

Lammergeyer.

A FIELD GUIDE TO THE SCAVENGING
BIRDS OF KENYA.

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INTRODUCTION.

I. FEEDING HABITS.

In Kenya, there are sixteen species that regularly resort to scavenging. Scavengers may roughly be grouped into two classes—corpse-eaters and garbage-eaters. By *corpse-eaters* I mean birds that locate and feed upon carcasses. Carrion of this nature is likely to become available at irregular intervals and in scattered localities, and must be searched for: this entails a wide foraging range, keen eyesight, and power to remain in the air for hours at a stretch. A corpse-eater is likely to obtain large meals alternating with prolonged fasting periods. *Garbage-eaters* are birds that feed, not on entire carcasses, but upon scraps (e.g., of meat or refuse) that are to be found near the haunts of man (particularly slaughter-houses, camps and native villages). Here the food-locality is known, so there is less need for "ranging," and the food-supply is likely to be constant, though often it may be inadequate. Most of the scavengers show a preference for one or other of these two feeding methods, though some birds are equally partial to both. Many species, in addition, possess means of food-supply which may have nothing to do with scavenging. "Side-lines" such as these may help to explain the problem that has puzzled more than one observer: how can so large a scavenger population subsist upon what appears to be so limited a supply of carrion and garbage?

The feeding-methods of the scavenging species vary considerably. Only three of the largest and most powerful vultures—Nubian, Ruppell's and White-backed—seem to concentrate upon corpse-eating. There is evidence that the White-headed prefers to kill live game, such as guinea-fowl or dik-dik. Of the smaller vultures, the Hooded is an inveterate garbage-eater, whilst the Egyptian specialises upon dung. The Brown Kite has a distinctive pounce-and-grab method of scavenging; it also catches live prey, and attacks weaker scavengers to make them drop their food. The Tawny Eagle scavenges, takes live prey, and is predatory upon other scavengers (especially the Kite). The Marabou eats corpses and garbage—which are curious habits for a member of the stork family—but it can also be seen searching for insects in the orthodox stork manner. The crow family is omnivorous: scavenging with these is only one of numerous ways of feeding. Of the foraging habits of the Lammergeyer, nothing seems to be known in Kenya, but elsewhere this bird lives on bones, which it sometimes carries to a height and then drops, hoping thus to secure manageable

pieces. The Sooty Gull is confined to the sea-coast. Here it picks up scraps like a typical garbage-eater, but, in addition, it has at least one side-line: to chase terns until they disgorge their catch, which the gull then appropriates.

It seems to be generally agreed that it is sight, not scent, that guides scavengers to a kill; as soon as this has been located, the actions of one bird are observed by others, and many appear, swooping down out of the sky, and the carcass is soon finished. Scavengers perform an invaluable service in getting rid of refuse, hence certain species (vultures, Lammergeyer, and Marabou) are protected.

II. FLIGHT.

All the scavengers possess one common characteristic—exceptional skill in soaring flight—which clearly is of the greatest value to a bird that is obliged to cover large distances searching for food. (The alternative of flapping flight would use up far more energy.) Soaring is, however, only possible in the day-time, while the sun is well up. This can be proved by watching vultures depart from their roosts in the early morning. At dawn, they are disinclined to move at all; if they do, the method of flight is a heavy, laborious type of flapping, with periods of gliding during which elevation is lost rapidly. As the sun rises and warms the air, one begins to see birds circling with wings stiffly extended and tail open, gradually gaining elevation. Once the sun is well up, “soarability” improves, and birds can dispense with the stiff, circling attitude, and glide at high speed in any desired direction, with wings flexed and tail folded, gaining or losing altitude as desired. Such “flex-gliding” is possible only during the heat of the day. As evening approaches, conditions deteriorate, and birds descend to their roosts, and are again reduced to flapping. On cold, cloudy days, soaring may never be possible at all, except where hill-sides provide upward currents.*

When sailing high in the air, the movements of these carrion birds are so graceful, and their silhouettes so striking, that surely it would be wrong to let the thought of their feeding habits spoil one’s appreciation of their beauty.

III. SIGHT IDENTIFICATION.

The object of this paper is to assist people to identify the birds *by sight only*. The following points may be found useful:

- (1) Where possible, try to make sure of the family to which a bird belongs before looking for the features of the individual species.

*For this short description I am indebted to Hankin (“Animal Flight,” 1910). His observations on bird-flight in India are highly applicable to East African species.

- (2) Each species has its own special marks. If one knows these beforehand, they can be looked for; if not, one may note all sorts of features but still miss the essential ones.
- (3) Where a species possesses several identificatory features, do not be satisfied with observing one only; look for all of them. This reduces the chances of error.
- (4) One should gradually master the features of all the members of a related group, since otherwise one can never be really certain of identifying any one of them.
- (5) Once the members of a group are all known, negative observations—such as that the bird shows no white wing-streak—may be of value.
- (6) Keep on the look-out for features that do *not* agree with those of the species provisionally identified. This is a check on “wishful thinking”—a fault to which everybody is prone.
- (7) When trying to identify a bird, consider which members of its family are likely or unlikely to be encountered in the place concerned (thus reducing the number of “probabilities”).
- (8) Use field-glasses and carry a pencil and paper. Features should be noted down, or sketched, *on the spot*.

IV. OBJECT AND FORM OF PAPER.

This paper is intended for the “layman,” and I have tried to make it as practical as possible. English names are normally used, rather than Latin. The list of contents is for quick reference. Descriptions are given under standard headings; in writing these, I have attempted to follow the principle that, so long as distinctive features are emphasised, the simpler the description, the clearer the mental picture formed in the reader’s mind. Field-keys are provided for the vulture and crow families, as well as notes on the individual species.

The detailed descriptions are arranged under the following headings:

- (1) **SIZE.** The approximate wing-span is given, as being a better guide to size than the exclusive use of vague terms such as “large” and “small.” Size is of the greatest value for identification when individuals of more than one species are seen together, as comparisons can then be made.
- (2) **ASPECT AT REST.** Here it is assumed that the bird is moderately close, so that features such as the colour of the head or the shape of the bill can be seen.

- (3) **UPPER-SIDE IN FLIGHT.** This aspect shows (a) with a bird *below* eye-level, or (b) with a bird *above* eye-level, when diving, or circling with the body canted. Such views are often no more than brief glimpses, but usually give one time to see the features required for recognition.
- (4) **UNDER-SIDE IN FLIGHT.** Unquestionably the most important aspect to recognise, since scavenging birds spend so much of their time circling high in the air. Both shape and colour should be noted. *Shape* will nearly always be sufficient to identify the family to which a bird belongs (e.g., vulture or crow) and in some instances it will even give the species (e.g., Brown Kite). *Shape*, however, varies considerably according to the way in which the bird is flying at the moment of observation—with wings stiff, as when soaring, or flexed, as when gliding; with neck stretched, as when taking off, or withdrawn between the shoulders, as when soaring; with tail closed (appearing long and square) or open (appearing short and rounded). The shape of the bill is a feature of importance in all scavenging species. *Colour*—both of the wings and body—should always be noted. A bird seen flying high may often be a mere silhouette, impossible to recognise, with the under-side in shadow. Sooner or later, however, the canting of the body may allow the sun to strike it and reveal the true colour-scheme, hence such glimpses should be watched for.
- (5) **CALL.** Important for Kite, Tawny Eagle, Crows and Gull only; omitted for the other species, except for brief mention in the "General" paragraph.
- (6) **COMPARISONS.** The paragraph gives a brief reference to those species with which confusion is most likely, distinctive features being noted and compared. This involves constant repetition, but will, I think, be found useful.
- (7) **GENERAL.** Brief observations on distribution, habits, or other features directly or indirectly useful for indentifying the birds. A few examples will show how valuable such notes can be. The Hooded Vulture often frequents populated areas to which the other vultures do not penetrate; the Ruppell's Griffon nests in crags and the White-backed Griffon in trees; the Fan-tailed Raven is not found south of the equator, and the Pied Crow is the only crow of the coastal regions.

- (8) **ILLUSTRATIONS.** These are from photographs taken by me, with a Leica camera, in 1938-41. Most of them were made at Wajir in the Northern Frontier. The paragraph gives the place and date of each photograph, an account of the circumstances under which it was taken, how the bird behaved, what features are brought out, and so forth. Most pictures show the "under-side in flight," because this aspect is so frequently seen in the field, so infrequently illustrated in books, so beautiful, and (in many species), so distinctive. Care was taken to photograph the birds at a moment when the colour-pattern showed naturally, without distorting shadows, and the results should give a fair idea of the essential features.

