

The Serpent Motive in the Ancient Art of Central America and Mexico.

BY

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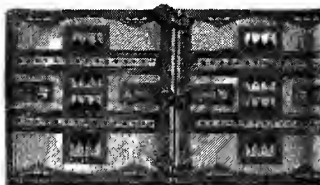
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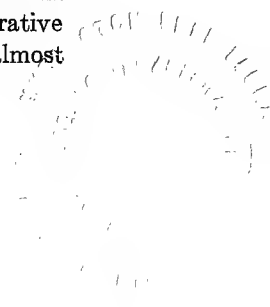


THE SERPENT MOTIVE IN THE ANCIENT ART OF CENTRAL AMERICA AND MEXICO.

FIELD OF ENQUIRY.

THE two great cultures of antiquity that flourished, the one upon the Mexican Plateau as a centre of distribution and the other in Central America, distinguished in modern times under the names *Aztec* or *Mexican* and *Maya* or *Central American*, are related to each other in such a way that, although the distinction between them is clear and free from all confusion, yet it is impossible to take a comprehensive survey of either without considering also the claims of the other. While this observation is perfectly general in its scope, it applies with special force and significance to those forms of expression that have their origin in the artistic impulse and in the speculative faculty. We are not concerned in the present study with questions relating to the source of these affinities, but accepting the fact we are to apply ourselves to a study of actual conditions irrespective of original sources or points of contact.

These two great cultures, the Mexican and the Maya, although readily distinguishable not only from each other but from all cultures beside on the Western Hemisphere either by reason of the great advancement made in the arts or else by characteristic modes of thought and expression, have many points of affinity in other regions lying far to the northward and to the south and possessing cultures which in respect of development are peculiarly their own. These affinities are of two kinds: first, imperfectly revealed connections indicating common origin, and second, definite correspondences arising from a borrowing of ideas. The first refer back to a common habitat and primitive condition and the degree of relationship which they imply though it cannot be overlooked, must be regarded as exceedingly remote. The second indicate the intercourse of cultured peoples and imply widespread commercial relations between the aboriginal Americans. The serpent in one form or another, whether as an object of worship, a sacred symbol or a decorative device, is found everywhere on the Western Hemisphere as well as in almost



all other parts of the world; but in this connection the position of the animal in Mexico and Central America is absolutely unique; for nowhere else in the world, if we may judge by traditional and archæological remains, did the serpent and the set of ideas connected therewith assume such supreme importance or attain such an extraordinary development as in the region here defined. Within this region, besides the Mexican and Maya cultures, there is comprised another, closely related to them both and known as the Zapotecan. These three cultures and their corresponding areas constitute our field of enquiry and the special feature to which our investigations have reference may be described as that group of phenomena in which the serpent in one form or another appears as the ruling motive or the means of expression. So persistent and dominant is the serpent motive that a thorough investigation of the subject brings us in contact with the whole body of artistic products.

THE SERPENT IN CENTRAL AMERICAN ART—ITS FUNCTIONS.

In the artistic creations of Central America and Mexico, the serpent in common with all other subjects treated, serves a twofold purpose and plays a double role. The one has for its object the transmission or perpetuation of some set of ideas, or is to be regarded simply as an acknowledgment of the honors due to a superior being. The other has for its end the embellishment of things by the application of forms deemed beautiful or pleasing to the eye. The one is expression, the other adornment. The one is symbolic, the other decorative. One is subjective and the other objective. I think that this idea cannot fail to present itself to anyone familiar with the painting and sculpture of Mexico and Central America—and its acceptance becomes imperative when we come to a systematic analysis of the various compositions in which the serpent plays a part.

It is not possible to make any general statement or establish any general rule concerning the relative importance of these different functions; neither is it possible to separate them entirely from each other. They are rather to be regarded as reciprocal functions. They are mutual and in a sense complementary, each reacting upon the other. The one inspires while the other stimulates, and throughout the whole history of artistic development, this mutual influence is made manifest. Nevertheless, while it is impossible to separate these two functions entirely from each other, it is evident that they correspond to distinct properties and arise from fundamentally different motives. It is therefore possible to consider either one without special reference to the other. In the present study it is my purpose to treat the subject in its decorative aspect, without further reference to the symbolic character of the figures involved than is essential to the elucidation and correct understanding of the decorative system *per se*. I think there can be no doubt that in order to arrive-

at a comprehensive appreciation of Mexican or Maya painting and sculpture, one might say of Mexican and Maya art in the broadest sense of the term, a liberal knowledge of the symbolism in use among these peoples would be necessary. In order, for instance, to fully understand the decorative art of these singular peoples even in its simplest relations, it would be necessary to put one's self in the mental attitude of the native artist. To follow intelligently the serpent motive in its various modes of expression would require the intellectual equipment of the native initiate. Such preliminary preparation is unfortunately not possible. Our general knowledge of Mexican and Maya symbolism is very meagre and thoroughly unsatisfactory, while the means of improving that knowledge are difficult of access. It is not within the scope of our present knowledge of the serpent symbol to put that interpretation upon it which a scientific treatment of the subject would demand. To attempt this task would be to become involved in the speculations to which the subject invites, and which have been sufficiently fruitful of doubtful conclusions. I will therefore confine myself as much as possible to the lines which I have chosen and try to trace the technical development of the serpent motive in its application to decorative art.

MATERIALS AND TECHNICAL METHODS.

Although, in the culture area under consideration, the graphic arts were not less extensively cultivated than those which we call plastic, they had not as yet acquired an independent development to any considerable extent. Painting and sculpture had not become differentiated from each other, but were closely connected, each relying upon the resources and methods of the other. The relationship between painting and sculpture was similar to that which obtained in the great centres of artistic activity on the shores of the Mediterranean before the Greek masters of painting, realizing the possibilities of the graphic method, developed the art on its own resources and created an independent school of painting. Indeed we cannot be sure that a similar movement was not on foot in Mexico and Central America, for we must admit that here also painting had shown itself capable of advancing into fields of its own, but these essays were timid and wanted the self-reliance that is born of accomplishment. Painting had not abandoned its connection with sculpture, nor had it, in its efforts to be free, got beyond the traditional limitations imposed upon it by reason of that connection; to the last it was bound by the canons of plastic art and exhibited evidence of its subjection in the technical imperfections that are peculiar to that art.

Sculpture, although fully conscious of its own legitimate power of expression, was not confident of its own efficiency, but relied upon the aid of painting for the attainment of perfection and the accomplishment of its ultimate pur-

pose. This interdependence of the plastic and the graphic arts imposed greater obligations on the former, for if we may rely upon archæological evidence, the sculptor resorted to the use of color in every instance. When the surfaces of the ancient masterpieces of sculpture and plastic works of every description have been well protected, they almost invariably show traces of color and even in many instances where the surfaces have been exposed to the elements for centuries the same conditions have been observed. From these and other related phenomena the logical deduction seems to be that the practice was perfectly general and that all finished sculpture was painted, and therefore polychrome.

The term sculpture is here used in the broadest sense and includes all the plastic arts: modelling in clay and stucco as well as carving in wood and stone.

The character of the stone used varies in different parts of the region: trachyte, sandstone, limestone, porphyry and tufa being the kinds most commonly employed, the choice depending largely on the available supply. Though statues and various figures in the round are by no means unknown, yet the greater part of the carving in stone is in relief, varying in degree from the slightest possible projection to a very bold alto-relievo. When the texture of the stone was considered sufficiently fine, the colors were applied directly to the surface of the sculpture which was first worked smooth and polished. When the texture was too coarse to be adaptable to this process, the figures were first blocked out roughly or brought to a condition approximating that of the finished sculpture. The whole surface was then treated to a layer of stucco, varying in thickness according to the nature of the work, and in this medium the various features of the design were modelled with skill and refinement.

Stucco was also used in the execution of figures in relief by the following method: a framework of separate blocks of stone was built up against the wall and upon this as a base, the figure, group, or design of whatever character was modelled in stucco. Stucco ornaments were modelled upon the plain masonry both on the inside and outside of buildings.

Only a few specimens of carving in wood have survived to the present day. They are in the nature of relief and exhibit the same technical characters as carving in stone except that the depth of the carving or projection of the figure is more uniform, being without exception in the region of bas-relief. The excellence of the workmanship shows that this particular art was as generously cultivated as carving in stone, but the relative durability of wood is so inferior that the number of specimens preserved is very small by comparison.

Terra cotta was employed in the manufacture of pottery, which was often decorated in relief, small statuary and objects of use and adornment. Figures of terra cotta were either solid and modelled free hand or else hollow and cast in moulds. Ornaments of this material were not infrequently polished and painted with a view to imitating precious stone.

Painting proper, that is to say, expression by means of patches of paint and lines upon flat surfaces, as already stated was cultivated to some extent, and though but few perfect specimens have been preserved, is represented, not only by the picture books, the records made of paper or parchment painted by hand, but also by painted pottery and most significant of all, by paintings upon the smooth plaster of interiors. Books, parchments, pottery and plastered wall surfaces were covered in an orderly manner with scenes from private life, public ceremonial, domestic pursuits, military exploits, mythological incident or historical narrative, together with symbolic and hieroglyphic characters. Figures were outlined with considerable freedom and the drawing is characterized by a certain strength rather than by refinement. All painting is done in flat tones and in a single plane of light. The colors employed are usually red, yellow, blue and green in different values and intensities. Absence of color or neutrality is most frequently met with in the codices, where the variety of tones is greater than in any other class of objects, though white and black are also freely used in the decoration of pottery. It has been said that the Mexicans and Mayas did not possess a correct feeling for color and that they lacked a proper appreciation of tone relations; that they did not observe such a simple distinction as that between blue and green. It is true that they used these two colors often indiscriminately, but that they were able to distinguish between them and did so distinguish is proved by the fact that each had its symbolic function and was assigned to a separate set of ideas. We have a perfect analogy in Egyptian painting during its best period, where we find blue and green used impartially in the treatment of foliage and yet in other connections the distinction between the two is clearly recognized.

Perfect specimens of hand painted books from both Mexican and Maya sources have been preserved and from them we may derive a tolerably correct idea of the methods employed by the class of artists whose business it was to execute this class of work. Such an artist had a definite story to tell, a particular message to convey or a special set of relations to set forth. This he contrived to do by the combined resources of representation and symbolism and we may reasonably assume that generally he did his work without the introduction of unnecessary detail. If, however, his decorative instincts led him to embellish his pages, such embellishment was always a part of the general design and directly related to the current theme. These artists were the chroniclers of their time, the makers of calendars, of books of ritual and books of magic. Their literary activities may and probably did have a wider scope than this, but we have no proof of it. It is probable that the makers of the best works of this class claimed no higher honors than those due to skillful artisans. They worked according to rule. Their figures of men and beasts, though often expressive in attitude, are generally stiff and conventional. The rigidity of fixed standards and the stamp of symbolism characterize their

representations. As for paintings on pottery they are only such as properly belong to a humble industry. A great part of this decoration was done, as we have reason for believing, by mere copyists who imitated the work of artists or other artisans if not uncomprehendingly, at least regardless of the meaning of the original design.

It is only in the wall paintings that we realize the awakening genius of the painter and get a lively idea of his work. Figures are drawn with perfect freedom and are full of character and expression. The idea in the mind of the artist is forcibly worked out and his object is remarkably well achieved. Groups are disposed with excellent appreciation of order and the demands of decorative art. Battle scenes and religious processions are reproduced with a great deal of realism, and while we can distinctly recognize the restraining influence of plastic art, it is equally clear that painting was preparing to free itself from the disabilities of that relation and had already made some progress in the exercise of its legitimate powers. With such beginnings the art of painting might reasonably be expected in due course of time to avail itself of all its resources and to stand alone in perfect freedom and self-accomplishment.

The paintings and sculptures of Mexico and Central America exhibit no definite knowledge of the laws of perspective, but, realizing vaguely the existence of such laws, the artists were slowly feeling their way toward their proper interpretation, supplying the place of such knowledge meantime, as best they could, by means of compensating measures and symbolical expedients. It is evident that these artists like their Babylonian brethren had considerable feeling for perspective but no scientific knowledge of it.

CLASSIFICATION OF ART PRODUCTS AND SOURCES OF ORNAMENT.

All products of the plastic and graphic arts under consideration may be classified as follows:

First. Representation.

Second. Conventionalized forms and abstractions.

Third. Hieroglyphic writing.

Fourth. Pure design.

These four groups are not sharply defined, but pass gradually from one to another. Consequently we should expect to find the same motives running through them all, and this in fact is the condition which we actually experience. Representation passes into conventionalized types and mere abstractions and these in turn into hieroglyphics on the one hand and into pure design on the other. The symbolic character becomes highly developed in the second group and is perceptible even in the region of pure design.

On the other hand the decorative character and the principles of design are common to all four groups. In representation there is a distinct recognition

of the demands of decorative art, perceptible in the adaptive grouping with reference to the surface under treatment, in the balance of parts and harmony of relations. Even in the hieroglyphic inscriptions there is a conspicuous ambition to apply the principles of design for the sake of decorative effect, an ambition which kept the form of the characters in a constant state of flux, and renders their identification often difficult and confusing.

In examining any group of decorated objects from Central America or Mexico, to whatever class they belong—implements, utensils, objects of personal adornment, effigies, monolithic monuments or architectural remains—it becomes evident that the motives employed in their decoration are derived from one of two great sources: the industrial arts and the natural world. Those derived from the first source consist of figures copied from or suggested by the technical structure of various industrial products. The woven pattern of basketry or lattice work, the various mechanical or technical details peculiar to textiles are among the familiar examples of this class. But the great majority of motives are derived from natural objects. Conventional expedients adopted for the representation of inorganic phenomena in nature, such as the curved and undulating lines, intended in the first place to represent the curling waves of the sea or the undulations of running water are eventually appropriated by decorative art and pass into the region of pure design. It was from the organic world, however, that the old Mexican and Maya artists derived their inspiration. It was the animal and vegetable kingdoms that supplied them with their favorite motives, and remained throughout the whole history of development the principal sources of ornament.

Only a small part of the subject matter of decorative art is of a vegetable origin, by far the greater part has reference to the animal kingdom. This was the artist's favorite field and it was here that the artistic instincts of these ancient peoples found their most perfect expression and attained their highest development. The human figure is not only the one that occurs most frequently, but it is in general drawn with more truth than other forms of life. Among the other animals that can be recognized are several different species of bird, notably the quetzal and the macaw, and among fourfooted animals, the deer, dog, rabbit, monkey, ocelot and jaguar. In addition to these should be mentioned the alligator and a fish and of first importance in relation to decorative art, the SERPENT.

EVOLUTION OF THE SERPENT MOTIVE.

