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FROM THE MIMBRES VALLEY,  
NEW MEXICO

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## DESIGNS ON PREHISTORIC POTTERY FROM THE MIMBRES VALLEY, NEW MEXICO

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Before the year 1914 little was known of the manners and customs of the prehistoric inhabitants of the valley of the Rio Mimbres in southern New Mexico. Historical references to these people from the time this valley was discovered to its occupation by the United States are few and afford us scanty information on this subject. Evidence now available indicates that the prehistoric occupants had been replaced by a mixed race, the Mimbrenos Apache, of somewhat different mode of life. Until a few years ago the numerous archeological indications of a prehistoric population were equally limited. Some of the earlier writers stated that there are no evidences of a prehistoric sedentary population occupying the area between Deming, New Mexico, and the Mexican border.

In his pamphlet on the "Archeology of the Lower Mimbres Valley, New Mexico," published in 1914,<sup>1</sup> the author reviewed the contributions of others on this subject up to that date, and the present paper offers, as a supplement to that preliminary account, descriptions of additional designs on pottery collected by several persons since the publication of the article above mentioned. The writer has laid special stress on the quality of realistic designs on pottery from this region, and has urged the gathering of additional information on their meaning and relationship.

In the author's judgment no Southwestern pottery, ancient or modern, surpasses that of the Mimbres, and its naturalistic figures are unexcelled in any pottery from prehistoric North America. This superiority lies in figures of men and animals, but it is also *facile princeps* in geometric designs. Since the author's discovery of the

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<sup>1</sup> Smithsonian Misc. Coll., Vol. 63, No. 10. Supplementary additions were made in the "Explorations and Field-Work of the Smithsonian Institution in 1914," pp. 62-72, Smithsonian Misc. Coll., Vol. 65, No. 6, 1915; and in the American Anthropologist, n. s. Vol. XVIII, pp. 535-545, 1916.

main features of this pottery the Mimbres Valley has come to be recognized as a special ceramic area.

Specimens of this pottery were first called to the attention of the author in 1913 by Mr. H. D. Osborn, of Deming, New Mexico, who excavated a considerable collection of this ware<sup>1</sup> from a village site near his ranch 12 miles south of Deming. Shortly after the discovery the author visited the location where it was found and excavated a small collection. From time to time since the author first announced the discovery of this material, years ago, other specimens of the same type have been described by him. These objects support early conclusions as to the high character and special value of this material in studies of realistic decoration. New designs have been added to available pictographic material which justify these conclusions.

In the past year (1921) Mr. Osborn has continued his excavations and obtained additional painted bowls, thereby enlarging still more our knowledge of the nature of the culture that flourished in the Mimbres before the coming of the whites. These newly discovered specimens are considered in the following pages.<sup>2</sup>

A brief reference to a physical feature of the Mimbres Valley may serve as a background for a study of the culture that once flourished there. The isolation of this valley is exceptional in the Southwest. The site where the Mimbres culture developed is a plateau extending north and south from New Mexico over the border into Mexico. Ranges of mountains on the east side separate it from the drainage of the Gulf of Mexico and high mountains prevent the exit of its rivers on the west. Its drainage does not empty directly into the sea, but after collecting in lakes it sinks into the sands. The lowest point of this isolated plain in which are the so-called lakes, or "sinks," Palomas and Guzman, is just south of the Mexican line. The water of the Mimbres sometimes finds its way into the former, but is generally lost in the sands before it reaches that point. The Casas

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<sup>1</sup> Many of these specimens were purchased by the Bureau of American Ethnology and are now in the U. S. National Museum, but the majority were later sold to Mr. George G. Heye and are now in the Museum of the American Indian, New York.

<sup>2</sup> Several other collectors have furnished me with data on Mimbres ware, among whom Mrs. Edith Latta Watson, and Mrs. Hulbert, of Pinos Altos, New Mexico, should be especially mentioned. On the very threshold of his descriptions the author desires to thank Mr. Osborn, Mrs. Hulbert and Mrs. Watson for permission to describe this new material. He desires also to commend the beautiful copies of photographs of the designs on these bowls, made by the artist, Mrs. George Mullett, of Capitol View, Maryland.

Grandes and tributary streams that lie in the basin south of the national boundary flow northward and finally empty into Lake Guzman. It is characteristic of the upper courses of these streams that they contain abundant water, while lower down they sometimes sink below the surface, but still continue their courses underground unless rock, clay or other formations that the water can not readily penetrate have pushed up their beds to the surface.

Flowing water is constant in the upper Mimbres but lower down the valley it is subterranean, though rising at times to the surface. The river is indicated here and there by rows of trees or a series of ponds. Water is never found in great abundance, but there is always enough for trout and a few other fishes which the early inhabitants, judging from the number of these animals depicted on pottery, admired and greatly esteemed for food.

There is more water in the Casas Grandes River and its tributaries than in the Mimbres, which is smaller and has fewer branches. There is a remarkable natural hot spring in the Mimbres Valley at Faywood, in which a large number of aboriginal implements and other objects were found when this spring was cleaned out several years ago, leading to the belief that it was regarded by the aborigines as a sacred spring.

The forms of pottery found in the Mimbres Valley differ very little from those of the pueblo areas. Food bowls predominate in number, although effigy vases, jars, ladles, dippers, and similar objects are numerous in all collections from this locality. They belong to modified black and white ware, red on white, unglazed, generally two-colored types. There are also specimens of uncolored, corrugated and coiled ware.

As the author has elsewhere indicated,<sup>1</sup> the figures on Mimbres pottery are largely realistic. A reference to an early account of the fauna might be instructive as an indication of the motives of the decoration of this pottery.

"The hills and valleys," writes Bartlett,<sup>2</sup> "abound in wild animals and game of various kinds. The black-tail deer (*Cervus lewisii*) and the ordinary species (*Cervus virginianus*) are very common. On the plains below are antelopes. Bears are more numerous than in any region we have yet been in. The grizzly, black, and brown varieties are all found here; and there was scarcely a day when bear-

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<sup>1</sup> Archeology of the Lower Mimbres Valley, New Mexico, Smithsonian Misc. Coll., Vol. 63, No. 10, 1914.

<sup>2</sup> Personal Narrative, 1854.

meat was not served up at some of the messes. The grizzly and brown are the largest, some having been killed which weighed from seven to eight hundred pounds. Turkeys abound in this region, of a very large size. Quails, too, are found here; but they prefer the plains and valleys. While we remained, our men employed in herding the mules and cattle near the Mimbres often brought us fine trout of that stream, so that our fare might be called sumptuous in some respects."

The above mentioned animals and many others are represented on ancient Mimbres pottery. There are a few paintings of flowers but only rarely have natural objects such as sun, moon, mountains, or hills been identified. Of geometrical designs there are zigzags, terraces, circles, rectangles, spirals, and conventionalized heads, beaks, feathers and the like of birds; but food animals are the most abundant, deer, antelope, turkeys, rabbits and the like predominating. We have every reason to suppose from the pictography on the pottery that animal food formed a considerable part of the dietary of the ancient Mimbrenos, but there is also abundant evidence that they were agriculturists and fishermen.

As a rule the bowls on which the designs here considered are depicted were mortuary, that is, found buried with the dead under the floors of former houses. These bowls are almost universally punctured or "killed" and are commonly found at the side of the skeleton, although when it is in a sitting posture, as often occurs, the bowl covers the head like a cap.

The Mimbres pottery shows several designs representing composite animals, or those where one half of the picture represents one genus of animal and the other a wholly different one. Similar composite pictures are rarely found in American art, although there are several examples of feathered and bicephalic serpents, winged reptiles, and the like. Probably if we were familiar with the folklore of the vanished race of the Mimbres we would be able to interpret these naturalistic pictures or explain their significance in Indian mythology.

The attention given to structural details in the figures of animals shows that the ancient inhabitants of the Mimbres who painted these designs were good observers, clever artists, and possibly drew these pictures from nature. There are, however, anomalies; profiles of the tails of birds are drawn vertically and not represented horizontally; the feathers that compose them were placed on a plane vertical, not horizontal, to the body. Both eyes were rarely

placed on one side of the head as is so often the case with bird figures from the ancient pottery. They are often lozenge shape but generally round. Birds are the most common Mimbres animal paintings and the details of different kinds of feathers are often so carefully worked out that they can be distinguished. Many birds are represented as destitute of wings or have them replaced by geometrical figures of various angular shapes.