V. SOURCES OF INFORMATION.

I have accumulated the material for this paper in the course of seven years' residence in East Africa: from 1934-39, in the Kenya Administration; in 1940, in the King's African Rifles; in 1941, in the Military Administration of Italian Somaliland. The information given is based on:

- (1) My own unpublished notes.
- (2) An article of mine in the "Ibis" for July, 1939, giving certain field-characters which the present article amplifies and supersedes.
- (3) Much valuable information communicated to me verbally by Dr. V. G. L. van Someren.
- (4) Books mentioned in Section VI, below, particularly "Jackson" (for classification and distribution) and "Bannerman" and "Gill" (for field-characters).

VI. BOOKS RECOMMENDED.

The following books are recommended for use in Kenya. The prices given are those at which the books were sold in England. Numbers 1, 2, 3 and 9 can usually be purchased in Nairobi. Most, if not all, can be seen at the MacMillan Memorial Library or the Coryndon Museum.

- (1) "The Birds of Kenya Colony and the Uganda Protectorate" by Sir Frederick Jackson and W. L. Sclater (1938). Three volumes. £4-10-0. This is the only complete book on the birds of Kenya. It classifies and describes all the species, and possesses useful keys for identification. The field notes are of great value. There are not enough coloured illustrations, but this defect can be remedied by the use of:
- (2) "The Birds of South Africa" by Austin Roberts (1940). £1-10-0. This contains over a thousand coloured figures, drawn with a really remarkable accuracy of detail.

Many tropical species are included, so if a bird is described but not illustrated in Jackson, there is a good chance of finding either the actual bird, or a near relation, illustrated in Roberts. The latter also possesses much data on South African birds which is useful for comparative purposes. For somebody who wishes to become acquainted with Kenya species, it is enough, at first, to use Roberts exclusively, but sooner or later the problem will arise: "Have I really identified the actual Kenya bird, or am I mistaking it for a South African relation?"—and this can only be solved by reference to Jackson. Before these two books were published, the study of Kenya birds was possible only for an ornithologist with access to a museum; now, the amateur bird-watcher is in a position to contribute.

- (3) "A First Guide to South African Birds" by Leonard Gill (1936). Shs. 12/-. This is a smaller book than Roberts, and does not possess so many coloured illustrations. Nevertheless, these are numerous and good, and the letterpress is extremely helpful regarding field-characters and habits. For anybody wanting a "first guide" for the birds of Kenya, this book is strongly recommended.
- (4) "The Birds of Kenya and Uganda" by Dr. V. G. L. van Someren. Published serially in this Journal, beginning in 1925; deals with game-birds, sandgrouse, pigeons, ducks, bustards and waders. Separate copies of most of these papers can be obtained from the Coryndon Museum and might cost about Shs. 60/-. This possesses a great deal of information that is not found in Jackson, so it will be required by anybody who is interested in the families mentioned. It is fully illustrated.
- (5) "The Birds of British Somaliland and the Gulf of Aden" by Sir Geoffrey Archer and E. M. Godman (1937). Two volumes; in continuation. Deals only with the larger, or non-passerine, birds. £3-3-0.
- (6) "The Birds of Tropical West Africa" by D. A. Bannerman (1930 onwards). Five volumes; in continuation. Shs. 21/- per volume.
- (7) "The Handbook of British Birds" by H. F. Witherby and others (finished in 1941). Five volumes. Shs. 21/- per volume.

These three books—Archer, Bannerman and Witherby—are outstanding authorities in ornithological literature: for use in Kenya, they are recommended for comparative purposes. Both Archer and Bannerman go into greater detail than Jackson, and the illustrations, field-characters and general notes will all be found of con-

siderable value. Witherby summarises the large amount of ornithological research undertaken in Britain during the last twenty years. This includes work on migration (in which ringing has played an essential part); population censuses; the determining of incubation and fledging periods; the study of field-characters, and enquiries concerning status, habitat, courtship, and song. The book thus contains much information unobtainable elsewhere. The species are fully described and admirably illustrated.

- (8) "Birds of the Ocean" by W. B. Alexander (1928). About Shs. 20/-. This describes and illustrates the sea-birds of the world. It is a small book, pocket size, useful on the coast of Kenya, and essential for any sea-voyage.
- (9) "Watching Birds" by James Fisher (1940). Pelican Books, 6d. The best short general introduction that I know. It deals first with the structure and biology of birds themselves, then with the equipment of bird-watching; after this, it gives a most interesting description of the subjects which have received special attention recently, and shows how important the amateur bird-watcher has become in furthering ornithological investigations.

So much for ornithological literature. If one can handle a specimen of the bird that is being studied, the book-descriptions will often be very much easier to understand. For this purpose, the large collection of mounted specimens and skins available for inspection at the Coryndon Museum will be found extremely useful.

MARABOU STORK (*LEPTOPTILOS CRUMENIFERUS*).

PLATE 17.

SIZE: Enormous; stands about four feet high; wing-span $6\frac{1}{2}$ to $8\frac{1}{2}$ feet.

AT REST: Slaty-grey above, white below; head bald and pinkish; bill huge, tapering and pickaxe-like; legs long and white. Many birds have a long, sausage-like pouch hanging from the throat.

UPPER-SIDE IN FLIGHT: Appears slaty. Once a bird is well under way, the head is drawn in, and the bill and feet both point slightly downwards.

UNDER-SIDE IN FLIGHT: Body and part of wings white, the effect being that of a *broad white T* (see middle figure). Wings and tail dark. The flashing white body shows up against the dark wings at great distances, and is an excellent guide to identification. Juveniles have the whole under wing-coverts white (not dark as in the adult).

COMPARISONS.

At rest: This is the only stork that habitually goes scavenging, so there is no likelihood of confusing it.

Under-side in flight: The bird may often be seen soaring with vultures; here the long bill and legs, as well as the colour-pattern, are distinctive.

GENERAL: The Marabou is the acknowledged monarch of the scavenging birds; when at a kill, it towers over the vultures, and pecks, prods or pulls them out of the way if they are consuming something that the Marabou fancies. It has been suggested that the bill of this bird, though excellent as a weapon of attack, is not well adapted for tearing at a carcass; hence the Marabou allows the vultures to perform this function, then relieves them of their spoil. It is an inveterate garbage-hunter, and can be seen in numbers at slaughter-houses, rubbish pits, stock enclosures or other places where pickings can be had. If man appears, it often refuses to take to flight, but walks off in a slinking manner, with its head sunk between its shoulders, just like a stage villain detected in the perpetration of a dastardly act.

The bird ranges from the Rift Valley eastwards to the Northern Frontier and Jubaland. For so common a species, there is surprisingly little on record concerning its breeding haunts. It nests colonially in trees, often in the tall forest-types bordering rivers (as on the Tana near Garissa), but also in small acacias in bare, open plains (as at Habbas Wein). Though normally a silent bird, it makes the weirdest variety of squeals and groans when breeding.

ILLUSTRATIONS. PLATE 17.

Upper figure: Arusha Chini near Moshi, September, 1940. The bird is sailing past in horizontal flight, near a nesting tree.

Middle figure: Same place and date. The bird is just about to alight at a nest; the feet are lowered ready.

Lower figure: Wajir, October, 1939. A bird walking off in the typical "detected villain" manner.

VULTURES (GENERAL).

I. HOW DISTINGUISHED FROM OTHER BIRDS OF PREY.

At rest. Look at the heads. Those of vultures are bare or covered with down; those of other birds of prey are feathered.

In flight. When the type of head cannot be seen, the distinction is not so simple; it is wiser to depend upon the colour-pattern and shape of each species. One can, however, safely say that raptors with wide wings and short tails seen in numbers are pretty certain to be vultures.

II. HOW DISTINGUISHED FROM EACH OTHER.

There are six species—Ruppell's, White-backed, Nubian, White-headed, Egyptian and Hooded. For details, the illustrated descriptions should be consulted, but a few of the most useful distinctions are tabulated below.

1. SIZE.

Large (span seven feet or more): Ruppell's, White-backed, Nubian, White-headed.

Small (span five feet): Egyptian, Hooded.

2. SHAPE OF BILL.

Thick and heavy: Ruppell's, White-backed, Nubian, White-headed.

