

# *Physical Deformities in the Ruling Lineage of Palenque, and the Dynastic Implications*

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Early Maya sculpture tends to be linear, flat, and purely symbolic, with accepted norms for representation of ancient dignitaries. Later Maya sculpture, although still adhering to an iconographic language of visual representation, does attempt to portray actual individual rulers. Proskouriakoff (1960: 454-475), in her dynastic hypothesis, has shown that rulers from Piedras Negras are portrayed on monuments, and that their names and events in their lives are contained in the hieroglyphic texts. She has also shown (1963: 149-167; 1964: 177-201) that names and deeds of rulers at Yaxchilan, namely Shield-Jaguar and Bird-Jaguar, are inscribed on monuments on which they are portrayed. These rulers at Yaxchilan are so readily recognizable by their distinguishing characteristics, that there is no doubt that these were intended to be portraits. In Late Classic times and to some extent during the period leading up to it, it became important, if not essential, to legitimize Maya kings and their rights to rule by proclaiming their kinship ties to their true or declared ancestors. They did this by emblazoning their buildings and monuments with portraits of these professed ancestors along with inscriptional texts pertaining to their deeds of valor and ceremonies involving them with

their gods. Palenque, Rands (1973: 204) brings out, was "significantly earlier" than Usumacinta sites in its "quantitative peak of monumental activities." Palenqueño sculptors were unequalled anywhere in their embellishing of buildings with portraits of kings and ancestors.

Palenqueño sculptors were artists more skilled in true portraiture than those of any other Maya center. They had an extraordinary sensitivity to details and physical attributes which became almost hallmarks of individual rulers. These portraits incorporated ancient techniques, including iconographic representations of paraphernalia deemed proper for rank, but went a step further and recorded physical traits, including deformities, as means of divine identification. Recording physical deformities in works of art of the ancient past was not unusual, nor was it selective. Diseases have been diagnosed from ancient art forms from Egypt, Greece, Rome, France, Peru, and from Middle America.

Although the Greeks strove to portray the ideal in human form, believing that the noblest type of body approached divine beauty, they nevertheless depicted persons in such meticulous detail that they recorded blemishes in their features which have been diagnosed

<sup>1</sup> Credit for the medical portion of this paper and much of the iconographic interpretation as well, is due John R. Scandizzo, M.D. and Marjorie S. Rosenblum Scandizzo, M.D., internist and pediatrician, respectively, with interest in human physical deformities. The three authors are indebted to John J. Deller, M.D., Director of Medicine, Letterman General Hospital, Presidio, San Francisco, for his help and suggestions concerning diseases referred to in this paper, and for generously supplying current photographs portraying persons with acromegaly. We are likewise indebted to Timothy Byron, D.P.M., Silas B. Hayes Hospital, Fort Ord, California, for his time spent in valued diagnosis from Palenque photographs.

Merle Greene Robertson is indebted to Marjorie and John Scandizzo for their time, knowledge, and most of all for their overwhelming enthusiasm during the entire time that this paper has been in process. Any errors or portions of the paper with which some may not agree must be attributed to M.G.R. In addition, she wishes to acknowledge the helpful suggestions of David Kelley at the Dumbarton Oaks May, 1974, Palenque Conference concerning organization and argumentative presentation of this paper. Floyd Lounsbury she thanks for reading this paper and giving many helpful suggestions, as well as generously offering the use of some of his unpublished material.

As much of the material in this paper is the result of joint observations of Merle Greene Robertson and Linda Schele while working together for three summers at Palenque, the author wishes to thank Linda for her part in the investigations.



Fig. 1 North Figure 1 on the sarcophagus

as disease of individual persons as well as whole populations. Hart (1973: 123-127) treats of tumors diagnosed from ancient coins and notes a lesion on the foreheads of first century Parthian Kings Orodes I and Phraates IV, tracing these lesions through several centuries by the coins. He also reports on coins dating from 425 B.C. depicting goiter in Sicily as well as Greece and Asia Minor. Acromegaly, a disease that we will show is depicted on sculpture at Palenque, is shown on a coin portraying Ptolemy I, ruler of Egypt from 325 B.C. to 285 B.C., notes Hart (1973: 127).

The Greeks knew of deformities and disease, those which should be treated and those which should be left alone. Hippocrates, born in 460 B.C., legislator of medicine, the "ideal physician" who traveled over the Greek world preaching his medicine, knew of many diseases and physical deformities. He was the first to describe clubfoot and its therapy as he knew it.

Most cases of congenital club-foot are remediable, unless the declination be very great, or when the affection occurs at an advanced period of youth. The best plan, then, is to treat such cases at as early a period as possible, before the deficiency of the bones of the foot is very great, and before there is any great wasting of the flesh of the leg.

Hippocrates

Depiction of physical deformities as means of portraiture in works of art is well known, one of the finest examples being Raphael's *Sistine Madonna* in which the extended right hand of Pope Sixtus II clearly shows six fully-formed fingers.

In pre-Columbian America, the depiction of both deformities and disease is shown on hundreds of pottery

figures, many of which Vêrut (1973) illustrates from Olmec, West Mexico, and Guatemala cultures, and he points out the portrayal of possible tuberculosis, small-pox, congenital syphilis, deep mycosis, sarcoma of the eye, traumatic edema, puritus, and tumors, as well as severe hunchback and other deformities.

Physical deformities in many civilizations were considered divine attributes bestowed upon humans by the gods. A group of congenital malformations known as "Down's syndrome" or "mongolism," Milton and Gonzalo (1974: 33-37) feel is depicted in the Olmec figures. The unusual features of the "Down's syndrome" baby may have been what the Olmecs saw as a personification of the were-jaguar, and this brought about the belief that it was the copulation of a woman with a jaguar which produced a strain of were-jaguar people. The nobility of the family may have been reinforced, they believe "if the mother of the affected baby happened to be a member of the priesthood or the wife of a priest" (Milton and Gonzalo 1974: 33-37). Ancestral ties to the jaguar, in a belief system in which the jaguar was the main totem, could easily be accounted for.

The depiction of physical deformities in sculpture at Palenque may help to interpret the proposed dynastic history of this site as submitted by Peter Mathews and Linda Schele (1974) and Floyd Lounsbury (1974: 6, and 1975). Also, as we shall show, the clubfoot deformity at Palenque was probably the controlling force behind a major belief system of the Late Classic Maya.

## THE KNOWN DATA

### PHYSICAL DEFORMITIES:

First we shall review the facts upon which our arguments are to be based. There are a number of stone and stucco sculptured figures at Palenque which show physical deformities.

#### Acromegaly:

One deformity portrayed on sculpture is the abnormal-sized head and especially the elongated jaw, hanging-open mouth, puffy eye and broad nose of Figure 1 on the north end of the Inscriptions sarcophagus tomb (Fig. 1). The south end Figure 2 of the sarcophagus is also carved with the same identifying characteristics. The left seated figure on pier c, House A of the Palace (Fig. 2) displays the same elongated jaw, as does to a lesser degree the left seated figure of the Palace Oval Tablet (Fig. 3). The progressive nature of acromegaly makes it such that a person in his or her younger years would not display the characteristics of the deformity to the degree that would be visible later on. As this latter tablet is the accession stone of Lord Shield Pacal (Schele identification 1974) this would be an earlier portrait.

#### Clubfoot:

Another deformity portrayed on Palenque sculpture appears on pier b, House D of the Palace. Here a person seated on a throne displays an abnormally positioned left foot in which the sole of the foot is facing outward on the sculptured pier (Fig. 4). The left leg is unusually thin in



comparison to the right leg and its length is somewhat shorter. We suggest that this is the portrayal of a severe clubfoot. The figure carved in stone on the Sarcophagus Lid (Fig. 5) also depicts an abnormally positioned right foot, although it is not as out of line as the pier b, House D foot. We will show why we feel this is also a form of clubfoot and not a misalignment due to poor draftsmanship on the part of the artist.

Pier d, House D of the Palace (Fig. 6) also depicts what we strongly feel is a representation of clubfoot (Fig. 7) on the principal figure. We shall show why we feel that this is a clubfoot and not a dance position as has been previously proposed by others including the author (Greene Robertson 1974). Also we shall show why we feel that the Dumbarton Oaks Panel 2 (Fig. 8) (obviously from Palenque) also is a portrayal of a ruler with clubfoot.

A mother-of-pearl plaque (Fig. 9) from Simojovel, Chiapas, now in the Tuxtla museum, has just been discovered by Peter Mathews (1975) to be a portrayal of a person with a severe clubfoot, who, in the hieroglyphic text on the reverse side, Mathews notes, is named *Pacal*. The posture of the person portrayed on the Simojovel plaque is very much the same as that of the figure on the sarcophagus lid, Palenque.

#### Polydactyly:

A standing male figure with six fingers on his right hand is portrayed on pier d, House A of the Palace (Fig. 10). The Temple of the Foliated Cross south door jamb displays a standing figure carved in stone that has six toes on his left foot (Fig. 11). Both door jambs of the Temple of the Sun exhibit male figures with six toes. It is the left foot of the north jamb figure (Fig. 12) and the right foot of the south jamb (Fig. 13) which have six toes.<sup>2</sup>

A front-facing standing figure holding a baby with six toes on the right foot is sculptured in stucco on both piers b (Fig. 14) and c (Fig. 15) of the Temple of Inscriptions (Greene Robertson 1974). Although it is known that piers d and e also hold babies in like positions, there is not sufficient stucco remaining to be able to determine physical characteristics of the babies, although it seems safe to assume that these were the same.

#### INSCRIPTIONAL TEXTS ALIGNED TO SPECIFIC PERSONS

Adding to our known data are the birth and death dates of a person important enough to have this record carved on the edge of the Inscriptions Sarcophagus Lid. It is assumed that these dates are the birth and terminal date of the person interred in the sarcophagus. In addition to these dates there are other dates on the edge of the sarcophagus, death dates of nine other individuals which range from 9.4.10.4.17 5 Caban 5 Mac (A.D. 524) to 9.10.10.1.6 13 Cimi 4 Pax (A.D. 683) as brought out in Lounsbury's (1974: 6) *Table of Dates on the Lid of*



Fig. 2 Left figure pier c, House A.

the Sarcophagus Tomb (Table 1). Lounsbury (1974: 5) has demonstrated that seven of these dates "can be equated with those which accompany the figures of the persons on the sides of the sarcophagus." He also points out (1974: 5) Heinrich Berlin's (1959) convincing demonstration that the glyphs accompanying the figures on the sides of the sarcophagus were these persons' name glyphs. Individuals on the sarcophagus sides also wear their names in their headdresses, as first noted by Thompson (1967: 18 and 20) and brought out specifically by Kelley (May, 1975 at the Dumbarton Oaks Conference on Palenque). It is important to our thesis that it be pointed out that, although glyphs 33-36 on the north edge of the sarcophagus lid give the date 2 Cimi 4 Mol (9.8.19.4.16) for the interment (glyph 33) of a person with the name glyph Turtle-Maize (Aahc-Kan in Chol) at glyph 34 and designate this individual as an ancestor ruler (glyph 35) with the Palenque Emblem at 36, this

<sup>2</sup> It was while Linda Schele was photographing the material in the bodega, Palenque, for the Instituto Nacional de Antropología e Historia, Mexico, that she came upon and identified the remaining portions of the jamb panels from the Temple of the Sun and the Temple of the Foliated Cross, and at the same time noted that the standing male figures on each of these jambs did indeed portray a personage with six toes. By glyphic texts, she later identified these as the ruler Chan-Bahlum.

