

occurs, it is still a forest bird. *H. siquijorensis monticola* on Cebu is a hill forest bird compared with *philippinus* that also lives in second growth lowlands. However, habitat can change from island to island, for on Siquijor Island *H. s. siquijorensis* is the ecological as well as geographical representative of *H. philippinus*.

Rabor found that *H. p. rufigularis* on northern Zamboanga was a hill forest bird (i.e. apparently occupying the ecological niche that *H. everetti* occupies elsewhere), and that the lowland second growth, a normal habitat of *H. philippinus*, was untenanted by any *Hypsipetes*; while earlier, Bourns and Worcester found *H. p. rufigularis* common along forest edges, in second growth, and in guava bushes, i.e. in a typical *H. philippinus* habitat (McGregor, 1909, Manual Philip. Bds., p. 507). In islands where *H. philippinus* alone occurs it may range into mountain forests, and on Luzon even into upland pine forests.

Evidently habitat data must be used with as much caution as any other type of taxonomic data, with the drawback that the original cannot be checked.—A. L. RAND, *Chicago Natural History Museum, Chicago, Illinois*; and D. S. RABOR, *Silliman University, Dumaguete, Negros, P. I.*

Observations of Whimbrel, *Numenius phaeopus*, and Chilean Flamingo, *Phoenicopterus chilensis*, in June near the Straits of Magellan.—On the morning of June 29, 1958, Mr. and Mrs. Arthur Huntley and I found two Whimbrels (Hudsonian Curlews) feeding in a flooded field about 200 yards from the Straits of Magellan at a point along the road approximately 20 kms. north of Punta Arenas, Chile. The A.O.U. Check-list of North American Birds (1957: 183) gives as the southernmost record, Chiloé Island, Chile, which is at least 600 miles north of Punta Arenas. Johnson, Goodall and Philippi (1957, Suplemento de las Aves de Chile: 419) report seeing four in November, 1952, on the south shore of the Straits; so the species may prove more than casual in this area.

On June 28, 1958, Mr. and Mrs. Robert Williams and I found a flock of about 80 Chilean Flamingos feeding along the shores of the Fitzroy Canal between Seno Otway and Seno Skyring near Punta Arenas. This flamingo has been noted before in the Magellanic area. It is of interest that approximately 25 per cent were in gray immature plumage, most of them in a separate group which flew away separately from the larger group composed almost entirely of adults.—WILLIAM BELTON, *National War College, Washington, D. C.*

Competition for Food Between Five Species of East African Vultures.—In the *Themeda-Acacia* savannahs of Queen Elizabeth National Park, astride the equator at 3000' altitude in western Uganda, five species of vultures occur. While working on other biological problems in that area, it was interesting to speculate how completely these related scavengers competed with one another for food. Frequently all five species could be seen feeding on the same carcass.

In big game studies in that area, it was necessary to obtain a few specimens each of most of the large mammal species. The killing and processing of these animals in the field sometimes failed to attract vultures. Presumably, on such occasions, the local vultures were busy elsewhere, or if early in the day, had not yet left their roosts. Most frequently, however, mammal collections were made between 8 and 11 a.m. and there were prompt gatherings of vultures at the sites.

At kills, it was usually the small Hooded Vultures (*Necrosyrtes monachus*) which were first seen in the tops of nearby euphorbia or acacia trees or on the ground nearby. The larger White-backed Vultures (*Pseudogyys africanus*) soon joined

them in force. Ruppell's Griffons (*Cyps ruppellii*) were much fewer but were also usually prompt in arriving. It was usually a half-hour or so before Lappet-faced (*Torgos tracheliotus*) and White-headed (*Trigonoceps occipitalis*) Vultures were seen. The approximate percentages of abundance at most gatherings were Hooded Vultures 10, White-backed 85, Griffons 2, Lappet-faced 2, White-headed 1.

A similar precedence prevailed in the order of attack after the specimen remains were abandoned by us. The Hooded Vultures would hurriedly dash in for a few quickly bolted portions. Almost immediately, they would be shouldered aside by the larger and more numerous White-backed Vultures, which also fought greedily among themselves as they tore at the carcass. The Hooded Vultures would retire to the fringes of the heaving, scrambling group and dart in for occasional bits which became scattered. The infrequent Griffons would come in rather soon, forcing themselves individually among the pack of smaller birds and taking possession of whatever food supply they could dominate, with numerous sallies at the surrounding pack of pressing White-backed Vultures. The large Lappet-faced Vultures were even more fierce. They boldly seized whatever food they wished. Invariably, however, they did not come in to a carcass until large numbers of other vultures had already gathered there. The White-headed Vulture was the scarcest species. If it appeared at all, it was the last to arrive, but African assistants invariably remarked that this was indeed the "bwana kubwa," the big boss. The great eagle-like birds would stride haughtily among the lesser scavengers. Their huge beaks were thrust angrily at any bird not giving way before them. They then fed slowly, with apparent dignity, if there was any food remaining at the time of arrival.