Slender: Egyptian, Hooded.

3. COLOUR OF BILL.

Pale horn: Ruppell's adult.

Dark: Ruppell's immature, White-backed.

Red: White-headed.

Yellow: Egyptian.

Brownish: Nubian, Hooded.

4. GENERAL ASPECT IN FLIGHT.

Wings wide, tail short, rounded when open: Ruppell's, White-backed, Nubian, White-headed, Hooded.

Wings narrow, tail long and pointed when closed, diamond-shaped when open: Egyptian.

5. COLOUR OF UNDER-WINGS IN FLIGHT.

A. FLIGHT FEATHERS.

Dark: Ruppell's, White-backed, Nubian, White-headed immature, Egyptian.

Dark with white secondaries: White-headed adult.

Sheeny grey with brown tips: Hooded.

B. WING-COVERTS.

Brown, with a white streak (or streaks) near fore-edge of wing: Ruppell's, White-backed immature, Nubian.

Dark, with a white line bordering coverts: White-headed.

Dark brown: Hooded.

Light brown or "pepper and salt": Egyptian immature.

White: White-backed adult, Egyptian adult.

RUPPELL'S GRIFFON VULTURE (*GYPS RUPPELLII*).

PLATE 18.

SIZE: Span eight feet, i.e., larger than White-backed or White-headed, but smaller than Nubian.

A. ADULT.

AT REST: Two features suffice for identification: *spotted brown-and-white plumage* (both above and below), and *pale bill*.

UPPER-SIDE IN FLIGHT: Spotted; looks very pale; flight-feathers and tail black.

UNDER-SIDE IN FLIGHT: Spotted; wings and tail black; wing coverts show *several narrow white streaks*, the most conspicuous being near the fore-edge of the wing. (See plate.)

COMPARISONS: When a bird is flying high, the under-side might be mistaken for that of an immature White-backed, but the latter has a streaky body, while that of the Ruppell's is spotty.

B. IMMATURE.

AT REST: Plumage variable, usually *streaky-brown with a rufous tinge*. No spots. The bill is *dark* (not pale as in the adult).

UPPER-SIDE IN FLIGHT: Streaky-brown; flight-feathers and tail black.

UNDER-SIDE IN FLIGHT: As upper-side; streaks on body more pronounced; conspicuous narrow white streak near fore-edge of wing.

COMPARISONS.

1. *With the immature White-backed.*

This, in certain plumages, appears almost identical with the immature Ruppell's, both birds being streaky-brown, with dark bills, brown backs and white streaks on the under wing-coverts. The only field distinction seems to be in size, Ruppell's being noticeably the larger. But this is of value only when the two species are seen side by side. (The systematic distinction is that Ruppell's has fourteen tail feathers and White-backed twelve, but even this test is not always infallible, and in any case is no use unless one can shoot or capture the bird). In fact, I have failed to discover a reliable field distinction between the two species at this stage of plumage, though if one shot a number of specimens and made comparisons, it is probable that some feature might be found.

As soon as the birds begin to adopt adult plumages, however, distinctions become available, and should always be looked for. These are as follows:

The back. If white, or predominantly white with a few brown patches, bird is White-backed. If brown, may be either species. (N.B.—When a bird is at rest, the back is often covered by the wings, but it becomes visible as soon as the bird takes to flight.)

The under wing-coverts (seen in flight only). If white, or predominantly white with a brown streak or so (as in Plate 19, middle figure) bird is White-backed. If brown, with narrow white streaks, may be either species.

The upper wing-coverts. If with white spots (even a few) bird is Ruppell's. If brown, may be either species.

The bill. If pale (even partly) bird is Ruppell's. If dark, may be either species.

In conclusion, I might add that this is the only distinction of difficulty among all the scavenging birds, which is why I have dealt with it in detail.

2. *Comparisons with other brown vultures.*

These should not cause any difficulty. The Nubian has a bare red head and a distinctive breast. The immature White-headed has a red bill and long pink legs, and distinctive under-wings. The Hooded has a slender bill and greyish under-wings. The immature Egyptian has a slender bill and a distinctive shape.

GENERAL: This species utters a loud, harsh call at its breeding places or when scuffling at a kill. It breeds in colonies in large precipices at medium or low altitudes in the wilder parts of the country. Birds can be seen on the cliffs of the Njorowa Gorge, Naivasha, at any time of year, breeding, roosting or merely resting. The Ruppell's Griffon is widely distributed over "game" or "stock-rearing" country when not breeding.

ILLUSTRATIONS. PLATE 18.

Upper figure: Naivasha, April, 1940. Picture taken from the top of a big cliff at the Njorowa Gorge, where these vultures nest. The bird (a typical adult) has just swerved after seeing me.

Middle figure: Wajir, February, 1940. A magnificent adult bird standing with raised wings, preparatory to bouncing with ferocious mien and hoarse cries towards a feeding neighbour, hoping to scare it off its meal (a dead sheep).

Lower figure: Same place and date. This shows the meal, with two adult Ruppell's on the right. The bird on the left is (judging by the smaller size) an immature White-backed, but an immature Ruppell's is very similar.

WHITE-BACKED GRIFFON VULTURE (*PSEUDOGYPS AFRICANUS*).

PLATE 19.

SIZE: Span seven feet; i.e., smaller than Nubian or Ruppell's, but much larger than Hooded or Egyptian.

A. ADULT.

AT REST: Uniform light buff, with *dark bill and face*, and *white back* (the latter present in old birds only, and often concealed by the wings).

UPPER-SIDE IN FLIGHT: Buff, with darker wings and tail. If present, the *white back* is distinctive.

UNDER-SIDE IN FLIGHT: Body buff with a dark crop; tail dark; flight-feathers dark but *coverts conspicuously white*. When the bird approaches, the dark bill and face show as a black spot against the lighter body (see upper figure).

COMPARISONS: A White-headed (old adult) has a white back but differs in all other respects. An adult Egyptian has white under wing-coverts, but the body is also white, and the tail long, white and pointed.

B. IMMATURE.

AT REST: Variable, brown or streaky-brown, *bill and face dark*.
UPPER-SIDE IN FLIGHT: As at rest; back brown in immature birds, but *white with brown patches* in semi-adults.

UNDER-SIDE IN FLIGHT: Body streaky-brown, tail dark; flight-feathers dark; coverts brown with narrow white streaks in immatures, but *white with a few brown streaks* in semi-adults (see middle figure).

COMPARISONS: The difficulty of distinguishing this bird from the immature Ruppell's has already been dealt with. Comparisons with other brown vultures, given for Ruppell's, apply equally to this species.

GENERAL: A common vulture, found in most places where game or stock are encountered, but not usually in forested or highly cultivated areas. Nests are in trees. It arrives in numbers at a kill, descending steeply and lowering the legs while still some distance from the ground. When feeding, it appears (to my mind) quite the most ruffianly of the vultures.

ILLUSTRATIONS. PLATE 19.

Upper figure: Buna, Wajir District, November, 1939. An old adult gliding over my camp, showing the characteristic features—white wing-coverts and dark head.

Middle figure: Wajir, February, 1940. An immature, believed to be White-backed and not Ruppell's because of the large amount of white on the coverts. The bill was black. The bird is flapping hard, just before taking off.

Lower figure: Near Wajir, February, 1940. An adult White-headed (right) with an immature White-backed (left), photographed near the road-side from my car. The White-headed is stretching its neck to capacity, wondering why the car has stopped, and what the suspicious-looking person is doing inside; the bird flew off an instant later. The picture shows what a strikingly beautiful species this is; the White-backed looks a mere cut-throat beside it.

NUBIAN VULTURE (*TORGOS TRACHELIOTUS*).

PLATE 20.

SIZE: Span nine feet; easily the largest and most powerful of the vultures.

AT REST: Back and wings dark brown; head and neck *bare and fleshy red*, often with folds and whitish streaks; bill brownish, exceptionally heavy and powerful.

UPPER-SIDE IN FLIGHT: Dark brown.

UNDER-SIDE IN FLIGHT: The breast shows as a *dark brown spear-head* against the white, downy flanks. Wings are dark, with a *short but pronounced white streak* near the fore-edge. These two features distinguish an adult at almost any distance, though the long red head and heavy bill should also be looked for. Immature birds may have brown (not white) flanks, and thus do not show the "spear-head" so distinctly.

