

- PETERSON, R. S., AND G. A. BARTHOLOMEW. 1969. Airborne vocal communication in the California sea lion, *Zalophus californianus*. Anim. Behav. 17: 17-24.
- SHELDON, W. H. 1967. The book of the American Woodcock. Amherst, Univ. Massachusetts Press.
- WILLIAMS, H. W. 1969. Vocal behavior of adult California Quail. Auk 86: 631-659.

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"Woodpecking" by a Red-throated Barbet.—While barbets (Capitonidae) are well-known to excavate nesting cavities, usually in dead trees, to my knowledge no one has reported them foraging in a woodpeckerlike manner. On 15 February 1972 at Pasoh (the International Biological Program's rain forest study site), Negeri Sembilan, Malaya, I watched a Red-throated Barbet (*Megalaima mystacophanos*) "woodpecking" for 20 minutes on a stub 1½ m thick and 15 m tall. Most of the trunk was devoid of bark, but a few pieces still hung on. The exposed tree surface was hard enough for the pecking to make a noise; indeed it was the tapping of a presumed woodpecker that led me to the stub. To my surprise, I found no woodpecker tapping, but a male Red-throated Barbet braced against the tree with its legs, but not appressing its tail to the tree surface. The barbet pecked in slow bursts of 2 to 4 or 5 taps, excavating small pits in the wood. From at least six of nearly a dozen of these pits it extracted an insect, apparently squirming larvae. While I watched, the bird worked its way gradually upward, with lateral movements to both sides, covering in all an area of perhaps 4 square meters. Its repeated success in securing prey and the zest with which it increased its efforts when it apparently sensed a subsurface insect made it clear that the barbet actually was foraging, and not fortuitously obtaining insects while prospecting for a nesting or roosting site. Red-throated Barbets normally feed on ripening fruits, such as figs (*Ficus* sp.). I saw no other woodpecking by this, or any other barbet, but I did flush another individual of this species from a low dead stub where it seemed unlikely to be excavating a cavity. I am uncertain of the regularity of "woodpecking" in this barbet.

I was impressed also by the woodworking activities of a Yellow-crowned Barbet (*Megalaima henrici*) excavating a presumed nesting cavity on the underside of a limb bearing leaves (hence partly alive) in a tall live tree on 10 April 1972 at Kuala Lompat (Krau Game Preserve), Pahang, Malaya. The bird had no difficulty hanging upside down and maintaining its hold as it carved out a cavity without appressing its tail to the limb. This is not an example of woodpecking, but it seems likely that this barbet has that capability. Most of the 70 or so species of barbets excavate their own nesting cavities, but in my experience their nesting sites usually are in well-rotted wood (some nest in termitaria, and others utilize abandoned woodpecker holes; Wetmore 1970, Smithsonian Misc. Coll. 150: 496). As Wetmore (ibid.: 492, 502) has noted, most excavating barbets bite into and pull out pieces of rotten wood, rather than "chiseling" out pieces of (rotten or unrotten) wood as do picids. This action of barbets causes little noise, and thus one is attracted to barbet nests less often than to woodpecker nests under

construction. However, Chapin (1939, Bull. Amer. Mus. Nat. Hist. 75: 496, 520) mentions species of *Pogoniulus* and *Tricholaema* pecking and hammering, specifically noting that their woodpeckerlike actions probably relate to breeding activity. Chapin (ibid.: 534) also stated that two nests of *Pogonorhynchus rolleti* were found in "live hardwood tree-trunks about fifteen feet from the ground." It is unlikely that this barbet picked the hard wood apart using its bill, forceps-like. The bills of capitonids appear ill-adapted (tip sharply pointed and often decurved, culmen very curved, bill deep) for woodpecking, but at least some species are able to woodpeck successfully.

Barbets are mainly frugivorous but perhaps most species consume some insects, and species of *Pogoniulus* glean insects (like some woodpeckers) from branches and twigs (personal observation). Many insects various barbets take they doubtless glean opportunistically on and about the fruits they normally eat. Woodpeckers are mainly insectivorous, although many species occasionally take fruits, and some woodpeckers (especially *Melanerpes* sp.) are highly frugivorous. It is likely that the common ancestor of woodpeckers and barbets was rather omnivorous, and thus their evolution involved specialization for fruit-eating by barbets, and for woodpecking as a means of obtaining insects by woodpeckers. I have suggested elsewhere (Short 1970, Ostrich, Suppl. 8: 38) that the proliferation of barbets in Africa, compared with the neotropics and Asia, and correlating inversely with the woodpecker (Picidae) faunas of those regions, may have had a direct influence on the evolution of woodpeckers. Competition between early barbets and woodpeckers may have been a major factor in the initial woodpecking specialization of picids. A. L. Rand has suggested (in litt.) that competition from evolving woodpeckers too might have been a factor in the fruit-eating specialization of barbets. This view has merit, particularly when one considers that toucans (Ramphastidae), highly frugivorous relatives of barbets and certainly derived from an ancestor in common with them, evolved and radiated in the woodpecker-rich neotropics, where barbets are poorly represented.—L. L. SHORT, *American Museum of Natural History, New York, New York 10024*. Accepted 27 Dec. 72.

A Pleistocene record for the White-winged Scoter in Maryland.—In recent study of the geology near the mouth of the Potomac River, Raymond T. Rye II, of Silver Spring, Maryland, collected a small clay nodule in which bones were embedded. When cleaned and repaired in the laboratory of the Division of Vertebrate Paleontology of the Smithsonian's Natural History Museum, these proved to be part of the skull of a duck. The specimen, a gift from the collector to the museum, is catalog No. 179282 in the division mentioned.

The fossil came from near high tide level at the base of the low bluff back of the beach on the northern shore of the river at Wailes Bluff, 2.8 miles above Point Lookout, St. Marys County, Maryland. The clay in the nodule has a slight mixture of fine sand with shells of small molluscs and a few coarse pebbles. Mr. Rye, through his detailed studies of the area, attributes the age of the deposit to the Sangamon interglacial period of the Pleistocene.

The bone includes the upper part of the skull, with the central area of the back missing in a narrow section through the supra-occipital, including the foramen magnum. The upper surface is complete through the frontal region to the basal part of the nasal. The postorbital processes are in place on each side, with the squamosal and the outer area of the parietal. Underneath, the basitemporal plate