The designs here described support the theory already published, that the pottery of the Mimbres is related to that of Casas Grandes in Chihuahua, Mexico, but there are significant differences between the houses of the two areas. The Casas Grandes culture apparently extended northward into New Mexico and penetrated to the sources of the Mimbres River. In this uniquely isolated valley, whose rivers had no outlets in the sea, there developed in prehistoric times one of the most instructive culture areas of the Southwest. The geographical position renders it most important to investigate as it lies midway between the Pueblo and Mexican region, showing affinities with both.

The majority of designs on Casas Grandes pottery are drawn on curved surfaces, as terra cotta vases, jars, and effigies, while those on Mimbres ware are depicted on a flatter surface—the interior of food bowls. For this reason the spaces to be filled on the former are more varied; but the style in the two types is practically the same.

The designs of Mimbres ceramics are painted on the inside surface of clay bowls, the color of which is white, red, brown, or black. While the majority of the designs are depicted on the *inside* of Mimbres food bowls, similar geometric figures occur on the *outside* of Casas Grandes vases, dippers, ladles, cups, and other forms. A food bowl furnishes a plane inner surface but its rounded exterior is the least desirable for realistic figures. In these characters we have one of the important points separating the pottery of the Mimbres from that of Casas Grandes.

Effigy jars and vases, predominating in collections from Casas Grandes, are rare in those from near Deming and on the upper Mimbres. The pottery from at least one village site of the Mimbres resembles that of the upper Gila and its tributaries; but both shards and whole pieces of pottery from the Gila are characteristic and can readily be distinguished from that of the Mimbres-Casas Grandes region. The decoration of Mimbres pottery is distinctive and very different from that on any other prehistoric pueblo ware, evidently

little modified by it. Although highly developed and specialized like modern pueblo pottery, it is quite unlike that from ancient pueblos of the Rio Grande region.

We find in this pottery well drawn naturalistic pictures as well as geometric designs, but there is no new evidence that the former were developed forms of the latter. It is more than probable that both geometric and realistic types were made contemporaneously and originated independently. By many students geometric ceramic decorations are supposed to be older than realistic; straight lines, dots, circles, stepped figures and spirals are supposed to precede life figures. Others hold that conventionalized designs follow naturalistic forms. It is sometimes supposed that in the growth of decorative art lines or dots are added to meaningless figures to make them more realistic. For instance, three dots were added to a circle to bring out a fancied human face, or representations of ears, nose, and other organs were annexed to a circle to make a head seem more realistic. Lines are thus believed to be continually added to a geometric meaningless figure to impart to it the life form.

There is a certain parallelism in these figures to drawings made by children to represent animals, whose pictures are often angular designs rather than realistic portrayals of objects with which they are familiar. It may be pointed out that some children in their earliest drawings make naturalistic, others geometric figures.

Naturally, when we contrast the designs on pottery from the Mimbres with that of the Mesa Verde, one great difference outside of the colors is the large number of realistic figures in the former and the paucity of the same or predominance of the geometric type in the latter. If we compare the designs of Sikyatki pottery with those on the Mimbres ware the differences are those of realism and conventionalism. The designs of Sikyatki pottery are mainly conventionalized animals, while those of the Mimbres are realistic. Geometrical designs from Mesa Verde are not conventionalized life forms; neither are they realistic. The pottery of the Little Colorado is midway in type, so far as its decoration goes, between that of Sikyatki and Mesa Verde. It is not as realistic as the Mimbres, not as conventionalized as Sikyatki, nor as geometric as Mesa Verde.

There seems much to support the theory that these three types of design, geometric, conventionalized, and realistic, are of equal age and developed independently. The author inclines to the belief that the primitive artist, having noticed certain resemblances in his geometric designs to life forms, men or animals, helped out the fancied like-



ness by adding dots or lines for eyes, nose and mouth, wings, legs or tail, to a circular or rectangular figure, and thus made a head of a man or an animal, the result being a crude realistic figure. Subsequent evolution was simply a perfecting of this figure. The theory that the conventional figure was derived from the realistic also appeals to the author; and he further believes that there are many geometric decorations that have no symbolic significance.

The naturalistic designs on pottery of the modern pueblos of Keresan stock resemble somewhat those of the Mimbres, or are closer to them than those of the modern Tewa, Zuñi, or Hopi; while, on the other hand, ancient Tewa, Zuñi, and Hopi wares are closer to Keresan than they are to modern pottery of the same pueblos. Ancient Hopi and Zuñi designs resemble each other more closely than modern, a likeness due in part to their common relationship to the culture of the Little Colorado settlements, the differences being due to the varying admixture of alien elements. In fact, the archaic pottery symbols are simpler than the composite or modern.

Human figures on Mimbres pottery are as a rule cruder than those of animals and in details much inferior to those of birds. They represent men performing ceremonies, playing games, or engaged in secular hunting scenes, and the like.<sup>1</sup> Now and then we find a representation of a masked man or woman in which the face is sometimes decorated with black streaks as if tattooed or painted. Frequently there are representations of feathers or flowers on body, limbs or head. Both full face and profiles of men occur in these figures; even the hair dressing is shown with fidelity. Several styles of clothing are recognizable. Let us now proceed to discuss a series of these figures.

#### HUMAN FIGURES

Figure 1 represents men engaged in a hunt. A hunter carries in his right hand three nooses attached to sticks; in his left he holds a stick to which feathers or leaves are attached. The hunter's hair is tied down his back; apparently he wears a blanket or loose fitting garment. Five groups of upright sticks support horizontal ones; that at the extreme right has attached to it a noose still set. Three captured birds are seen in the remaining nooses. The double row of dots represents a trail; two birds to the right of the human figure

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<sup>1</sup> Why the figures on Mimbres pottery should be more realistic than those from elsewhere in the Southwest is not apparent, unless the richness of the fauna has some connection with it.

face three sticks. The whole picture represents a method of snaring birds that was in vogue among the Mimbres ancients.

Figure 2. is also instructive. It is evidently a gambling scene representing three men playing the cane dice game, widely distributed among our aborigines. Unfortunately almost a half of the picture is no longer visible, but three cane dice appropriately marked lie in the middle of what remains of a rectangular design on the bottom of a broken jar. As the game requires four cane dice, two are missing. On one side of the figure is what appears to be a basket of arrows, evidently the stakes for which the game is being played. One of the seated human figures holds a bow and three or four arrows, while another has only one arrow. Rows of dots extending across the bowl are visible under the feet of the figure with one arrow.

There are six human figures represented in figure 3, five of which in a row appear to be crawling up a ladder while a sixth, bearing in the left hand a crook, is seated in an enclosure near the end of the ladder. The attitude of the five climbing figures suggests men emerging from the earth; the chamber in which the sixth is seated resembles a ceremonial room or kiva.

In figure 4 we have three human figures, two seated and one lying down. The difference between these figures is not great, but the two seated figures have their hair tied in a knob; the hair of the horizontal figure is straight. The left-hand figure bears a zigzag object in his hand that reminds one of a snake or lightning symbol. The right-hand figure appears to hold in his hand an implement represented by parallel lines and dots surmounted by an imitation of a head with feathers. This object calls to mind the wooden framework used by the Hopi in their ceremonies to imitate the lightning.

In figure 5 there are four figures, all different; two were evidently intended to represent men with human bodies and heads of animals. Each carries a rattle in one hand and a stick to the end of which is attached a feather, or a twig with leaves, in the other.

The exact signification of the group of three figures, two male and one female, shown in figure 6, is not evident. The two men carry sticks with attached flowers, or figures of the sun or a star; the other figure, which represents a woman, has a crook in one hand. The frayed edge of the woven belt she wears hangs from her waist.

The knees of the two human figures shown in figure 7 rest on the back of a nondescript animal. The figures are evidently duplicates, the only difference being in the forms of the geometric figures depicted on the bodies of the animals.

Two nicely balanced human figures shown in figure 8 are represented as resting on a quadrilateral object decorated with zigzag markings, like symbols of lightning.

The heads in figure 9 are human but the body and limbs are more like those of quadrupeds.

The method of drawing the human figure in figure 10 is very characteristic. Here we evidently have a representation of a dancer, whose body is painted black, surrounded by a white border.

