## CREATIVE ARTISTRY IN NEST BUILDING

BY AUSTIN L. RAND CURATOR OF BIRDS

"As to what its significance is we have no idea" is how I ended a survey of the seven (now eight) cases in which certain bird species characteristically use snakeskins in their nests (BULLETIN, December, 1949, page 6). Since then, I've had a clue to the riddle. Unpacking a bird collection made



#### 'SIMULATION' OF SNAKESKIN

The nest of a Borneo bulbul showing dead leaves used in the margin of the nest. This material in texture and appearance somewhat resembles snakeskin.

in Borneo by Curator of Anatomy D. Dwight Davis, I took out a bulbul's nest. In its outer edge were flat, weathered leaves that resembled snakeskins. Later, when we received a bird collection from Dr. D. S. Rabor of the Philippines there was another nest of another species of bulbul and this, too, had flat, dead, weathered leaves in it that looked like snakeskin. When I was in Madagascar, in 1929-31, I had found three nests of the Madagascar bulbul, with a snakeskin used in each. Here was a clue. I decided to investigate the nests of the other species of bulbuls of southern Asia and Africa where the family is represented by many species. By considering the snake-



MORE 'SYNTHETIC SNAKESKIN' The nest of a Philippine bulbul with dead leaves somewhat resembling snakeskin used in the base of the nest.

skin-using species against the background of the nesting of the other species, some correlation might appear.

This became a library problem at once. I had to look up the earlier reviews of the problem in the ornithological journals, *The Auk* and the *Ornithologische Monatsberichte*,

then in Strong's Bibliography of Birds, to make sure that no important papers were missing from my own subject file. Stuart Baker's Fauna of British India, Birds had a large part of one volune devoted to bulbuls. and gave excellent summaries of the nidification of each species occurring there. Bannerman's Birds of Tropical West Africa covered the western part of that continent, and Jackson and Sclater's Birds of Kenya Colony did the same for the eastern part. For collateral material I looked in Mathews' Birds of Australia, Volume 12, Forbush's Birds of Massachusetts and Mrs. F. M. Bailey's Birds of New Mexico and a dozen minor publications.

But it was worth it.

Perhaps my earlier thinking was dominated by the thought that the shed snakeskins had been parts of animals toward which many birds show a natural antipathy. But it's extremely probable a bird does not recognize the snakeskin as such. Rather to it the shed snakeskin is a strip

of thin, flexible material. Obviously it would be used, by chance, by many bird species, such as the house wren that in addition to such natural materials as twigs, grass, and hair has been recorded as using lead pencils, paper, nails, safety pins, and snakeskins in its nest.

As to the regular users of snakeskin, the snakeskin-using Madagascar bulbul did fit into a pattern. Bulbuls in general make characteristic simple cup nests. Some species use almost any available material. But quite a few species had specific choices of materials: one species' nest had tendrils of



SNAKESKIN Crested flycatcher's nest in Museum exhibit.

vines in its base; another a lining of grass heads of certain color; another pine needles; another red dead leaves; and the Madagascar bulbul snakeskins.

There seems to be a tendency for many species to make distinctive nests. They often accomplish this by a choice of material used by few or no other species. What more natural than that one species, being in a country where snakes are common, should hit on shed snakeskins!

To show that the choice of snakeskin as nesting material is an expression of a tendency for each species of bird to make a different kind of nest may not be much of an answer. But it is to an extent. No longer do we say, "Why are certain birds' nests characterized by snakeskins?" Rather we have the broader, more general question, "Why does each kind of bird tend to build a nest different from that of every other kind?" Thus, little by little, we clear away small, vexing questions and resolve them into larger, more general questions. For answers to these we sometimes plan extended work involving field studies, studies of specimens and books. And sometimes, as we examine a specimen, read a paper, or unpack a shipment, an answer, or at least a clue, springs to our mind.

#### An Ancient Reptile . . .

### COTYLORHYNCHUS ARRIVES FROM OKLAHOMA SITE

BY WILLIAM D. TURNBULL PREPARATOR, DEPARTMENT OF GEOLOGY

Some 240 million years ago much of Texas and Oklahoma was traversed by broad rivers bordered by extensive swampy areas. The climate in those remote Permian days in the North American Southwest was warm, humid, and semitropical. The rivers were laden with silt, which was deposited on the deltas and, in flood time, along the flood-plains. The country abounded in plant and animal life and often the remains were buried in the mud to be preserved as fossils in hardened mudstone. Occasionally, during high floods, some animals were buried beneath thick mud deposits. Their skeletons were saved from the ravages of currents and scavengers and so were preserved intact.

Cotylorhynchus romeri is the name given to one of these Permian animals, a member of the great reptilian order Pelycosauria, that lived in the rivers and swamps in the vicinity of what is now Norman, Oklahoma. This animal has a remarkably small, short skull, connected by a stocky neck to a relatively huge, low, barrel-shaped trunk. The teeth are blunt, indicating a herbivorous diet. So disproportionate is the skull to the rest of the body that the beast must have spent a large part of its time engaged in the mechanical process of ingesting sufficient food through its small mouth to nourish its large body. The limb-bones are short and very broad, indicating a sluggish, plodding type of locomotion. The bulky extremities also suggest that Cotylorhynchus was dependent upon the buoyancy of swamp and river waters to help support its great weight, estimated to have been one-third of a ton. With a tail about equal in length to the rest of its body, the total length of adult individuals was between 10 and 12 feet. Little Casea (soon to be exhibited in Ernest R. Graham Hall-Hall 38), closely allied to Cotylorhynchus and found in earlier Permian deposits of Texas, reached a length of but four feet and was much lighter in build than its large relative.

