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The Water Lily in Maya Art: A Complex of Alleged
Asiatic Origin

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THE WATER LILY IN MAYA ART: A COMPLEX OF ALLEGED ASIATIC ORIGIN¹

By ROBERT L. RANDS

INTRODUCTION

Prominent among the art forms presented by Heine-Geldern and Ekholm in their highly suggestive paper on pre-Columbian trans-Pacific contacts are the lotus motif of Southeast Asia and the water lily of the Maya.² A number of specific resemblances in the depiction of the plants are cited. Broad temporal generalizations are made about the occurrence of the plants in the art of the two areas. The transmission of the lotus motif to Middle America is held to have taken place between A. D. 100 and 600, at the latest by the middle of the Classic Period, at which time it is known to occur in Maya art. Contacts are said to have been either intensified or renewed at the close of the Classic and the beginning of the Mexican Periods. It is only on this late time level, in Mexican Period art at the site of Chichen Itza, that the authors cite resemblances to the lotus in Asiatic art. The Hindu-Buddhist depictions of the lotus to which comparisons are made are likewise largely confined to a single site, Amaravati. Although this southeastern Indian site dates from the second century A. D., the existence of similar art forms on perishable wooden objects is postulated for a later period in the Malay Peninsula, Indo-China, and Indonesia.

It is not the primary purpose of the present study to continue this comparative approach. Even comparisons with floral designs elsewhere in Middle America will not be attempted, and any telling evaluation of the complex matter of possible Asiatic affiliations must

¹ The writer wishes to express his appreciation to Miss Tatiana Proskouriakoff, the Division of Archaeology of the Carnegie Institution of Washington, and Dr. Gordon F. Ekholm, American Museum of Natural History, for their advice and suggestions. Most of the illustrations and much work on the tables were done by the writer's wife, Barbara C. Rands.

² Heine-Geldern, R., and Ekholm, G. F., 1951. These writers, although giving special emphasis to the water lily, discuss some fifteen to twenty additional traits common to Middle America and Southeastern Asia. Their paper, read at the 29th International Congress of Americanists, was supplemented by a special exhibit, "Across the Pacific," at the American Museum of Natural History. (Cf. Ekholm, 1950.)

obviously be made against such a background.³ Also to be considered in a truly exhaustive investigation, but not touched on here, are the occurrences of similar floral motifs in portions of the Old World other than Southeast Asia (cf. Hamlin, 1916-23). Only Maya representations of the water lily will be analyzed in detail, in part with a view toward a better understanding of intersite relationships in the realm of religious design. Distributional and stylistic occurrences of water-lily-like plants will be noted, as well as the symbolic associations which characterize these art forms. It is apparent, however, that the material has a direct bearing on the problems raised by Heine-Geldern and Ekholm. This is especially true inasmuch as several of the highly arbitrary associations taken on by the water lily in Maya art are also present in Hindu-Buddhist representations of the lotus.

FLORAL FORMS IN MAYA ART

GENERAL CONSIDERATIONS

To understand the place of the water lily in Maya art, it is first necessary to find criteria for identifying the plant. This has been done, in part, by previous workers. Maudslay (1889-1902, vol. 4, pp. 37-38), and after him such writers as Spinden (1913, pp. 18-20) and Lothrop (1926, pp. 159-162), have gathered examples of what has been termed the "fish and water-plant motif"—a flower at which fish is apparently nibbling. A few designs, patently similar but lacking the fish, have been tacitly considered to be water plants (Maudslay, 1889-1902, vol. 4, pl. 93-*g, h, m*; Spinden, 1913, figs. 2*a-c*, 4). Two or three atypical designs, to which, however, the mouth of the fish is placed, have been included in the group (Spinden, 1913, fig. 3*b, e, f*). Maudslay, while granting the resemblance of the group to the water lily, prefers the more noncommittal designation of "water-plant" (1889-1902, vol. 4, p. 37). Spinden speaks on several occasions of water-lily-like plants or of apparent water lilies. In his words, "Examples of the fish and water-plant design present much stronger proof of culture affinity among the cities where they occur than do the simple water-plant forms, for designs analogous to the latter are universal, whereas the association of fish and flower is very unusual" (Spinden, 1913, p. 18).

Whether or not these "analogous" designs represent the water plant is a problem of no easy solution. Resemblances to the flower

³ A few words of exception must be made in the case of the frescoes of Tepantitla at Teotihuacan. Here, in repeated, standardized motifs, water-lily-like flowers and leaves emerge from the mouth of the rain god, Tlaloc. In this respect, as in others, the Tepantitla designs compare not only with Maya representations of the water lily but with Indian examples, as well. Correspondences of Teotihuacan floral art with that of the Maya are reinforced by a stela carving from the site of Copan, which shows a tripartite design, suggestively similar to the Tepantitla flower-and-leaf motif, placed identically at the mouth of a Tlaloc head (see Entry 49a of table 1). In view of such close relationships within Mesoamerica, the arbitrary scope of the present study, and the impossibility of basing definite conclusions on it, are apparent.

of *Nymphaea ampla*, the large, showy, white water lily of the Maya, exist to varying degrees in a large number of designs. It is possible, as Maudslay indicates, that the water lily is the only flower depicted in Maya art (Maudslay, 1889-1902, vol. 4, p. 37). Nevertheless, the characteristics actually shared by flowers of various kinds may have led to a little-differentiated treatment of these flowers. Either the portrayal of a generalized flower, without any intention in the mind of the artist as to the type, or the portrayal of specific types which were so modified by artistic canons that their diagnostic features were lacking, might have been the rule.

The identification of art forms as flowers tends, except for highly conventionalized designs, to be a fairly simple task. Not only is the over-all impression frequently well conveyed, but a number of design elements appear to represent conventionalizations of parts of the flower. For the most part these standardizations correspond well to the anatomical parts of the water lily, although certain of them might apply equally to other types of flowers. Thus, lines at the flower's top seemingly depict petals, two or three bands enclosing the central portion of the flower are probable sepals, and stamens—hidden by the petals if viewed from the side—may well be indicated by lines or dots. A more extended discussion of this type of evidence is given below in a classification of floral forms in Maya art. Occasionally, however, rounded tufts of feathers or down may be confused with the petals of a flower. Ends of the long bones may also be conventionalized in such a way as to approach certain stylizations of the flower. These deviant occurrences are rare, however, and as a preliminary approach to the problem of the water lily it is possible to isolate a large number of floral forms. This has been done in table 1.

For the most part, these flowers segregate into standardized types. These categories are based on combinations of the over-all shape with certain elements of the sort just cited. Additional elements tend to unite the group. Two or three of the types appear as the food of fish in the fish and water-plant motif. Their occurrence in other situations suggests that the same plant is intended. Occasionally more than one category of flower appears on a single stalk or creeper. This would seem to imply that more than one way of depicting a single kind of flower existed, but it may mean instead that various sorts of flowers, water lilies and nonwater lilies, were grouped together into a composite entity. A corollary of this would be that different artistic types represent different kinds of flowers. Yet again, many of these differences may indicate different stages in the unfolding of the flower, or different portions of the plant may sometimes be shown.

Apparently more diagnostic than the flower, the water-lily leaf is characteristically treated in Maya art. The notched, unevenly

surfaced leaf of *Nymphaea ampla* seems to be recaptured in a cross-hachured design that sometimes accompanies flowers and stalks. It occurs in connection with the fish and water-plant motif, with flowers of the type that appears in the fish and water-plant motif, and with flowers of different types. It offers strong support to the feeling that there is at least an ingredient of the water lily in a great many floral designs in Maya art.

Striking features recur in the stalks of plants that are present with the fish and water-plant motif, the probable water-lily leaf, and flowers of the types that commonly appear in the fish and water-plant motif. The stalk takes on a scrolled, often vinelike or creeperlike quality. Panels and panel variations occur. The same characteristics appear again in connection with additional categories of flowers, suggesting that the same plant is portrayed. If these plants actually are not the same, surely they have imbibed strongly of the same artistic tradition!

The presence of stems or vines worked into a scrolled or undulating panel is especially important insofar as the present study bears on the problem of trans-Pacific contacts. For, as pointed out by Heine-Geldern and Ekholm, the same unnatural treatment is prominent in Hindu-Buddhist depictions of the lotus. Therefore, if nonwater lily plants are given this treatment in Maya art, they may provide a prototype or artistically related form and cannot be ignored. Stalks of this sort, without accompanying flowers or leaves, are accordingly included in table 1.

It is apparent, then, that while there may be no clear-cut answer to the question of the identification of the water lily, many art forms share features which suggest that they are possible water lilies. These linking features are not merely artistic but consist of the symbolic situations in which the plants occur—the mythic beings they contact and the anatomical portions of the beings from which they emerge. This being the case, the study of the water lily must be extended to include plant forms which share this complex. Conceivably, if the complex is shared by plants other than the water lily, it could have originated with the water lily or with some other plant and spread to flowering plants in general, or it could have grown up around undifferentiated plant life. It is the writer's belief, however, that water-lily plants form the central core of the complex, perhaps, in some cases, in conjunction with the maize plant. Whether or not this is true may be of importance so far as the details of Maya religious symbolism are concerned but would not appear to bear too importantly on the problem of intersite connections. Nor is it of fundamental importance to the problem of connections with the lotus in Indian art. The case for such connections is based largely upon the similarities in art form and

the highly arbitrary nature of the plant's associations. The artistic resemblances are just as great and the associations as arbitrary whether the water lily or some other plant happens to be depicted in a given instance.

Based on these considerations, floral and stem forms that occur in Maya sculptures and murals have been gathered together without implication that the water lily is necessarily depicted (table 1). The compilation of these representations cannot claim to be exhaustive, but, subject to the occasional error of misclassification that is inherent in working with a complex art form and with sometimes badly eroded and poorly illustrated material, it probably begins to approach that goal. Compilation of floral forms in the glyphs is incomplete. Unpublished material is not included. Likewise omitted are certain forms lacking any of the associations characteristic of the "water lily" complex. Especially to be noted in this connection is the wealth of floral designs at Chichen Itza, particularly at the Temple of the Xtoloc Cenote (Proskouriakoff, 1950, fig. 108c). A middle course has been followed in the tabulation of stylized or flamboyantly treated designs which have definite floral attributes. Some leeway is given, although the more conventionalized ones have been passed by. Untabulated, too, are certain treelike forms and probable maize plants which share an important characteristic of the complex, viz, growth from the head of a mythic being.

Comparative material from ceramic and codex art is also tabulated. These data are not to be considered as necessarily representative, however, for only floral or stem forms having artistic or associational features of special interest are included. The figure painted vases are especially rich in untabulated floral designs. Thus, a vessel for which only 1 flower is tabulated also displays 16 additional flowers worn in the headdresses of the 5 pictured figures (Entry 213 of table 1)!

It seems probable that some nonwater lilies are included in table 1, and ratings of A and B are given as an indication of the relative likelihood that a given depiction was intended as a water lily. Although these ratings are impressionistically arrived at, they take into consideration such factors as the resemblance to an actual water lily, the degree of stylization (which, if great, might suggest that the motif was employed without especial consideration for its original concept), the associations of the plant form (which may build into a number of crosscutting complexes, some of a highly specific order), the resemblance to other flower representations which enter into such complexes, and the indistinctness of the sculpture or illustration. To some extent, then, the ratings reflect not only whether the representation is a water lily but to what extent the concept of the water lily was probably present. The ratings are arbitrary in that they repre-

sent no real clustering into distinct levels, and the device of minus signs has in some cases been employed to further subdivide the A category.

WATER-LILY LEAF

The leaf, as has been indicated, is one of the most characteristic features of the water lily in Maya art. Maudslay especially noted the water-lily-like appearance of the leaves on his so-called "water-plants" from Palenque (Maudslay, 1889-1902, vol. 4, p. 37). Comparison of these forms with *Nymphaea ampla* reveal striking likenesses, in spite of an impressionistic treatment (cf. Lundell, 1937, pls. 9, 12). Maya treatment of the water-lily leaf typically takes the form of some combination of the following conventionalizations:

ELEMENTS OF MAYA TREATMENT OF THE WATER-LILY LEAF

- Element *a*. An irregular, sometimes wavy crosshachure suggests the roughened appearance of the water-lily pad (figs. 1*b*, 3*f*).
- Element *b*. Crosshachure occurs but is of a regular, even type (fig. 3*c*).
- Element *c*. Dots occur within the crosshachures, adding, perhaps, to the roughened appearance of the design (figs. 1*b*, 3*f*, *g*).
- Element *d*. A solid block of dots marks the surface of the leaf (Ruppert and Denison, 1943, fig. 51*c*).
- Element *e*. Crossed bands form the interior marking (fig. 2*d*).
- Element *f*. The outline of the leaf is notched or serrated, deeply (fig. 6*d*) to lightly (fig. 1*b*). The occurrence of squarish protuberances is characteristic (figs. 2*d*, 3*g*, 6*g*).
- Element *g*. Ideally, a raised band outlines the margin of the leaf. Viewed in profile, the edge of the leaf flares upward and outward, with or without a distinct band resulting (figs. 6*c*, *d*, 1*c*). Or raised bands only may occur (fig. 3*f*). Regarded as a variant of the ideal form, an unraised band separates an area of interior marking from the edge of the leaf (fig. 4*a*).
- Element *h*. An apparently raised band, more narrow, regular, and rounded than in *g*, occurs toward the interior of the leaf (figs. 4*a*, 5*e*, 6*g*).
- Element *i*. A row of dots outlines the margin of the leaf (Lothrop, 1924, pl. 7).
- Element *j*. Inner markings at the center of the leaf pass outward to the margin (or marginal band) (figs. 1*b*, 3*f-h*).
- Element *k*. The markings are restricted to an area well toward the center of the leaf. This area would seem to correspond to that of Element *h* (fig. 6*b*).
- Element *l*. Aside from bands, no interior markings appear (figs. 4*a*, 5*e*).
- Element *m*. Angular, notchlike elements, resembling a slightly curved V, pass outward. They may lead outward from a marginal band into the protuberances of the leaf as semi-independent entities (fig. 1*c*). The marginal band may assume this shape as it juts outward, following the contours of the leaf (fig. 1*b*). Interior markings may take on this form (fig. 3*b*). As a probable variant, small straight lines pass outward into the marginal band in the same way but lack the V-shape (figs. 3*g*, 6*c*). The relationship of this set of closely related forms to Element *f* is intimate.

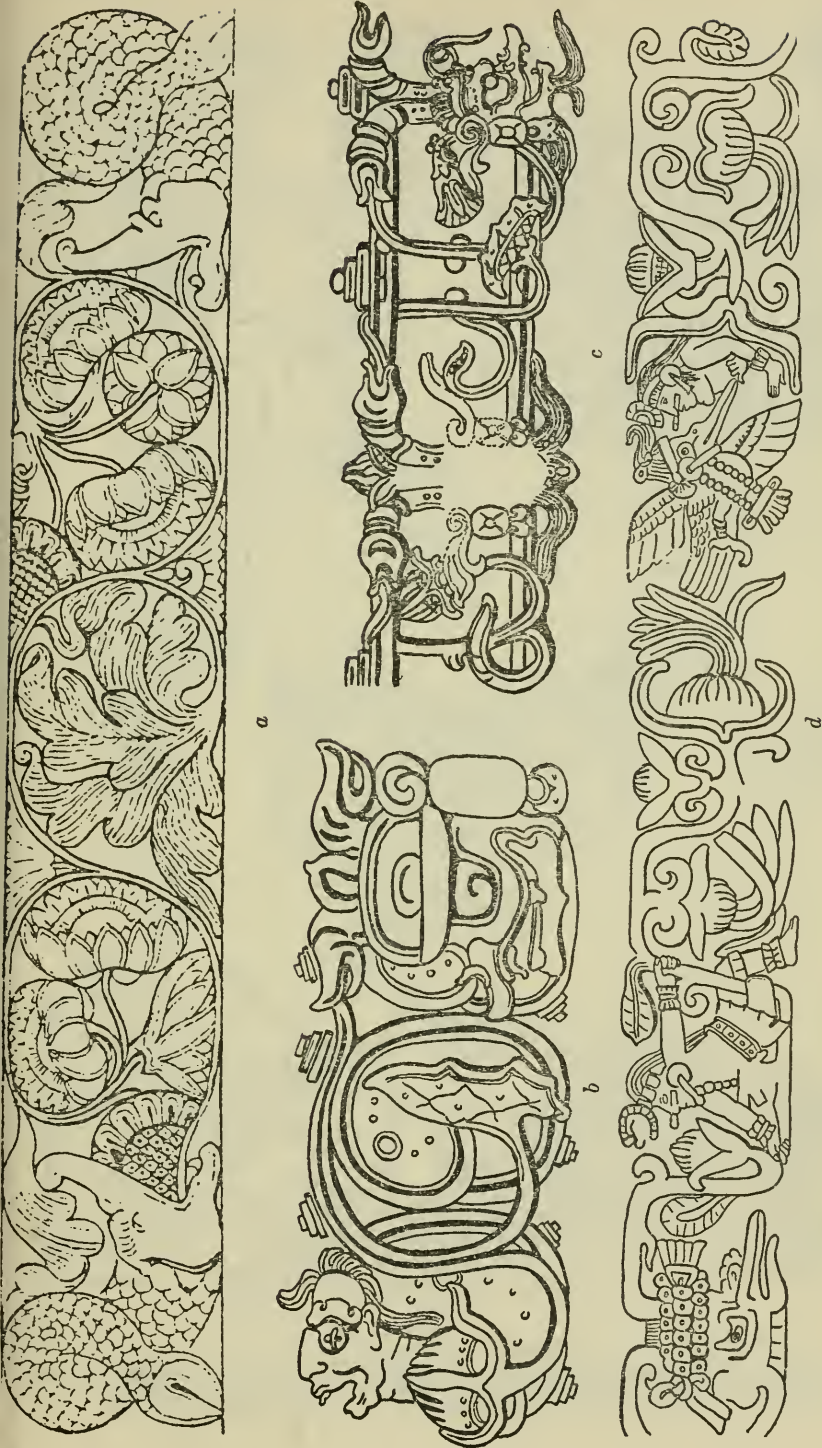


FIGURE 1.—*a*, Amaravati, India. *b*, *c*, Palenque (Entries 78, 77). *d*, Chichen Itza (Entries 25, 26).

