyphs, but also in the construction of sentences. I am now convinced that the glyphic texts are a form of antiphony in blank verse. The redundant glyphs which I once regarded as evidence that the Maya were tautologists, are surely added to strengthen the melodic qualities of the verse. Those metrical qualities exist not only in the glyphic inscriptions of the monuments; they have survived in the books of Chilam Balam, and are particularly prominent in the texts which accompany the divinatory almanacs in the codices. The unvarying number of glyphs in each compartment of an almanac is not entirely governed by spatial considerations, for the Maya handled such problems easily with space-saving devices, such as placing two glyphs in one glyph block or fusing them. They seldom did this in the almanacs, thereby preserving the rhythmic beat of the blank verse. Mysticism, religion, and poetry completely dominate the hieroglyphic writing.

Among the general suggestions offered in the preceding

chapters the most far-reaching are those contained in the discussion of the glyphic texts which accompany the divinatory almanacs in Dresden. In Chapter 12 and elsewhere I have advanced the thesis that those passages, often consisting of four glyphs but frequently expanded to six or eight or reduced to three, record the influence of the regnant deity on each division of the almanac. I have assumed, not without reason I believe, that in the minimal texts the first glyph of each compartment is a verbal form which expresses the action of the god, that is to say his influence; the second glyph is that of the god then ruling, the subject of the verb; the third is the result of his influence, beneficial or otherwise, that is to say, the augural glyph. The enlargement of this minimal body of glyphs permits the recording of fuller data, such as information on world directions and colors, an expansion of the augury, or, in some cases, the object of the god's action.

A considerable body of augural glyphs has been deciphered with varying degrees of certitude, but less assurance bolsters the rendering of verbs of action. This investigation of the divinatory almanacs has established, to my satisfaction at least, that the supposed tables of the planets Mars, Jupiter, and Saturn have nothing to do with the revolutions of those planets, but are merely the preludes to more divinatory almanacs. The Mars beast, I feel reasonably sure, is not a symbol of that planet, but is a creature associated with the rains.

I am confident that it is now possible to offer approximate decipherments of a large proportion of the divinatory passages in Dresden and, to a lesser extent, in Madrid. One may not, at this point, be able to state positively what is the exact translation of some verbal glyph, but one can limit its possible meanings to a fairly short range. Whether a certain verbal glyph in combination with that of God B means "the rain god influences" or "the action of the rain god" is not of great consequence; the important step has been taken when the division into action of god and resultant luck of the day is recognized. As a result of the identification of a considerable group of augural glyphs, we now know that the great proportion of divinatory almanacs in Dresden (the range of subjects is wider in Madrid) deals with weather and its results on the crops. Abundance and drought, days of sunshine and rainy skies, days of darkness and days of storm, good tidings and evil, and days that are halfway good, planting and germination are the subjects chiefly discussed.

Progress is not confined to the divinatory almanacs, for a number of glyphs are identifiable on the pages of Dresden and Madrid dealing with the ceremonies for the new years. We can now assert that the accompanying glyphic texts give the prophecies for the incoming year along the lines described by Bishop Landa. It is a pleasant coin-

idence, of the kind that softens the asperities of our subject, that almost exactly one baktun (395 years) after Landa wrote his memorial on the calendar, research in original Maya sources confirms his statements. Now that we have a grasp of the subject matter, the work of decipherment should proceed more swiftly.

An outcome of this study, although one that has not always yielded direct results in decipherment, is the realization of the extent to which a single element may be used in widely separated glyphs. This, of course, can not be regarded as a discovery, but is the consequence of more careful examination of the component elements of each glyphic compound and of its variant forms. We have taken note of one such element, the jade symbol, which occurs in a large number of signs, but I have in mind the more complex forms which appear in several glyphic compounds.

