NEW DATA ON THE ARCHAEOLOGY OF VENEZUELA

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AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK

Received by the Academy, May 11, 1916

The archaeological reconnaissance of Venezuela made under the auspices of the American Museum of Natural History had for its purpose not so much the study for their own sake of Indian remains in Venezuela, but rather for the light that these remains might cast on certain fundamental problems of American archaeology. The field, although untried, is theoretically of the greatest importance. It is generally recognized as the point of departure for the original culture of the West Indies. Moreover, it is intermediate between the rich and well-known fields of Colombia and Costa Rica on the one hand and of eastern Brazil on the other and might be expected to furnish proofs of cultural connection if such exist. The success attendant upon recent stratigraphic work in the Southwestern States and in Mexico and the great advance in our knowledge of actual chronology in Central America tempt us to widen the recognized horizons of ancient American history whenever this seems possible.

Northern and central Venezuela were visited. The route passed from Maracaibo to Bobures, a port on the southern shore of Lake Maracaibo, and thence across and along the Eastern Andes to Mérida, Trujillo, Tucuyo, and Barquisimeto. Next the rich interior valley running from Valencia to Caracas was examined. From this populous region the road led southward across the llanos to San Fernando de Apure and thence by the Apure and Orinoco rivers to Ciudad Bolivar, the British island of Trinidad and a number of Venezuelan coast ports. Private collections, mostly small, were found in the principal cities. Notes and drawings were made of important specimens in these collections and considerable information obtained from local students. A few important sites were visited.

Space forbids detailed descriptions of archaeological specimens that came to light in Venezuela. Suffice it to say that stone implements, including celts, pestles, etc., vessels and figurines of clay with painted and modeled decorations, personal ornaments of shell, nephrite, jet and serpentine, as well as petroglyphs and pictographs, occur in considerable quantity. Various provinces may be marked off for detailed study, in each of which the ceramic products are sufficiently peculiar to be readily distinguished.

In the Andean region painted pottery is common but elsewhere it is
rare. In caves and near sacred lakes on the wind-swept paramo many interesting figurines of men and women have been discovered, the former seated on stools and the latter in a variety of standing and sitting poses. These are seemingly the idols of a primitive agricultural people. By the peculiar style of construction and decoration of these figurines the student of ancient art can clearly demonstrate a cultural bond between Venezuela and Central America. Breast ornaments of shell and serpentine, carved to represent highly conventionalized bats, are common in the Andean province but become rarer as one passes towards central Venezuela.

The shores and islands of Lake Valencia are rich in archaeological remains. The level of this body of water has fallen about twenty feet since the coming of the Spaniards leaving old shore villages high and dry and making possible stratigraphic studies. Irregular earthen mounds containing a wealth of material, broken and entire, are found at a number of sites. Unfortunately for science the most remarkable group of mounds is now being destroyed in a hasty and unguided search for specimens. In this region collars of carved shell beads are often unearthed as well as stone pendants in the form of frogs. Pottery is decorated by modeled designs among which the highly conventionalized bat with outstretched wings is prominent. Figurines that represent human beings, jaguars, frogs, etc., are common and often finely executed. Connection with the Andean region is evident in pottery shapes as well as in the styles of decoration. A development over a long period of time doubtless took place here with a succession of somewhat different types.

Passing towards the east the material available for study falls off in quantity. On the llanos to the south very little collecting has been done although ancient village sites exist along the rivers. The few pieces brought to the attention of the writer show that an ancient sedentary culture of the "archaic school" once flourished here. Archaic pottery is also found at points along the Orinoco and it may be remarked that this ancient ware is very different from the varnished pottery now made by the uncivilized Indians of southern Venezuela. Little is yet known concerning the archaeology of eastern Venezuela. Collections made in Trinidad show a marked change from the types of the central region but not a complete break. West Indian forms are well developed here.