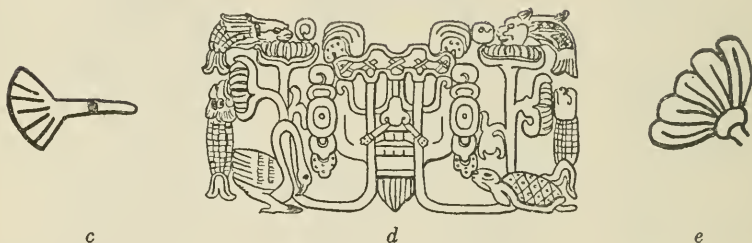
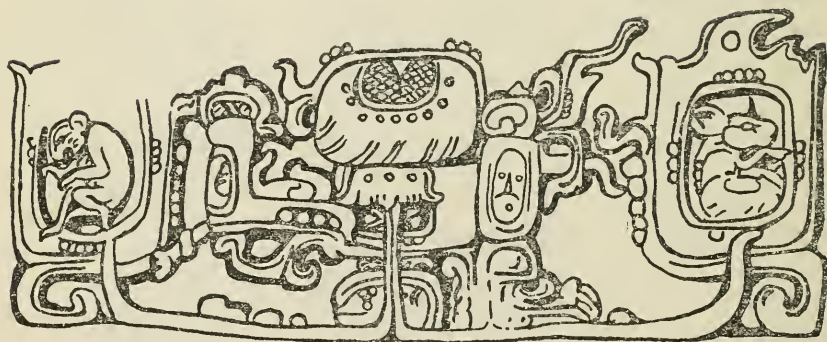
*a**b**c**d**e**f*

FIGURE 2.—*a*, Quirigua (Entry 104). *b*, Copan (Entry 50). *c*, Chama (Entry 204). *d*, *e*, Chichen Itza (Entries 22, 28). *f*, Yaxchilan (Entry 152).



FIGURE 3.—*a*, Santa Rita (Entry 121). *b*, *c*, Tulum (Entries 129, 131). *d*, Yucatan (Entry 221). *e*, Chichen Itza (Entry 23). *f*, Quirigua (Entry 118). *g*, Palenque (Entry 76). *h*, Dresden Codex (Entry 301). *i*, Tikal (Entry 124).
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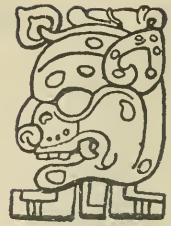
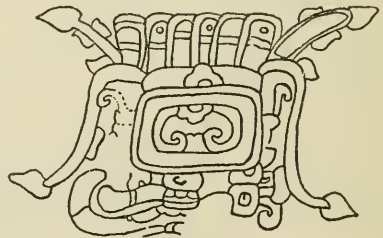
*a**b**c**d**e**f**g*

FIGURE 4.—*a*, *b*, Palenque (Entries 69, 91). *c*, Copan (Entry 44). *d*, Yucatan (Entries 219, 220). *e*, Chichen Itza (Monjas). *f*, Rio Hondo (Entry 214). *g*, Kaminaljuyu (Entry 211).

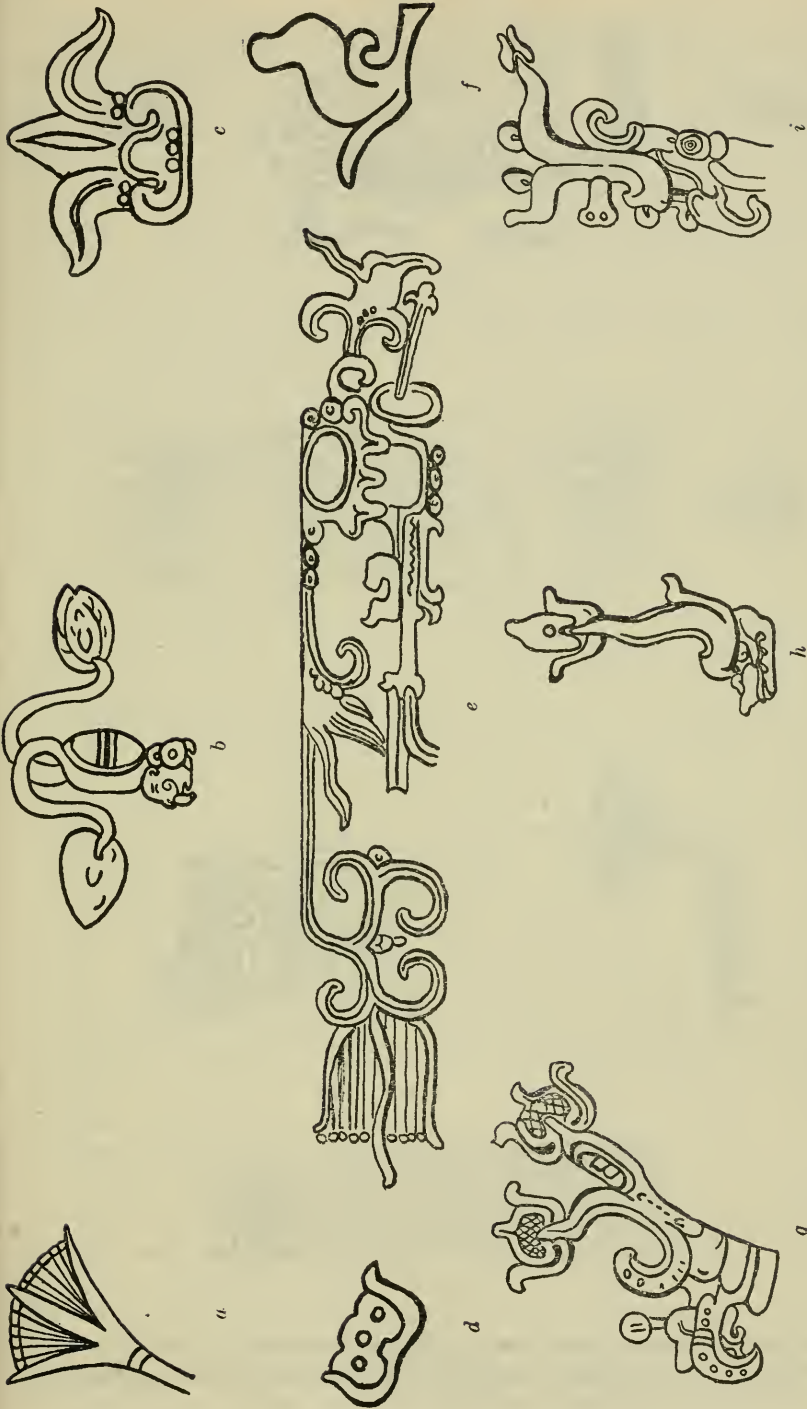


FIGURE 5.—*a*, *i*, Chichen Itza (Entries 35, 29). *b*, Río Hondo (Entry 215). *c*, *h*, Palenque (Entries 71, 73). *d*, Quirigua (Entry 117). *e*, Chajcar (Entry 208). *f*, *g*, Chama (Entries 203, 201).

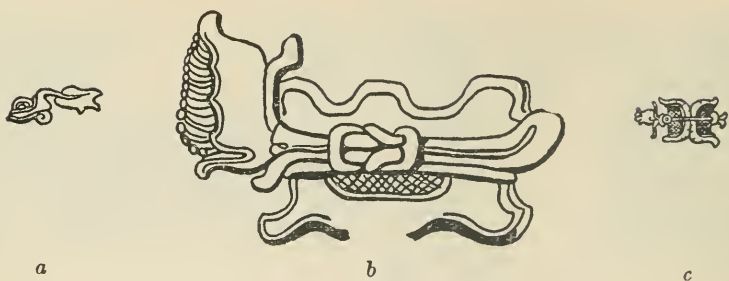
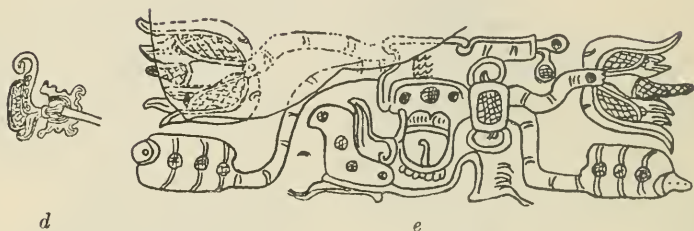
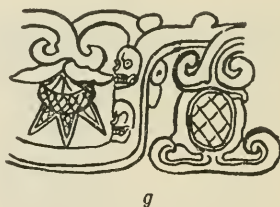
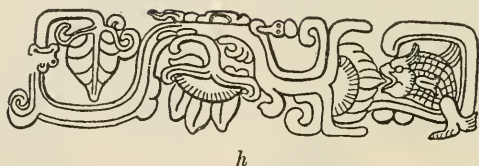
*a**b**c**d**e**f**g**h*

FIGURE 6.—*a*, Quirigua (Entry 111). *b*, Copan (Entry 53). *c*, Dresden Codex (Entry 310). *d*, La Amelia (Entry 63). *e*, Vase (Entry 222). *f*, Palenque (Entry 70). *g*, *h*, Chichen Itza (Entries 27, 24).

Some of these elements, such as raised marginal bands and marginal dots, are stylistic traits of wide occurrence in Classic Maya art, while crossed bands also occur widely. Other elements, such as the notchlike forms, are more distinctive. The occurrence of dots in wavy cross-hachure¹ is an unusual combination, but recurs in representations of the turtle shell (fig. 2*d*, and pp. 17*a*, 70*b*, 71*a*, 72*b* of the Madrid Codex). The leaf outline tends to be squarish to rectangular and is marked, as noted, with serrations and bumpy protuberances. The over-all configuration, caused by repeated appearance of the enumerated elements with this distinctive outline, stands out sharply in Maya art. Its unique quality is underscored by its almost universal association with floral forms;

The occurrence of the artistic elements *a* through *m* is summarized, according to site, in table 2. Numerals refer to the number of water-lily leaves having a given trait. The large number of elements present at Palenque reflects the unusual number of representations depicting leaves at that site. Furthermore, Palenque, more than any other site, seems to possess these traits in their most "ideal" form. That is, for such traits as elements *m*, *a*, and perhaps *c* and *f*, the Palenque delineation seems either to represent a central trend around which the other sites tend to vary in different directions, or else the variation within one of these other sites points to less standardization than at Palenque in regard to these elements. The point is a vague but suggestive one. It may mean either that Palenque seized on certain generalized artistic attributes of the water-lily leaf and elaborated them in its own distinctive ways or that Palenque was actually a source of inspiration and diffusion for these particular treatments.

Two types of water-lily leaves may be recognized. One comprises most of the Palenque examples (Entries 68, 76, 77, 78 in table 1,⁴ figs. 1*b*, *c*, 3*g*). One of the Quirigua leaves (Entry 118, fig. 3*f*) compares notably in interior marking but varies in shape. The other group, to be discussed below in connection with the Over-all Type II*c*, occurs at Bonampak, Chajcar, Calakmul, Ixkun, La Amelia, La Mar, Palenque, Quirigua, Yaxchilan, and perhaps in the Dresden Codex. As indicated, transitional features are numerous and the entire body of representations quite standardized.

No Early Period representations of the water-lily leaf are definitely known to occur. The leaf appears in House C, Palenque, as glyphs in the inscribed stairway, forming part of a 9.8.9.13.0 Initial Series, and recurs as a stucco decoration on the inner wall of the West Corridor (Entries 68, 69, fig. 4*a*). While this suggests a rather early presence of the motif, the dating of Palenque is far from securely placed, and it is probable that these representations are considerably later. The

⁴ Since all Entry numbers are from table 1, future references to specific Entries will omit table number.

chronological position of other water lily forms at Palenque is likewise unsure. One of the earlier water-lily leaves is on Stela 8, Piedras Negras (Entry 95), bearing a probable 9.14.15.0.0 inscription.

FLOWER TYPES

Contrasting somewhat with the standardization of the water lily leaf, a great diversity exists in the representation of the floral forms included in the tables. As suggested above, this may imply that non-water lilies have been included. However, even the flowers united by the fish and water-plant motif display marked variation.

In considering the water-lily flower, 18 types, A through R, are recognized. Portions of the plant other than flowers may be included in a few instances. The types fall into five major groupings. The latter are based on whether or not the flower is shown in profile (the almost universal rule) and on the presence or absence of petals and sepals. The types are more specific and more finely calibrated than the groups.

GROUPS AND TYPES OF MAYA TREATMENT OF THE FLOWER

Group I. Both petals and sepals are indicated; the flower is in profile.

Type A. The form of the flower's top tends to be rounded to subtriangular in shape and occasionally takes on a slightly mammiform appearance. Zoning of the interior, which perhaps indicates stamens, is largely confined to this type (fig. 1*b, d*).

Type B. The flower is more widely opened than in Type A. Top and base are essentially flat. The width is great, the height small (fig. 2*d*).

Type C. Unlike the other categories in Group I, the flower flares out widely toward the top, which is gently rounded. The form is highly symmetric and standardized. Sepals tend to taper toward the end; petals may terminate just short of the top, a crescent of marginal dots resulting (fig. 5*a*).

Type D. As in Type B, the flower has a flattish base and top, but it is elongated, being long in comparison to its width. In this it would correspond more nearly to Types A and C (fig. 5*e*).

Type E. As in Type B, the flower tends to be flattish and squat, but it is probably the most distinctive of the types comprising Group I. Two qualities set it apart. One is its greatly thickened sepal. The second is its asymmetry, for not only does a thick sepal pair off with a narrow one, but the stem tends to be attached at a corner of the flower, rather than being placed beneath its center (fig. 6*b*). Flowers showing just one of these traits are regarded as variants of the type (fig. 6*d*). In pure form the type often is further characterized by the occurrence of a row of marginal dots (cf. Type C) and by a serration of the edge of the thickened sepal in the way characteristic of water lily leaves.

Group II. Sepals but not petals are definitely indicated; the flower is in profile.

Type F. A wavy to jagged outline, enclosed by the sepals, gives a suggestion of petals. To this extent, the type seems transitional to Group I (fig. 5*d*).

Type G. A shallow central area, probably indicating undifferentiated petals, is set between sepals (Maudslay, 1889-1902, vol. 2, pl. 14, No. 13).

Type H. A rather wide, swollen central element rises beyond the enclosing sepals. Frequently this central element is of mammiform shape (figs. 4*e, 5g*).

Apparently the central element usually represents undifferentiated petals, but its upward-jutting tip may sometimes indicate the rise of a third sepal. This interpretation would not be favored by the close resemblances to the mammiform but sepalless Type M. Type H, furthermore, tends toward uniformity.

Type I. A number of forms are subsumed under this catch-all heading. They have in common the feature of a central element not well differentiated from the two enclosing outer ones. In this they contrast with Type H, where the distinction between inner and outer elements is well marked. The inner element of Type I flowers is characteristically narrow. The partial unfolding of a flower may be indicated. In its frequently jagged appearance, the type seems transitional to Group III flowers, especially to Type J. Sometimes a fleur-de-lis shape is approached (fig. 5c).

Group III. Petals and sepals are undifferentiated; the flower is in profile.

Type J. The flower is outspread. Straight lines may separate the petals or sepals (fig. 2c), semi-independent bands, rounded at the end, may be shown (fig. 2e). Especially in the former case, the flaring shape and slightly rounded top compare suggestively with Type C flowers.

Type K. Unlike Type J, the flower is unflaring and straight in its lines. The petal or sepal lines, which tend toward shortness, are straight. The length is usually great in comparison to the width (fig. 3b). An angular type of basal zoning, consisting of parallel horizontal lines, frequently occurs.

Type L. The flower is partially outspread; rounded and waved petal or sepal lines occur. To some extent the type is transitional to J and K; it has analogies to Type F but lacks definite sepal bands (fig. 6c).

Group IV. Neither petals nor sepals are indicated, and these absences suggest that a leaf or pod rather than flower is indicated. Unopened buds may be represented in some cases. Depiction is in profile.

Type M. The shape is mammiform, thereby corresponding to Type H flowers, but enclosing sepals are absent (figs. 4c, 6f). An unopened bud may be indicated, or perhaps a leaf.

Type N. The design is leaf-shaped (figs. 3i, 4g). Together with Type M representations, it occurs on possible trees in the Maya codices (Dresden, 27ff). A design on a vase from the Rio Hondo (Entry 215, fig. 5b) suggests, however, that the form may also depict an unopened bud. Here a Type N object is attached to a curving stem. A second stem from the same source terminates in a similarly shaped form, but in this case a cleft tip and interior markings clearly indicate the partial unfolding of the petals or sepals (fig. 5b). Gann identifies the objects as water lily buds (Gann, 1918, p. 110).

Type O. The design is elongate and paddle-shaped. An interior area, often lozenge-shaped, is frequently set off, and small lines run out to the margins (fig. 1d).

