

CONTRIBUTION TO THE ORNITHOLOGY OF SOUTHERN TANGANYIKA TERRITORY.

Birds of the Ubena-Uhehe highlands and Iringa uplands.

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CONTENTS.

PREFACE		
CHAPTER I.	Itinerary and narrative	5
CHAPTER II.	Description of the countries, with maps and illustrations	8
CHAPTER III.	The Upland and Highland birds and their countries compared	29
CHAPTER IV.	Results and conclusions	33
CHAPTER V.	Catalogue	35
	Appendix (a). References to literature	135
	Appendix (b). List of Types examined	136

PREFACE.

This is to be an account of an ornithological visit to southern Tanganyika Territory made in 1930-31, in company with my old friend of Sudan days, Mr. WILLOUGHBY LOWE.

Seeing that practically the whole of the pioneer ornithological work in that territory has been done by German ornithologists, I could have wished for no more appropriate way of making known the results of our visit than in the pages of this Journal, and I am deeply grateful to its Editor for having accepted my offer to do so and, thus, to take advantage of the corresponding membership of the society, to which I had the honour of being elected seven years ago.

Of the three hundred different kinds of birds we met with and took specimens of, so many of their Types are in the Berlin Museum that I found it impossible to say what some of them were—at any rate in the precise terms required by our current system of classifying down to the refinement of the subspecific grade—without comparison with those types.

This had the advantage of giving my sister and I a very pleasant visit to Germany last October. We took samples of all the doubtful birds to the Zoologisches Museum at Berlin and, thanks to Professor STRESEMANN, Professor NEUMANN and other kind friends there, saw all the types and came away much the wiser.

Just at this time Herr REICHERT of the Dresden Museum had brought there a fine collection of birds he had made in the Matengo highlands, a little to the southward in Tanganyika Territory of where LOWE and I had been working, and Dr. MEISE gave us a cordial invitation to come and see them.

So we then took our samples to Dresden, admired the REICHERT collection and left our birds at Dresden for a while, because Dr. MEISE and I saw at once a number of differences between the bird-populations of the Ubena and Matengo highlands and we thought that doing so would probably help when, in due course, the differences come to be specified and accounted for.

In England, as always hitherto, I have had much kind help towards working out the collection in the British Museum from Dr. PERCY LOWE, Mr. KINNEAR and the members of their staff; Mr. W. L. SCLATER has given me much good advice, and I owe acknowledgments also to Mr. JACK VINCENT for his help with the fine collection of birds and knowledge he has recently brought to the British Museum from Portuguese East Africa and Nyasaland.

We had been asked by the Director of the Royal Botanical Gardens at Kew to make a collection of plants. This we did, and are well content with the gracious acknowledgment that our efforts have received, both from Sir ARTHUR HILL and Mr. H. D. COTTON, Keeper of the Herbarium, to whom we are indebted for the names of all we collected.

We accompanied our specimens with a rather full account of their distribution, dominance and station, with the hope of being able to find something in the vegetation of these parts, as it exists today, which might explain the peculiarities in the distribution of the birds; but I cannot at present apply any of the results of this endeavour beyond what will help me to paint an intelligible picture of the countryside in its relation to bird environment.

Since we returned home, Mr. LOVERIDGE has published¹⁾ the results of his eight months' tour in East Africa in 1929-30, part of which was

¹⁾ In Bull. Mus. Comp. Zoöl. LXXV, N. 1, and (with Bangs) N. 3; 1933.

spent in the Uhehe (Uzungwe) and other highlands forming part of the homogeneous highland block in southern Tanganyika Territory. Hearing we were about to follow somewhat in his footsteps, he most kindly wrote suggesting good places for us to go, and it will be seen in our Chapters III and V that his results, in respect of both the distribution and the kind of the birds enter very considerably into our conclusions—that is to say, we unhesitatingly accept his finding in the former, and rejoice to find our birds in almost entire agreement with the latter.

I shall reduce this report to no more than is necessary to give an idea of our results and enable them to be judged, observing that what I think to be one of the most useful results, viz. that of contributing something capable of being turned to account towards a better understanding of the distribution of birds in the whole of central East Africa, cannot well bear fruit until the REICHERT and VINCENT results are known, and as I hope to be out working in the Congo until next April I think will be best if our results are available not later than theirs.

HUBERT LYNES
Elisabethville, August 1933.

CHAPTER I.

ITINERARY.

1931. Nov.	6—11		Nairobi	
	12—15		Nairobi to Dodoma	
	16		Dodoma	
	17		Dodoma to Iringa	
			<i>End of the dry season</i>	
	18—19		IRINGA	UPLANDS
	20		Iringa to Njombe	
"	21 to	}	NJOMBE	HIGHLANDS
1932. Jan.	7		<i>Full rains set in 25 Dec.</i>	
	8		Njombe to Iringa	
"	9 to	}	IRINGA	UPLANDS
Febr.	3		DABAGA	HIGHLANDS
	4—8		IRINGA	UPLANDS
	9—22		DABAGA	HIGHLANDS
	23—27		IRINGA	UPLANDS
"	28 to	}	IRINGA	UPLANDS
March	24		Iringa to Dodoma	
	25—26		Dodoma	
	28—29		Dar es Salaam	
	31			

NARRATIVE.

We had had a cordial invitation from the writer's old friend Mr. T. E. BUCKLEY to come out and see the birds of the Iringa Province of which he was Commissioner, and H. E. the Governor's permission to collect all that was necessary.

We went first to Nairobi, where Dr. and Mrs. VAN SOMEREN most kindly entertained us and got us the services of his former skinner, Yokana (who has two birds named after him), and having bought a half-ton motor van and engaged a first rate native driver for it, we went off along the Great North Road to Iringa. There we arrived on the 17th November, with the first rain shower of the year, warmly welcomed by Mr. and Mrs. BUCKLEY. He recommended us to go first of all, before the rains had made the roads troublesome, to the Ubena highlands at Njombe, and then spend the last part of our five months at Iringa; for, as he truly said, we should thus see two very different types of country and their birds. So that was what we did.

BUCKLEY had a good eye and a keen love for all his birds and saw just what we wanted: we could not have had better advice, and we looked forward with pleasure to his companionship—in the field when his duties permitted—on our return to Iringa.

But alas! it was not to be. While we at Njombe symptoms of malignant growth appeared, he was sent to South Africa for treatment and after a brave struggle, nobly supported through it by his wife, passed away, deeply regretted by his many friends and the Government he had served so well all his manhood's life. When we came back to Iringa, everyone was most kind to us, but we missed the BUCKLEY'S badly.

For our six weeks' stay at Njombe we were lent a stone built guest-house with a—happily—waterlight roof to live in, and our visit was made agreeable in many ways by the kindness of the District Commissioner, Mr. F. J. LAKE and his wife and, as often as his duties permitted, the companionship of his Assistant, Mr. R. M. BELL, who we found already keenly interested in birds, sending specimens of them to the British Museum and collecting eggs.

To him belongs the *κῆδος* of having found the first known eggs of *Cisticola nigriloris* and a number of other rarities, and it will be seen in our Catalogue how other discoveries of his have been able to improve our account of the Njombe birds.

BELL is now a M. B. O. U. and we may expect his co-operation in trying to solve some of those problems which, year by year, swell the list of wants which only the field ornithologist and the resident can properly supply—the status of each species as resident, or migrant, or what?, is one of them.

At Iringa, Herr MEITH arranged for us a lodging admirably suited to our needs at his saw-mills on the outskirts of the township, and, for our benefit, turned himself into an indulgent landlord whom we had the daily pleasure of meeting at his workshop.

Our two short visits to the Uhehe highlands in the Dabaga neighbourhood—only thirty odd miles by road from Iringa—were made possible and agreeable by Mr. G. C. BAKER, who manages, and with success, Captain WILSON'S farm up there. Thanks to him we were able to see enough of all the different kinds of ground—forest, jungle, downs, and so forth—on other farm properties in the neighbourhood to satisfy us that both its countryside and bird-population are extremely like those of the Ubena highlands at Njombe: an observation which is now seen to be confirmed by LOVERIDGE'S work there.

We used the van to get about from place to place, and to reach ground inconveniently far from our home to get to a-foot. She never failed us and always looked clean and smart in the hands of chauffeur Nganga, a particularly nice, upright young man. Also a good shot with a stone, for in that way, while waiting for us to return to the van, he one day enriched our collection with a big Kingfisher!

Yokana made us excellent skins and took great pride in the niceness of their make-up, and when we did not give him enough birds to skin, studied the Koran thoughtfully.

LOWE, as is his wont, did the lion's share of the bird collecting, looked after the storage of the specimens and besides, made a good collection of small mammals, while I gave a good deal of attention to particular kinds of birds like *Cisticolas*, and to plants and geography.

There were no hardships or difficulties; we were able to absorb ourselves in our work, the rain but rarely prevented us from doing all that we wanted to do in the field, and never spoilt the specimens.

The roads were quite good except here and there in a few little deadwater spots up to our departure, but with the rise of the watertable

and wear of traffic were then beginning to give the usual troubles which are expected in Africa towards the end of the rainy season.

At Iringa, first-rate shops where one can get almost everything the likes of us ever want, church on Sundays conducted by the Scots chaplain, and at Njombe a little branch store where one can get some things and order others not in stock to be sent up, memories of the Sudan and the day's events to talk over together after its results had been catalogued and labelled—life with us was very pleasant and the days slipped by all too quickly.

We left Tanganyika Territory by Dar es Salaam, enjoying the hospitality of Mr. STIGNELL, Commissioner of the Central Province, and his wife, and seeing something of the nature of the differences between that rather lower, drier and harder clad country and its birds (representative birds of the great midland plateau) and those of the Iringa uplands—differences which, though noticeable, are by no means great when compared with the Little Ruaha plain at Iringa, but all of them widening the unlikeness between the latter and the highlands.

CHAPTER II.

Description of the Countries (see Map I and Plates III, IV, V, VI).

THE IRINGA UPLANDS.

The area we worked, an irregular circle of about ten miles diameter with the township of Iringa (the provincial capital) as its centre, is a country of broken hills enclosing a series of upland basins or small plains which contain the middle waters of the Little Ruaha River and its tributaries.

The greater part of the township stands on a broad, saddle-shaped stretch of a long spur projecting from the base of one the blocks of hills, with its outermost buildings at an edge which falls steeply to precipitously down to the main river, three hundred feet below.

As we saw it in the rains, the Little Ruaha was a considerable stream, nearly or quite brimfull of muddy water flowing steadily with its surface unbroken by obstructions, at some two to four knots according to rainfall. The township stands at 1670 m. (5500 ft.) altitude, and the river below it is some 20 ± 5 yards broad; with a fall of about 100 ft. per five mile run counting the bends. Just up-stream of Iringa the river

cuts through the hills and for a mile is frowned down on by the summits of the two highest blocks in the place, picturesque crests of + 1400 ft. (on the river) to the southward and + 1100 ft. to the northward and only separated by three thousand yards. These two "pillars of Hercules" — Luhota and Tarik — fall steeply, but not precipitously down to the much constricted flat bed of the river.

Up-stream of that, the river sweeps a semicircular course round the outer edge of a great flat-floored basin about seven miles wide ("the East basin"), above which to the southward it is a broken stream descending through the folds of ground that lead with ever widening sweeps up to Dabaga and the Uhehe highlands, with eastern tributaries from the extreme northeastern end of the same highland block joining it here and there.

Down-stream of Iringa the river pursues a more or less straight southerly course, but with innumerable little twists and bends and a couple of swamps, for nine miles through a four-mile-wide "plain", which is varied, on the gently rising ground back from the river-bed, with mounds and occasional small rock-outcrops. The plain is flanked to the left by the highest of Luhota's block of hills, and to the right by the continuation of the township's spur, which at last ends in a series of scattered hill-blocks and allows the river, by making a hairpin bend in its course, to get away to the northward between lower hills, and so down to the midland plateau.

Map I shows well enough how this upland, hill-country passes into the compact highland block to the southward, but not well that to the northward of Iringa—that is to say, for as far on either side of the Great North Road as we could see to the westward, and up to the blue distant escarpment hills, Serebu way, to the eastward—the hill-blocks characteristic of our hunting-ground around the township soon break up and lose their character on a falling plane and altogether "flatter" ground, studded with isolated and semi-detached clusters of hills; country which although still on a higher general level than that of the midland plateau gave us the impression, as we passed through it, of having much more of the latter's general characters. Sketch 1. Plate III shows this fairly well.

Around Iringa, the 1850 m. contour, i. e. + 300 m. on the river, cuts a mean level of the crests of the hill-blocks, the half-dozen that rise a little higher country count as no more than irregular incidents. Their

sides are, as a whole, steep slopes, but are much furrowed by gullies and studded from top to bottom with outcrops of granitic rock of all shapes and sizes—great smooth unscaleable blocks as big as houses, slabs up to an acre in extent on the tops of those blocks which have enough flat area to contain them, piled up lumps on lower kopjes, and so forth—all of them conspicuous objects among the clothing of vegetation, be it woodland or bush, grass or herbage.

Metamorphic rocks are present but nowhere a feature of the surface. The floors of the riparian plain and basins, as might be supposed, are of alluvial deposits which are cut by the river here and there into earthy facets suitable for the nest-holes of Sand-martins (*Riparia*), Kingfishers (*Alcedo* etc.) and Bee-eaters (*Melittophagus*).

Almost everywhere the soil is light to sandy, richer in the plain than above it.

Apart from the rock-outcrops and the river, it is the vegetal clothing of all this which gives the countryside the environmental qualities it possesses for bird-habitation, and in that rôle we soon came to regard it conveniently as in three zones, viz. the *river-plain*, the wooded *hills*; and the intermediate *middle-ground* like that about the township.

In the catalogue when it is wished to indicate the kind of ground inhabited by a bird these terms will be used.

From the bird-environmental point of view I should call the *river-plain* a very ordinary African one, i. e. with the river course made apparent by its bush-and-treelet fringe of richer growth and peculiar kinds. In this case at the river brim it is chiefly Willow (*Salix safsaf*), the ubiquitous Plum Myrtle (*Syzygium guineense*) and saplings of the big trees which in a landscape view at all ranges are so conspicuously seen also to trace out the bed of the river, but stand in belts and groups a little way back from its brim. These are almost exclusively fifty to seventy-foot-high, thorny Acacias of four kinds viz. *A. albida*, *A. Seyab*, *A. campylacantha* and *A. [nefasia]*, with a sprinkling of large evergreen trees, equally large and spreading, but of soft nature, like *Ficus* sp., *Rauwolfia natalensis*, *Kigelia pinnata*, and a few others.

There are the usual grass and sedge jungles of giant growths near the river, backed by other kinds, also dense, but only five or six feet high, all of them swarming with nesting *Quelea*, *Euplectes* and other weavers; at the swamps, there are water-lilies for Jacanas on the open

water with the usual abundance of swamp and marsh-vegetation round their margins—and so forth, up to where the ground begins to rise and the plain becomes “dry”

That large expanse with a very gradual and slighty uneven rise of only two hundred feet or so up to the middle-ground, is well enough described as “bush” and long-grass, with scattered treelets, and varied a good deal with maize and manioc cultivation.

The bush is about half thorny and hard — *Zizyphus jujuba*, *Phyllanthus Engleri*, *Dichrostachys glomerata* and a thorny *Diospyros* sp. are prominent—and half soft-natured, like *Markhamia obtusifolia*, *Heeria reticulata*, *Allophyllus africanus*, *Flueggia virosa*, *Croton macrostachys*, etc., the latter category more associated with the moister spots and flood watercourses than elsewhere.

The *middle-ground*, which although lying only between the 1600-1700 m. (c. 5300-5700 ft.) contours, represents a large area, is not very different in make-up to the river-plain leaving out all that has riparian associations (including all but stray examples of the large thorny Acacia trees); only the surface is much less even, rock-outcrops and other elements of the hills straggle into it and its “bush” is quite markedly of a less hard and thorny nature, for instance, bushes, large and small, of *Bauhinia Thonningii*, *Grewia* sp., *Albizzia brachycalyx*, *Cassia goratensis* are prominent among an altogether softer assemblage.

Both the middle-ground and the hills above it have so very little surface water that the township has to get its water-supply from the river, but the larger gullies often hold little brooks which run, more or less, during the rains, and whether wet or dry the majority are here and there stuffed with luxuriant bush-jungle, often impenetrable and meeting the lower foliage of the trees above—places where one will find *Cossypha*, *Turdoides* and such like birds who do not seem to like the bush of the river-plain.

There are plenty of such places which really *look* suitable enough to hold some of the highland forest-jungle birds, but having become accustomed to regard them as inseparable from those darker and damper recesses, we accepted their persuasion and absence without understanding it, and in the lists we shall shortly give, comparing the highland and upland bird-populations, shall treat all of them as inhabiting only the highlands as if it is because only there that they can find the environment suited them, and regard their distribution as explained in that way.

Altogether, we found sufficient difference between the bird-population of the middle-ground and that of the dry part of the river-plain to be able to select one or the other for our day's work to a considerable extent according to the kind of birds we wanted to find, and what those differences are can be fairly well seen in the Catalogue.

The *hill* country crowning these lower grounds is quite different. Except where the granite outcrops occur, in the gullies, and at occasional small natural clearings where probably the soil is too shallow for tree growth, it is clothed from head to foot with *Brachystegia savana* woodland varied with a very small proportion of other kinds of "big" trees, and a fair number of other kinds, of lesser treelets, shrubs and bushes which are much more numerous in the lower tiers than higher up.

The *Brachystegias*—soft natured, not thorny, leguminous trees—are of two kinds which differ conspicuously in appearance, viz. *B. utilis* with stiff close foliage, darkish green in maturity, and *B. glaucescens* with looser, more open blue-grey foliage, and they so dominate the landscape in summer time as to make the hills appear completely clothed with ($\frac{4}{5}$) darkish green and ($\frac{1}{5}$) blue grey hanging woodland, a little broken up here and there by protruding and coronal, whitish grey, knobs of rock.

The *Brachystegias* average 40 ± 10 ft. high with occasional rather taller trees and a tendency towards a stunted, weather-beaten growth at the exposed parts of the hill-crests. Their only peer is the very occasional *Acacia macrothyrsa*, with vicious spikes but the only hard or thorny thing up there, and among the lesser woody growths between 15 and 30 ft. high, trees and bushy treelets of *Faurea soligna*, *Ochna Schweinfurtiana*, *Monotes tomentosus*, *Sterculia triphaca*, *Commiphora* sp. and *Heeria reticulata* are about the most frequent.

From the offing the general appearance of those hillsides gives the impression that one will have a fearful scramble through thick undergrowth to reach the summits. But that is not at all the case. The grass and all herbage is kept low by the shade of the trees, one finds a number of convenient little trails to take one through the bushy, lower tiers and guide one upwards with a minimum of plunging about in the gully bottoms, and once clear of them, one can wander about through the woods on the carpet of low grass, varied with patches of bracken and flowering foot-plants with as much freedom and pleasure as in a nicely open blue-bell wood in England.

To do so is delightful; so, too, is it to sit in the sun on one of the granite blocks up there with the whole panorama of the uplands spread out below, and charmed by the soft, sweet trill of *Cisticola woosnami* perched on the tip-top of a neighbouring *Brachystegia*.

But from the hunting point of view it is not "a good place for birds": those monotonous kind of woodlands never are. *Poliopiza gularis* likes them and may be found breeding in pleasing little colonies but at long intervals, *Thamnolaea* plays about many of the lower rocks, once we disturbed an Eagle Owl (*Bubo capensis*) from his roost in one of the upper rocks, *Francolinus hildebrandti*, who replaces the *Pternistis* in these heights is there, but very invisible, and sometimes we have strolled about these woods for an hour on end seeing nothing but a few wintering Palaearctics — *Muscicapa striata*, *Anthus trivialis* and others!

A few of the plants up at the tops above the 1800 m. contour are not found lower down, perhaps attributable to the cloud-caps they not infrequently gather during the summer. *Uapaca kirkiana* is one, and a scarce curiosity is the Olive (*Olea chrysophylla*) one example of which, a very fine old tree, 45 ft. high, supported a strong parasitic growth of the only true mistletoe (*Viscum tuberculatum*) we ever saw anywhere, although *Loranthus* was strongly represented in numerous species at all elevations, both in uplands and highlands. Bracken (*Pteridium aquilinum*) strikes a highland note. But none of these have any visible affect on the little bird life there is up there, very likely because the tops are only like small islands and too few for such individuality as they possess to attract birds of any other kinds than those who frequent the lower slopes.