But while regional study shows what might be expected, namely a series of merging types in accordance with the principle of divergent development, there are features of Venezuela archaeology that offer evidence of customs once prevalent over the entire area. Urn burial
is such a feature, reported from the island of Aruba, from the vicinity of Maracaibo, Mérida, Valera, Carache, Valencia, Maracay, La Unión on the Portuguesa River, San Fernando de Apure, Atures on the Orinoco, etc. The urns are from two to two and a half feet in height, usually with rather narrow mouths closed by an inverted urn or by a shallow bowl. In these urns human remains are encountered in a sitting position with the knees under the chin and with the hands at the side of the face. The small size of the urns raises an interesting question concerning the method of inserting the bodies. It is not unlikely that desiccation preceded burial. These burial urns are sometimes found in caves and sometimes in low mounds but for the most part they are met with at a depth of about two feet below the apparently unmodified surface of the earth. The distribution of this method of burial probably extends beyond the limits of Venezuela and may be continuous over the open lands of the interior to Brazilian Guiana and even to the Island of Marajo in the mouth of the Amazon. On the west urn burial is well known in Nicaragua. The extension of this feature to the West Indies deserves to be studied with care since it is also found in our own southern states.

The statement has already been made that the figurines found in the Eastern Andes resemble closely those of Central America. This might be made stronger and the conclusion brought home that the plastic art of Venezuela is one and the same with the "archaic art" already known in Mexico and Central America. The proof is both objective and subjective. To be sure we must always stand ready to evoke the doctrine of divergent development but with a knowledge of transitional types the very fact that an orderly and systematic change is to be observed makes stronger the proof of cultural dissemination. In Mexico and Central America the archaic art was succeeded by other and higher styles. In Colombia some influence from these later cultures is manifest in pottery and metal work. But in Venezuela no later inflow has been noted and but slight evidence of independent local uplift.

The writer has elsewhere expressed the opinion that the diffusion of ceramic art of the so-called archaic type was contemporaneous with the primary diffusion of the concept of agriculture together with the actual passing of certain cultivated food plants such as maize, beans, and squashes, that are universally known among American Indians on the agricultural plane of life.

As regards Venezuelan archaeology, the question of time should perhaps be held in abeyance. In Mexico and Central America we have
reason to believe that the archaic culture gave way to the higher civilization of the Maya at about the time of Christ. It had doubtless lasted a very long time since the deposits of this period are very thick. But once implanted in Venezuela the archaic culture, free from the pressure of higher arts, might have maintained itself till the coming of the Spaniards. There is evidence, however, of considerable pressure of population by wild tribes from the south and the little that is known of Venezuelan ethnology is not in full accord with the archaeology.

Beyond Venezuela we may be permitted to indicate the probable course of ancient empire. There is little doubt in the mind of the writer that the archaic culture—standing everywhere for sedentary agricultural communities, skilful in making pottery and textiles—was once laid down across northern South America and that the remarkable pottery of Marajo, at the mouth of the Amazon will prove to be a distant but congenital relative of the ware from the lowermost stratum of human handicraft in the Valley of Mexico.

The full data resulting from this exploration together with that obtained by further field studies will appear in the Anthropological Papers of the American Museum of Natural History.

NOTE ON THE PHOSPHORESCENCE OF URANYL SALTS

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Received by the Academy, May 9, 1916

Phosphorescence is commonly regarded simply as the after effect of fluorescence, the emission spectrum immediately after the close of excitation being identical with that immediately before excitation ceases. This has hitherto been only an assumption, since it is thinkable that the process which prepares a substance for phosphorescence might produce emission during excitation differing from that which constitutes phosphorescence and which together with the latter would be present during fluorescence. It is also thinkable although unlikely that the phosphorescence might contain some components requiring a measurable time for development and observable only after an appreciable interval.

This is a matter which it would be very difficult to settle in the cases of phosphorescence hitherto studied because the spectrum of fluorescence and phosphorescence consists of broad bands or complexes of overlapping bands and almost the only criterion of identity is that of color.

It is true that the color of fluorescence is frequently different from that observed during the phosphorescent period but that is rightly as-