An instance of this is the sign, perhaps a variant of the bundle device, which in various combinations forms the variant of Glyph X most commonly used when the coefficient of Glyph C is 5 or 6 (fig. 37,9,34,38,55,60,69) and once (erroneously?) when the coefficient is suppressed (fig. 36,13). At the top of this is usually added an element which resembles, but probably has nothing to do with, the inverted Ahau. There may also be present a fist, an element resembling the sign for white, an emblem vaguely reminiscent of an inverted hand, and Beyer's "serpent segment." An examination of these examples of Glyph X shows great variation in the compounds. In one case (fig. 37,43) the pseudo-white sign is the main element; it has two postfixes, one of which is the standard bundle affix. This bundle postfix may be a substitute for the main element which I have suggested may be a variant of it. Several of these factors reappear in the variable element of the IS introductory glyph corresponding to the month Pax (fig. 23,18-20,34). In three cases the dubious bundle element with "inverted Ahau" at top is before the head of the deity; on two occasions the outline resembling an inverted hand appears in the headdress; once the pseudo-white sign is set at the back of the head; and in two cases what appears to be the pad of a large member of the cat family is displayed at the back of the god's temple, perhaps corresponding to the closed fist of the Glyph X variant.

The same interchangeability of elements occurs in the case of Glyph G7 (fig. 34,32-37): the dubious bundle with "inverted Ahau" appears in two examples; the pseudo-white sign is the main element in one glyph and may be merged with the main sign in another (fig. 34,35); the clenched fist is the prominent headdress of a personified form of the glyph. In one case the glyph appears to have a coefficient of 7. One wonders whether this can symbolize

the jaguar whose features seem to be incorporated in the portraits of the patron of Pax. It is quite consonant with Maya practice to record the number 7, not as a numerical factor, but as an attribute of the jaguar god, patron of that number.

We have, in short, identified a chain of related elements usable in three distinct glyphs, the general functions of which are known, but the precise meanings of which still escape us; but there is reason to believe that these related elements either have the same metaphrastic value or are related as members of a single body of attributive symbols. With that knowledge gained, we are on the alert for substitutions of one of these elements for another in other glyphic combinations, but disappointedly we realize that the number of glyphic elements which alone can represent some sound or idea is constantly shrinking. With a limited number of glyphic symbols to match with sounds or ideas, each new case of extravagance in interchangeability reduces the number of elements remaining to represent untranslated words. At the same time it is becoming apparent that unless the glyphs were incapable of reproducing Maya thought with some efficacy, most glyphic elements must have an extensive range of usages. Naturally, this makes decipherment more difficult, for each glyph in a context may have a series of meanings from which the most appropriate is to be chosen.

Decipherment of glyphs of unknown meaning is of secondary importance to comprehension of the structure of the glyphic writing, but is more perceptible evidence of progress. Among the reasonably certain decipherments here offered for the first time are glyphs for:

cuch (burden), the *cuch haab* (burden of year) compound, drought, continuous drought, abundance, heaped-up abundance, abundance of maize, sprouting maize, maize of various colors, seed and maize seed, seed plot (milpa), dark day, sun darkened, moon darkened, storm with lightning, brilliant sun, rainy sky, wind, *zac ik* (light? wind), evil, year of evil, *multun tzeḱ* (heap of skulls), good tidings, *ahaulil* (rulership), drilling, *xoc* (count), fainting, tree, yaxche, rainy sky, and the glyph of Bolon-Yocte.

Tentative identifications include:

verbal glyphs, such as the hand forms for *etma* (hold in one's hand) or perhaps *machma* (take in one's hands, hence influence), *tz'a* (give) or *matan* (grace received); the *hel* (succeed or change places) element; the *bix* glyph used as a numerical classifier; two new signs to indicate the completion of a tun (figs. 32,56-60; 33,1-3); glyphs which may indicate counts to the seating of a tun and the seating of a day; a possible glyph for jade beads; and what may be a glyph for *uin* (set in order).