As a whole, the environment in the tops of these hills is not at all unlike that of the hills at similar altitudes near Abercorn in the Rhodesian Congo, except that *their* rock outcrops are no feature (and none, I think, are granitic); there, *Brachystegias* equally dominate the woodland only are of other kinds, bracken is equally characteristic, and so is *Uapaca kirkiana*—even more prominent. Still more like the Abercorn country do the uplands become, along the main road further to the south beyond the Sao heights, where there is a big, continuous, if somewhat narrow, stretch all above 1800 m. altitude, by the western edge of the highlands.

On the other hand, at Iringa, everything else is much more like the Tabora country and I think that an inspection of the Catalogue will show that the alliance of ninety per cent of its bird population will be found in comparatively close alliance with that of the great midland plateau of Tanganyika Territory, with the remainder showing traces of S. E. Congo influence, and increasingly so to the southward—as it would perhaps be natural to expect.

I call these "uplands" solely for the present purpose of this account, and in no way wish to suggest it for any other purpose, at any rate until more is known of the country lying to the southwestward and westward of Iringa in Tanganyika Territory. According to the map, there is a great deal of ground there lying between the 1500 and 1900 m. contours, but to assume that it is all like the Iringa upland country is unwarrantable. Some of the blocks of hills, well over 1700 m. high, which we could see a little to the westward of Iringa but did not visit, looked as if they were stony and bush-clad and not at all like those at Iringa; furthermore, according to the geological map they are of metamorphic rock.

The "highlands" are quite another matter: that is a term which I do recommend for common use.

CLIMATE.

Iringa has regular rainy and dry seasons: ordinarily, December to April inclusive the rains, with about 30 ± 6 inches of rainfall (official¹ average for five years), and the remainder of the year dry with occasional uncertain and inexplicable variations. The rains are almost entirely of what is well called "the African type", that is to say, more or less daily thunderstorms, which generally brew about midday, break an hour or two later, and last, off and on, until towards sundown: the remainder of the twenty-four hours, fine.

Temperatures for Jan. 21 to March 22 (our records), all during the course of the full rains.

Average daily maximum.

Dry bulb. 80 ± 3 degrees Fahr.	} if any full sunshine during the eight middle hours of the day.
Wet bulb. 73 ± 3	

¹) We are indebted for this and a deal of other accurate information about the climate, as well as many other kindnesses to Mrs. Hood-Dye, Hon. Official Meteorologist at Iringa.

or

Dry bulb. 71 ± 2 Wet bulb. 68 ± 2 *Average daily minimum.*Dry bulb. 60 ± 2 Wet bulb. 58 ± 1

}	if no sunshine during the eight middle hours of the day (about 15 per cent of the days).
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}	with great regularity.
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When we passed through Iringa, southward bound, towards the end of November, the first little showers of the season were hesitatingly beginning to foretell the advent of the rains, all the grass and herbage that had not been burnt off or cleared for crops was of last years' growth, sere and broken, but the hill sides were gay with the lovely red, yellow and light green tints of the young leaves of the *Brachystegias*.

When we returned in early January, the rains were well set in, the place was everywhere fresh and green—all except the grey canopies of the big *Acacia albida* trees on the river plain, for they aestivate in winter—and the *Brachystegias*' foliage had long been at their full growth, coloration, i. e. darkish green and blue-grey according to kind.

THE NJOMBE (Ubena) HIGHLAND COUNTRY (see Map I and Plates III, VII, VIII, IX, X).

Here are great rolling stretches of pasture land, well called *downs*, studded with patches of *forest* of various sizes and growths; shallow dips and *hollows* with bush-clad sides whose moist bottoms collect the outermost capillaries of the bright running brooks and streams into the *valleys* which fall from the highlands—from Njombe down eventually into the great Rufiji—, landscapes comparable with that of those in the Cotswolds in England, or the Fränkische Jura at the Rhine/Danube watershed in the neighbourhood of Rothenburg in Germany.

The rock underlying the soil is entirely granitic. It is bared to view in the stream beds and also in clusters of little kopjes here and there on some of the slopes above them; but seldom on the tops and never at, or in, any of the forest-patches that we visited, which I think has some significance and will refer to it later.

In our area—some eighty square miles of the country around Njombe with altitudes all between 1850 m. (the lowest valleys) and 2050 m. (the tops of the highest downs)—there are several dead water-

dips in the downs-tops one of which holds water permanently and is called "*the swamp*" As we saw it in the early rains this was a three or four square mile patch of, mostly, marshy ground, with a ten acre patch of open water where there were water-lilies and Jacanas, a few ducks, *Ardeidae* and such like, but the marshy part was choked by a dense mat of giant spike-rushes (*Scirpus corymbosus*), quite disappointingly unhabited (unhabitable?), so far as we could make out, by interesting swamp-lovers like *Bradypterus*, *Sarothrura* and such like; and after two visits, having collected sufficient examples of *Cisticola brunnescens* and a few other birds not found all over the countryside, we left it alone.

The *downs* occupy, I should think, about three quarters of the whole area and are mostly of pasture, but with a fair quantity of present arable and recent fallow ground. The pasture is of "short" grass and dwarfed herbage (suitable for the Cloud-scraper *Cisticola ayresii*¹⁾) on those parts which have been "burnt-off" at the close of last year's dry-season and also where the rock is too near the surface to support anything better, and is matted a foot deep with last year's sere and broken grass where fire has not removed it.

Incidents which break the bare monotony of this surface—besides the occasional rock-outcrops already mentioned, which are generally associated with a few trees and bushes and some long grass—are singular, isolated, generally circular, clumps of trees, treelets and bushes, perfectly compact and abrupt edged, looking as if they had been neatly cut out of a big wood in a variety of sizes and replanted, *in toto*, in scattered formation all over the place, here sparsely, there rather more lavishly.

The largest, such as we called *groves*, run about 50 ± 20 yards in diameter with their trees up to forty ft. high, and occur about one every half miles or so without reference to any of the forest-patches, and the lesser clumps, smaller also in their growths, more frequently. Inventories of several of the groves show that they are made up, substantially, of just the same plants as are in the forest patches, but, rarely contain any of the trees that there grow to giant size. None of the true forest birds inhabit them, and few other than occasional Sunbirds (*Nectariniidae*), *Cossypha heuglini*, *Laniarius ferrugineus* and such like "bush"lovers.

¹⁾ To express the quality of the pasture in terms which will convey the right idea as well as "a good place for a snipe" will distinguish one or a few out of many different kinds of marshy ground in Europe.

It is a piece of country very thinly populated by mankind, and except at the post itself and a few clusters of three or four huts at wide intervals, the people live singly and well spread out. Yet a surprising quantity of ground on the downs indicates their agricultural industry — quite considerable areas in present cultivation and a deal in the past, even in antiquity is evidenced, by their ridge and furrow way of tillage.

Other "incidents" on the downs-tops are occasional straggling rows of bamboos, introduced by the people for their "wine", i. e. the sap; which Sunbirds also like, sipping it from the collecting cups on the blazed stems of the plants.

There are plenty of birds on the downs (in summer) but singularly few species. Despite its ideal qualities, only one kind of Lark and that very scarce! *Macronyx croceus* is the *genius loci* of the unburnt, and *Cisticola ayresii* of the burnt-off grass pastures; *Anthus brachyurus*, Bustards and not many other kinds make up a representative, but small list.

We had two streams in our area, both with cascades wherein colonies of *Onychognathus tenuirostris* made their *Cinclus*-like homes. The larger of the streams, locally called the river, is that which the post of Njombe overlooks from abreast of the cascade, above which it meanders gently through a flat-floored, shallow valley between earthy banks and a lot of sodden ground which supports a riotous growth of tall grasses and matted herbage much liked by *Cisticola nigriloris*, *Schoenicola*, the Ploceine members of the weaver family and such like birds.

The river banks support the "different" growth and kind of vegetation such as is commonly associated with a riparian station: on the flats, at the river brim there are the same Willow (*Salix*) and *Syzygium* plum as on the Little Ruaha at Iringa, but most of the other plants there are quite different, and everywhere else, like the waterways themselves, there is scarcely any resemblance between the highland and upland riparian vegetations, and nothing at these highland streams is hard or thorny.

Among characteristic "big" trees up to forty or fifty foot high, prominent are *Tricalysia* sp., *Bridelia micrantha*, *Faurea saligna*, *Rauwolfia natalensis*, *Hymenodicton floribundum* and, though uncommon, lesser growths of the forest giant, *Parinarium Holstii*; and among lesser growths, treelets and bushes of *Apodytes dimidiata*, *Ochna Holstii*, *Agaurea Goetzei* (of ERICACEAE and very like the *Arbutus*) and a

number of dense foliated evergreens like *Mimusops Buchanani*, *Trichocladus malosanus*, etc.

But despite these highland/upland differences of riparian vegetation there where evidences of what I have long thought to be going on — an affair in continual process today and in the past — viz. some kinds of birds altering their ranges gradually by wandering up and down the waterways; may be in search of new nest sites in holes of trees or banks found only along the river banks because changed conditions compel them to do so, or other reason beyond our vision to explain, as indeed are many of the alterations of birds' ranges which we know to be going on in our own countries. *Sylvietta whytii*, *Batis molitor*, *Lybius torquatus* and perhaps *Melittophagus bullockoides*, are all common enough birds of the plateau and at Iringa and which we found nowhere else at Njombe but along the streams.

The hollows, those shallow grooves in the surface of the downs wherein commence their visible drainage, for the most part begin abruptly.

Standing on the downs one can generally see the tops of the uppermost bushes and treelets, which, with braken (*Pteridium*), rank grass and herbage thickly clothe their sides, and on getting up to head of one of these hollows one looks down into a kind of trench, ever widening as it descends to the valley which contains the stream its ooziings feed, with a floor at the bottom of its thickly stuffed sides where, if rock is near the surface, a hesitating little brook may be seen, but is most often concealed beneath a thick, sponge-like mat of bog-grass, a *Hyparrhenia* sp. Among the commonest of the bushes are *Syzygium intermedium*, *Osteospermum moniliferum*, *Byrsocarpus tomentosus*, *Hypericum lanceolatum*, all of them, like everything else soft, not hard or thorny natured plants. The hollows are much liked by the three Cisticolas, *nigriloris*, *cantans* and *aberrans*, by *Colius*, *Centropus*, the Estrildine Weavers and such like birds.

Where the moist bottoms of the hollows open out onto the flour of the main valley, one generally finds groups of serried ridges — huge dykes of soil five feet high — piled up by the people to grow their pumpkins and other vegetables in, and those of past cultivations supporting riotous thickets of grasses, herbs and small shrubs which afford food and a home to many of the birds inhabiting the lower grounds.

As to their size. At Njombe, a cross-section of an average *hollow* taken at two hundred yards or so below its origin would show it about 30 ± 10 ft deep and 150 ± 50 ft wide at the tops of its banks. Further south, by Mapala forest where the ground lies rather higher and the slopes run steeper, the *hollow* would be a bit deeper. But it is a varied category and a loose term.

There are two patches of *forest* within our area. The one we worked regularly and often, called Mapala, to the southward of Njombe, has about twelve acres of, certainly, virgin forest and attached to it a larger area covered in a disjointed way with patches of what is probably second growth forest (which we called "forest-jungle"), and interwoven with all this, tracts of almost every other kind of second-growth.

The "forest-jungle" is just like the virgin forest, except that its general height is less and none of its trees have grown to giant structure, and it contains just the same peculiar kinds of birds. The remainder is different: there is ground which looks as if it had once been covered with forest, but *that* having been destroyed, it has not been able to return to its original state and substituted a different kind of vegetation, often in the form of dense, matted, eight-foot-high, bush and grass jungle, which contains none of the truly forest birds, but is beloved by *Chloropeta natalensis*, also by *Bradypterus cinnamomeus* and others of the "bush-skulker" persuasion.

Intermediate ground, forest or forest-jungle even now in process of destruction, first by fire then by axe and hoe for cultivation ., and so forth, evidently the whole *mise en scène* that which is found wherever virgin forest has been interfered with by mankind.

Of the real forest and the tribe of peculiar birds that live in it, little need be said here. It is, clearly, rain-forest of the well known type, with dark, damp recesses filled with moss and epiphytic-clad lianas and stems of the evergreen trees and their climbing parasites whose foliage spreads a dense canopy overhead, overtopped here and there by the upper foliage of large and giant trees, and so forth — an environment which experience has shown to be so intimately associated with its bird population that nearly every kind of bird that lives in it would be absent were the forest not what it is.

The different kinds of forest birds we found are specified as such in the Catalogue. All that is known about the forests of these highlands

from the forestry point of view can be read in the "Handbook for Tanganyika Territory".

I regret that although it might be useful in comparison with other East African rain-forests and their birds, I cannot now say more about the botanical constitution of this forest patch than that its only (living) giant tree, up to 150 ft high, is *Parinarium Holstii* (RUBIACEAE); that, of the matrix big trees, up to c. 70 ft high *Bridelia* (n^o) *Neogoetzea* and *Macaranga mellifera*, are about the commonest; and that the evergreen canopy below their tops, with its host of climbers and parasites is one whose variety of kind, despite the great similarity in the general appearance of its foliage, is, actually great — a fact which is perhaps of little importance to the economy of the forest birds since nearly all of them are insectivorous.

Of all other ground we visited, both in the Njombe highlands and the Iringa uplands, we think it probable that our inventories of the bird-population — at this season of the year only, of course — are fairly complete and that we did not miss much. But we are quite sure that that is not so of the forest, and I agree with every word of what Mr. MOREAU has recently said (in *Ibis* 1932 p. 489) about the difficulties and the time that must be spent to get to know the birds that live in forests of this kind. My own inclination is to find out something about a bird before shooting it and having learnt from this, my first acquaintance, that if you wait to do that, as often as not the bird is lost to sight for ever. I shall retire, as useless, from forest exploration.

Thanks to LOWE'S experience and skill in forest work, we were able to produce, say, three-quarters of what these forests contain, but we were not there nearly long enough, and besides we saw several strangers who escaped us.

The other patch of forest in our area — to the northwestward of Njombe — is only five acres in extent, and stands in complete isolation on top of the bare downs just like a magnified grove. Except that some of its big trees — it contains no giants — are of different kinds, it is just like the Mapala. It holds some, but not all Mapala's forest birds — about as many, perhaps, as might be expected from its isolation and small size.

It is a burial place of chieftains and has the legend of being a small relic of a forest that once extended far and wide in that neighbourhood,

which leads me to say a few words on a subject which somewhat concerns the bird-distributional problem.

Ample evidence has demonstrated that the vegetation of these highlands has been altered in "recent" times by man's destructive agency; no more explanation of how it was probably done is needed than to see what is going on now, but, thanks to governmental supervision, only in a restricted way.

Out of the vision, one man, one fire and square miles of country entirely altered in one year, arises the postulated idea that these highlands were once entirely clothed with virgin forest. If that were so, then one must regard all the birds which inhabit what are now open downs and cannot live in other surroundings, as "recent" arrivals there. *Cisticola ayresii*, which now abounds on the downs is a sufficient example from a list, which though small is distinctive.

But the case for "all forest" is not proven, and I believe, or at any rate remain to be convinced otherwise, that downs have existed there, although no doubt less extensively than of old, for unknown ages past.

The isolated groves which now stud the downs, are thought to be evidence for the "all forest" theory. I admit being unable to explain their origin; they are not on ground which has been left alone by the natives, as is often the case, because termites have made it untillable.

But there is plenty of *ayresii* ground where the rock is so thinly overlaid with soil that no trees could possibly grow there *now*, and which is so much on the flat as to contradict the idea of its present condition being the result of the washing away of soil *owing to* the destruction of trees originally growing there.

It is this together with the fact that we never found rock outcrops inside any of the forest areas we visited, and the presence of the down-loving birds combined, that make me suggest the likelihood of there having been downs on these highlands for a very long time past.

It is quite remarkable how, when approaching Njombe and the highlands by road from the northward, one becomes aware of having passed from the upland to the highland country.

At thirty miles short of Njombe one is at 1850 m. altitude, still in typical upland country among *Brachystegia* trees, *Uapaca kirkiana* and a number of its characteristic hard and thorny treelets and bushes, its huge termite mounds supporting their growths of wiry bushes. *Mirafra fischeri* is "flappeting" and other upland birds are around one.

Five miles nearer Njombe, with but the slightest rise of altitude — imperceptible without reference to an altimeter — all these have vanished for ever; one is on the bare downs, strewn with the small "mole-hills" which represent the mounds of the highland termite sp., the first small outlying groves of highland evergreens, *Cisticola ayresii*, *Anthus brachyurus*, *Macronyx croceus* and Bustards appear and everything suggests one's entry into a new kind of world.

Wild mammals are extraordinarily scarce in these highlands, even rats and mice. There are a few duikers. If there are any jackals or hares, I never saw either. There are fish in the streams.

As for the likeness of the remainder of this great block of highlands to our Njombe part of it. The Forestry department records specify some twenty-eight forest patches in the Ubena highlands and the Livingstone Range beyond our small Mapala patch to the southward, and these range from twenty five acres in extent to nearly ten thousand.

R. M. BELL from his own acquaintance with it on trek, and viewing things with the ornithological eye, tells me that the country in general between Njombe and Milow — downs, forest patches and all — continues very much of the Njombe pattern, but larger and with a gradual rise up to 300 m higher on the average to the southward.

A. LOVERIDGE (op. cit.) has shown the near relationship of the Livingstone range at its extreme northern end (Madehani loc.) and of the Ukinga and Poroto ranges.

There is, in fact, every appearance of the whole of these ranges, with the Uhehe range, constituting an extensive, compact highland block, homogeneous alike in "country" and bird-population.

CLIMATE.

Njombe has much the same wet and dry seasons as Iringa, but a twenty-five per cent greater rainfall viz. c. $40 \pm$ inches per annum (5 year official record), and during our stay we noted also the following differences.

(a) Besides the daily thunderstorm type, spells of a more monsoon type of rain.

b) More cloud: we scarcely ever saw a sunrise, because of fog or low cloud lasting for an hour or two after the sun had risen, and seldom a sunset because of cloud at the close of day.

*Temperatures for Nov. 22 to Jan. 6 (our records).**Average daily maximum.*

Dry bulb. 76 \pm 3 degrees Fahr.	}	if any full sunshine during the eight middle hours of the day.
Wet bulb. 66 \pm 3		

or

Dry bulb. 70 \pm 3	}	if no sunshine during the eight middle hours of the day.
Wet bulb. 66 \pm 3		

Average daily minimum.

Dry bulb. 56 \pm 2
Wet bulb. 55 \pm 2

Up to Christmas day the rain fell only in mild and intermittent thunderstorms, with, generally, the dry-season easterly wind. After that, the full rains set in and the wind turned for good into the westerly quarter.

When we arrived on 20 Nov. the landscape, dominated by the aspect of the downs, was drab (the old sere grass), dark brown (newly ploughed patches) and black (recent and present grass-burnings), no young grass was showing, save a few tiny sprouts. When we left on 8 Jan. all was green, the burnt-off areas vividly so, the unburnt areas of a subdued tint owing to the young blades not long having struggled up through the mat of sere grass overlying it; the valleys and the hollows exuberant and the crops rushing up — the maize in the mouths of the bottoms and in the valleys sturdy growths up to six ft. high, and that on the drier soil of the downs' tops only two to four ft. according to soil and date of sowing.

THE DABAGA (Uhehe) HIGHLAND COUNTRY (see Map I and Plates
XI, XII, XIII).

We had been told that its country was very like that of Njombe and our two short visits to the Dabaga loc. were made with the express purpose of making the comparison ourselves and noting all the differences we could find between the two highland countries and their birds.

We found scarcely any except in small detail.

The ground we worked lies about twenty-five miles as the crow flies from Iringa, at a mean altitude of 1980 \pm 120 m. i. e. level with crests of the highest hills at Iringa which can be seen in the distance. Compared

with Njombe, we were at a trifle higher mean altitude, with the hollows and valleys running rather deeper and larger. Around Captain WILSON'S house, where we were installed (in the western area shown in Map I), there is no real forest, but there are patches of forest-jungle and, near them, groves are particularly numerous; the downs are very wide and bare and Protea bushes and treelets rather more frequent than at Njombe.

It seems that in this part of the Uhehe highlands all or nearly all the real forest lies to the eastward and is most plentiful towards the edge of the great escarpment which overlooks the Rufiji plain.

Thereabouts; on the large farm properties of Herr HARRIES and Herr v. LEYSER (the eastern area in Map I), are patches of virgin forest and a quantity of forest-jungle associated with it. The former included two giant trees, and the latter thickets of wild bamboo not in Njombe loc., otherwise we could see little difference.