Type P. The design shows similarities to Type O but assumes a constricted shape, small circles being enclosed in the wider portions of this highly elongate form. A seed pod of some sort is suggested (fig. 3a).

Group V. The designs are not shown in profile.

Type Q. A composite flower seems indicated, as if viewed in part from the top and partly from the side. Undifferentiated sepals or petals jut out from a circular or semicircular base (figs. 3c, 4a, f, 6g, h).

Type R. The flower is viewed from the top. Lines suggesting petals or sepals, or concentric rings of lines, suggestive of stamens, petals, and sepals, radiate outward (fig. 4e).

The Group I forms not only tend to be the most realistic flowers but

are the ones most frequently associated with the fish in the well-known fish and water-plant motif. They offer, therefore, the best initial basis for an identification of art forms as water lilies, in terms of the treatment of the flower alone.

Groups IV and V tend to be set off somewhat from the others. Specific features link several of their types to those in the other groups, however. Type Q flowers with semicircular bases occur on stems in connection with Type A flowers and flower-eating fish at Chichen Itza (Entries 24, 27; fig. 6*g, h*). Type Q flowers with circular bases but otherwise of closely corresponding appearance also occur on Xultun stelae (Entries 139, 140) and on a Río Hondo bowl (Entry 214, fig. 4*f*). In the latter case, mouths of fish are placed against the projecting petals or sepals, tending independently to support the identification of the form as a water lily. Analogous forms occur in the Tulum frescoes, in connection with probable water lily leaves as well as with Type K flowers and Type P seed pods.

Type P pods are not as directly linked with Group I, II, or III designs. Forms apparently transitional to Types O and P occur, however, on a twisted stem pictured in the Madrid Codex (Entry 314). The paddle-shaped Type O designs occur on one of the more surely identified water-lily stems at Chichen Itza (Entry 25, fig. 1*d*) and recur on corresponding stems elsewhere at the site (Entries 28, 32, 35). On one of these stems (Entry 32), the similar but constricted Type P seed pod also appears. These forms seem definitely to be associated with the same type of stem on which water lilies occur.

A Type N-shaped design, tabulated also as a water lily leaf, appears on the same stalk as a Type P pod in the Santa Rita frescoes (Entry 121, fig. 3*a*). An unopened leaf may be indicated, for the design in question bears such characteristics of water lily leaves as dots in connection with crosshachure.

Type M designs, of Group IV, bear close resemblances to the mammiform but unsepaled Type H forms of Group II. These, in turn, are linked to the petaled and sepaled Type A representations of Group I by the slightly mammiform appearance which frequently characterizes the latter and by a design on a Yucatan vessel (Entry 220, fig. 4*d*). Two mammiform flowers, of closely corresponding appearance, occur on a single knotted stem. One of the flowers lacks petals and is therefore to be classified as Type H; the other, with a few lines scratched in, is thereby Type A. In the same way, on the Bonampak murals, where color sometimes differentiates petals from sepals on the highly realistic water lilies, the filling in of petal lines seems to be a somewhat inconsistent, almost whimsical, matter of choice (Entries 8-12).

The mammiform Type M designs, while probably portraying buds

or leaves, show certain resemblances to Maya representations of serpent rattles. This is particularly true in figure 6f (Entry 70), where the designs are so attached as to form a dangling, chainlike object (cf. Maler, 1901, pl. 18, No. 2; Morley, 1937-38, vol. 5, pl. 139a). Elsewhere, however, flowers lacking this rattlelike appearance seem to be somewhat similarly attached (Entries 17, 151). The representations of Entry 70 seem, moreover, to be examples of the fish and water-plant motif, for the nibbling fish appear, their mouths placed against the Type M designs.

Occurrences of the Flower Types are summarized, according to site, in table 3. Numerals refer to the number of flowers. Chichen Itza, with its vast array of flowers appearing in panels along the walls of several structures, has a wide variety of floral categories. Significantly small totals for this site appear only in connection with the asymmetrical Type E and the mammiform Types H and M. It should be noted in this connection that the slightly mammiform treatment of Type A flowers is fairly prominent at Chichen Itza, and that Type A is of extremely heavy occurrence there. Type I, which appears to be fairly closely related to Type H, is quite heavily represented at Chichen Itza.

The Copan treatment is the most distinctive. Type E designs, while partially paralleled at several sites, occur in "pure" form only at Copan. The nearby sites of Quirigua and Paraiso display variant treatments, while others occur at Xultun, La Amelia, Seibal, and perhaps Chichen Itza.

Other somewhat less notable trends exist according to site or region. Quirigua stands somewhat apart in its relative emphasis of the wavy-topped Type F flowers. The Usumacinta sites tend, in general, toward Group II representations, but in this they follow the emphasis of the Maya area as a whole. Copan and Palenque have a virtual monopoly of the mammiform Type M designs, except for certain untabulated forms in the Dresden Codex. The generally realistic Type A flowers are of sporadic occurrence in the Maya area outside northern Yucatan; the most noteworthy clusterings appear to be at Palenque and Bonampak. A variant of Chichen Itza's flaring, highly distinctive Type C flower occurs at Palenque (fig. 1c); more strikingly, the form is duplicated in a single design at Chinkultic (Entry 43). The widely opened Type J flowers at Chichen Itza and Chama also display surprising resemblances, considering the virtual absence of the form elsewhere (cf. such Chichen Itza representations as Entry 40 with Entry 204 and Gordon and Mason, 1925-43, vol. 1, pl. 2). Group III flowers are almost exclusively confined to the northern Yucatan sites, the codices, and Alta Verapaz pottery, being virtually nonexistent in the Classic Maya sites of the Central Region. Chichen Itza also

shares with Tulum, Santa Rita, or the Madrid Codex such types of low occurrence or limited distribution as P, Q, and R.

Unusual similarities in the depiction of a group of flowers from separated regions are of considerable interest. Portrayals from the northern Yucatan site of Xcalumkin compare, on the one hand, with Yaxchilan (Entries 134a, 147) and on the other with a vase from Nebaj in the Alta Verapaz (Entries 134b, 213). A variant Type A design, which may, however, represent featherwork, compares suggestively with this group (Entries 81d, 134b, 213).

For most of the sites, however, representations are too few to permit much in the way of meaningful generalizations. Only those centers well known for their stone carvings or murals offer much in the way of comparative material.

Petaled and sepaled Group I flowers occur rarely if ever prior to late Classic Period times. At Copan, for example, the highly standardized Type E form appears only in 9.16.10.0.0, well along in a sequence of floral or leaf forms which dates back some ten katuns. Thereafter, this type dominates flower representations at the site. Type A flowers at Palenque and Piedras Negras may be the earliest of the Group I designs. It is of interest, accordingly, that a variant Type E representation, lacking the thickened sepal but sharing its asymmetry, its over-all contours, and its row of dots along the outer edge of the petals, apparently occurs quite early on Stela 19, Xultun (Entry 136). Morley tentatively assigns the monument on stylistic grounds to the first quarter of Baktun 9 (Morley, 1937-38, vol. 1, p. 392).

Type M and N designs, unsepaled and unpetaled, seem generally to have a chronological precedence. Leaflike Type N representations occur on an Esperanza Period vase from Kaminaljuyu (Entry 211, fig. 4*g*), on Stela 1, Tikal, dated by Morley from "very early in Baktun 9, perhaps as early as 9.1.0.0.0" (Morley, 1937-38, vol. 1, p. 297; Entry 124, fig. 3*i*), and on the Ball Court Marker at Chinkultic, which bears a possibly contemporaneous 9.7.17.12.14 Initial Series inscription (Entry 43). It also precedes the Type E flowers at Copan, occurring there perhaps in both Katuns 11 and 12 (Entries 48, 49). The mammiform Type M designs seemingly occur somewhat earlier than the N forms at Copan, in 9.6.10.0.0 and 9.10.15.0.0 (Entries 44, 45). The type reappears at Palenque on the piers of House A, which bears an Initial Series date of 9.8.16.15.13 but that is more probably to be placed in Katun 14 (Entry 70, fig. 6*f*; Proskouriakoff, 1950, p. 192). Perhaps there was a tendency in later times for the sepaled Type H form to replace the unsepaled Type M.

Broad chronological trends in the development of floral art in the Maya sculptures and murals may be postulated on the basis of the

tabulated data. Type M and N flowers of Group IV category would appear to be of initial occurrence. Lacking sepals as well as petals, they may actually represent leaves. Sepaled Group II flowers, especially H and I, eventually replaced them in popularity. Shortly thereafter, Group I petaled and sepaled flowers, which include the most surely identified water lilies, appeared and gained in favor. Their vogue lasted into the Mexican Period, as witnessed by numerous examples in the Ball Court complex but not in the sculpture of supposedly later buildings at Chichen Itza (Tozzer, 1930; cf. Proskouriakoff, 1950, p. 171). The Dresden Codex, however, retained Type H forms, many of which do not appear in the tables. Not in profile and of limited occurrence, Group V types would seem to come in during late Classic times and continue into subsequent Yucatecan art. Finally, in Mexican Period times or later, Group III flowers (petals and sepals undifferentiated), as well as such divergent Group II types as O and P, have almost their only known occurrences.

FLOWER ELEMENTS

Certain detailed elements marking the flower remain to be considered. Some of these elements, in conjunction with the over-all shape of the flower, comprise the criteria upon which the flower types just discussed are based. Others are nondiagnostic. The elements relate primarily to markings within the flower but in some cases concern its shape or appendages. They are described in terms of the structure of the flower, for in many cases it seems certain that they are standardized conventionalizations of flower parts.

ELEMENTS OF THE MAYA TREATMENT OF THE WATER-LILY FLOWER

- Element *a*. Petals are indicated by lines which occasionally have the semidistinct quality of bands, causing slight to marked serrations at the flower's top (figs. 3*e*, 6*e*). Usually, however, they merely rise to an essentially unbroken surface (figs. 1*b-d*). Lines may pass fully to the base of the flower or may terminate sooner. In the latter case, something akin to the "zoning" of Elements *k* through *o* results.
- Element *b*. Two enclosing sepals are indicated by bands which flank the corolla or inner portion of the flower (figs. 2*d*, 5*g*, *h*). Considerable variation exists in the relative length and straightness of the sepals and in the angle at which they pass outward from the base (figs. 1*d*, 6*d*).
- Element *c*. The general remarks made about Element *b* apply, but a third sepal passes up the center of the flower (figs. 1*b*, 3*g*, 5*a*).
- Element *d*. Bands or lines pass to the flower's surface, but it is not clear whether petals or sepals are intended (figs. 2*c*, *e*, 3*b*).
- Element *e*. The sepal is heavily thickened (fig. 6*b*).
- Element *f*. The stem enters the flower proper (figs. 3*h*, 4*c*, *d*).
- Element *g*. At the flower's base, the top of a sepal band whose lower edge is flat juts upward into the flower proper (figs. 2*a*, 3*d*, 5*d*). In appearance, the

design seems transitional on the one hand to *b* and *c* type sepal bands and on the other to Elements *h* and *i*.

- Element *h*. A band or line passes along the central axis of the flower, but, differentiated at its base from the flanking Element *b* sepals and the stem, it is probably neither a third sepal nor an entering stem. A tentative identification as the ovary (the enlarged basal portion of the pistil) is suggested (figs. 2*a*, 3*e*). Variant forms, which may be sepals, occur (figs. 1*c*, 5*e*, 6*e*).
- Element *i*. A row of dots or circles, or a single centrally placed dot, passes similarly along the central axis of the flower (figs. 3*h*, 4*d*, 5*h*). In position it corresponds to Element *h* and, like it, may have some connection with the pistil.
- Element *j*. Marginal dots or circles appear at the outer tips of the petals. Ideally, the row of dots is unbroken and close-set (figs. 5*a*, *e*, 6*b*).
- Element *k*. A row of dots sets off a zone toward the base of the flower (figs. 1*b*, *c*, 3*e*). Stamens or carpels may be indicated.
- Element *l*. Essentially vertical lines set off a zone toward the base of the flower and, as previously suggested, may indicate the stamens (fig. 6*h*).
- Element *m*. Crosshachure sets off a zone toward the base of the flower (figs. 3*d*, *e*, 6*e*). This zoning may have conventional significance of the sort suggested for the preceding elements. The interpretation is especially favored by a probable water lily, depicted on a gold plaque from the Sacred Cenote at Chichen Itza, which displays crosshachure in the interior area where stamens would occur (Willard, 1926, p. 129).
- Element *n*. Semicircular lines or differences in coloring set off an area toward the base (figs. 1*b*, *c*).
- Element *o*. Straight, horizontal lines crosscut the flower, occurring mostly although not exclusively toward the base. This element occurs principally with Flower Type K.
- Element *p*. An enclosed inner area is marked off, sometimes paralleling the shape of the flower and sometimes differing from it (figs. 2*a*, 3*b*, 4*c*). Upper as well as lower portions of the flower are subject to this marking.
- Element *q*. The flower takes on a mammiform shape, this usually being the form of the top but also known to be the shape of inner Element *p* (figs. 4*e*, 2*a*). The mammiform quality may be subtly suggested by the contour of the individual petals (fig. 6*h*), developed (fig. 4*c*) or exaggerated (fig. 5*g*).
- Element *r*. The stem swells slightly, then depresses, just prior to its juncture with the flower. The more realistic treatments of this phenomenon, which occurs on water lilies, are not tabulated, but exaggerated instances of it, which presumably go back to this prototype in nature, are regarded as the element (fig. 2*b*; cf. Maudslay, 1889-1902, vol. 4, pl. 26, No. 4; Palacios, 1937*a*, fig. 4*l*).
- Element *s*. Small scrolls or a roughened, knobby treatment occur at the place of juncture between stem and flower (fig. 1*c*).
- Element *t*. Scrolled, sepal-like elements occur at or near the base of the flower. The symmetrical placing of two highly curved elements below the main sepals is regarded as the "pure" form of this element (fig. 1*d*, 3*e*, 6*h*).
- Element *u*. A somewhat similar effect is gained by the loose, dangling end of a knotted stem (fig. 6*b*). Although perhaps fortuitous, the resemblance to Element *t* is striking.
- Element *v*. Plumes pass outward from the flower, thus assuming somewhat the position of the fish in the fish and water-plant motif (fig. 1*d*).

An additional artistic feature of some importance is not, unfortu-

nately, made the special subject of tabulation. It consists of a long, frequently curving element which extends beyond the central part of the corolla. Sepallike, it often results in a questioned tabulation of either two or three sepals. Often an exaggeration of the mammiform Element *q* is suggested. Yet, notwithstanding considerable variation in treatment, the element has a quality of its own (figs. 2*f*, 3*d*, 4*d*, 5*e*).

As revealed in table 4, an unusually large number of flower elements occur at Chichen Itza, Palenque, Copan, and Quirigua. Of the 22 elements, only 2 or 3 are absent from Chichen Itza. One of these, Element *i* (a row of dots along the center of the flower), is a rather striking omission, in view of its widespread occurrence in the Maya area as a whole. Chichen Itza emphasizes two- rather than three-sepaled flowers (Element *b*) and, correlating with its large number of Group III flower types, has a heavy occurrence of undifferentiated petals and sepals (Element *d*). More than 50 percent of the tabulated flowers having petals occur at this one site (Element *a*). Sepal scrolls (Element *t*) are largely confined to Chichen Itza. The mammiform Element *g* is of unusually high occurrence at Palenque. The thickened sepal (Element *e*) and the loose end of a knotted stem (Element *u*) are characteristic of Copan. No single element stands out at Quirigua. Instead the site seems cosmopolitan, sampling widely and not greatly emphasizing any particular approach.

Some traits are shared to a seemingly significant degree by only two or three sites. The various elements of basal zoning (*k* through *o*) are unusually developed at Chichen Itza, Palenque, and in the Alta Verapaz. Elements *k* and *n* (basal dots, curved basal lines) provide special correspondences between Chichen Itza and Palenque (figs. 3*e*, 6*h*, 1*b*, *c*). While of low occurrence, the knobby area of juncture between stem and flower (Element *s*) is perhaps confined exclusively to Palenque and Chichen Itza. Dots placed at the tips of the petals (Element *j*) occur in any frequency only at Chichen Itza and Copan. Sepals notably in the tradition of Chichen Itza appear at Xcocha, Chama, Quirigua, and Yaxchilan (Entry 134*c*, figs. 5*e*, 2*a*, *f*). The only occurrences on the monuments of Element *v* (feathers placed against the flower) may be at Chichen Itza and northern Yucatan, but the form if not the concept is duplicated at Quirigua and perhaps Palenque. Moreover, unless balls of featherwork have been misclassified as flowers, the same association takes place on pottery from Yucatan and the Middle Motagua, and it may be present in the codices.

The data of the tables show a general tendency for Flower Elements *f*, *p*, *q*, and *h* to have a chronological priority over the others. These traits (stem entering flower, inner area, mammiform shape, and line along center of flower) are often associated with Flower

Groups II and IV. Making their appearance considerably later in Classic times if not, in some cases, subsequent to it, are Flower Elements *l*, *m*, *o*, and *v* (various types of basal zoning and feathers pendent from the flower). Perhaps to this late category should be added Elements *g*, *j*, and *u* (jutting of sepal into flower's base, circles at flower's top, and sepallike appearance of a knotted stem). Regardless of the time of first appearance in the floral art of the sculptures, however, the traits agree in their pattern of continuation until the latest known times.