COMPARISONS: The Hooded Vulture is a small bird and its bill is *slender*; nevertheless the brown plumage is very similar to that of the Nubian, particularly when the bill cannot be seen and there is no scale to show its size. In flight, too, the Hooded shows white marks on the underparts that often look like a Nubian's "spear-head." The under-wings of the Hooded are, however, different; the coverts are dark and the flight-feathers sheeny-grey with brown tips.

The under-sides in flight of the immature Ruppell's and White-backed are uniformly streaky-brown (no spear-head); the White-headed, in a semi-mature plumage, may show a very misleading spear-head, (see Plate 21, upper figure), but the wings have a long white streak bordering the coverts.

GENERAL: Distributed sparingly over most areas where vultures are numerous; equally partial to the open plains of the highlands or the low-lying scrub-bush of the Northern Frontier; breeds in trees (usually thorn acacias, I think). Normally seen singly or in small parties; is apt to be shy of man. Has unquestioned precedence over all other vultures at a kill; even the Marabou Stork, which makes short work of the lesser vultures, treats this bird with respect.

ILLUSTRATIONS. PLATE 20.

Upper figure: Wajir, August, 1939. Bird flying over at some height. The white wing-streak, brown "spear-head" on breast, and white flanks all show.

Middle figure: Wajir, October, 1939. The bird has just taken off; the attitude gives some impression of the size and power of this species.

Lower figure: Wajir, August, 1939. Two Nubians are prominent, with their immensely heavy bills; on the left is a White-headed, while a Hooded or two are just visible behind. I found the Nubians by far the shyest of all the vultures at Wajir; it was difficult to get near enough for photography.

WHITE-HEADED VULTURE (*TRIGONOCEPS OCCIPITALIS*).

PLATE 21 (ALSO PLATE 19, LOWER FIGURE).

SIZE: Span seven feet, i.e., medium size, about the same as the White-backed.

A. ADULT.

AT REST: A striking bird; head white, with an angular downy tuft on the crown; wings dark with white secondaries; breast dark, thighs and stomach white; bill red, legs pink. (See Plate 19, lower figure.)

UPPER-SIDE IN FLIGHT: Dark, with *white secondaries*. Old birds sometimes show a white rump.

UNDER-SIDE IN FLIGHT: *Breast dark, thighs and stomach white; wings dark with white secondaries* through which the sun can shine, giving an effect of translucency.

B. IMMATURE.

AT REST: A young bird is brown almost all over, then various intermediate plumages are adopted until the full black-and-white dress is attained. Semi-adult birds often have yellow (not white) heads, dark (not white) secondaries, and varying amounts of white on the thighs and stomach. In any plumage, however, the bird may be recognised when at rest by the *angular head, red bill and pink legs* (none of these features being possessed by other vultures).

UPPER-SIDE IN FLIGHT: Sombre coloured, brown or blackish.

UNDER-SIDE IN FLIGHT: Wings dark, with a *conspicuous white line bordering the dark coverts* (a distinctive mark, present also in the adult; see upper and middle figures). Breast dark; thighs and stomach with varying amounts of white.

COMPARISONS.

Under-side in flight. The Hooded sometimes shows a lightish line bordering its brown coverts, but this line is not usually pronounced, and the flight-feathers are silvery-grey (not dark), and the bill slender (not heavy). A Nubian's "spear-head" breast marking may be well simulated in an immature White-headed (see upper figure) but note the difference in wing streaks (short and well forward in the Nubian; long and more central in the White-headed). Ruppell's and immature White-backed have white wing streaks *on the coverts*, i.e., it is the coverts themselves that are streaky (not dark with a light margin as in the White-headed).

GENERAL: This bird, like the Nubian, is widely but sparingly distributed over the vulture-suiting portions of the country; is rarely seen in numbers; is shy of man, and is a tree-nester. An adult, at rest or in flight, is strikingly beautiful; undoubtedly this is the aristocrat of the vulture family. It is the only member of this family that is believed to make a practice of capturing and killing live creatures (e.g., dik-dik, guinea-fowl and kids) as well as eating carrion.

ILLUSTRATIONS. PLATE 21.

Upper figure: Wajir, August, 1939. A semi-adult flying overhead. The white line bordering the coverts shows clearly. The secondaries are greyish, and will soon be white; the thighs are white, but there is still a good deal of dark on the stomach. (It is this combination that causes a "false spear-head" like a Nubian's.)

Middle figure: Same place and date. A young immature in brown plumage; white line along coverts prominent.

Lower figure: Same place and date. An adult in all its glory, rising swiftly from one of the wells. These were much frequented by White-headed Vultures during the heat of the day; I have seen a congregation of twenty or more here, in all stages of plumage. And for birds that are usually so shy, they were confiding in the extreme—if approached by car, and with discretion. I have sat within ten yards of a party which were splashing and drinking at a puddle near the wells, and they did not pay the slightest attention to myself, my car or my camera.

EGYPTIAN VULTURE (*NEOPHRON PERCNOPTERUS*).

PLATE 22.

SIZE: Span five feet; one of the two small vultures, the other being the Hooded.

A. ADULT.

AT REST: Small, slim, *pure white* except for some black on the wings; bill, face and feet yellow. Bill slender.

UPPER-SIDE IN FLIGHT: White, with dark flight-feathers.

UNDER-SIDE IN FLIGHT: White, with dark flight-feathers; wings narrow; tail long, tapering to a blunt point if closed, *diamond-shaped* if open.

COMPARISONS: Colour and shape are so distinctive that one should not confuse this species with any other.

B. IMMATURE.

AT REST: Young birds begin dark brown, and pass through stages of being dirty grey, then speckled-white, until they finally attain the white adult plumage. Bill, face and feet *yellowish*; back of neck covered with *long feathers* which show as a crest if the head is bent forwards. The *slender bill* should always be looked for.

UPPER-SIDE IN FLIGHT: Brown, grey or speckled.

UNDER-SIDE IN FLIGHT: Body as upper-side; wing pattern varies, but coverts usually are light-coloured, contrasting with the dark flight-feathers. The *silhouette* is, however, the best guide: wings narrow, tail diamond-shaped (as in adult).

COMPARISONS: All the large brown vultures have heavy (not slender) bills. The Hooded (which possesses a slender bill) has the back of the neck covered with down (not feathers), and the feet are grey (not yellow).

Under-side in flight. All other vultures, including the Hooded, have wide wings and short tails. The only bird that has long wings and a diamond-shaped tail like the Egyptian is the Lammergeyer, but this, besides being much larger, has light rufous underparts and dark wings and tail.

GENERAL: The distribution of this species does not yet seem to have been worked out satisfactorily, but it is a resident in parts of the Rift Valley, where it is believed (though not yet conclusively proved) to breed in certain crags. As regards the rest of Kenya, all I know is that in the Northern Frontier (Wajir and Garissa) it is a migrant, arriving in October and leaving before the long rains. Parties of a hundred or more were to be seen in October at Habbas Wein; subsequently the birds scattered round the Somali encampments, at which one or two individuals could usually be found. Here I was told they ate excreta, preferably human.

ILLUSTRATIONS. PLATE 22.

Upper figure: Habbas Wein (Wajir District), October, 1939. An adult, in superb black-and-white livery, flying low over my head after being disturbed at its afternoon nap beside the river Waso. On seeing me, it braked hard, hence the tail is usually extended.

Middle figure: Same place and date. A bird flies past, with tail closed.

Lower figure: Wajir, October, 1939. A typical young bird taking off. Note its yellow face and feet, and the light streak on the under wing-coverts; also the diamond-shaped tail, which here shows plainly.

HOODED VULTURE (*NECROSYRTES MONACHUS*).

PLATE 23.

SIZE: Span five feet; one of the two small vultures, the other being the Egyptian.

AT REST: Dark brown; bill long and *slender*. Face and throat bare, pink or white in colour. Back of neck *down covered* up to the crown (which gives the "hooded" effect from which the bird derives its name). This down is lightish in the adult, dark-brown in the immature.

UPPER-SIDE IN FLIGHT: Brown, with dark wings and tail.

UNDER-SIDE IN FLIGHT: Wings very wide and "square"; tail short. Slender bill. *Wing coverts dark-brown; flight-feathers sheeny-grey with brown tips*. Underparts usually brown, but may have some white, particularly on the thighs and crop-patch.

COMPARISONS.

At rest: Small size and slender bill distinguish this bird from the large vultures. The immature Egyptian has the back of the neck covered with feathers (not down).