It is difficult to find either in Mexican or Maya art a really natural representation of a serpent. Perhaps the example that answers this description best is found in a pair of snakes with interlocking folds, from the ruins of the hieroglyphic stairway at Copan.¹ It is the rattlesnake that is represented in this

¹ See *Memoirs of the Peabody Museum*, Vol. I, No. 6, p. 18.

specimen. The markings on the back of the animal are characteristic of the *Crotalus Atrox* (Baird) and this species, the one that is characteristic of the Mexican and Central American region, is in my opinion the prototype of the Serpent of painting and sculpture in the same region.

In the example to which reference has been made, the pair of snakes on a headdress from the hieroglyphic stairway, a considerable degree of conventionalization has already been acquired—especially in the head, which, however, is only slightly exaggerated and distinctly characteristic. The fangs, the nostrils, the eye, and the plate above the eye are somewhat exaggerated.

Taking up another example from Copan, Altar O, (Plate III, a) we find the same features greatly modified and the same artificial or conventional tendencies excessively developed. Moreover, we here meet with the introduction of special features, like the row of feathers that adorns the animal's back and the tuft beneath the lower jaw, as well as other innovations which will be considered later. The rattles are not shown, possibly because they are concealed in the coil of the tail. The dorsal markings are shown upon the side in order to make way for the row of feathers on the back. The upper jaw is enormously exaggerated and turns upward, forming a right angle some distance forward of the hinge. The fang is long and greatly curved. There is a long bent tooth in the middle of the jaw, directly under the eye and a double tooth resembling a molar in the back part of the jaw. There is also a pair of curved teeth in the lower jaw, near the end. The superciliary plate is greatly exaggerated and artificial in shape, while four small circles appear below the eye. The object protruding in front of the fang is, I believe, the fold of integument that serves as a sheath for the rattlesnake's fang. It is difficult to explain the two curious processes protruding from the region of the nostrils like a pair of horns. These are the essential features to be borne in mind at present. Other details can be postponed for special reference.

On the opposite side of the same monument two serpents are portrayed with their bodies tied in a square knot and their heads facing in opposite directions (Plate III, b). Each of these serpents is provided with a single pair of limbs attached at the back of the head. The rattles, it may be noted, give place to an appendage made up of an *ahau* symbol and another form which will be understood better after we have followed the development of the serpent motive still farther. The introduction of limbs, though not rare, is not regular and has no special interest in this particular connection. Whatever their significance may be, their presence or absence does not affect the relations with which we are directly concerned.

In sculptures G1, G2 and G3, Copan, the two heads are attached to a single body, the body itself being somewhat reduced in size. This is simply a further development of the idea expressed in the example from altar O, where the union of the two bodies is indicated by tying them in a knot. In the group

of sculptures designated by the letter G, just mentioned, the same conception is set forth by representing a single body with a head at either end.

The further history of this motive is not concerned with the serpent as a whole, but with its parts. The unit to be considered is not the serpent with all its parts complete but certain chosen parts, which become more and more specialized.

First we will take up the history of the body in its relation to ornament. Here the process of development as well as the relation itself is perfectly simple and self-evident. The interlocking bodies of the two serpents from the hieroglyphic stairway already referred to, illustrate the first steps in a process which ends in the production of a guilloche, an ornament used to great advantage in the architectural decoration of the great cities on the peninsula. The second step consists in the elongation of the bodies, which may be produced indefinitely, together with multiplication of the folds. Afterwards may come the elimination of the serpent features, the loss of all resemblance to the original and finally (if the process goes so far) the extinction of the ideas associated with it. At Uxmal there is on the house of the nuns a good illustration of an intermediate stage in this process. In the long, twisted bodies in this example, may be seen the incipient guilloche, which receives its full development at Chichen Itza, where it is well illustrated in the wall sculptures of chamber E of the great ball court temple and in the exterior decoration of the same edifice. Every building in Central America seems to have its favorite type of ornament and the serpent guilloche is the one especially associated with the ball court temple. Another ornament on the exterior of the same edifice is also derived from the serpent's body. It has the form of a meander. All of these ornaments have the marks of the serpent's body; either the ventral squamation or the feathers surviving in each example. I am also inclined to think that the annular figures used to fill the spaces of the guilloche and the meander on the exterior of the ball court temple are derived from the dorsal markings of the serpent, and are in fact the spots on the back of the snake, which it was not desirable to place in their natural position and which were found to serve the purpose of decoration much better by being placed in vacant spaces beside the bodies. This may seem like a fanciful suggestion, and it may well be that in the present instance the annular ornament has a different origin; for it is often impossible as in the present case to trace the source of a device. The simpler ones may arise in various ways, but the explanation of the annulets which I have offered, indicates a practice which was sufficiently common among the native artists, and sufficiently characteristic of their methods to justify such an explanation. It will be well to bear this in mind in studying any body of native American art products, and we shall find the knowledge useful in the present study on more than one occasion.

The rattle also has its interest in connection with the history of ornament, for it becomes transformed into an ornament of conventional type found sometimes in the decoration of different objects.

The most interesting story in connection with the development of the serpent motive is that which unfolds itself in the transformations of the head and its different parts.

First, I will present three examples (Plate IV) from the Mexican codices to illustrate how the serpent head passes into abstract forms, representing definite ideas, in no way associated in our minds with the serpent. The first series shown represents the development of a symbol frequently occurring both in the Mexican and the Maya areas. Its meaning is not known definitely, but it is believed by some to represent one of the constellations. First in the series is a serpent's head as drawn very frequently in the Mexican codices. Here we see the upright jaw as before, the eye with its plate, and a plume of feathers. There is also a pair of teeth or a double tooth in the jaw. In the second example the tooth is wanting; in the third the plume has also disappeared and the jaw is bent backward; in the fourth the jaw is still farther bent; in the fifth it is bent backward upon itself and the eye, together with the superciliary plate has disappeared. In the next figure the drawing is made more symmetrical and enclosed in a square, and the other two are slight modifications of this.

The second series of figures illustrates the derivation of the "Sacred Vase" or bowl, symbol of the earth. The first of the series is a symbol that may be found in any Mexican manuscript. It represents the upper jaw of the serpent armed with fangs and teeth. The eye is placed above the jaw in its natural position. The next six figures in the series are different examples of the water symbol. In the second and third figures, the water is seen flowing from the hollow formed by the bent serpent's jaw; the fourth is similar, save in the matter of the eye, which is omitted; the fifth becomes a closed vessel by carrying up the rear end of the jaw and making it balance the upturned snout. The seventh figure of the series is different from the fifth only in the absence of the eye, fangs and teeth—and is the simplest form of the bowl, the symbol of the earth, which holds the sea in its cavity. The eighth figure represents the sacred bowl as it occurs by itself without the association with the water which explains its use in the previous example. The double teeth appear again, however, and in the last two examples in the series are further modified for the sake of embellishment. This tooth element or set of teeth as it sometimes appears to be is very persistent throughout the whole history of the serpent motive; it keeps cropping up in the most unexpected places and is of great value in tracing that motive, a point which is brought out again in the third series of figures which illustrate another form of the earth bowl. In the last example given, after all the other animal features have been eliminated, the double tooth again comes in.

In order to take up the principal chain of development, we must return to the serpent's head in the form under which it was examined some distance back, where the illustrations were taken from the Copan sculptures. For immediate reference I shall now select an example from a wooden tablet at Tikal (Plate V, 1). This is one of the most ornate examples of its class in the whole range of Maya sculptures. In it the serpent's head has reached its extreme development in one direction characterized by general exaggeration and by the elaboration of detail, and the next chapter in its history shows a movement toward simplicity. It is as though the resources of extravagance were exhausted. Nothing more complex could be devised, and in order to undergo further change the structure had to be dismantled, so to speak, and change in the direction of greater simplicity. It will be seen that the tooth which in the earlier examples I called a molar is in this case greatly enlarged, modified in outline and has acquired certain markings which give it the appearance of an *ahau* symbol. Not this alone, but the knobs terminating the horn-like projections from the nostrils are likewise converted into the semblance of *ahau* symbols.

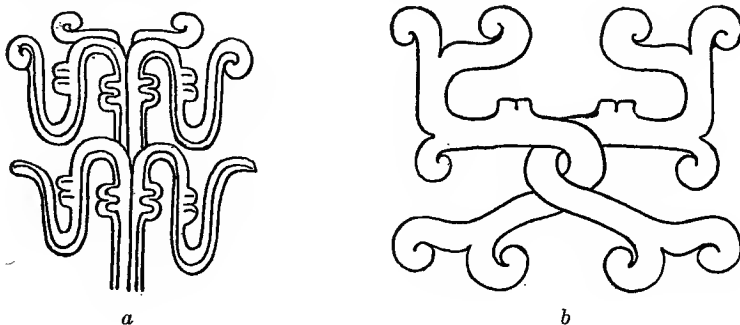


Fig. 1, *a* and *b*. Figures with Serpent Features from Mexican Codices.

Recalling what I have already said respecting the essential features of the serpent's head at this stage of development, I will enumerate here those elements with which we are immediately concerned.

1. The great development of the upper jaw, its erect position and snout turned backward.
2. Inferior development of lower jaw.
3. Fangs prominent, and large curved teeth at end of lower jaw, together with a tooth like an incisor or several incisors between the curved teeth. Beard.
4. Peculiar development of the superciliary plate.
5. Prominence of the nostrils.

The serpent's head motive now becomes divided or split up and develops along several independent lines to unlike ends, and this multiplication of sub-motives increases as we proceed.

I. Evolution of the *Ophignathos*.¹

The process by which this figure is produced is characterized by the depression of the lower jaw till a vertical straight line may be passed through the length of both jaws, and by the gradual elimination of detail.

These changes are shown by a series of illustrations (Plate V). In the fifth example of the series the lower jaw occupies a vertical position and is developed on lines similar to the upper one. A backward curve, already marked at the end of the lower jaw corresponds to that of the upper jaw. The nostrils have degenerated into a mere hooked figure. The superciliary plate is carried upward at the forward end and enlarged relatively. The beard is also very prominent in this example. In the next example, the eye, beard and nostrils disappear; the snout is carried upward with a flourish, the teeth and fangs become rudimentary in both jaws; the superciliary plate forms a spiral curve which is balanced by the curve of the lower jaw. The process seen in front of the curved tooth in the first and second examples and corresponding to the sheath of the fang, becomes enlarged in No. 6 and has the teeth of the lower jaw, now become rudimentary, transferred to it. Attention has already been called to the molar in the first of the series; in the sixth example, this peculiar molar with the features of the *ahau* sign is placed between the two jaws at their junction. In the seventh example a rudimentary fang and sheath survives in the upper jaw and three rudimentary teeth in the lower jaw. The sheath survives also in the lower jaw. Nos. 8 and 9 present similar characters.

A special development of the ophignathos is the Venus symbol. First, the lower member is made to correspond to or rather to balance the upper, by the reproduction of the eye, with its circlelets underneath, fangs, etc. After this the eyes become more prominent and finally the smaller features disappear. The ultimate step in this process is the conjunction of two such figures in a form that possesses bilateral symmetry (Plate VI., a, b, c, d).

A conspicuous feature of architectural ornament at Uxmal is the full face-serpent head. The special feature of this ornament which I wish to call attention to at present is the head in profile that flanks it on either side as an appendage to the ear ornament. A comparison of the two examples shown in Plate V brings out clearly the relationship between the ophignathos and the serpent head as seen in this outer appendage of the ear ornament.

At Labna there is a building with a frieze exhibiting full-face serpent heads:

¹*Ophis* serpent and *gnathos* jaw. I have found it convenient to adopt names for the more highly specialized ornaments.

like those at Uxmal. At one point a pair of these ornaments is broken away, leaving only the right ear of each serpent with its appendages (fig. 2). Placing one of these beside the two examples from Uxmal we see at once the relationship between the outward appendage of the ear in the case under consideration and that of the other two. In the example from Labna the jaws form a pair of hooks, one curving backward above and the other curving forward below. This form of ophignathos will be considered later in another connection. Here again we see the ahau symbol cropping up in two pairs of teeth attached to the upper jaw, showing the persistency of this idea which was first noticed some distance back.

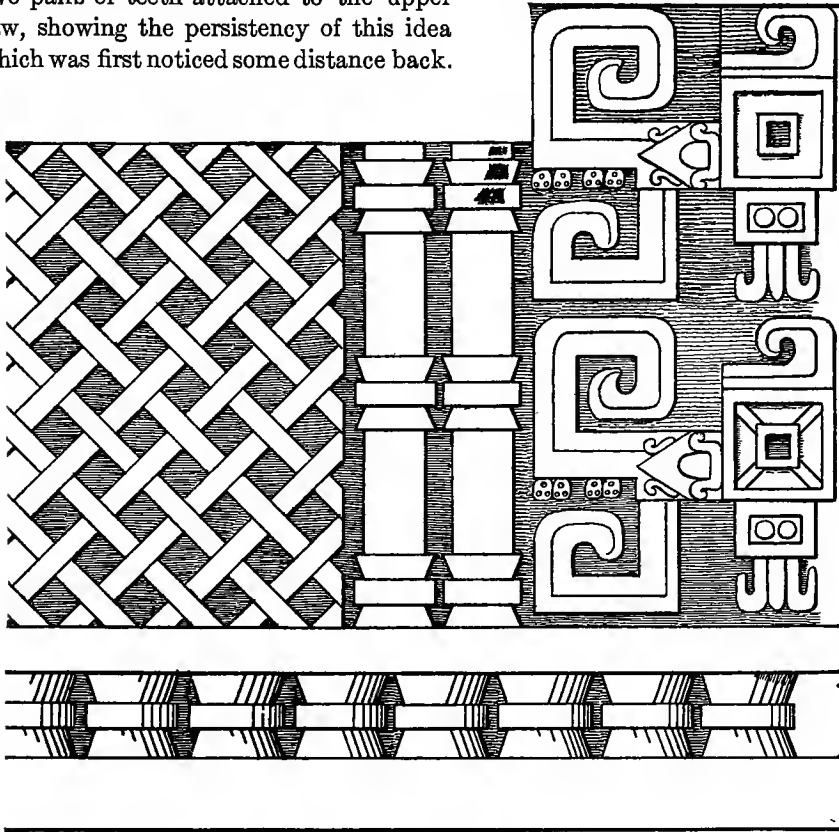


Fig. 2. Portion of a Frieze at Labna.

A certain symbol, in common use among the Maya sculptures, chiefly in connection with the borders of panels containing effigies of gods or men, claims our attention in this connection (Plate IX, k, l). In it is seen the serpent's

head with the same features as before. In this case, however, the lower jaw assumes rudimentary proportions which correspond in shape and dimensions with the upturned snout and give the whole figure a certain symmetry and balance. In the second example shown, the eye has disappeared and the upper appendages are more nearly balanced by the lower ones. In the third figure (Plate IX, m), perfect symmetry is achieved by making the two ends correspond exactly in shape and dimensions, by modifying the teeth into a serrated row, and balancing them on the opposite side by a similar row which takes the place of the nostril and the other upper appendages. By dropping the teeth, the simple reversed figure shown in the next illustration is obtained (Plate IX, n).