Hooded Vultures usually remained longest nearby after a carcass was eaten clean. They picked about for some time among the scattered bones and pieces of heavy inedible skin (of hippopotami, elephants, and buffalo). This was especially true at carcasses left by lions and other predators, on which more meat remained than we left behind on our kills. Otherwise the identical sequence of events seemed to prevail on predator kills as on ours.

There is the possibility that the several vulture species hunt differently or at different altitudes. It seems quite likely, too, though direct evidence is lacking that one or more of the less numerous species (Lappet-faced, White-headed, and perhaps Griffon) do not hunt directly but are instead attracted by the descents of gathering vultures of other species. Of the several species on the area, only the Hooded Vulture was seen at times feeding on odd dead small animals along roads, early in the morning, in this case competing for these foods with the kite (*Milvus migrans*). According to Macworth-Praed and Grant (*Birds of Eastern and North-eastern Africa*, Vol. 1, London, 1952), the White-headed Vulture may on occasion kill its own prey.

All in all, it appears that there is commonly direct competition for the same foods between the five vultures of the region. They do display differences in aggressiveness while feeding, however, and in general, their ability to seize food seems to be related to their body size. But it is interesting that the most numerous, and presumably the most successful in terms of population competition, is not the largest and fiercest species. It is, however, the larger of the two that have perfected the ability to arrive early at a carcass. It would be interesting to know whether White-backed Vultures find food quickly because they are abundant and guide each other to it, or whether they are abundant because they find food

quickly and thus enhance their survival rate. Since the Hooded Vulture usually is even quicker in finding food and yet is less common, it would seem that in the area studied at least, abundance alone, once achieved, is an influential factor in successfully competing for food.

Though wide-ranging in Africa, these species all show some differences in geographic distribution (see Mackworth-Praed and Grant, *op. cit.*) which must reflect differences in habitat tolerances and competitive relationships. From the standpoint of rates of possible population growth, Mackworth-Praed and Grant list all five species as usually laying one egg per clutch, but differences between species in length of breeding season and tendencies to renest are not available. Hence, average reproductive rates of the several species populations cannot be accurately compared. A more complete appraisal of interspecies competition within this group of vultures will require observations of feeding habits, habitat requirements, and reproductive rates in at least several parts of Africa.

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A Previously Undescribed Recurvirostrid from the Eocene of Utah.—In 1953, Mr. Kurt E. Boker sent fossil fragments of the bones of the left wing of a bird to the Museum of Natural History of the University of Kansas for identification. The fossil is from Eocene deposits in Utah. Study of these fragments reveals that they represent the family Recurvirostridae, which has not previously been recorded from pre-Pleistocene deposits. The extinct bird was a giant in its family, having had a wing spread of more than three feet.

Elements present include the distal 39 millimeters of the humerus, the entire lengths of the radius and ulna, radiale, ulnare, and the proximal portion of the carpometacarpus including carpals II, III, and IV. With the exception of the carpometacarpus and the distal ends of the adjoining radius and ulna, the fragments are so poorly preserved as to be useless in any determinations.

The fragments now are embedded in three pieces of the matrix (see fig. 1). When the second piece was split away from pieces one and three, parts of the radius and ulna remained in the second piece; excepting the proximal part of the ulna and distal parts of radius and ulna, the bones split lengthwise. The distal part of the humerus probably is the outer surface. At least part of each element is compressed and in consequence somewhat distorted.

This Eocene bird differs so much from both of the living recurvirostrids in size and configuration as clearly to deserve designation as a new genus and species. It may be known as:

***Coltonia recurvirostra* new genus and new species**

Type.—No. 10105 of the Museum of Natural History, University of Kansas; fragments of left humerus, radius, ulna, and carpometacarpus; from fine-grained limestone of the Colton Formation of the Eocene, mouth of Ephraim Canyon, Wasatch Plateau, Sanpete County, Utah; collected by Kurt E. Boker.