STEM AND ROOT

Wide variation exists in the representations of the plant stems. The treatment may be quite simple when the flower occurs as a head-dress ornament, the mere suggestion of a knot perhaps being shown. Frequently, however, the knotting is made the subject of great elaboration. This is particularly true at Copan (fig. 6*b*) and in Copan-like treatments at Quirigua (Entries 105, 113). Knotting of flower stems around the wrists of a crocodilelike being also occurs at Copan, in connection with fish (Entry 58). Flower stems are bound around the arms and wrists of figures in the Santa Rita frescoes, taking on a ropelike quality (Entry 120). Flower stems are wound around the waist in the Tulum frescoes (Entry 133). The knotting of stalks into scrolled or angular panel forms may be another manifestation of the same tradition (fig. 4*d*).

Six Panel Types are recognized for the shapes assumed by the stem (table 1). The forms are basically geometric and, notwithstanding considerable superficial modification, are rather highly standardized.

TYPES OF MAYA TREATMENT OF THE STEM AS A PANEL

- A. The stem rises and falls in angular undulations (fig. 1*c*, *d*).
- B. The stem is a basically horizontal band which passes downward at either end. In certain instances (Entries 71, 118, fig. 3*f*) the band is halved, the disconnected portions balancing one another to achieve the effect.
- C. The stem is a basically horizontal band which, however, takes the form of an inverted, much-flattened T. It descends from its source and divides, passing horizontally on either side and then jutting slightly upward (fig. 2*f*).
- D. A U-shape is taken by the stem.
- E. The stem passes back on itself to form an enclosure. Knotting of the sort just discussed may occur. The height tends to exceed the width and the contours tend to be angular, but a circular wreathlike form is also known (fig. 4*d*).
- F. Highly scrolled and cursive aspects basically modify the angular qualities of the panel type.

Panel Type A is perhaps exclusively confined to Chichen Itza and Palenque. It appears in great strength at the former site, its occurrences at the latter usually being subject to cursive modification. One of the Palenque Type A panels is highly angular, however (fig. 1c). Occurring along the walls of buildings at Chichen Itza, where space limitations are not so great as on the stucco piers at Palenque, the panels tend to be much longer. Dating at Palenque is in doubt, but Proskouriakoff (1950, pp. 137-192) regards the piers of House D, in which the two typical examples occur, to be the latest in the Palace complex, from about Katun 16 of Baktun 9. The Sayil example compares in part.

Panel Type B occurs more widely, being known from Copan, Palenque, Quirigua, and perhaps Cancuen and Tulum, and on Alta Verapaz ceramics. Its earliest dated appearance is probably in Katun 10.

Panel Type C occurs prominently at Piedras Negras, where it dates from Katuns 12 to 16, and appears also at Yaxchilan and Chichen Itza (fig. 2f, d). Many striking parallels exist in the latter representations. The type is suggested at Tulum.

Panel Type D occurs at Copan and Quirigua (Katuns 15, 16).

Panel Type E occurs prominently on two Quirigua stelae (Katun 17) and in the Dresden, Madrid, and Perez Codices.

A tuberous root, probably the water lily rhizome, is occasionally depicted. It occurs with striking realism on a vase from Yucatan (fig. 6e). Similar designs occur at Palenque (fig. 1c and, perhaps, 1b). Stylized, the rounded objects at the ends of long stems at Sayil (Entry 121b) compare with the rhizomes of figure 6e, both in marking and in position. Analogous forms, which recapture much of the same swollen, knobby appearance, are discussed below in connection with the Overall Type IIe. They are found at Palenque, Chichen Itza, the Alta Verapaz, and, in highly variant form, Copan.

Uncertainties in the chronological record, coupled with the lack of sufficient data about representations on media other than the monuments, prohibit more than speculation about the development of floral forms. In analyzing the water lily forms, however, one is constantly forced to revert to the decorations in the Palace at Palenque. Here occur what seem to be the most realistic portrayals, the most convincing prototypes to nature, the most characteristic conventionalizations (figs. 1b, c, 3g). Stela 8 at Piedras Negras, which displays rather close similarities in flower and leaves, is relatively early (9.14.15.0.0?). It is tempting to look toward the Usumacinta region for the major developments in the elaboration of the water lily.

MYTHIC ASSOCIATIONS OF PROBABLE WATER LILIES

GENERAL CONSIDERATIONS

As has been indicated, the water lily has frequently been associated with mythologic figures in highly distinctive ways in Maya art. These associations are given for individual representations in table 1 and are summarized in tables 5 and 6.

The mythic or symbolic associations are of different sorts: (1) The source of the water lily, i. e., the representations from which it seems to emerge; (2) the anatomical portion of a being from which the water lily emerges; and (3) the figures occurring amidst the plant. Additional features tabulated are the presence of flower-eating fish and of death symbols, the latter said by Lothrop to be a recurrent feature with water plants (Lothrop, 1926, p. 161; Thompson, 1950). The presence of the water lily in human and nonhuman headdresses is also noted, and the occurrence of these forms in glyphs is indicated. Presences of water lilies anywhere in the often very elaborate human headdresses are recorded. Only those water lilies which appear actually to be worn are recorded for nonhuman headdresses, the growth of plants from the head being classified under a separate category.

Mythic beings serving as the source of the plant are the heads of various long-nosed, serpentine, and perhaps bird forms, subsumed under the name of "Serpent Head X";⁵ the Long-nosed God, complete with body; various forms with birdlike attributes, tabulated separately under the headings "Wing Panel," "Serpent Bird," and "Bird," but perhaps to be treated as manifestations of a single entity;⁶ and the jaguar. Mask panels, which quite frequently may be representations of "Serpent Head X" or "Serpent Bird" forms, also occur as the source of the plant. Aside from the jaguar, which seems to stand somewhat aloof, the complex is a tightly knit one. Substitution of attributes appears to have been marked, both on an artistic and conceptual level.

⁵ The term "Serpent Head X" is taken from Kidder, Jennings, and Shook (1946, pp. 223-226). It has probably been extended somewhat in meaning from their original usage, but the interchange of artistic attributes among beings of possibly diverse origins has been so great that some all-inclusive term is required in the summary tables. "Serpent Head X" fits admirably, for most of the forms tabulated under this heading fall well within the range so designated by these authors. They have, moreover, called attention to the association of floral and leaf forms (Flower Types Q, N, in the present paper) with the mythic being in question.

⁶ The term "Serpent Bird" is taken from Maudslay, who illustrated a number of examples of this being. According to him, its diagnostic feature was the profile conventionalization of a snake head, lacking a lower jaw, that is placed at the bony wing structure of a bird or used as an isolated element (Maudslay, 1889-1902, vol. 1, pl. 99, pp. 63-64). Spinden, however, questioned that this feature was of sufficient significance to warrant the equation of all forms showing it and employed the term "Wing Panel" in referring to it (Spinden, 1913, pp. 60-61, 78). As "Bird" is used in tabulations of the present paper, the body of a bird or even the somewhat conventionalized head of a creature possessing its characteristics is acceptable. But birdlike features on a Long-nosed God type of head result in tabulation under "Serpent Head X."

Largely in relation to these beings, the primary anatomical sources of the plant seem to be the top of the head and the ears, eyes, mouth, and hands; perhaps the nose and the neck should be included. So far as the jaguar is concerned, the only anatomical source is apparently the head (or possibly the ear, to which the stem eventually may lead back); this seems clear-cut. The case is much more complex for the other beings. It seems possible, however, that the emergence of the water lily from the head is primarily a feature of the Long-nosed Serpent Head X forms. Less certainly, the issuance of the plant from the mouth appears to be mainly associated with the Serpent Bird and its close affiliates. Ear, nose, and eyes as anatomical sources are shuttled back and forth among the various beings in a most complex way.

HANDS OR ARMS; FIGURES AMIDST PLANT

Hands or arms as sources from which the plant springs, or through which it passes, fit a different pattern. Human or anthropomorphic figures tend to occur with their bodies wholly or largely depicted, thus contrasting with the emphasis on detached heads or mask panels characteristic of the other anatomical sources. At Chichen Itza, in what must surely be representations of water lilies, numerous seated human figures are holding the undulating plants (fig. 1*d*). Two figures at Quirigua, one shown with jaguar paws, stand under a canopylike, Panel Type E arrangement of creepers or stems, the lower portions of which are held in their hands and arms (Entries 108, 109). Elsewhere at Quirigua and at Copan, the bodies of human figures that hold elaborated stalks are only partially depicted (Entries 115, 50, 51). This is also true at Palenque, where the Long-nosed God and so-called "Maize God" (Spinden, 1913, p. 89) are associated with elaborate stems or vines that pass from their hands (Entries 90, 81). Although the bodies of these Palenque and Copan figures are incompletely shown, the assumption of a reclining position analogous to that at Chichen Itza is indicated. The Long-nosed Deities, Gods B and K, occur in a somewhat similar situation in the Dresden Codex (Entry 305). A stalk or vine, held in the hands of God B, encloses the seated figure of God K in a Type E panel. The resemblance to the Quirigua figures just cited is suggestive (Entries 108, 109). Figures appear in panels, composed of interlaced vine or stalk forms, in the Madrid and Perez Codices (Entries 313, 317). They do not hold the stems, however.

A seated human figure from Palenque holds a water-lily leaf in its upraised hand (Entry 76, fig. 3*g*). A stem terminating in a realistically treated Type A flower hangs from the leaf. This appears to be one of the more securely identified water lilies in Maya art. A similar

representation occurs in the Dresden Codex, held in the hand of the Long-nosed God (Entry 301, fig. 3*h*). Additional appendages suggest that some sort of paraphernalia is depicted, but the basic elements of water lily pad that is held in the hand and flower which hangs from the pad seems to be duplicated. A design on a Yucatan bowl shows a flower stemming from an unidentified object which is held in the hand (Entry 221, fig. 3*d*). The flower, Type B, is of interest because of its resemblances to some of the more surely identified water lilies at Chichen Itza. Its general contours and, in particular, the treatment of Flower Element *g* closely parallel the flower at the extreme right in figure 1*d*. Flowers, associated or unassociated with possible water lily leaves, seem to be attached to some sort of paraphernalia that is held in the hand in the Tulum frescoes and perhaps the Dresden Codex (Entries 131, 307).

A series of pictures in the Dresden Codex show God B holding or plucking stalklike objects. The stems arise from realistically depicted or conventionalized surface water (Entries 302, 303) and occur in association with fish (Entries 301, 304). Dancing, the god holds stems that are apparently rooted as creepers (Entry 304). These features suggest that the water lily, or at least some sort of water-plant, is depicted.

A Sayil panel shows a grotesque head in full face with arms stretching to either side (Entry 121*b*). The hands hold bulbous objects, which resemble the probable water lily rhizomes of figure 6*e*. One end of a pair of stems passes from these objects, while at the other end the stems issue from the eyes of the being.

HEAD OR FOREHEAD

The attachment of water lilies to the heads of Long-nosed God forms, or the actual growth of the plants from their heads, is apparent in a number of representations. Two highly specialized complexes, essentially identical to the Over-all Types II*c* and II*e*, emerge.

In a handful of representations, a distinctively shaped design, which may indicate the water lily rhizome, passes upward from the head of the Long-nosed God, branching once. It is known to occur only at Palenque, on Chama pottery, and in surprisingly similar form at Chichen Itza (Entries 73, 80, 201, 205, 29; figs. 5*h*, *i*, *g*). The design is somewhat tuberous in appearance and recalls the more realistically depicted rhizomes of Entries 77 and 22 (figs. 1*c*, 6*e*). In narrowing abruptly at the end, the vestigial stem which is thus formed (Over-all Type II*e*) penetrates a flower of mammiform characteristics (Flower Elements *f*, *g*). The clear-cut features of the motif and the fact that, like other realistic representations of the rhizome, it is connected with the Long-nosed God type of head, make it of special

interest. Somewhat similar designs, lacking identifiable water lily attributes, appear at Yaxchilan, Naranjo, and Bonampak (Maler, 1903, pl. 58; 1908 a, pl. 40, No. 1; Villagra Caletí, 1949, Room 3 of Structure 1).

In a series of Type IIc representations, the water-lily leaf is apparently tied to the forehead of mythic or human beings by a flower, presumably also a water lily. The most certain representation of a water-lily leaf at the forehead occurs in House C, Palenque (Entry 68). Here it is not tied on by a flower, but it provides a not-to-be-disputed precedent for the occurrence of water-lily leaves at the forehead. At Copan, where it forms the well-known fish and water-plant motif, the flower which attaches the water lily is Type E (Entry 53, fig. 6*b*). Here the leaf appears in front view, but the profile depictions form a somewhat more sharply defined and more numerous complex (e. g., figs. 4*a*, 5*e*, 6*c*, *d*). The rounded interior band (Element *h*) is especially pronounced, the outward marginal flare is emphasized, the shape is essentially square rather than rectangular, and the notched outline (Element *f*) tends to be characterized by sharp rather than squarish protuberances. Nevertheless, the differences seem to be ones of degree rather than kind. Vestigial marginal notches (Element *m*) in the Dresden Codex are akin to those at Palenque (Entries 310, 76). The flower at La Amelia shows resemblances to the asymmetrical Type E flowers at Copan (Entries 63, 53, figs. 6*d*, *b*). The flowers on a Chajcar vessel were recognized as water plants by Maudslay, and the stalks form an elaborate panel, of the general sort that characterizes some of the most surely identified of the water lilies in Maya art (Entry 208, fig. 5*e*).

The lower protuberances of profile water-lily leaves mentioned above are of particular interest, for they jut downward into the eye orbit in a way strongly reminiscent of the heavy bony brow ridges that appear with fair frequency on grotesque heads and fleshless skulls in Maya art. Altar R, Copan, illustrates this treatment nicely (Maudslay, 1889-1902, vol. 1, pl. 94*a*). A complex process of convergence, based on artistic interplay of motifs associated with the forehead, may be involved. In any event, the designs in question are set off sharply in other ways, and have close, crosscutting ties to the somewhat more definitely identified water lily leaves and flowers.

In additional representations, foreheads which are marked by no water-lily leaves are nevertheless decorated by knotted flowers of possible water lily type. Full-face mask panels seem frequently to be treated in this way. The fish and water-plant motif occurs with these associations on exterior friezes of the Temple of the Cross, Palenque (Entry 84). In one of these representations, the stem is treated as a solid band. The forehead design on Altar U, Copan, is

comparable, and the motif may occur here in more stylized form (Maudslay, 1889-1902, vol. 1, pl. 97*a*). Floral forms, which tend to be of the mammiform Flower Type H, occur with some frequency at the ends of head bands on mask panels in the Puuc Period architecture of Yucatan. The bands are sometimes composed of series of flowers in top view. The Monjas complexes, at both Chichen Itza and Uxmal, are rich in this sort of design (Seler, 1902-23, vol. 3, p. 713, fig. 2; vol. 4, p. 538, figs. 266-268; vol. 5, pp. 210, 224, 226, 236, 245, figs. 15, 35, 37, 38, 48, 63). These occurrences are not tabulated but are exemplified in figure 4*e*. Type J flowers are suggested in other representations which are worked into the mask panels and which occur on the same "stem" as a Group II floral type (Seler 1902-23, vol. 3, p. 713, fig. 2). The forms are often highly stylized and, while some relationship to floral designs is apparent, neither the possible role of convergence nor relationships with the water lily as such is clear. It is for this reason that they are omitted from the tables.

The occurrence of water-lily leaves without accompanying stems and flowers (Over-all Type IV) is much more limited. The presence of a probably unaccompanied leaf in House C, Palenque, on the forehead of one of nine stucco masks on the inner wall of the West Corridor, has been alluded to previously (Entry 68). A possible association of the water lily with one of the Nine Lords of the Underworld is suggested. (Cf. Thompson, 1950.) On Zoomorph P, Quirigua, elongated leaves apparently are placed at the foreheads of the mythic animal which comprises the boulder and of the mask carved upon its upper surface (Entry 118, fig. 3*f*).

EYES

A Mexican Period mask panel at Chichen Itza, which has interesting correspondences to several Classic Maya sites, is apparently marked at the forehead by a water lily leaf (Entry 22, fig. 2*d*). The squarish protuberances so characteristic of Leaf Element *f* overlie the eye orbits. Two stems apparently descend from the leaf, each cutting across an eye. The representation compares to the descent of the stem from a leaf in figure 3*g*, but at the same time it suggests the emergence of the stalks from the eyes. This motif occurs elsewhere at Chichen Itza (Entry 19), but is otherwise known only from a Sayil lintel (Entry 121*b*), Stela B, Copan, where it is repeated, and Stela 7, Yaxchilan (Entries 50, 152, fig. 2*b, f*). The latter monument is especially similar, for the stem likewise rises in a Type C panel in which animals appear. At Chichen Itza the animals are a water bird and turtle (Entry 22, fig. 2*d*), while in the Yaxchilan representation they are rodentlike. At Yaxchilan and Copan the eyes are feathered,

although at the former site the being is a Long-nosed God form and at the latter, perhaps, a highly conventionalized bird. Stela 7, Yaxchilan, may date from Katuns 15 or 16 of Baktun 9, while Stela B, Copan, bears a 9.15.0.0.0 inscription.