Among affixes identified are:

postfixes used with period glyphs to indicate a distance number and to call attention to katun and tun anniversaries; the locative *ti* affix; the forward prefix; the anterior postfix and the "eel" prefix with the same value; three affixes to denote *te* as a numerical classifier; *tu* prefix to denote an ordinal; the moon and bracket signs to indicate the possessive *u* or to convert a cardinal to an ordinal; the *il* relationship affix; the *kax* (evil) sign as a modifier (halfway good etc.); the tun sign as an intensifier, as in the *kintunyaabil* (drought) glyph, and to denote end, as with the twentieth day of a uinal; the seating prefix used with month signs and the winged cauc; the *chac* prefix used in the sense of "great"; the kan cross, zero symbol, shell, and other signs signifying water; the maize prefix; the brightness (of sun and lightning) prefix; the dog as an affix to denote a connection with fire; Beyer's "owl plume" perhaps with the value *ak* and used with Ahau to indicate a period ending; and perhaps the "Ben-Ich" affix.

New variants of glyphs now first established include:

the personified forms of the propeller glyph (fig. 30,54); the *te* affix (fig. 34,21,63,68), the up-ended frog (cf. fig. 3,10, Gl 6; 12, Gl 5 with 11, Gl 5), the death eyes (fig. 4,7,8; note the manikin head alone replaces the death eyes in the Ahau-bundle compound; fig. 46,10-12,16); what may be a personified form of the distance number introductory glyph; the symbolic form of the day Chichan on the monuments (firmly established and identified with yax symbol); a little head with an Olmec mouth as a personification of a postfix resembling, perhaps identical with, the *il* affix (fig. 3,3, Gl 2; 4, Gl 2; 9, Gl 5); the complete fish as a personified form of the comb; the vulture as a personified form of the *ti* affix; a personified form of the caban (non-day) glyph (fig. 5,24); a personified form of Etz'nab, as well as early forms of that day sign showing the flint blade; the symbolic form of the patron of the month Mol; a new variant of the bak-tun (fig. 26,19,22); the characteristic affix which distinguishes the kinchiltun from the calabun; head variants for Kankin and Uo (fig. 35,8,10); and a head variant for the patron of the month Kankin.

Some connections have been established between Maya glyphs and those used by cultures to the north, although the search for such associations was incidental to the study and was not pursued. The kan cross, the Moan bird, and the spiral are used in both the Maya area and Teotihuacan with an aquatic value; jade is a Maya symbol for the year and turquoise is the Mexican equivalent; many day names have the same associations in the two areas (e.g. Akbal and Calli are days of the jaguar god of the interior of the earth, both Eb and Malinalli refer to the destructive effects of certain kinds of rains and mists, and both Men and Quauhtli are days of the old moon goddess); the moon glyph has water symbols added sometimes in both areas, a reference to the moon's resi-

dence in the land of the rain gods; and, finally, Mexican influences in Dresden, such as the presence of the gods Ixquimilli and Quetzalcoatl, the *oyoualli* ornament, and the opossum priest, were noted.

In the calendrical and arithmetical aspects of glyphic research our knowledge is increased by the identification of a cycle of 819 days, recorded on a number of monuments, which appears to have lunar and solar associations with the end of the current katun. Teeple's determinant thesis that the Maya calculated the discrepancy between their year of 365 days and the solar year receives confirmation from the discovery that there are records of such calculations giving a solar correction for 8 Cumku close to nearly all the CR anniversaries of 4 Ahau 8 Cumku which fell in the active period of stela erection.

In the field of astronomy a rearrangement of the table giving the starting points of the Venus cycle in the LC is offered, and there is a discussion of a possible combination of groupings of 405 and 361 lunations. The problem of the inauguration of the LC is newly explored, and a suggestion advanced to account for Imix not falling on the first day of each uinal. Evidence is given (expanded in App. IV) of the enormous periods of time covered by some Maya calculations into the past. Some of these amount to several million years; the longest covers a span of some 400,000,000 years. Tables which appear to deal with the burner ceremony and the *u sian chac*, "birth of Chac," ceremonies were uncovered in Dresden, and a contact was thereby made between that codex and the books of Chilam Balam, establishing the continuity of Maya ritualistic practice. A relationship between the heads of Glyph C of the lunar series and Glyph X was brought to light, together with some evidence that Glyph C refers to the current moon.