Naturally, we could attempt no inventory of the bird-population in those few days. To our eyes, whether on downs, in forest, hollows or valley, practically the whole bird-population *looked* just like that of Njombe, and the one hundred and twenty examples of fifty species we collected, three almost confirm our field observations, but in two cases geographical difference is shown viz. in *Apalis thoracica* and *Apalis bamendae*. But little differences like these are not surprising when it is seen that they are differences associated, one with the centre (Njombe) and the other with the extreme northern end (Dabaga) of the large highland block. The particulars can be seen in the Catalogue, in scanning which it is on no account to be assumed that absence from our Dabaga collection of any Njombe species means actual absence at Dabaga, or that any species represented in our Dabaga collection and absent from our Njombe collection means actual absence at Njombe. The latter caution refers more particularly to forestloving species, and *Arizelocichla masukuensis* illustrates the point.

By road, it is thirty three miles to Captain WILSON'S house, our furthest south. At mile 7 from Iringa one has just begun to rise from off the floor of the big "east basin" of the Little Ruaha, at mile 13¹/₂ the river is crossed at 1850 m. and left to westward of the road. The rise continues steadily for the remainder of the way, with a few dips, here and there, to cross brooks. At mile 16 one is at 2000 m., the first *Cisticola nigriloris* may be seen, most of the upland birds have dropped out, and a few miles further on one is quite in the highlands.

List of illustrations.

Plate I.	Map 1.	THE IRINGA PROVINCE OF SOUTHERN TANGANYIKA TERRITORY, showing the parts of the uplands and highlands where we worked, etc.
Plate II.	Map 2.	EAST AFRICA (Map I inset), showing all the forested highland blocks and discussing their relation to bird-distribution.
Plate III.	Sketch 1.	Panorama of the UPLANDS as seen from Iringa.
	Sketch 2.	Panorama of (Ubena) HIGHLANDS as seen from Njombe.
Plate IV.	Photo 1.	THE IRINGA UPLANDS. Panoramic view.
	V. Photos 2 to 6.	THE IRINGA UPLANDS. Various views.
	VI. Photos 7 to 10.	THE IRINGA UPLANDS. Various views.
	VII. Photos 11 to 13.	} THE UBENA HIGHLANDS NEAR NJOMBE. Various views.
	VIII. Photos 14 to 16.	
	IX. Photos 17 to 20.	
	X. Photos 21 to 23.	
	XI. Photos 24 to 26.	} THE UHEHE HIGHLANDS NEAR DABAGA. Panoramic views.
	XII. Photos 27 to 29.	
	XIII. Photos 30 to 32.	
	XIV. Photos 33 to 38.	} Some of the nests we found.
	XV. Photos 39 to 42.	

Explanation of the Plates.

All the illustrations¹⁾ have been made sufficiently self-explanatory except — for lack of space on their pages — Maps I and II, which require the following additions to what is already written on them.

¹⁾ I am indebted to M. Astley-Maberly for the finishing touches to the sketches of Plate II, which give a better idea of the essential differences between the upland and highland countries, than the photographs alone could have done.

Map 1.

The topography is derived from Map. Geogr. Sect., Gen. Staff, N. 2871; scale 1 2 000 000; July 1927, in which a few known corrections (chiefly reductions of altitude) have been made.

The 1900 m. contour, which is shown neither in that map nor in any other that I know of, has been estimated from the 2000 m., and is therefore not a topographical exactitude. But even if, as is said, the 1500 and 1900 m. contours make very fair approximations of the upland/highland low limits in the Iringa, Dabaga and Njombe locs, there is no intention of saying that they necessarily do so all over the map.

Map 2.

Clarity, sufficient for its purpose, is all I am ambitious enough to attempt in so small a compass.

What was said about the 1500 and 1900 m. contours of Map I applies equally to Map II.

The whole map is an approximation based on knowledge which is perhaps good enough for its present purpose, so far as it goes, but is capable of much improvement.

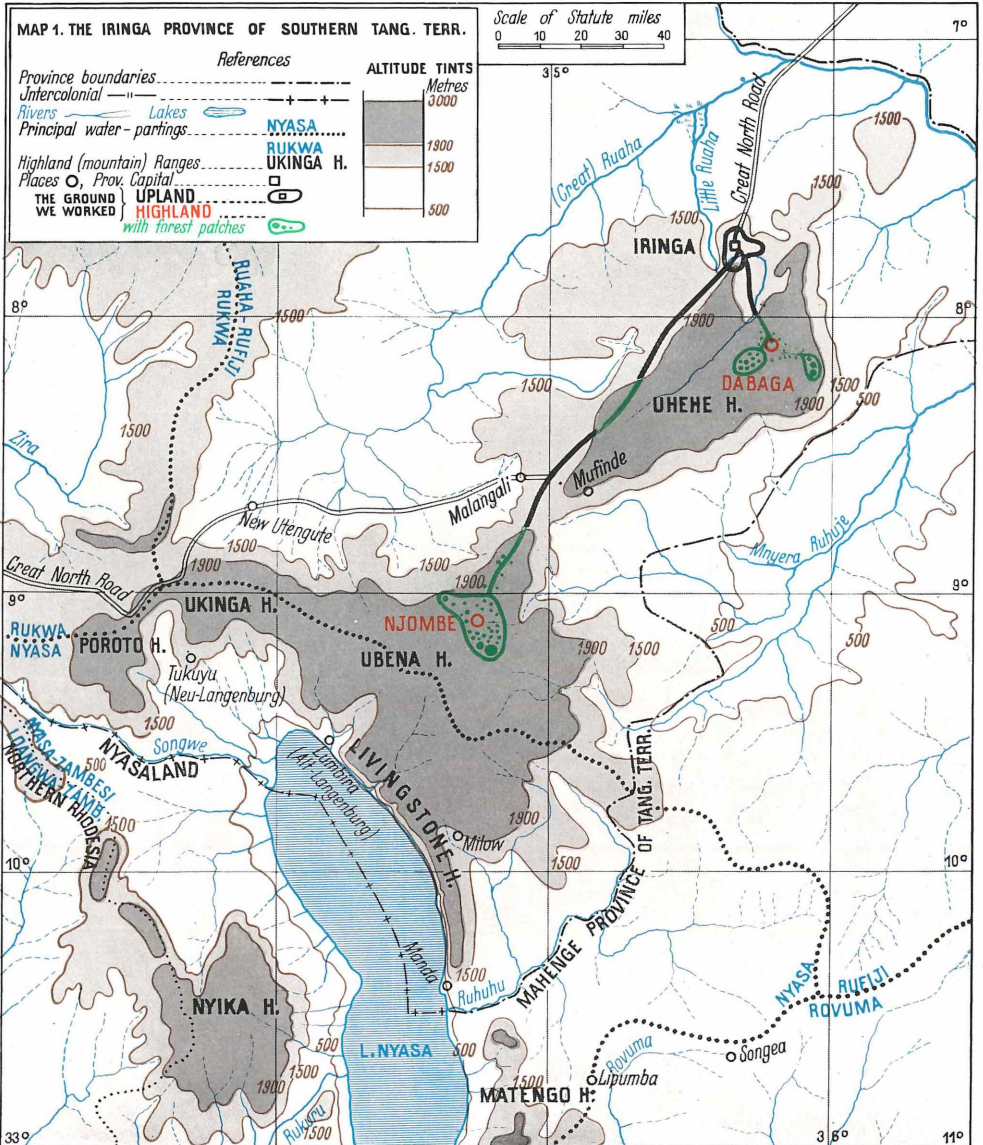
The relationship in this connexion, between highland and lowland-forest, and indeed, what are their distinctive characters, are other deficiencies I am aware of.

À propos of this subject, besides LOVERIDGE'S account (quoted antea), I would recommend the reading of (inter alia) Mr. GILLMAN'S excellent report on "South-west Tanganyika Territory", in Journ. Royal Geogr. Soc., Feb. 1927.

Among evidence which may be collected from past ages in order to try and account for the present distribution of birds: when it comes to comparing the present distribution in that stretch of country lying between the south end of L. Tanganyika and the north end of L. Nyasa which has been so complicated by the Great Rift, a line of thought — particularly affecting the alliance of the Nyika (6) and the Matengo (7) with the southern block (5) — is suggested by Professor GREGORY'S view²⁾ that

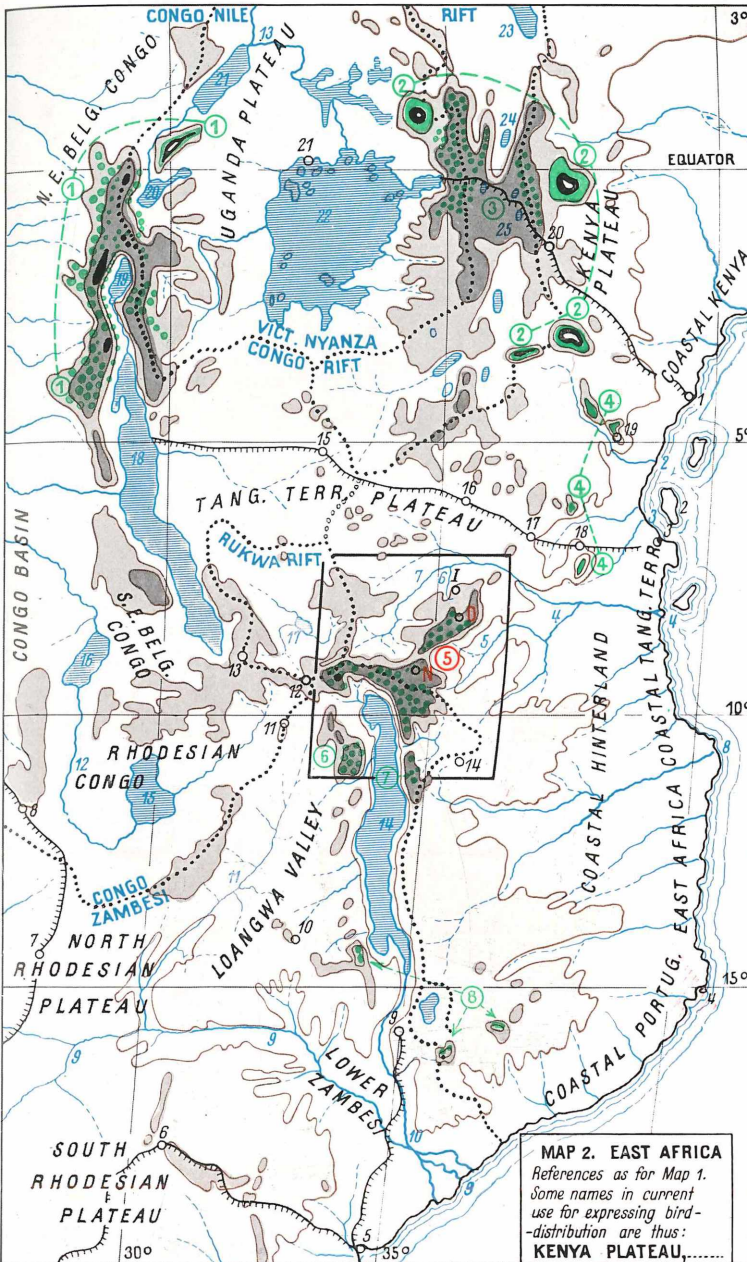
²⁾ Gregory, "The Rift valleys and geology of East Africa", 1921.

before the Great Rift occurred to form L. Nyasa "the Rukuru River no doubt flowed at the level of 6000 ft over a plateau which included the Nyika and the scattered summits of the Musambwe Mts" and continuing its course across what is now L. Nyasa "on the plateau at the eastern part of the Ruhuhu basin and over it at the level of 2900 ft . eventually drained into the Rufiji.



This map is made so as to best explain what is said in the text about the parts of Tanganyika Territory in which we worked, their birds and their distribution: briefly, that although the country of what we call the "UPLANDS" lying below the c.1900 m. contour, is so unlike that of the "HIGHLANDS" lying just above it, that difference does not account for more than a small part of the difference between their respective bird-populations. In fact, when compared, despite the proximity of the two countries, and relative nearness of their climates and altitudes, their bird-populations are as essentially unlike as are those in some parts of Africa whose wide separation and other qualities alone convey the idea of propriety of regarding them as different avifaunal subdivisions.

From the premise that it is advantageous, in order to clarify ideas on bird-distribution for the purpose of inquiry into its origins and causations, in the way which is customary and which the current practice of classifying birds according to (*inter alia*) their geographical races so greatly facilitates—if it be only through the necessity of expressing their distribution in terms as much related to physical as to political geography—conclusions are suggested.



- INDEX to NAMES**
Places
 1. Mombasa
 2. Zanzibar
 3. Dar es Salaam
 4. Mozambique
 5. Beira
 6. Salisbury
 7. Broken Hill
 8. Elisabethville
 9. Blantyre
 10. Fort Manning
 11. Joska
 12. (formerly) Fife
 13. Abercorn
 14. Songea
N. NJUMBE
D. DABAGA
I. IRINGA
 15. Tabora
 16. Dodoma
 17. Kilosa
 18. Morogoro
 19. Amani
 20. Nairobi
 21. Entebbe
- Rivers**
 1. Tana R.
 2. Pangani R.
 3. Ruvu R.
 4. Rufiji R.
 5. Nyera Ruhiji R.
 6. Little Ruaha R.
 7. Great Ruaha R.
 8. Rovuma R.
 9. Zambesi R.
 10. Shire R.
 11. Loangwa R. (Congo R.)
 12. Luapula R. (Congo R.)
 13. Nile (Victoria)
- Lakes**
 14. L. Myasa
 15. L. Bangweolo
 16. L. Mweru
 17. L. Rukwa
 18. L. Tanganyika
 19. L. Kivu
 20. L. Edward
 21. L. Albert
 22. L. Victoria Nyanza
 23. L. Rudolf
 24. L. Baringo
 25. L. Naivasha
- FORESTED HIGHLANDS**
 ① KIVU block, RUIWENZORI
 ② ELGON, KENIA, KILIMANJARO, MERU.
 ③ KENYA block.
 ④ USAMBARAS, NGURU, ULUGURU.
 ⑤ SOUTHERN block (UHEHE, UBENA, UKINGA, POROTO.)
 ⑥ NYIKA.
 ⑦ MATENGO.
 ⑧ NCHEU, MLANJI, NAMULI.

MAP 2. EAST AFRICA
 References as for Map 1.
 Some names in current use for expressing bird-distribution are thus:
KENYA PLATEAU,.....

This map transfers the idea of Map 1 to other and more distant parts. On it, all the known blocks of highland rain-forest in East Africa are marked. They are those which, when treating of the Ethiopian Region as a whole, Chapin groups suitably together as an "Eastern Montane Avifaunal District," and the question to which this map invites attention is whether or not it is one of these "Districts" which he suggests may be further subdivided to advantage, and if so, how?

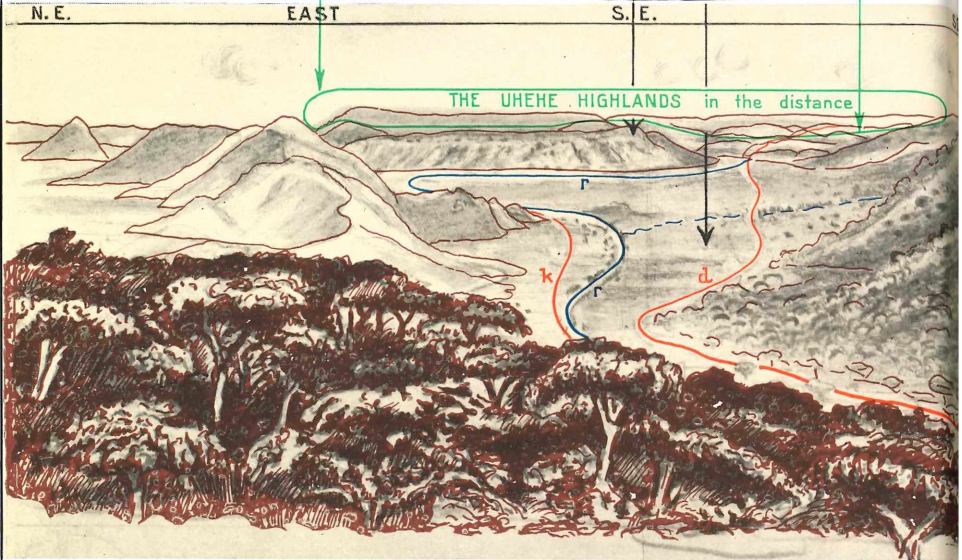
The grouping of blocks 1 to 4, which are now rather well known, is not intended to prejudice any view of a better one. Of the remainder, Loveridge has shown how 5 has no great affinity with 4, and may be extended to the westward to make a very large block; the birds of 6 are fairly well known of old; 7, and all parts of 8 have just been explored by Reichert and Vincent respectively, and when their results are known it may be possible to answer the question in a way that will advance an understanding of the distribution of birds in Central East Africa

SKETCH 1. PANORAMA OF THE IRINGA UPLANDS, close as seen from a little
All the country seen here is **UPLANDS** except only that, in the distance

Extreme northern end of the Uhehe highlands

Dabaga loc. 1980 ± 120 m.

Himbu crags, c. 2050 m., 11 miles distant
West basin of little Ruaha R.



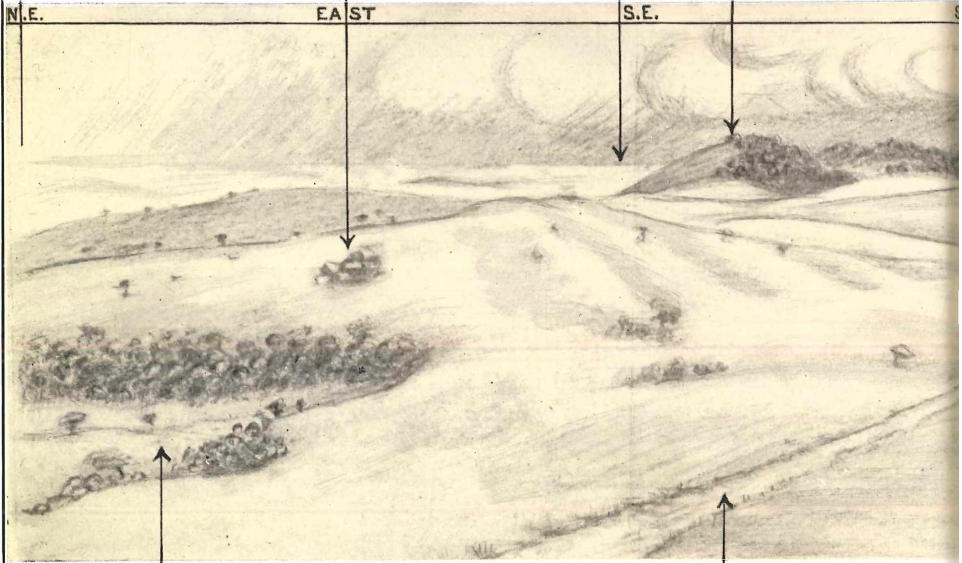
Rivers: r - Little Ruaha R.

Roads: n - Great North Road (for Njombe); d - road for Dabaga; k - road for

SKETCH 2. PANORAMA OF THE UBENA HIGHLANDS, as seen from

Naught visible beyond the last middle-distance in this direction, up to
the blue distant horizon, but bare, rolling downs
A small kopje of granitic rocks.

Mapala virgin-forest patch, 2050 m.
the right - receding, a



A hollow, with "bush" stuffed sides and moist, mat-grass bottom.

The Njombe-Songea road

ow the crest of Mt. Tarik (c.1900m.), i.e. Mt. Luhota's *vis a vis* across the river,
e, which is encircled with green and marked **UHEHE HIGHLANDS**

iles distant

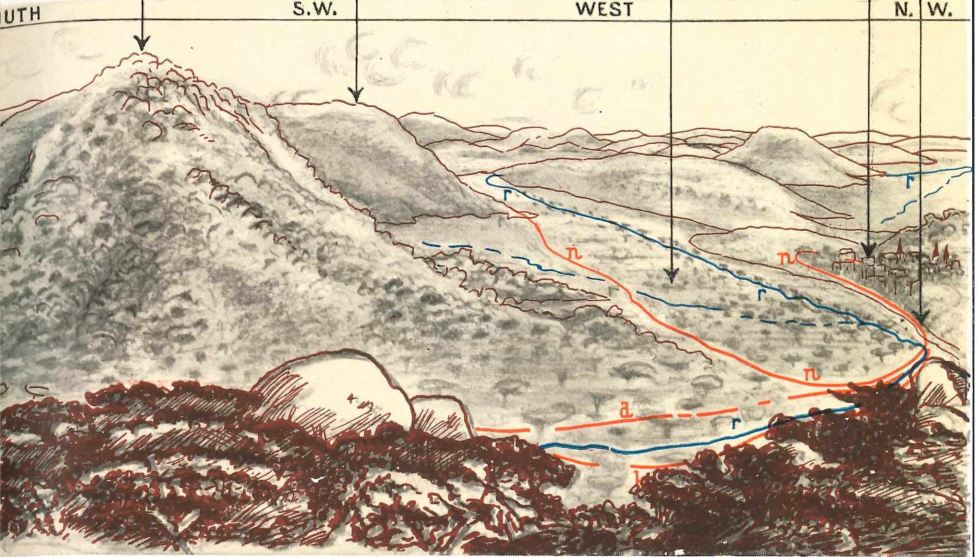
Mt. Luhota, 2010m., 1 1/2 miles dist.