The human figures thus far considered are drawn in colors on a white background. Not so those that follow. In figure 11 there are two negative figures, representations of human beings placed diametrically opposite each other, and, similarly arranged, two turkeys painted black on a white oval area, a very good example of the arrangement of double units. The human figures are white and have arms and legs extended. A black band in which are two eyes extends across the forehead. The lips are black; mouth white. This is a good example of one pair of units being negative, the other positive. There are four triangles with hachure in the intervals between the figures.

An analysis of the design in figure 12 shows two human figures drawn opposite each other, with arms extended and legs similar to those of frogs. The complicated geometric figures vary considerably but can be reduced to about three units; but these units are not always repeated twice.

In figure 13 there are two human figures, one seated on the shoulders of the other, who is prostrated and has head severed from body. The former apparently is holding a knife or pipe in his right hand and the hair of the decapitated head in the left. The head and back of this seated figure is covered with what appears to be a helmet mask and animal's pelt. The mask resembles the head of a serpent or some reptilian monster that has a single apical horn on the head and jaws extended. Possibly the disguise represents the Horned Serpent or the same being as figure 41. The body of the man and the lower part of the face is black. The Snake priests at Walpi paint their chins black.

#### ANIMALS

*Quadrupeds.*—Many of the animals depicted on the bowls are mammals distinguished by four legs, but often these present strange anomalies in their structure. In several pictures of rabbits and some other quadrupeds the lower fore-legs bend forward, and in one instance, a composite animal, the fore-legs are short and stumpy with no indication of a joint, but the hind-legs are slender, longer than

the fore-legs, and apparently belong to a different animal. The majority of all the mammals represented have geometric designs on the body.

Variations in the form of the head and mouth are noticeable and are important in the determination of different genera to which these mammals belong. Figure 14 represents two quadrupeds with heads of lions and two geometric designs irregularly terraced, with white border. The interior is marked with parallel lines. The head is short and calls to mind that of a carnivorous animal; there is a white band about the neck; the tip of the tail is white. The rectangular body marking is lozenge-shaped with dots.

Figure 15 represents an unknown quadruped resembling some carnivorous animal. The tail has a white tip like figure 14; the ears are more prominent and pointed.

In figure 16 two men are dragging an animal by ropes tied to the neck of the captured beast. This is an effective way of leading a dangerous animal and preventing it from attacking either one of them.

The head and fore-legs of figure 17 resemble those of the bison. The head has ears, a horn, and a cluster of five feathers that are grouped fan-shape. The rear end of the body and hind-legs are somewhat like those of a wolf. This is a mythological composite animal or two different animals united.

The animal shown in figure 18 is seated, and has tail and ears like those of a hare or rabbit. The head, however, resembles that of a human being, with two black marks on the white cheeks. The upper part of the head is black. The two marks on each cheek among the Hopi are symbols of the Little War God.

Two exceptional animals with tails flattened like beavers are represented in figure 19. Although the fore-legs bear claws the posterior legs are club-shaped or clavate. The distribution of white and black on the bodies indicates a partly negative and partly positive drawing. The mouth has the form of a snout.

It would seem that figure 20 represents a carnivorous animal like a mountain lion. The tail is coiled, ending in a triangular appendage. Head, ears, and claws like a cat. The checkerboard periphery design is particularly effective.

Figure 21 represents a rabbit or hare whose body is black and without ornament. The joints of the legs bend in an unnatural way. Ears, tail, and labial hairs recall a rabbit.

Figure 22 represents two negative pictures of rabbits with characteristic ears and tails. They are separated by a band composed of

parallel lines, somewhat after the style of figure 9. Space between fore- and hind-legs is filled in with white zigzag lines. Two rabbits also appear in figure 23, the forms of ears, tail, and body being somewhat different.

Figure 24 is likewise a rabbit figure which resembles the preceding in color. Most figures of rabbits have black bodies without the decorations on other mammals.

The food bowl illustrated in figure 25 has thirteen clusters of feathers, each cluster composed of four feathers, making an ornamental periphery. These clusters are called feathers because of their resemblance to the feather in a bird's wing depicted in figure 54. Although the two figures have rabbit features, the feet are quite different from those of that animal, the legs ending in sickle-like appendages. The reason for the strange shape of the fore and hind feet of this picture is unknown.

The body of the quadruped shown in figure 26 appears to have been penetrated by four arrows, but the central portion of the bowl has been broken or "killed" and an identification of the figure is impossible. The neck is long, quite unlike that of any animal known in the Mimbres fauna.

The animal represented in figure 27 is probably a bat; in no other representation is a realistic zoic figure so closely related to the geometric design.

Figure 28 resembles a frog, and figure 28a suggests two tadpoles crossed over a disk on which are depicted eight small circles. The petal-like bodies radiating from the central disk are ten in number, four of which are primary, four double, and two single. A much better figure of a frog is shown in figure 29.

*Reptiles.*—Figures 30 and 31 have closer likenesses to turtles than to frogs. The resemblance to a turtle is very striking in figure 31. The tail, which is absent in pictures of frogs, is here well developed, and the eyes and legs differ from those of frogs. The carapace of figure 31 is covered with scales.

Figures of a serpent and a mountain sheep are shown in figure 32. The two animals in figure 33 appear to be lizards outlined in white on a black ground; a kind of negative picture in which the body is filled in with black.

The animal shown in figure 34 is apparently a lizard, but it differs from the other figures of lizards in the bifurcated head, lizards generally being represented with lozenge-shaped heads.

The two reptilian figures shown in figure 35 have all the characteristics of lizards and the picture probably illustrates some myth or folk-tale. The mouths of the two lizards and that of the bird are approximated, which would suggest that the three were talking together.

*Fishes.*—The representation of a fish (fig. 36) between two birds suggests the aquatic habits of the latter. The form of the fish suggests the garpike, but the tail is more like that of a perch. The markings on the body are probably scales. Trout were formerly common in the Mimbres River, but none of the pictures on pottery from ruins in that valley have the adipose dorsal that distinguishes the trout family. There is a considerable variety in the pictures of fishes and probably more than one genus is represented. In no other ancient South-western pottery do we find as many different kinds of fishes represented as in that from the Mimbres.

Figure 37 represents a fish with pectoral, ventral, anal, and a single dorsal fin. The tail is uncommonly large. In figure 38 we have a fish accompanied by two birds; the body shows portions of the skin and also backbone and spines. The birds have long legs and necks, which are the structural features of aquatic birds.

In figure 39 we have one of the best examples of Mimbres negative pictures or white on a black background. These negatives are without outlines, their form being brought out by a black setting. Various anatomical structures are evident, as paired pectoral and ventral fins which are curved on one edge; pointed anal fin, small dorsal, crescentic gill-slit, small eyes, no mouth.

Figure 40 represents a sunfish, the body in profile being oval with long pointed dorsal fins and cross-hatched body.

The form of figure 41 is serpentine with two pairs of fins on the ventral side and a single fin on the dorsal region. The body of this animal ends in a fish tail; the head, which is black, has no gill openings in the neck. There is a horn on top of the head which bends forward and terminates in a bunch of feathers. The eye is surrounded by a ring of white dots; teeth white; tongue black.

The small fish represented in figure 42 has three fins on the ventral and one on the dorsal side. Through the whole length of this fish extends a white band, possibly the digestive organs. The fins of this particular fish have spines represented, whereas in other pictures these fins are solid black.

Figure 43 shows two fishes which closely resemble each other in structure. One, however, is painted black, while the other is covered

with a checkerboard design. Each of these has a single ventral, dorsal, and pectoral fin, in which regard they differ from the specimens of fishes thus far known in Mimbres designs which commonly have paired pectoral and ventral fins.

*Birds.*—From their mysterious power of flight, and other unusual characteristics, birds have always been considered by the pueblos to be important supernatural beings and are ordinarily associated with the sky. We find them often with star symbols and figures of lightning and rain clouds. There is something mysterious in the life of a bird and consequently there must be some intimate connection between it and those great mysteries of climate upon which so largely depends the production of food by an agricultural people.

In Mimbres ware, as is usually true in conventional or naturalistic figures on prehistoric pueblo ware, birds excel in numbers and variety all other animals, following a law that has been pointed out in the consideration of pottery from Sikyatki, a Hopi ruin excavated by the author in 1895.<sup>1</sup>

There is, however, a great difference between the forms of birds, conventional and realistic, from different areas of the Southwest, and nowhere is the contrast greater than in those on the fine ware from Sikyatki and that of the Mimbres. The conventional bird and sky band, so marked a feature in the Hopi ruin, are absent in both the Little Colorado and Mimbres pottery.