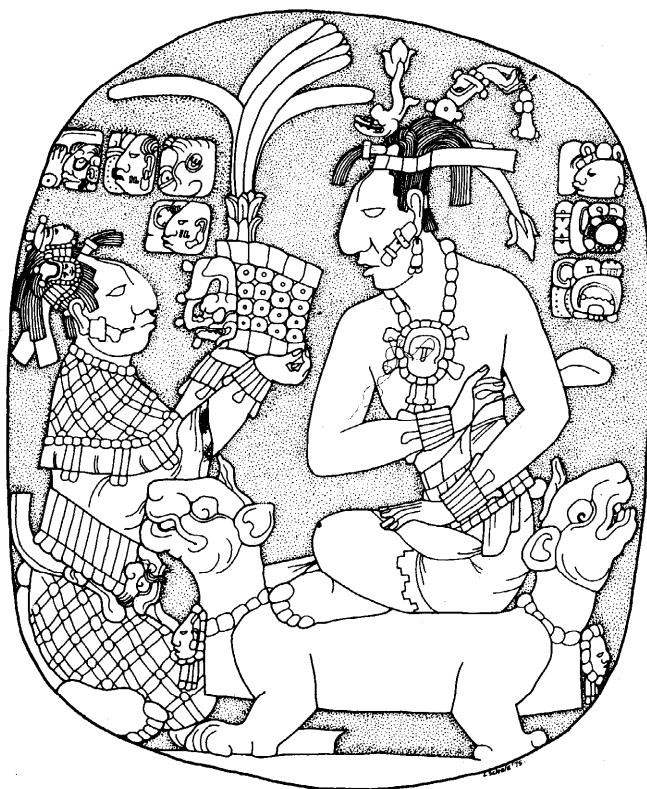


Fig. 3 Palace Oval Palace Tablet. Drawing by Linda Schele.

person is the only ruler listed in the ancestor rulers' list on the edge of the sarcophagus lid edge who does not have his portrait engraved on the sarcophagus itself. It is also important to note that there is one individual (whose portrait and name *are* engraved on the sarcophagus (Figure 1 on the west side) but who apparently was not a ruler of Palenque (Fig. 24) but whose name and interment date is on the sarcophagus west edge at glyphs 37-40.

It has been noted by Lounsbury (1974: 10-11) that two of the rulers listed on the sarcophagus lid edge are women and that one designated as Lady Ik, whose name glyph and interment date are at glyphs 28-30 on the eastern edge, ruled from 9.7.10.3.8 9 Lamat 1 Muan (A.D. 583) to 9.8.11.6.12 20 Eb 20 Ceh (A.D. 604). The other woman, Lady Zac-Kuk, is listed on the sarcophagus edge at glyphs 44-47 and she ruled from 9.8.19.7.18 9 Etz'nab 6 Ceh (A.D. 612) to 9.10.7.13.5 4 Chicchan 13 Yax (A.D. 640) (Lounsbury 1974: 15-16). Both of these women's names are carved on the sarcophagus sides. The above-mentioned Lady Ik, whose portrait is carved on the west side of the sarcophagus at Figure 2 (Fig. 25), was first recognized as a woman by Thompson (1967: 19) and designated as 'lady maize.' Lounsbury (1974: 6) and Schele (1974a) agree and refer to her by the Chol name Lady Ik, or Lady Kan-Ik.

The woman just referred to as Lady Zac-Kuk, who is

also mentioned on the sarcophagus edge, has her portrait carved on both the north end Figure 1 (Fig. 18) and the south end Figure 2 (Fig. 27) and was also first recognized as a woman by Thompson (1967: 18) and referred to as 'lady white parrot.' Lounsbury (1974: 15-16) and Schele (1974a) agree as to her identity and refer to her as Lady Zac-Kuk or Lady White Quetzal, or as Lounsbury (1974: 16) points out, Lady Resplendent-Quetzal (in another sense of Zac).

In addition to the aforementioned rulers' names and dates on the sarcophagus lid and sides, other rulers' dates are listed on the sarcophagus lid and/or sides, the three panels of the Temple of Inscriptions, the Palace Tablet, the Palace Eastern Court stairs, the tablets of the three Cross Group temples, and the Tablet of 96 Hieroglyphs (Mathews and Schele 1974: Tables 1-8 and Lounsbury Table 1). For the birth, accession, and death dates of Palenque royalty, see Table 2, and for known depictions of individual persons aligned to Palenque sculpture, see Table 3.

#### MEDICAL DATA WHICH APPLY TO PALENQUE SCULPTURES

There are a number of pronounced physical deformities portrayed on Palenque sculpture which we will demonstrate are accurate statements of actual medical deformities portrayed as hallmarks of Palenque rulers. This is especially notable at a time when power was being consolidated and great measures were being taken to reinforce this power by proving rights to kingship, as from the early Otolum (ca. A.D. 600-700) and into the Murcielagos (ca. A.D. 700-770) periods at Palenque, when, as Rands (1974: 37) states, "One is left with the overriding impression that this was a time of rapid architectural change when Palenque, hitherto a relatively small and uninfluential site, was emerging as one of the major Classic Maya centers."

##### Acromegaly:

One of the physical abnormalities depicted on a ruler portrait at Palenque is acromegaly, a rare clinical syndrome which appears to be depicted on the sarcophagus portrait on the north end Figure 1 and south end Figure 2, Lady Zac-Kuk or 'lady white parrot' (Fig. 18). This abnormally elongated jaw is also portrayed on the left seated figure of pier c, House A of the Palace (Fig. 2).

Acromegaly is a clinical syndrome produced by a tumorous enlargement of the anterior pituitary glands at the base of the brain with the release of excess amounts of growth hormones, resulting in an accentuated growth of bones and soft tissues (Fig. 16). Its incidence is not fully determined, but is estimated at less than 1 in 10,000 population. Rarely is it found in more than one family member at a time and no recognized heredity has been established. It is an insidious disease, often present for many years before it is recognized and then only by trained eyes. In fact the changes are so subtle that close associates are less likely to recognize them than is the infrequent visitor.



*Fig. 4 Seated figure on pier b, House D.*

William Oser, at the turn of the century wrote a description of the physical changes in acromegaly that stands today:

The hands and feet are greatly enlarged, but are not deformed and can be used freely. The hypertrophy is general, involving all the tissues, and gives a curious spade-like character to the hands. The lines on the palms are much deepened. The wrists are much enlarged, but the arms are rarely affected. The feet are involved like the hands and are uniformly enlarged.

The big toe, however, may be much enlarged in proportion. The nails are usually broad and large, but there is no curving of the terminal phalanges and they are not bulbous. The head increases greatly in volume ... The tongue in some instances becomes greatly enlarged.

(Oser 1901: 1142).

The person portrayed on the sarcophagus may well have been afflicted with acromegaly. Her head is much larger than that of the other figures and her lower jaw is





*Fig. 5 Sarcophagus lid figure.*

quite elongated and protruding, making her face a striking contrast to all other features. The tissue around her eye is puffy and has lost its normal folds. Her mouth is poised in an open position, perhaps having an enlarged and cumbersome tongue; her nose is broad. The left seated person on pier c, House A also had a head larger than any of the other figures on House A piers, and also includes the same abnormal characteristics as the sarcophagus figure.

Some confusion arises when we look at the fingers. The hands themselves are enlarged. The terminal digits could be termed spade-like which would be expected of a person with acromegaly, or could possibly be termed bulbous as may be found in the clubbing of chronic respiratory or heart disease (Fig. 17). They may also represent the modular deformities of osteoarthritis, which is not inconsistent with acromegaly in an elderly individual.





*Fig. 6 Pier d, House D.*



*Fig. 7 Detail of clubfoot pier d, House D*

#### Clubfoot:

Another physical abnormality, the evidence of which shows up on the sculpture of Palenque on the Palace House D, pier b in the left seated figure is clubfoot (Fig. 4). The figure on the sarcophagus lid also shows incidence of clubfoot, but to a lesser degree (Fig. 5). The principal figure of pier d, House D is in the natural stance of a person with clubfoot. Also the Dumbarton Oaks Panel 2 is in this same clubfoot stance. The Simojovel plaque, referred to earlier, actually accentuates the clubfoot of the individual being portrayed, leaving no doubt that clubfoot was indeed being depicted.

Clubfoot is a congenital malformation in which the foot is rotated and turned inward. It is accompanied by shortening of the Achilles tendon and contraction of the tendon sheaths on the bottom of the foot. It is usually present at birth and readily discernable. True clubfoot is only corrected surgically. The mode of inheritance is quite complicated and may involve more than one genetic scheme. It is irregularly dominant and with sex linkage (twice as frequent in males as in females), with low penetrance and great variability in expressivity. It ranges from less than 1/1000 up to 1/15,000. If one child

of a consanguineous marriage is affected, the risk for a second child of the same marriage is 25%, for siblings with one affected parent it is 10%, and with unaffected parents 3%. It tends not to skip generations. Variable penetrance means that while we can predict the frequency with which the characteristic is inherited, we cannot predict how severely the individual will be affected. Present-day thinking is that clubfoot represents a form of polygenetic inheritance, a disorder whereby minor deficiencies in a number of gene sites determines the particular character. No one gene is held fully responsible for the abnormality. Thus while clubfoot is inherited, the occurrence is highly unpredictable.

An individual with a clubfoot is usually able to walk but must bear most of the weight of the affected foot on the toes and ball of that foot. He is unable to place the heel of the foot on the ground. There is a decided limp, as one leg appears longer than the other. Obviously shoes or sandals cannot be put on such a foot. If the clubfoot is severe, there may be shortening of the leg and wasting of the muscles on the affected side. While the foot is partially missing on the pier b, House D stucco figure, the internal rotation, shortening of the leg and downward pointing of the toes lead us to speculate that this was a representation of severe clubfoot. While an individual's dexterity might be considerably affected, there is no reason to assume that his health would in any way suffer except as directly related to mobility. We would predict that the clubfoot depiction on the Simojovel shell would have been debilitating.

The person depicted on the Sarcophagus Lid may have a lesser degree of clubfoot, which would be a normal expectation, as we shall see. At least we can see no visible wasting of the right leg muscles as is apparent in the disuse atrophy of the left leg represented on pier b of the Palace House D. We cannot predict too great a problem in mobility for the figure on the sarcophagus lid. In other words, this person would have been able to lead a completely normal life. In a relaxed position, such as the one portrayed on the sarcophagus lid, the foot would have a natural tendency to bend backwards, which would account for the angle at which the right foot and leg are portrayed. It is the right foot of this individual which is affected, while the person portrayed on House D has the left foot affected.

The pier d, House D portrait also portrays clubfoot of the right foot. Upon measuring the legs and foot of this figure while working at Palenque during the summer of 1975, it was found that the right leg is considerably shorter than the left, the knee width is somewhat narrower, and the foot fits remarkably well into the pattern projected for a clubfoot in this position with the weight of the leg under discussion being born by the ball of the deformed foot. The Dumbarton Oaks Panel presents the same problem as pier d, except that there is no disuse atrophy evidenced in the sculpture.