Under-side in flight: Here the wide wings and short tail contrive to make the bird look very much bigger than it is, and if a scale is lacking, it can be mistaken for one of the large vultures. The latter, however, have heavy (not slender) bills, and none possess the wing-pattern of the Hooded (coverts dark, quills with grey sheen). The immature Egyptian usually has light coverts and dark quills, and its shape is different (narrow wings and pointed tail).

GENERAL: This is the common vulture of East Africa. Not only is it numerous in places like the Northern Frontier where all the species are to be found, but it can be encountered in localities which one would say were not "likely vulture country" at all. For example, quite a number could be seen at Kakamega in a part-cultivated, part-forested area; here, the birds were garbage-eaters, relying upon the local slaughter-house and butcher's shop for their feeding. This species is small and weak compared with most vultures, but it is particularly bold and adaptable, and these qualities enable it to utilize places to which the other vultures are too shy to penetrate. At a kill, it is usually the first to begin feeding (perhaps realizing that as soon as the larger birds appear, it will be ejected). Even in breeding, it shows unusual adaptability, being the only vulture that is prepared to nest in either trees or crags. Trees, however, are usually chosen.

ILLUSTRATIONS. PLATE 23.

Upper figure: Habbas Wein, October, 1939. A bird soaring overhead. This is an adult, judging by the whiteness of the head and neck.

Middle figure: Wajir, October, 1939. An immature (note brown hind-neck). The bird has just taken to flight, but without hurry or alarm; the attitude is, therefore, particularly graceful. The sheeny-grey under-wings show plainly.

Lower figure: Same place and date. Another immature. I was only five yards away from this bird, but it is interested, not frightened. Young Hooded Vultures often have this highly ingenuous aspect; their boldness is remarkable, and their curiosity unbounded.

BROWN KITE (*MILVUS MIGRANS*).

PLATE 24.

SIZE: Span four and a half feet.

AT REST: A slender, brown bird with long wings and a long, forked tail. The tarsus is unfeathered.

UPPER-SIDE IN FLIGHT: Brown, with light shoulder-patches and dark flight-feathers. The forked tail is again the best guide; it is often rotated obliquely to the plane of the body and wings.

UNDER-SIDE IN FLIGHT: *Long, forked tail* distinctive. If the tail is open, it appears triangular, the fork being almost or quite lost. (See lower figure.) Body slender and brown; *wings long, narrow and usually sharply bent at the carpal joint.*

CALL: *A shrill, vibrating whistle, constantly uttered.*

COMPARISONS: The Kite is not easy to confuse with other species, on account of its forked tail. Even when this is wide open, and, therefore, triangular, it is still distinctive, because the tails of the other birds, when similarly open, are *rounded.*

GENERAL: No description of the immature bird has been given, because this is, in essentials, (forked tail and whistling call), similar to the adult, but the plumage is streaky-brown, giving the bird a mottled appearance (not plain brown as in the adult).

The bill in the adult may be yellow or dark, depending upon the geographical race to which the bird belongs. Bills of young birds of all races are dark. There are several yellow-billed and black-billed races, which cannot, however, be distinguished in the field, so I compromise by giving the representative of each of the two types that is most likely to be encountered.

Yellow bill, plain brown plumage. Adult *Milvus m. parasitus*, the common African Kite, resident and breeding.

Dark bill, plain brown plumage. Adult *Milvus m. migrans*, the so-called Black Kite, a migrant coming to Kenya during the European winter. The head is often almost white, much paler than that of *parasitus*.

In addition to these, there are the immatures, with *dark bill and mottled or streaky-brown plumage*, which may belong to either race. (Bills of *parasitus* begin dark and then become yellow; bills of *migrans* begin dark and stay dark.)

The Brown Kite is found all over Kenya; it is most numerous during the European winter months, when both *migrans* and *parasitus* are present. In certain localities, even the resident *parasitus* departs for a few months (usually April to September), but in other areas this race is present all the year round. The bird is one of the most graceful and athletic fliers of all African raptors: it is exceedingly bold, swooping down for food and bearing it triumphantly away often from under the very nose of mankind. No vulture or crow would dare to attempt such tactics; hence the kite possesses a source of food-supply denied to the other scavengers. It has a peculiar habit of feeding on the wing, passing a morsel from claws to bill. It frequents villages, townships, camps and harbours, and is prepared to take live prey (e.g., locusts, termites and domestic chickens) as well as garbage. Nests are in trees, frequently high up; the

introduced eucalyptus plantations so frequently found near townships are a favourite breeding site.

ILLUSTRATIONS. PLATE 24.

Upper figure: Moshi, September, 1940. A pure silhouette, but quite typical of the bird—long, narrow wings, bent slightly forward, and unmistakable forked tail.

Middle figure: Same place and date. A closer view, semi-silhouetted.

Lower figure: Same place and date. Still closer, showing the light patches under the wings, and the tail partly extended, so that the fork is lost. The birds were circling over Moshi slaughter-house, pouncing down at intervals for scraps of meat.

TAWNY EAGLE (*AQUILA RAPAX*).

PLATE 25.

SIZE: Span six feet.

AT REST: A typical eagle, uniform-coloured, varying from *dark brown to pale putty-brown* according to age; legs feathered down to the toes.

UPPER-SIDE IN FLIGHT: Brown, with darker wing and tail feathers.

UNDER-SIDE IN FLIGHT: Brown, with conspicuous light patches near the wing tips (the actual tips being dark). Tail longish when closed, rounded when open.

CALL: A distinctive *harsh, barking* "Kah."

COMPARISONS.

At rest. The Kite has a forked tail (not rounded), a bare tarsus (not feathered), and a whistling call (not a bark). Vultures all have heads bare or downy (not feathered).

Under-side in flight. For the Kite, the forked tail and whistling call are again good distinctions. The Tawny Eagle can be distinguished from vultures in the following ways:

- (1) When soaring, the silhouetted head looks rounded, with the bill protruding. (The head and bill of a soaring vulture taper regularly to a point.)
- (2) Neck and throat are feathered (not bare and downy) and there is no crop patch.
- (3) The light patches near the ends of the wings are unlike the colour-pattern of any vulture.
- (4) Barking call is also distinctive.

GENERAL: This is the only eagle that regularly takes carrion, so it should not be hard to recognise. It is a bold, pugnacious bird, which enjoys bullying such of the lesser scavengers that cannot retaliate (kites, crows and small vultures). Live prey, as well as carrion, is often taken. The bird is usually to be

seen perched on the top of a thorn-acacia near a water-hole; it uses the same situation for nesting. It is distributed over the type of "game country" where one would expect to see vultures, and is a fairly common bird.

ILLUSTRATIONS. PLATE 25.

Upper figure: Wajir, November, 1939. The bird, seen from below, is banking. Note its feathered, rounded head, so different from a vulture's.

Middle figure: Wajir, October, 1939. This bird has just risen from a tree; it is not at all alarmed, and there is sufficient wind to allow it to take off with superb effortlessness. The light patches near the tips of the wings show up well.

Lower figure: Wajir, October, 1939. The picture is typical of this species in both stance and attitude. The two lower photographs were taken from my car at Wajir slaughter-house, where these birds were exceptionally confiding.

LAMMERGEYER (*GYPÆTUS BARBATUS*).

ILLUSTRATED ON PAGE FACING INDEX.

SIZE: Huge; span nine feet.

A. ADULT.

AT REST: Head white and thickly-feathered; wide black line from eye to base of bill; black tufted "beard" hanging from chin; wings and tail long and dark; neck and underparts rufous-white.

UPPER-SIDE IN FLIGHT: *White head with dark eye-streak* conspicuous; body, wings and tail dark brown; wing-coverts and mantle very dark, forming a dark band across the fore-part of the flying bird, contrasting with the somewhat lighter flight-feathers and tail. (The distinctive shape is described in the next paragraph.)

UNDER-SIDE IN FLIGHT: *Head and body white with a reddy tinge; wings and tail dark.* Wings very long; tail, when closed, exceptionally long, narrow and bluntly rounded at tip; when open, elongate diamond-shaped. When the bird is gliding, the wings are narrow, curved and pointed, and the closed tail long and narrow—the general impression being that of a *huge falcon*. When soaring, the wings are held stiff, and appear narrow and square-ended, and the open tail takes its distinctive diamond-shaped form. (See illustration.) The wings sometimes show a greyish sheen.