The wild turkey, one of the most common birds, associated by the Hopi with the sun and with the rain, is repeatedly figured on ancient pottery from the Mimbres Valley.

Figure 44 shows three birds of a simple form from dorsal or ventral side, the head being turned so as to be shown laterally; but generic identification of these birds is difficult.

Figure 45 represents the head, neck, and wing of a parrot. It is instructive as showing wing feathers with white tips and black dots on the extremities. The triangular geometrical figure near its head has six feathers with black dots near their extremities.

Figure 46, one of the most realistic pictures in the collection, is evidently intended for a parrot and is one of the few representations of birds on Mimbres pottery in which the tail feathers are indicated by parallel lines. The special avian feature of this figure is the shape of the head and upper beak, which corresponds pretty closely with

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<sup>1</sup> Seventeenth Annual Report Bureau of American Ethnology, Washington, 1898.

a geometric pattern called the "club design" used as a separate design in Casas Grandes pottery decorations.

The appendages on the head of figure 47 are feathers recalling those of quails; the tail is destitute of feathers.

The two wingless birds represented in figure 48 have a characteristic topknot on the head and a highly exceptional bodily decoration. Identification is doubtful.

The bird (fig. 49), shown from one side, has a vertical conventional wing, long neck and legs adapted for wading.

Although the tail of a bird shown in figure 50 resembles that of a turkey, the head and beak are similar to the same organs in a hummingbird. Its beak is inserted into the petals of a flower, evidently for honey. The birds (fig. 51), among the simplest figures in the collection, have angular wings, the feathers being represented by serrations or dentations. There are figures of two birds drawn in a white dumb-bell-shaped area in figure 52.

The bird (fig. 53) has outstretched wings with hanging feathers of exceptional form. Legs are not shown, which leads to the belief that the back of the animal is represented. The tail was obscurely shown in the photograph, which made it impossible to obtain a good drawing of this organ. This is one of the few dorsal representations of a bird, most of the others being shown from one side. The position of the hanging feathers of the wings is exceptional.<sup>1</sup>

The bodies of the four birds represented in figure 54 are oval, without wings or legs. Two of these bear triangular and cross designs, and two have lenticular markings. Between the beaks of each pair of birds there is a rectangular and three triangular designs, all terraced on one side.

The tips of the tails of the birds represented in figure 55 are like that of a turkey but it is hardly possible to prove that this is a proper identification.

The bird figure shown in figure 56 exhibits no wing or tail feathers, but the body is prolonged into a point. The head bears four upright parallel lines indicating feathers. Legs, short and stumpy. The object suspended like a necklace from the neck is not identified.

There are several examples of wingless or tailless birds and a few are destitute of legs. The signification, if any, of this lack of essen-

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<sup>1</sup> On the reredos of the Owakulti altar at Sitcomovi on the East Mesa of the Hopi there is a similar figure with drooping wing feathers. Here it probably represents the Sky god, as there are several stars near it.



tial organs does not appear. Some of the birds have egg-shaped bodies; the heads with long beaks.

Figure 57 probably represents a turkey. The feathers of the tail are turned to a vertical position and the elevated wings have characteristic feathers. The legs end in conventionalized turkey tracks. There is a protuberance above the beak—a well known turkey feature. Figure 58 also represents a turkey, or rather three heads of the same animal with a single body. There are also three wings. The tail is turned vertically instead of horizontally and the claws are four in number—three anterior and one posterior. It has a single breast attachment.

*Feather designs.*—Among the modern pueblos the feather is one of the most prominent ceremonial objects and the specific variety used in their rites is considered important. Every Hopi priest in early times had a feather box, made of the underground branch of the cottonwood, in which he kept his feathers ready for use. The forms and decorations of Mimbres pottery would seem to indicate that feathers played a conspicuous rôle in the symbolic designs on prehistoric pottery.

The importance of the feather as a decorative motive is somewhat less in Mimbres pottery than in Sikyatki, the symbolism of which is elsewhere<sup>1</sup> considered; but the symbols for feathers in the two areas are different and might very readily be used to distinguish these areas.

The types of the wings and tails of birds here considered were taken from the realistic representations on Mimbres pottery. We often find a dot indicated at the tip of a feather, a feature likewise seen in pottery from Casas Grandes in old Mexico and of wide distribution in aboriginal North America.

In order to be able to demonstrate that a geometrical decoration is a feather in Mimbres designs, the author has taken the representations of the wings and tails of many pictures of birds and brought them together for comparison. A few of these different forms of bird feathers from the Mimbres are shown in the figures (59-92) that immediately follow. The different forms of tail feathers thus obtained are considered first and those from the wings follow. It is interesting to point out that the author's identification of certain linear designs on Southwestern pottery as feathers was not obtained from the surviving Indians but by comparative studies. Starting

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<sup>1</sup>Thirty-third Annual Report Bureau of American Ethnology, Washington, 1919.

with the thought that certain rectangular designs are feathers, we can demonstrate the theory by its application and association with other bird figures.

Several forms of feather designs that appear quite constantly in the decoration of Sikyatki ware are not found on Mimbres ceramics, and *vice versa*. The Mimbres has several geometric feather designs peculiar to that valley. In the Sikyatki ware the relative number of feathers, free from attachment to birds, used in decoration is larger than in the Mimbres ceramics. Tail feathers have as a rule a different form from wing feathers and are more seldom used. Eleven different figures of birds' tails are here given, and there are twenty-two designs that are supposed to represent wings of different birds.

*Tail feathers.*—One of the simplest forms of birds' tails obtained in the way above mentioned is shown in figure 59, which represents five feathers. This feather type has square ends, each feather differentiated by lines as far as the body attachment. In figure 60 we also have four tail feathers, but the ends are rounded, and in figure 61 there are four feathers having rounded tips; the two outer could better be regarded as incomplete feathers. There are likewise four feathers in figure 62, but, although the tips are rounded, the angles are not filled in with black as in the two preceding specimens. Here the four feathers are united by a broad black band. In figure 63 three whole and two half feathers are represented, united by two broad transverse bands and four narrow parallel lines also transverse; and in figure 64 there are five whole feathers and two half feathers, which are barely indicated, the lines that divide the two members being simply indicated.

It is instructive to note how often this connecting black band appears on bird tails. Figure 65 is a case in point. Thus far also the feathers of birds' tails considered are about equal in length. Here (fig. 65), however, the middle feathers are longer than the outer; the line connecting the tips would be a curved one.

An innovation is introduced in the tail feathers shown in figure 66. Their tips are rounded and there is a slight difference in general form between the three middle and the two outer members. The novel feature is the appearance of semicircular, or triangular black dots at their tips. Whether the existence of these differences means that another kind of feather is depicted or not the author is unable to say.

In figure 67 the four feathers are characterized by black markings throughout almost their whole length. This variation may indicate a special kind of feather or a feather from a different bird.

*Wing feathers.*—The simplest forms of wing feathers are marginal dentations, serrations, or even parallel lines without broken borders. One of these last mentioned is figured in figure 68, where the wing is sickle-shaped and the feathers short, curved lines. In figure 69 these lines are replaced by dentations, and in figure 70 we have three wings, each with dentations on one edge.

The form of the wing has been somewhat changed in figure 71, but the feathers appear as dentations, while in figure 72 the feathers have become semicircular, each with a black dot. Wing feathers in figure 73 are simple triangles without designs, and in figure 74 they are semicircular figures, black at the base.

Typical forms of wing feathers appear in figures 75-79, which differ somewhat in form but are evidently the same. One of the essential features of these wings, as shown in the four figures mentioned, is their division into two regions distinguished by the forms of feathers in each case. This is not as well marked in figure 75 as in figure 76, where the four primary and three secondary feathers on the same wing are distinctly indicated. The markings on these are similar, but the primary feathers are long and their extremities more pointed. In figure 77 we can readily distinguish primary and secondary feathers in the same wing by the absence of a black marking evident on all the others, and in figure 78 the three secondary feathers are distinguished by dots near their tips; the primary wing feathers are here narrower and longer, the longest terminating in curved lines. Figure 79 represents a wing with seven feathers, of which the four secondary are distinguished by the existence of terminal dots.

Neither figure 80 nor 81 shows distinction of primary and secondary feathers but both have blackened tips. A like marking appears in figures 82 and 83, where it extends along the midrib of four feathers.