#### Polydactyly:

The physical abnormality polydactyly is portrayed in a number of instances at Palenque. Polydactyly is a con-



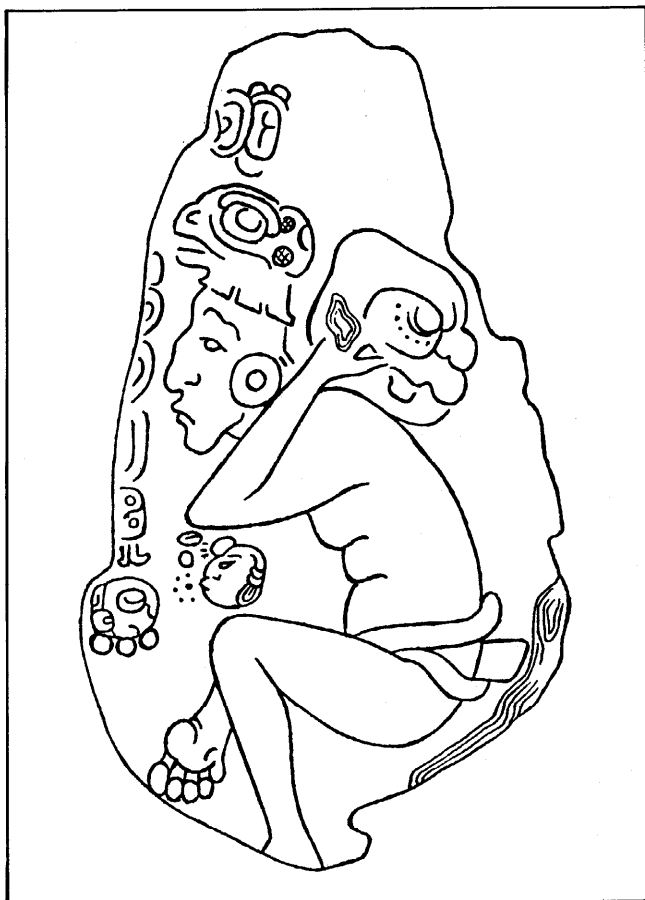


*Fig. 8 Dumbarton Oaks Panel 2.*

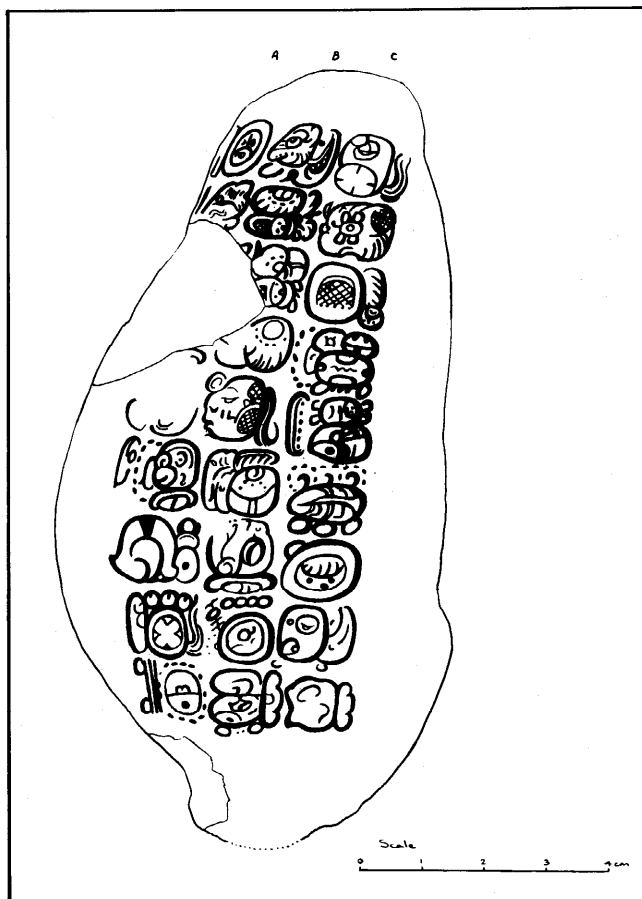
genital malformation in which there are extra fingers or extra toes. The six-fingered man sculptured in stucco on pier d, House A of the Palace is a notable example. This standing male figure has six fingers clearly depicted on his right hand (Fig. 10). All fingers seem to be normal in length, that is the extra finger is not a short protuberance from the side of the hand, but a finger of the same proportions as the other fingers. All fingers have fully developed fingernails. This is the only known depiction of a six-fingered person at Palenque. There are how-

ever, a number of instances of portraits of six-toed individuals in both stucco and stone carving.

The Temple of the Foliated Cross south door jamb has a standing figure with six toes on his left foot (Fig. 11), and both Temple of the Sun door jambs show persons with six toes, the person on the north jamb having six toes on his left foot (Fig. 12) and the person depicted on the south jamb having six toes on his right foot (Fig. 13). In all of these cases it is the foot nearest the viewer that exhibits six toes. There is no possibility that the sixth toe



a. Inside surface. Drawing after Miguel Covarrubias.



b. Outside surface. Drawing by Peter Mathews.

Fig. 9 Simojovel plaque: a mother of pearl shell 12x6.5 cm.

could have been intended for the other foot, as in each case the foot furthest from the viewer has been placed so that the heel extends to the rear of the foot in the foreground in a style of the Late Classic period, as brought out by Proskouriakoff (1950: 19-21) where the feet of the principal figure are "in full profile with the far leg almost hidden behind the other." It would therefore be impossible to see any toe of a recessed foot.

The most conspicuous evidence of polydactyly at Palenque is the right foot of the baby on both pier b (Fig. 14) and on pier c (Fig. 15) of the Temple of the Inscriptions. In each case the baby's right foot has six toes, the sixth one being at the side of the foot next to the little toe. In each instance the toe is fully formed, complete with nail, and, although not as long as the other toes, it is nevertheless more than a mere protuberance from the side of the foot. In both instances the left leg takes on the form of a serpent rather than a leg and thus has neither foot nor toes. Surely piers d and e, along with b and c were portraits of a standing figure also holding a baby, as enough of the stucco remains on these piers to outline the baby and serpent appendage. We assume that the baby originally portrayed on piers d and e also was the

same baby with six toes and serpent leg. Piers a and f would not have been concerned in portraiture as they are solely inscriptional.

The incidence of polydactyly, about 1/1000, follows a predictable pattern and is frequently passed from an affected parent to child at a rate of  $\frac{1}{2}$ . The extra digit rarely affects the function of the hand or foot. It usually is found on the side next to the small finger or toe. Sometimes the digit is attached so slimly to the hand or foot that a firm string tied securely around it might cleanly amputate it from the hand or foot without the risk of infection.

#### DEFORMITY SCULPTURES ALIGNED TO NAMED PERSONS

##### Acromegaly:

Figure 1 on the north end of the sarcophagus (Lady Zac-Kuk or Lady White Quetzal), the person we suggest may have had acromegaly, may have been an ancestor of Lord Shield Pacal, Lounsbury (1974: 18) notes. Pacal was King of Palenque from 9.9.2.4.8 5 Lamat 1 Mol (A.D. 615) to 9.12.11.5.18 6 Etz'nab 11 Yax (A.D. 683)



as found by Mathews and Schele (1974: 72). Lady Zac Kuk's accession to the throne was 9.8.19.7.18 9 Etz'nab 6 Ceh of the Maya year, and she reigned either until her death at 9.10.7.13.5 (A.D. 604), or acted as regent to Lord Shield Pacal before his accession, when he was still only 12 years 125 days old (Mathews and Schele 1974: 72), and perhaps even continued as co-regent for a time after his accession. Lady Zac-Kuk is believed by Schele and Lounsbury (personal communication) to be identifiable with the lady of the Inscriptions east tablet at N11-Q9. Lady Zac-Kuk's interment or death date is inscribed on the west sarcophagus lid edge at glyph 47 as shown in the Lounsbury (1974) foldout. Her name glyph is carved on the west edge of the sarcophagus lid at glyph 45 and 47 as well as being carved next to her portraits, Figure 1 on the north end (Fig. 18) and Figure 2 on the south end (Fig. 27) of the sarcophagus. The left seated figure on pier c, House A (Fig. 2) of the Palace, we also suggest, shows the same signs of acromegaly. We feel that this is also a portrait of Lady Zac-Kuk, and Schele (1975) concurs.

If Lady Zac-Kuk had acromegaly, she would have been an imposing individual, as can be seen by her portraits (Figs. 1, 18, 27 and probably 2) — large face and hands [and probably feet], and large torso. The torso of the left seated person on pier c of House A is the only one which exceeds the norm for patterns of seated figures on House A (Greene Robertson 1974). Her intelligence and ability to bear children would not have been affected — at least not early in the disease and perhaps not at all. Her life may well have been full, although she might have suffered from headaches, visual disturbances, and even mild diabetes mellitus. With our present day knowledge of acromegaly, we have no reason to believe that Lady Zac-Kuk's life would have been adversely affected by the disorder; on the contrary, her enormity might well have placed her in a greater position of respect and authority, one of regal bearing who stood out above all other Palenqueños.

The scarification which appears on the cheek of Lady Zac-Kuk we feel is in no way related to her disease. It helps to reinforce the fact that Palenqueño sculptors did indeed depict portraits of individuals. The portraits of Lady Zac-Kuk on the sarcophagus as well as the portrait on the House A pier, and the Palace Oval Tablet, all portray this woman not only with what appears to be acromegaly but with the scarification on her right cheek, the scarification being merely a detail of accurately modeling a portrait. As a matter of fact, scarification on the cheek is far too common to be associated with acromegaly. Some cheek scarification as well as tattooing takes on elaborate decorative designs such as is depicted on the women of the Yaxchilan Lintels 24 and 25.

#### Clubfoot:

The figure carved on the sarcophagus lid of the Inscriptions Tomb has been identified as a ruler of Palenque by the name of "UAXAC AHAU" (Maya-Yucatec) or "WÖXOC AHAU" (Maya-Chol) (8 Ahau) for his birth-date by Alberto Ruz Lhuillier (1973: 218), by the



Fig. 10 Figure with six fingers — pier d, House A.

name of Sun-shield by Kubler (1969: 21 and 1972: 318) and by the name of Lord Shield Pacal by Schele (1974) and Mathews and Schele (1974). As explained by Lounsbury (1974: ii) *Pacal* would most likely have been his name or at least part of his name in Maya, as it is represented both iconically and phonetically in his name glyphs. The name Lord Shield Pacal is the one that we will use in this paper to designate the person portrayed on the sarcophagus lid. The right foot of this personage on the sarcophagus lid is not aligned properly with the right leg for one with a normal foot. The possibility of the alignment being the artist's error has been considered, but for two reasons we have discounted this possibility. Firstly, upon an exhaustive study of Palenque sculptural methods (Greene Robertson 1974), it has been demonstrated that Palenque artists were indeed exacting in their portrayals of individuals and are not likely to have made errors in physical depictions of these individuals, and further that Palenque sculptors *did* make numerous very different and characterizing heads in stucco. Some of this sculptural exactness can be seen by overlay projection of heads of sculptured figures from different locations as Schele has done (1974: 89). Secondly, it has

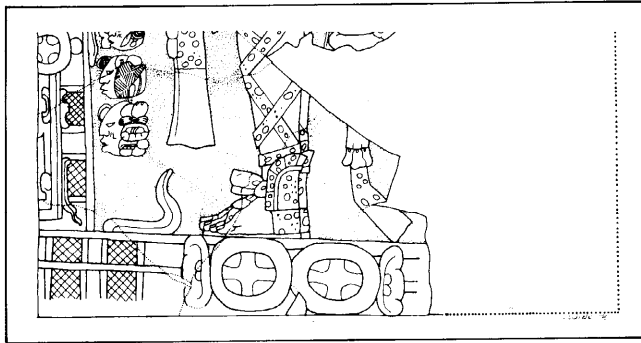


Fig. 11 Figure with six toes – Temple of Foliated Cross south jamb.

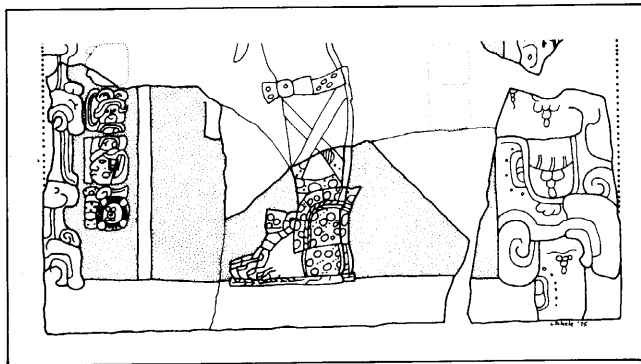


Fig. 12 Figure with six toes – Temple of Sun north jamb.

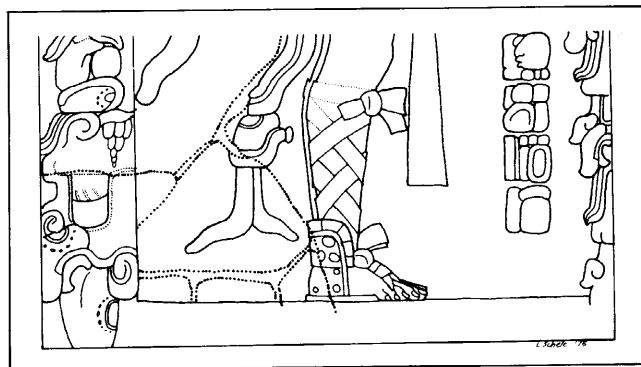


Fig. 13 Figure with six toes – Temple of Sun south jamb. Drawings by Linda Schele.

been demonstrated that the position of a clubfoot, when in a relaxed and hanging position, would be the same as depicted on the reclining person on the sarcophagus lid. The accentuated folds of the arch of the foot would likewise be the same in actuality as depicted on the sarcophagus lid. As further proof of Palenqueño sculptors striving for true portraiture by depicting all deformities is the carefully carved “split toes” on Pacal’s left foot on the tomb lid. This was first thought to be a slip of the carving tool, but upon close examination, it was

discovered that this was indeed a congenital split in both the big and second toes.