Mt. Mferu, 1950m., 4 1/4 miles dist.

Iringa township 1640m.

Little Ruaha river - plain

Iron bridge across river.



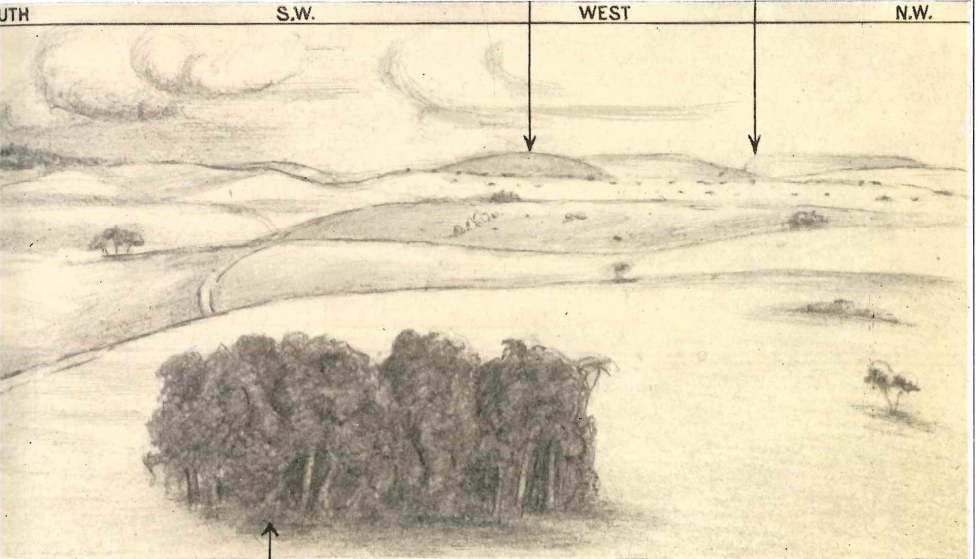
Kilosa.

In the foreground, *Brachystegia* trees and granite blocks.

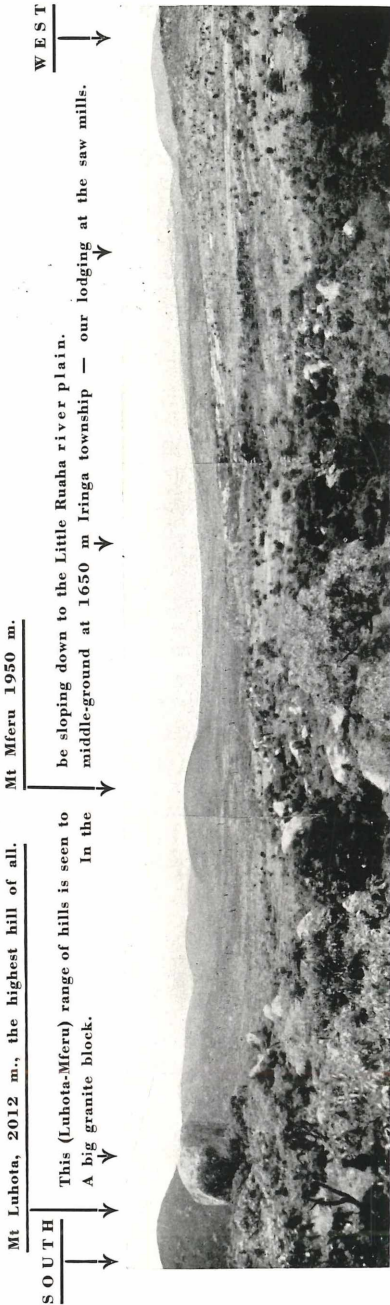
downs about a mile to the southward of Nyombe, where the altitude is c.1970m

6 miles distant, and its bare knoll, with - to
axed patches of forest-jungle and
second-growths.

Kipingere Range, part of the Ukinga highlands.
c. 25 miles c. 30 miles



A grove



Mt. Luhota, 2012 m., the highest hill of all.

SOUTH

This (Luhota-Mferu) range of hills is seen to
In the
A big granite block.

Mt. Mferu 1950 m.

be sloping down to the Little Ruaha river plain.

middle-ground at 1650 m Iringa township — our lodging at the saw mills.

WEST

Continued below

All this overlooks the saddle-shaped stretch of middle-ground lying to the northward of the township. It is much cleared for cultivation, bearing scattered trees. The western ridge of low hills beyond the saddle (enclosing it) is only + 200 ft. on it. The highest of the distant hills beyond it are c. 1880 m.

WEST

*(continued
from above)*

N. N. W.

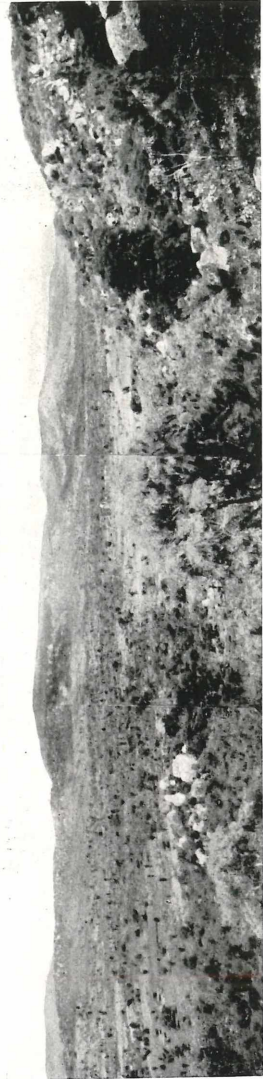


Photo 1. Panorama of the country around Iringa from South to N.N.W., as seen from a granite block (at 1720 m.) on the lower slopes of Mt. Tarik (1920 m.), 1-3 miles from Iringa Boma. See pp. 8 to 13.

Mt Luhota c. 2 miles.



Mt Tarik c. 2 miles.

Our saw-mill lodging
c. 600 m.

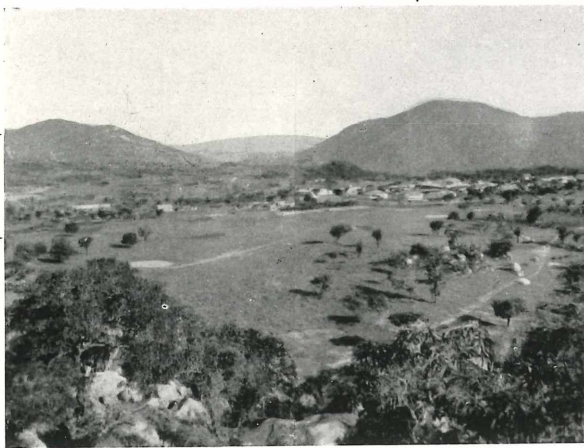


Photo 2. View of Iringa township from the end of the West ridge at c. 1700 m. Golf-links in the foreground, the Boma half-a-mile distant.



Photo 3. The river from the bridge across it, below Iringa, looking down-stream. *Ploceus jacksoni* suspends its nest from fronds overhanging the water here.



Photo 4. The river five miles below Iringa, just above the first swamp. Now much swollen after heavy rain.



Photo 5. In the river-plain on the slightly rising ground where the grass is tall, but not of giant stature.



Photo 6. Another view near photo 5. Away by the big thorny *Acacia*, beyond the cattle the grass is much taller and full of breeding *Quelea cardinalis*, *Colius passer albonotatus* and other weaver-finches.

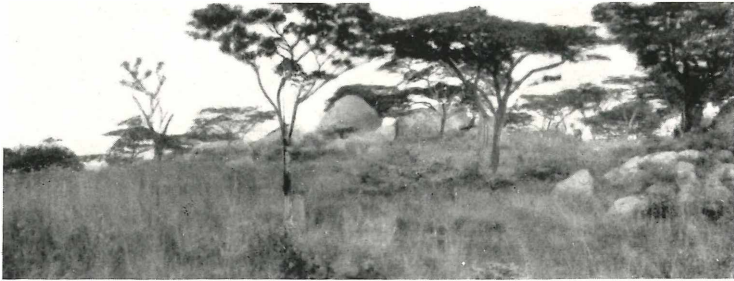


Photo 7. *Brachystegia* trees and granite blocks up on the crest of Mt Luhota at 1950 m. The crest here is a narrow flat.



Photo 8. Another view at the same spot as photo 7.



Photo 9. Distant view from near the same spot as photo 7, looking over the river-plain and Iringa, towards the last high blocks of hills to the northward.



Photo 10. A huge granite block, c. 60 yards long and 35 ft. high, near the base of the east ridge of the Iringa saddle. *Brachystegia* trees, bushes and grass surround its base and a cactoid *Euphorbia* grows "on it" from roots between fissures in the rock. Hyraxes live in it, and *Aquila verreauxi* often stands on it.

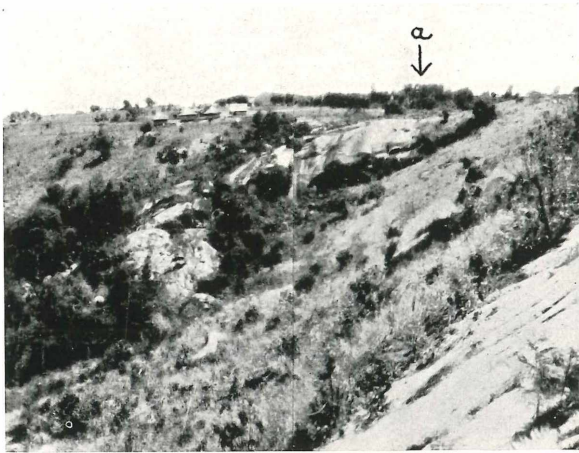


Photo 11. Njombe post and cascade, looking to the southward. The cascade, a series of shoots and waterfalls, has a total drop of 140 feet, and is the breeding home of a colony of *Onychognathus tenuirostris*.

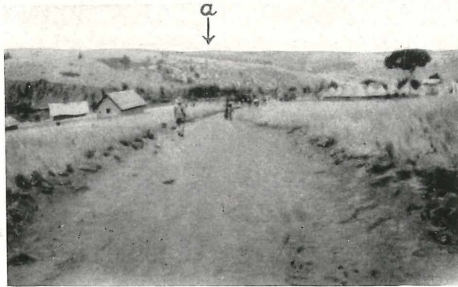


Photo 12. Njombe post looking to the northward. The Eucalyptus trees (foreign) under „a“ are those under „a“ in photo 11.

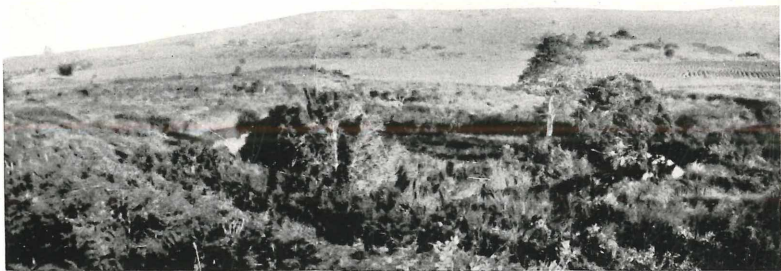


Photo 13. The Njombe stream above the cascade. Here and thence up to its source, the stream meanders gently through the floor of a shallow valley, fed all the way by little brooks issuing from the hollows in the downs. This moist valley is richly clothed — even stuffed — with long grasses and sedges, herbage and bushes, and there are trees along the river brim. *Cisticola nigriloris* breeds here in numbers, also many *Ploceidae*, etc.



Photo 14. View from the bare knoll at the edge of the Mapala forest-patch (2040 m.), looking from North to N. 60° E. — nothing visible right away to the distant horizon, but bare, rolling downs.

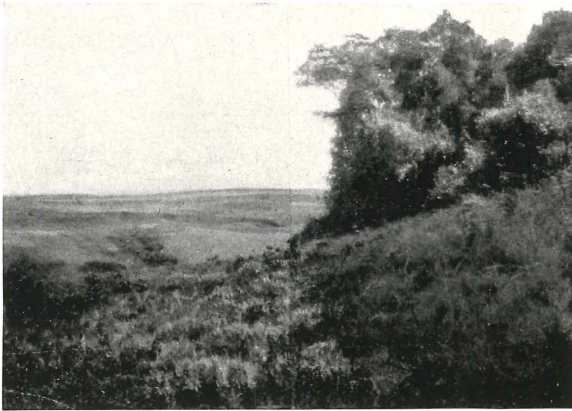


Photo 15. The northern edge of Mapala, looking to N.E.



Photo 16. In the heart of Mapala where a section of the virgin-forest was destroyed and the ground cultivated up to a few years ago. Now, the place is clothed with an almost impenetrable jungle of bushes, herbage and grass. The largest trees up to 150 ft. high are *Parinarium Holstii*.

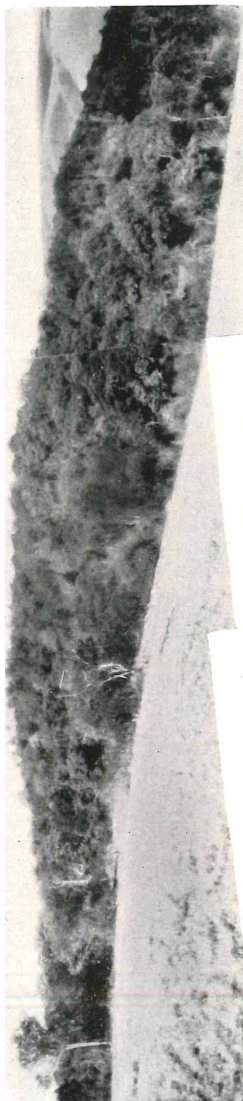


Photo 17. The abrupt way in which the Mapala forest stops at the edge of its bare knoll. The latter could not now support tree-growth, because rock is very close to the surface. But, here, the ground is sufficiently sloping to admit of the possibility of forest destruction in past days having been the cause of the present lack of soil on the knoll.



Photo 18.



Photo 19. Giant *Lobelias* (*L. usafuensis*) at the edge. Not yet flowering. Height up to 10 ft., flower spikes (old ones measured) up to 3,5 ft. extra.

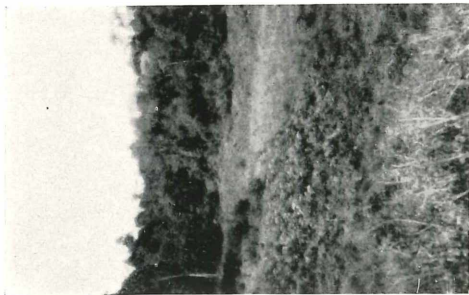


Photo 20.

All three photo's in the cleared patch in the heart of Mapala forest-patch (also in photo 16).

All three photos on this page are of second-growths, i. e. "forest-jungle" and lesser growths, attached to or semi-detached from the Mapala forest-patch.



Photo 21. Forest in process of present destruction, in order to get rich, fresh soil for cultivation.



Photo 22. Lowe and his bearer returning to the van, on the road (Njombe—Songea) where it passes through patches of forest-jungle (as seen on the left).



Photo 23. Chauffeur Nganga in the kind of second growth bush-jungle liked by *Chloropeta natalensis*, also *Bradypterus cinnamomeus* and such-like "bush-skulkers".

Three panoramas from the vicinity of Captain Wilson's house in Dabaga (c 2050 m.).

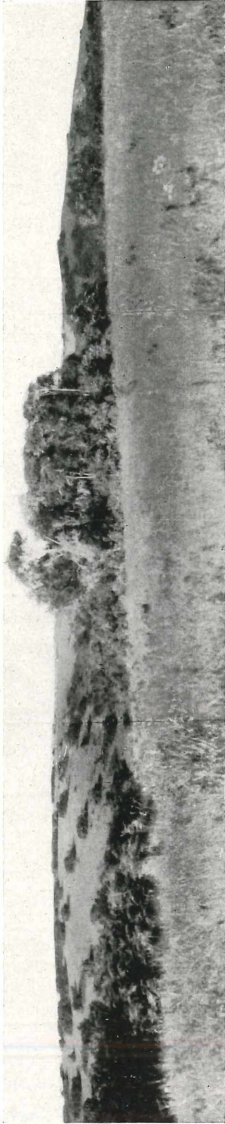


Photo 24. Looking West to N.N.W. Note the numerous groves.

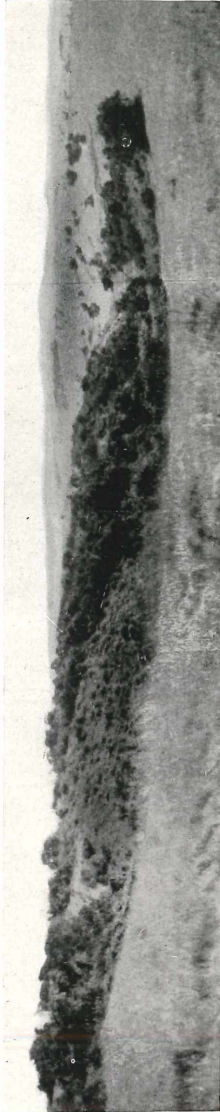


Photo 25. Looking North to E.N.E. Looking down one of the large hollows (larger here than at Njombe) whose sides are thickly "pushed", increasing towards the head of the hollow to low forest-jungle. Close here, in the open is *Cisticola lais* and at the edge of the hollow *C. nigriloris* and *aberrans*.

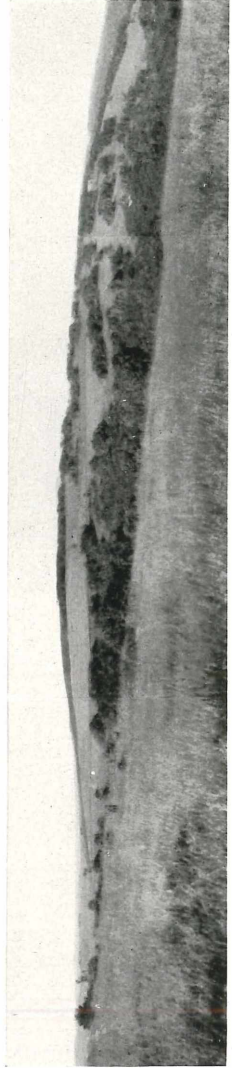


Photo 26. Looking to the northwestward.



Photo 27. A near view of the grove in the centre of photo 24.



Photo 28. On the flat floor of a hollow not far below its head in the upper downs. Note how it is choked with matted grasses, ferns and herbs springing from its wet soil.



Photo 29. Small examples of *Lobelia usafuensis* at the edge of the hollow of photo 27.

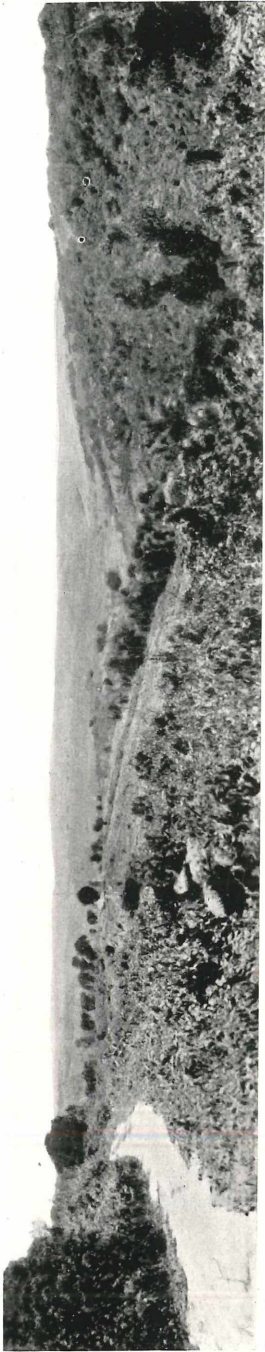


Photo 30. Panorama of some forest-jungle on Herr Harries' farm property to the eastward of Dabaga, at c. 2080 m. altitude.

