

BIRDS USING TOOLS

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CURATOR OF BIRDS

A "TOOL," according to my desk dictionary, is "a simple mechanism or implement, as a hammer, chisel, spade, etc., used in working, moving, or transforming material. By extension, a machine—." Man has progressed so far in using tools that the present era has become known as the "Machine Age." But man has not a monopoly on tools. Birds along with some other groups of animals have a few species that use tools.

The clearest case is that of the woodpecker-finch of the Galapagos Islands. *Camarhynchus pallidus* is its proper name. It is one of a group of dull-colored finches restricted to the Galapagos. Before it became known that one species used a tool, the chief claim to fame of the group was that it, along with some other Galapagos animals, such as the giant tortoises, had a great influence in turning Darwin's thinking to the working out of the theory of evolution as set forth in his *Origin of Species*.

The woodpecker-finch feeds largely on insects that it gets by searching and probing on the ground and on trunk and leaves of trees. In searching crevices, the woodpecker-finch is handicapped by its rather short, thick bill. To offset this the bird picks up a slender, short length of stick or the spine of a prickly pear and with it pokes into crannies. The insects thus disturbed or driven out are seized. Sometimes the woodpecker-finch digs into the tree trunk and then gets a stick to probe with; sometimes it carries its probe about with it,

to get the soft edible animal out of its shell it carries or drags the snail to a favorite rock, its anvil, and there hits it against the anvil until the shell is broken and its contents exposed. The question is: Can this be considered as using a tool? If the song thrush moved or prepared the rock, which it does not do, there would be no question that it was a tool. The sea otter brings a stone from the bottom of the ocean and places it on its floating body to use as a similar anvil in cracking hard objects, and this undoubtedly is the use of a tool. At the other extreme are many species of birds that beat their prey on branch or ground, wherever they happen to be. The method of the song thrush is certainly an advance over that and can, I think, be considered as using a tool in a primitive way.

A few other species, too, bring shellfish to special places. Herring gulls on our northeastern coast pick up mussels and clams and, flying over a rock or some other hard surface, drop the shellfish and follow it down. If the shell is broken, the dish is ready for the gull; if the shell is not broken the gull takes the shellfish up to a higher altitude and tries again. Where hard-surfaced roads are conveniently located, gulls have learned to use them as shell-breaking places, and such roads become littered with shells. Crows of more than one species also use the same routine in breaking open shellfish, and they too have learned to use special hard surfaces, such as masonry walls, on which to drop the shellfish.

Here we have a number of species of birds, not especially closely related, that have evolved farther than their kin in their manner of getting food. By this means each is able to get food, or more food of a certain kind than it could otherwise. Although much of this activity has probably evolved along instinctive lines, learning is evident in the activities of gulls and crows that use a hard road or a stone wall.

The satin bowerbird of Australia, a species known to science as *Ptilonorhynchus violaceus*, has been considered as a case in point when discussing the use of tools. The birds are somewhat larger than a robin, the male glossy blue black, the female greenish. The male of this species constructs an elaborate bower, presumably for courtship purposes. It makes the bower of sticks and twigs and decorates it with bright and curious objects such as shells, feathers, bits of bone, and fruits, as do several other species of bowerbirds. But the satin bowerbird is unique in painting the inside of its bower. Fruit is crushed in its bill, and the bird, using its bill as the tool or paint brush, smears the fruit juice on the sticks on the inside of the bower. While this is a wonderfully strange habit, apparently unique in the bird world, it is doubtful if paint can be considered a "tool." If the satin bowerbird used a twig or a wad of moss or fiber (which it does not do) in spreading the paint, the case would

—THIS MONTH'S COVER—

Reproduced on the cover of this BULLETIN is "Snow-capped," winner of the first prize medal in the general classification, color slide division, of the Third Chicago International Exhibition of Nature Photography held in Stanley Field Hall of the Museum during February.

The picture was made by Captain Martin L. Davis, of the Headquarters Pine Camp, Pine Camp, New York. Captain Davis supplies the following information about the picture:

"'Snow-capped' was taken with a Contax III during the winter of 1945 in the Tirolean Alps while I was a company commander in the 42nd 'Rainbow' Infantry Division. I have been an amateur photographer for eight years but had never entered any exhibits until my wife, without my knowledge, entered this picture. I spent three years in Europe with the Army, mostly in Austria, and took several hundred color shots, of which this picture is a sample. 'Snow-capped' was taken on Agfa film and processed in England."

be clear. But the bill is used as the tool for applying the paint, and this case does not seem to parallel the clear case of the woodpecker-finch using a tool.

THE SWALLOWS OF CAPISTRANO —A LEGEND OF MARCH

There is a well-known story that the swallows of the Mission San Juan Capistrano return each year to their summer nesting place at the mission on St. Joseph's Day, March 19, and depart, or rather used to depart, for the South on St. Juan's Day, October 23, and have done this from time immemorial. A few days before March 19, when the swallows are due, a few birds appear as scouts and these go back to convoy the main flock. The time of day may vary, but it's always on March 19. Though St. Juan's Day has been the traditional day for the swallows to leave, in recent years the mission reports that they have been leaving earlier, in July. Such is a summary of the story as supplied by the mission.

The identity of the birds is easy. The swallow that makes its flask-shaped mud nests under the eaves of the mission is the cliff swallow, which also nests commonly elsewhere in California. Naturalists find that swallows arrive in California with great regularity in the latter part of March, and most of them leave by September. Naturalists do not, however, subscribe to the view that they reach and leave any given locality on a given day, year after year.

—A.L.R.



Cartoon by Peggy Collings Brown

poking in crannies until prey is disturbed. Then the stick is dropped and the food seized.

Although this is the clearest case of a bird using a tool, there are other cases that are borderline. The song thrush of Europe feeds in part on snails and winkles. And



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