Clubfoot that we suppose for Lord Shield Pacal, king of Palenque, would not have been of such severity as to have hindered his functioning as ruler of the city. We will show later on why we believe that his clubfoot was the strengthening force behind his long and powerful rule.

The identification of the person with the severe clubfoot who is shown on pier b, House D of the Palace (Fig. 4), the person seated on a throne about to be beheaded in sacrifice, will be postponed until further on. For the moment we would like to point out that the 9 Baktun 4 Katun notation on the pier, places it in a very early period, 97 years before the death of a Pacal who is mentioned on the sarcophagus lid edge and portrayed on the sarcophagus west side. Therefore, we postulate, this early date must pertain to some event very early in Palenque’s history, some event in the remembered or rhetoric past, an event that may have involved sacrifice and/or a person with a divine clubfoot.

As all of the piers of House D face the funerary court of the Temple of Inscriptions and depict funerary scenes,



Fig. 14 Baby’s foot with six toes – pier b, Inscriptions Temple.

it seems logical that the figure about to be decapitated on pier b has some reference to ancestral ties and ritual events connected with them. We strongly feel that whoever this person was, he was considered divine and could well have been an ancestor of both Lord Shield Pacal and Lord Chan-Bahlum.

We feel that the person on pier d, House D, is another portrait of Lord Shield Pacal. The clubfoot being depicted is the same type that seems to be present on his sarcophagus lid portrait. Furthermore, the facial characteristics of pier d are exactly the same as Pacal’s on the sarcophagus lid and the stucco head which was found under the great sarcophagus. All three profile heads, by overlay projection, point out that these three sculptured portraits must be of the same person (Fig. 29). Interestingly enough, the pier d figure wears the *le*

glyph of "regeneration" (Schele 1975) as an earplug, as does the Dumbarton Oaks panel figure. Also the *le* is worn by the figure seated on a throne on pier f House C, a structure attributed to Pacal at an early date.

The principal figure on the Dumbarton Oaks Panel 2 has been identified by Schele (1975 personal communication) as being Lord Hok. Hok is believed to have been the son of Chan-Bahlum who was the son of Pacal. It is not at all surprising, but what would be normally expected, to have Hok, the son of Chan-Bahlum, grandson of Pacal, and great grandson of Lady Zac-Kuk, born with a clubfoot. Chan-Bahlum is portrayed having polydactyly, Lord Shield-Pacal is portrayed having a clubfoot, and Lady Zac-Kuk is the woman ruler portrayed with what we believe to be acromegaly.

The figure on the inside surface of the Simojovel plaque displays the same clubfoot characteristics as does the figure on the sarcophagus lid and the figure on the House D pier b. In fact, the figure on the plaque is in much the same position as the sarcophagus lid figure. Mathews (personal communication) has pointed out that this plaque has a Pacal glyphic reference on the back of the shell (Fig. 9). He also points out that this figure has the same bird (owl) characteristics in the headdress as the Figure 1 on the west side of the sarcophagus who is also named Pacal. There seems no doubt that at least one Pacal, a ruler of Palenque had a clubfoot. Lounsbury (personal communication) has suggested the possibility that the Simojovel plaque and the figure on pier b of House D may be the same person. The portrait carved on the west side of the sarcophagus may also be a portrait of the same individual. The west sarcophagus Figure 1 and the Simojovel plaque figure both bear the name Pacal.

We feel that there is a distinct possibility that Pacal the 1st, whose death date is on the sarcophagus lid edge, and whose portrait is carved on the great Palenque sarcophagus, may also have his portrait on the House D pier b and on the Simojovel plaque. We also feel that there is great probability that Pacal the Great, whose birth and death dates are on the sarcophagus lid edge, and whose portrait is carved on the great Palenque sarcophagus, has his portrait sculptured on House D pier d of the Palace, and further that the stucco sculptured head found under the sarcophagus in the Ruz tomb was also a portrait of this great king.

#### Polydactyly:

The standing figures on the Temple of the Sun north and south jambs (Figs. 12 and 13) and the Temple of the Foliated Cross south jamb (Fig. 11), all displaying one foot with six toes, have been identified by Schele (1975) as the same person depicted on the sanctuary temples in the respective temples, Chan-Bahlum, born on 9.10.2.6.6 2 Cimi 19 Zotz' (A.D. 621) and who was king of Palenque from 9.12.11.12.10 8 Oc 3 Kayab (A.D.



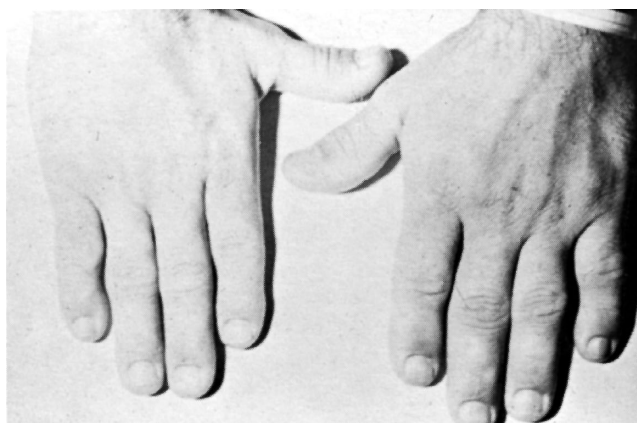
Fig. 15 Baby's foot with six toes—pier c, Inscriptions Temple.

684) until his death at 9.13.10.1.5 6 Chicchan 3 Pop (A.D. 702). Greene Robertson and Schele, while working on the Palenque Stucco Project felt, all along that the person with six fingers on pier d, House A was the same person as portrayed on the right hand side of the sanctuary tablets of the Temple of the Sun and the Temple of the Cross and the person on the left hand side of the sanctuary tablet of the Temple of the Foliated Cross by reason of the very distinctive profile — the very large drooping lower lip, somewhat like that of Bird Jaguar of Yaxchilan.<sup>3</sup> Projected drawings, as referred to earlier, of the three figures in the three Cross Group temples depicting Chan-Bahlum (Serpent-Jaguar) by Schele (1974: 49) prove that the profiles are identical. In addition, with the discovery of the above-mentioned jambs of the Cross Group temples which have made possible a comparative analysis of the paraphernalia worn and royal insignia carried, Schele (personal communication) feels that there is now no doubt that the figure on pier d, House A is indeed Chan-Bahlum. Chan-Bahlum then

<sup>3</sup> Tatiana Proskouriakoff has shown where portraits of Yaxchilan rulers Shield-Jaguar and Bird-Jaguar can be tied to glyphic evidence, leaving no doubt whatsoever that these portraits were intended to be of these persons. Furthermore, their features are so distinctive that they are recognizable on Yaxchilan monuments.



*Fig. 16 Person with acromegaly – courtesy of John J. Deller, M.D. Director of medicine, Letterman General Hospital, Presidio, San Francisco.*



*Fig. 17 Clubbing of fingers – courtesy of John J. Deller, M.D.*

must be the ruler with polydactyly, six fingers on his left hand.

In the Andes, multiple digits were so frequent that the Quechua Indians of Peru had a single unanalysable word for it — *ttapta* — which meant “the birth of a person with six fingers” (Lounsbury, personal communication).

From data now known, the six-toed baby portrayed twice on piers of the Inscriptions Temple must be Chan-Bahlum. He is the only known person at Palenque to have polydactyly, although with the inheritance factor

probability, it would be suspected that there are others. However, we know that it was a ruler of Palenque who built his own funerary temple, as first noted by Ruz Lhuillier (1957: 119) and accepted by all who have been engaged in study of Palenque. Although this temple was mainly built by the ruler himself (Lord Shield Pacal), it was not until after his death or interment in 9.12.11.5.18 (A.D. 683) that it was finished by the next ruler, who would have been Chan-Bahlum. It would have been only natural, and following the precedented pattern, for him to proclaim his inherited and divine right to the throne by having himself portrayed in stucco on the piers of this temple in a way that would be a visual statement of his divine power. Lord Chan-Bahlum had six toes. The 819 day count connected with Chan-Bahlum appears in pier b. It also appears a second time on the Tablet of the Sun (Schele: personal communication). The baby on the piers has six toes. In addition, the name glyph of Chan-Bahlum appears on Inscriptions pier f, which, although not portraying him, refers to him.

#### A HYPOTHESIZED KINSHIP PATTERN FOR PALENQUE'S DYNASTY

Now that we have established the fact that there are a number of clinical abnormalities depicted on Palenque sculptures, we shall offer some possible genetic inheritance alignments in the ruling lineage. What is known of the time sequence involved in these clinical abnormalities shows that they occurred during the reigns of Lady Zac-Kuk through at least the reign of Hok, four generations later. The reign of Lady Zac-Kuk and, to some extent, the reign before her of Lady Kan-Ik, would have been a time of great consolidation at Palenque, a time in which many changes would have been taking place while Palenque was struggling for power; then with the reign of Lady Zac-Kuk, Lord Shield Pacal, and the subsequent reign of Chan-Bahlum, this power was attained and Palenque, “hitherto a relatively small and uninfluential site,” as Rands (1974: 37) has brought out, “was emerging as one of the major Classic Maya centers.” Our genetic study of ruling lineages has been done independently of Mathews’ and Schele’s dynastic interpretation, in order to see how the results would correspond. We believe that the genetic possibilities that have resulted from this study strongly reinforce the Schele-Mathews alignment. Of major importance to all of this will be the proposed, admittedly speculative alignment of the first-mentioned Pacal (the person portrayed on the sarcophagus west side), Lord Shield Pacal and Lady Apho-Hel.

We are talking about a time in pre-history involving a period of about 320 years, a time which began about 9.1.10.0.0. (A.D. 465) at the birth of the ancestor ruler Cauac-Uinal I, through the reign of Kuk, which ended somewhere after 9.17.13.0.7 (A.D. 784), a time which would have seen many changes take place and many struggles for power.<sup>4</sup>

<sup>4</sup> Dates for this pre-history come from the Temple of the Inscriptions east panel and the Temple of the Cross, and have been tabulated by Floyd Lounsbury and Linda Schele who have kindly given permission for the information to be included here, although it has not yet been published.



Cauac-Uinal I, the first mentioned ancestor king, could have been the uncle or father of Hok I, or by another name Kan-Xul (Fig. 26). They are a generation apart and Hok was 38 years old when he acceded to the Palenque throne. However with a 4½ year interregnum between the reigns of these kings there may have been another short-termed ruler in between them, or the length of time may indicate strife and dispute concerning rights to rulership, or some astrological or other unknown reason may have postponed the accession of Hok until a more auspicious date occurred. It is possible that kings took over their duties as the new monarch upon the death of their predecessor, but did not receive the official instrument of office until the favorable day arrived, which at times may not have been for several years. As no ruler is mentioned on the sarcophagus edge, the case for an additional ruler seems weak.

Cauac-Uinal II (Fig. 20) and Bahlum (Fig. 21), the next two rulers who are only one year apart in age and one generation after Cauac-Uinal I, are likely to have been the sons of Hok.

Bahlum I must have been a parent of Lady Kan-Ik (Figs. 22 and 25), the earlier woman ruler to have her portrait carved on the Great Sarcophagus. We suggest that it was with the 21 year rule of Lady Kan-Ik, who ruled from 9.7.10.3.8 (A.D. 583) to 9.8.11.6.12 (A.D. 604) that there was a major change in the pattern of succession from straight patrilineal rule of succession to one that permitted women also to hold royal office. The daughter always held royal status, and it seems to be she

who presents the designated insignia of rulership to the new king, as pointed out by Schele (1975).