The ophignathos is a form in which both jaws survive. It has many variations. The last figure described, however, by reason of its form, is more closely related to that which follows.

II. Evolution of the *Ankistron*.

This process is connected with a group of phenomena characterized by the elimination of the lower jaw and the gradual development of the upper in a special direction.

The serpent head without a lower jaw occurs with special frequency at Copan, Quirigua, Piedras Negras, Menché, Palenque and Tikal, but it is found throughout both the Maya and Mexican areas. The development of the ankistron is characterized by the elongation of the snout, which is carried upward and backward until it forms a sort of rectangular hook. At the same time the details of animal character are eliminated or else undergo modification. A series of examples is presented to illustrate this process (Plate IX, a, b, c, d, e, f). The first example in the series given will readily be recognized from its resemblance to the upper jaw of the serpent at the beginning of the series which illustrated the evolution of the ophignathos (Plate V, 1). It exhibits the upturned snout (turned backward in the other case owing to the position of the jaw), the curved fang, the sheath in front of the fang, the nostrils with their curious processes, the superciliary plate and the eye. In the second example (Plate IX, b) the outline of the snout becomes more nearly rectangular and is turned backward at the end. The third example is greatly simplified, but the snout becomes longer and forms another right angle. The fourth example has all the characteristic features already mentioned, but the snout is still farther elongated and forms another right angle. The sheath in front of the fang takes the form of or gives place to a square tooth-like projection. In the fifth example all the details of animal character are removed, except the rectangular tooth in front which in turn becomes greatly enlarged. The sixth illustration shows the final form, which I shall call the *toothed ankistron*, an ornament employed especially at Chichen Itza in the decoration of exteriors. The plain ankistron is derived by a process

quite analagous from the same source (Plate IX, g, h, i, j)). The form of the first example in this series is derived from that of the first in the preceding series. Of the animal features there remain only the nostrils and the superciliary plate. The nostrils are here associated with a sort of an elongated nose. The second example (Plate IX, h) is like the first except that the superciliary plate is greatly enlarged. In the third example this plate disappears and only the nostrils remain. The last example shows the perfect ankistron, an ornament freely used in the decoration of exteriors on the peninsula of Yucatan.

III. Evolution of the *Climankistron*.¹

This is one of the most important and extensively employed figures found within the area, a figure that has a wider distribution on the two continents, North and South, than any other, unless we must except the cross and the swastika. Its origin can only be made clear by reference to numerous related forms and to the connections in which it occurs. Closely allied with the climankistron are the two forms which I shall call the *Terraces* and the *Pyramid*.

The first series of illustrations (Plate X) begins with a form copied from a codex in the Bodley collection. It shows the characteristic features of the serpent jaw in the ultimate degree of abstraction. The second figure shows how the climankistron may be derived from this; the third shows the climankistron in one of its most familiar forms, with rectangular steps and curved hook. Thus it occurs with great frequency in the Mexican codices and on pottery. The next three forms are not less common than number four, both in the codices, on painted pottery and on buildings. In the decoration of exteriors these are the favorite forms. Number 7 in our series is the terraces, which is the climankistron without the hook. The pyramid, number 8, is derived from the junction of two such figures as number 7. Number 9 is the most familiar form of the pyramid. The interior square may be the result of the cutting of areas for the sake of variety or it may be a survival of the triangular division seen in the climankistron very frequently. The illustrations of this series are not to be regarded as complete. Its members are rather selected to illustrate some of the variations of the climankistron which at the same time point to the serpent's jaw as the original form. But there are grounds more relative than this. The second series of figures (Plate XI) begins with a highly conventionalized form of the two-headed serpent, or the two serpents with a single body—which was discussed some distance back. Here we see again, at either side of the line of symmetry, the verticle jaw, the snout bent backwards and forming a rectangular hook, and a row of teeth. If now we divide this figure on its line of symmetry and consider each head separately, the left-

¹ From *Climax* a stair and *Ankistron* a hook.

hand portion will by a slight modification become number two of the series—while the third, fourth, and fifth figures are but slight variations of the same form. Numbers VI and VII, from a fragment of Copan pottery, represent a primitive or a degenerate form of the climankistron. The figure is exceedingly rare at Copan. It does not occur at all on the sculptures and hardly ever on the pottery. I have found only one well-developed example from Copan. It is on a piece of pottery from Mound 36, a structure which is somewhat anomalous. The climankistron has not been found on pottery from the burial vaults of Copan or the vaults beneath the stelae. Number VIII is the centre piece of the first page of the Codex Cortesianus. It will be seen that the upper part of this figure consists of two climankistrons in contrary motion. Dr. Brinton is authority for the statement that this upper structure represents the "sacred vase" or bowl, the symbol of the earth. The relationship of this bowl to the serpent's jaws as illustrated in the Mexican codices has already been explained. Brinton is supported in his opinion by Thomas and Nuttall, and if this view is correct, which regards the object in question as the bowl, then we have in this alone a proof of the relationship of the Climankistron to the serpent's jaw. In figures X, XI, XII and XIII we have connecting links between the serpent and the climankistron. In number X is seen a serpent's head in which the snout instead of being turned backward is carried straight up. In order to give life to the conventionalized features and emphasize their animal character, curved teeth are added and also another characteristic form, the multiple tooth. Number XI is again the serpent's jaw, while number XII is a representation of the serpent's head with both jaws. In this case the snout is lopped off for want of space in the drawing. Number XIII is the serpent's head as commonly drawn in several of the Mexican codices. These last four figures seem to indicate a backward movement—a tendency to return to realism. This is true, but the attempts are spasmodic and ineffectual; they have little bearing on the general character of decorative art in the history of its development. On pottery from the Uloa river, the climankistron is sometimes drawn with the hook turned forward and then recurved upon itself, making a sort of a flourish and showing that its form may be modified according to circumstances.

We have thus far been examining the serpent's head in profile. It remains still to consider its full-face representations.

These attain their fullest development on the peninsula of the Yucatan. At Copan, although already far advanced in the region of the grotesque and unnatural, the full-face serpent's head is much simpler than at Uxmal and Chichen Itza and the other cities of Yucatan. At Copan it is employed in the exterior decoration of buildings, on which it often occupies the outer angles, placed in tiers, one above the other. It also occurs with great frequency on the monoliths in similar relations. But at Copan it had not been materially modified by the technical conditions of architecture. The carving is free from

technical restraint, and the lines have none of the mechanical rigidity which we find in the delineations of the same subject in Yucatan.

At Kabah the full-face serpent's head forms the principal feature of ornament. One building has a façade entirely covered with it. It is here that the forces of architectural technique begin to tell upon the shapes. In order to accommodate the lines of the building and to fill the space completely each unit assumes a rectangular shape (Plate XII) and its entire structure partakes of a mechanical rigidity that approximates the geometrical character. The only strictly geometrical figure here, however, besides that assumed by the unit itself are the circular eyeballs and sockets and square ear ornaments. These square objects probably represent the fashion of actual ear ornaments worn by persons of rank, for they resemble the ear ornaments worn by personages in the sculptures and also jadeite ornaments found in the tombs. This form is therefore independent of the serpent and need not occupy our attention again. Perhaps the most extraordinary feature of these heads is the long trunk-like snout which springs from the middle of the face directly above the front teeth, stands outward for some distance and then turns either downward or upward with a recurved end. Such is the form now assumed by the long bent snout, the development of which in profile has occupied our attention so much. The superciliary plate now becomes a regular curved arch, which is repeated below the eye for the sake of balance. Underneath each eye appears the row of small circles as before. Above and below each of the square ear ornaments is an appendage made up of three elements with which we are already familiar: the ahau symbol, the superciliary arch and the ophignathos.

On the middle of the forehead, immediately above the snout, appears the *Xiuhmolpilli* symbol, representing the calendar round or fifty-two year cycle, and consisting of a bundle of rods held together by a band. There is abundant evidence in the Mexican and Maya codices and on the sculptures that the serpent was associated with the conception of time and the presence of this symbol on these heads is interesting in this connection.

At Uxmal the full-face serpent ornament is the great feature of exterior decoration. There the units are arranged in vertical columns, horizontal rows or diagonal lines—dividing up the surface into areas which are filled within with other elements. On the house of the governor (Plate XIII and Plate VII, b) these heads are without a lower jaw. Across the crown of each is an ornament made of a double row of feathers with a rosette in the centre. Below the square ear ornament is the same appendage as before, while above is a figure, the derivation of which can best be understood by reference to the ear ornament (Plate XIV, 3) of a similar head from Chichen Itza, in which the corresponding part is seen to be the serpent's snout armed with a pair of fangs and what appears to be a row of teeth. In the Uxmal example the fangs have been discarded and the teeth, if such they are, are further

developed. Every part of this head is now readily recognized and can be referred to its original form.

1. The long snout—in this case turned downward, with recurved end.
2. The curved teeth or fangs.
3. The superciliary plate, reproduced as an ornament below the eye—and also below the ear.
4. The square ear ornament.
5. The Ophignathos.
6. The ahau symbol.
7. The Venus symbol.
8. The feather ornament.
9. The snout end (above the ear).
10. The Xiuhmolpilli symbol.

On the house of the nuns at Uxmal, over an entrance, there is a column of ornament made up of similar heads (Plate VII, a). Here, above the ear ornament, in the position which we lately saw occupied by the curve derived from the end of the snout, appears the reversed curve, the derivation of which has claimed our attention. At either side of the mouth is seen the forked tongue of the serpent, represented at both sides for the sake of balance and giving rise to the special form of ornament seen as an appendage below each ear. The object from which this depends is a rosette of feathers like those on the crown.

One of the most curious and puzzling serpent's heads is that on the corner of a building at Labna. The eye and the upper jaw may be recognized without much difficulty as well as the upturned snout and the nostril. The ear and its appendages (Plate XIV, 1) can also be made out, but with some difficulty. The upright appendage can be better understood by comparison with the ear ornament on a head adorning a temple at Chichen Itza (Plate XIV, 2). We have seen before that the outer appendage in each of the several cases examined was an ophignathos. In each of the cases now being considered we have the same thing, an ophignathos made up of two ankistrans in contrary motion. Between the two members is placed an object, pointed at the extremity, which can be understood by reference to the Labna example, where it is clearly a feather. The whole appendage is turned upward at Labna instead of outward as is usual.

Another curious feature of this head is the object projecting from the region of the mouth. This resembles an ophignathos armed with teeth and having a human face carved on the upper member. In order to understand this feature it will be necessary to consider the serpent's tongue in its various transformations.

In the Mexican codices and elsewhere the serpent is often represented with a forked tongue protruding from the mouth. It may be seen in many of the serpents represented on the interior walls at Chichen Itza, and the serpent trailed along the wall of the nuns' house at Uxmal has a split tongue lolling from the mouth. A line divides the whole tongue lengthwise and the parted ends are turned back and recurved. Attention has already been called to the same feature in the full-face serpents over the doorway of this building; it is also seen in the profile heads flanking these on either side.

In some cases, instead of the forked tongue there is a coiled object issuing from the mouth at the extreme corner and coiled backward over the hinge of the jaws. This coiled object is sometimes present together with the forked tongue, which itself sometimes takes the form of a serpent's head without a lower jaw. On the west side of the sculpture O at Copan the serpent has a tongue of this kind protruding from his mouth. He has also the coiled object beside it. On the opposite side of the same stone each of the serpents present the same features, but in these cases the coiled object has become united with the tongue, and now forms the superciliary plate on the serpent that seems to represent the serpent's tongue. Thus the two objects have become one. I am inclined to think that the tongue with serpent features represents not only the tongue but also sound, speech, breath, whatever flows from the mouth or is associated with the tongue.

When speech or breath is portrayed issuing from the mouths of personages in the paintings and sculptures, these attributes are represented by the ophignathos or by a serpent's jaw. I am led to believe, therefore, that among its meanings the serpent is used to symbolize speech or breath. The tongue itself when not associated with the idea of speech is the split appendage which we have seen, and when the appendage takes on the features of the animal itself, it is associated with other ideas, such as sound, speech or breath.

The object protruding from the mouth of the serpent at Labna is thus explained as the forked tongue of the serpent converted into an ophignathos according to the usages which we have observed.

The lower appendages of the ear ornament (Plate XIV, 1) in this example are also interesting in connection with other phenomena. These appendages consist in part of a figure which, when we compare it with the outer appendage of an ear ornament pertaining to a head on the house of the nuns at Chichen Itza, is seen to be formed by the junction of two ankistrans in contrary motion (Plate XIV, 3). This figure undergoes a still further change at Labna by the elimination of the central stem which produces a figure like a T enclosed by a border of straight lines (Plate XIV, 4). On the head at Chichen Itza just referred to, the lower appendage of the ear ornament is made up of two T-shaped figures one below the other; this tau is clearly derived from the same source as the one just described.

THE SERPENT MOTIVE IN PURE DESIGN.

Having now arrived at certain fixed conditions and definite forms, singularly adapted to the uses of linear composition, it remains to see what further development or changes they undergo and what new relations they give rise to. We are now in the region of pure design. Representation no longer has a place in decorative art. The instinct for order now assumes the dominant role and the æsthetic forces, no longer oppressed by the traditional outlook are within reach of infinite possibilities. Had the process of growth stopped here, interesting and remarkable though its results undoubtedly are, it would have been but a barren achievement. But the opportunity so gradually made was not lost; with a masterly appreciation of their advantages, an unknown generation of artists so wrought the materials thus placed within their reach, that the most accomplished taste must acknowledge the excellence of their achievement. Thus we see the serpent motive flowing, without a break in the continuity of its development, into the region of pure design and losing itself in the endless forms of artistic expression of which the art is capable.

The use made of the serpent's body in pure design has already been pointed out in connection with the guilloche and the meander. The next figure to be considered is that ornament which I have called the double ankistron. In its simplest use it is found on the border of the skirt of a carved figure at Piedras Negras (Plate IX, m). The next step may be illustrated by an example from the ruins of Kabah, where it was used in the exterior decoration of a building (Plate XVII, a). This must have been a particularly satisfactory design to the native artist of that region, enamored of symbolism as he surely was, for the effect produced is that of the double toothed ankistron combined with the climankistron. A further development of the same form is found at Mitla (Plate XVIII, c), the place where pure design in decorative art reached its highest and most perfect development. At Mitla the units of design are joined at the ends, forming a running ornament, and the figure is further modified by a gradual expansion of the serrated edges, which has the effect of a regular increase in the size of the teeth, and gives rise to a measure rythm in the linear progression which adds vastly to the satisfaction which the eye derives from the design. The triangular spaces above and below are filled with ornaments derived from the serrated edges and are, therefore, survivals of the serpent's teeth.