Enough has been written to give an idea both of the complexity of the subject and of such success as has attended this essay in decipherment.

Unfortunately, many of the mythological and lexical references on which the glyphs were based are now lost, with the result that associations of ideas, easily understood by an educated Maya, are incomprehensible to us. Sometimes such associations are discernible in Maya art, as, for example, in the use of the conch shell as a symbol of the underworld or the water lily as an emblem of the earth's surface or its interior; sometimes they have survived in the beliefs or folklore of the present-day Maya, as, for instance, the belief that the souls of the dead return to earth as insects on the day Cib, or the connection of the dog with fire and with the underworld, or the existence of snake deities called *chicchan*; sometimes the associations can be found in the writings of Landa and others of the sixteenth and seventeenth centuries, for ex-

ample, the assignment of death and drought to the south; often they can be inferred from ideas prevalent among the Mexicans, and that applies to derivations of the patrons of various days, notably those of Akbal, Ix, and Men. Nevertheless, the gaps in our knowledge of those subjects are lamentable. It is as though one were to read a political broadsheet or satire of the eighteenth century with little or no knowledge of the personalities, issues, and topical allusions of that period.

Manifestly, with many diverse meanings already established for glyphic elements and many more which escape us, one is confronted with a Herculean task. The glyphs are anagogical, but we have only a scant idea of the mysteries; even where we ken the inferences, gaps in our translation of the context make a choice between them difficult. Without a full understanding of the text one can not, for instance, tell whether the presence of a glyph of a dog refers to that animal's rôle as bringer of fire to mankind or to his duty of leading the dead to the underworld. That such mystical meanings are imbedded in the glyphs is beyond doubt, but as yet we can only guess as to the association the Maya author had in mind. Clearly, our duty is to seek more of those mythological allusions. Indeed, one can state unhesitatingly that without a thorough knowledge of all the source materials on Maya and Mexican religion, mythology, and folklore "we weave but nets to catch the wind."

Even when, in the distant future, the meanings of nearly all glyphic elements are known, there will ever be a certain looseness in translation, and for many short passages alternative renderings will always be possible; the translator will have to select from several choices the meaning which will best fit the context. This, really, is not discouraging, for our ultimate objective is not the literal word-for-word decipherment of the glyphs, but a fuller comprehension of the mentality, the poetic concepts, and the philosophical outlook of the Maya. That objective can be achieved even if we hesitate between two related interpretations of the difficult passage.

The decipherment of Maya hieroglyphic writing is not comparable to reading a difficult anagram, although I would be the last to deny either that the search is a fascinating task or that the mere increment of knowledge is not a worthy goal. With the anagram solved and the momentary glow of achievement extinguished, one forgets it to turn to something else, for one can proceed no further; the solution of the glyphic problem is something vastly different, for it leads us, key in hand, to the threshold of the inner keep of the Maya soul, and bids us enter. In truth, that simile is not all it might be in that it implies a complaisant acceptance of a right to enter in possession of the spiritual heritage of the Maya. That is

not the case so far as I am concerned; the relationship is one which can best be expressed in terms of mediaeval and renaissance painting. The mystery is painted; the donor kneels in humility, a figure in the composition, yet aware that he is an intruder who has gained a privilege far greater than his meed.