Lady Kan-Ik must have been a powerful person. The Ik (T) symbol can be seen in many of the buildings at Palenque and has been referred to as a window, the Wind God's symbol, a sighting devise, a knick-knack shelf and various other things. Lounsbury (1973: 11) suggests that there was very likely a powerful Ik cult, a "cult of the Evening Star at Palenque" and notes that Ik is the canonical day for the first visibility of the Evening Star at the horizon that is "just prior to the Ahau helical rising of Morning Star." This starts the new Venus-haab cycle. Lounsbury also suggests that it was possibly a traditional name in ruling lineages and given to individual females within the lineage — "possibly claiming descent from the Evening Star."

Lady Kan-Ik had at least three children -- the first mentioned Pacal (not the Pacal whose figure is carved on the sarcophagus lid of the Inscriptions Tomb, but the Pacal whose name and interment date is carved on the sarcophagus lid west edge at glyphs 37-40) may have been the eldest. This first-mentioned Pacal was not a king. Ahac-Kan, king of Palenque from 9.8.11.9.10 to 9.8.19.4.6 (A.D. 612), whose interment date 2 Cimi 14 Mol is carved on the sarcophagus edge at 31-34, where he is named as ruler of Palenque at 34-36, could have been another son. A daughter could have been Lady Zac-Kuk, the previously mentioned person whom we suspect had acromegaly.<sup>5</sup> She is listed as a ruler of Palenque from 9.8.19.7.18 (A.D. 612) to 9.10.7.13.5



Fig. 18 North Figure 1 on the sarcophagus — Lady Zac-Kuk.



Fig. 19 North Figure 2 on the sarcophagus — Kan-Bahlum-Mo'o.

<sup>5</sup> Floyd Lounsbury (personal communication) has evidence to support the identification of the lady whose accession preceded that of Pacal — Lady Zac-Kuk — with the "Lady with the Uprturned Snout," the beast which is part of one of the Palenque emblem glyphs. (Tablet of Temple XIV D11).



*Fig. 20 East Figure 1 on the sarcophagus – Cauac-Uinal II.*



*Fig. 21 East Figure 2 on the sarcophagus – Bahlum.*



*Fig. 24 West Figure 1 on the sarcophagus – Pacal the first.*



*Fig. 25 West Figure 2 on the sarcophagus – Lady Kan-Ik.*





*Fig. 22 East Figure 3 on the sarcophagus – Lady Kan-Ik.*



*Fig. 23 South Figure 1 on the sarcophagus – Kan-Bahlum-Mo'o.*



*Fig. 26 West Figure 3 on the sarcophagus – Hok.*



*Fig. 27 South Figure 2 on the sarcophagus – Lady Zac-Kuk.*

(A.D. 640). The interment date is carved on the sarcophagus lid west edge at glyphs 44 and 46. All of these names and dates are in the Lounsbury (1974) chart and foldout of the sarcophagus lid edge.

We suggest that the first-mentioned Pacal may be the person portrayed on pier b of House D of the Palace, the person about to be decapitated in sacrifice. This person had severe clubfoot, a deformity spoken of earlier, which may well have incapacitated him, and which may well have been looked upon as having divine attributes.

We are offering this hypothesis as a possible solution to several enigmas posed by this sculptured figure on the House D pier and the reference to the first Pacal. We have stated that the portrayal of this person with the severe clubfoot must have recalled an event of earlier years, a sacrifice of a divine person that we suggest took place at the 4th katun marking date. It has also been noted earlier that the first Pacal's interment date is on the sarcophagus edge of the tomb of Lord Shield Pacal and that this first Pacal's portrait is carved on the great sarcophagus in the Inscriptions Tomb (west side Figure 1 [Fig. 24]) along with the ancestor rulers of Palenque, even though this first Pacal was *not* a king. This first Pacal must have been a very important person, but the question arises — why was he not a king if his portrait was on the sarcophagus, or why was his portrait on the sarcophagus along with the other ancestor kings if he was not a king?

There also has to be an explanation as to why Aahc-Kan, who was a king of Palenque and whose interment date 9.8.19.4.6 (A.D. 612), is carved on the sarcophagus lid edge (glyphs 31-33), but does not have his portrait carved on the sarcophagus along with the other ancestor kings and queens *and* the first Pacal. In 9.8.11.6.12, when Lady Kan-Ik died, it may have been that it was not intended that the first Pacal ever receive the throne. The family may have been divided at this time, one faction being the Aahc-Kan group and the other the Lady Zac-Kuk — Kan-Bahlum-Mo'o alliance. It is apparent that although Kan-Bahlum-Mo'o was not a king of Palenque, he was important enough to have his portraits (Figs. 19 and 23) carved on the great sarcophagus beside the portrait of his wife or consort Lady Zac-Kuk. Most marriage alliances pertained to status negotiating of females as proposed by Marcus (1973), who reports of the exchange of a woman negotiated between Tikal and Naranjo rulers, thereby reinforcing the prestige and legitimacy of an allied city, or as when Tikal's Sky Dynasty sent a woman to Yaxchilan's Bird Jaguar cementing the alliance between the Sky and Jaguar Dynasties (Malloy, Rathje 1974: 438). It is quite possible that kings sent sons to cities of lesser status, but with great commercial potential in speculation that these sons could be able to negotiate favorable trade arrangements and even eventual capture of the alien but desirable city

and then produce progeny who would further cement these relations.

We speculate that the throne of Palenque may, then, have been seized by Aahc-Kan in 9.8.11.6.12 just after the death of Lady Kan-Ik, his mother. This could have been done to keep the possible rightful heir, the first Pacal, from coming to the throne, for this Pacal may have been close to his sister Lady Zac-Kuk, who may well have played an important role in bringing up the invalid brother. If Zac-Kuk was linked through her marriage to Kan-Bahlum-Mo'o to an outside lineage, one which may not have been to the liking of Aahc-Kan, then he would have done everything to keep the rule of Palenque out of the hands of either our first Pacal or the Zac-Kuk — Kan-Bahlum-Mo'o alliance. If either of these two became rulers of Palenque, Aahc-Kan may have known that there would be an end to any power he may have envisioned for himself.

We also suggest that if Aahc-Kan did seize the throne, then a serious family feud or even outright warfare ensued for seven years, when finally in 9.8.18.14.11 (A.D. 611) the first Pacal was sacrificed, and we speculate that the sacrifice may have been by Aahc-Kan himself, and then within the year of warfare and cunning, the Zac-Kuk — Kan-Bahlum-Mo'o faction won out, had Aahc-Kan killed and seized the throne themselves.<sup>6</sup> Lady Zac-Kuk then became ruler of Palenque in 9.8.19.7.18 (A.D. 612). This conjecture is supported by several known facts: 1) Although Aahc-Kan was a king of Palenque, his portrait was not carved on the sarcophagus of Lord Shield Pacal. 2) No later ruler took his name as was done with all other ancestor rulers. 3) The first Pacal, who never did become king, had his portrait carved on the sarcophagus of Lord Shield Pacal along with the other ancestor kings (except Aahc-Kan), and further, 4) this first Pacal's name and interment date are on the sarcophagus lid edge. The sacrifice of such an important member of the ruling lineage would certainly merit portraiture on the great tomb. That he should be remembered by Lord Shield Pacal in this way is a powerful reinforcement for claim to legitimate inheritance from a person who had the same divine attribute as himself, a clubfoot.

Lady Zac-Kuk, the woman with acromegaly, queen of Palenque, and her probably highly important husband or consort Kan-Bahlum-Mo'o would have presented a powerful front to the city of Palenque, then struggling for power. Kan-Bahlum-Mo'o has his portrait carved on the sarcophagus on the north end Figure 2 (Fig. 19) along with Lady Zac-Kuk and again on the south end Figure 1 (Fig. 23), again with Lady Zac-Kuk. We agree with Schele and Mathews in that Kan-Bahlum-Mo'o was of a foreign lineage and not a Palenqueño.

It is during the four generations of rule from that of Lady Zac-Kuk through the rule of Hok that we find the

<sup>6</sup> The Mixtec Codices in Aztec times tell of Eight-Deer's many years of warfare in the expansion of his empire, in which he sacrificed male members of his own and conquered royal families.



most secure evidence for kinship relationships. It has been suggested by Schele (1975) that Lord Shield Pacal was probably the son of Lady Zac-Kuk and Kan-Bahlum-Mo'o and we concur.

The first-mentioned Pacal may possibly have been married (medically this would have been possible) and he may have had a daughter, who could have been Lady Ahpo-Hel (Fig. 28, right figure). However, we feel strongly, and genetic probabilities point to this, that Lady Ahpo-Hel was the sister of Lord Shield Pacal. Lady Ahpo-Hel was royal, this we know, and she is referred to in inscriptional texts on the Palace Tablet at B15-B16 as pointed out by Schele (1975). We feel that Lady Ahpo-Hel was also the wife of Lord Shield Pacal.<sup>7</sup>

We will come back to Lady Ahpo-Hel momentarily, but first we would like to suggest that with Lord Shield Pacal's accession to the Palenque throne at age 12 years 125 days, his mother Lady Zac-Kuk, who was already Palenque's queen, not only acted as regent for him [she did not die until 15 years after his accession date], but may have taken the role of his wife. This could have been in name only but we cannot discount the possibility of it having been an actual fact. This would not have been as unusual as it may sound. Close marriages with a family were not unheard of in past history; in fact they were quite common. In the times of Cleopatra and Ptolemy all kings and queens were brothers and sisters. The first eight emperors of Rome were of the same two families. The Inca emperors, the last three or four generations before the Conquest, "became so exalted that none but his own sister could be considered a fit consort," relates Mason (1961: 182). The Codex Vindobonensis (Caso 1936) and Codex Bodley (Caso 1960) refer at least eight times to brother-sister marriages among Mixtec kings. We have mentioned only a few instances relating close inter-marriage within families in past history, but as Mason (1961: 182) points out "incestuous marriage seems to have produced capable, vigorous rulers."

Pacal may have been required to marry his mother, at least in name. A divine person must marry a divine person. Lady Zac-Kuk was probably considered divine herself, firstly for her massive head and jaw, secondly, if she was the sister of a divine person (the first Pacal) and thirdly because she had produced a divine son, Lord Shield Pacal with the clubfoot.

Let us now look at the results genetically of a kinship pattern such as we have suggested. With the number of known different instances of physical deformities which occur within approximately 60 years in the ruling lineage of Palenque, genetically there would have had to have been a great deal of intermarriage. There is no way of accounting for the frequency of abnormalities of such rare incidence other than through the pooling of genes within the family.

The first mentioned Pacal and the Pacal on the Simojovel plaque are our best examples of severe clubfoot.

That Lord Shield Pacal, if he were the nephew of the first Pacal, would be born with the same deformity, even if not as severe, is a likely possibility with chances being 1/10. Lady Zac-Kuk, besides having acromegaly, may have carried the genes for clubfoot. The chances of Lord Shield Pacal's having a clubfoot would be greatly increased. Being the sister of the first Pacal she could well have carried these genes also, and as reported by Smith, the well known geneticist (1970: 2) "a single localized defect in morphogenesis can upset the subsequent development of other structures and result in a syndrome of multiple defects."

If the children of Lord Shield Pacal and Lady Ahpo-Hel were Chan-Bahlum, born when Lord Shield Pacal was 32 years old, and Hok, born when he was 40 years old, the genetic inheritance of clinical abnormalities would be great. If Lord Shield Pacal and Lady Ahpo-Hel were cousins, the chances of another deformity would have been 1/4. If they had been siblings it would have been 1/2. If Lady Zac-Kuk and Lord Shield Pacal had been mother and son, the chances would have been 1/10. Had they been no relation it would have been 1/10,000. Thus it is evident that there were a great many of the same genes in the ruling dynasty of Palenque. Chan-Bahlum, the person with polydactyly — six fingers on his right hand as portrayed on pier d, House A, and six toes as portrayed on the Temple of the Cross and Temple of the Foliated Cross jambs — we feel must be the son of Lord Shield Pacal. We feel strongly that it is also Chan-Bahlum who is portrayed as the six-toed baby on the Temple of Inscriptions piers. His name glyph appears on pier f. Chan-Bahlum is the only known person with polydactyly at Palenque, although we would strongly suspect that many of the stucco heads in the Palenque *bodega* which resemble Chan-Bahlum with the great protruding and drooping lower lip are in actuality, other family members of this ruling lineage, who would surely have had physical deformities also.