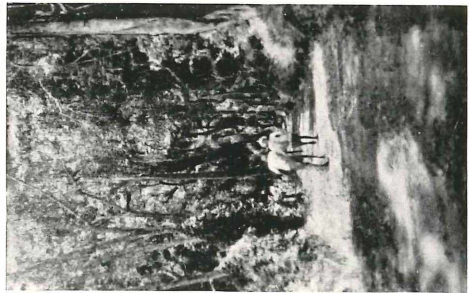


Photo 31. In a patch of virgin-forest on Herr v. Leysers' farm property to the eastward of Dabaga, at c. 2080 m. altitude Lowe and his bearer.

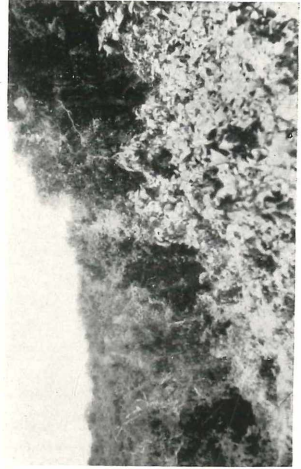


Photo 32. Near the edge of the forest - patch of photo 30.

Cisticola chiniana fischeri,
in grass and sapling
Acacia albida, Iringa Up-
lands, middle-
ground.
27. Jan.
Three eggs, full cl.



Photo 34. Nest of
Cisticola woosnami
in the wooded hills
of the Iringa up-
lands.
10. Febr.
The two parent
birds, obtained, are
in front of the nest.
Two eggs, full cl.

Photo 35. Nest of
Cisticola nigriloris,
in long grass.
Njombe highlands
29. Dec.
Three eggs, full cl.
Hitherto unknown.
Found by R. M.
Bell.



Photo 36. Nest of
Cisticola galactotes suahelica,
in long grass and
herbs near the
river at Iringa.
3. March.
Four eggs, full cl.

Photo 37. Nest of
Cisticola natalensis
in medium grass.
Njombe stream
flat.
24. Dec.
Two eggs, full cl.

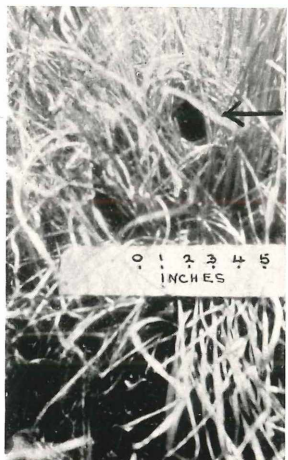


Photo 38. Nest of
Cisticola aberrans njombe,
in longish grass.
Njombe highlands.
13. Dec.
Three eggs, full cl.

PLATE XV. SOME OF THE NESTS WE FOUND.

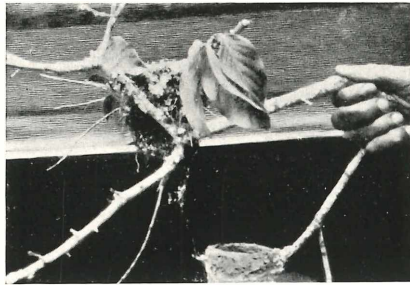


Photo 39. Nests of *Alseonax adustus subadustus* (upper) 13. Nov. Two eggs, full cl.
 and *Tchitreia viridis suahelica* (lower) 23. Nov. Two eggs, full cl
 both taken by R. M. Bell, with parents at Njombe.



Photo 40. Nest site of *Lybius torquatus congicus* in the stream-valley below Njombe, 4. Dec. Both
 owners of the nest obtained, one from out of the hole which was new, but empty.



Photo 41. Nest of
*Anthus
 brachyurus*
 on ground at base
 of grass tump.
 Dabaga highlands.
 8. Febr.
 Three eggs, full cl.



Photo 42. Nest of
*Prinia
 mistacea
 tenella* at
 Iringa
 29. Jan.
 Three eggs, full cl.

CHAPTER III.

THE UPLAND AND HIGHLAND BIRDS AND THEIR COUNTRIES COMPARED.

The birds compared.

With so much difference between the countries of the uplands and highlands one would naturally expect a correspondingly great difference between their bird-populations due merely to environmental causes. That is apparent enough with some of the species, but having eliminated them, there still remains a very considerable list of species whose presence in the one and absence in the other must be accounted for in some other, much less obvious way.

The catalogue is arranged so that any statistics required in this connexion may be readily extracted from it.

My own conclusions are drawn from a consideration of the whole of the two lists — besides, of course, the living birds themselves — but I will use only Passerine birds for illustration here.

Essential to the conclusion, in some cases, is reliance on our judgment of what is and what is not suitable environment for the bird, for I cannot present our perspicuity for inspection like we have done the different kinds of birds.

I can say no more than that our judgment in this matter is that of two persons, who, one way or another, have paid a good deal of attention to birds in most parts of Africa, and who when they got to Iringa were kept in constant wonderment at the way in which what looked exactly the right spot for such and such an Njombe bird would often produce something totally different, sometimes what we expected, but most often a bird of the same (Njombe) genus, only a different species of it.

Reliance on our discrimination is not so necessary if among the species of any one genus, besides those which inhabit one *or* the other country, there is also one which inhabits *both*; but that is not always so.

Some Passerine birds, all *probably* resident, whose presence or absence in the UPLANDS and HIGHLANDS (cols. 1 and 2) cannot, according to our judgment, be explained by a corresponding presence or absence of suitable environment

Col. 1. Present only in the UPLANDS (Iringa)	Col. 2. Present only in the HIGHLANDS (Njombe and Dabaga)	Col. 3. Present in both the UPLANDS and HIGHLANDS
<i>Mirafra fischeri</i>	<i>Mirafra africana</i>	
<i>Eremopteryx leucopareia</i>	<i>Anthus brachyurus</i>	<i>Anthus richardi</i>
	<i>Macronyx croceus</i>	
	<i>ameliae</i>	
<i>Bradornis pallidus</i>	<i>Alseonax adustus</i>	
„ <i>griseus</i>	<i>Dioptornis nyikensis</i>	
<i>Melaenornis pammelaina</i>	<i>Chloropeta natalensis</i>	
	<i>Batis mixta</i>	<i>Batis molitor</i>
<i>Turdus libonyanus</i>	<i>Saxicola torquata</i>	<i>Oenanthe pileata</i>
<i>Geocichla litsipsirupa</i>	<i>Cossypha caffra</i>	<i>Cossypha heuglini</i>
<i>Cercomela familiaris</i>		
<i>Thamnolaea cinnamomei-</i>		
<i>ventris</i>		
<i>Erythropygia leucophrys</i>		
<i>Calamonastes simplex</i>		
<i>Apalis flavida</i>	<i>Apalis (murina (Njombe)</i>	
	<i>thoracica (interjectiva (Dabaga)</i>	
<i>angusticauda</i>	<i>Apalis alticola</i>	
	<i>Apalis (strausae (Njombe)</i>	
	<i>bamendae (chapini (Dabaga)</i>	
<i>Eremomela griseoflava</i>		<i>Sylvietta whytii</i>
„ <i>scotops</i>		
<i>Camaroptera brevicaudata</i>		
<i>Cisticola chiniana</i>	<i>Cisticola brunnescens</i>	<i>Cisticola natalensis</i>
<i>woosnami</i>	<i>lais</i>	
<i>galactotes</i>	<i>cantans</i>	
	„ <i>aberrans</i>	
<i>Prinia mistacea</i>	<i>Melocichla mentalis</i>	
<i>Psalidoprocne albiceps</i>	<i>Psalidoprocne petiti</i>	
<i>Dicrurus adsimilis</i>		<i>Campephaga flava</i>
<i>Prionops poliocephalus</i>		
<i>Sigmodus retzii</i>		
<i>Eurocephalus rueppelli</i>		
<i>Nilaus nigritemporalis</i>		
<i>Lanius collaris humeralis</i>	<i>Lanius collaris marwitzii</i>	
<i>Laniarius funebris</i>	<i>Laniarius ferrugineus</i>	

Omitted from this list are: —

- All species whose status as "resident" is best considered as doubtful until evidence to the contrary is forthcoming.
- All the species which live in the forest, and most of those which, while not living in it, seem to be associated with it, although often so for reasons which were not apparent to us.

for them. A measure of confirmation of this judgment is suggested by the birds shown in col. 3.

Col. 1. Present only in the UPLANDS (Iringa)	Col. 2. Present only in the HIGHLANDS (Njombe and Dabaga)	Col. 3. Present in both the UPLANDS and HIGHLANDS
<i>Dryoscopus cubla</i>		
<i>Tchagra australis</i>	<i>Antichromus minutus</i>	<i>Tchagra senegala</i>
<i>Parus albiventris</i>	<i>Parus niger</i>	
<i>Anthoscopus caroli</i>		
<i>Oriolus monacha</i>	<i>Oriolus auratus</i>	
<i>Spreo superbus</i>		<i>Lamprocolius chalybeus</i> <i>Cinnyricinclus leucogaster</i>
	<i>Zosterops virens</i>	<i>Zosterops senegalensis</i>
	<i>Nectarinia famosa</i>	<i>Nectarinia kilimensis</i>
<i>Cinnyris cupreus</i>	<i>Cinnyris mediocris</i>	<i>Cinnyris venustus</i>
" <i>mariquensis</i>		
" <i>chalybeus</i>	<i>Cinnyris chalybeus</i>	
" <i>(?ludovicianus)</i>	<i>(nr) manoensis</i>	
<i>Chalcomitra senegalensis</i>		<i>Chalcomitra amethystina</i>
	<i>Cyanomitra verticalis</i>	
<i>Ploceus jacksoni</i>	<i>Ploceus stuhlmanni</i> <i>bertrandi</i> <i>xanthops</i>	<i>Ploceus ocularius</i>
<i>Anaplectes melanotis</i>		<i>Euplectes orix</i>
<i>Quelea cardinalis</i>		<i>Urobrachya axillaris</i>
<i>Coliuspasser albonotatus</i>	<i>Coliuspasser macrourus</i> " <i>hartlaubi</i>	<i>Coliuspasser ardens</i>
<i>Spermestes cucullatus</i>	<i>Coccopygia melanotis</i>	
<i>Odontospiza caniceps</i>	<i>Ortygospiza locustella</i>	<i>Ortygospiza atricollis</i>
<i>Pytilia afra</i>		
" <i>melba</i>		
<i>Lagonosticta rubricata</i>	<i>Lagonosticta rubricata</i>	
<i>jamesoni</i>	<i>haematocephala</i>	
<i>Lagonosticta senegala</i>		
<i>Estrilda erythronotos</i>	<i>Estrilda astrild</i>	
" <i>subflava</i>	<i>roseicrissa</i>	
<i>Uraeginthus bengalus</i>		
<i>Granatina ianthinogaster</i>		
<i>Hypochera codringtoni</i>		
<i>Steganura paradisea</i>		<i>Vidua macroura</i>
<i>Serinus mozambicus</i>		<i>Serinus sulphuratus</i>
<i>Polioispiza gularis</i>	<i>Polioispiza whytii</i>	<i>Spinus citrinelloides</i>
" <i>angolensis</i>	" <i>melanochrous</i>	
<i>Emberiza flaviventris</i>	<i>Emberiza cabanisi</i>	
<i>Fringillaria tahapisi</i>		

- c) The few species inhabiting the barest parts of the downs, and the torrent streams of the highlands, the likes of which do not exist in the uplands.
- d) Those species whose distribution, for one reason or other, we have not sufficient evidence to be confident of.

Nett result: — 123 species, only 18 per cent. of which are common to both HIGHLANDS and UPLANDS; and of the remainder, 48 per cent. are peculiar to the UPLANDS and 34 per cent. peculiar to the HIGHLANDS.

And if the *whole* list of [probably resident] Passerines be inspected with fewer reservations than we have made, the proportions will be found but little different.

The countries compared.

The (Iringa) UPLANDS. Upland, broken, hill-country; the hills — studded with granite blocks and clothed with *Brachystegia* woodland of savana type — enclosing a series of upland river-plains and basins with flat, gently falling floors, through which the river flows smoothly, with serpentine course and occasionally opening out to make a swamp. The vegetal aspect of the river-plains and basins not very different to that of the river-plains on the midland plateau. The mean altitude 1650 m., plus 300 m. the average crests of the hills, and minus 100 m. the average river floor.

The Njombe-Ubena and Dabaga-Uhehe HIGHLANDS. Rolling downs of pasture land, here and there studded with small groves of trees and bushes and outcropping little kopjes; patches of highland rain-forest and forest-jungle and other second growths on or near the downs'-tops: the surface of the downs draining by shallow hollows into clear running streams which fall into the lower valleys swiftly and sometimes in torrents or cascades. The mean altitude 1950 \pm 100 m.

Conclusions.

The UPLAND bird-population in comparatively close alliance with that of the midland plateau of Tanganyika Territory, with traces of influence from the rather similar upland country lying to the westward in CHAPIN'S "Rhodesian Highland avifaunal District".

The HIGHLAND bird-population very different and only a small proportion of that difference accounted for by the ecologic differences between the two unlike types of country.

On account of which, and because doing so places before the mind in a clear manner the relationships that exist between the distribution of the birds and the physical geography of the countries they inhabit, attention is invited elsewhere in this account to the advantages which may be

derived from treating these highlands as an avifaunal subdivision in a more restricted way than has hitherto been done.

Incidentally, it is observed that no politico-geographical terms applied to the distribution of the birds in this part of Tanganyika Territory, even if they be refined to so small a compass as the Iringa *District* (which contains both Iringa and Dabaga), can be used to express its essential features, nor will any altitudes between 1850 and 2000 m., since they occur both in the upper ground of the uplands and the lower ground of the highlands.

Also, that with the limitation imposed upon our understanding of birds' genetic affinities by so often having to draw conclusions from no more than their skins, unless some reasonable explanation is forthcoming of why four of the species inhabit the uplands in one form and the highlands in another, those forms run the risk of being thought two different species "because they occur in the same locality"

CHAPTER IV.

RESULTS AND CONCLUSIONS.

Twelve years have gone by since, with WILLOUGHBY LOWE'S help, I tried to gauge the whole of the bird population of any part of Africa (proper).

Then, we went rather far afield into a territory whose bird-population was practically unknown, stayed there long enough to justify an attempt to gauge the status of every bird, thought it likely that no more than a few of the different kinds of birds escaped our notice, and discovered several new kinds.

Now we return from a territory where the pioneer bird work was done years ago, having stayed there only through one rainy-season, so that we can add scarcely anything to the little that is known of the birds' status; are sure that we have not gauged the entire bird-population of the highland forests and have but one little subspecies to grace our triumph as the discovery of "a new kind of bird"

But even setting aside the pleasure we get out of it all, I do not think it was a failure. We could part with complacency even with our one new subspecies in the light of its evidence that the work of plotting out the different kinds of birds on the map of East Africa is advancing

well, and in the pleasure of realizing the scope and worth of the pioneer work done by German naturalists in those parts, under great difficulties, during those twenty years.

As a matter of fact the idea of going out to Tanganyika Territory to discover new kind of birds never entered my head; nor was it poor BUCKLEY'S invitation, nor even the wish to make the acquaintance of *Cisticola nigriloris*, but the perusal of the second volume of the *Systema Avium Aethiopicarum* which I had only just seen for the first time on returning from West Africa. There seemed to be such a lot of birds in southern Tanganyika Territory "only known from the Type specimen", and altogether a view of the distribution of the different kinds there and in the neighbouring territories of Nyasaland and Portuguese East Africa, which compared unfavourably with the corresponding view of the birds further north, that is to say in Equatorial East Africa.

It seemed to me that a knowledge of *that* varied territory had been acquired which has enabled the distribution of the many different kinds of birds to be expressed in such geographical terms as are adequate to all that is taught and suggested by, and is hoped to be derived from the current system of recognizing geographical differences of kind in classification, and that lack of knowledge of an equal calibre had made so satisfactory a picture further south an impossibility.

The British Museum was then on the point of sending JACK VINCENT out to get information about these matters in Portuguese East Africa, and I thought that if WILLOUGHBY LOWE would come with me to southern Tanganyika Territory, the combined results might be able to improve the southern distributional picture. That was why I went, also why I do not think our essay a complete failure, because out of it we have been able to offer something towards that improvement, i. e. by showing in the foregoing pages, how advantage may be derived by regarding the highlands of the Iringa Province as an avifaunal subdivision distinct from the Country lying below it. The Dresden, REICHERT expedition to the Matengo highlands now still further improves the outlook.

I trust this suggestion of a deficiency in our knowledge will not be misconstrued into a finding fault with the *Systema*, for it is meant to be precisely the opposite, a compliment. Without it and its admirable way of showing one just what is and what is not "wanted" we should have brought back a whole lot of birds who might just as well, or better, be

now alive than filling museum boxes to no really useful purpose; for the relief of having its guidance in nomenclature when working out the collection without having to spend hours grappling with literature, and for its companionship in my past and present travels I offer my grateful thanks to its author.

So long as the current system of classifying birds in the specific and subspecific grades remains substantially unaltered, I hope it will be found possible to revise the book from time with fresh knowledge and without material alteration to its present excellent style, until its information equals that contained in similar books of the birds of our own country, that is to say, until it contains a finished list of the kind, distribution and status of all the birds of Africa. A high ideal, and no doubt one which some of us will not live to see realized, but nevertheless one which this particular branch of the science may well strive for.

Our collection of specimens occupies what was hitherto a void in the British Museum Cabinets, which may be counted as "a result", and there will be found some new facts about the birds and their lives in the Catalogue, the systematic part of which has been entirely referred to the Systema as the rock on which to build, by addition or correction as the case may be.

CHAPTER V.

CATALOGUE

of all the birds seen and collected by LOWE and LYNES, and a few by R. M. BELL. All the eggs taken, are included.

- a) All that is said concerning the lives of the birds is the result of our joint experience and collaboration; for all that concerns what has been derived from a study of the specimens, I am alone responsible.
- b) Since, in my opinion, the Uplands and Highlands are best treated as two different „countries“, it would have been consistent to have catalogued their birds separately; but, for other reasons, I have decided to keep them all in one list and make their distribution easily seen by a marginal initial thus: —

U = UPLANDS only; H = HIGHLANDS only; U H = UPLANDS and HIGHLANDS.

- c) The order and nomenclature is that of the *Systema* and, as said in Chap. IV, there will be found an undercurrent of reference to its classification and distribution which, if not directly stated, is implied. As, for instance, „extension of range“ will imply an extension of *the range which is given by the Systema*.
- d) The specimens collected are indicated by the prefix “COLL.”, the symbols “♂” and “♀” meaning “adult male”, and “adult female” respectively, and conclusions on the birds' sexual activity, drawn from inspection of their gonads, are given in terms which explain themselves.

It is to be assumed that, unless it is expressly stated otherwise, all birds stated to have been found either as “winter visitors” or “in moult” were sexually inactive (not breeding).

- e) We decided to collect no specimens of any large birds (except one *Balearica*) which we could recognize specifically in the field. Those we did recognize and did not collect are included in the list, with square brackets when necessary.
- f) For several reasons, a number of biological notes we made are omitted in this account.
- g) Of each species I give all the breeding information we obtained, if for no other reason than that knowledge of the status — as resident, or migratory, or what? — of African birds is still very imperfect, and being knowledge which often materially affects ideas on classification and distribution, to fix a breeding home definitely is at least a useful beginning.

Otherwise, except for a few passing migrants, the period and duration of our visit disqualifies us from saying anything more about “status” than what concerns that inferior component commonly associated with “status”, viz. numerical strength. The breeding seasons and moults of many of the birds are given, the former aided largely by knowledge derived from the state of the bird's gonads and daily field observation. If compared with similar information in BELCHER'S book, the breeding-seasons will be found much same as those in Nyasaland, more or less according to Families *but with exceptions*, thus: —

A. Breeding during the rains, i. e. when we were there, early or later as indicated: — (The resident) *PHASIANIDAE*, *CUCULIDAE*, *TIMALIIDAE*, *SYLVIIDAE*, *HIRUNDINIDAE*, half the *LANIIDAE*, *NECTARINIIDAE*, *PLOCEIDAE*, *FRINGILLIDAE*, *EMBERIZIDAE*.

- B. Breeding at the end of the dry-season, often extending, either in the mass or only some individuals, into the early, (intermittent) rains; i. e. mostly just before our visit: — *ALCEDINIDAE*, *MEROPIDAE*, *PHOENICULIDAE*, *CAPRIMULGIDAE*, *CAPITONIDAE*, *PICIDAE*, *PYCNONOTIDAE*, *MUSCICAPIDAE*, *TURDIDAE*, *DICRURIDAE*, *PRIONOPIDAE*, half the *LANIIDAE*, *PARIDAE*, *ORIOOLIDAE*, *STURNIDAE*, *ZOSTEROPIDAE*.
- C. Breeding at some other time of the year, nearly all of them more probably right in the dry season than at the close of the rainy season, which we did not ourselves see: — *AEGYPIIDAE*, *FALCONIDAE*, *STRIGIDAE*, *CORVIDAE*.