COMPARISONS.

At rest. The white, feathered head, dark eye-streak and unique black beard have no counterpart.

In flight. The Brown Kite, when high in the air with tail closed, is not unlike the Lammergeyer (with tail similarly closed), but the Kite's tail is forked. The Egyptian Vulture

has a long tail, diamond-shaped when open, but the adult is pure white with dark flight-feathers, and the immature rather uniformly brown or speckled. Both Kite and Egyptian Vulture are, in addition, only half the size of the Lammergeyer.

B. IMMATURE.

AT REST: Head black, with beard as in adult; rest of upper-side dark brown, except for light spots on mantle and pale spotted bar along coverts; throat and underparts rufous-brown.

UPPER-SIDE IN FLIGHT: *Head black;* wing-coverts and mantle spotted and light-coloured, forming a conspicuous pale band across the fore-part of the flying bird, contrasting with the flight-feathers and tail, which are darker.

UNDER-SIDE IN FLIGHT: Head black; body rufous-brown; wings dark, with a pale line down the centre; tail dark. Shape (quite the best guide) is as adult.

COMPARISONS.

Upper-side in flight. Note how the plumage is, in certain features, just the opposite of the adult's: head black (not white); band across forepart of bird light (not dark): The immature Egyptian has no such band, and the head is never black (though it may be dark brown).

Under-side in flight. Here the immense length of tail, together with the very prominent head, distinguishes this bird from all the scavengers bar the Egyptian Vulture and Brown Kite (for which, see comparisons under adult). A young Egyptian can be very similar in colour to a young Lammergeyer, but the former, besides being much the smaller, has an inconspicuous head and a very slender bill.

GENERAL: This magnificent species is the rarest and finest of all the scavengers, and the most graceful in flight. A figure drawn by Mr. Hugh Copley after a sketch of Abel Chapman's is given on the page facing the first page of this article. It possesses characteristics of both eagle and vulture (with the emphasis on vulture) as well as other features entirely of its own. It inhabits certain localities in the highlands, and has been seen at great altitudes (17,000 feet or so). I have been lucky enough to obtain numerous views of both adult and immature, and to discover an eyrie (November, 1941). This was on a large crag at a height of about 7,000 feet; I was shown the crag by Mr. Raymond Hook. The nest was being used for roosting, and contained a varied assortment of bones, wool and dung. In other parts of the world the Lammergeyer's diet includes bones, which it has been observed to carry to a height, then drop, so that the bones are splintered into a convenient size for eating. Hitherto I have failed to obtain adequate photographs of this bird which is extremely shy and wary. For coloured pictures of the adult, see the plates in Gill's and Roberts' books, especially Gill's figure of a flying bird with tail extended.

CROWS (GENERAL).

I. HOW DISTINGUISHED FROM OTHER SPECIES.

Usually there is no difficulty about recognizing a crow as such; the black or black-and-white plumage, straight bill and cawing or croaking call are unmistakable. But when a crow is soaring high, and showing merely as a silhouette, it might be confused with a bird of prey, so the following features should be looked for:

- (a) Large, rounded head with straight bill (much more conspicuous than that of a raptorial).
- (b) Wings short and wide, often curving sharply backwards.
- (c) Wings very "centrally placed" along the body line, i.e., the head projects roughly the same distance in front of the wings as the tail projects behind them.
- (d) The call is often uttered on the wing, and carries a surprising distance.

II. HOW DISTINGUISHED FROM EACH OTHER.

There are five species—White-necked Raven, Fan-tailed Raven, Dwarf Raven, Pied Crow and Cape Rook.

I. COLOUR.

Black with white collar and white breast: Pied Crow.

Black with white collar only: White-necked Raven.

Black all over: Fan-tailed Raven, Cape Rook, Dwarf Raven (the latter showing a brownish gloss around the neck at close range).

2. SHAPE OF BILL.

Very heavy, upper mandible arched: White-necked Raven.

Stout: Fan-tailed Raven, Dwarf Raven, Pied Crow.

Slender: Cape Rook.

3. LENGTH OF TAIL.

(Remember that tails look short when expanded, long when folded.)

Noticeably short: Fan-tailed Raven.

Medium: White-necked Raven, Cape Rook.

Long: Dwarf Raven, Pied Crow.

4. CALL.

A falsetto croak: White-necked Raven, Fan-tailed Raven.

A "caw" (not falsetto). Dwarf Raven, Pied Crow, Cape Rook.

5. HABITAT.

Highlands (with crags) northern limit about 1° N.: White-necked Raven.

Less high country (with crags) southern limit about equator: Fan-tailed Raven.

Low-lying northern deserts, southern limit about 1° N.: Dwarf Raven.

Everywhere bar northern deserts (and the only crow on the coast): Pied Crow.

Highlands only: Cape Rook.

WHITE-NECKED RAVEN (*CORVULTUR ALBICOLLIS*).
PLATE 26.

SIZE: Span four feet; easily the largest crow.

AT REST: Black, with a *white half-collar round the back of the neck* and an extremely *heavy, white-tipped bill*, the upper mandible of which is arched.

UPPER-SIDE IN FLIGHT: Black, *white collar* conspicuous.

UNDER-SIDE IN FLIGHT: Black, the only special feature being the *heavy, arched bill*.

CALL: Usually a *falsetto croak* (like that of the British Raven).

COMPARISONS.

At rest. The white collar is the best field character at all ranges. The Pied Crow possesses a similar collar, but the breast is white (not black); also the bill is slenderer and the tail longer (see Plate 27).

Under-side in flight. This, being black, is like that of the Fan-tailed and Dwarf Ravens, and Cape Rook. The Fan-tailed Raven has a similar call, but the tail is shorter and the bill less prominent. (Compare Plate 26, middle figure, with Plate 28, lower figure.) The Cape Rook has a cawing call and a very slender bill. The Dwarf and White-necked Ravens are unlikely to be encountered together.

GENERAL: This fine species is a bird of the highlands, usually to be seen at anywhere between "5,000 and 14,000 feet" (Jackson). At New Moshi, however, I found it common as low as 2,500 feet, but the birds came down from Kilimanjaro each morning and returned there each night. (Jackson mentions the same habit at even lower elevations in Teita.) It is a crag-breeding and crag-roosting bird, rarely to be seen far from its native rocks. Its range extends northwards to Mount Kenya and Elgon, but not further; beyond this, it is replaced by the Fan-tailed Raven. In certain places (roughly between the equator and 1° N.) the two species overlap. The White-necked Ravens were very much at home around the military cantonment at Moshi, and seemed to have plenty of time for diversions, such as hanging upside down from a branch (sometimes by one leg only) accompanying the feat with a series of stentorian croaks.

ILLUSTRATIONS. PLATE 26.

Upper figure: Moshi, July, 1940. A silhouette, seen from below. Note medium tail and heavy, arched bill. The bird is carrying a twig.

Middle figure: Moshi, July, 1940. A side view, the wings being raised in flapping flight. The bill is again prominent, and the white collar just shows.

Lower figure: Moshi, September, 1940. This bird was enticed near my window with scraps of bread. It has just seen the camera, which it is regarding with suspicion. The collar shows distinctly.

DWARF RAVEN (*CORVUS CORAX EDITHAE*).

PLATE 27 (UPPER FIGURE).

SIZE: Span three feet. A very small raven.

AT REST: Black, with medium bill; tail longish, extending beyond the folded wing-tips; at close range the *crown and neck have a brownish gloss*.

UPPER-SIDE IN FLIGHT: Black; body rather slender, tail long.

UNDER-SIDE IN FLIGHT: As upper-side (see Plate).

CALL: A *typical caw*, resembling that of the British Rook.

COMPARISONS: The Fan-tailed Raven is larger, has a short tail and a croaking call, and is confined to the vicinity of rocky mountains. (See this species for the systematic distinction between the two.) The Cape Rook has a slender bill and a shortish tail.

GENERAL: There is little on record about the Dwarf Raven; it seems to be a bird of the low-lying plains of the Northern Frontier and Turkana. At a rough guess, latitude 1° N. may be its southern limit. East of Lake Rudolf, I found it very plentiful in the arid region north-west of Marsabit, and it was common at Wajir, but no birds were seen south of Laisamis or Habbas Wein, or in Garissa district. West of Rudolf, Dr. van Someren records specimens of a larger sub-species of this bird as far south as Suk and Kavirondo. Though called a raven, the Dwarf appears to a field observer much more like a Rook; indeed, the resemblance between its call and that of the British Rook is most marked. Regarding breeding, I cannot find any published records, but in February, 1941, I saw the ravens paired in the low country round Marsabit, and in two instances I saw a bird standing on a crow-like nest in a small acacia. Unfortunately circumstances did not permit me to stop and investigate.