#### THE SERPENT-FOOTED GOD K WITH THE VOLUTE IN HIS FOREHEAD, A GOD OF DIVINE RULERSHIP

We believe that it was at Palenque, after the death of Lord Shield Pacal, that a significant change took place in the visual representation of a mythological part of the Maya belief system wherein God K with the flare in his forehead and serpent foot became more often portrayed as the god of divine rulership.

The symbol of authority had long been a ceremonial bar with a god or grotesque head emerging from the wide-open jaws of a serpent at either end. Its early representations had a flexible body such as portrayed on the Leyden Plate and the Hauberg Stela (Greene, Rands, and Graham 1973: 253). In its next phase the serpent-ceremonial bar was held in a rigid horizontal

<sup>7</sup> Since this paper was written, Schele has found the glyphic text which indicates this in fact.



Fig. 28 *The Palace Tablet, right figure.*

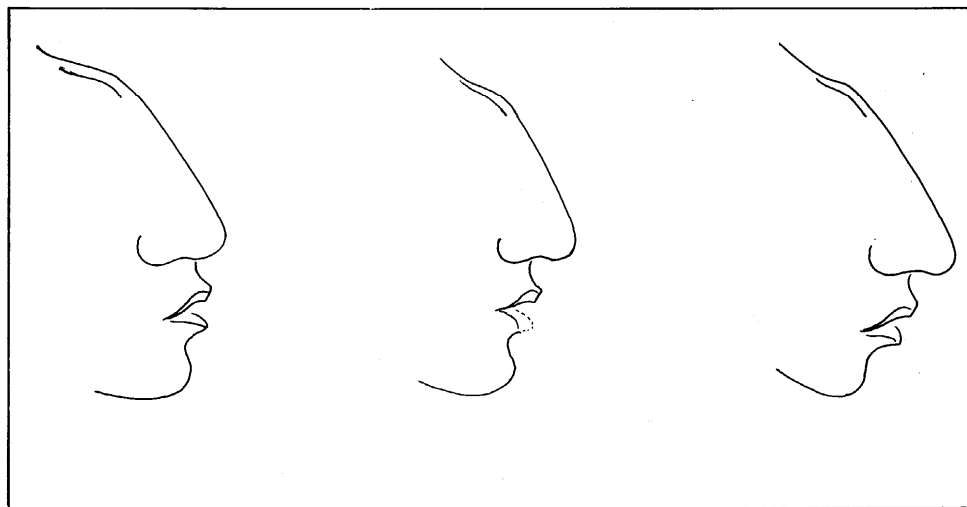
position high under the chin as on Tikal Stela 1 and many of the Copan stelae. In some areas the ceremonial bar was later held in a diagonal position. The head or small figure within the serpent jaws has been recognized by Thompson (1970, 1973) as God K and he refers to this god as a "manifestation of Itzam Na" (1970: 224). Thompson (1970, 1973) has written considerably concerning God K, and points out (1973: 56) that "the prestige of hereditary chieftomship is a necessary adjunct to claims of divine descent or the divine right of kings," and that "Some, and presumably all, halach uinic [Ahaus in all but Yucatan] claimed divine descent" (1973: 58). This claim was legitimized, Thompson (1970: 237) states, by rulers identifying themselves with Itzam Na.

In many areas, after the 12th katun of Baktun 9, the most prominent symbol of authority became the manikin scepter God K with the flare in his forehead and one leg a serpent (Fig. 30). At Palenque there was a king, a living God K, as shown by the iconography on the sarcophagus lid which portrays a Maya lord wearing the identical headdress as does God K, the flare god who emerges from the wide open jaws of the left [west] head of the serpent on the cross motif of the sarcophagus lid, as noted by Schele (1974). This is a visual statement that this personage, whom we assume to be Lord Shield Pacal, was apotheosized as God K. All nine standing figures on the crypt walls carry staffs surmounted by God K, again with the flare on his forehead and the staff a serpent. It was not necessary for the Maya to portray the body of God K on the staffs. The important aspects of the deity were present — God K's serpent head with the flare in the forehead and the serpent foot.

Once the serpent-footed God K, already a distinct part of Maya mythology, was proclaimed by Palenque as being *the* main divine rulership symbol, the idea was apparently rapidly accepted over most of the Maya



a. *Tomb Stucco Head*



b. *Tomb Stucco head*

c. *House D, pier b*

d. *Insc. Tomb Sarc. Lid*

Fig. 29 *A Comparison of three sculptured heads at Palenque.*



*Fig. 30 God K with flare in forehead and serpent leg.*

world, being especially notable at nearby Yaxchilan. There are only three known instances where this type of serpent-appendage manikin scepter has been recorded as having appeared before 9.12.11.5.18 (of the interment date of Lord Shield Pacal).

There is a 9.11.0.0.0 stylistic date given for the Dzibilchaltun Stela 19 (Andrews IV 1962: 22). The glyphs on this stela however, are not decipherable and Andrews IV (1962: 44), in referring to Stela 9 from Dzibilchaltun with a clear 9.14.10.0.0 date, states that Stela 19 was *about* fifty years older.

The Etzna Stela 12 with the 9.12.0.0.0 date (Proskouriakoff 1950: 189) would place this stela with a serpent-footed God K earlier than the Palenque death of Lord Shield Pacal by about eleven years.

Tikal Stela 1 is the only other known example where

claim to a serpent-footed effigy god has been made at such an early date (very early Baktun 9). Proskouriakoff (1950: 89) noted that on Tikal Stela 1 there is "a typical manikin figure, having a grotesque face and a leg that terminates in a serpent." Thompson (1973: 64), in referring to Tikal Stela 1, states that "The snakes are apparently elongations of a leg of God K, the earth aspect of Itzam Na". The line drawing of this stela (Fig. 31) by William R. Coe (1967: 92) shows manikin figures in the open jaws of the serpents at the ends of the ceremonial bar, and also clearly shows the serpents emerging from the mouths of the ceremonial bar serpent heads. However, it seems debatable whether the serpent is actually the extended leg of the manikin figure. Divinity through the serpent was already of major significance in the pan-American belief system. If we accept the early

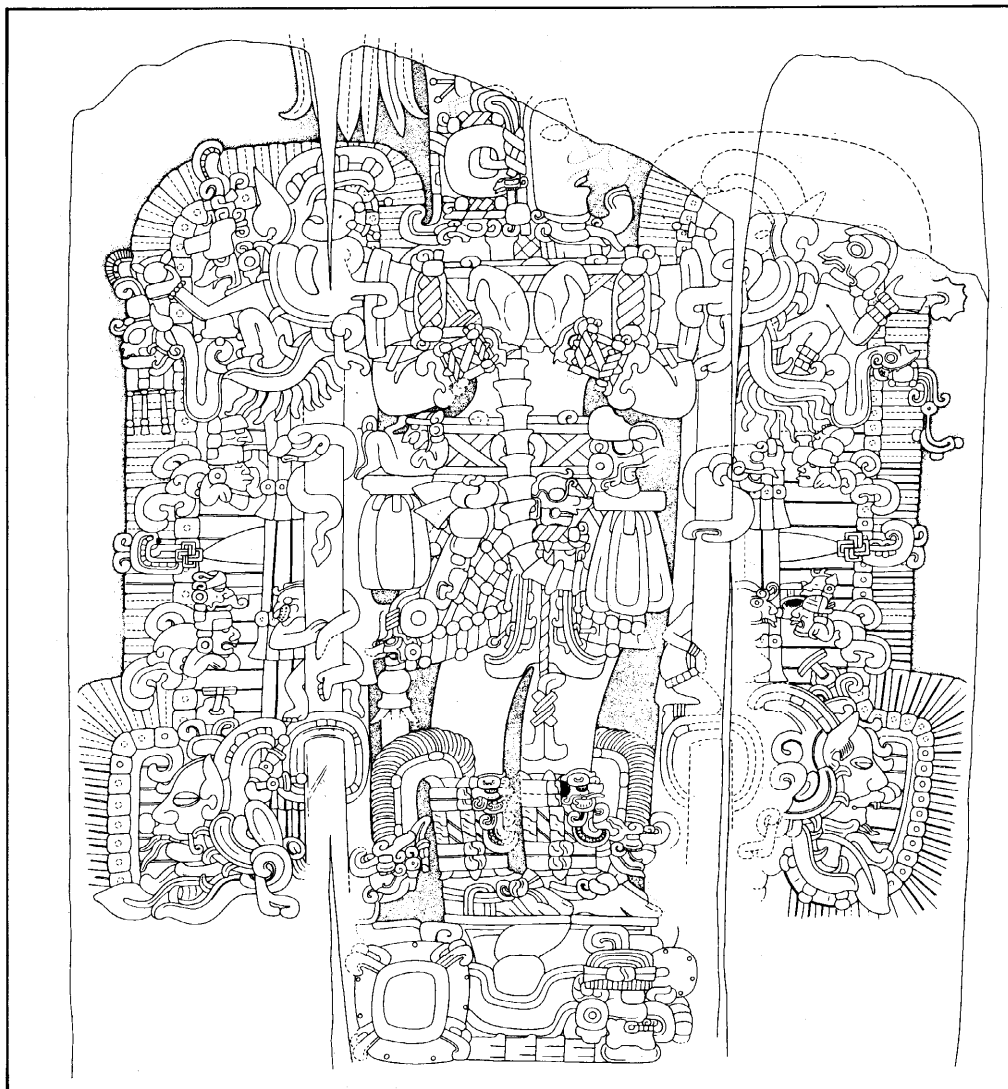


Fig. 31 Tikal Stela 1 – serpent effigy. After William R. Coe 1967: 92.

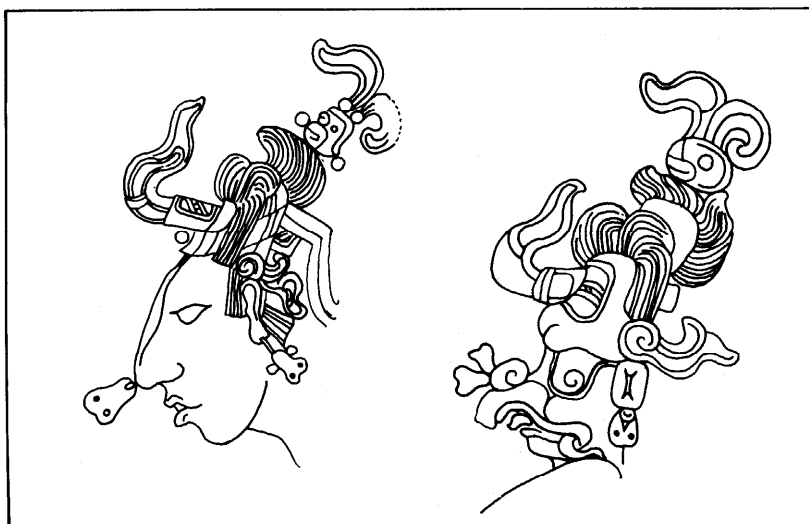
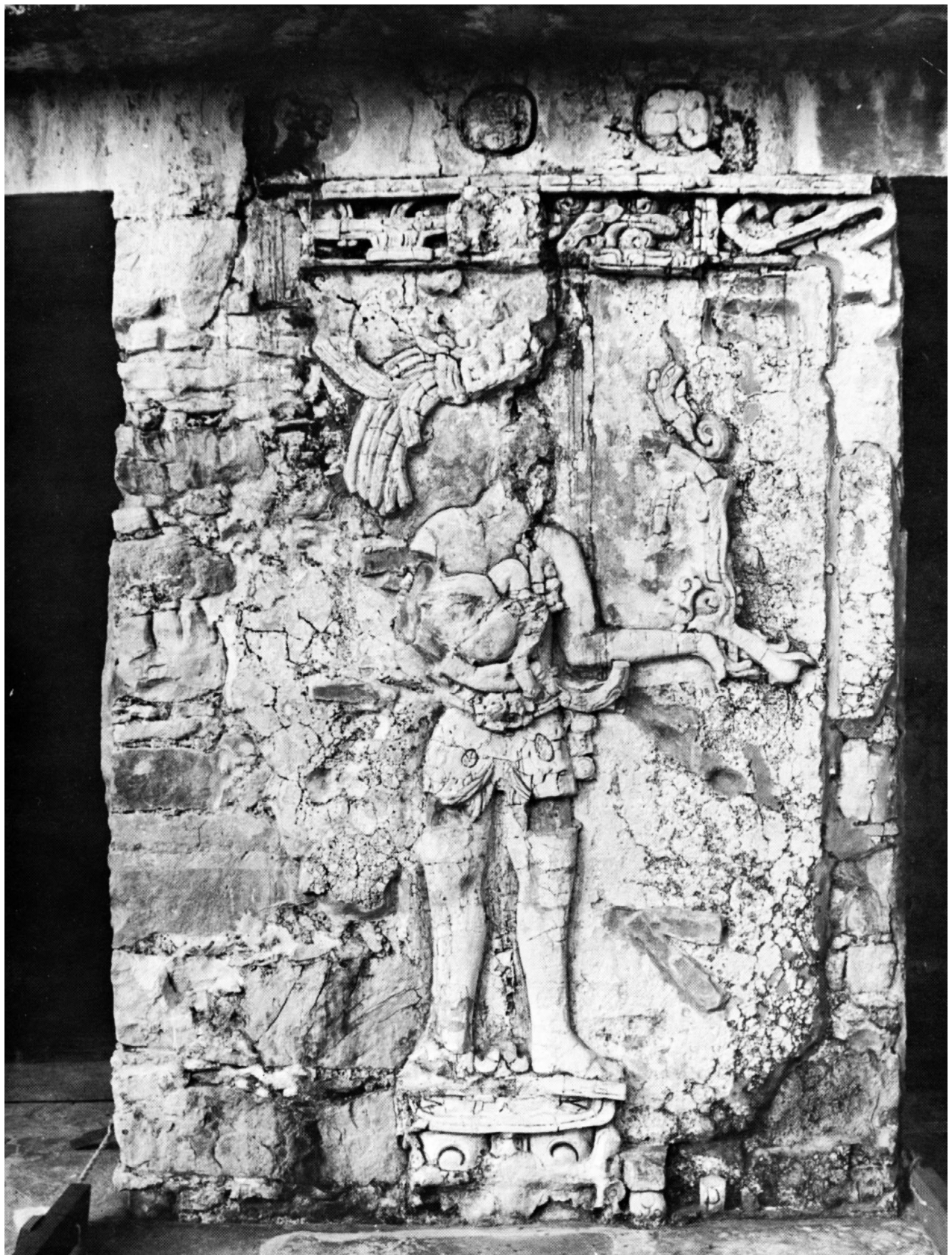