Lest it be thought that I have overstepped the limit of prudence in giving the breeding-seasons of birds who were not actively breeding during our visit (category A), I should explain that during our visit all the species belonging to category B were to be found about the place with their fledged young and/or undergoing the complete post-nuptial moult which they all have, and by taking examples of these birds from time to time and examining their gonads — which do not, out there, reduce to the off-season, minute size until well after the post-nuptial moult has commenced — there was no really difficulty in drawing the conclusions, and confidence in them is invited.

- h) When desirable to indicate the kind of ground frequented by a bird, use is made of the terms (*downs, forest, hills, riverflat, etc.*) employed in Chap. II for describing the nature of the "countries".
- i) In working out the collections there have been the usual temptations to be drawn away from the subject of this account into distant systematic and geographical fields — as for instance reviewing all the races of a species in order to give a bird its best subspecific name.

Lack of time, ability and inclination have saved me from that mistake¹⁾, consequently a few birds will be found without definite subspecific names, but when so, always with some explanation why so.

It will be found that the chief causes preventing finality in determination have been: —

¹⁾ as being germane to my present purpose.

- α) Insufficient material in the form of "skins".
- β) Impossibility of determination except through a more intimate study of the living bird.

("Unorthodox" birds whose relationships appear to be unreadable from their skins alone, because they do not breed "true", and for whom such terms as "mutant", "dimorphism", "hybrid", "bastard", etc. are variously used).

- γ) Insufficient knowledge of the sequence of plumages. And I think that a good many African birds' differences of age and season, are being mistaken for geographical variety, and that if those birds' sequence of plumages were formulated in the excellent way it has been done by WITHERBY in his Practical Handbook of British birds, it would be found to be so.
- j) In the headings, I have named the few birds which show racial characters intergrading between those of two recognized subspecies in the quadri-nomial " \cong " way, not because I think it is the right or best way of entitling what is going to be said about a bird in any finished piece of literature, but because in a contribution of this kind I think it is a good way of drawing attention to a fact which may be used as evidence in deciding whether a relationship is specific or subspecific; as is of course constantly done. The trinomen, with the intergradation in the definition of the distribution, as for instance in the Systema, is undoubtedly the "right" way for all general purposes.
- k) In the text, most of the references to literature are index numeral in thick type, referring the reader to Appendix (a) of Chap. V for details.

1. **Podiceps ruficollis capensis.** U H
 COLL. 1 ♀ breeding, Mufinde (BELL), XII; 1 ♀ recent breeding, Iringa, III.
 A few in the swamps, where there was open water, in both the highlands and the uplands.
2. **Phalacrocorax africanus.** H
 Fairly common at the Njombe swamp in December, and sometimes wandering to fish in the stream at Njombe and go away again. No evidence of breeding, probably their off-season.
3. **Ardea melanocephala.** H
 A solitary wanderer frequented the stream-flat above Njombe post during the latter part of December, often perching on the trees at the streambanks, and then disappeared.
4. **Pyrrherodia purpurea.** H
 5. **Casmerodius albus.** H
 6. **Mesophoyx intermedius.** H
 7. **Bubulcus ibis.** H
 8. **Ardeola ralloides.** H
 Flocks of the last two, and a few of the first three species all at the Njombe swamp 30 Nov., and with but little change in numbers again on the occasion of our last visit there, 20 Dec. No evidence of breeding, probably their off-season. None of these birds seen at Iringa during our visit.
9. **Scopus umbretta.** U
 Constantly seen at Iringa up one of the larger gullies towards the bases of the wooded hillsides enclosing it. No evidence of breeding, probably the off-season.

10. Ciconia ciconia.

Daily, for about a week in mid-December, and never before or after, large companies of White Storks passed Njombe, travelling slowly *northwards* and circling high in air as they went.

Also during the same and only period, and in like manner, but not in company with the former, there passed Njombe, northward bound, equally large companies of a lesser Stork, either *Dissoura episcopus* or *Sphenorhynchus abdimii*, but they were always too far off for us to see which of the two species.

H **11. Threskiornis aethiopicus.**

A flock of thirty at the Njombe swamp on 30 Nov. in company with the flocks of *Ardeidae*, none there on 20 Dec.

H **12. Hagedashia hagedash.**

Occasionally during December a single roving bird paid the Njombe stream a short visit, generally announcing its arrival with discordant cries.

U **13. Thalassornis leuconotus.**

Plenty seen on open water parts of the Iringa swamp in Feb. March, and the only Duck species seen there or anywhere else in the uplands during our visit. (Had we shot one to see what they were doing we could not have retrieved it).

H **14. Anas undulata.**

H **15. Anas punctata.**

H **16. Anas erythrorhyncha.**

All three species in parties at the Njombe swamp 30 Nov. and 20. Dec.; *undulata* the most plentiful. We shot none, but were told that someone had recently shot a "young" *punctata* there, and eaten it.

H **17. Anas sparsa.**

Seen at the Njombe stream sometimes, in December.

18. Plectropterus gambensis.

H

In Nov., Dec. common in parties at the Njombe swamp, which was probably the home of those who sometimes paid us a visit at Njombe itself. Certainly not breeding.

19. Pseudogyps africanus.

U H

20. Torgos tracheliotus.

H

21. Trigonoceps occipitalis.

H

22. Necrosyrtes monachus.

H

All these four Vulture species identified at one time or other during our stay at Iringa. *Necrosyrtes* was always to be seen about the outskirts of the township, and the presence of the three big species seemed to be a variable depending on that of offal available for them, as is, of course, commonly the case when the birds are not breeding hard-by. *That*, none of the four species were doing, nor did we ever find any old Vultures' nest-sites, either in cliff or tree, in the neighbourhood. Probably these birds were all rovers, breeding elsewhere in the dry-season.

Once and once only did we see a Vulture in the highlands — a scouting *Pseudogyps* who, finding nothing, departed. In the rains (and probably at all seasons) one could well call the highlands "Vultureless".

FALCONIDAE (EAGLES and HAWKS).

We do not, of course, pretend to have made anything like a complete survey of the *Falconidae* population either of the uplands or the highlands. As usual, we saw numbers of "indeterminables" soaring away in the distance, and flashes of others in forest and woodland, and no doubt some of them were species which will be absent from the list we are about to catalogue. It is well known that these birds-of-prey all, or nearly all breed during the dry-season in most parts of Africa, and certainly with us there were no signs of any of the species in our list doing otherwise. Probably, during their off-season a good many individuals of species whose breeding-home is the highlands, rove into the uplands and *vice-versa* and less than any other Family will our list of *Falconidae* approach to giving a correct idea of the up-

land/highland differences' in the bird-population, and in several of the species I think it best to omit the marginal U H initials altogether.

H 23. **Falco peregrinus.**

H 24. **Falco biarmicus.**

LOWE, who has a great flair for birds-of-prey identified both these species at Njombe, but we cannot say, for certain, that we ever saw either species at Iringa.

25. **Falco subbuteo subbuteo.**

COLL. 1 ♂, 1 ♀ migrating north, Iringa, III; 1 ♂, 2 ♀, migrating north, Dabaga II; 1 imm. ♀, wintering, Njombe XI.

As a winter-visitor, evidently scarce in these parts, for all we ever saw until the northward migration began were two at Njombe who, in November, had a regular, evening line-of-flight to their roost. One of them is our specimen, a bird of the year. The migration northwards began to be a conspicuous feature of daily occurrence during the first week of February, and seemed to finish in mid-March. The evenings, after the daily rain-storm, was generally their time to appear on the scene in strength, and then they would feed on flying termites and other insects. We thought they often spent the night with us, and even stayed in the place for several days on end. Altogether, the passage had the appearance of being a leisurely one.

26. **Falco amurensis.**

COLL. 1 ♀, migrating north, Iringa, II.

The northward passage-flight of this species was not nearly so well marked as that of the preceding.

27. **Falco tinnunculus rupicolaeformis.**

COLL. 1 ♀, not breeding, Iringa, I.

In good, complete dress about two months worn.

Scarce in the uplands. Not noted in the highlands.

We regret having paid little attention to the Kestrels which we

frequently saw at Iringa, for Mr. CLAUDE GRANT considers the only example we took to be of this race and probably a wanderer from the north.

28. *Milvus migrans.*

Fairly common, scavenging about human habitations in both the uplands and highlands. No evidence of breeding.

U H

29. *Elanus caeruleus.*

Common, in both the uplands and highlands. No evidence of breeding.

U H

30. *Aquila verreauxi.*

Two adults and one or more immature Verreaux's Eagles frequented the lower tiers of the hills at Iringa, and few days passed without our seeing one of them, as often as not, standing like a black statue on the top of one of the large granite blocks on the look out for a Hyrax. No evidence of breeding. Never seen in the highlands.

U

31. [*Aquila rapax*].

We are nearly sure of having seen the Tawny Eagle several times at Njombe, and that two eagles playing round (but not using) a large stick nest, high up one of the forest giant trees, were of this species. No evidence of breeding. Not indentified at Iringa, but probably there.

32. *Aquila pomarina.*

COLL. 1 ♀, migrating north, Iringa III. Wing 480, tail 235, expanse 1700.

On 12, 13, 14 March, during the forenoon each day, numbers of these Eagles — for all were certainly alike — passed northwards over Iringa, according to our count, about 30, 150 and 100. They sailed along in a leisurely way in widely scattered formation, some a little higher, others a little lower than the crests of the highest hills, clearly, taking advantage of the up-currents of air. We

should have been puzzled to name their species had not LOWE managed to bring one down "out of blue" with a superlative long shot, on the last of the three day's migration. Our specimen is in a state of dress (without spots, wholly plain), almost identical with that of an adult male in the Brit. Mus. coll., taken in East Prussia by Dr. HARTERT in May 1887 (wing 460, tail 210), and very like the MACKWORTH-PRAED example from Kenya Colony mentioned in the Systema. The species must winter somewhere to the southward of Iringa in quite large numbers. Note the extension of winter range to the southward¹).

U 33. *Aquila wahlbergi*.

COLL. 1 ♀, not breeding, Iringa, III. Wing 390, tail 210, expanse 1220. In very good complete dress.

Other examples seen off and on, frequenting the lower tiers of the wooded hills in the uplands. Not seen in the highlands.

U 34. *Hieraaëtus spilogaster*.

Seen off and on at Iringa throughout our visit, frequenting the wooded hills. No evidence of breeding.

We intended to take an example, but the only one who came within shot escaped with the loss of one tail-feather! Not seen in the highlands.

U 35. *Polemaëtus bellicosus*.

U 36. *Stephanoaëtus coronatus*.

Both species seen at Iringa, but not in the highlands. No evidence of breeding.

U H 37. *Lophaëtus occipitalis*.

Frequently seen at Iringa, and once at Njombe. No evidence of breeding.

38. *Kaupifalco monogrammicus*.

One seen by LOWE at short range, at the edge of the highlands at Sao.

¹) But see Journ. f. Orn. 1931, p. 261, where a specimen is recorded which had been banded in East Prussia and recovered in N. E. Rhodesia. — Editors.

39. *Circaëtus pectoralis*.

U H

COLL. 1 ♂ not breeding, Iringa, II. Wing 500, tail 250, expanse 1700.

The head and body in nearly full new (black and white) dress, the quills rather older. Rather common, both at Iringa and in the highlands, hunting over the *downs*.

We thought there was another *Circaëtus* sp. also, but could never make sure of any in the field but the conspicuously coloured adult *pectoralis*.

40. *Terathopius ecaudatus*.

U H

The Bateleur was constantly seen sailing about in the sky over the uplands and not unfrequently over the highlands. Both the white and red-backed dresses. No evidence of breeding.

41. *Buteo buteo vulpinus*.

COLL. 1 ♀ not breeding, Iringa, I. Wing 350, tail 185.

Scarce, according to our observations, in the uplands and not noted at all in the highlands. Our specimen is in complete fresh dress except for a few tertials, and in the dark black-brown phase without any rufous at all. When shot, he was eating a bird, and had eaten a lizard.

42. *Buteo rufofuscus*.

U H

Common, in both the uplands and the highlands. No evidence of breeding.

43. *Astur badius polyzonoides*.

U [H]

COLL. 1 ♀, imm. ♂, 1 imm. ♀, none breeding, Iringa, III.

Common in the lower tiers of the wooded hills at Iringa.

We occasionally saw other Hawks which we could neither identify nor collect in and about the forest-jungles of the highlands, and are nearly sure that some of them were of this species.

44. *Melierax gabar*.

U

COLL. 1 imm. ♂ moulting to adult, grey dress, Iringa, II.

Not common in the uplands and never seen in the highlands.

M. metabates never seen above the midland plateau to the northward of Iringa.

H 45. **Circus macrourus.**

Commonly quartering the *downs* at Njombe during our stay, but we have no note of seeing the Pale Harrier elsewhere.

H 46. **Circus aeruginosus.**

In November and December there were several Marsh Harriers quartering the Njombe *swamp*. The species not seen elsewhere.

U H 47. **Turnix sylvatica lepurana.**

COLL. 1 ♂ finishing a complete moult, I, and 1 ♀ laying eggs, in one-quarter worn dress, III; both Iringa.

This breeding in the rains does not agree with BELCHER'S experience in Nyasaland, but OSMASTON and I found eggs in Natal in early January, 1927.

Also occasionally flushed on the *downs* during our stay at Njombe.

H 48. **Fringilla levaillanti mulemae.**

COLL. 1 ♂ about to breed, edge of the highlands at Sao, 1850 m. I. wing 171.

We know nothing about this species in life, we never saw or to our knowledge, heard it elsewhere, our one example was feeding in the early morning out on a short-grass flat or large "hollow", in country, at the edge of the Ubena highlands, where the *Brachystegia* woodland abuts on to the downs.

Our specimen matches birds from Uganda including the Type, and is also very like the Type of *crawshayi* (from the Nyika highlands), which is still the only example from Nyasaland in the Brit. Mus. coll.

It will be seen that when describing *mulemae* in 1903, Ogilvie-Grant compared it with the typical race and *kikuyuensis* of 1894, and never referred to his *crawshayi* of 1896. Had he done so, I think he would have expressed some doubt about separating the Uganda and Nyika birds, for in the head coloration, whence his distinctions are taken, they are alike, and the only difference I can see is that the Type *crawshayi* has the wing-coverts of a more blurred pattern than the average, but not all *mulemae*-variety which may be due to age or individuality, but is not racial in Uganda. If, when the Nyika aggregate comes to be known, it is not found separable from the Uganda, the racial name will, of course, have to be *crawshayi*.

49. *Fracolinus hildebrandti johnstoni*. U

COLL. 1 ♂ paired and breeding, Iringa hills, 1900 m, I.

At Iringa, this Francolin lives only in the upper tiers of the wooded hills (c. 1750 m and upwards) where the *Pternistis* is not. It is fairly common, but secretive in its breeding-season which is during the rains. Sometimes we heard one or other of the sexes give a loud, piping, almost Limicoline, cry, but there may be ordinary Francolin-like calls as well.

We should have collected more examples had they not so constantly risen at awkward moments and refused to be flushed a second time, including a covey of about eight cheepers with their parents on 8 March.

Our specimen agrees with the Brit. Mus. series from the *North Nyasa* highlands.

50. *Pternistis afer (cranchii) böhmi*. U H

COLL. 2 ♂, 2 imm., not breeding, Njombe, XII; 10 ♂, ♀, Iringa, I, not yet breeding, II, III breeding. ♂ wings 190 ± 4.

Quite common, in both the uplands and highlands, in the former keeping to the ground below the wooded hill-sides i. e. the middle-ground and the river-plain. At Njombe, up to mid-December the birds remained in coveys, after which they broke up into pairs, and morning and evening-crowing became regular.

Bowen (in 2 pp. 146—164) has ably shown why *Pt. afer*, *Pt. cranchii* and *Pt. leucoscepus* should be classified as all of the one species, viz. *afer*, and in naming our birds I do not hesitate — especially after having seen the extraordinary variety in Herr Reichert's series from the Matengo highlands¹⁾ — to accept the conclusion which I notice others have already done. My only concern has been to place our own series, which are all *cranchii*-like birds and, except for a certain amount of "individual" variety of that nature which is commonly found in gallinaceous birds whose general appearance is derived from feathers marked with different colours in complicated patterns, are all alike. There are certainly no upland/highland differences. Having compared them with the considerable series in the British and Berlin museums — the latter including the Types of *böhmi* and *intercedens* — I doubt whether it is possible to recognize quite so many races of the *cranchii*-likes as Bowen proposes, that is to say, if judgment is to be founded more on the specimens than on their locality labels. In practice, I doubt whether any greater refinement than the following will be found satisfactory.

¹⁾ see p. 4.

- cranchii* — Congo, widespread, and embracing *intercedens* as an intermediate aggregate.
nyanzae — Ruzizi, local.
harteri — Victoria Nyanza, local.
böhmi — Tang. Terr. widespread over the interior platéau (midland and upland) and highlands, south to the Ubena highlands, but no further.
punctulata — not examined.

The reasons for this conclusion are chiefly: —

1. Our own series contains *böhmi*-likes and (n^r!) *itigi*-likes (Bowen, op. cit, fig. 5. both f and g.) indiscriminately, as do also Brit. Mus. specimens from the Tabora, Singida, Kondoa and Kilosa Districts in the north, and Mbeya District in the south of Tang. Terr.
2. The Type *intercedens* from Lake Rukwa seems to be a peculiar individual with a smudgy pattern below and not representative of any aggregate, and its co-type from Tandalla is very like one of seven Brit. Mus. examples of *cranchii* from Landana. Knowing the great "individual" variety that exists in this Francolin in the Matengo highlands, and that in the neighbourhood of the Rukwa-Nyasa, Zambesi divide races of many other species of birds intermingle their characters, it is not unreasonable to suspect these two birds of being representatives of an impure aggregate there.

Whether any of what appears to be individual variation in the *böhmi-itigi* aggregate can be accounted for by old age, I do not know, it would not be easy to find out; my conclusions are drawn from breeding birds, as adults of unknown age, and are independent of any finer racial distinctions which may be possible when there are enough juveniles to study.

U H 51. *Coturnix delegorguei*.

COLL. 1 ♀ in fresh complete dress, not breeding, Njombe, XII; 1 ♂ in good complete dress, soon to breed, Dabaga, II.

Our impressions are that this species came in fair numbers to both the uplands and highlands as *summer-visitors*, to breed there during the rains.

52. *Excalfactoria adansoni*.

COLL. 1 ♀ in good, complete dress, not breeding, Njombe, XI.

Scarce, and we thought very likely only a passage migrant. We saw others occasionally in December in the highlands, but after that never one anywhere.

Numida, Guttera, Acryllium.

No kind of Guinea-fowl inhabits the highlands to our knowledge, but in the uplands they are known to exist although we never saw one, until, on the Great North Road about fifteen miles to the northward of Iringa where the country is very markedly different, not at all like what I have described and called "the uplands", but more like the lower, midland part of the interior plateau.

53. *Crecopsis egregia*.

U

COLL. 1 ♂ soon to breed, Iringa, II.

Our impressions were that this species came in fair numbers to the uplands in January as a summer-visitor to breed there during the rains.

The specimen was caught during the night in a mouse-trap baited with meal which we had set at a water-hole. Until the end of January we never saw one of these Rails, then we began to flush them in places so unsuited to their ordinary requirements as to suggest their recent arrival by passage-flight. Never seen in the highlands.

54. *Porphyrio madagascariensis*.

U

COLL. 1 ♀ about to lay eggs, Iringa swamp, II.

Probably had we been able to work it properly, we should have found this *Porphyrio* and a good many other (?) species plentiful in the Iringa swamp. We did not find likely *Porphyrio* environment in the Njombe swamp.

55. *Gallinula chloropus*.**56. *Fulica* ?sp.**

Both seen out on the open water of the Iringa swamp, in fair numbers, and numbers of *Fulica* on the open water of the Njombe swamp in December.

57. *Balearica regulorum gibbericeps*.

U H

COLL. 1 ♂ (by gonads) breeding, Iringa swamp, II, wing 560.

Two were seen in December at the Njombe swamp, and it seems likely that in summer one or a few pairs breed in each swamp that is large enough for breeding purposes in both the uplands and the highlands; as we found in Central Darfur.

Mr. SCLATER agrees with the subspecific finding.

58. *Neotis [cafra]*.