The Maya rose to heights of spiritual grandeur, unfortified by which they could never have freed their culture from the shackles of a poor soil, a deleterious climate, inadequate methods of agriculture, and a pitifully restricted range of tools. Our own culture is the opposite of that of the Maya, for materially it has infinite wealth and resources, but spiritually it is desperately impoverished. In religious feeling and sense of duty, in happiness and tranquility, in painting and sculpture, in poetry and prose, in music, and in architecture, too, I think, but with less assurance, our present civilization is at low ebb, displaying vast mudflats of purposeless living and frustration. In such a sad plight we may well humble ourselves to inquire how and why the Maya, endowed with scant material resources, made a success of their life, whereas we, with all nature at our command, have fallen woefully short of that objective. The general answer to that inquiry, if we have the humility to make it, must lie in the greater spiritual wealth of the Maya, but the detailed story can be ours only if we busy ourselves in mastering the script in which the Maya classics are writ. Progress has been made, and "now at last the sacred influence of light appears, and from the walls of heaven shoots far into the bosom of dim night a glimmering dawn."

ADDENDUM

Through the courtesy of Señor Alberto Ruz L., I am able to refer to the magnificent hieroglyphic tablet found in the course of the first (1949) season's excavations at Palenque under his direction.

The text opens with an IS 9.10.11.17.0 11 Ahau 8 Mac expressed as full figures. The numerical coefficients are of particular interest in that the characteristic attributes are on the bodies or headdresses, not on the faces. Thus the heads for 11 have the caban element on arms and legs; the head for 10 is that of a youthful deity who wears a skull on his head and a death-head pectoral. There follows a date 9.10.10.11.2 1 Ik 15 Yaxkin, which is a base in the 819-day cycle (p. 212). Like that of the Cross, the accompanying glyphs do not conform to the usual pattern.

The most outstanding feature of the text is the presence of two complete lunar series (one somewhat damaged)

with CR dates; hitherto no lunar series has been found except with an IS. In two of the three lunar series Glyphs D and E are replaced by the head of God C with water affixes (Kan cross, shell, and circlets in elbow), and in both cases a kind of long V-shaped flare issues from the eye. This extends across the affixes to the left edge of the glyph, where there is a small circle between its arms. The design is similar to that on Copan N (fig. 36,1) save that in the Copan example the flare starts at the edge of the face, not from the eye (could it have been thought to have emerged from the hidden eye?). One is reminded of the legend that Sun plucked out one of Moon's eyes because the light she shed was too bright (Thompson, 1930, p. 132). The Pipil of Izalco say that Sun hits Moon so that one of her eyes is weak, and at Palopo there is a belief that the moon is blind in one eye (Redfield, 1946, p. 220). Sun and Moon fight, causing eclipses. However, the interval between the two associated dates is not correct for eclipses, so one can rule out that possibility. Accordingly, it is far from improbable that this glyph pictures the extinguishing of the moon's light at disappearance before conjunction. There are grounds for believing that God C's head may represent the sun at dawn (p. 171), and it is in the sun's morning rays that the old moon is lost to sight. Whether this be the correct explanation or not, we probably have in this glyph a pictorial representation of old moon's light lost to view at disappearance or conjunction (note the water emblems).

There is on this tablet an example of the "forward to sunrise" glyph, hitherto believed to have been confined to Piedras Negras and nearby El Cayo (p. 166). There is also an example of the "eel" affix as an anterior date indicator (p. 164), and another example of Glyph E used in a distance number with the value 20 (p. 167). Here, however, the shell-kin variant is interposed between the coefficient of 5 and the moon glyph; the whole records an interval of 25 days.

There are two examples of the dog (?) head variant of the kin used in distance numbers (p. 168). The crossed bones replace the eye in both cases; the coefficients are the completion affix and 18, respectively. It may be significant that this glyph is still unreported with a coefficient of less than 8. The one-shell-period glyph (p. 194) occurs with 9.10.10.11.2 1 Ik 15 Yaxkin. There is an example of Glyph G2 and two personified forms of G7; the shell-and-water variant of the tun (p. 193) appears.

A preliminary report by me on this text will have been published in Mexico as part of the report on the first season's excavations at Palenque before this publication is issued.