The representation on Stela B, Copan, has interesting analogies in Classic Maya art. At Copan the stalk which hangs down from the eye has an inverted Long-nosed God head dangling from it; the stem then passes horizontally into the hand of a small human figure. The grotesque face from which the stem descends is in profile. Its nose or beak hangs down in a way resembling full-face representations of the Serpent Bird, and its feathered eye may be associated with that being (Maudslay, 1889-1902, vol. 1, pl. 99; Maler, 1903, pl. 70). It is identical, for practical purposes, to the profile mask at Palenque upon which the water-lily-holding figure is seated (Entry 76). This suggests that at Copan, too, the water lily may be depicted, although neither flowers nor leaves occur. On Stela D, Quirigua, a stem passes in a corresponding way from its source, in connection with a birdlike being, to the head of a Long-nosed God (Entry 104, fig. 2*a*). Here the stem seemingly emerges from the bird's mouth or, possibly, chest. A fish occurs at the bird's head or headdress which may, therefore, have water lily connections.

MOUTH

The emergence of water-lily-like plants from the mouth falls into two or three well-defined complexes. One finds stems passing from the corners of the mouth of a being shown in full face. The stems tend to pass outward in elaborate panels (Types A, B). The beings often show birdlike features; a Palenque example (Entry 72) is the Serpent Bird. The forehead of another, from Chichen Itza, is marked with crossed bands of the type seen to be present in a probable water lily leaf elsewhere at the site (Entries 24, 22). The latter representations are among the more certainly identified water lilies in Maya art. This complex appears at Chichen Itza, Palenque, and Piedras Negras (Entries 24, 72, 95, 99).

A second complex, relating to the emergence of a plant from the mouth, is known only from the site of Xultun (Entries 136-140). Flowers issue from the mouths of small cats, which are held in the hands of human figures. The composite Flower Type Q occurs, as does an asymmetrical form suggestive of Type E.

A third complex may, more remotely, refer to the emergence of flowers from the mouth. The missing lower jaw of the Wing Panel, a serpent head in profile, is replaced by numerous foreign elements such as feathers and nose plugs. Among the substituting elements are floral forms, placed partially behind the teeth, thereby giving the

impression of emerging from the mouth. Conceivably the association is a conceptually fortuitous one, but it occurs in connection with the fish and water-plant motif at Palenque (Entries 70, 75, fig. 6*f*) and in highly interesting designs on Stelae A and C and Zoomorph P, Quirigua (Entries 108, 109, 115). At the latter site, flowers appear with the Wing Panel at the wing of the Serpent Bird (Entries 108, 109), and in at least one of these cases the outline of the Wing Panel is formed by a stem or vine (Entry 115). The stem is held in the hands of a human figure in each representation. In Entries 108 and 109, the stem may have its source at the head, beak, or ear of a much-eroded Serpent Bird, but, in any case, it terminates in the inverted heads of Long-nosed God forms. In this joining by means of stems or vines of Long-nosed God heads with the heads of probable birds, the pattern of Stela D, Quirigua, and Stela B, Copan, is repeated (Entries 104, 50).

In the Dresden Codex a probable stem, issuing from the mouth of an anthropomorphic vulture, is held in the bird's hand (Entry 308). This recalls the Sayil portrayal of the emergence of stalks from the eyes of a being who holds the same plant in its hands (Entry 121*b*). As is sometimes the case when the water lily surges from the mouth, the stems of the Sayil plant pass outward to both sides in an elaborate panel.

Not known to fit into a complex of this sort, a Flower Type N design emerges from the mouth of a serpent on Stela 1, Tikal (Entry 124, fig. 3*i*). The representation is noteworthy for its unusually early occurrence, probably at the very beginning of Baktun 9.

MISCELLANEOUS ASSOCIATIONS

A stem is frequently associated with the jaguar's head. Frontward growing, its source is hidden in the region at the back of the head or ears. Appearing on a jaguarlike being in the Temple of the Sun, Palenque, the stems, two in number, seem to spring forth from the region just back of the ears (Maudslay, 1889-1902, vol. 4, pl. 88). The stems occasionally terminate in flowers, the shape of the stem being unchanged. The mammiform Type M flower occurs in this connection (Entry 44, fig. 4*c*). The similarly placed flower on a vase from Chama (Entry 203, fig. 5*f*) is virtually identical to a flower which ties a probable water lily leaf to a serpentine head on a Chajcar bowl (Entry 208, fig. 5*e*). A jaguar depicted on a Yucatan bowl sits in a wreath of probable water lilies, and a flower may grow from its head or ear (Entries 219, 220, fig. 4*d*). Such features tend to associate the jaguar with the water lily. Spinden has pointed out the water-lily-like appearance of a flower in the Dresden Codex that grows from the jaguar's head (Entry 309), and on the strength of this has postulated a

further association of the jaguar with the fish and water-plant motif (Spinden, 1913, p. 77).

A close correspondence has been pointed out previously between bowls from the Rio Hondo, British Honduras, and the Esperanza Period of Kaminaljuyu (Kidder, Jennings, and Shook, 1946, pl. 226). Although the fish and water-plant motif occurs only on the former vase, and its Type Q flowers are replaced by Type N "leaves" on the Kaminaljuyu vessel, the mythic beings with which the vegetation is associated are strikingly similar (Entries 211, 214, figs. 4*g*, *f*). In each case, six projecting elements, feathers with crosshatched circles, rise from the Long-nosed God or Serpent X heads. The feathers are of the type that sometimes occurs in connection with the Serpent Bird and the Wing Panel (Maudslay, 1889-1902, vol. 1, pl. 99*d*, *e*, *h*). Their occurrence at the top of the head recalls the mask panel on Stela 4, Yaxchilan (Maler, 1903, pl. 70), a representation which in turn shows strong correspondences to the Serpent Bird (Tozzer and Allen, 1910, pp. 337ff, pl. 21). A complex which is conceptually linked to flowers and, by extension, to the water lily, seems once again to embody aspects of the bird and Long-nosed God or serpentine forms.

Several representations of the Serpent Bird with Wing Panel markings show it wearing a distinctive type of bar pendant around its neck (Taylor, 1941, p. 52, fig. 8*g*). Designs from Palenque, Chama, Xcalumkin, and in the Perez Codex are especially to be compared (Maudslay, 1889-1902, vol. 4, pl. 81; Proskouriakoff, 1950, fig. 95*c*; Dieseldorff, 1926-33, vol. 2, p. 29, pl. 32*b*; Perez 12*b*). The pendant recurs at the necks of probable vultures in a panel of water lilies at Chichen Itza (Entry 26, fig. 1*d*; Tozzer and Allen, 1910, p. 332, pl. 19, fig. 14). It appears again at the neck of a similar bird, pictured on a Río Hondo vase, resting on a possible water-lily plant (Entry 215). Serpent-Bird-like beings occur in full-figure glyphs on Stela D and Zoomorph B, Quirigua, sometimes with the bar pendant and sometimes with vulture aspects (Maudslay, 1889-1902, vol. 2, pls. 14, 15, 25, 26; Spinden, 1913, pp. 80-81).

Flowerlike forms, which may well be water lilies, occasionally appear at the corners of shields or shieldlike medallions. Such flowers are tabulated, but the frequent placement of probable balls of featherwork at the corners of shields proves a source of confusion (cf. Maler, 1901, pl. 17; 1903, pl. 74, No. 2). Flowers or feathers at the four corners of the jaguar-head shield in the Temple of the Sun, Palenque, form perfect Palenque-type water lilies except for absence of sepals (Entry 81*d*). Medallions at Palenque, Quirigua, and El Chiczapote may possibly be compared (Entries 81*c*, 103*c*, 116, 59*a*). Floral forms also appear at the corners of "eclipse shields" on pages 56 and perhaps 52 of the Dresden Codex.

Stylized flowers occasionally appear on loincloth aprons as the central element in Proskouriakoff's leaf-and-fringe motif (Proskouriakoff, 1950, pp. 38, 97; Entries 59b, 67a, 103a, 122a). It is of interest, therefore, that more realistically treated flowers hang from stems in a corresponding position (Entries 217d, 312b).

A possible association of significance exists between the water lily and the ball game. Water lily designs occur prominently on the benches of the Great Ball Court at Chichen Itza, a single motif, of flowering stalks growing from the decapitated neck of a ball-game player, being repeated six times (Entry 35). Water lilies are prominently depicted elsewhere in the Ball Court complex—in the South Temple, the Temple of the Tigers, and the Lower Chamber of the Tigers. Floral forms are, however, of heavy occurrence elsewhere in the representative art of Chichen Itza. Although ball-court markers at Chinkultic and Copan also display floral representations, many others are lacking in them. While these occurrences are of considerable interest, it seems best, in view of the inconclusive data, not to press the matter too far.

GLYPHIC ASSOCIATIONS OF PROBABLE WATER LILIES

Several of the representations referred to in the preceding section are hieroglyphs. It is apparent, therefore, that nonglyphic portrayals which share a given complex with glyphs bear upon the problem of the glyphs and are, in turn, to be understood in terms of them.

The occurrence of Long-nosed God heads connected by stems to bird forms is of particular interest in this regard (Entries 50, 104, 108, 109). Stela D, Quirigua, is one of the rare monuments having full-figure inscriptions (fig. 2a). Here the long-nosed being is the head-variant of the number 13, and the grotesque bird, with a fleshless lower jawbone, is the full-figure variant of the tun sign (Morley, 1915, fig. 52b'). The inverted long-nosed heads on Stelae A and C, Quirigua, which dangle from possible water lily stems, have the down-curved, beaklike noses of the bird forms in the hieroglyphs (Entries 108, 109). Their heads are marked with tau signs, which appear prominently in connection with a probable water lily panel at Palenque (Entry 71), and are feathered (cf. Entries 211, 214). On Stela B, Copan, the dangling Long-nosed God heads may also have a connection with time periods of the sort dealt with on Stela D at Quirigua (Entry 50, fig. 2b).

The head variant of the number 13 recurs, in connection with the water lily, at Palenque (Morley, 1915, fig. 52x,y; Entry 69, fig. 4a). The leaf is tied to the Long-nosed God's forehead by a sash, and floral forms rise from the leaf or head.

Flowers, apparent variants of the Type E water lilies at Copan, are tied to the heads of several beings in the full-figure glyphs of Stela D and Zoomorph B, Quirigua. Toads, as the uinal variants, wear such headdresses on Stela D (Entry 105) and Zoomorph B (Entry 112). In other glyphs, of unknown significance, beings wear similar flowers (Zoomorph B, Entries 113, 114). A possible flower is placed at the forehead of a head variant of the number zero (Stela D, Entry 106).

A flower-bearing stem issuing from its head or ear, the jaguar occurs at Copan in glyphs of unknown meaning (Entries 44, 49, fig. 4c). Jaguar glyphs at Yaxchilan may depict flowers in top view, near although not connected to the head; featherwork may, instead, be intended (Maudslay, 1889-1902, vol. 2, pls. 88, Nos. 6, 7; 89, Glyph M2). More closely corresponding to the jaguar of figure 4c is the same animal in the variable element in the Introducing Glyph, as patron of the month Pop. Beyer, while regarding the tusk as the most characteristic detail of the jaguar as a month indicator, notes the presence of "flourishes" adorning its head (Beyer, 1931, p. 100). These flourishes are, in some instances without any doubt, the same stem form that occurs in nonglyphic art.

The variable element in the Introducing Glyph for the month Pax may be "a symbol of vegetation," which replaces the lower jaw of a solar deity (Beyer, 1931, pp. 106, 108). On Zoomorph B, Quirigua, it occurs in this way, given the appearance of emerging from the mouth (Entry 111, fig. 6a). A similar design occurs in Glyph 11, passing from the mouth of the probable head variant for number 8. This glyph records the date 8 Pax, and it would appear that reduplication occurred, the characteristics of the month Pax being given to the full-figure variant of the accompanying numeral (cf. Morley, 1937-38, vol. 4, pp. 167-168).

A double row of Type H flowers occurs in association with a kan (yellow) sign, comprising a glyph in the Temple of the Foliated Cross, Palenque (Entry 91, fig. 4b).

The occurrence in glyphs of vegetation forms, which have the associations that characterize probable water lilies in Maya art, appears to be especially strong at Copan, Quirigua, and Palenque. The present compilation of floral motifs in the glyphs lays no claim to completeness, however. Furthermore, much of the emphasis on flowers in glyphs at Quirigua results from repeated occurrences of the motif on two monuments bearing full-figure inscriptions, Stela D and Zoomorph B. Other examples of the rare full-figure glyphs are not so dominated by floral motifs.⁷ Perhaps, for some fortuitous reason, it became the vogue to depict the water lily extensively on these

⁷ The fish and water-plant motif does occur in the sculptured scene accompanying the full-figure glyphs at Palenque (Entry 81e).

Quirigua monuments, and in applying this favored motif regard was not given to the inherent symbolism most appropriate to the specific time units, numbers, or deities involved. That this explanation cannot hold for *all* the glyphic floral representations on these monuments, particularly on Stela D, is indicated by certain important correspondences to motifs elsewhere in Maya art. Nor is a brief held for this explanation of the other floral occurrences.

Thompson, in his recent work on Maya hieroglyphic writing, has independently noted the association of certain deities with water lily flowers. Designated by him are the old god of the number 5 (Thompson, 1950, p. 133; Entry 12 in the present paper); the rain and storm god of number 6 (Thompson, 1950, p. 134; Entry 78); the death god as lord of number 10 (Thompson, 1950, p. 279; cf. Entry 55); the Long-nosed God of number 13 (Thompson, 1950, p. 136; Entries 69, 104); the jaguarlike patron of the month Pax (Thompson, 1950, p. 115; Entry 111); and the crocodilelike Imix earth monster (Thompson, 1950, p. 72; perhaps various of the "Long-nosed" or "Serpent X" heads in the entries, e. g., Entry 78). The suggestion is also made that the comb form of the "count" affix, which is usually designated as a fish fin, may possibly be the stylization of a water lily flower (Thompson, 1950, pp. 44-45). Such an interpretation is consistent artistically with many representations of the water lily and, in fact, had occurred to the present writer. Representations such as those in Entries 134a, 147 should especially be compared.

Thompson further regards the normal or symbolic form of the day sign Imix as derived from a water-lily flower (1950, p. 72, fig. 6). Characteristic of Imix, in fact, are markings corresponding to Flower Elements *a* or *d*, *k*, *m*, and *n* ("petal" lines, dots toward base of flower, crosshachure toward base, semicircular line or color difference toward base). Of these elements, *k* (a semicircular row of dots toward the flower's base) is especially characteristic of Palenque and Chichen Itza, being unknown in the ideal form in which it occurs in the hieroglyphs in floral representations from other sites. Combined with Elements *m* or *n* (crosshachured or uncrosshatched basal semicircle), Element *k* forms a configuration known in floral forms only from Palenque and Chichen Itza (although cf. Entry 222). Yet if Imix is derived from the water lily, it is surprising that the same type of treatment is not more characteristic of representations of this flower in the Maya area as a whole. If, as seems probable, many of the floral forms lacking these features are correctly identified as water lilies, it would appear either that Thompson's derivation is incorrect or that for some reason Palenque and Chichen Itza alone maintained these important features of the tradition of depicting the water lily which was in vogue when the appearance of the day signs, or at

least of the day sign Imix, was worked out. Could the portrayal of the water lily flower at these two sites have undergone, perhaps independently, an anachronism which based the depiction of the flower on the glyph Imix and thereby enabled the artists to duplicate the flower as it was represented in much earlier times? Or could some other media, such as the codices, have continued to portray the water lily in the old Imix manner concurrently with the varied changes taking place in the floral art of the sculptures during Classic times? If the Dresden Codex, with its wealth of Group II flowers, can be regarded as representative of the codices, this last explanation would appear to rest on very shaky foundations.

AREAL AND CHRONOLOGICAL TRENDS

OVER-ALL TYPE

Site-by-site occurrences of the various symbolic associations are presented in table 5, together with totals of the Over-all Types. Numerals refer to the total number of representations. The types designate the combinations of flower, leaf, stem, and root that occur in each representation. The most distinctive of these types have been previously discussed (IIc, e); the others require little explanation:

TYPES OF MAYA TREATMENT OF THE COMBINED FLOWER, STEM, LEAF, AND ROOT

- Type Ia. The flower only is depicted. Because of the absence of other features, this type is most apt to be confused with balls of featherwork.
- Type Ib. A flower occurs on a relatively simple stem. If the stem is very short but nevertheless observable, a questioned occurrence is tabulated.
- Type IIa. A flower occurs in connection with a complex stem.
- Type IIb. A flower occurs on the same stem as a leaf or leaves.
- Type IIc. A leaf is attached to the forehead by means of a knotted flower.
- Type IId. A flower occurs in connection with a distinctively marked rhizome and stem.
- Type IIe. A flower occurs at the tip of a vestigial stem, which is little differentiated from the tuberous rhizome.
- Type IIf. Flower, leaf, rhizome, and stem occur together.
- Type II-?. A complex stem occurs, but its associations are not clear.
- Type IIIa. A simple stem appears, unaccompanied by other parts of the plant. It is particularly associated with the jaguar's head.
- Type IIIb. A complex stem occurs, unaccompanied by other parts of the plant.
- Type IV. The leaf only occurs.

Type Ib, a flower attached to a relatively simple stem, is of greatest occurrence in Maya art. Probable flowers which lack stems are of next strongest occurrence (Type Ia), followed by flowers attached to complex stems (Type IIa). Of notably weak occurrence are the combinations of flower, rhizome, and stem (IId, e), flower, leaf, rhizome, and stem (IIf), and isolated leaves (IV). Palenque, whose

wide variation in this respect compares to the near universality of flower types and elements at Chichen Itza, has the only known designs that bring together flower, stem, leaf, and rhizome in a single representation (fig. 1*b, c*). It may share the occurrence of a leaf, without other associations, with Quirigua only. Chichen Itza stands out in the emphasis given the complex stem (Types IIa, II-?).