In the figure which I have called the pyramid we see an illustration of the infinite possibilities of such simple relations in the hands of skillful artists (Plate XV). Its origin from the climankistron may have been accomplished in either one of two different ways, for such simple combinations of straight lines are brought about from other combinations in various ways. The simplest pattern to which this figure gives rise is obvious

and almost inevitable (Plate XV, a), but its further history is most striking, and very suggestive of the process of growth in living organisms. The small square within the base of each unit in the first of our series may be regarded as superimposed over the area of the pyramid. In the second of the series the external form of the figure is not changed, while the interior square has expanded into a small terraced figure of two steps (Plate XV, b). In the third this interior figure has expanded still more and a small square has appeared in its base (Plate XV, c). In the fourth example this little square has in turn expanded. This change is accompanied by a general expansion of the whole unit, and by the appearance of a small square in the base again (Plate XV, d). Each unit of design has now grown from a single pyramid to three pyramids, one within the other, and regularly graded as to size. In the fifth example there is a more complex development from the same unit of design (Plate XV, e.) Two pyramids in reversed positions with a common apex make up the unit in this case, while the intervening spaces as well as the pyramidal areas are divided in the way we have just seen illustrated. The sixth example (Plate XV, f) results from an expansion of the design of the fifth; here, however, the upper and lower pyramids are not joined at the apexes. The seventh example is produced by the junction of two such patterns as the sixth placed side by side (Plate XV, g).

Of all the figures that enter into linear composition or play a part in decorative design, irrespective of origin, the *climankistron* is the one most extensively employed. Whether because the ideas associated with the serpent survived in this figure more than in others or because the linear relations which it preserves were deemed especially pleasing or whether both these causes operated to give it vitality, the fact is clear that it not only is especially persistent within the region under consideration, but has a wider distribution outside that area than any other ornament or symbol of similarly specialized form. It occurs northward to Arizona, where it appears on ancient pottery from the Pueblos. Southward it may be traced in the decoration of Nicaraguan pottery, on pottery taken from the tombs of Chiriqui, on textile and ceramic products of ancient Peru, and southward still it appears upon old painted ware of the Argentine. It also survives to the present day in the decorative art of the Huichol and Cora Indians of Western Mexico. A textile pattern made up of this figure as a unit of design appears on a bag in the Peabody Museum, recently collected among the Coras by Carl Lumholtz. In the same collection are to be seen several belts with the double toothed *ankistron* pattern already alluded to. It is interesting to note that this pattern occurs also on the belts of the Pima Indians of Southern Arizona, a people said to be related linguistically to the Coras.

To return to the *climankistron*, in its simplest and most primitive form it rarely occurs in composition. Such a case occurs at Mitla, where it is employed.

with excellent results in the decoration of wall spaces (Plate XVIII, b). A more common design consists of a linear progression made up of a series of climankistrans, arranged with reference to shape rythm (Plate XVI, a). In this pattern the claims of decorative design induced the reproduction in the open spaces between the units, above, of the triangular figure formed within each unit below, thus relieving the composition of vacant spaces and producing a well-balanced effect. In the next design illustrated (Plate XVI, b), straight lines take the place of curved lines entirely—this being the form of the climankistran in which shape harmony is observed. Each unit in this design is made up of two climankistrans with interlocking hooks, one in each pair being inverted. Every alternate pair is revolved about its vertical axis, giving rise to intervening spaces in the form of pyramids. The next design which I reproduce is made up of precisely the same units as the last, namely, a right and an inverted climankistran with interlocking hooks, but in this case there is no revolving of alternate pairs, and consequently as the units are brought together, there are no intervening spaces, but a solid pattern (Plate XVI, c).

An open pattern is produced by means of the same general relations, in which the units are spaced some distance apart and the interlocking hooks have free space between them (Plate XVII, c). By a further development of this same relation, a running ornament is produced which resembles very closely the effect of a series of double toothed ankistrans with the units joined (Plate XVII, d). This pattern is produced by simply adding a border above and below consisting of straight lines joining the bases of the climankistrans. The intervening spaces thus enclosed quite naturally take the form of a continuous series of double toothed ankistrans. This pattern is employed with especially pleasing effect in parallel bands as shown (Plate XVII, e). A composition similar to this is found at Mitla—a composition in which the properties of the climankistran appear at their best (Plate XVII, b). The relations are perfectly simple, the conditions harmonious and the proportions fine. The interest and satisfaction which the eye derives from this bit of pure design composition is very great. Simple as it is, it is full of variety and surprises which depend upon the way in which the eye happens to pick up the orderly linear relations, from which, characterized as they are by a simplicity that is altogether beautiful, the eye receives endless entertainment without the slightest effort.

In another composition at Mitla each unit is made up of an inverted climankistran placed above a right one, with a narrow space between (Plate XVI, d). These double units, repeated in horizontal order, leave triangular spaces between, which are filled with small figures conforming in shape to the shape of the enclosing space. From this pattern, neglecting the elements which are introduced to fill vacant areas, was developed a

very striking design (Plate XVI, e). The process by which this transformation is brought about may be described in the following terms: Each alternate unit is revolved 180° about a vertical axis passing through the centre of gravity. This immediately gives rise to a new set of relations and a totally different unit.¹ Each new unit is made up of two of the first units placed in contrary motion and enclosing a diamond-shaped space. This space requires filling, and this is accomplished by drawing within the area a series of lines parallel to its boundaries, making a gradually diminishing series of lozenges one within the other. Plate XVI, f is intended to illustrate the composition of this pattern.

Another pattern derived from the climankistrion, frequently found at Mitla is even more simple in its relations than the last and the effect is not less striking. A series of climankistrions placed at some distance apart form a horizontal row. On another horizontal line above the first another row of similar units are placed in an inverted position, alternating with those in the lower row. All the intervening space is now divided up by lines drawn parallel to the steps of the elementary figures. These lines are also connected by means of horizontal lines. In this composition an interesting detail, and one which lends variety to the design is the combination of straight and curved lines, a disregard of shape harmony which has its advantages (Plate XVIII, d). All the examples of Mitla art which I am using for illustration are in relief, most of them being executed by the orderly arrangement of the blocks of stone in the construction, which stand in definite relations to each other and, by projection or depression, make up the relieved ornament. It is clear, therefore, that straight lines are more natural to this method than curved lines, and when curved lines are introduced it is a distinct departure from the regular mode. The curved lines must be cut in the stone to the depth of the relief. This involved extra labor and difficulty, and there can be no doubt that when curved lines were introduced at Mitla it was done with a motive which had reference to the effect to be attained in that way.

A more complicated pattern employed at Mitla arose from an attempt to bring two rows of climankistrions in contrary motion into perfect parallelism, by drawing the inner lines of the one parallel to the outer lines of the other, and *vice versa* (Plate XVIII a). This gives to each figure a pyramidal stepped outline and causes the hooks to be drawn out horizontally. The interior of each figure is cut away and wherever the empty spaces are too conspicuous they are filled by small crosses formed by lines drawn parallel to the lines bounding the spaces.

The ankistrion is much used in composition at Uxmal. In common with the climankistrion it is employed with very striking decorative effect on the frieze that runs round the four sides of the "governor's house." It also appears upon the other edifices at Uxmal, and I know of no other place where this form is used to the same extent in architectural decoration.

The double ankistron also occurs at Uxmal. At either side of one of the great blind arches in the "governor's house" it is employed to fill the triangular areas of the wall.

THE INFLUENCE OF TECHNICAL FORCES ON DECORATIVE ART.

It will be seen that the body of phenomena which has engaged my efforts to describe and analyze is of a complex nature. The argument is concerned chiefly with certain transformations and changes that took place within this body of phenomena, modifying its structure and giving rise to new conditions. These changes mark the progress of æsthetic development along the line of decorative design.

At the outset we had before us the image of a serpent sufficiently truthful in its reproduction of the natural characters to enable us to identify the genus and species to which the original model belonged. Yet though drawn with excellent artistic sense, we find that this image does not pretend to be an exact copy of nature. Though the natural conditions are fairly well preserved and the characteristic details of the particular species are brought out, there is no perceptible ambition to imitate nature in all sincerity, as would be the case if the artist's object and aim had been to express the truth. Moreover, it is clear that the deviation from nature is not the result of error in observation or yet of incapacity for drawing. It is, on the contrary, conscious and deliberate, the result of definite plan. In the stage of development that corresponds to our point of departure, the delineation of the serpent has got beyond simple imitation. It has already undergone certain changes of the kind described as conventionalization, but there can be no doubt that these conventionalized delineations refer back to simple imitation. The stage that is marked by the first steps toward conventionalism implies the probability of an earlier stage of pure representation. This hypothesis is made not only intelligible but necessary by the increasing differentiation that marks the successive stages following our point of departure. The order of change is from more natural forms to more artificial forms, and therefore if we reverse the order in which we have studied the phenomena and run backward in search of a starting point, we are brought inevitably to the condition of primitive art, and this art will, according to the logical conclusion of the argument, be characterized by the absence of fixed conventional standards and will approach the condition of simple imitative representation. This conclusion, however, must, in the present instance, be based partly on theoretical grounds, for there is not in the whole body of art products under consideration a single example of primitive art. The origins are still to seek.

The examples with which we have dealt and which illustrate the develop-

ment of the serpent motive, represent the conscious attempt to give formal expression to certain artistic conceptions and abstract ideas by means of fixed methods and traditional standards—methods and standards which are called *conventional*. The changes that take place lead farther and farther from the region of representation and finally approach the boundaries of pure design. In the first place we see the counterfeit presentment of a serpent gradually assume a grotesque and monstrous aspect totally at variance with natural phenomena and totally inconsistent with the art of representation. Still the type remains constant throughout manifold variations, notwithstanding some irregularities and inconstancies. Certain essential and characteristic features are always present. Throughout this first stage of development the *animal character* and the *specific animal features* are not only preserved but emphasized. At a later stage, however, these animal characters are lost or survive only in rudimentary organs. The serpent image becomes broken up into geometrical figures and mere abstractions. Finally these geometrical abstractions become absorbed into the structure of pure design, as a living organism absorbs the elements of which it is composed. Indeed these elemental figures constitute the raw material out of which a vast body of decorative design is built up. They bear the same relation to the structure of that design as the bricks bear to the house, but unlike the bricks they are assimilated and made over into new shapes and more complex conditions. Of such a character are the complicated patterns and linear compositions which we have examined; yet these compositions, relying solely on the methods of pure design, derive their interest from linear relations alone, and in no way that we can conceive of from any ideas associated with these relations, *unless* we suppose that they preserve in some way the traditions associated with the serpent or embody the conceptions that were expressed by the serpent image out of which they developed.

Several agencies must have contributed to these transformations. Among these must be recognized the technical conditions peculiar to the various arts, especially weaving and architecture, together with the mechanical expedients adopted by the artists in their efforts to solve the problems with which they were confronted in these connections. These were among the shaping forces at work, and in certain stages and certain situations they should be very powerful forces, so potent indeed and at the same time so general that it is impossible to realize the nature of the outcome in their absence.

But more powerful than these forces, more fundamental and more productive was the æsthetic impulse of the human mind. This is what gave the initial impulse; this was the chief cause, the first and last of the conditioning agencies. In the earlier stages through which we traced the development of the serpent motive we found no evidence of technical agencies or technical expedients, no possibility of either. The grotesque exaggeration of the monstrous jaws on the monuments at Copan, the modification of certain features proper

to the subject and the addition of others foreign to it, are deliberate and voluntary changes, in no sense dependent upon material conditions or external relations.

The addition of feathers is probably to be regarded as the appropriate symbolism of a mythical concept; the addition of a beard is of a similar character; the presence of claws, sometimes a single pair and sometimes two pairs, may likewise have its special significance wherever it occurs. But what is to be said of such departures as that illustrated on both sides of altar O at Copan, where the backward bent end of the upper jaw of each serpent is converted into a grotesque semblance of the human features? Is this to be regarded also as significant or is it due to a capricious and inveterate propensity for certain decorative effects? While I do not think it possible to give a definite answer that will apply with equal justice to all cases, I am convinced that we have to deal in many instances with decoration pure and simple. It was a common practice to turn simple figures and plain lines into the semblance of life forms, and this practice, due to the tendency toward elaboration that is inherent in all barbaric art, is for the purpose of decoration alone in many cases, although there can be no doubt whatever that the forms chosen for such decoration had the character of symbols. This practice of giving animal features to things in general has a very distinct significance in relation to artistic development, for it tends toward representation and may even attain a high degree of realism. Thus we have two movements, the result of coördinated forces acting in opposite directions, the one moving away from representation and the other making toward it. The first of these is, however, the dominating force, the one that ultimately prevails. The other is but the eddying of the stream. The waters are thrown back and swing round in circles, but the current moves onward toward geometrical conditions and abstractions. In the case under consideration, the tendency toward realism is local, temporary and subordinate. It may at times attain a fair degree of realism only to be caught up in the current of abstraction and carried forward in the procession of ideals to the region of pure design, where all suggestion of nature is lost, where the æsthetic faculties have full play, where the sense of beauty finds its proper expression in the orderly arrangement of specified quantities with respect to balance, rythm and harmony.

In the case of the serpent motive this end is attained, not by the conscious striving for definite relations regarded as beautiful, not by the successful accomplishment of a deliberate purpose, not by a subtle recognition of the conditions in which truth and beauty are to be found, but by the unconscious operation of certain forces that are natural to the human faculties brought into relation with external conditions. Whether or not these forces are universal or whether they are local and accidental tendencies culminating fortuitously in certain orderly relations, can be determined only by extensive comparisons beyond the scope of this discussion.

I have stated that at the beginning the changes pointed out are independent of external relations. They are not initiated or in the first instance determined by the forces of technique or by any conditions inherent in the arts. The conclusion reached is therefore that the causes which operated to produce these results are to be sought first of all in the condition of the native intellect. We may call it the æsthetic impulse reaching out under peculiar conditions of religious feeling or accepted ideas toward the realization of things beautiful or the expression of ideal images.

Having reached the conclusion that the movement was essentially an æsthetic movement, it remains to define more specifically to what extent its issue was affected by other considerations, and this brings me to a more specific definition of the technical agencies and the way in which they operated. It has already been said that certain natural conditions inherent in the arts act as modifying agents and determine to some extent the course of development in decorative design. The changes which they bring about are in the nature of compromise between the artist and his materials. They are the expedients by which design adapts itself to special conditions, but they nevertheless become independent of these conditions and of original causes. They give rise to permanent methods in the execution of design and thus produce special types of ornamentation. The *compromise* becomes the *style*. As I have already predicated, these conditions obtain in architecture where the rigidity of the lines and the character of the materials offer resistance to freedom of execution and a compromise is the result.