Fig. 32 Lord Shield Pacal (a) and God K (b) on the tomb lid.





*Fig. 33 Inscriptions Temple pier b.*

Tikal Stela 1 as a representation of God K with a serpent appendage, it demonstrates that the idea of the serpent-footed God K had long been considered important; however the manikin God K as represented at Tikal on Stela 1 shows a different God K than the representations at Palenque and elsewhere at a later date. Changes take place. Features of the Palenque God K are found lacking on the Tikal representation — namely facial characteristics, lack of the flare in the forehead, and the questionable (or at least debatable) attachment of the serpent leg.

Acceptance of the Etzna stela date would also confirm prior knowledge of the serpent-footed effigy God K, and the introduction of old ideas reaffirmed would be expected for this northern area. Whether the early Dzibilchaltun date is correct or not is not so relevant to our argument. Exchange of ideas was taking place between Dzibilchaltun and Palenque before the former site was carrying on trade with the Peten core, reports Andrews V (1974: 137-147). He notes similarities in tower concepts, vault construction, roofs, inset corners of buildings, and handling of interior space. It would be highly suspected that Dzibilchaltun would be one of the first to introduce Palenque innovations, especially one indicating divine kingship — God K with the flare in his

forehead. Thus a slightly later date would be expected for Stela 19.

Seler (1902-23) first identified the god with the flare in his forehead as Bolon Tzacab or God K. Schellhas (1904: 33) felt that God K “has an *astronomic significance* and seems to symbolize a star,” whereas Thompson (1973: 65) sees God K as the terrestrial aspect of Itzam Na and sees God D as having the celestial aspects. Thompson (1960, 1970: 224-227; 1973: 58-70) goes into considerable discussion concerning the attributes of God K, and especially the double flame-like motif in the forehead which he sees as the maize plant, recognizing the vegetal aspect of God K. In pan-American mythology, the serpent played an important part in all aspects of their belief system, especially concerning divinity and their gods. The face of God K, Spinden (1950: 64) noted, is derived from an elaborate serpent. Schele (1974: 60 and 1975) has shown that the *particular* god of divine rulership at Palenque is this God K with the flare in his forehead and follows Michael Coe (1973: 16) in believing that this is the smoke curl of Tezcatlipoca, god of war and rulership.

We feel that the belief of divinity of rulers through the serpent represented by God K was strongly reaffirmed

TABLE 1: The Dates on the Edges of the Sarcophagus Lid

1. Date and location in text	2. Calendar Round day	3. Placement in the Long Count	4. Event characterization
A (1-2)	8 Ahau 13 Pop	9. 8. 9.13. 0	Birth of Pacal
B (4-5)	6 Etz'nab 11 Yax	9.12.11. 5.18	Death of Pacal (at age 4.1.10.18)
C (16)	5 Caban 5 Mac	9. 4.10. 4.17	Q: CAUAC-UINAL
D (18)	7 Cib 4 Kayab	9. 6.11. 0.16	Q: Kan-Xul
E (20)	9 Manik 5 Yaxkin	9. 6.16.10. 7	Q: CAUAC-UINAL
F (22-23)	7 Ahau 3 Kankin	9. 7. 0. 0. 0	Katun ending: Bahlum
G (25)	11 Chicchan *3 Kayab	9. 7. 9. 5. 5	Q: Bahlum
H (28)	2 Eb 20 Ceh (0 Mac)	9. 8.11. 6.12	Q: Lady Ik
I (31-32)	2 Cimi 14 Mol	9. 8.19. 4. 6	Q: Aahc-Kan
J (37-38)	3 Chuen 4 Uayeb	9. 8.18.14.11	Q: Pacal
K (43-44)	1 Ahau 8 Kayab	9.10. 0. 0. 0	Katun ending: Lady Zac-Kuk
L (42, 46)	4 *Chicchan 13 *Yax	9.10. 7.13. 5	Q: Lady Zac-Kuk
M (48-49)	13 Cimi 4 Pax	9.10.10. 1. 6	Q: Kan-Bahlum-Mo'o

After Floyd Lounsbury 1973: 6

NOTES: Date G in the inscription has 4 Kayab, which is not possible.  
For the interpretation of the day and month signs of date L, see text.  
For alternative possible readings of date H, and the reasons for the above choice, also see text.

TABLE 2 KINGS OF PALENQUE, BIRTH — ACCESSION — DEATH

465 A.D.	birth of Cauac-Uinal I	9. 1.10. 0. 0	
490	birth of Hok	9. 2.15. 3. 8	
501	accession of Cauac-Uinal I	9. 3. 6. 7.17	5 Caban 0 Zotz'
514	House D, pier b date in eaves	9. 4. 0. 0. 0	
523	birth of Cauac-Uinal II	9. 4. 9. 0. 4	
524	birth of Bahlum	9. 4.10. 1. 5	
	death of Cauac-Uinal I	9. 4.10. 4.17	5 Caban 5 Mac
528	accession of Hok	9. 4.14.10. 4	5 Kan 12 Kayab
565	death of Hok	9. 6.11. 0.16	7 Cib 4 Kayab
	accession of Cauac-Uinal II	9. 6.11. 5. 1	1 Imix 4 Zip
570	death of Cauac-Uinal II	9. 6.16.10. 7	9 Manik 5 Yaxkin
572	accession of Bahlum	9. 6.18. 5. 2	10 Eb 0 Uo
582	death of Bahlum	9. 7. 9. 5. 5	11 Chicchan 3 Kayab
583	accession of Lady Kan-Ik	9. 7.10. 3. 8	9 Lamat 1 Muan
603	birth of Pacal the Great	9. 8. 9.13. 0	8 Ahau 13 Pop
604	death of Lady Kan-Ik	9. 8.11. 6.12	2 Eb 20 Ceh (0 Mac)
	accession of Aahc-Kan	9. 8.11. 9.10	8 Oc 18 Muan
611	death of Pacal 1st	9. 8.18.14.11	3 Chuen 4 Uayeb
612	death of Aahc-Kan	9. 8.19. 4. 6	2 Cimi 14 Mol
	accession of Lady Zac-Kuk	9. 8.19. 7.18	9 Etz'nab 6 Ceh
615	accession of Lord Shield Pacal	9. 9. 2. 4. 8	5 Lamat 1 Mol
635	birth of Chan-Bahlum	9.10. 2. 6. 6	2 Cimi 19 Zotz'
640	death of Lady Zac-Kuk	9.10. 7.13. 5	4 Chicchan 13 Yax
642	death of Bahlum Mo'o	9.10.10. 1. 6	13 Cimi 4 Pax
643	birth of Hok	9.10.11.17. 0	11 Ahau 8 Mac
670	birth of Chac Zutz'	9.11.18. 9.17	7 Caban 15 Kayab
678	birth of Chaac	9.12. 6. 5. 8	3 Lamat 7 Zac
683	death of Lord Shield Pacal	9.12.11. 5.18	6 Etz'nab 11 Yax
	accession of Chan-Bahlum	9.12.11.12.10	8 Oc 3 Kayab
701	death of Chan-Bahlum	9.13.10. 1. 5	6 Chicchan 3 Pop
	accession of Hok	9.13.10. 6. 8	5 Lamat 6 Xul
719	death of Hok	Post 9.14. 9.14.15	9 Men 3 Yax
721	accession of Chaac	9.14.10. 4. 2	9 Ik 5 Kayab
722	accession of Chac Zutz'	9.14.11.12.14	8 Ix 7 Yaxkin
731	death of Chac Zutz'	Post 9.15. 0. 0. 0	4 Ahau 13 Yax
764	accession of Kuk	9.16.13. 0. 7	9 Manik 15 Uo
783 post	death of Kuk	Post 9.17.13. 0. 7	7 Manik 0 Pax

After Lounsbury 1974: 6; 1975 and Mathews and Schele 1974: 72.

by Palenque's having a ruler whose divinity was a visual fact. The clubfoot of the first Pacal became the serpent. Lord Shield Pacal was born with the same divine attribute, and it was surely he who first proclaimed this inheritance by having his likeness carved on the sarcophagus lid wearing the identical headdress as that of God K (Fig. 32). Chan-Bahlum, we feel, was the one who proclaimed to all, his ancestral rights to divine rule through the serpent by having himself portrayed on the Inscriptions Temple piers (Fig. 33) as the baby, (the

baby who is God K), whose arms and legs have serpent markings, whose left leg is a serpent, the head and wide-open jaws of which are being held in the outstretched hand of the standing personage who holds the baby. The baby is Chan-Bahlum. Chan-Bahlum is the only known person at Palenque who can be identified as having six toes. The baby has six toes; further, his name glyph is carved on pier f and in pier b with the 819 day count connected with Chan-Bahlum. The standing figure, we feel, at least on some piers of the Inscriptions