Table 6 gives the occurrences of Over-all Types and symbolic associations in time. For the monuments, the break-down, when possible, is according to the 20-year katun periods. Table 6 differs from the others in that its numerical entries refer not to the total number of representations but to the total number of monuments (e. g., stelae or structures, on which the representations occur. Utilized in conjunction with the other tables, table 6 gives a better perspective of the total activity put into floral representation.⁸

The earliest of the Over-all Types, as revealed in table 6, is the flower attached to a simple stem (Type I*b*). The type is of steady occurrence without significant chronological change. The earliest recorded occurrence of the complex stem is a variant Type II*e* representation on Stela 2, Copan (9.10.15.0.0?) (Entry 45). This distinctive type, while of limited distribution, seems to possess a fairly long time range. Type II*c* (a leaf tied to the forehead by a flower), of possible occurrence in earlier times at Palenque, is first definitely recorded in 9.15.0.0.0. The complex stem, unaccompanied by other forms of vegetation, seems first to appear in Katun 12 (Type III*b*). The vestigial stem at the head of a jaguar or similar being extends back from the time of the latest classic stelae, erected in 10.3.0.0.0, to 9.4.0.0.0 (Type III*a*).

MYTHIC ASSOCIATIONS

Certain sites stand out significantly in the occurrence of one or two symbolic associations. The flower-eating fish and presence of plants in the human headdress are of marked occurrence at Bonampak. Most of the associations are present at Chichen Itza, but of especial strength at the site is the presence of human figures amidst the plant. As many of the associations appear at Copan as at Chichen Itza. Human and nonhuman headdresses at Copan are frequently connected

⁸ "Monument" as used in the tables has a special meaning. A stela equals a monument. But *all* the sculptured or painted portions of a single building—lintels, wall panels, walls, columns, and so on—total only a single monument. The purpose of this terminology is to arrive as nearly as possible at the *generalized unit* dealt with by the artist in depicting the water lily, regardless of the size or complexity of the plant or plants involved. If this were not done, a building rich in depictions of the plant would receive undue weighting in comparative studies. "Representation" also has a special meaning in the tables. It may roughly be said to be the equivalent of a plant stalk, i. e., of a distinct plant. But if distinct though closely corresponding stalks emerge from the two corners of a mouth, only a single occurrence is tabulated. To exemplify further, if two identical stalks are in a single headdress, only one occurrence is noted, but if they are distinctly treated two representations are tabulated. The purpose of this manipulation is to arrive as nearly as possible at the *specific unit* involved, regardless of the complexity of that unit.

with the floral forms, and the flower-eating fish is of important occurrence. A greater number of associations are present at Palenque than at either Copan or Chichen Itza. Flowers appear especially in human headdresses, and the growth of plants from the heads of mythic beings is marked. The greatest number of associations of any Maya site occurs at Quirigua. No one trait stands out; the cosmopolitan quality observed in connection with the Flower Elements (table 4) is repeated. Xultun emphasizes the jaguar. Perhaps the most striking emphasis of a particular trait is found at Yaxchilan, where the Wing Panel appears with great frequency, in contrast to its virtual lack of association with the flower elsewhere. Partly for this reason, the human headdress, in which the Wing Panel occurs, is of correspondingly high association with the flower. The human headdress and growth of the flower from the head tend to be emphasized in the Alta Verapaz ceramics. The Dresden Codex emphasizes the Long-nosed God's hand in connection with flowers.

Traits of scant distribution serve occasionally to couple certain sites together. Stems emerge from the eyes at Chichen Itza, Sayil, Yaxchilan, and Copan. Animals amidst the plant, not tabulated separately, appear at Chichen Itza and Yaxchilan. Heads are connected by stems at Copan and Quirigua. The nose as the source of growth or attachment of vegetation occurs at Tulum and Santa Rosa Xtampak and, under quite different circumstances, at Piedras Negras, and perhaps other sites. On the monuments, human figures occur amidst the plant only at Chichen Itza, Copan, Palenque, and Quirigua. Full-figure portrayals of Long-nosed God forms in connection with flowers are known in the sculptures only at Palenque and Quirigua.

The associations of the plant forms, some of a highly arbitrary nature, are given according to period in table 6. The earliest known occurrences are from Stela 1 at Tikal (Entry 124, fig. 3*v*). Morley dates the monument, on stylistic grounds, from "very early in Baktun 9, perhaps as early as 9.1.0.0.0" (Morley, 1937-38, vol. 1, p. 297). On the basis of her stylistic analysis, Miss Proskouriakoff accepts a dating from this early period (1950, pp. 106, 195). Associations with death symbols and with a serpent head occur; the emergence of vegetation from the mouth is clear.

Thereafter, floral forms which pass from the mouth have a fairly steady representation in the sculptures. Rather stylized forms which seem to have valid connections with the flower occur at Copan in Katuns 10, 12, and 15, emerging from Wing Panel, Tlaloc, and serpent mouths, respectively. The Wing Panel was later to become a dominant motif at Yaxchilan, perhaps around 9.16.0.0.0. Toward the close of the Classic sequence, at Xultun, probable flowers pass

from the mouths of jaguars. At Chichen Itza, in Toltec times, comes a peculiar recurrence of the considerably earlier Palenque-Piedras Negras motif of stems passing horizontally from the corners of the mouth (Entries 24, 72, 95).

Jaguars, or jaguarlike beings, appear early as favored subjects for vegetal associations. Usually a flowerless stem is shown in connection with the back part of the head. The earliest known occurrence of this motif would appear to be in 9.4.0.0.0, at Yaxchilan. Two katuns later, however, a mammiform and sepalless Type M flower is added to the stem; this is the earliest recorded occurrence of the flower with a glyph (Entry 44, Copan). The jaguar has added associations with the flower in later times, such as hands (9.17.0.0.0, Quirigua) and mouth (10.1.0.0.0, Xultun). A flower of suggestively Type E appearance also emerges from a jaguar mouth on Stela 19, Xultun (Entry 136). Morley, while assigning this monument to "the first quarter of Baktun 9," grants that it may have been erected "sometime prior to 9.12.0.0.0" (Morley, 1937-38, vol. 1, p. 392). It is considered later by Proskouriakoff, who, however, assigns it simply to her Late Classic, after 9.8.0.0.0 (Proskouriakoff, 1950, pp. 114-115). The date is of considerable interest, in view of the similarity in treatment of the flower to that at Copan, where similar types appear only in Katun 16, as well as for the possibly early association of the flower with the jaguar's mouth.

Other distinctive associations of the flower tend to come in later. Chronological uncertainties at Yaxchilan and Palenque, in particular, obscure the order and time of appearance of these motifs. In general, the century following the inauguration of Katun 12 saw the floral motif, as depicted in the sculptures, transformed from a fairly simple and standardized to a richly elaborated complex. Perhaps Katun 15 was the time of greatest accretion of new associations. The extent to which the sculptures reflect the situation in other artistic media is, however, a matter of conjecture. The century of elaboration from Katuns 12 to 17 saw a great increase in the number of sculptured monuments erected in the Maya area. This provided a greater opportunity for floral forms to be depicted and, thereby, affords a more reliable range from which to draw conclusions. The peak of a curve showing the incidence of floral motifs would correspond generally to that for the total number of sculptured monuments in Classic Maya art. (Cf. Proskouriakoff, 1950, fig. 3a, and Morley, 1937-38, vol. 4, figs. 148, 149.) If the varied examples at Palenque are correctly attributable to a fairly early period, the peak of the curve for the floral motifs would, in fact, slightly precede that for the total number of comparable monuments. In terms of the total number of represen-

tations, however, a second peak would occur in post-Classic times, due to the great popularity of flowers at Chichen Itza.

A growth in popularity in late times, whatever the initial appearance, is indicated for certain motifs. Following such a pattern are the frequently associated traits of figures seated amidst plants and holding them in their hands or arms. It may also hold true for the eyes, nose, and perhaps ear and neck as anatomical sources, at least as opposed to the mouth and head. Serpent Head X, per se, comes into association with vegetation fairly late in the sculptures, mostly after 9.15.0.0.0; yet it is considerably earlier, vegetation at its head, in Esperanza Period pottery at Kaminaljuyu (Entries 211, 212, fig. 4g).

The flower-eating fish of the well-known fish and water-plant motif is first definitely dated in 9.15.0.0.0, at Calakmul (Entry 15). Earlier occurrences seem probable at Palenque, however, where they are with the petalless and sepalless Type M flower characteristic of earlier times (fig. 6f, perhaps dating from Katun 14). At Copan, the appearance of the fish ushers in a new, petaled form, Type E (Entries 53, 54; 9.16.10.0.0). The Copan data might suggest the simultaneous arrival of a new concept and art form, perhaps the water lily per se as opposed to other flowers or leaves. The Palenque data, on the other hand, would indicate that an association with fish was not inapplicable to the earlier art form. Of course, nothing more than the survival of an old form into a new conceptual setting may be indicated.

In any event, there exists a continuity of tradition which is sizable, regardless of the rather rapid addition, for about a century, of new motifs in the floral art of the sculptures. Whether or not the concept of the water lily was intended throughout, conceptual as well as artistic ties form a widely ramifying complex, some threads of which can be traced back for a full baktun or more.

RESEMBLANCES TO THE LOTUS IN INDIAN ART

This is not the place to go deeply into the complex and highly controversial matter of possible Asiatic affiliations. The water lily, of course, represents but a single basic trait, whatever its elaborations. It should be pointed out, however, that both the water lily of the Maya area (*Nymphaea ampla*) and the Hindu lotus (*Nelumbo* sp.) are members of a single family, the Nymphaeaceae (Conard, 1905; Roys, 1931). The stalks of both rise prominently above the water. This being the case, a certain degree of resemblance in the depictions of the two related plants might well be expected.

A number of conventionalizations strikingly similar to Maya floral forms must be admitted to exist in Southeastern Asiatic depictions of the lotus. In the Maya area, the correspondences seem to

occur most notably at Chichen Itza, as Heine-Geldern and Ekholm have pointed out. But they are also marked at Palenque. The portrayal of the water lily as an undulating creeper, the occurrence of reclining human figures holding on to the stalk, and the surging of the stalk from the mouths of monsters are correspondences specifically mentioned by these writers.

Other random resemblances in the depiction of the water lily may be mentioned. The Type C flower which occurs at Chichen Itza, Palenque, and Chinkultic (figs. 5*a*, 1*c*) is closely paralleled in certain representations of the lotus (Coomaraswamy, 1931, pl. 28, No. 1). In Indian art, petals jut out to give the flower a slightly mammiform design of the type encountered at Chichen Itza (fig. 6*h*; Coomaraswamy, 1931, pl. 39, No. 1). Again, a slightly mammiform quality is suggested by outlines, either exterior or within the flower (cf. fig. 4*c* and Coomaraswamy, 1931, pl. 41, No. 4). Multiple scrolls at the flower's base in Indian art correspond to the Flower Element *t* at Chichen Itza (fig. 1*d*) and to turned-back sepals at Quirigua (fig. 2*a*; cf. Coomaraswamy, 1931, pl. 28, No. 2). Basal zoning by a semicircle of short, parallel lines corresponds to Flower Element *l*, in the Maya area known only at Chichen Itza (cf. figs. 1*a*, 6*h*). As a frequent motif in India, a string of pearls hangs down from the flower, comparing in a sense to similar placement of feathers at Chichen Itza (cf. Coomaraswamy, 1931, pl. 28, No. 2, and Flower Element *v*, fig. 1*d*).

As pointed out by Heine-Geldern and Ekholm, the water lily panels at Chichen Itza closely resemble those of Southeastern Asia. The Indian panels are predominantly like Panel Type A of the present paper. Angular and cursive varieties occur, corresponding to the variations in Maya panels (fig. 1*b-d*; cf. fig. 1*a* and Coomaraswamy, 1931, pls. 13, No. 1; 39, No. 1). A water-lily wreath on a bowl from Yucatan (fig. 4*d*) compares with the knotted stem in Indian panel art (Coomaraswamy, 1931, pl. 38, No. 3).

Most closely corresponding of the flowers, perhaps, are those from Chichen Itza and Amaravati shown in figures 3*e* and 1*a*. In addition to certain of the features already discussed, the flowers in question have a crosshatched inner zone (Flower Element *m*) and stamen dots (Element *k*) which are virtually identical. In addition, the Indian example has dots within its crosshachure, corresponding thereby to Element *c* of the Maya water lily leaf (cf. fig. 1*b*).

On the other hand, the leaves of the lotus in Indian art appear to differ widely from water lily leaves in Maya art (fig. 1*a-c*). Considering the great importance attached to the leaf, this presents a dissimilarity difficult to explain away.

The panel forms at Chichen Itza and Palenque offer the greatest similarities to the Hindu lotus within the Maya area. Other Maya

sites contemporaneous with Chichen Itza or Palenque differ more widely from the Indian material. The Type A panel, for example, seems lacking elsewhere. Conceivably, this may be partially correlated with the unusually great use of representative design in connection with architecture at these two sites, instead of on stelae, as was characteristic elsewhere. But earlier Maya sites lacked not merely the panel; Group I flowers tended to be absent, their place being taken by Group IV designs. Lacking petals, sepals, and interior markings, these earlier forms contrast sharply with the wealth of petals depicted in the Indian lotus and differ, likewise, from the later Maya representations.

Maya associations of the water lily having correspondences in Indian art appear to be quite numerous. The stem emerges from the mouth (cf. Entry 124, fig. 3*i*, and Coomaraswamy, 1931, pls. 37, 38). The stalk is held in the hands (cf. Entry 25, fig. 1*d*, and Coomaraswamy, 1931, pl. 30). Reclining human figures are placed amidst the plant (cf. Entry 25, fig. 1*d*, and Coomaraswamy, 1931, pl. 37, No. 2). The stem grows from or is attached to the nose (cf. Entry 129, fig. 3*b*, and Coomaraswamy, 1931, pl. 38, No. 3). The emergence of the stem from the mouth compares further in that full-face designs frequently show the stem to be passing outward horizontally from the corners of the mouth (Entries 24, 72, 95, 99; cf. Coomaraswamy, 1931, pl. 30, No. 2). Another parallel trait, rare if not unique in Maya art, finds the stem which emerges from the mouth being held in the hands of the creature from which it issued (cf. Entry 308 and Coomaraswamy, 1931, pls. 34, 35). And Entry 121*b*, in which a stem passes horizontally in front view from the eyes into the hands of the same being, offers a related type of comparison. Other anatomical sources may or may not be shared.

From the standpoints of style and symbolic presentation, Chichen Itza and to a lesser extent Palenque show the greatest resemblances to Indian depictions of the lotus. But these correspondences do not have the appearance of a superficial, newly introduced overlay. As indicated by its complex connections with the Long-nosed God, the Serpent Bird, and glyphs, the water lily was deeply rooted in basic Maya symbolism by at least the Maya Middle Period. If Thompson is correct in suggesting that the water lily was the prototype for the day sign Imix and perhaps for the comblike "count" affix in the Introducing and other glyphs, one must postulate a long and important role for this flower. For perhaps the most striking of the mythic associations, the emergence of a plant from the mouth, it can be shown that the concept existed very early in Baktun 9, probably a full half-millennium before the representations at Chichen Itza.

SUMMARY AND CONCLUSIONS

In the preceding pages, a mass of material has been examined in an effort to gain a better picture of the role of the water lily in Maya art. Three broad fields have been partially investigated. These deal with Maya religious symbolism, intersite connections, and possible trans-Pacific importation of the art form into the Maya area.

The most conclusive results have been reached in the field of religious symbolism, where the water lily forms part of a complex with the Long-nosed God and beings perhaps related to the Serpent Bird. The water lily emerges from the mouth and eye and grows from the head, ear, nose, and neck of mythic beings that, for the most part, seem to be the Serpent Bird and Long-nosed God. Less frequently, possible water lilies grow from the head or from behind the ear of the jaguar. Long-nosed Gods, birds, and jaguars sometimes appear in glyphs with the same floral associations that characterize them in nonglyphic representations. The Long-nosed God, as the head variant form for the number 13, appears on occasion, at least, to have exceptionally close relationships with the water lily. Patrons of the months Pop and Pax also seem to have floral associations. For an interpretative study of the water lily in Maya religious symbolism, the reader is referred to Thompson's recent work on Maya hieroglyphic writing (1950).

Suggestive material emerges which bears on the problems of intersite relationships within the Maya area, but it is difficult to evaluate. Detailed studies of many additional art forms, analyzed in the perspective offered by a more complete ceramic knowledge of interregional relationships, are needed. What, for instance, is the significance of the very closely corresponding Yaxchilan and Chichen Itza representations shown in figures 2*d* and 2*f*? These sites are areally and temporally remote, yet nothing that corresponds very closely is known elsewhere in the Maya area. One has the feeling of a vast storehouse of religious and artistic conceptions into which the Maya stela sculptors only occasionally and sporadically dipped. To the extent that this is so, correspondences that seem to require specifically historical explanations may turn out to have been blind alleys.

Some indications may, nevertheless, point to connections between Yucatan and the Usumacinta Basin that are of a more direct and fundamental nature than, for example, those between Yucatan and the Peten. The Chichen Itza and Yaxchilan representations just cited are a case in point (Entries 22, 152, fig. 2*d*, *f*). As repeatedly brought out, the correspondences between floral representations at Chichen Itza and Palenque are exceptionally close. Chinkultic, again in the western portion of the Maya area, displays a notable resemblance to certain flowers at Chichen Itza. It may be of inter-

est in this general connection that Proskouriakoff and Thompson have pointed out specific artistic and calendric traits that rather strikingly serve to link the Middle Usumacinta with the Puuc region in northern Yucatan (Proskouriakoff and Thompson, 1947; Proskouriakoff, 1950).