This tendency, however, is by no means a uniform feature of architectural ornament throughout the body of phenomena under consideration. Its phases are local and can be distinguished by geographical areas. In Honduras and Guatemala there is absolutely no trace of rectilinear patterns in architectural ornament and no approximation to geometrical figures as a result of architectural technique, and yet, although ceramic technique does not tend to produce such figures, they are to be found in the decoration of pottery from that region.

In Yucatan, on the other hand, a very large proportion of architectural ornament is purely geometrical in character. In that region, as in all parts of the Central American and Mexican area the serpent motive dominates the whole system of exterior decoration. It is also in this region that architectural ornament reached its most extravagant development and presents the most complex phenomena. It is within the peninsular area, therefore, that we find the best opportunities for studying the influence of architectural technique on the evolution of ornament. Such an influence we recognize in the rectangular serpents' heads upon the buildings at Uxmal, Chichen Itza, Labna and the other cities of Yucatan. In short, it is to be seen in the general rigidity of exterior ornament throughout that region. The tendency of architectural methods is naturally toward straight lines, but nowhere did the tendency proceed to its

logical conclusion in the entire elimination of curves. The complicated friezes of Chichen and Uxmal are all characterized by a combination of straight and curved lines. General outlines, conforming to the normal lines of the buildings and the conditions of regular construction are naturally rectilinear, but the details, independent of these considerations, may be executed in straight or in curved lines. Under these conditions, however, curved lines tend to acquire greater rigidity and regularity, often approximating geometrical proportions. Such is the condition of architectural ornament in Yucatan. This ornament is all in relief, built up of separate blocks of stone and incorporated in the masonry. The relief is produced partly by the projection of certain proportionate areas and partly by the free carving of these areas. In special cases, where the relations are quite simple, the entire pattern is wrought by the projection of regular portions of the masonry without carving. In such cases the units of construction themselves conform to the conditions of design and together make up the pattern, but there is no rule and no regularity in this matter. Indeed it often happens that a regular pattern of this sort, complete and perfect in itself, is intersected and broken up without the slightest respect for harmony, by figures in high relief carved freely in imitation of natural objects and without the least tendency to compromise with technical conditions. A remarkable instance of this sort is to be seen in the serpent frieze on the house of the nuns at Uxmal, where the undulations of the trailing monster destroy all feeling of harmony and the sense of proportion is lost.

It appears, therefore, that architectural technique fails to impart the homogeneity and consistency to decorative design which is observed in the phenomena associated with the ultimate development of the serpent motive. It fails, moreover, to give a satisfactory explanation of those simple linear relations which we call geometrical. It is true that it shows a certain preference for these relations and a readiness to adopt them and make them its own property. More than this, the examples which we have before us illustrate perfectly a tendency toward fixed conditions and rigid figures, which is characteristic of architectural technique in general, but the conditions of that technique are too plastic to bring about a homogeneous result. We have not found evidence of a single device of specialized form and uniform geometrical character having been developed in connection with architecture. The ankistron and the climankistron are extensively employed in the decoration of buildings, but their development is not indicated in that connection.

We are obliged, therefore, to look elsewhere for the differentiation and perfection of these specialized forms. We must look for a situation where the conditions are less plastic, where the latitude is not so great, where the necessity for compromise is more imperative and uniform, where the expedients at the artist's command are less variable.

It is in the textile art and there alone that these conditions are to be found.

Textile technique is the real agent in the development of geometrical abstractions from representations of natural objects; this is the real source of the geometric style in decoration.¹ Unfortunately the materials which would supply the proof of this in respect of the serpent motive are not available, since there is not a single specimen of ancient Central American textile in existence. Here again the paintings and sculptures come to our aid. The garments of personages represented in painting and sculpture exhibit the character of textile decoration very faithfully and serve to confirm the hypothesis that this is the source of the elements which enter into the compositions of pure design. The *climankistron* is a favorite device in the decoration of garments, appearing at Piedras Negras, Menché and in the Mexican codices. It is significant, moreover, that the development of the *ankistron* is to be traced almost exclusively in personal decoration. This figure made its appearance in the incipient stages, in connection with headdresses, aprons, ear ornaments and other details of personal apparel. It is true that the materials in this case do not appear to be textile, but the fact that this figure is developed in connection with dress is significant and points to contemporary textile ornament as the source. This figure was developed in the area marked by the absence of geometrical ornament in architecture. It was evolved prior to its appearance in architectural decoration.

Another important point to be noted is that architectural ornament on the peninsula of Yucatan exhibits, in addition to the forms traceable to the serpent motive, other forms unmistakably derived from textile sources. The most important of these are the woven patterns resembling open lattice work on the buildings at Uxmal and Chichen borrowed directly from the technical side of the textile art. Another example is the diamond and cross pattern seen on the buildings at Uxmal and Chichen, and duplicated on the garments of personages at Menché. All of these facts point to the conclusion that geometrical forms used in architectural ornament originated in the region of textile art as a result of technical agencies acting upon the æsthetic impulse.

Modern Mexican textiles illustrate the manner in which natural forms may be modified by technical agencies. The woven patterns of the Huichol Indians furnish interesting examples of the way in which the problem of applying decoration to textiles was solved by primitive peoples.²

¹The relation of textile art to the development of form and ornament forms the subject of a valuable article by Prof. William H. Holmes in the Sixth Annual Report of the Bureau of American Ethnology, Washington, 1888.

²See *Decorative Art of the Huichol Indians*, by Carl Lumholtz. *Memoirs of the American Museum of Natural History*, Vol. III, 3.

SYMBOLISM IN DECORATIVE ART.

I think that it becomes clear from the materials which have been subjected to analysis that the serpent motive is the dominant one throughout the whole body of artistic products. It is the leading idea in architectural ornament, in the sculptured stelae and altars, and in the dress and personal adornment of human beings, to say nothing of its use in the picture writings and the details of painting generally. Such a phenomenon as this naturally associates itself in the mind with the idea of serpent worship. Indeed the constant occurrence of the serpent image on the monumental remains of a people believed to have been endowed with strong religious convictions, a people betraying in their reported customs a deep religious sentiment, a people with social organization and political institutions closely allied to ecclesiastical orders, as we are told was the case among the ancient Mexicans, would seem almost of itself to justify such a conclusion. Otherwise there is but little evidence to offer in support of the argument.

There does not exist the testimony of a single eyewitness whose statements can be regarded as authoritative, to the effect that serpent worship was known in Mexico at the time of the conquest. The soldiers who accompanied Cortez frequently mention in their letters the serpent images which were worshipped in the native temples, but the qualifications of these observers in matters of this kind were such that their testimony cannot be allowed to carry weight. Those who followed, the more intelligent and studious friars who, though often blinded by prejudice, were faithful observers in the main, either observed nothing which they interpreted as worship of the serpent or else they purposely avoided all mention of it, an incomprehensible omission entirely at variance with the practice of these early writers who were impressed with the need of justifying their destructive habits. I have not found in any of the old authors a single distinct reference to serpent worship as a part of the native religion. We have no historical evidence of a reliable nature that serpent worship in any form was practised in Central America or Mexico at the time of the conquest or at any time prior or subsequent to that event. There is no historical key to this particular ethnological problem, and like so many other problems peculiar to the same religion we must rely almost wholly on the resources of archæology for a reliable solution.

Whence the ancient Mexicans and Mayas derived the symbolism of the serpent we shall probably never know; like all that belonged to these two peculiar cultures, its origin remains a mystery. Concerning the fundamental principles underlying that symbolism, its meaning in the minds of the initiated, its significance to the masses of the people, and the purpose which it served in the economy of the State, are all matters of speculation still. However, we may reasonably postulate two alternative explanations of the serpent motive.

Either it indicates a belief in the divine nature of the serpent and is in itself a surviving evidence of serpent worship, or else the serpent image was employed to represent in a symbolic way some attribute of divinity or some set of abstract ideas connected with religion, popular mythology or philosophy.

If the first of these alternative hypotheses be the correct one, the matter is greatly simplified. If the second supposition be correct, there would still remain to be determined the precise set of ideas underlying the symbol and the reason why the serpent was selected to represent these ideas.

It is well known that the image of a serpent was used in a symbolical sense in connection with certain familiar conceptions and special relations, especially in connection with the calendar, but that these interpretations represent the principal function of the serpent image or furnish anything approaching an adequate explanation of its use in the artistic creations of the people, no one will be likely to maintain. These special functions do not explain its general use in painting and sculpture, where the conditions demand a broader interpretation. This brings us to a consideration of the following questions. How much of this painting and sculpture had a definite office to fulfill apart from its ornamental capacity, and how much is pure decoration? How much of it has a hieroglyphic character and how much is mere ornament? Did the serpents' heads upon the palace walls at Uxmal have a special meaning in that connection? Did the effect they were intended to produce depend upon a knowledge of their meaning, esoteric or otherwise, or did they appeal to the imagination through the eye alone? Was the decorative character the first consideration, or was it secondary and subordinate? Was embellishment the uppermost idea in the artist's mind, or was this result in a measure incidental? I find it quite impossible to give a definite answer to these questions, and they are in a fair way to remain in the region of speculation. The most that I can do is to call attention to one singular circumstance in connection with the use of the serpent motive, one which may stand as typical of a large body of phenomena.

The special instance to which I refer is to be found in the structure of what has been called the serpent-bird (Plate VIII, a, b, c.)

This invention represents a bird having beneath each extended wing the upper jaw of the serpent which looks like a sort of support or framework for the wing. This bird is perched upon the tree that occupies the centre of each of the tablets of the cross at Palenque, and in each of these examples the serpent's jaw appears beneath the wing.

In the Mexican codices the same tree occurs with a bird perched upon the top, but there is no serpent's jaw beneath the wing and the bird is quite natural. At Menché also, where the arts are of pure Maya type, the same symbolism again appears, and again the bird is drawn quite naturally and without any serpent ornaments. In this case, moreover, the bird represented is clearly the quetzal. This bird appears again upon a vase from Copan in the Peabody

Museum, and in this case nothing suggestive of the serpent appears in connection with it. Yet, if we compare the bird on the vase and that on the tree symbol at Menché and that on either tree at Palenque, we see that certain features characteristic of species are common to them all. It would appear, therefore, that the so-called serpent-bird is in reality the quetzal, and this gives rise to the suspicion that the introduction of serpent features in particular instances is to be attributed to artistic caprice and a fondness for working in the favorite serpent motive for the sake of decorative effect, wherever it was possible to do so. Such it would appear to be and not the appropriate symbolism of some special set of ideas.

Granting, however, that this is the true explanation of the "serpent-bird" and kindred phenomena, it cannot be too often insisted upon that the decorative elements introduced are essentially symbolic in character, though without special significance in such connection. A certain fondness for complicated effects and a tendency toward the introduction of endless detail into ornament is a marked characteristic of Maya sculpture in particular. The æsthetic impulse found its outlet in a perfect passion for decoration, and whatever had a function to perform was made to satisfy this insatiate instinct. Plain surfaces were regarded with aversion and the details of construction were seized upon for the sake of the opportunity they presented for revelling in the favorite theme. Nevertheless, this passion for decoration was subordinate to the worship of symbolism, to which it adhered with slavish devotion, and which in turn supplied it with its motives while it narrowed the horizon.

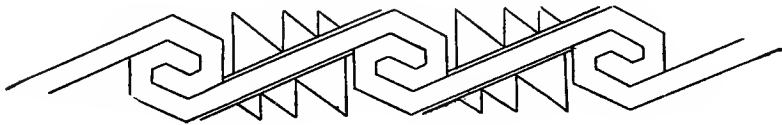
It is due to this worship of symbolism that the decorative art of the Mayas and Mexicans, though presenting great variety of detail, is somewhat narrow in its scope. Symbolism, though unquestionably adding a special charm to decoration, cannot but exert a depressing influence on the development of decorative art. Its tendency is to mould the ideas with which it becomes associated and limit their field of operations. In the arts it operates to keep expression within artificial bounds and to prevent the free play of the imagination. The impression one gets from their monumental remains is that the Mayas were in the habit of building up symbolism for its own sake. The great edifices of Yucatan are monuments of symbolism. In these structures the main idea is the symbol, and decoration itself is subordinate to the demands of symbolism. The end and aim of all construction would seem to be the repetition and display of symbolic expression. Considerations of utility seem to have been left to take care of themselves, with the result that the greater part of architectural ornament might be removed, not only without destroying the unity of design, but without in any way interfering with the function of the building or impairing its utility *as a building*.

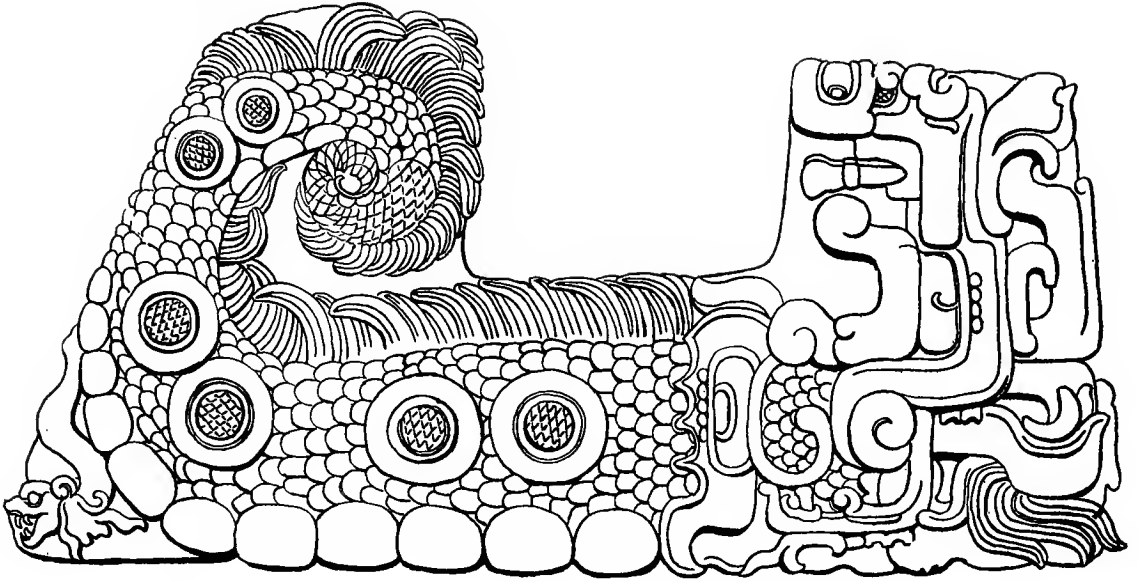
There is within the whole Central American and Mexican region but one

exception to these general observations, and a remarkable exception it is. I refer to the buildings of Mitla with decorative designs in relief. It was at Mitla that the geometrical style reached its most perfect development and that the serpent motive passed finally into the domains of pure design. It is the place, moreover, where the methods of pure design were employed to the exclusion of all other methods, resulting in the successful attainment of a pure decorative system, homogeneous throughout, capable of infinite variety, and combining the qualities of unity, grace and harmony. At Mitla and there alone do we find a correct appreciation of the true purpose of decorative art which is to decorate construction and not to construct decoration. At the same time we have seen that the units of design which enter into the ornamental compositions at Mitla are found also in Yucatan. They belong to the same great body of artistic phenomena that is common to the whole Central American and Mexican area. They belong to the same class as the devices which we studied in connection with the buildings of Yucatan on the one hand and Mexican paintings on the other. They represent the serpent motive in its last disguise under the most highly specialized forms and in its highest degree of differentiation.