Figure 84 represents a right wing of a bird with eight feathers. A similar representation is found on the left side and for comparative purposes a cluster of these designs from a bowl decorated with geometric designs is also introduced (fig. 85).

Three feathers which have markings probably symbolic but different from any previously described are shown in figure 86. These were attached to a staff. Their identification is doubtful, which may likewise be said of figures 87 and 88, the two latter being a very simple form of the feather symbol. The four designs that appear in figures 89-92 are supposed to represent either tails or wings of birds in which individual feathers are not differentiated.

It is sometimes difficult to recognize the feather element in some of these and in others it is very well marked. These designs have been identified as feathers mainly on account of their connection with wings or tails of birds.

*Insects.*—The people of the ancient Mimbres probably did not recognize a sharp line of demarcation between birds and insects. Both were flying animals and can be distinguished in several figures. Figures 93-95 were evidently intended to represent insects, probably grasshoppers. The animal represented in figure 96 is enigmatical. It apparently represents an insect but has strange anatomical features for a member of this group. The head and antennae resemble those of other insects, but the two sets of leg-like appendages, three in each set, hanging from the ventral region distinctly resemble fins of fishes. We cannot identify this as a naturalistic representation of any known water insect. It is probably some conventionalized mythic animal.

It is impossible to identify with any certainty several pictures that occur in the collection further than to recognize that they represent insects. There are several pictures of the grasshopper or locust, and the bee, dragon-fly, and butterfly can be recognized. The object shown in figure 97 looks like an insect but its structure is not sufficiently marked to definitely determine the family.

The insect shown in figure 98 has the wings and extremity of the abdomen similarly marked and recalls the dragon-fly. The head and legs differ considerably from those in figure 97.

Figure 99 appears to represent a moth or butterfly. No identifications were made of figures 100 and 101. Figure 102 is a representation of an animal with four pairs of legs, possibly the insect known as the "skater." It has a head, thorax, and abdomen like an insect, legs like a grasshopper, and a tail like a bird.

The animals, and more especially the geometric patterns represented on both Mimbres and Casas Grandes pottery, are often similar; but this similarity in the beautiful pottery of the northern and southern regions of the Mimbres-Casas Grandes plateau is even stronger than the resemblances here pointed out would seem to indicate. The pottery of both regions, for comparative purposes,<sup>1</sup> may be regarded as belonging to the same area.

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<sup>1</sup> The northern extension of typical Mimbres pottery is doubtful, but certain food bowls from Sapello Creek, a Gila tributary, bear figures that distinctly resemble those found near Deming. Vide: Hulbert and Watson Collections.

## COMPOSITE ANIMALS

One unusual feature of life figures on Mimbres pottery is the union of two genera of animals in composition in one picture, probably representing a legendary or mythological animal. The signification of such a union is not known, as the folk tales of the ancient inhabitants of the Mimbres are unrecorded; but it is instructive to note that similar composite animals are not commonly represented on pueblo pottery, ancient or modern, although we have pictures of reptiles and the like with feathers on different parts of their bodies.

It is also instructive to note how many synchronous differences there are between prehistoric pottery and architecture. While there are evidences of interchange of material objects in two areas, we cannot say that the culture of the inhabitants of any two regions was identical until both have been studied. The occurrence of Casas Grandes pottery fragments in the Mimbres ruins or *vice versa* would indicate that the two cultures were synchronous.

## GEOMETRIC FIGURES

The geometric designs on Mimbres pottery are as varied and striking as the life figures, and while they show several forms found on the pottery from Casas Grandes, a large majority are different and characteristic. The geometric decorations are confined for the most part to the interior surface of food bowls, but exist also on the outside of effigy jars and other pottery forms. The geometric designs on Mimbres pottery are not ordinarily complex but are made so by a repetition of several unit designs.

The arrangement of geometric figures in unit designs is in twos, threes, and fours. When there are two different units they are found duplicated. There is seldom more than one unit in the arrangement by threes and very seldom an arrangement of units in fives, sixes, or higher numbers. It is instructive to notice *en passant* that while there are several designs on Mimbres food bowls representing stars, these stars generally have four points, but sometimes five.

Great ingenuity was exercised in filling any empty spaces with some intricate geometric decoration. No two bowls out of over a hundred specimens examined bear identically the same pattern painted on their interiors.

One small but important feature in encircling lines should not be passed in silence. There is no break in decorative lines surrounding the bowl. This is characteristic of the northern pueblo or cliff-house area known as the San Juan drainage, but not of pottery from the Gila

basin and the Little Colorado area as far north as old Hopi (Sikyatki). Much of the ancient decorated ware in the area between the Mimbres Valley and the Upper San Juan has surrounding lines broken. The broken line does not occur on the black and white type of ware, of which the Mimbres is a highly modified subtype. From the above facts regarding its distribution it appears that the "line of life"<sup>1</sup> on Southwestern pottery can be traced to southern Arizona, and as black and white ware does not have this feature and is ranked as very old, the decorated pottery of Arizona and central New Mexico where it occurs should probably be ascribed to comparatively recent times. The Mimbres ware has no life line decoration and as this valley is only a short distance from the Gila settlements that show the line of life on their pottery the logical conclusion would be that the Mimbres pottery is archaic or probably older than that which has a life line.

There is at least one ruin in the Mimbres in which pottery with the life line occurs. This pottery is so close in other respects to that of the Gila and so different from that of the majority of neighboring ruins in the Mimbres that we may suppose those who settled there came from the Gila valley.

Underlying the pure pueblo or kiva culture of the San Juan and its tributaries is a prepueblo culture which differs in terms of architecture<sup>2</sup> as well as in various types of artifacts.

The unpolished pottery of the prepueblo culture in the Mesa Verde is distinguished by the varieties of corrugated, coiled and rough unpolished ware. One type has the neck and mouth of the jars formed of coiling while the body of the jar is rough without. Unlike food bowls from the Mesa Verde cliff dwellings, the Mimbres pottery is destitute of painted dots continuous or in clusters that are almost constantly found in this more northern area. The great difference, however, between the ancient pottery of these two regions is of course the absence of realistic figures in the northern and their great abundance in the southern prehistoric ruins.

There are many bowls in the Mimbres ware that introduce areas, triangles, rectangles, and other geometrical figures across which

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<sup>1</sup> It does not seem probable that this line break originated independently in different ceramic areas of the Southwest. The pottery on which it occurs is supposed to be later than the Mesa Verde.

<sup>2</sup> As elsewhere pointed out, the character of ancient dwellings in the Mimbres belongs to a more ancient epoch than the pueblos; it looks as if the absence of the life line on pottery supported the same theory, but the other features in decoration appear more highly differentiated and therefore more recent.

extend parallel lines or hachures. When triangles, these figures interlock with the same of solid black, leaving zigzag white designs. This is apparently a rare method of decoration of Mesa Verde pottery by indentations, and occurs at intervals down the San Juan to the great ruins of northern Arizona no less than in ruins at Aztec and in the Chaco.

It seems to indicate an older state of culture as it universally underlies the true black and white or prepueblo culture which is missing in the Mimbres, Gila and Little Colorado regions.

While a knowledge of the distribution of the broken encircling line in pottery from Southwestern ruins is not very extensive, those in which it has survived lie in contiguous areas. This feature is absent in the oldest ruins. In the area where pottery thus decorated occurs there survive few inhabited pueblos. Another point: the decorated pottery of the San Juan drainage, where corrugated ware is most abundant, has no life line; this is true likewise with the Mimbres Valley, where the most realistic decorated figures occur, corrugated ware being comparatively rare. The line of life does not ordinarily occur in black and white ware. Archaic ware, generally speaking, has no line of life, which leads me to suppose that the Mimbres ware is older than the Gila pottery. One of the peculiarities of Mimbres pottery is the use of geometric figures on the bodies of animals. These are practically the same as those used free from zoic forms. Their meaning in this connection is not known but several explanations, none of which are satisfactory, have been suggested to account for their existence on animal bodies. This is not common in the pueblo area but occurs in the region or regions that are peripheral in situation, two of which are the San Juan cliff houses and related ruins and the Mimbres; one north, the other south of the central or northern pueblo zone. The author is led to regard this feature as later in development or more modern. If earlier it would probably have been distributed over the whole area. From a study of houses the author was led to believe that the Mimbres settlements were older than the great highly differentiated cliff dwellings and pueblos.