ILLUSTRATION. PLATE 27.

Upper figure: Wajir, February, 1940. A couple of birds flying over, the long tails showing clearly.

PIED CROW (*CORVUS ALBUS*).

PLATE 27 (MIDDLE AND LOWER FIGURES).

SIZE: Span three feet.

AT REST: Black, bill medium; *white breast and white collar*.

UPPER-SIDE IN FLIGHT: Black, with *white collar*.

UNDER-SIDE IN FLIGHT: Black, with *white breast*.

CALL: A *deep, sepulchral caw*, not like the croak of a raven.

COMPARISONS: No other crow has a white breast. The White-necked Raven has a white collar only.

GENERAL: This bird has the widest range of all the crows. It is common on the coast (where none of the other species appear to penetrate) and well-distributed over most of the highlands. I have not, however, seen it in the low-lying plains of the Northern Frontier; here its place is taken by the Dwarf Raven. In Nyanza, it is particularly common, associating with the Cape Rook, and breeding in the tall eucalyptus trees surrounding townships. In feeding habits, it is a typical garbage-eater of the dust-bin type.

ILLUSTRATIONS. PLATE 27.

Middle figure: Hwesero (Kakamega), November, 1938. A bird flying over, showing the white breast.

Lower figure: Moshi, September, 1940. Showing upper-side, with white collar, medium bill and long tail.

CAPE ROOK (*CORVUS CAPENSIS*).

PLATE 28 (UPPER AND MIDDLE FIGURES).

SIZE: Span three feet.

AT REST: A small, black crow, with a *rounded head, slender bill and thick, bulging neck.*

UPPER-SIDE IN FLIGHT: As at rest.

UNDER-SIDE IN FLIGHT: Rounded head and slender bill again distinctive; tail rather short.

CALL: A rook-like caw.

COMPARISONS: The only crows that I have seen associating with the Cape Rook is the Pied Crow, which has a white collar and breast, and the Fan-tailed Raven, with a heavy bill and a croaking call.

GENERAL: This species is found (according to Jackson) "chiefly in the highlands and Rift Valley . . . unequally and not widely distributed." I found it common around the townships of North Kavirondo; here it breeds in eucalyptus and other introduced trees, often in practically inaccessible situations. Its scavenging habits are normal for the family.

ILLUSTRATIONS. PLATE 28.

Upper figure: Hwesero (Kakamega), November, 1938. A bird flying over, showing slender bill, rounded head and shortish tail.

Middle figure: Same place and date. Flying past, cawing loudly, with the bulging throat particularly noticeable. This bird was highly indignant because I had just climbed to its nest. It dashed up and down within a few feet of my head, then sat on a tree, and literally danced with rage, accompanying the action with a stream of abusive language.

FAN-TAILED RAVEN (*RHINOCORAX RHPIDURUS*).

PLATE 28 (LOWER FIGURE).

SIZE: Span three and a half feet.

AT REST: Black, bill normal, *tail very short* (the folded wing-tips reach well beyond it).

UPPER-SIDE IN FLIGHT: Black; short tail again distinctive.

UNDER-SIDE IN FLIGHT: As upper-side (see figure).

CALL: *A typical falsetto raven's croak.*

COMPARISONS: The Dwarf Raven (which I have seen associating with the Fan-tailed) has a cawing call (not a croak) and a long tail. Also it is smaller, and shows bronze about the neck at close range. (The systematic distinction is that the Fan-tailed has the nasal bristles sticking upwards, while those of the Dwarf lie flat, but such features are almost impossible to see in the field.) The White-necked Raven has a white collar, a heavy, arched bill and a medium tail. The Cape Rook has a slender bill and a cawing call.

GENERAL: This is a bird of the crags, like the White-necked. Roughly speaking, the Fan-tailed inhabits suitable localities from the Abyssinian border southwards to the equator, while the White-necked is distributed from the Tanganyika border northwards to latitude 1° N.—that is to say, the ranges of the two species are complementary, with about one degree of overlap. The White-necked is, however, usually a bird of greater elevations than the Fan-tailed; whether this applies in the area of overlap is not certain, but I think so, at any rate so far as Mount Elgon is concerned. At Buna, in Wajir District, the bird is common, though it keeps near the rocky hills in the vicinity. At my camp near the drift, it associated with the Dwarf Ravens of the plains. It is a cliff breeder.

ILLUSTRATION. PLATE 28.

Lower figure: Ajao, near Buna, November, 1939. I was on a foot safari with camels, and we were just leaving camp when a couple of ravens came down to forage among the debris. The bird photographed is in flapping flight; the very short tail shows clearly.

SOOTY GULL (*LARUS HEMPRICHII*).

PLATE 29.

SIZE: Span three and a half feet.

AT REST: A typical gull; above, *brown with a white half-collar*; below, throat brown, remainder white. Tail white. Immature birds lack the white collar and may have a bar on the tail.

UPPER-SIDE IN FLIGHT: Brown, with white collar; white tail.

UNDER-SIDE IN FLIGHT: Throat and wings brown; remainder white.

CALL: A mewling note.

GENERAL: The Sooty Gull is confined to the coast, and is the only gull to be found there, so it should be easy to recognize. (Terns are more slender, and have straight bills, not hooked like a gull's; moreover, they do not scavenge.) In harbours this gull circles round ships, and pounces on scraps that are thrown overboard. It breeds on the Kiunga Islands, east of Lamu. The place I know it best is at Brava, on the Italian Somali coast. Here the gull used not only to scavenge, but preyed on the Swift Tern (*Sterna b. velox*)—a bird almost as large as itself—which was pursued on the wing until it dropped the fish that it carried.

ILLUSTRATIONS. PLATE 29.

All of these were taken at Brava in August, 1941, on some rocks off the coast upon which the birds were breeding. They were extremely tame.

Upper figure: A bird flies over.

Middle figure: Lands on a rock near its nest.

Lower figure: And watches anxiously.

PLATE 17. MARABOU STORK.



Adult sailing past.

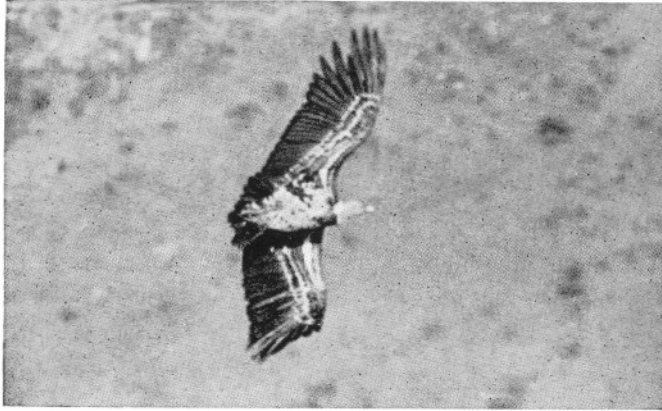


About to alight.

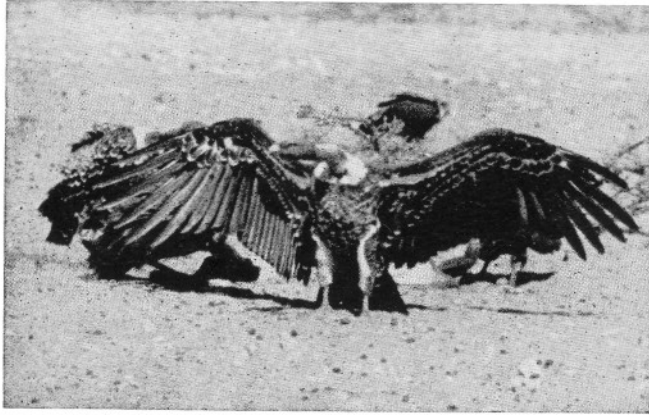


Walking away.