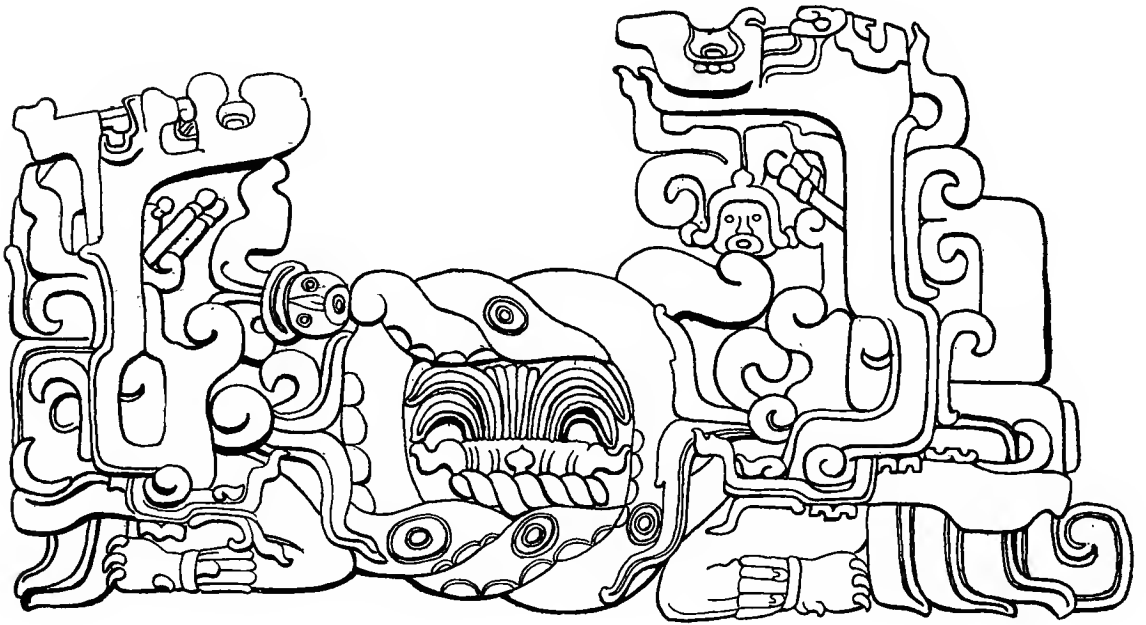
Exceptional though it is, there is nothing exotic about the art of Mitla, nothing extraneous, nothing intrusive. The difference is one of degree. It represents a stage in a process of development that is the common property of Central American and Mexican culture. Indeed it would be otherwise inexplicable. That such a style should have sprung up independently in close contact with both Maya and Aztec influence, or that it could have intruded itself upon the area of Maya and Aztec culture from unknown parts of the world are equally inconceivable. Only when we recognize the relationship between the art of Mitla and the art of Mexico and Central America in general, does it become intelligible.

GEORGE BYRON GORDON.



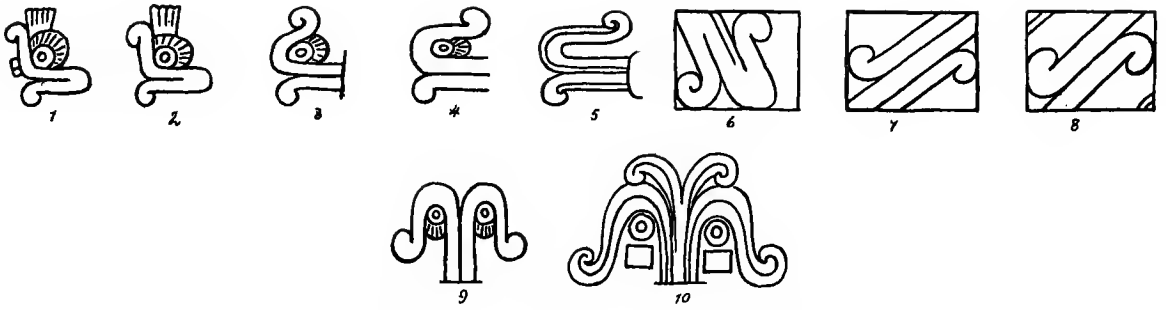


a

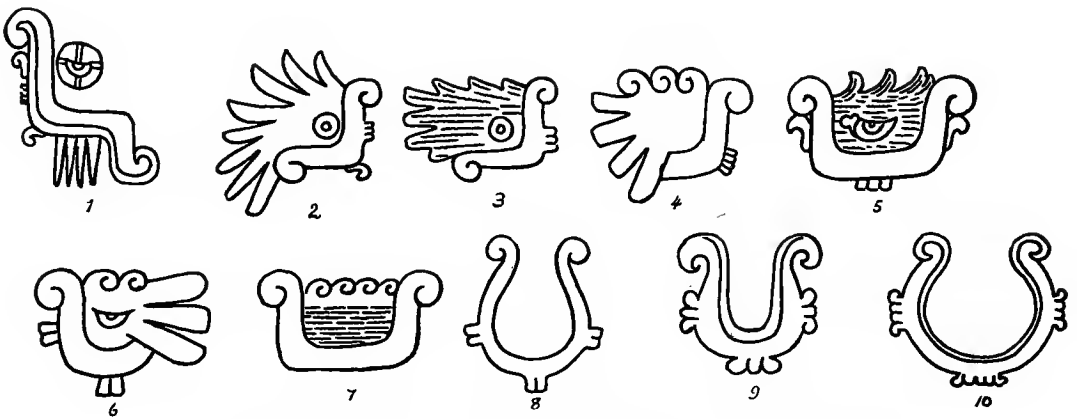


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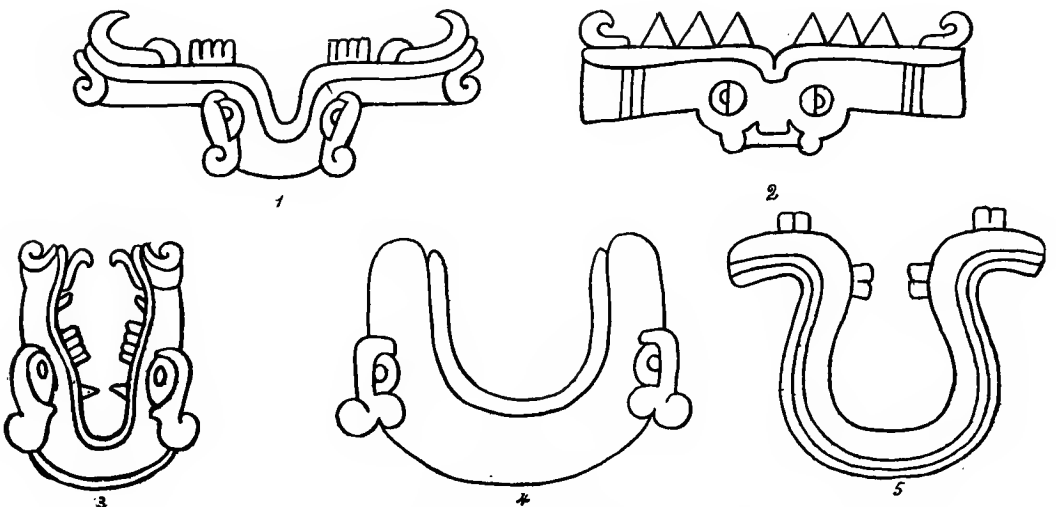
THE SERPENT ON ALTAR O AT COPAN. a, WEST SIDE OF ALTAR. b, EAST SIDE OF ALTAR. AFTER MAUDSLAY.



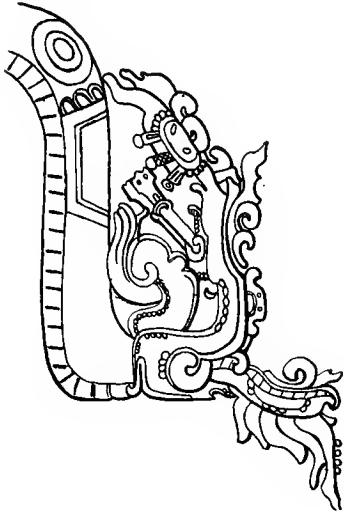
a. THE SERPENT'S HEAD IN MEXICAN SYMBOLISM.



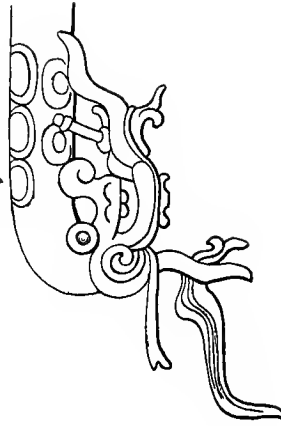
b. THE SERPENT'S JAW, THE WATER SYMBOL AND THE EARTH BOWL.



c. THE SERPENT'S HEAD AND THE EARTH BOWL.



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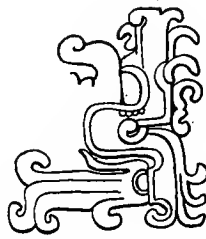
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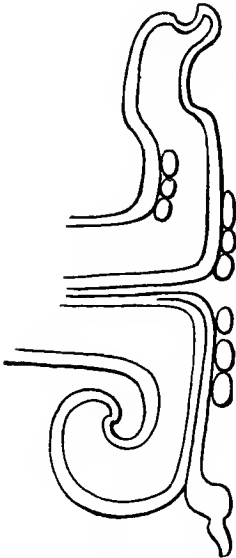
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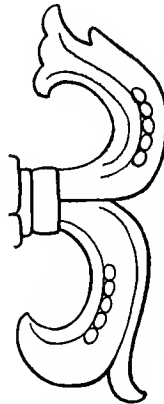
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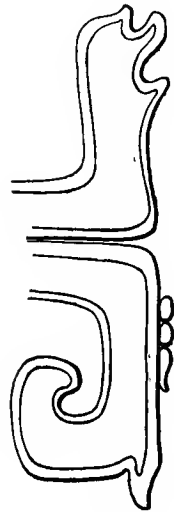
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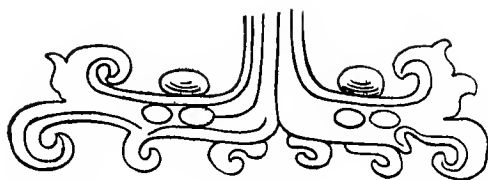
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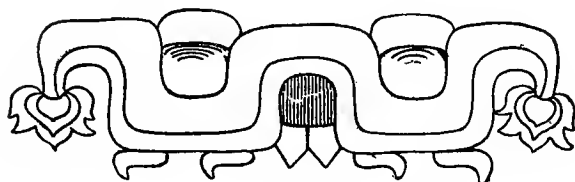
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THE OPHIGNATHOS IN ITS RELATION TO THE SERPENT'S JAWS.

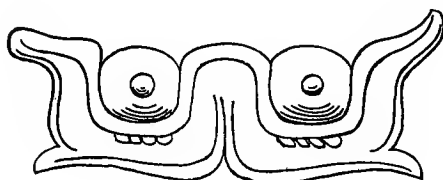




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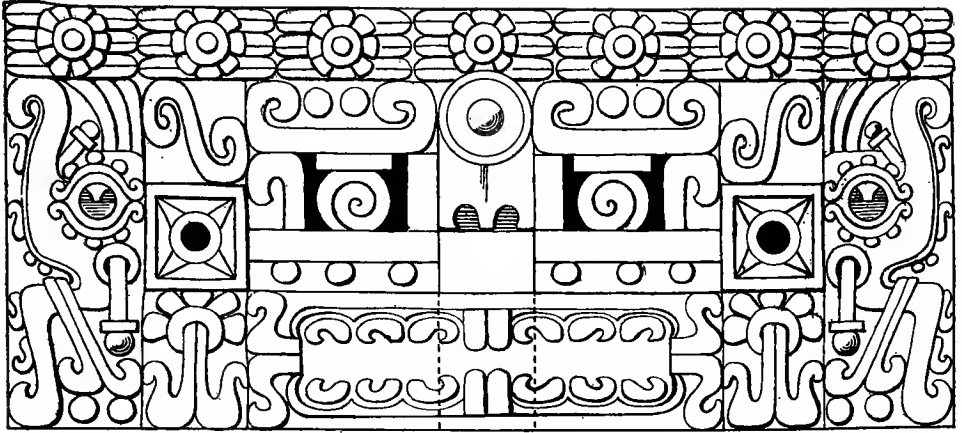
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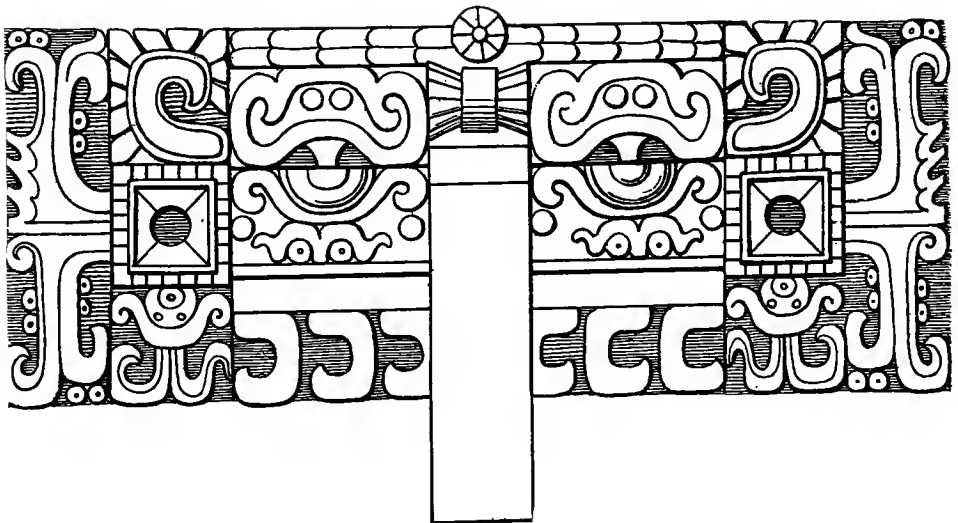


d



a

SERPENT'S HEAD, HOUSE OF THE NUNS, UXMAL.