The geographical distribution of the "life line" is suggestive of its comparatively modern origin. It is found in ruins along the Gila and its great tributary, the Salt, in the ruins along the Little Colorado and its tributaries, at Sikyatki, Zuñi and some of the Rio Grande ruins.

The geometrical decorations on Mimbres pottery can generally be resolved into certain units repeated two or more times, forming

a complex figure. We have, for instance, a single type repeated four times, each unit occupying a quadrant. We have also another unit type repeated three times. In a fourth form we have two unit types, each repeated in opposite hemispheres, all together filling four quadrants. In a fifth method we have three different unit types, each duplicated.

In the design represented in figure 103 we have what appears to be a sun symbol or a circle with checkerboard covering and four projecting appendages that resemble bird-tails arranged in pairs, the markings of the opposite members of each pair being practically identical. The geometrical designs on the periphery of the bowl consist of six units, in each of which pure black and hachure are combined. In figure 104 the design appears as a central circle with four radiating arms of a cross, each with checkerboard decoration. Oval white figures alternate with these arms and in each of these ovals is depicted a compound figure of six triangles. A similar design appears on ancient pottery from the Hopi ruin, Sikyatki, where it has been identified as a complex butterfly symbol, and on that from the cliff dwellings of the Mesa Verde. In Mimbres pottery it sometimes occurs on the body of animal pictures, as the author has shown elsewhere.<sup>1</sup>

In the design (fig. 105) a central circle is absent but it has four arms like a cross with zigzag lines. The design (fig. 106) is made up of four S-shaped figures painted white on a black zone. From the inner ring there arise eight radiating lines which extend toward the center. Each of these radial lines has three parallel extensions at right angles.

Figure 107 is a broad Maltese cross painted white on a black background, one edge of each arm being dentated. This figure may be classed among the negative figures so successfully used by the ancient Mimbrenos.

A swastica design represented in figure 108 is so intricate that it is not readily described. In the middle there is a square on the angles of which are extensions that have a dentate margin. The designs placed opposite each other are more elaborate than the other four and are triangular with solid colors and hachures.

Four triangular designs radiate from a common center on a white field in figure 109. Serrate marginal edges are used with good effect in this picture.

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<sup>1</sup> See plates 3, 4, *Archeology of the Lower Mimbres Valley, New Mexico*. Smithsonian Misc. Coll., Vol. 63, No. 10, pp. 1-53, 1914.



There are two pairs of rectangular designs in figure 110 arranged about a central circle with peripheral serration recalling a buzz saw. The combination of designs surrounding it is unique but the elements resolve themselves mostly into zigzag and checkerboard decorative elements.

The extremities of the cross (fig. 111) are rounded; its arms arise from a central inner circle with figures in white on a black background. Two of the arms are ornamented with terraced rims and two have diamond figures separated by parallel zigzag lines forming bands in white on a black background.

Three pairs of designs can be recognized in figure 112, one pair resembling flowers on stalks; the others, also paired, are octagonal in form, recalling flowers seen from above. An eight-pointed rosette forms the center of one, and a cross, white on black, the other. Six triangular designs in which hachures predominate decorate the periphery.

Two pairs of geometric figures cover the interior of the bowl shown in figure 113. One pair is mainly a checkerboard design, the other chevrons on parallel lines. The central figure is surrounded by nine crosses on a white zone. Figure 114 has likewise two pairs of geometric units arranged about a central circular area which is white.

Figure 115 also has two pairs of radically different units, one with two rectangular designs, the other with wavy lines having dentate borders.

There is a trifold arrangement in the decoration of figure 116, consisting of three lozenge-shaped figures with dentate borders and parallel lines set in as many oval white areas. The central figure is a white circle with black border.

Figure 117 is also made up of three unit figures, each of triangular shape with an elaborate border of solid triangles and hachure surrounding figures.

Figure 118 is a very exceptional decoration and may be divided into six units arranged in pairs. There are four triangles, two pairs of which have a decorated border and two have not, but all alternating with a pair of five needle-like solid black pointed extensions reaching from the margin of the bowl inward. The most conspicuous figure is a unit design consisting of bands with two opposite figures united with the margin by a black line, each decorated with four frets.

Figure 119 is an unique decoration made up of a central circle with five claws like birds' beaks, each with an eye. The interior of each is a five-pointed star.

Figure 120 is a central four-terraced symbol from which extend many radiating feather-like designs. A central rosette in figure 121 has eight petaloid divisions; it is white at the extremities, black at the center.

The decoration of figure 122 consists of an intricate meander filling the peripheral space outside a circular central black area.

In figure 123 the more striking parts are the five white circles, one centrally situated, and four equidistantly placed near the periphery. The main portion of the bowl is covered with figures consisting of rectilinear lines and spirals.

The prominent design in figure 124 is a star with eight slender arms and exceptional peripheral decorations.

The centrally placed design depicted in figure 125 is a quadruped with tail curved upward, recalling a conventional mountain lion. The peripheral figures are of two shapes, lozenge or angular, and semicircular with zigzag extensions.

Two birds stand on an unknown object in figure 126, while in figure 127 we have a quadruple arrangement of parts, the same unit being repeated four times. The most striking designs are bundles of conventional feathers, four in each, arranged at intervals. These have been identified as feathers by a comparison of them with the wing feathers of an undoubted bird elsewhere considered.

The designs shown in figures 128 and 129 are four-armed crosses. Between the arms of the last mentioned figure there are white designs on a black ground.

Now and then we find in ancient Mimbres pottery the universal symbol called the swastica. Figures 130 and 131 are geometrical, the latter having three instead of four arms. Figure 132 represents a four-armed swastica in which the extremities of the arms are quite complicated.

One of the most beautiful geometric designs from Mimbres pottery is shown in figure 133, where a combination of curved and linear figures, black, white, and hachure work, all combine to produce the artistic effect. Elsewhere<sup>1</sup> the author has figured a similar design with four S-figures around the periphery of a bowl.

The design on the food bowl shown in figure 134 is very ornate and in a way characteristic of Mimbres ware. We have in its composition solid black, hachure, and white rectangular lines and scrolls

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<sup>1</sup> Archeology of the Lower Mimbres Valley. Smithsonian Misc. Coll., Vol. 63, No. 10, pl. 8.

so combined as to give a striking effect and attractive harmony. Of all geometric figures this appears to the author to be one of the most artistic.

In figure 135 is an artistic combination of a double ring of terraced triangular figures surrounding a central zone in white, and in figure 136 there is a composite decoration composed of a complex of triangular designs. In figure 138 there is a white square in the middle, around which are arranged eight figures of two kinds alternating with each other; four in each type.

The design in figure 137 is simple, consisting of a number of white zigzag figures with intervals filled in with triangles, sometimes black and sometimes crossed by parallel lines.

In figure 138 we have two groups of similar unit designs, four in each group, composed of triangular blocks terraced on one side and crossed by parallel lines. The simple designs on figures 139-140 need no elaborate description.

#### CONCLUSION

The material here published is extensive enough to permit at least a preliminary estimation of the relation of Mimbres pottery to that of the so-called pueblo area on the north and that of Casas Grandes on the south.

The Mimbres valley is an ideal locality for the development of an autochthonous and characteristic ceramic area. There is not sufficient evidence to prove that decorative elements in any considerable number from the North modified it to any great extent, for we find little likeness to pottery of the Tulerosa and other tributaries of the Gila and Salt. The pottery of the Mimbres had crossed the watershed and reappears in the sources of tributary streams that flow into the Gila. Examples of it have been found on Sapello Creek, which, so far as we know, is the northern extension of the Mimbres culture. The beautiful pottery collected by Mrs. Watson at or near Pinos Altos clearly indicates that Mimbres pottery was not confined to the Mimbres Valley. Limited observations often render it impossible to trace the extreme northern extension of the Mimbres pottery, but it seems to grade into ceramics from the upper Gila and Salt River tributaries. The southern migration of pueblo pottery appears to have been very small, but elements of foreign character worked their way into the Mimbres from the west, as is clearly indicated by shards from the ruin at the base of Black Moun-

tain.<sup>1</sup> The line of demarcation between the two on the west is clearly indicated by specific characters.

The Mimbres pottery most closely resembles that from the Casas Grandes mounds in Mexico, on the south, but whether we may look to the south for the center of its distribution is not apparent. The mounds near Casas Grandes River are situated in the same inland plateau, and although Casas Grandes pottery excels the Mimbres in form and brilliant color, it is inferior to it in the fidelity to nature of its realistic pictures of animals. In this respect the Mimbres has no superiors and few rivals.