The major sites differ interestingly in their portrayal of the water lily. There are indications that Palenque may have been a site of unusual importance in working out certain basic artistic elaborations of this plant. Its tenuous dating, consequently, leaves an important gap in our knowledge of the development of the water lily motif. Chichen Itza was the site where the water lily received its fullest, or at least most extensive, treatment. It may be permissible to characterize Quirigua as a site which drew heavily from several sources in its portrayal of the water lily. Perhaps as a result, its treatment never became as distinctive as, for example, that of Copan or Palenque. But it was cosmopolitan, depicting a wide range of artistic and symbolic forms. Copan and Chichen Itza, more than the other sites, present a picture of chronological change. At first the jaguar and a simple, mammiform type of flower were combined to make a favorite subject at Copan; abruptly emphasis seems to have shifted to a distinctive, asymmetrical flower in repeated association with fish. At Chichen Itza, in Puuc times, a somewhat similar mammiform flower occurred in connection with mask panels on architecture. With the coming of representational sculpture in the Mexican Period, the flower, in its depiction and associations, took on strong aspects of the water lily in the Great Period art of the Central region, particularly that of the western portions of this area.

The suggestion of an Asiatic origin of the water-lily motif seems to receive a certain support because of the striking artistic and associational resemblances to the lotus in Hindu and Buddhist art. It is difficult, however, to reconcile such an origin with the chronological trends in the development of the Maya water-lily motif. Its earliest examples are the least Indianlike, the late examples of Chichen Itza being most like the Indian lotus. The elaborated Chichen treatment of the water lily could not have moved in as a full-blown complex from outside the Maya area, for it is too deeply rooted in earlier artistic and symbolic conventionalizations. This would also appear to be true of the only somewhat less Hindulike water lily of Palenque. To explain the elaborated water lily as of Asiatic derivation, it would appear necessary to postulate a complex series of waves of fundamental influence which accounted for new traits on various time levels. This seems, in fact, to be the position taken by Heine-Geldern and Ekholm. No middle course, which might admit the possibility of a superficial artistic overlay but nothing

more, seems possible. At the same time, the water lily seems as basically Mayan as do perhaps most other elements of the culture.

Whatever the actual historical events might have been, several points of theoretical interest suggest reasons why considerable similarity might be expected between the water lily in the art of the Maya and the lotus as depicted in India. The plants are virtually identical in appearance. They are, furthermore, among the larger and more showy flowers, tending to dominate their quiet-water botanical assemblages. A great deal of elaboration, in accordance with the canons of the art treating them, might, therefore, seem a matter of probability. Although the panel designs are especially similar in Maya and Indian floral art, they represent elaborations of basically simple geometric forms. The arts of India and of the Maya tended toward a cursive style. They were, in addition, highly symbolic. The theocratic domination of the arts may, independently, have been a spur to the creation of highly unrealistic situations, wherein old elements within the culture were recombined in accordance with an ever-evolving speculative philosophy. From a different point of view, Spinden discusses aspects of this process under the terms "elaboration," "elimination," and, especially, "substitution" (Spinden, 1913, pp. 38, 41-46). The highly arbitrary situations thus appearing in the art would seem, in turn, to modify the details of further religio-philosophic speculations. If such a functional relationship existed within the theocracies of the Old and New Worlds, the independent creation of a few of the same arbitrary associations would not seem so strange, after all. The "laws of chance" would take on different connotations than have generally been given them. Whether these varied considerations were actually operative, and if so their importance, is of course unknown. But it seems unwise to ignore them in seeking explanations for the truly remarkable parallels that must be admitted to occur.

NOTES ON THE TABLES

In table 1, presences are indicated by "X", absences or probable absences by ----, possible or deviant occurrences by "?", and the presence of associated traits which do not appear in direct connection with the vegetal form by "0". The listing of the associated traits is incomplete, only those cases being given which appear to have a possible conceptual bearing. Absences are recorded when such factors as erosion prevents knowledge of a trait's occurrence, except when closely comparable material at the same site suggests that the trait is present.

In summation (tables 2-6), the incidence of positive occurrences is given under the heading "(X)" and of possible occurrences under the heading "(?)." Associated traits are not totaled.

In tables 1 and 3, flowers which do not conform to one of the 18 recognized types are also designated "?".

Forms which seem to warrant listing under different categories are placed doubtfully under all the categories in question. To indicate this multiple tabulation, parentheses enclose the alternative readings. Partly for this reason, the total number of questionable occurrences may be very great. The heaviness of the uncertain occurrences of head and ear as anatomical sources, for example, is due to the fact that the growth of stems near the jaguar's head is listed doubtfully under both head and ear instead of positively under only one of them. Likewise, doubt occasionally exists whether a floral form grows from the head of a deity or is worn as a "nonhuman headdress."

Deviant traits, furthermore, probably include forms which bear no conceptual relationship to the trait complex under consideration. Thus, the high incidence of doubtfully recorded floral forms emerging from the mouth at Chichen Itza refers to speech scroll-like designs and, therefore, may presumably be ignored for the purposes of the present paper. Similarly, the large number of doubtful occurrences of the hands relates to the holding of paraphernalia that includes a floral form without, however, the flower coming into direct contact with the hands. This is a far cry from the scene shown in figure 1*d*, although a number of intermediate representations are known.

Deviant occurrences in the artistic elements and types give totals which appear to be of more significance. This is because the forms, while often divergent, nevertheless tend to vary around certain central tendencies. The "either-or" quality is, therefore, less than in the case of the symbolic associations, except in the tabulation of either two or three sepals (Flower Elements *b*, *c*, and, in functional relationship, *h*).

Table 1 gives the raw data upon which subsequent tables are based. "F" and "P," under the entry "Mask panel," indicates whether the mask is in full face or profile. The date for each monument is given according to the katun in which it falls. Sites are arranged alphabetically and the monuments within a site, when possible, chronologically. Dates are based on Morley (1937-38) and, when indicated by an asterisk, Proskouriakoff (1950). Entry numbers 1 through the 100's refer arbitrarily to sculptures and murals; numerals in the 200's refer to ceramics and in the 300's to the codices. An entry may refer to one or more representations, as defined in footnote 8. These representations may differ artistically, in over-all type, or in the indirect, "0" type of associations (in which case all the pertinent

data are given). They may not differ, however, in their symbolic associations (for which presences are indicated by "X" and "?"). For a closely united group of separate media, such as different lintels in a single structure (Yaxchilan) or different pages in a single codex, a single entry is given if the above criteria are satisfied.

Table 2 gives the incidence of the artistic elements in the portrayal of the water lily leaf. The number of leaves, not of representations, is given. Occurrences are presented according to site totals.

Table 3 gives the incidence of the Flower Types, according to the totals for each site. The individual flower is the unit to which the numbers refer.

Table 4 gives the incidence of Flower Elements, according to site totals. Numbers refer to flowers.

Table 5 gives the incidences of Over-all Types and the various symbolic associations, according to site totals. The representation is the unit to which the numbers usually refer, but the number of monuments depicting tabulated plant forms at each site are also given.

Table 6 also gives the incidences of the Over-all Types and the various symbolic associations. Differing from previous listings, however, the occurrences are given chronologically not spatially. In this case, furthermore, the numbers refer to the total number of monuments rather than to that of the representations on them. The number of sites and monuments depicting tabulated forms at a given period are also shown.

Additional information on the reading of the tables is given in footnotes 5, 6, and 8 and, in the text, on pages 83 to 84, 92 to 93, 97 to 98, 100, 102, 113, 114. For untabulated traits, see pages 98 to 99, 106, 109 to 110.

TABLE 1.—Symbolic associations, artistic features, and miscellany (individual representations)—Continued

Entry	Anatomical source						Stem con-nects heads	Head set against plant	Figures amidst plant	Fish eats flower	Panel type	Leaf elements	Flower type	Flower elements
	Hands, arms	Neck	Ear	Nose	Eyes	Mouth								
1. Bonampak, Palace 1, Rm. 1														b, d ^h , i.
2. Bonampak, Palace 1, Rm. 1			X				X	X						c ^f , i.
3. Bonampak, Palace 1, Rm. 1			X					X						c.
4. Bonampak, Palace 1, Rm. 1								X (?)						b, i ^h .
5. Bonampak, Palace 1, Rm. 1									X					(b, c).
6. Bonampak, Palace 1, Rm. 1														a, c.
7. Bonampak, Palace 1, Rm. 1								(?)						a ^g , (b, c).
8. Bonampak, Palace 1, Rm. 1	?		X											c ^g , d, t.
9. Bonampak, Palace 1, Rm. 1			X											a, c, d, i.
10. Bonampak, Palace 1, Rm. 1			X					?						a, c.
11. Bonampak, Palace 1, Rm. 1			X					X						a ^h , (b, c).
12. Bonampak, Palace 1, Rm. 1			X					X						a ^h , r.
13. Bonampak, Stela 2									X					a, b, i, u.
14. Bonampak, Stela 2			?						X					d ^h .
15. Calakmul, Stela 54														a, c, i ^h , v ^h .
16. Calakmul, Stela 53														b, t.
17. Cancuen, Altar 1														
18. Cancuen, Stela 1														a, b, f, h, i, p, q, t.
19. Chichen Itza, Tigers, Chamber A														a, b, f ^g , g, i ^h , v.
20. Chichen Itza, Tigers, Chamber A							X							b, d, f, o ^h , p ^h , t, u.
21. Chichen Itza, Tigers, Chamber A														a, b, m ^h , k, m, q, t.
22. Chichen Itza, Tigers, Chamber E							X							a, b, h, k, m, q, t.
23. Chichen Itza, Tigers, Chamber E														a, b, d, e, f, g, h, i.
24. Chichen Itza, Tigers, Chamber E														g, t.
25. Chichen Itza, Tigers, Chamber E	X						X							a, b, i, m, g, s.
26. Chichen Itza, Tigers, Chamber E														t, v.
27. Chichen Itza, Tigers, Chamber E														a, b, g, m, o, g.
28. Chichen Itza, Tigers, Chamber E														r, t, v.
29. Chichen Itza, Tigers, Chamber E														a, b, d, i, m, t.
30. Chichen Itza, Ball Court, Chamber C.														a, c, e ^h , j.
31. Chichen Itza, Ball Court, Chamber C.														k, n, o.
32. Chichen Itza, Ball Court, Chamber C.														q ^h , r, ?.
33. Chichen Itza, Ball Court, Chamber C.														?.
34. Chichen Itza, Ball Court, Chamber C.														j, ?.
35. Chichen Itza, Ball Court, Chamber C.														d, f ^h , h ^h .
36. Chichen Itza, Ball Court, Chamber C.														d, j.
37. Chichen Itza, Ball Court, Chamber C.														d.
38. Chichen Itza, Ball Court, Chamber C.														d, m ^h , t.

TABLE 1.—Symbolic associations, artistic features, and miscellany (individual representations)—Continued

Entry	Anatomical source							Stem connects beads	Head set against plant	Figures amidst plant	Fish eats flower	Panel type	Leaf elements	Flower type	Flower elements
	Hands, arms	Neck	Ear	Nose	Eyes	Mouth	Head								
102a. Piedras Negras, Miscel. Sculp. Stone 16.															(b, c), f, i.
103. Piedras Negras, Sacrificial Rock.															b ² , q ² .
103a. Quirigua, Stela H															i, q.
103b. Quirigua, Stela F															? f, g, h, l
103c. Quirigua, Stela F															? H?
104. Quirigua, Stela D			X			X						D			H?
105. Quirigua, Stela D						(?)									H?
106. Quirigua, Stela D						(?)									E?
107. Quirigua, Stela A			X					X	X			E			F?
108. Quirigua, Stela A	X	X						X	X			E			F?
109. Quirigua, Stela C	X											E			H?
110. Quirigua, Stela A, C															H?
111. Quirigua, Zoomorph B						X									? f.
112. Quirigua, Zoomorph B						X									? f.
113. Quirigua, Zoomorph B															E?
114. Quirigua, Zoomorph B															F?
115. Quirigua, Zoomorph P	X	(?)				(?)						B			F?, I?
116. Quirigua, Zoomorph P															F
117. Quirigua, Zoomorph P															F
118. Quirigua, Zoomorph P			X												a ² , u. a ² (b, c), f, h, i. b, i, p ² . b, g, k?
119. Santa Rita, Mound 1															(b, c), h ² , o, q.
120. Santa Rita, Mound 1															b, d, f, h, k ² , o, q.
121. Santa Rita, Mound 1															(b, c), h ² , o, p ² , q.
121a. Santa Rosa Xtampak, Palace.							X								d, j ² , o.
121b. Sayil, Str. 4B1	X						X								o ²
122. Seibal, Stela 10															(b, c), p.
122a. Seibal, Stela 10										0					(b, c), i.
123. Seibal, Stela 11															(b, c), i.
124. Tikal, Stela 11															a ² , b, f, m ² , r.
125. Tikal, Stela 20											X				b ² , q ² .
126. Tikal, Temple IV															b, f, h, i, l.
127. Tulum, Frescos															d, f, o.
128. Tulum, Frescos							X								(b, c), d, h ² , o, q.
129. Tulum, Frescos							X								d, p.
130. Tulum, Frescos							X								d, h ² .
131. Tulum, Frescos	X														d, h ² , i ² , p.
132. Tulum, Frescos															(b, c), d, h ² , i ² , o, p ² , q.

133. Tulum, Frescoes.																	H?, I, K, P, Q.	b?, c, d, h?, j, o, p, q, b, f, i, a, b, v.
134. Uxul, Stela 6.																		a, b, f, k?, v, a, c, v, b, i, q, a, b?, j, l?, w?.
134a. Xculumkin, Initial Series Bldg.																		d. d.
134b. Xculumkin, Glyphic Group, North Bldg.																		b. b, i.
134c. Xcocha, Glyphic Band Bldg.																		b?, d. b?, i.
134d. Xenoc, Sculptured Columns Bldg.																		a, b, q?, b, i, i. b, i, i.
135. Xultun, Stela 18.	(?)																	b, i, p, q?, b?, f, k, p, q?, l. p?, f, i?, p?, b, q.
136. Xultun, Stela 19.		X ?																b, q.
137. Xultun, Stela 5.		?																b, i, m?, p, q. d. b.
138. Xultun, Stela 1.	(?)	X X																d. d.
138. Xultun, Stela 3.	(?)	X X																b, i, m?, p, q. d. b.
140. Xultun, Stela 10.	(?)	X X																b, i, p, q?, b?, f, k, p, q?, l. p?, f, i?, p?, b, q.
140a. Yaxchilan, Stela 27.	(?)																	b, i, m?, p, q. d. b.
141. Yaxchilan, Str. 14, Ljn. 4.		X																b, i, m?, p, q. d. b.
142. Yaxchilan, Str. 1, Ljn. 6.		X																d. d.
143. Yaxchilan, Str. 42, Ljn. 42, 43.		X X																a?, b, f, g. b, i, q, l. b, i?, p?, a, b, c?, h?, j, l. b.
144. Yaxchilan, Str. 23, Ljn. 26.	(?)	X X																f, q?, u?, w?, a, d?, m, n. d. d. f. d. l, v.
145. Yaxchilan, Str. 20, Ljn. 13, 14.		X																d. o. d. l, v. d. b, i, v. b, f, g? b, i, g.
146. Yaxchilan, Str. 54, Ljn. 54, 58.		X																b, i, p, q?, b?, f, k, p, q?, l. p?, f, i?, p?, b, q.
147. Yaxchilan, Str. 54, Ljn. 54, 58.		X																b, i, m?, p, q. d. b.
148. Yaxchilan, Str. 33, Ljn. 1, 2.		X																a?, b, f, g. b, i, q, l. b, i?, p?, a, b, c?, h?, j, l. b.
149. Yaxchilan, Str. 33, Ljn. 2, 3.		X																f, q?, u?, w?, a, d?, m, n. d. d. f. d. l, v.
150. Yaxchilan, Str. 33, Ljn. 3.		X																d. o. d. l, v. d. b, i, v. b, f, g? b, i, g.
151. Yaxchilan, Str. 33, Ljn. 1.		X																b, i, m?, p, q. d. b.
152. Yaxchilan, Stela 7.		X																a?, b, f, g. b, i, q, l. b, i?, p?, a, b, c?, h?, j, l. b.
153. Yaxchilan, Str. 55, Ljn. 52, 53.		X																f, q?, u?, w?, a, d?, m, n. d. d. f. d. l, v.
154. Yaxchilan, Str. 55, Ljn. 53.		X																d. o. d. l, v. d. b, i, v. b, f, g? b, i, g.
156. Yaxchilan, Stela 20.	0 ?																	b, i, m?, p, q. d. b.
201. Chama.																		a?, b, f, g. b, i, q, l. b, i?, p?, a, b, c?, h?, j, l. b.
202. Chama.																		f, q?, u?, w?, a, d?, m, n. d. d. f. d. l, v.
203. Chama.																		d. o. d. l, v. d. b, i, v. b, f, g? b, i, g.
204. Chama.																		b, i, m?, p, q. d. b.
205. Chama.																		a?, b, f, g. b, i, q, l. b, i?, p?, a, b, c?, h?, j, l. b.
206. Chama.																		f, q?, u?, w?, a, d?, m, n. d. d. f. d. l, v.
207. Chama.																		d. o. d. l, v. d. b, i, v. b, f, g? b, i, g.
208. Chajear.																		b, i, m?, p, q. d. b.
209. Chajear.																		a?, b, f, g. b, i, q, l. b, i?, p?, a, b, c?, h?, j, l. b.
210. Copan.																		f, q?, u?, w?, a, d?, m, n. d. d. f. d. l, v.
211. Kaminaljuyu.																		d. o. d. l, v. d. b, i, v. b, f, g? b, i, g.
212. Kaminaljuyu.																		b, i, m?, p, q. d. b.
213. Nebaj.																		a?, b, f, g. b, i, q, l. b, i?, p?, a, b, c?, h?, j, l. b.
214. Rio Hondo.																		f, q?, u?, w?, a, d?, m, n. d. d. f. d. l, v.
215. Rio Hondo.																		d. o. d. l, v. d. b, i, v. b, f, g? b, i, g.
216. San Agustín Acaaguastlan.																		b, i, m?, p, q. d. b.
217. San Agustín Acaaguastlan.																		a?, b, f, g. b, i, q, l. b, i?, p?, a, b, c?, h?, j, l. b.
217a. "San Agustín Acaaguastlan".																		f, q?, u?, w?, a, d?, m, n. d. d. f. d. l, v.
217b. "San Agustín Acaaguastlan".																		d. o. d. l, v. d. b, i, v. b, f, g? b, i, g.
217c. Uaxactun.																		b, i, m?, p, q. d. b.
217d. Yalloch.																		a?, b, f, g. b, i, q, l. b, i?, p?, a, b, c?, h?, j, l. b.
218. Yucatan.																		f, q?, u?, w?, a, d?, m, n. d. d. f. d. l, v.