H

Big bustards were often seen on the Njombe downs during our visit. We are nearly sure of *cafra* and thought there was another species as well which was not the great Paauw (*kori*).

I 59. **Lissotis melanogaster.**

COLL. 1 ♂ about to breed, Sao highlands, 6000 ft., I.

Common in the highland both on the downs, and at the edge of the highlands where the trees of the uplands encroach on to the downs, but, rather to our surprise, we never saw or heard one lower down.

60. **Erolia minuta.**

COLL. 1 ♀ Njombe swamp, XI.

61. **Tringa glareola.**

COLL. 1 ♂ Njombe swamp, XI.

62. **Actitis hypoleuca.**

Seen occasionally on the Njombe stream, XI, XII.

I do not think any individuals of these three species spent their winter in the locality, but that when seen in November they were probably slowly sauntering southwards, singly, or in the case of *T glareola*, in small parties of three or four, one of which was assembled at a pool of rain-water lying on the main-road on 20 Nov.

63. **Totanus ochropus.**

COLL. 1 ♂, Iringa, III.

The single bird we took was probably slowly moving northwards like occasional others of its kind seemed to be doing in March. We never saw one before March.

I 64. **Cursorius temminckii temminckii.**

COLL. 1 imm. ♂, 1 juv. ♂, Njombe, XI.

These two examples are from a party of seven, some of whom were adults, on the downs on 29 Nov.; the last we ever saw of the species. The immature bird, judged to be about two months old, was fast moulting into his first winter dress, the young one, who cannot have been hatched much more than a month ago was in complete juvenile dress except for a few sprouting red head-top feathers of his next dress. They were certainly on the move when we saw them, but *where* they had been breeding — evidently at the end of the dry-season — we cannot say.

65. Glareola pratincola fülleborni.

H

COLL. 1 imm. ♂, Mufinde (BELL), 25. Dec.

Our specimen is about two months old and commencing to moult into first, adult-like, dress. Breeding-season as for the *Cursorius* indicated. No other information available.

66. Actophilus africanus.

U H

COLL. 1 ♂ not breeding, Njombe swamp, XII.

Plentiful at the open water of both the Njombe and Iringa swamps.

67. Microparra capensis.

(U) H

COLL. 1 ♀ not breeding, Njombe swamp, XII.

Status at Njombe as for *Actophilus*. Not seen at the Iringa swamp, but probably there too.

Stephanibyx to Chettusia.

The total absence of all these noisy "Did-you-do-it" Plovers in both the uplands and the highlands surprised us, but perhaps some of them come as winter-visitors to breed there.

68. Columba guinea guinea.

COLL. ♂, ♀ pair breeding, Iringa, III.

We never met this species anywhere but within the township of Iringa; a flock of a dozen or so could be seen there at any hour of the day, generally in the residential quarter, and although no one looked after them, they gave one the impression of being a small, semi-domestic, flock isolated in Iringa — which may account for the *uhehensis* impurity of strain.

Compared with the Type of *uhehensis* from Iringa, which is, as described, of darker-tinted coloration than the typical form. The comparison shew that the darker tints of *uhehensis* are not characteristic of the Iringa aggregate, for our two examples are quite typical.

69. Columba arquatrix arquatrix.

H

COLL. 3 ♂, 1 ♀, Njombe (forest), XII finishing complete moult, I breeding.

Common in the *forest*. According to our specimens, commencing to breed in January after a complete, pre-nuptial, moult. Absent from the uplands.

H **70. *Streptopelia lugens funebrea*.**

COLL. 1 ♂, 2 ♀ in complete, post-nuptial, moult, 1 imm. ♀ in moult to adult, Njombe, XI, XII.

Fairly common in the highlands at Njombe. Associated with the forest and, having evidently bred during the dry season, was generally to be found morning and evening in small flocks feeding on the arable ground out on the *downs*. Absent from the uplands.

Note on the rejection of *funebrea* by FRIEDMANN in 3 pp. 214—5.

According to present material in the Brit. Mus.

Four Nyasa	adults, wings	168 ± 3,	coloration as described for <i>funebrea</i> .
Four Njombe		175 ± 1,	<i>funebrea</i> .
Eight Kenya highland		180 ± 5,	

funebrea ≅ *lugens* (or, if preferred, *funebrea* or *lugens*).

Eleven Abyssinia	"	180 ± 5,	coloration as described for <i>lugens</i> .
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I think, it will be found that the species is quite divisible into two races, thus: —
Northern race, adult wing 180 ± 5, typical (*lugens*) coloration.

Southern race, " " 170 ± 5, *funebrea* coloration.

The two races intergrading in the Kenya highlands.

It is unfortunate that the type-locality of *funebrea* is so far north.

U H **71. *Streptopelia semitorquata semitorquata*.**

COLL. 1 ♀ in complete [post-nuptial] moult, Njombe, XII.

More common in the uplands than in the highlands. Probably breeding towards the end of the dry-season.

U H **72. *Streptopelia capicola tropica*.**

COLL. 1 ♂ commencing post-nuptial moult and 1 juv. about two months old, Njombe, XII; 1 ♂ soon to breed, Iringa, II.

Common in both the uplands and the highlands and probably, as in Nyasaland, with a long breeding-season.

U H **73. *Stigmatopelia senegalensis aequatorialis*.**

COLL. 1 ♂, 1 ♀ breeding and 2 clutches of two eggs, Iringa, II. III; 1 ♀ not breeding. Iringa, I.

Common in both the uplands and the highlands.

74. *Oena capensis capensis*.

U

COLL. 1 ♀ in complete [post-nuptial] moult, Iringa, III.
Common in the uplands and notably absent from the highlands.
Probably breeding towards the end of the dry season.

75. *Turtur afer kilimensis* (Blue-spot).

H

COLL. 1 ♀ in complete [post-nuptial] moult, Njombe, XII.
Fairly common in the highlands. Probably breeding towards the
end of the dry-season.

76. *Turtur chalcospilos chalcospilos* (Green-spot).

U

COLL. 1 ♀ finishing complete moult, Iringa, I; 1 ♂, 1 ♀ breeding,
Iringa, II.

Not common in the uplands.

Seeing that in the field one so seldom gets a chance to distinguish
a blue from a green spot-winged Dove, it would be wrong to
assume from the few examples we took that one species inhabits
only the uplands and the other only the highlands.

77. *Aplopelia larvata larvata*.

H

COLL. 1 ♂ about to breed, Njombe (forest), XII; 1 ♂ breeding;
Dabaga (forest), II.

A highland-forest bird and, according to our experience, scarce.

78. *Vinago delalandii*.

H

COLL. 1 ♀ breeding, Njombe, XII.

Our specimen was one of a flock of six at the Njombe stream, the
only Green Pigeons we ever saw in the highlands.

79. *Vinago wakefieldi*.

U

COLL. 1 ♀ finishing complete [post-nuptial] moult, Iringa, I.

Frequently seen in flocks of ten to thirty on the middle-ground
at Iringa; apparently, having bred towards the end of the dry-
season.

CUCULIDAE (CUCKOOS).

All the seven parasitic Cuckoos in our list are known to range far and wide in Africa in only the one form — seven species without racial variety — and yet a whole world of "mystery" surrounds the movements, let alone the reproduction, of some of them, all inviting the attention and enjoyment of our countrymen who live in Africa.

BELCHER has recently told us a deal about most of these species in Nyasaland and that the majority come there as summer-visitors to breed during the rains.

land and that the majority come there as summer-visitors to breed during the rains.

We had no chance of judging the status of any of the seven in southern Tanganyika Territory, but surely there must be at least some individuals of some of the species resident somewhere in tropical and equatorial Africa?

We intended, on finding likely Cuckoo's eggs in nests, to note the details and leave the eggs to be hatched out, but alas! all the half-dozen possible Cuckoo's eggs we found were in enclosed nests and only brought into view after the nests and parents had been taken. None of these eggs contained embryos and, in short, it is of no practical use saying anything about them, and I regret that our account of the Cuckoos is such a dull one.

U H 80. *Cuculus solitarius*.

COLL. 1 ♂ soon to breed, Njombe, XII; 1 ♂ soon to breed, Iringa, I and 1 ♀ laying eggs, Iringa, II.

We heard the familiar "tit tat to" song-call frequently throughout our stay in both the uplands and the highlands, and often saw the birds.

U 81. *Cuculus clamosus*.

COLL. 1 imm. ♂ not breeding, Iringa, I.

Our specimen is apparently in a first-summer dress, with the back of adult-like, new feathers; the lower side mottled, also of new feathers; and the remiges and rectrices of new, not juvenile, feathers.

Status uncertain.

82. *Clamator glandarius*.

U

COLL. 1 ♀ on the point of laying eggs, Iringa, III.

Often seen and heard at Iringa during our stay there, and certainly breeding there during the rains, but what the hosts could be puzzled us, for none of the *Corvidae* or *Sturnidae* were breeding either in February or March.

The Great spotted Cuckoo has already been reported as breeding in Africa as follows: —

S. E. Cape Prov., XII, hosts *Corvus albus*, *Onychognathus morio* (Ivy); Salisbury, Rhodesia, X, about to lay eggs (SWYNNERTON); Chiromo, Nyasaland, IX, host *C. albus* (Wood); Turu, Tang. Terr., III, host *Corvus albus* (LOVERIDGE).

83. *Clamator jacobinus*.

U H

COLL. 1 ♀ imm. not breeding, Njombe I; 1 imm. ♀ not breeding, Iringa, II.

Both our specimens are of birds undergoing a slow moult from the juvenile brown to adult dress, and we thought they and the few others we saw were either passing migrants or summer-visitors.

84. *Clamator cafer*.

U

COLL. 2 ♂, 3 ♀ all except the one earliest breeding, Iringa, I, III. Common at Iringa. One of these females, shot at 10 a. m., 8 March had a complete egg in her uterus and three more yolked eggs in her ovary. The first egg deep, plain turquoise blue, 25×21 . What the host could be again puzzled us, for the only species we could think of breeding in March with eggs anything like this *cafer's* egg, in size and coloration, was *Turdoides jardineii*, which was not a common bird.

85. *Lampromorpha caprius*.

U H

COLL. 5 ♂, 2 ♀, Njombe XII, Iringa I not yet breeding; Iringa II, III, breeding.

We thought probably a summer-visitor, arriving with the rains. Common.

U H 86. **Lampromorpha klaasi.**

COLL. 2 ♂, 1 ♀, Njombe XI not yet breeding; Iringa I breeding.
Less common than the Didric, but we thought also a summer visitor arriving with the rains, and apparently breeding rather earlier.
The female, taken at 11. a. m. on 20 Jan., had a complete egg — white, well spotted with indian red — in her uterus, and two more yolked ones in her ovary.

U H 87. **Centropus superciliosus loandae.**

COLL. 1 ♂ not breeding, Iringa I, 1 ♀ breeding, Iringa II, 1 old imm. not breeding, Dabaga II.
Common in the river-plain of the uplands, and the hollows of the highlands at both Njombe and Dabaga.
Compared with the Type of *loandae*.

U H 88. **Turacus livingstonii livingstonii.**

COLL. 2 ♀, 1 ♂ in complete post-nuptial moult, XII and 1 juv. ♀ abroad, XII, Njombe (forest).

Common in the highland-forests and breeding there, in the rule apparently, towards the end of the dry-season. Absent from the uplands.

The juvenile, a squab unable to fly and evidently one of a late brood was in the forest-jungle tree-tops attended by one of her parents, uttering a pigeon-like "coo crrooooo crooo"

These agree with the greener rump and tail'd, typical *livingstonii* from Nyasaland.

Is *schalowi* really a different species to *livingstonii* or as Professor NEUMANN classified it in Nov. Zool. 1908, p. 377? And are there really so many different kinds as in the Systema? According to the Brit. Mus. series there seems to be a great deal of what is apparently individual or age variety in the green and purple glosses which figure so largely in the definitions of the various kinds.

U 89. **Gallirex porphyriolophus chlorochlamys.**

COLL. 3 ♀, 1 ♂, Iringa, I, III.

Common in the river-plain of the uplands and according to the gonads of the three females, certainly breeding there in Jan., Feb., but the adult male of Jan. was sexually inactive.

Absent from the highlands.

Compared with the Type of *chlorochlamys*.

90. *Gymnoschizorhis leopoldi leopoldi*.

U

COLL. 2 ♂ in complete [post-nuptial], moult, Iringa, I, III.

Common in the middle ground of the uplands, in noisy, gabbling [family] parties during our visit. Probably breeding towards the end of the dry-season.

Absent from the highlands.

91. *Poicephalus meyeri matschiei*.

U

COLL. ♂, ♀ pair, finishing complete, [post-nuptial], moult, Iringa, I and 2 ♂, 3 ♀ in new complete dress, Iringa, II, III.

At Iringa on the lower ground, but not common.

Probably breeding towards the end of the dry-season.

Never seen in the highlands.

Compared with the Type of *matschiei*.

92. *Coracias garrulus garrulus*.

COLL. 1 ♀, apparently on passage north, Iringa, III.

The few European Rollers we saw at Iringa in Feb. and March gave us the impression of being on passage northwards.

93. *Coracias caudatus caudatus*.

U

COLL. 2 ♀ in complete [post-nuptial] moult, Iringa, I, II.

Fairly common at Iringa, and probably breeding towards the end of the dry-season.

94. *Megaceryle maxima maxima*.

H

COLL. 1 ♂ not breeding, Njombe (stream), XII.

The only one we ever saw, calling loudly "kee-ou kee ke-ou", as he flew up the valley.

95. *Alcedo semitorquata*.

U

COLL. 2 ♀, in new complete dress, not breeding, Iringa (river), I.

Frequently seen at Iringa, never in the highlands. Probably breeding towards the end of the dry season.

U H 96. *Corythornis cristata cristata*.

COLL. 1 ♀ in new complete dress, Njombe (stream), XII; 1 ♂ finishing complete [post-nuptial], moult, Iringa (river) III.
Fairly common in the uplands, scarce in the highlands. Probably breeding towards the end of the dry-season.

U 97. *Halcyon senegalensis cyanoleuca*.

COLL. 2 ♂ in good complete dress, soon to breed, Iringa, II.
Judging from the gonads, and their striking breeding-call, these birds would have bred among the large Acacia trees in the river-plain during the rains, as did the species in Darfur. Not common in the uplands, absent from the highlands.

U 98. *Halcyon chelicuti chelicuti*.

COLL. 2 imm. ♀ with all black bills; Iringa I; 3 ♀, Iringa, II in, and III finishing complete [post-nuptial], moult.
Fairly common in the dry "bush" of the river-plain at Iringa, and probably breeding there towards the end of the dry-season. Absent from the highlands.

99. *Merops apiaster*.

COLL. 1 ♂, 1 ♀ in perfect, new, complete dress from flock of about thirty passing northwards, Iringa II.
Parties, sauntering northwards in their customary way, were seen at Iringa during the latter half of February, not later.

100. *Merops persicus persicus*.

COLL. 1 imm. ♂ completing moult to adult dress, Iringa, I; 2 ♂ in new complete dress. Iringa, III.
These specimens came from small parties, who had arrested their northward passage to feed during the forenoon.

U 101. *Melittophagus pusillus*.

Coll. 2 imm. ♀ about two months old, Iringa I.
Quite a scarce species in the uplands, and absent from the highlands. Probably breeding towards the end of the dry-season.
Racial characters indistinguishable in our specimens.

102. Melittophagus bullockoides.

U H

COLL. 1 ♂, 2 ♀ breeding and 1 juv. nestling, Njombe XI, XII; 1 ♂, Iringa, Dabaga, completing [post-nuptial] moult II.

Common in both the uplands and the highlands. In the latter found breeding at the end of the dry-season, and latest broods just into the rains: the nest-holes along the stream in vertical, earth faces cut out by flood-water.

103. Lophoceros nasutus epirhinus.

U

COLL. 1 imm. ♂, Iringa II; 1 ♂ finishing complete, [post-nuptial], moult, Iringa III.

Scarce, and only in the river-plain, in the uplands. The only kind of Hornbill ever seen there and never one in the highlands. Probably breeding towards the end of the dry-season.

104. Upupa africana.

U H

COLL. 1 ♂, 1 ♀ not breeding, Njombe XII; 2 ♂ not breeding, Iringa I.

Fairly common in both the uplands and the highlands. Probably breeding during the dry-season and completing post-nuptial moult about December. That moult appears to be a slow one.

105. Phoeniculus purpureus marwitzi.

U

COLL. 1 ♂, 2 ♀ in complete [post-nuptial] moult, Iringa, I, II, III; 2 imm. ♂, completing a slow moult to first-winter dress, Iringa I. Common in the uplands, frequenting chiefly the wooded bases of the hills and probably breeding there towards the end of the dry-season.

Absent from the highlands.

As with the Upupa, the adult, post-nuptial, moult appears to be a slow one.

106. Rhinopomastes cyanomelas schalowi.

U

COLL. 3 ♂ in almost complete new dress, Iringa I, III.

Common in the uplands, and probably breeding there towards the end of the dry-season. Absent from the highlands.

Like the other Hoopoes, the post-nuptial moult appears to be a slow one.

STRIGIDAE (OWLS).

Since none of the Owls were breeding during our visit to Tanganyika Territory and our knowledge of their presence was derived almost entirely from those we chanced to flush or come across in the day-time, we learnt scarcely anything about them except what our few specimens show.

H 107. *Tyto capensis*.

COLL. 1 ♂ half-way through complete [post-nuptial] moult Njombe, XII.

Fairly common in the highlands, where we frequently flushed them from their lairs in the mat-grass of the hollows and stream valley. Never seen in the uplands.

Probably breeding in the dry-season.

U 108. *Glaucidium perlatum*.

COLL. 1 ♂ finishing complete [post-nuptial] moult and imm. ♀ about 3 months old, commencing to replace the plain upper side of youth by the spotted of maturity, Iringa III.

These, the only examples we ever saw, came from the "bush" in the drier part of the river-plain, and were flitting about in company at midday.

Probably breeding during the dry-season.

U 109. *Bubo capensis mackinderi*.

COLL. 1 ♂ not breeding, in nearly complete new dress, Iringa, II. wing 400, tail 215, expanse 1350. Iris brilliant, deep gamboge yellow, bill black.

This bird, the only one we ever saw, incautiously flew out of his lair in a stack of rocks in the woodland near the crest of the highest hill (M^t Luhota) in the Iringa neighbourhood as we passed by one forenoon. Probably breeding during the dry-season. All the characters — the very white vent, socks, and lower tail-coverts — of the *mackinderi* race are present. Compared with the Type of *mackinderi*. Note the southward extension of range of the race.

110. *Bubo africanus africanus*.

U

COLL. 1 ♂ not breeding, in new, almost complete dress, Iringa III. This bird, the only example we ever saw, was sitting in a tree in the lower woodland in full sunlight at midday and being mobbed by some Kakelaars (*Phoeniculus*). Probably breeding in the dry-season.

CAPRIMULGIDAE (NIGHTJARS).

What I have said about the poverty of our results with the Owls applies equally to these crepuscular birds, who here, and I believe, in nearly all parts of Africa, cleverly choose their breeding-season in the "spring" so as to avoid being burnt-out by the mid-winter fires, and swamped-out by the summer rains and sea of grass. Many of the African Nightjars are known to be migratory within the continent, some on a very big scale. The length and period of our visit made it impossible for us, unaided, to gauge the status of most of the species we found — and that only by flushing moulting and off-season birds during the day-time, when it takes better men than we to know what they are without shooting them — so I will leave the specimens to tell their own tale and suggest little or nothing about the status of any of the birds.

111. *Caprimulgus europaeus europaeus*.

COLL. 1 ♀ sexually inactive, Iringa II. wing 191.
Probably a winter-visitor in small numbers.

112. *Caprimulgus pectoralis guttifer*.

H

COLL. 1 ♂ in complete [post-nuptial] moult, Njombe inside the forest, XII.

Probably breeding in the highlands during the end of the dry-season.

Compared with the Type of *guttifer*.

113. *Caprimulgus rufigena frenatus*.

H

COLL. 1 ♂ in worn dress, after recent breeding, Njombe XII, wing 171.

Shot while churring (like *C. europaeus*) on a dead branch jutting out from the upper part of a thirty foot tree — one in a small grove on the downs — at half-an-hour after sunset.

Probably breeding in the highlands during the end of the dry-season.

U 114. **Caprimulgus fervidus.**

COLL. 1 ♂ in good dress about two months worn, not breeding, Iringa, III. Wing 158.

Probably breeding (where?) towards the end of the southern dry-season.

H 115. **Caprimulgus trimaculatus lentiginosus.**

COLL. ♂, ♀ pair with full clutch of two eggs (BELL), Njombe, XI. At one of the small kopjes — granite rocks with a few small trees — on the sides of the Njombe stream valley.