b

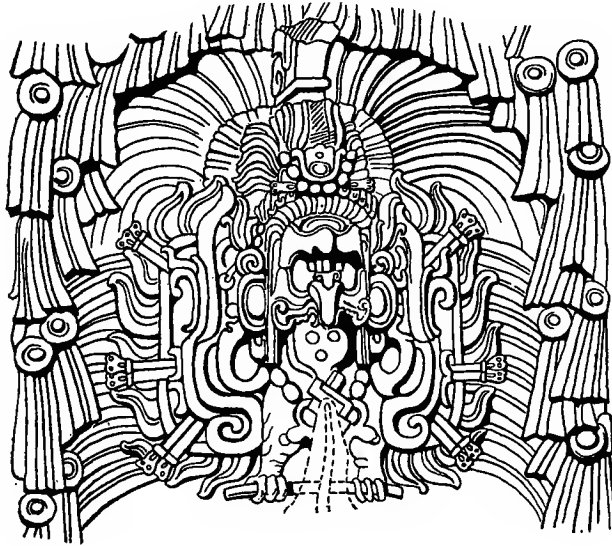
SERPENT'S HEAD, HOUSE OF THE GOVERNOR, UXMAL.



a

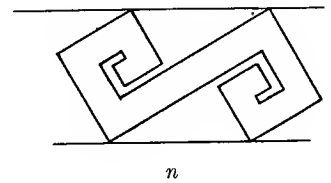
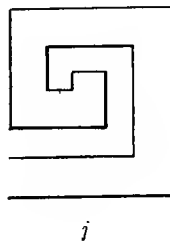
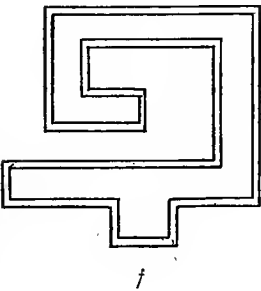
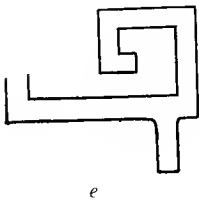
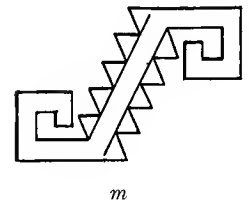
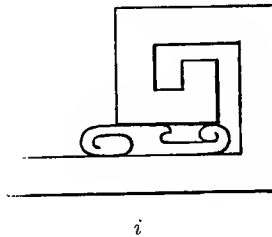
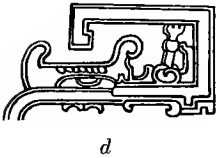
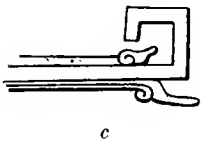
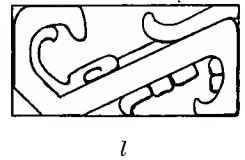
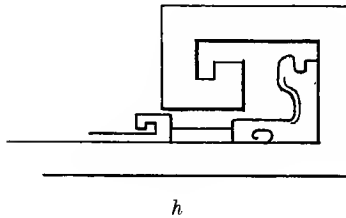
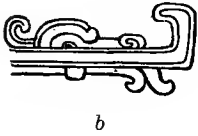
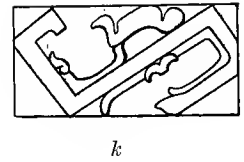
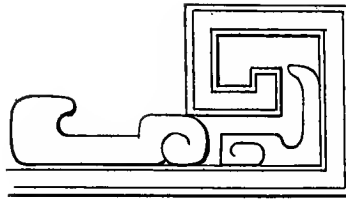
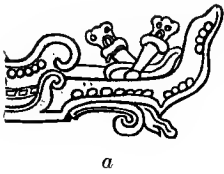


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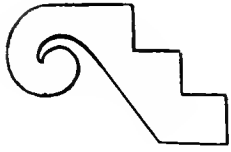


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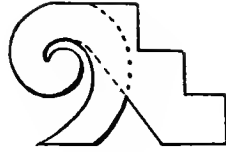
THE SERPENT BIRD. a AND c FROM CCPAN. b FROM PALENQUE. AFTER MAUDSLAY.



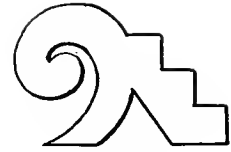
THE ANKISTRON IN ITS RELATION TO THE SERPENT'S JAW. *a, b, c, d, e, f*, SHOWS THE DEVELOPMENT OF THE TOOTHED ANKISTRON. *g, h, i, j*, THE DEVELOPMENT OF THE PLAIN ANKISTRON. *k, l, m, n*, THE DEVELOPMENT OF THE DOUBLE ANKISTRON.



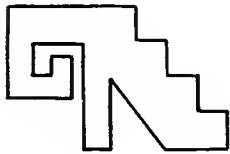
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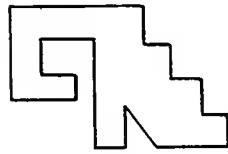
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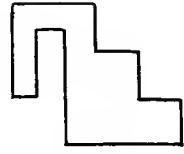
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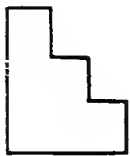
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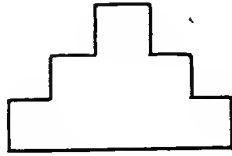
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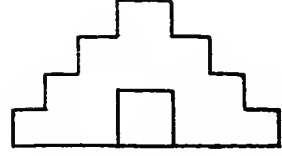
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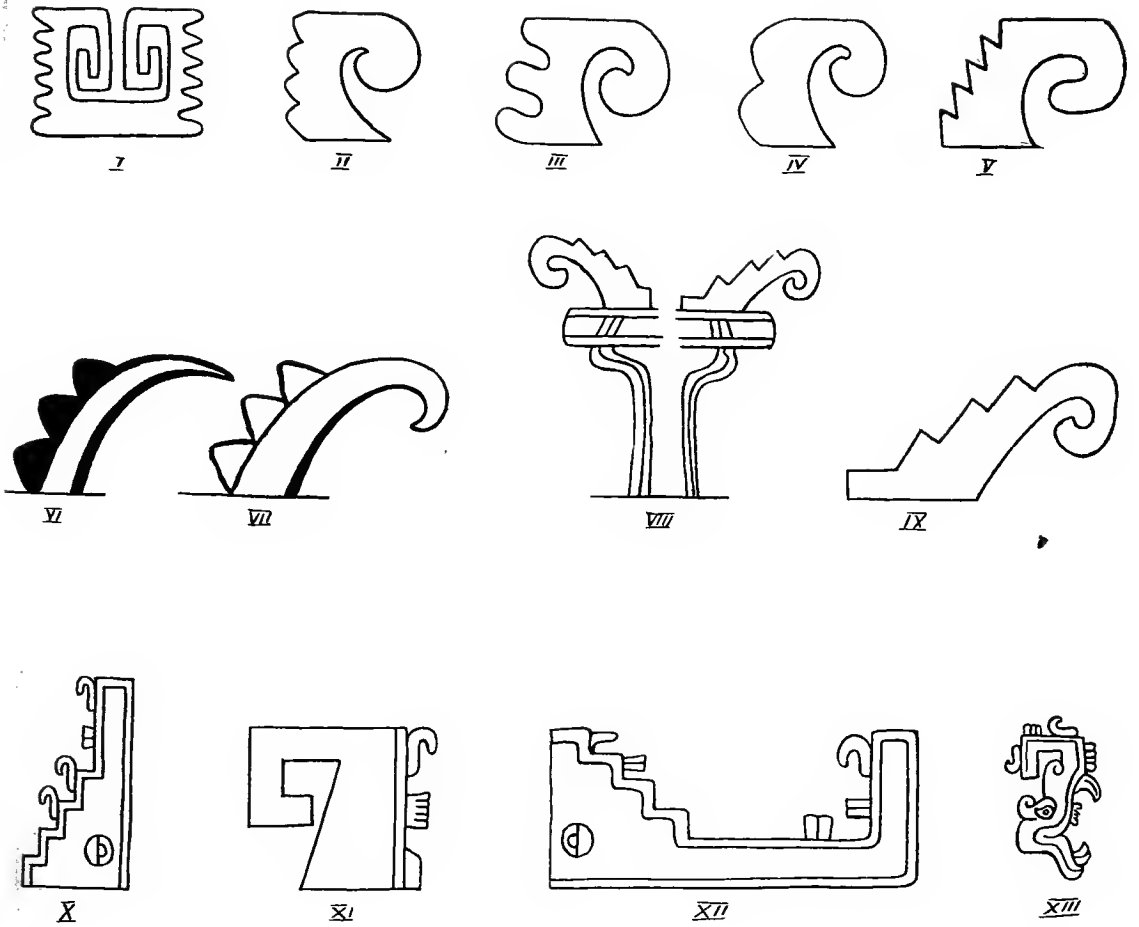
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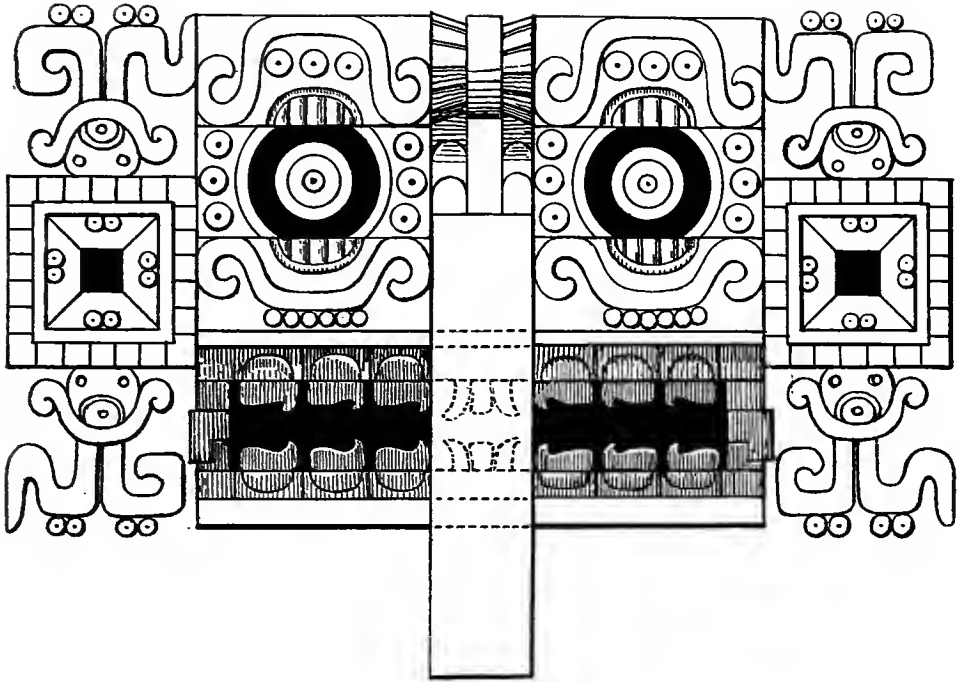
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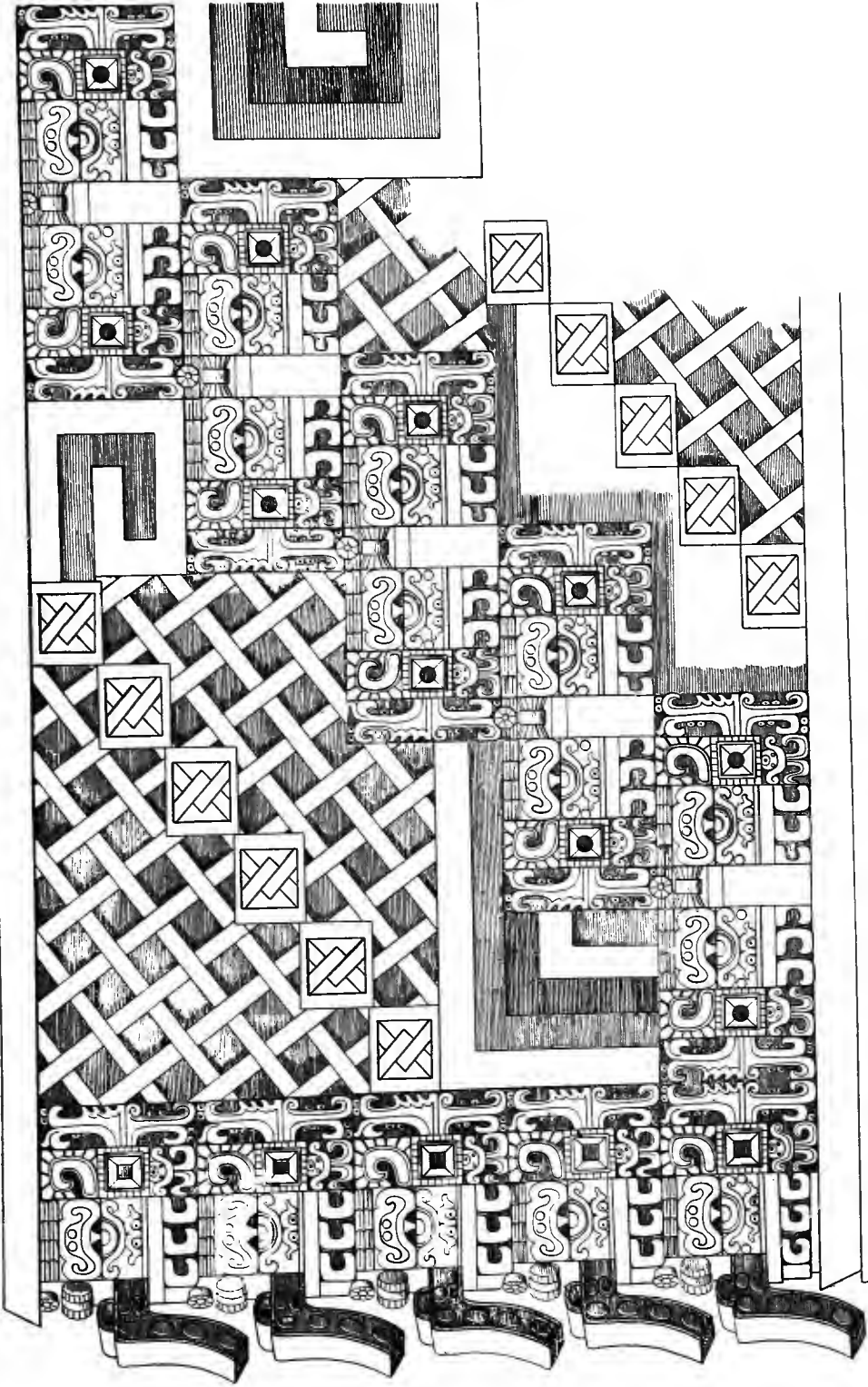
9



THE CLIMANKISTRON IN ITS RELATION TO THE SERPENT.