We have found no evidence bearing on the antiquity of Mimbres pottery from stratification. It is not known whether it overlies a substratum composed of corrugated, coiled, or black and white ware as commonly occurs in the pueblo and cliff-house regions. Decorative features characteristic of it have been developed independently in this isolated region. A knowledge of the length of time required for its development as compared with that necessitated for the evolution of the Sikyatki designs must await more observations bearing on this subject.

The animal designs were not identified by Indian descendants of those who made them. A determination of what they represent is based solely on morphological evidence. They are as a rule well enough drawn to enable us to tell what animal they represent. Very often the animal is recognizable by comparisons, for we can reconstruct a series reaching from a symbol made with a few lines to a well drawn picture. There is danger in supposing that a series thus constructed may always lead to accurate identifications as comparisons of symbols with decorative designs are often very deceptive.

The break in decorative lines surrounding pueblo food bowls and other forms of pottery is absent in specimens from the Mimbres Valley. This is also true of the cliff house and other pottery of the San Juan Valley.

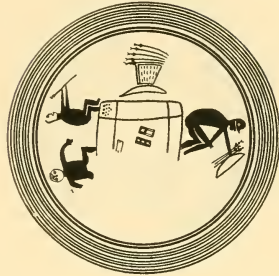
Pottery from the Gila basin and the intervening area as far north as old Hopi ruins has this life line. Much of the ancient decorated ware found in the area between the Mimbres valley and the upper San Juan also have surrounding lines broken.

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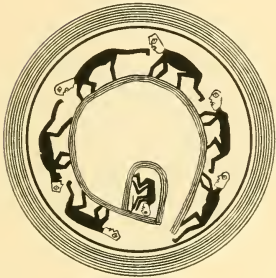
<sup>1</sup> The author has already commented on this infiltration in his *Archeology of the Lower Mimbres*, *op. cit.* Mimbres and Casas Grandes pottery are readily distinguished.



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6

OSBORN COLLECTION.

- 1. Snaring wild birds.
- 2. Game of chance.
- 3. Men emerging from the underworld.

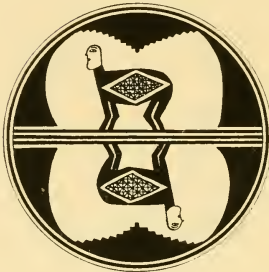
- 4. Man shooting off the lightning.
- 5. Two men and two animals.
- 6. Two men and one woman.



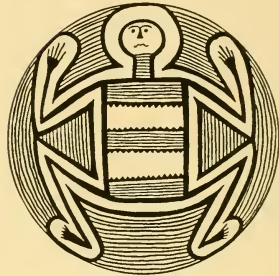
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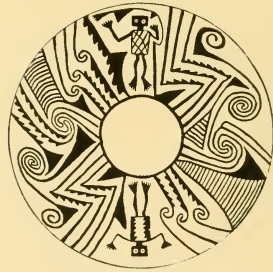
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10



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12

## OSBORN COLLECTION.

7. Two men kneeling on quadrupeds.  
 8. Two men lying on table.  
 9. Two men with bodies and limbs of animals (Hulbert collection).

10. Man dancing.  
 11. Two men dancing and two turkeys.  
 12. Two human figures.



13



14



15



16



17



18

OSBORN COLLECTION.

- 13. Man representing plumed serpent, cutting off head of a victim sacrificed.
- 14. Two carnivorous animals.
- 15. Quadruped (probably wolf).

- 16. Two men dragging a quadruped.
- 17. Horned composite quadruped with feather head-dress.
- 18. Man with rabbit ears and body.



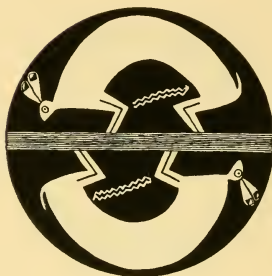
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## OSBORN COLLECTION.

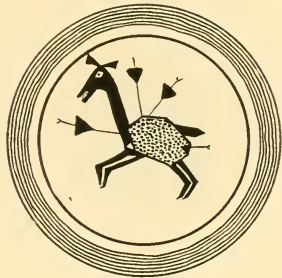
19. Two animals in white, resembling beavers.  
 20. Unknown quadruped (mountain lion?).  
 21. Rabbit.

22. Negative pictures of two rabbits.  
 23. Two rabbits.  
 24. Rabbit.





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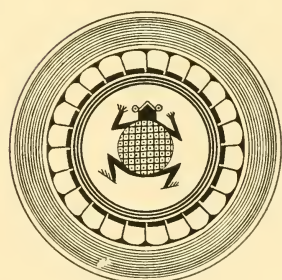
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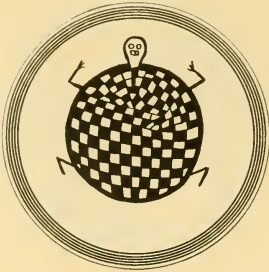
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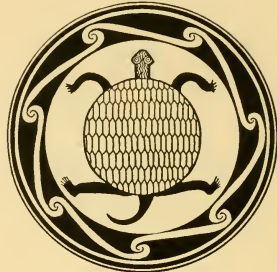
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25. Two rabbits surrounded by a zone containing thirteen bundles of feathers (Hulbert collection).  
 26. Unknown animal (Osborn collection).

27. Bat (Watson collection).  
 28. Frog (Osborn collection).  
 28a. Tadpoles (Osborn collection).  
 29. Turtle (Osborn collection).



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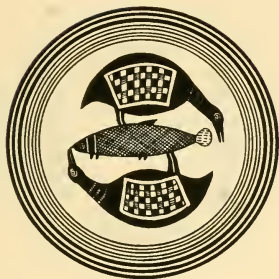
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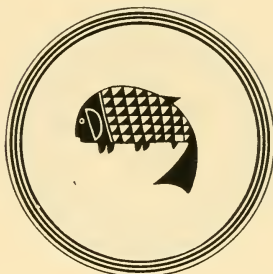
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30. Turtle (Osborn collection).  
 31. Turtle (Osborn collection).  
 32. Snake talking to a mountain sheep (Osborn collection).

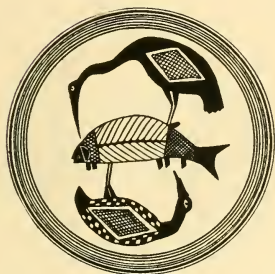
33. Two lizards with white outline (Osborn collection).  
 34. Lizard (Hulbert collection).  
 35. Two lizards talking to a crane (Osborn collection).



36



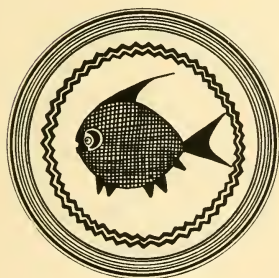
37



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40



41

## OSBORN COLLECTION.

36. Fish with two birds standing on it.  
 37. Sun fish.  
 38. Two birds standing on a fish.

39. Two fishes drawn in white on black ground.  
 40. Sun fish.  
 41. Serpent-like monster with horn on head.



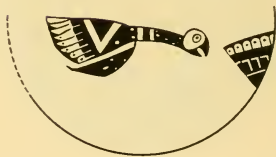
42



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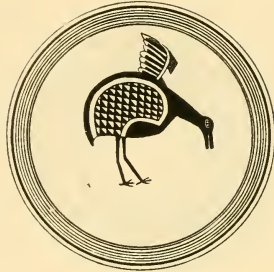
## OSBORN COLLECTION.

42. Coiled fish (Hulbert collection).  
 43. Two fishes symmetrically arranged.  
 44. Three birds.

45. Parrot.  
 46. Well-drawn parrot.  
 47. Quail.



48



49



50



51



52



53

OSBORN COLLECTION.