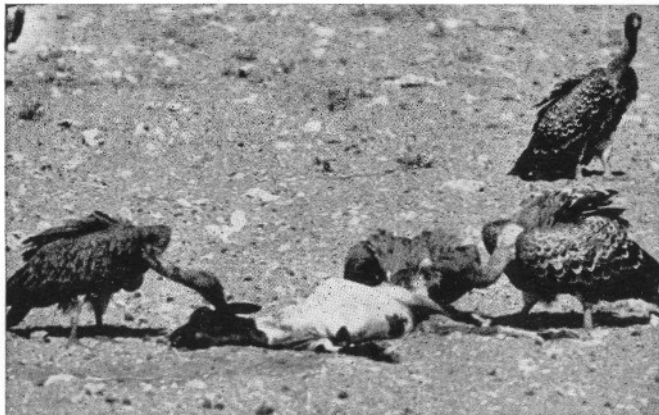
PLATE 18. RUPPELL'S GRIFFON VULTURE.



Adult gliding.



In menacing attitude.



Two adults on right; White-backed Griffon on left.

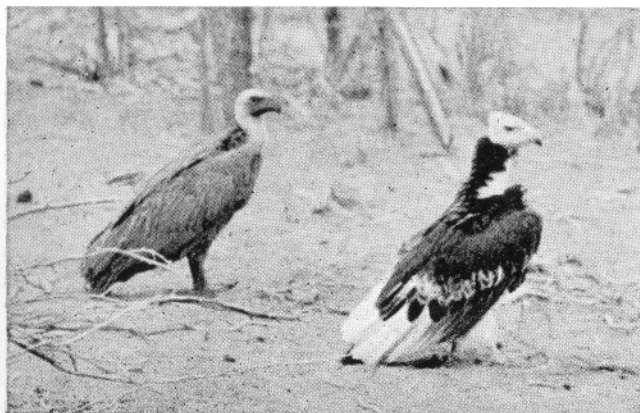
PLATE 19. WHITE-BACKED GRIFFON VULTURE.



Adult approaching.



Immature in flapping flight.



Adult on left; White-headed Vulture on right.

PLATE 20. NUBIAN VULTURE.



Passing over.



Taking off.



Two birds (showing huge size). A White-headed Vulture on left.

PLATE 21. WHITE-HEADED VULTURE.



A semi-adult.



A young bird.



PLATE 22. EGYPTIAN VULTURE.



Adult braking.



Gliding past.



A brown immature.

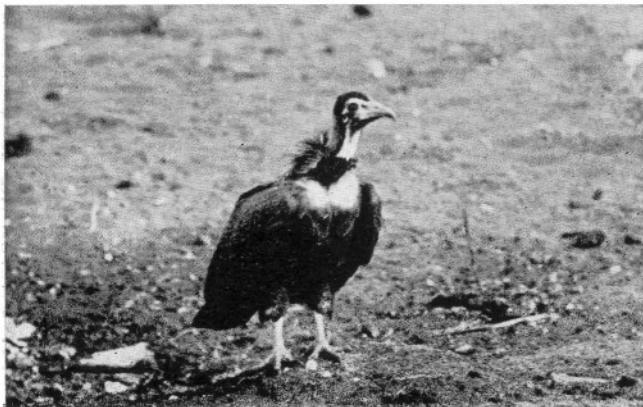
PLATE 23. HOODED VULTURE.



Adult soaring.



Juvenile taking off.

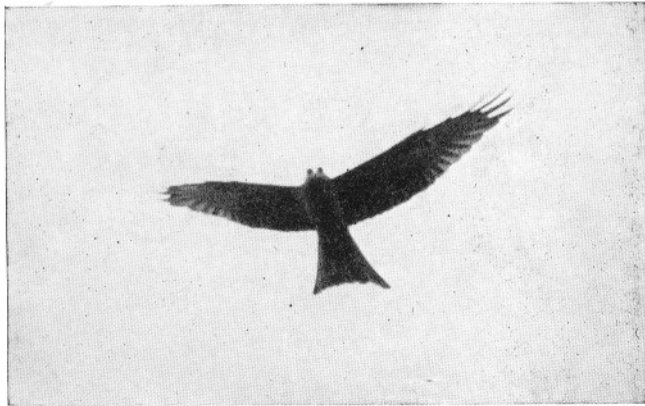


A juvenile.

PLATE 24. BROWN KITE.



Silhouetted.



Overhead.



Showing the tail squared.

PLATE 25. TAWNY EAGLE.



Overhead.



Taking off.



At rest.

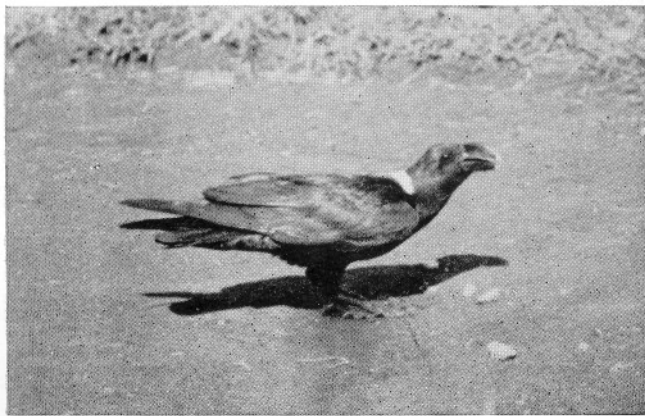
PLATE 26. WHITE-NECKED RAVEN.



Silhouetted.



Passing.



Enticed by bread-crumbs.

PLATE 27. DWARF RAVEN AND PIED CROW.



Dwarf Ravens passing.



Pied Crow overhead.



Pied Crow (side view).

PLATE 28. CAPE ROOK AND FAN-TAILED RAVEN.



Cape Rook silhouetted.

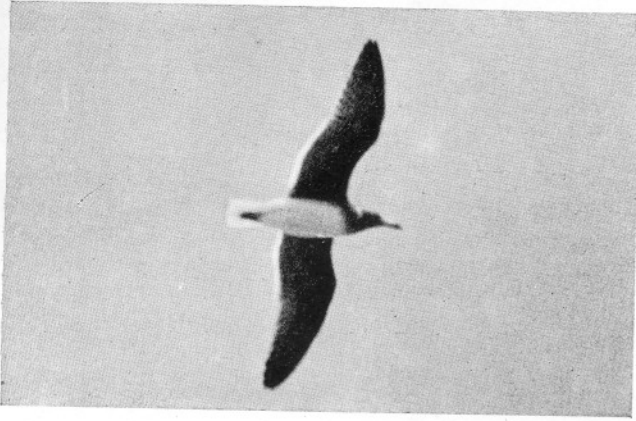


Cape Rook flying past, angry.

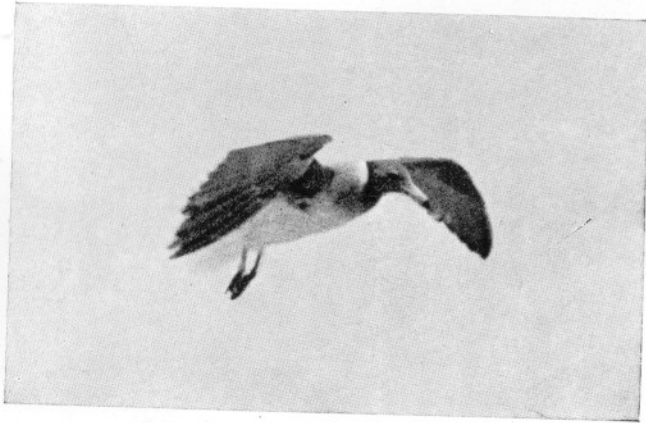


Fan-tailed Raven, passing.

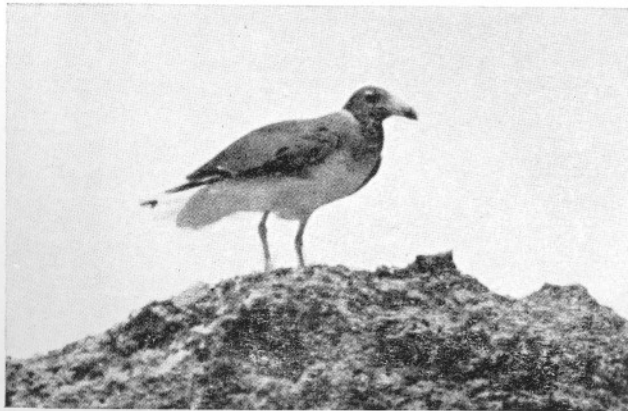
PLATE 29. SOOTY GULL.



Passing over.



Landing.



At rest.