TABLE 2.—Artistic elements of the water-lily leaf (site totals)

Site	Positive and possible occurrences	Leaf elements												
		a	b	c	d	e	f	g	h	i	j	k	l	m
Bonampak	(X)						2		2				1	
Calakmul	(?)				1		1		1	1	1			
Chichen Itza	(?)	2	1			2	3	1	2	1		4	1	
Copan	(?)		2				1	3					2	
Irkun	(?)		1					2	2				2	
La Amella	(?)						1		1				1	
La Mar	(?)		3				1	1	1				1	
Palenque	(?)		3				3		3				3	
Palenque	(X)	5	2	5	1		12	5	6	1	5		2	4
Paraiso	(X)	1		1			1	4				1	1	1
Piedras Negras	(X)						2	2					2	
Quirigua	(?)	1	1	1			4	3	2		2		2	1
Santa Rita	(?)		1	1				1				1		
Tulum	(?)		1				1			4	1		3	2
Yaxchilan	(?)						2	5			1		1	1
Yaxchilan	(?)						1		1				1	1
Dresden Codex	(X)	1	1				1	1	1		2			
Ceramics	(X)		1	1			1	1	2		2		1	2
Ceramics	(?)						2	2	2		1		2	1
Ceramics	(?)						1							
Total	(X)	10	14	8	2	2	35	18	23	6	18	7	14	8
Total	(?)			1			4	23			1	1	1	1

TABLE 3.—Artistic flower types (site totals)

Site	Positive and possible occurrences	Group I					Group II				Group III			Group IV				Group V		?
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	
Bonampak	(X)	2	1						1	9										3
Calakmul	(?)	4	3				1		3	1		1								
Calakmul	(?)	1																		
Cancuen	(?)							2												
Chichen Itza	(?)	26	4	13	1	1			1	21	31	10	5	10	8	1	5	3	27	
Chinkultic	(?)	1	2	3	1	1			1					1	3		2			
Chinkultic	(?)			1																
Copan	(?)				2	9	1		3	6				6	1				2	
"Cozumel" (Chilib ?)	(?)	1							1					1						
El Chicozapote	(?)																			
El Chicozapote	(?)								1										2	
Etzna	(?)																			
Etzna	(?)																			
Irkun	(?)	1	1											1					1	
La Amella	(?)									1										
La Honradez	(?)					1														
La Mar	(?)		1		1					1									1	
Naranja	(?)																			
Naranja	(?)													1						

TABLE 3.—Artistic flower types (*site totals*)—Continued

Site	Positive and possible occurrences	Group I					Group II				Group III			Group IV				Group V		?
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	
Palenque.....	(X) (?)	4 4							31 1	10 2				9 1	2			1		7
Paraiso.....	(X) (?)	1		1	4		1													
Piedras Negras.....	(X) (?)					1			2		5 3									3
Quirigua.....	(X) (?)	1							4	1	5 5				1					7
Santa Rita.....	(X) (?)					3			2		1 2	5 3			1			1		1
Santa Rosa Xtampak.....	(X) (?)																			
Sayil.....	(X) (?)																			2
Selbal.....	(X) (?)									1										
Tikal.....	(X) (?)					1					1									2
Tulum.....	(X) (?)									2	9		9					32	10	4
Uxul.....	(X) (?)									1	1		1							?
Xcalumkin.....	(X) (?)		1																	
Xcocha.....	(X) (?)	1	1																	
Xculoc.....	(X) (?)	4																		
Xultun.....	(X) (?)					1								1	1				2	3
Yaxchilan.....	(X) (?)		1				1			8	8				1					3
Alta Verapaz (ceramics).....	(X) (?)		3							4									1	
Yucatan (ceramics).....	(X) (?)	6	1		1					2	1	6								6
Miscellaneous (ceramics).....	(X) (?)	1	1			2				1			1							1
Dresden Codex.....	(X) (?)						1			2	1			1	1		5		2	10
Madrid Codex.....	(X) (?)									12	1			1		3			2	1
Perez Codex.....	(X) (?)									4	3		1					1		
Total sculptures and murals.....	(X) (?)	41 10	9 9	14 4	4 5	9 8	9 5	4	50 22	71 9	31	20	5	16 3	18 5	8 3	34	17 3	8 1	63
Total ceramics.....	(X) (?)	1 6	1 1		1 2		1		5 8	2 2	6		1		5			2		17
Total codices.....	(X) (?)								12 5		3		1		3		1		2	1

TABLE 4.—Artistic flower elements (site totals)—Continued

Site	Positive and possible occurrences	Flower elements																					
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v
Setbal.....	(X)	1	3			1				1							2						
Tikal.....	(X)	3				4		2		2											1		
Tulum.....	(X)	2				1				1								1			1		
Uxul.....	(X)	1	21			1		9		2						9	3	6	7				
Xcalumkin.....	(X)	1				1				1													
Xcocha.....	(X)	2	1										1										2
Xculoc.....	(X)	1	1			1																	1
Xcultun.....	(X)	4		4								1											4
Yarchilan.....	(X)	1	1		2					1								1			1		1
Alta Verapaz (ceramics).....	(X)	3	12		2	2				6		1											
Yucatan (ceramics).....	(X)	10				1				1							3	2	4				
Miscellaneous (ceramics).....	(X)	3	16		6	8				1			3				2	9	2				
Dresden Codex.....	(X)	4	4			4		1		2							1						
Madrid Codex.....	(X)	1	1							3													
Perez Codex.....	(X)	3	3			8											5						
Total sculptures and murals.....	(X)	100	118	34	138	11	55	13	21	39	17	9	9	9	9	19	44	78	17	7	38	17	22
Total ceramics.....	(X)	12	90	49	4	3	12	2	45	13	2	14	1	8	10	8	47	15	11	4	17	7	11
Total codices.....	(X)	7	23		19		18	1	2	3	1		2	3		1	2	12			3		8
	(X)	7	2	2	2		1		1	2							1	2					
	(X)	8	4	5		12			2	9						2		9					
	(X)	4	4	4					1								5						1

SOURCES OF ENTRIES (TABLE 1)^o

SCULPTURES AND MURALS

- 1-12. Bonampak, Palace 1, Room 1. Villagra Caleti; copy by Antonio Tejada.
- 13-14. Bonampak, Stela 2. Proskouriakoff, fig. 69a.
15. Calakmul, Stela 54. Ruppert and Denison, fig. 51c.
16. Calakmul, Stela 53. Ruppert and Denison, fig. 51b.
17. Cancuen, Altar 1. Morley, 1937-38, vol. 5, pl. 96b.
18. Cancuen, Stela 1. Maler, 1908a, pl. 13, No. 1.
- 19-20. Chichen Itza, Temple of the Tigers, Chamber A. Maudslay, vol. 3, pl. 35a, b.
21. Chichen Itza, Temple of the Tigers, Chamber A, Inner (Painted) Chamber. Seler, vol. 5, p. 325; copy by Adela C. Breton.
22. Chichen Itza, Tigers, Chamber E (Lower Temple). Maudslay, vol. 3, pl. 43c, d, vol. 4, pl. 93a.
23. Chichen Itza, Tigers, Chamber E. Maudslay, vol. 3, pl. 51e, f.
24. Chichen Itza, Tigers, Chamber E. Maudslay, vol. 3, pl. 45 (Nos. 1-6).
25. Chichen Itza, Temple of the Tigers, Chamber E (Lower Temple). Maudslay, vol. 3, pls. 46 (Nos. 7-10), 47 (Nos. 15-18).
26. Chichen Itza, Temple of the Tigers, Chamber E (Lower Temple). Maudslay, vol. 3, pls. 46-47, (Nos. 11-14).
27. Chichen Itza, Temple of the Tigers, Chamber E (Lower Temple). Maudslay, vol. 3, pl. 48.
28. Chichen Itza, Temple of the Tigers, Chamber E (Lower Temple). Maudslay, vol. 3, pls. 44B, 49B (No. 13).
29. Chichen Itza, Temple of the Tigers, Chamber E (Lower Temple). Maudslay, vol. 3, pls 46A (No. 7), 47A (No. 14).
30. Chichen Itza, Chamber C (North Building, Ball Court). Breton, fig. 7.
31. Chichen Itza, Chamber C (North Building, Ball Court). Breton, figs. 5, 6.
32. Chichen Itza, Chamber C (North Building, Ball Court). Breton, pl. 4.
33. Chichen Itza, Chamber C (North Building, Ball Court). Breton, fig. 7, pl. 4.
34. Chichen Itza, Chamber C (North Building, Ball Court). Breton, fig. 3.
35. Chichen Itza, Ball Court, Benches. Palacios, 1937 a, fig. 41.
36. Chichen Itza, Temple of the Chac Mool. Morris, Charlot and Morris, vol. 2, pl. 2SA-B.
37. Chichen Itza, Temple of the Chac Mool, Columns 1-5. Morris, Charlot and Morris, vol. 2, pls. 29-32, 35.
38. Chichen Itza, Temple of the Chac Mool, South Bench, Side A. Morris, Charlot and Morris, vol. 2, pl. 133 (No. 3, 5).
39. Chichen Itza, Temple of the Warriors, Columns 8, 9. Morris, Charlot and Morris, vol. 2, pls. 48E, 49E.
40. Chichen Itza, Northwest Colonnade, Column 51. Morris, Charlot and Morris, vol. 2, pl. 115S.
41. Chichen Itza, Northwest Colonnade, Dais. Morris, Charlot and Morris, vol. 2, pl. 129.
42. Chinkultic, Ball Court Marker. Orozco Muñoz, figs. 89, 90.
43. Chinkultic, Stela 7. Blom and La Farge, fig. 365.
44. Copan, Stela 9. Maudslay, vol. 1, pl. 110c.
- 45, 46. Copan Stela 2, Maudslay, vol. 1, pl. 101.
47. Copan, Second Ball Court, North and South Markers, Morley, 1937-38, vol. 2, End Piece, vol. 4, End Piece.

^o Where only one title appears for an author in the Literature Cited, this list omits the publication date.

48. Copan, Second Ball Court, Middle Marker. Morley, 1937-38, vol. 3, End Piece.
49. Copan, Altar K. Maudslay, vol. 1, pl. 73a, (glyph 17).
- 49a. Copan, Stela 6. Maudslay, vol. 1, pl. 105a.
- 49b. Copan, Stela A. Maudslay, vol. 1, pl. 26.
- 49c. Copan, Stela H. Maudslay, vol. 1, pls. 61, 99b.
50. Copan, Stela B. Maudslay, vol. 1, pl. 37A, B.
51. Copan, Stela B. Maudslay, vol. 1, pl. 37B.
52. Copan, Stela B. Maudslay, vol. 1, pl. 37A.
53. Copan, Stela N. Maudslay, vol. 1, pls. 77, 82.
54. Copan, Stela N. Maudslay, vol. 1, pl. 79a, b.
55. Copan, Altar R. Maudslay, vol. 1, pl. 94a.
56. Copan, Altar W¹. Morley, 1920, p. 331.
57. Copan, Temple 11. Maudslay, vol. 1, pl. 8.
58. Copan, Altar T. Maudslay, vol. 1, pls. 95, 96.
59. "Cozumel Stela 1" (Chilib?) Lothrop, 1924, p. 46; cf. Proskouriakoff, p. 157.
- 59a. El Chicozapote, Lintel 1. Maler, 1903, pl. 37, No. 1.
- 59b. Etzna, Stela 7. Proskouriakoff, fig. 83d.
- 60, 61. Ixkun, Stela 4. Morley, 1937-38, vol. 5, pl. 49a.
62. Ixkun, Stela 1. Maudslay, vol. 2, pl. 69.
63. La Amelia, Stela 1. Morley, 1937-38, vol. 2, fig. 48.
- 64, 65. La Honradez, Stela 4. Morley, 1937-38, vol. 5, pl. 84f.
66. La Mar, Stela 2. Maler, 1903, pl. 36, No. 1.
67. Naranjo, Stela 1. Morley, 1937-38, vol. 5, pl. 88a.
- 67a. Naranjo, Stela 14. Maler, 1908 b, pl. 33, No. 2.
68. Palenque, House C. Maudslay, vol. 4, pl. 24, No. 8.
69. Palenque, House C. Maudslay, vol. 4, pl. 23 (glyphs A-3, B-4).
70. Palenque, House A. Maudslay, vol. 4, pls. 10, 11d, e.
71. Palenque, House B. Maudslay, vol. 4, pl. 18.
72. Palenque, House E. Maudslay, vol. 4, pl. 43.
- 73-75. Palenque, House E. Maudslay, vol. 4, pl. 44.
76. Palenque, House E. Lothrop, 1929, pl. 1a.
77. Palenque, House D, Pier c. Maudslay, vol. 4, pl. 35.
- 78, 79. Palenque, House D, Pier f. Maudslay, vol. 4, pl. 37.
80. Palenque, House D, Pier d. Maudslay, vol. 4, pl. 36.
81. Palenque, Enclosed Corridor. Maudslay, vol. 4, pl. 47a.
- 81a. Palenque, Tower. Palacios, 1937 b, figs. 21, 46.
- 81b. Palenque, Tomb Group IV. Ruz, n. d. (1950), figs. 67-77.
- 81c. Palenque, Temple of the Sun. Palacios, 1937 b, fig. 36.
- 81d. Palenque, Sun. Maudslay, vol. 4, pl. 88.
- 81e-g. Palenque, Palace, North Gallery. Ruz, n. d. (1949), fig. 118.
- 81h. Palenque, Temple of the Inscriptions. Ruz, n. d. (1950), pl. 8.
- 82, 83. Palenque, Temple of the Sun. Maudslay, vol. 4, pl. 88.
84. Palenque, Temple of the Cross. Maudslay, vol. 4, pl. 68.
- 85-87. Palenque, Cross. Maudslay, vol. 4, pl. 71.
88. Palenque, Cross. Maudslay, vol. 4, pls. 72, 76.
- 89, 90. Palenque, Temple of the Foliated Cross. Maudslay, vol. 4, pl. 81.
91. Palenque, Foliated Cross. Maudslay, vol. 4, pl. 82.
92. Paraiso, Trough. Lothrop, 1926, p. 60; Yde, p. 47.
93. Paraiso, Trough. Yde, p. 47.
- 93a. Piedras Negras, Stela 33. Maler, 1901, pl. 26, No. 2.
94. Piedras Negras, Stela 6. Maler, 1901, pl. 15, No. 3.
95. Piedras Negras, Stela 8. Maler, 1901, pl. 17.

96. Piedras Negras, Stela 2. Maler, 1901, pl. 15, No. 1.
97. Piedras Negras, Stela 11. Maler, 1901, pl. 20, No. 1.
98. Piedras Negras, Stela 10. Morley, 1937-38, vol. 5, pl. 130c.
- 98a. Piedras Negras, Stela 40. Morley, 1937-38, vol. 5, pl. 135b.
- 99, 100. Piedras Negras, Stela 14. Maler, 1901, pl. 20, No. 2.
- 101, 102. Piedras Negras, Stela 13. Maler, 1901, pl. 18, No. 2.
- 102a. Piedras Negras, Miscellaneous Sculptured Stone 16. Kelemen, vol. 2, pl. 83a.
103. Piedras Negras, Sacrificial Rock. Morley, 1937-38, vol. 3, fig. 117b.
- 103a. Quirigua, Stela H. Morley, 1937-38, vol. 5, pl. 178Da.
- 103b, c. Quirigua, Stela F. Maudslay, vol. 2, pl. 36b.
104. Quirigua, Stela D. Maudslay, vol. 2, pl. 26, No. 3.
105. Quirigua, Stela D. Maudslay, vol. 2, pl. 26, No. 1.
106. Quirigua, Stela D. Maudslay, vol. 2, pl. 25, No. 4.
107. Quirigua, Stela A. Maudslay, vol. 2, pl. 4.
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¹⁰ Where only one title appears for an author in the Literature Cited, this list omits the publication date.

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