Cotylorhynchus is represented by twentyseven skeletons, which were discovered by Dr. J. Willis Stovall of the University of Oklahoma, where several of the specimens are on display. The paleontological staff of Chicago Natural History Museum was anxious to obtain one of these interesting forms for comparative study and to add to the extensive collections of Texas pelycosaurs. It was arranged that during September a joint party from the Museum and the University of Chicago be sent to collect a skeleton, indications of which were found some years ago by Dr. Stovall. The writer was accompanied by Richard Konizeski, of the Department of Geology, University of Chicago.

The site of the field operations was an abandoned pasture, dissected by erosion, with many outcroppings of red mudstone. In one of the gullies, fragments of bone were found in abundance. The collectors immediately set to work with ice-picks and awls, chipping away the crumbly rock to expose the skeleton. The first parts of this Cotylorhynchus to appear were the ribs. As the work progressed, the vertebral column, the limbs, and the pectoral and pelvic girdles were gradually uncovered. It soon became evident that this was an exceptionally well-preserved specimen, nearly complete, save for the skull and jaws that had apparently weathered out some years ago. The extremities-the curled-up toes and the small vertebrae at the tip of the long, curving tail-were found to be essentially complete. Of particular scientific interest is the dermal armor of gastralia, or belly ribs, which is better preserved in this individual than in any of the previous finds.

As the fossil was exhumed, a thin solution of shellac was poured on the bone to harden it. When the full extent of the skeleton was finally determined, a plaster-of-paris jacket was carefully put on to protect the fossil during the long journey back to the Museum. It required the use of a tractor and four sets of strong arms to load the 1,000-pound specimen into the field truck. *Cotylorhynchus* now lies in the paleontological preparation room.

#### 1,200 4-H Boys and Girls On Tours of Museum

More than 1,200 boys and girls of the 4-H Clubs, national farm-youth organization, visited the Museum on November 27 and were conducted on tours of the exhibits by staff lecturers of the Raymond Foundation and members of the scientific staff.

The youngsters, representing nearly all states of the Union and the provinces of Canada, were delegates to the National Congress of 4-H Clubs, which meets in Chicago every year at the time of the International Livestock Exposition. Those who come are chosen in their local communities for excellence of achievement. For many years their visit to the Museum has been a repeated occasion.

## VENEZUELAN PLANT PITH USED IN NATIVE CARVING

BY JULIAN A. STEYERMARK CURATOR OF THE HERBARIUM

Most tourists who visit Venezuela know its capital city, Caracas, better than any other place in this interesting South American country. If they travel westward from Caracas along the Andean highway, they will come eventually to Mérida, the largest town in the Venezuelan Andes. Surrounded by the highest peaks of the Andes in Vene-



ANIME PITH CARVINGS Specimens show fruits carved from pith of the Venezuelan anime plant.

zuela, it nestles in a valley at an elevation of approximately 5,000 feet (1,641 meters). Potatoes and wheat are grown in the cooler climate predominating in the vicinity. A native staple, similar in shape and flattened like the well-known *tortilla* of Mexico and Central America but made from wheat flour instead of corn, is commonly eaten in this area.

One of the products, used in native handicraft peculiar to this part of the Andes, is known as anime. The name is applied to various species of the Compositae, a family that includes such familiar plants as aster, daisy, goldenrod, chrysanthemum, dahlia, sunflower, artichoke, and thousands of others. While the plants called anime resemble one another in general appearance because of their tall thick stems with opposite large leaves and yellow or yellowand-white flowers, they can actually be referred to at least four different species.

In the course of my botanical collecting in Venezuela I found anime to be represented by two species of the genus *Montanoa* (M. *Lehmannii* and M. *quadrangularis*) and two species of the genus *Polymnia* (P. *eurylepis* and a species new to science soon to be published in the Museum's scientific series). Although these four differ in many respects and are easily detected as distinct from one another, they all have one feature in common, namely a soft whitish or pale-colored *pith*. The pith, as is well known, is the soft central portion of the stem, usually spongy in texture and easily cut. Most herbaceous as well as woody plants possess pith, but in some it is of greater extent or of firmer texture than in others.

In the case of the anime plants of Venezuela, pith is well developed and quite soft. It is similar to the pith of the stems of our common elderberry (Sambucus canadensis), but attains greater thickness. The inhabitants of Mérida and elsewhere in the Venezuelan Andes have learned that they can easily fashion this pith into numerous objects of great delicacy and beauty. Handcarved by small knives and then colored to appear life-like, these articles may represent fruits of various kinds, orchids growing on a log, roses, miniature houses, etc.

Anime is lighter than cork. Sometimes one sees bundles of stems being collected to use for this carving, a remarkable art not often appreciated by the ordinary tourist. Carvings of this kind are not limited to the Andean towns but can also be found in Caracas itself, as one species of anime grows in the surrounding hills. Sometimes the different species of anime are designated by the local inhabitants as anime blanco, anime manso, etc.

It is interesting to note that the genus *Polymnia* is also found in the eastern half of the United States and that it is repre-



ANIME PITH USED IN ART Reproduction of an orchid plant (Cattleya mossiae), showing its epiphytic habit of growth on a piece of wood. Made by a native Venezuelan artist entirely out of the pith from an anime plant.

sented by two species in Illinois. In these, however, the stem is quite slender and-the pith is only slightly developed as compared with the thick-stemmed species of Venezuela.



Turnbull, William D. 1951. "Cotylorhynchus Arrives From Oklahoma Site." *Bulletin* 22(12), 4–5.

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