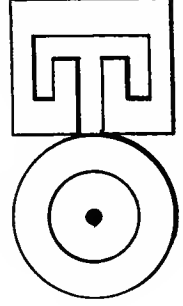
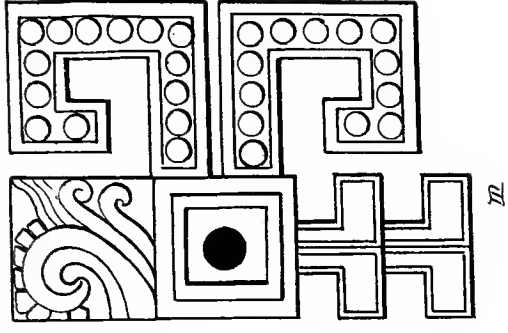
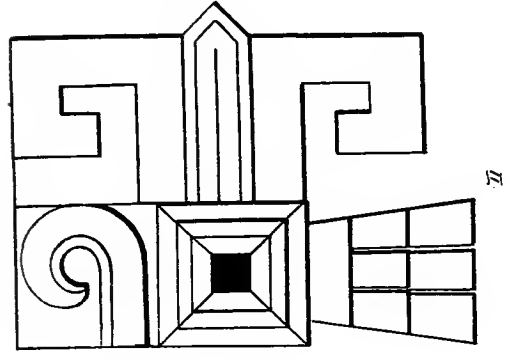
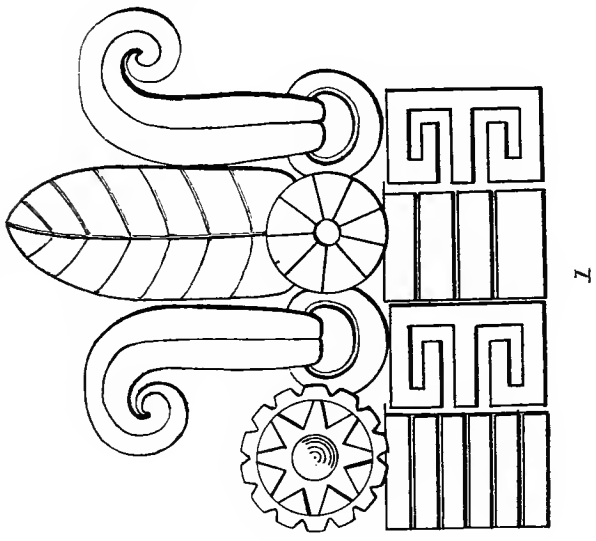


THE SERPENT'S HEAD AT LABNA.



G. B. Gordon del.

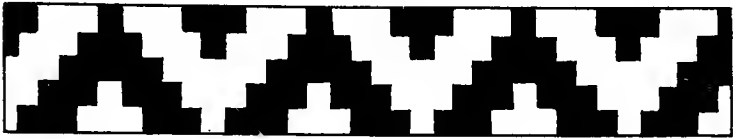
PORTION OF A FRIEZE ON THE HOUSE OF THE GOVERNOR AT UXMAL.



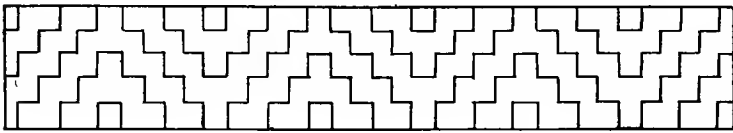
THE EAR ORNAMENT. I AND IV FROM LABNA. II AND III FROM CHICHEN ITZA.



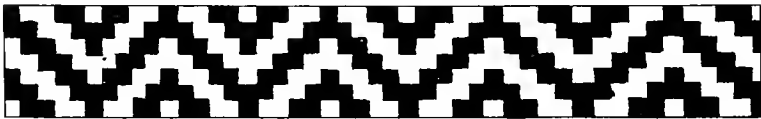
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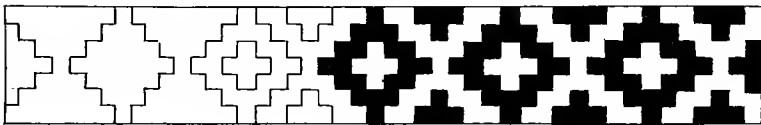
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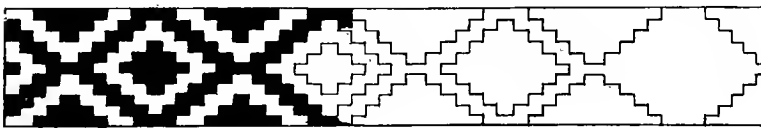
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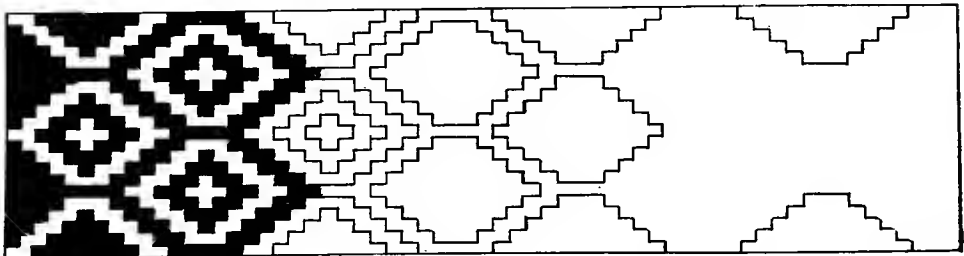
d



e



f



g

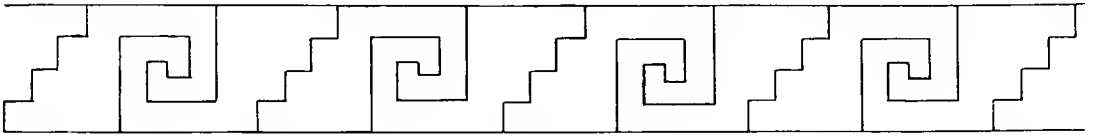
THE PYRAMID IN COMPOSITION



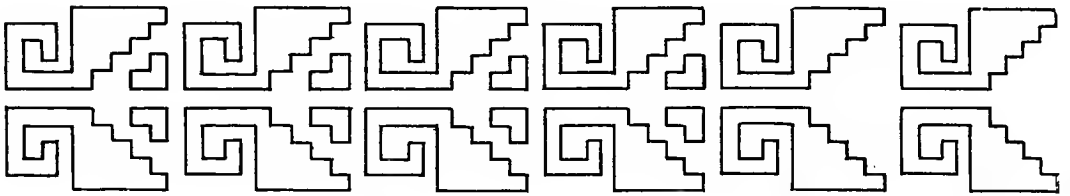
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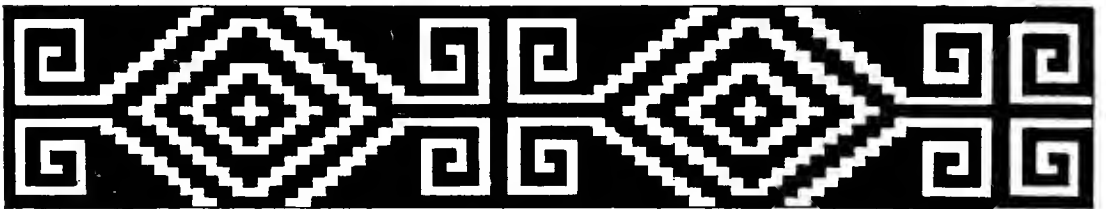
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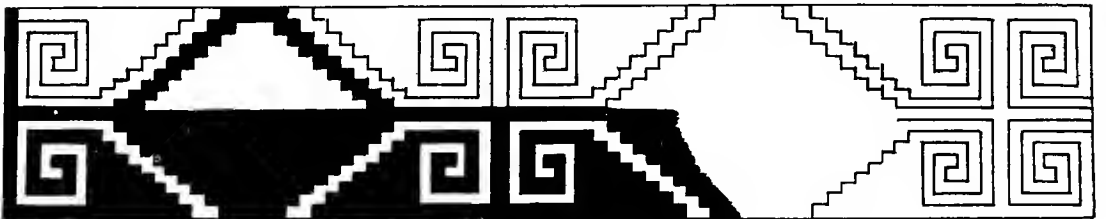
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d



e

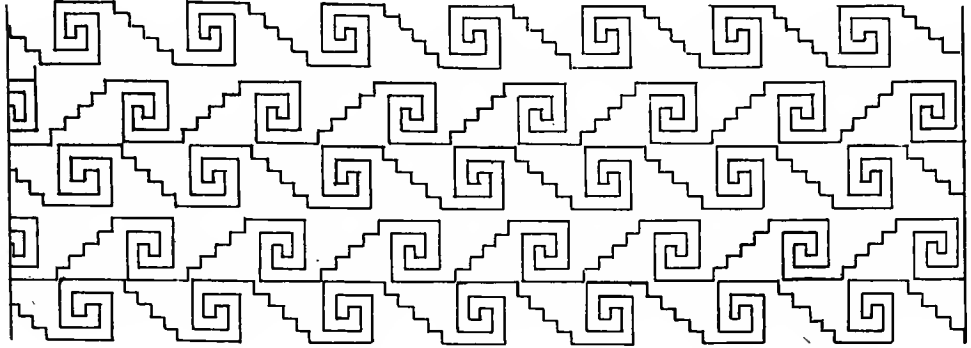


f

THE CLIMANKISTRON IN COMPOSITION.



a



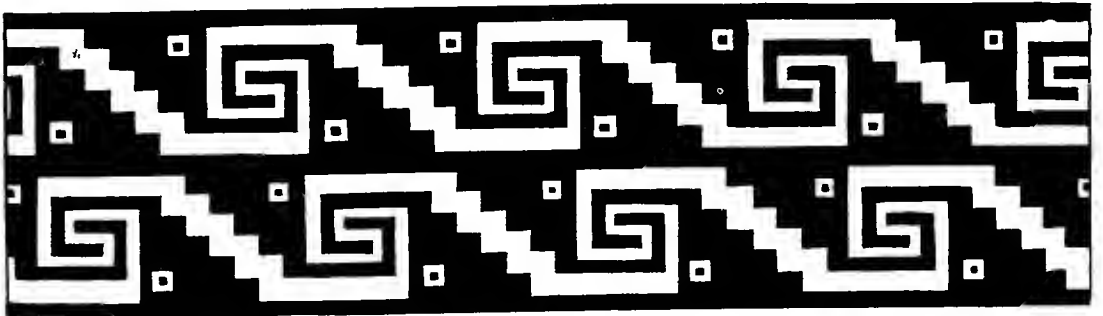
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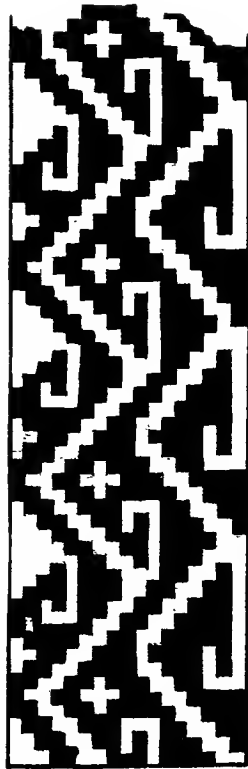
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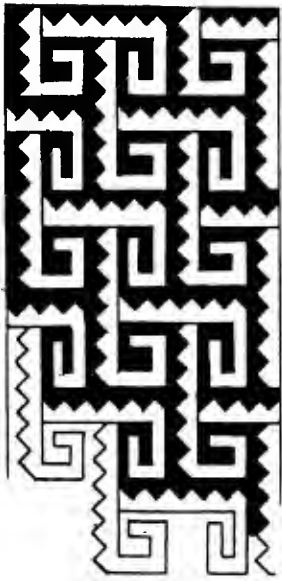
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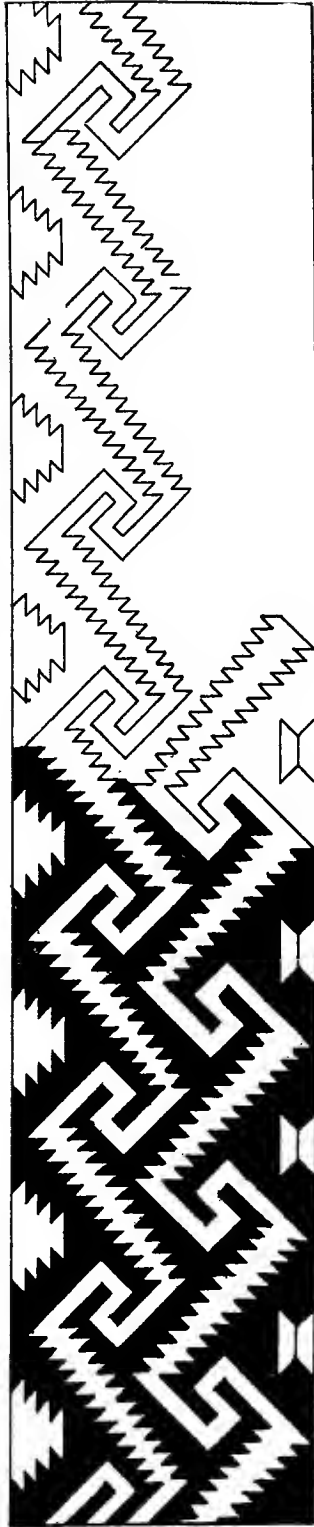
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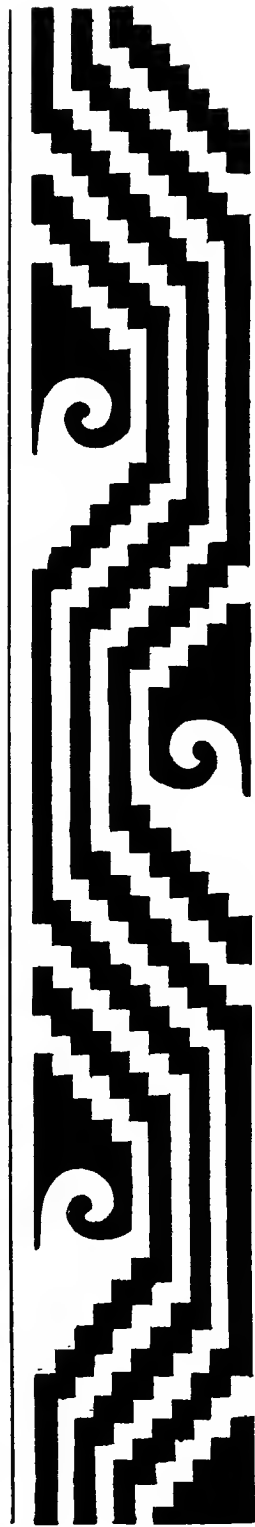
a



b



c



d

THE CLIMANKISTRON, THE OPHIGNATHOS AND THE DOUBLE TOOTHED ANKISTRON IN COMPOSITION. MURAL DECORATIONS AT MITLA.