48. Two birds on dumb-bell-shaped field.  
 49. Bird with wings extended.  
 50. Two birds taking honey from flowers.

51. Three birds.  
 52. Two birds with triangular tails and wings.  
 53. Sun bird.



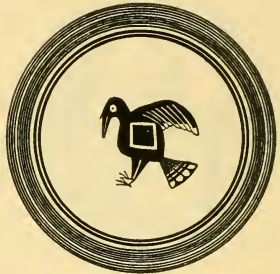
54



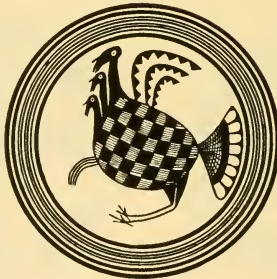
55



56



57

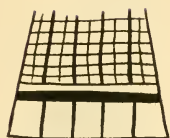


58

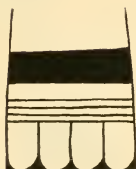
## OSBORN COLLECTION.

54. Four birds with swollen bodies.  
55. Two birds with long necks.  
56. Unknown bird.

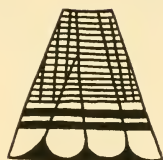
57. Turkey.  
58. Turkey with three heads.



59



60



61



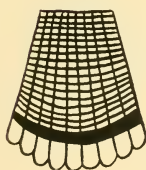
62



63



64



65



66



67

TAIL FEATHERS.



68



69



70



71



72



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76



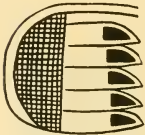
77



78



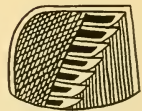
79



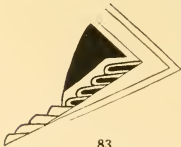
80



81



82



83



84



85

WING FEATHERS.





86



90



87



88



91



89



92

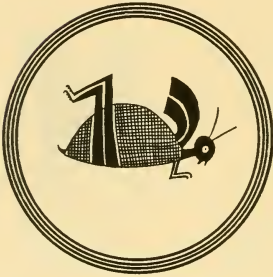
ABERRANT WINGS AND TAILS OF BIRDS.



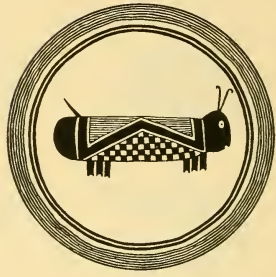
93



94



95



96



97

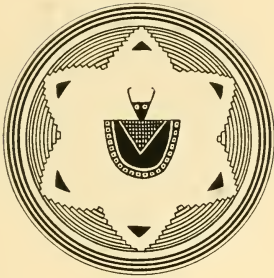


98

## OSBORN COLLECTION.

93. Grasshopper with extended wings.  
 94. Four grasshoppers with extended wings.  
 95. Locust.

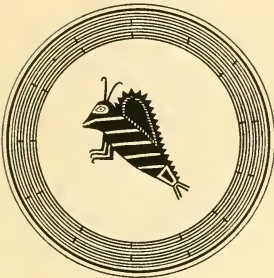
96. Unknown animal.  
 97. Unknown animal.  
 98. Dragon fly.



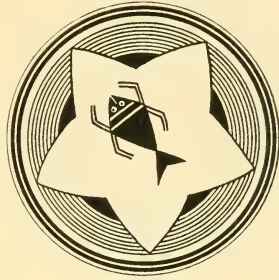
99



100



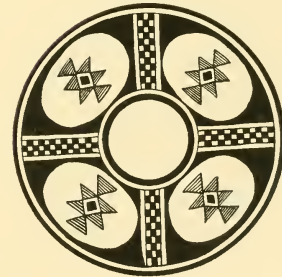
101



102



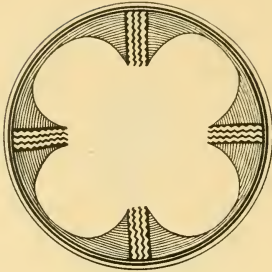
103



104

99. Butterfly (Hulbert collection).  
 100. Unknown animal (Osborn collection).  
 101. Insect with extended wings (Osborn collection).

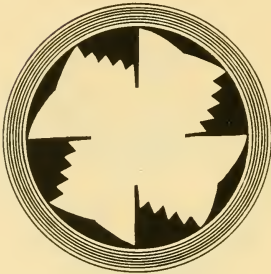
102. Water bug (Osborn collection).  
 103. Sun emblem (Osborn collection).  
 104. Cross with butterfly symbols (Osborn collection).



105



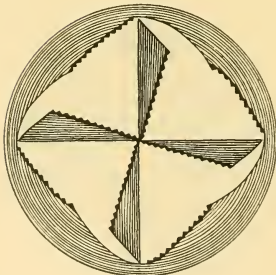
106



107



108



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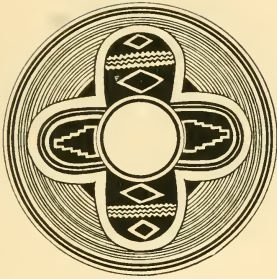


110

## OSBORN COLLECTION.

105. Cross painted white, alternating with four zigzag lines.  
106. Geometrical figure with friendship signs (Hulbert collection).

107. Maltese cross, modified.  
108. Rectangular figure, modified.  
109. Cross.  
110. Cross with zigzag modifications.



111



112



113



114



115



116

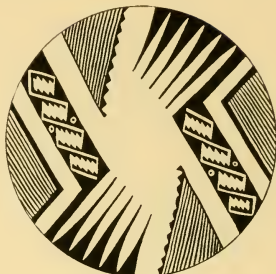
OSBORN COLLECTION.

- 111. Cross with rounded arms.
- 112. Six flowers, two in profile, the remainder from beneath.
- 113. Geometrical figure.

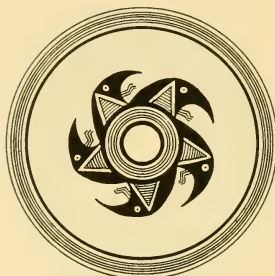
- 114. Geometrical figure.
- 115. Two-armed rectangular figure.
- 116. Center circle with three rectangular figures with serrated edges.



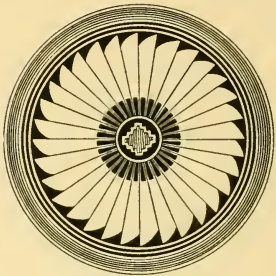
117



118



119



120



121



122

117. Swastika with three points (Osborn collection).

118. Figure of unknown meaning (Watson collection).

119. Five heads of birds around a central circle (Osborn collection).

120. Radiating feathers (Osborn collection).

121. Radiating pear-shaped objects surrounded by elaborate zone of complicated solid black and parallel lines (Osborn collection).

122. Figure of unknown meaning (Osborn collection).



123



124



125



126



127



128

123. Intricate design with five white circles (Hulbert collection).  
 124. Star with eight rays (Osborn collection).  
 125. Quadruped surrounded by zigzag lines (E. White collection).

126. Two birds on an unknown weapon (Osborn collection).  
 127. Cross with four bundles of feathers (vide fig. 53) (Osborn collection).  
 128. Rectangular cross around a circle, with elaborate peripheral design (Osborn collection).



129



130



131



132



133



134

129. Maltese cross (Osborn collection).

130. Cross with arms of two types (Osborn collection).

131. Three-pointed swastika (Osborn collection).

132. Swastika with zigzag extensions (Osborn collection).

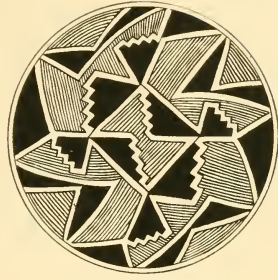
133. Combination of rectangular and spiral designs (Osborn collection).

134. Complicated unknown figure (Watson collection).

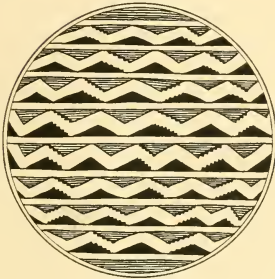




135



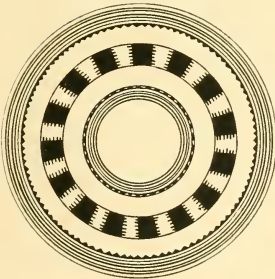
136



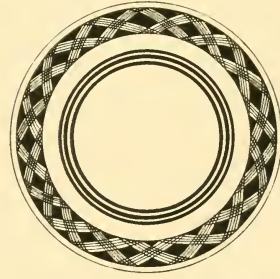
137



138



139



140

135. Rings of cerrated symbols surrounding a central white area (Watson collection).

136 to 140. Geometrical ornamentations of unknown meaning (136, 138, Watson collection; 137, 139-140, Osborn collection).