TABLE 3 ROYALTY PORTRAYED ON SCULPTURE AT PALENQUE

Sarcophagus Lid, Insc. Tomb	* . x <i>Sunshield</i> ; Lord Shield Pacal
Tablet of the Cross, left figure	* . <i>Pyramid Builder</i> ; Pacal
Tablet of the Cross, right figure	* . <i>Jaguar-Snake</i> ; Chan-Bahlum
Tablet of the Foliated Cross, left figure	* . <i>Jaguar-Snake</i> ; Chan-Bahlum
Tablet of the Foliated Cross, right figure	* . <i>Pyramid Builder</i> ; Pacal
Tablet of the Sun, left figure	* . <i>Pyramid Builder</i> ; Pacal
Tablet of the Sun, right figure	* . <i>Jaguar-Snake</i> ; Chan-Bahlum
Palace Tablet, center figure	* . Hok
Palace Tablet, left figure	. Pacal
Palace Tablet, right figure	. Lady Ahpo-Hel
Palace Oval Tablet, left figure	* x Lady Zac-Kuk
Palace Oval Tablet, right figure	* . Pacal
Tablet of the Slaves, center figure	* . Chac Zutz'
Tablet of the Slaves, left figure	. White Smoke?-Na
Tablet of the Slaves, right figure	. Lady Propellor
Tablet of the Scribe	* . Chac-Zutz'
Tablet of the Orator	. Chaac
Tablet of Temple XXI	. Chaac
Tablet of Temple XIV, left figure	. Lady Vulture
Tablet of Temple XIV, right figure	* . Chan-Bahlum
Palace, House A, pier c, left figure	* x Lady Zac-Kuk
Palace, House A, pier c, central figure	* . Pacal
Palace, House A, pier d, standing figure	* x Chan-Bahlum
Palace, House D, pier b, seated figure	x Pacal the first ?
Palace, House D, pier d, left figure	* x Pacal
Palace, House D, pier d, right figure	* . Lady Zac-Kuk or Ahpo-Hel
Inscriptions piers, standing figure	* . Lord Shield Pacal ?
Inscriptions piers, baby	* . x Chan-Bahlum
Sarcophagus Figures North Figure 1	* . x Lady Zac-Kuk
North Figure 2	* . Kan-Bahlum-Mo'o
South Figure 1	* . Kan-Bahlum-Mo'o
South Figure 2	* . x Lady Zac-Kuk 'lady white parrot' (Thompson)
East Figure 1	* . Cauac-Uinal II
East Figure 2	* . Bahlum
East Figure 3	* . Lady Kan-Ik, 'lady maize' (Thompson)
West Figure 1	* . Pacal the first
West Figure 2	* . Lady Kan-Ik, 'lady maize' (Thompson)
West Figure 3	* . Hok I (Kan-Hok-Xul)
Temple of the Sun, south jamb	* x Chan-Bahlum
Temple of the Sun, north jamb	* . x Chan-Bahlum
Temple of the Cross, west jamb	* . x Chan-Bahlum
Temple of the Foliated Cross, south jamb	* x Chan-Bahlum
Temple of the Foliated Cross, north jamb	. x Chan-Bahlum
Dumbarton Oaks Tablet, central figure	* . x Hok
Dumbarton Oaks Tablet, left figure	* . Lady Ahpo-Hel
Dumbarton Oaks Tablet, right figure	* . Pacal
Inscriptions Tomb stucco head 1	* . Pacal
Inscriptions Tomb stucco head 2	* . Lady Ahpo-Hel

. in front of name indicates that there is glyphic evidence that this is the person being portrayed.

\* in front of name indicates iconographic evidence which leads us to believe that this is the person portrayed.

? after name indicates the possibility, but not certainty, that this is the person being portrayed.

x in front of name indicates the portrayal of a physical deformity.

The names in standard face are those used in this paper, and credit is here given for the identification of the greater part of them to Linda Schele, Peter Mathews, Floyd Lounsbury or David Kelley. Chol Maya names were given to many of them by the participants of the Primera Mesa Redonda de Palenque in December 1973 (see Parts 1 and 2 of this conference *Art, Iconography and Dynastic History of Palenque*). Names in italics had been identified by George Kubler prior to the Palenque conference. Berlin (1959) demonstrated that the glyphs accompanying the figures on the sides of the sarcophagus sides were these person's name glyphs. Thompson (1967) named the sarcophagus south Figure 2 'lady white parrot' and the west Figure 2 and east Figure 3 'lady maize.'

Temple, must be Lord Shield Pacal, father of Chan-Bahlum. Both Lord Shield Pacal and Chan-Bahlum, by the nature of the physical abnormalities of their feet, would have been divine. Their sculpted portraits are proclaiming this to the Maya world.

Palenque, we propose, became a holy city upon the death of Lord Shield Pacal, the only Maya city with visual proof of a divine king. Chan-Bahlum was now the living proof of divinity through the serpent as his father had been before him. What a claim for a people whose

beliefs in a serpent deity extended far into the mythical past! Palenque was the only center with the living incarnation of a divine serpent king. This may well have been why Palenque became, after the death of the Great Pacal, a holy city, a great necropolis. It may have been a Mecca where pilgrims, nobles and rulers alike, all who could, came to be buried near the dead divine King Pacal whose burial temple and holy city were being protected by the living divine King Chan-Bahlum.

## BIBLIOGRAPHY

- ANDREWS, E. WYLLYS IV  
1968 Dzibilchaltun, A Northern Maya Metropolis. *Archaeology*. vol. 21, no. 1: 36-47.
- ANDREWS, E. WYLLYS V.  
1974 Some Architectural Similarities Between Dzibilchaltun and Palenque. *Primera Mesa Redonda de Palenque Part I*: 137-145. Robert Louis Stevenson School, Pebble Beach.
- BERLIN, HEINRICH  
1959 Glifos nominales en el sarcófago de Palenque. *Humanidades* vol. 2, no. 10: 1-8. Universidad de San Carlos, Guatemala.
- CASO, ALFONSO  
1936 Explicación del reverso del Codex Vindobonensis. *Memoria de el Colegio Nacional* Vol. V, No. 5. Mexico, 1951.  
1960 Interpretation of the Codex Bodley 2858. Mexico.
- COE, MICHAEL D.  
1973 The Maya Scribe and His World. The Grolier Club, New York.
- COE, WILLIAM R.  
1967 Tikal, A Handbook of the Ancient Maya Ruins. The University Museum, University of Pennsylvania. Philadelphia.
- COVARRUBIAS, MIGUEL  
1943 Tlatilco, Archaic Art and Culture. *Dyn. No.* 4-5, Mexico.
- GREENE, MERLE AND J. ERIC S. THOMPSON  
1967 Ancient Maya Relief Sculpture. The Museum of Primitive Art. New York.
- GREENE, MERLE, ROBERT L. RANDS AND JOHN A. GRAHAM  
1972 Maya Sculpture From the Southern Lowlands, the Highlands and the Pacific Piedmont. Lederer Street & Zeus, Berkeley.
- GREENE ROBERTSON, MERLE  
1974 Stucco Techniques Employed by Ancient Sculptors of the Palenque Piers. A paper presented at the *XLI Congreso Internacional de Americanistas*, Mexico. Sept. 1-10.
- HART, GERALD D.  
1973 The Diagnosis of Disease from Ancient Coins. *Archaeology*. vol. 26, no. 2.
- HIPPOCRATES.  
1952 On the Articulations. Translation by Francis Adams. Encyclopaedia Britannica. p. 114. Chicago.
- HOLMBERG, ALAN  
1950 Nomads of the Long Bow: The Sirianos of Eastern Bolivia. *Instituto of Social Anthropology, Pub. 10. Smithsonian Institution of Washington*. Washington.
- KELLEY, DAVID  
1974 Segunda Mesa Redonda de Palenque. Personal communication.  
1975 Contributions to the Dumbarton Oaks Conference on Palenque. May 1975.
- KUBLER, GEORGE  
1969 Studies in Classic Maya Iconography. *Memoirs of the Connecticut Academy of Arts & Sciences*. vol. XVIII. New Haven.  
1972 The Paired Attendants of the Temple Tablets at Palenque: *Religion en Mesoamerica. Sociedad Mexicana de Antropologia, XII Mesa Redonda*. Mexico.
- LOUNSBURY, FLOYD G.  
1974 The Inscription of the Sarcophagus Lid at Palenque. *Primera Mesa Redonda de Palenque Part II*. Robert Louis Stevenson School, Pebble Beach.  
1975 Palenque King-List From 9.3.6.7.17 to 9.12.11.12.10. Dumbarton Oaks Conference on Palenque, May 1975.
- MALLOY, JOHN P. AND WILLIAM R. RATHJE  
1974 Exploitation among the Late Classic Maya. In Norman Hammond (ed.) *Mesoamerican Archaeology*. University of Texas Press, Austin.
- MARCUS, JOYCE  
1973 Territorial Organization of the Lowland Classic Maya. *Science*. vol. 180: 911-16.
- MASON, J. ALDEN  
1957 The Ancient Civilizations of Peru. Penguin Books Inc. Baltimore.
- MATHEWS, PETER D. AND LINDA SCHELE  
1974 Lords of Palenque - The Glyphic Evidence. *Primera Mesa Redonda de Palenque Part I*. Robert Louis Stevenson School, Pebble Beach.
- MILTON, GEORGE AND ROBERTOK GONZALO  
1974 Jaguar Cult — Down's Syndrome — Were-Jaguar. *Expedition*, vol. 16, no. 4: 33-37.
- OSER, WILLIAM  
1901 Principles of Medicine. Appleton & Crofts. New York.

PROSKOURIAKOFF, TATIANA

- 1950 A Study of Classic Maya Sculpture. *Carnegie Institution of Washington*. Pub. 593. Washington, D.C.
- 1963 Historical Data in the Inscriptions of Yaxchilan. Part I. *Estudios de Cultura Maya*. Universidad Autonoma Nacional de Mexico. vol. IV. Mexico.
- 1964 Historical Data in the Inscriptions of Yaxchilan. Part II. *Estudios de Cultural Maya*. Universidad Autonoma de Mexico. vol. V. Mexico.
- 1960 Historical Implications of a Pattern of Dates at Piedras Negras, Guatemala. *American Antiquity*. vol. 25, no. 4: 454-475. Salt Lake City.

RANDS, ROBERT L.

- 1973 The Classic Maya Collapse: Usumacinta Zone and the Northwestern Periphery. In T.P. Culbert (ed.) *The Classic Maya Collapse*. University of New Mexico Press, Albuquerque.
- 1974 A Chronological Framework for Palenque. *Primera Mesa Redonda de Palenque*. Part I: 35-39. Robert Louis Stevenson School, Pebble Beach.

RUZ L'HUILLIER, ALBERTO

- 1957 The Civilization of the Ancient Maya. Instituto Nacional de Antropologia e Historia. Mexico. 1970 edition.
- 1958 Exploraciones Arqueologicas en Palenque: 1953. *Anales del Instituto Nacional de Antropologia e Historia*. vol. 10: 69-116. Mexico.
- 1973 El Templo de las Inscripciones Palenque. *Coleccion Cientifica 7 Arqueologia*. Instituto Nacional de Antropologia e Historia. Mexico.

SCHELE, LINDA

- 1974a Observations of the Cross Motif at Palenque. *Primera Mesa Redonda de Palenque Part I*: 41-61. Robert Louis Stevenson School, Pebble Beach.
- 1975 Accession Iconography of Chan-Bahlum In the Group of the Cross at Palenque. *Segunda Mesa Redonda de Palenque, Part I*. Robert Louis Stevenson School, Pebble Beach.

SCHELLHAS, PAUL

- 1904 Representation of Deities of the Maya Manuscripts. *Papers of the Peabody Museum of American Archaeology and Ethnology*. vol. IV, no. 1. Harvard University. Cambridge, Mass.

SELER, EDUARD

- 1902-23 Gesammelte Abhandlungen zur amerikanischen Sprachund Alterthumskunde. Berlin.

SMITH, DAVID W.

- 1970 Recognized Patterns of Human Malformation, Genetic, Embryologic and Clinical Aspects. vol. VII, in the Series, *Major Problems in Clinical Pediatrics*. Alexander J. Schaffer, Consulting Editor. W.B. Saunders Company, Philadelphia.

SPINDEN, HERBERT J.

- 1913 A Study of Maya Art. *Peabody Museum Memoirs*. vol. VI. Cambridge, Mass.

THOMPSON, J. ERIC S.

- 1960 Maya Hieroglyphic Writing: An Introduction. University of Oklahoma Press. Norman.
- 1970 Maya History and Religion. University of Oklahoma Press. Norman.
- 1973 Maya Rulers of the Classic Period and the Divine Right of Kings. In *The Iconography of Middle American Sculpture*. The Metropolitan Museum of Art. New York.

—MERLE GREENE

- 1967 Ancient Maya Relief Sculpture. The Museum of Primitive Art. New York.

VERUT, DOMINIQUE D.

- 1973 Precolumbian Dermatology & Cosmetology in Mexico. Schering Corporation. Chanticleer Press, Inc., New York.