On the size of the auditory nuclei in some Apodiformes and Caprimulgiformes.—A previous paper (Cobb, 1964) compares the volume of the torus semicircularis (nucleus mesencephalicus lateralis, pars dorsalis) with the volume of the optic lobe in 27 species of birds. The comparison was thought to be of interest because good anatomical (Kappers *et al.*, 1936) and physiological evidence (Mello *et al.*, 1963) suggests that the tectum of the optic lobe is largely related to visual integration and that the torus is concerned wih hearing. The comparison was expressed as a percentage; for example, in *Rallus limicola* the volume of the torus semicircularis divided by the volume of the optic lobe and multiplied by 100 gave 5.1 per cent as the ratio of the former to the latter.

In three orders of birds, Apodiformes (swifts), Caprimulgiformes (nightjars), and Strigiformes (owls), the torus proved comparatively larger than in any other orders. In owls this may be correlated with the fact that auditory stimuli are reported for locating prey (Payne, 1961). In the oilbird (*Steatornis caripensis*) the larger size of the torus appears to be related to this bird's use of echolocation in caves (Griffin, 1953). My 1964 data suggest that many night-feeding birds such as rails, swifts, and nightjars may have relatively large auditory nuclei. B. G. Bang (pers. comm., 1961) emphasized one aspect of this problem by telling me that a swiftlet in southeast Asia has habits like the oilbird; it nests in colonies in caves in complete darkness, is a nocturnal hunter, and has been communal with bats since the Pleistocene. Being of a different order of birds from *Steatornis*, a study of the brain of this swiftlet (*Collocalia*) in comparison with other swifts and nightjars might provide a test of my hypothesis and an interesting example of parallel evolution. As both the torus and tectum lie in the midbrain, they can be seen and measured in the same sections of a brain cut in series. The method used to obtain the data is described in my previous paper (Cobb, 1964). For the present study, a comparison of the volume of the torus to that of the optic tectum is used to obtain a better indicator of the relationship in size of an auditory to a visual center than the more arbitrary measuring of the whole optic lobe used in the 1964 paper. The torus is also more closely defined as that part of the nucleus mesencephalicus lateralis lying next to the ventricle and showing a slight fibrous or capsular separation from nearby nuclei. Table 1 is based on measurements made on the brains of one specimen of each species. Asiatic specimens were obtained by the kind aid of Lord Medway and R. L. Fleming.

According to Lord Medway (1960), only *C. maxima* among the swifts emits "a rapid succession of sharp clicks" when flying in the dark cave. The only other bird

TABLE 1

RATIO IN PER CENT OF THE VOLUME OF THE TORUS (A MIDBRAIN CENTER RELATED TO HEARING) TO THE VOLUME OF THE TECTUM (A MIDBRAIN CENTER RELATED TO VISION)

	Per cent
Caprimulgiformes	
Oilbird, *Steatornis caripensis*	8.5
Nightjar, *Caprimulgus asiaticus*	6.0
Poorwill, *Phalaenoptilus nuttallii*	5.7
Whippoorwill, *Caprimulgus vociferus*	5.2
Apodiformes	
Cave Swiftlet, *Collocalia maxima*	6.1
Palm Swift, *Apus pavus*	5.2
Chimney Swift, *Chaetura pelagica*	4.4
Bornean Swiftlet, *Collocalia esculenta*	4.3

known to do this is *Steatornis caripensis*. Although the ratio of *C. maxima* is less than that of *S. caripensis*, Table 1 suggests that the larger torus of *C. maxima* compared to other Apodiformes may be related to its use in echolocation. The number of specimens measured, however, is too small to prove the relationship definitely. More measurements of more brains and of other auditory and visual nuclei are needed.

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Peregrine Falcon and Purple Gallinule of late Pleistocene age in the Sudanese Aswan Reservoir area.—A recent report on the prehistoric archaeology in the Aswan Reservoir area in Egyptian and Sudanese Nubia by F. Wendorf, J. L. Shiner, and A. E. Marks (*The Prehistory of Nubia*, Southern Methodist University Press, Dallas, Texas, 1964) indicates a sequence of sites from early Palaeolithic to Neolithic times. The few avian bones recovered were set aside by Professor A. Gautier of the Geological Institute, Ghent, Belgium, and were later sent to me by J. L. Shiner, to whom I owe my thanks.

Only two elements could be identified. The distal part of a right humerus is that of a Peregrine Falcon (*Falco peregrinus*) from a Sebilian Mesolithic site with a C^{14} date of 9,000 B.C. The Peregrine Falcon is common in this area today.

The second specimen is a nearly complete right carpometacarpus of the Purple Gallinule (*Porphyrio porphyrio*) from a late Palaeolithic site buried in early Nile silts. The C^{14} test gives the bone a date of 25,000–30,000 B.C. This specimen represents the first fossil record for the species, as well as its first occurrence in the Nubian region, where the Green-backed Gallinule (*Porphyrio madagascariensis*) and Allen's Gallinule (*Porphyrula alleni*) occur along the Nile Valley today. The Purple Gallinule inhabits swamps with extensive reed beds and dense growths of water lilies, a habitat probably rather common in the Sudanese Nile Valley during late Palaeolithic time.—Eitan Tchernov, *Department of Zoology, Hebrew University of Jerusalem, Israel.*