Eggs very like those of the average *C. europaeus*; size 30.0×20.2 and 31.5×22.5 .

Compared with the Type of *lentiginosus*.

U 116. **Caprimulgus inornatus.**

COLL. 1 imm. ♀ probably about three months old, moulting the juvenile head, body and tail feathers, Iringa I.

U 117. **Caprimulgus fossii fossii.**

COLL. 5 ♂, 1 ♀ in complete [post-nuptial] moult, I, II, 1 ♂ in complete new dress, III and 1 ♂, 1 imm. ♀ moulting the juvenile head and body feathers, I, II; all Iringa.

Common in the uplands, never seen in the highlands. Probably breeding (where?) towards the end of the southern dry-season.

U 118. **Cosmetornis vexillarius.**

COLL. 2 ♂ finishing complete, [post-nuptial], moult (except for the long, ninth primaries), Iringa, I.

These two birds were close by one another in the lower woodland, the only example of the species we ever saw, and probably either on passage or off-season visitors.

Of the long, ninth primaries, one has just been shed, the other three are the old feathers and have been broken off short, (as Chapin has observed, is frequently the case at the end of the breeding-season) at such a very stout part of the quill as to suggest that the breakage is not accidental but, quite likely, purposely done by the birds.

119. *Micropus apus apus*.

COLL. 4 ♂, 2 ♀, Njombe XII, I; 1 ♂ highlands at Sao, I, all sexually inactive.

Our specimens are from troops which appeared on the scene, to feed on flying insects in swift-like, unexpected way at various hours of the day. Probably all were winter-visitors to the neighbourhood.

Those four who were leisurely completing the moult of their primaries are probably old birds, and the others, without moult, yearlings.

120. *Micropus apus shelleyi*.

H

COLL. 1 ♂, 1 ♀ about to breed in complete new dress, Njombe, XII, I.

Two from a mixed party of *shelleyi* and *aequatorialis* who appeared on the scene at midday. Breeding place not known, there are no very likely sites up on the highlands near Njombe, that is to say if *shelleyi* is either a cliff, or a wall, or a roof breeder.

121. *Micropus aequatorialis aequatorialis*.

H

COLL. 2 ♂ not breeding, in one-fourth worn dress without moult, Njombe XII.

From small parties who appeared on the scene at various hours of the day.

122. *Micropus caffer streubelii*.

U H

COLL. 1 ♂, Njombe I; 4 ♀, Iringa, II, III; none breeding. Wings ♂, ♀ 141 ± 2.

All from small parties who appeared on the scene at various times of day. All in good, or fairly good dress, without moult.

H 123. *Micropus horus*.

COLL. 2 ♂, 4 ♀, not breeding, Njombe XII, I.

From small parties who appeared on the scene at various times of day.

All in fairly good dress without moult.

U H 124. *Colius striatus* (n^r) *affinis*.

COLL. 1 ♂, 2 ♀ breeding, 2 juvs. about one month old, and one full clutch of two eggs, Njombe XI, XII, I; 1 ♂ breeding, Iringa II. Common and breeding in both the uplands and the highlands during our visits. The adults show very irregular moults, breeding in dresses composed of mixed old and new feathers, with some moult, even of the quills, in progress.

Eggs, being incubated by the cock bird at mid-day, cream colour, permanently stained here and there with light ochreous drifts; size 22.2×16.7 and 20.8×16.5 .

These are not *berlepschi*, but very near *affinis*, with the ear-coverts silvery-white; the back plain, or in one bird, lightly cross-barred, and the throat blackish overlaid with grey-white feather borders. Wings ♂, ♀ 96 ± 4 .

U 125. *Lybius leucocephalus albicauda*.

COLL. 4 ♂, 3 ♀ in slow [post-nuptial] moult, with pied tails and 1 imm. ♂ about three months old, with all-black tail, Iringa I, II, III.

Common in the lower and middle ground of the uplands and breeding there, probably, towards the end of the dry-season, following it with a slow, complete, post-nuptial, moult.

Compared with the Type of *L. albicauda*, which has an all-white tail except for the basal third of the only central rectrix present, which is black.

With this Iringa and all the Brit. Mus. material, it seems clear enough that *L. leucocephalus*, *L. adamauae*, *L. senex* and *L. albicauda* are no more than geographical representatives of the one (*leucocephalus*) species with a varying quantity of black in their coloration¹⁾. The colour variation is exceedingly striking because the black, instead of being mingled with other colour pigments to subdue their hues, is distributed as pure black in varying tracts of the plumage.

¹⁾ See Stresemann & Grote, Verh. VI. Intern. Ornith. Kongress Kopenhagen 1926, p. 368 (map showing distribution). — Editors.

Thus in brief:

leucocephalus *Below*, half white and half black; *mantle* spotted with white; *tail* all black. *Size* ♂ wing 95 ± 2 . *Distr.* Uganda etc.

L. adamauae *Below*, five sixths white and one-sixth black; otherwise like *leucocephalus*, but smaller viz. ♂ wing 88 ± 2 . *Distr.* Adamaua etc.

L. senex *Below*, all black; *mantle* plain; *tail* all white. *Size* ♂ wing 95 ± 2 . *Distr.* Mid-Kenya.

L. albicauda *Below*, two-thirds white and one-third black; *mantle* spotted with white; *tail* pied. *Size* ♂ wing 98 ± 2 . *Distr.* Tang. Terr. and southern Kenya.

The „black“ is black or blackish in the fresh dress, but often wears or bleaches brown. Our series suggests the likelihood of *albicauda* having an all-black tail *in youth*, but even if that be constant, it does not affect the subspecific classification (of adults) as above.

126. *Lybius torquatus congicus*.

U 14

COLL. ♂, ♀ pair excavating nest-hole and about to breed, 1 ♂, 1 ♀ after breeding, Njombe XII; 1 ♂, 3 ♀ in slow [post-nuptial] moult, and 1 imm. ♀ about two months old, Iringa I, II, III. Wings ♂, ♀, 91 ± 3 .

Common in the lower and middle ground of the uplands, and in the valleys, not the forest, of the highlands. Probably breeding towards the end of the dry-season, the pair about to breed on 4 Dec. at Njombe being abnormally late in doing so. Their nest-site is shown in Pl. XV.

Compared with the Type of *congicus*, and in very near agreement with the aggregate of birds from the S. E. Congo.

127. *Tricholaema lachrymosum ruahae*.

U

COLL. 9 ♂, 8 ♀ in various stages of complete [post-nuptial] moult to full new dress and 2 imm. ♀ about three months old, Iringa XI, I, II, III. Wings ♂, ♀, 70 ± 2 (occ. 73).

Common in the lower and middle grounds of the uplands. Probably breeding towards the end of the dry-season. Absent from the highlands.

Compared with the Type of *ruahae*.

In skins I cannot see any sexual difference, but the adult male has the iris bright gamboge yellow, and the adult female deep carmine red. Immature females venetian red; we took no immature males.

U H 128. **Viridibucco simplex leucomystax.**

COLL. 1 ♂, 3 ♀ in complete [post-nuptial] moult, Njombe (forest), XII, I; 2 ♂, 2 ♀ in complete new dress, Dabaga II, Iringa III.

Common and noisy, even when in moult, in the forests and forest-jungles of the highlands, but scarce in the hill-woodlands of the uplands, and as we never found the species there until March, we thought it very likely that our Iringa birds were off-season wanderers from the highlands having completed their post-nuptial moult up there.

Probably breeding in the highlands towards the end of the dry-season: Compared with the Type of *leucomystax*.

Re W. L. Sclater in 6, p, 663, I think it will be found that this race with the larger white moustache-stripe is well founded, that in maturity the character is independant of sex and season, although perhaps little perceptible in youth, and that the apparent anomaly discussed is explained by intergradation of the typical and *leucomystax* forms in the Amani neighbourhood.

U 129. **Indicator indicator.**

COLL. 1 ♀ in full moult, I, and 1 ♀ in complete fresh dress, II, and 1 imm. ♂ in complete moult to adult dress, I; all Iringa.

Frequently seen in the uplands and once only in the highlands; on all occasions the honey-guiding behaviour feeble and never — or so it seemed to us — purposeful.

Probably breeding towards the end of the dry-season.

U 130. **Indicator minor (n^r) minor.**

COLL. 1 ♂ not breeding, in full complete new dress, Iringa, II. Wing 89.

The only example we ever saw.

Quite markedly greener *above* than any of those in the large Brit. Mus. series, but perhaps a peculiar individual.

PICIDAE (WOODPECKERS).

Since none of the woodpeckers were breeding during our visit we are not rash enough to be confident of having overlooked none, and I shall therefore use square brackets for absence frequently. To be able to gauge the extent to which African birds (taken as a whole) are today altering their ranges — as we know many are

doing in Europe — is perhaps something for a future and not the present generation to look forward to, but observations made during my African travels of the past twelve years have given me a strong impression that some of the African woodpeckers are in a more or less perennial state of altering their ranges through the wandering of individuals, just as some European woodpeckers are known to be doing. And if a *Dryobates major* will cross and re-cross the North Sea (without any apparent reason for doing so) incapability of an equal flight overland by one of its African cousins can scarcely be urged to oppose my humble suggestion.

131. *Campethera nubica nubica*.

COLL. 2 ♂, 2 ♀ in complete [post-nuptial] moult, Iringa, I, II, III. Wings ♂, ♀, 114 ± 1.

Fairly common in the river-plain of the uplands and probably breeding there towards the end of the dry-season. [Absent from the highlands.]

These are typical *nubica*. Note the extension of range to the southward.

132. *Campethera abingoni smithi*.

COLL. 1 ♂, 1 ♀ finishing complete [post-nuptial] moult, Iringa, I. Wings 121, 123.

Fairly common in the wooded hills of the uplands and probably breeding there towards the end of the dry-season. [Absent from the highlands.]

These are not separable from Bechuana, Damaraland and Rhodesia Congo examples of the species, with the chin and throat of black feathers, tipped with white (not white, tipped with black, as in *abingoni*), and the bill large (not small like *annectens* of Angola). Compared with the Type of *smithi*. Note the eastward extension of *smithi's* range.

At first sight the distribution looks incongruous, and that if affinity with a western, not northern form, is shown at Iringa it "ought to be" with *annectens* and not with a form inhabiting dry, Southwest Africa. But a reasonable explanation is that these Woodpeckers are, *inter alia* derived from a stock inhabiting the Congo-Zambesi water-parting and that their presence in Southwest Africa is only made possible by the threads of riparian tree-growth extending southwards from that water-parting into what would otherwise be uninhabitable to a Woodpecker of *abingoni's* ways of life.

U

U

U 133. *Dendropicos fuscescens hartlaubi*.

COLL. 12 ♂, ♀ in complete, [post-nuptial], moult, XII, I, II and 2 imm. ♀ about two months old XI, XII, Njombe, Dabaga, Iringa. Wings ♂, ♀ 92 ± 3.

Common in both the uplands and the highlands and evidently breeding towards the end of the dry-season. Singularly ubiquitous in choice of ground, we found these birds almost wherever there was any tree-growth.

Among these specimens, besides differences due to sex, age and state of dress, there is a small amount of individual difference of coloration, but whether from the uplands or the highlands the aggregate is quite like that of a fine series of the species in fresh dress recently brought to the Brit. Mus. by JACK VINCENT from Portuguese East Africa and Nyasaland. According to the Systema our birds should be *D. fuscescens massaicus* = *D. f. (guineensis) centralis* Neum. and VINCENT's *D. lafresnayi hartlaubi*, which is impossible. Hence the name given here, which is in accordance with the views of Dr. FRIEDMANN in 3 pp. 475—80. Both of our, and a number of other young females of this species in the Brit. Museum collection have male-like red head tops, as in young female *Dryobates major*: Perhaps it is the rule?

This places our birds, but does not dispose of the wider question of the specific difference between *fuscescens* Vieill. and *lafresnayi* Malh. Besides the above quoted references, some recent views on the subject are expressed by VAN SOMEREN in 8 pp. 283—4 and AUSTIN ROBERTS in 5 pp. 83, 84. The case for two different species appears to be derived from the idea that somewhere in equatorial East and in South Africa two differently coloured aggregates are found on the same ground, but whether the specific differences are to be perceived in the adults or the young, or in different behaviours, or what, is little apparent, unless it be that, vaguely, adult *fuscescens* has a barred, and adult *lafresnayi* a plain, or less distinctly barred, back-pattern?

The Brit. Mus. has large series of one or the other (so called) different species from nearly all parts of Africa, and although they have not been collected with the discrimination necessary to relate young birds to any particular parent, I can see among the adults from the whole of the *eastern* side of the continent no evidence of there being more than the one species, viz. *fuscescens* which can be classified broadly and without prejudice to what finer perceptions may make further subdivision possible and desirable as follows: —

Pattern (with some small individual variety). Above, distinctly barred and below, striped.

- fuscescens* *Coloration.* With including yellow wash above, medium.
Size. Large, wings ♂, ♀, 96 ± 4 .
Range. South Africa (Cape Prov. to Zambesi).
- hartlaubi* *Coloration.* With including yellow wash above, rather strong.
Size. Medium, wings ♂, ♀, 91 ± 4 .
Range. Tang. Terr. and Portug. East Africa.
- massaicus* *Coloration.* With including yellow wash above, pale.
Size. Small, wings ♂, ♀ 83 ± 4 .
Range. Kenya Col., west to about the Victoria Nyanza water-parting in the highlands.
- hemprichii* *Coloration.* Without yellow wash above, pale.
Size. Small, wings ♂, ♀, 82 ± 5 .
Range. Somaliland. S. Ethiopia.

All these races intergrading.

I have not examined in detail the Brit. Mus. material — also ample, but of similar disability — from the *western* side of the continent, but it looks not unlikely to be the same species, *fuscescens*, which ranging westwards from Kenya Colony with a decreasingly barred, more mottled back-pattern, extends to West Africa, where the back-pattern is practically a plain one and the form is *lafresnayi* Malh. A wide specific range, no doubt, but nothing remarkable when compared with the ranges of *Dryobates major* and *minor* in Europe and Asia. Nor, indeed, in Africa, for there *fuscescens*-like birds seem to be versatile in their choice of habitat, and I feel pretty sure that just as much as some kinds of African Woodpeckers and other birds are able to extend their ranges right out into semi-desertic territories by inhabiting the richer riparian threads of vegetation, so at the sources of the waterways there is a tendency among these birds to wander across the water-partings into other basins, where they meet *to-day*, with others of their species who often differ somewhat racially.

Since most of the African Woodpecker species have their own distinctive cries and other traits of behaviour, it would be useful in this connexion to know whether West African *lafresnayi* and South African *fuscescens* are like one another in life, or not, and the same may be said about the numerous different-looking kinds of small woodpeckers in South Africa which ROBERTS classifies as so many races of the same two species.

134. *Thripias namaquus namaquus*.

COLL. 1 ♂, 1 ♀ in complete [post-nuptial] moult, and 1 imm. ♀ about two months old, Iringa III.

Fairly common in the lower wooded hills of the uplands and probably breeding there towards the end of the dry-season. Not seen in the highlands.

These have the ear-patch, back and breast all as the typical *namaquus*.

Our young female has a malelike red head-top, and I have seen some others like it: perhaps it is the rule?

H 135. **Mesopicos griseocephalus (n^r) kilimensis.**

COLL. 5 ♂, 3 ♀ in complete [post-nuptial] moult, XII, I, and in full new dress II, and 1 juv. about six weeks old, with parent, XII; all Njombe (forest). Wings ♂, ♀ 110 ± 3.

Apparently the one common highland-forest Woodpecker, and breeding there towards the end of the dry-season. Absent from the uplands.

These adults are as yellow *above* as *ruwenzori* (Type examined) and *griseocephalus*, but very markedly less yellow and more dull greenish *below*. Two are immaculate below, the remainder have noticeable, diffused red belly-patches, such as might be called "*incipient*"

136. **Mirafra africana tropicalis.**

COLL. 1 ♂ breeding, Njombe (downs), XII.

The only example of any (resident) kind of Lark we ever saw in the highlands. I have already commented on the singular absence of Alaudidae on those vast expanses of downs which look so admirably suited to many of those birds' requirements.

Compared with the Type of *M. a. nigrescens*, from which our bird differs.

137. **Mirafra fischeri zombae.**

COLL. 4 ♂, 1 ♀ breeding, Iringa and edge of the highlands at Sao, XI, I.

Very comon in the uplands, and thence right up to the edge of the highlands, disappearing directly the tree and bush of the uplands gives way to the open downs. Flappetting and breeding all through the first part of the rains.

Our birds are all the rufous phase.

138. **Eremopteryx leucopareia.**

COLL. 6 ♂, 6 ♀, in complete new dress, not breeding, and 2 imm. ♂ about three months old, Iringa, I, II, III.

The only place we ever found these birds was on the most sandy parts of the middle ground in the uplands, near Iringa township, and by the birds' behaviour, their dresses, and daily fluctuation of numbers, we felt sure that they all of them were passage migrants through Iringa whether northward or southward bound we cannot say.

Compared with the Type of *leucopareia*.

139. Tephrocorys cinerea saturator.

COLL. 10 ♂, ♀ in nearly completed new dress and not breeding, Njombe (downs), XII.

On the 23rd December flocks of fifty and smaller ones appeared on some newly ploughed arables; the majority but not all had gone next day, after which we never saw the species again anywhere.

Probably pre-nuptial moulted birds on their way to their breeding-grounds, but whither bound we cannot say.

Compared with the Type of *saturator*.

140. Motacilla aguimp vidua.

U H

COLL. 1 ♀ not breeding and 1 old imm., Njombe, XII, I.

Generally to be found near human habitations, in both the uplands and the highlands, but not, or very seldom further afield. Probably breeding, for the most part, towards the end of the dry-season. They were in song (which is a very sweet one) nowhere during our visits.

141. Motacilla clara.

H

COLL. 2 ♀ in complete [post-nuptial] moult, Njombe XII, I.

In the highlands, each half-mile stretch of torrent-stream seemed to hold a family party who had been reared towards the end of the recently passed dry-season.

142. Budytes flavus.

We found this species common as a winter-visitor, frequenting the margins of the swamps in both the uplands and the highlands, and took a few examples of those which, in the field, looked far

enough advanced into summer dress to diagnose racially. These include certainly *campestris*, and others which I cannot separate from *thunbergi* and *rayi*. The Brit. Mus. has another *rayi*-like example from Nyasaland. Note the probable extension of range southward of the last two subspecies.

H 143. ***Anthus nicholsoni nyassae*.**

COLL. 1 ♂ commencing [post-nuptial] moult, Njombe (downs), I. Scarce in the highlands; and perhaps only there as an off-season visitor with a breeding-season, elsewhere, towards the end of the dry-season.

Compared with the Type of *nyassae*.

For the specific name see FRIEDMANN, Proc. Biol. Soc. Wash. 45, 1932, p. 164.

U H 144. ***Anthus richardi lacuum*.**

COLL. 7 ♂, 4 ♀, XI still breeding, XII recent breeding, I, II, III in post-nuptial moult; and 1 juv. about four weeks old, XI; Njombe, Dabaga, Iringa.

Common in both the uplands and the highlands, and clearly breeding there up to the close of the dry-season. Cock-birds still in aerial song up to the end of November, not later.

145. ***Anthus trivialis trivialis*.**

COLL. 3 ♂, 6 ♀, Njombe, Dabaga, Iringa, XII, I, II.

Common, as a winter-visitor, in the upland woods, and outskirts of the highland forest. In Jan. and Feb. moulting into summer dress as detailed in the "Practical Handbook of Brit. Birds"

H 146. ***Anthus brachyurus brachyurus* ≅ *leggei*.**

COLL. ♂, ♀ pair and two young eight days old, in nest, I; ♂, ♀ pair with their full clutch of three eggs, II; and two ♂, ♀ pairs and 2 ♂, all breeding XI, XII. Wings ♂, ♀ 65 ± 2.

Rather common in the highlands and, unlike the *A. richardi* there, breeding during the rains. Absent from the uplands. When breeding these little birds have most of the traits of behaviour of

A. pratensis, including an aerial cruise with small song, and when flushed from the nest underfoot, the sitting bird often flutters away in like manner.

The juvenile mouth is raw sienna with bright primrose yellow external borders, the palate with four rows of white spikes, and the flanges of the tongue also white: much the same colour pattern as figured by SWYNNERTON for *Macronyx croceus* in Ibis 1916 pl. VII, fig. 19, the adult mouth being plain as in his fig. 40 for *Anthus pyrrhonotus*.

There is no pre-nuptial moult, or no more than that of a few scattered body feathers. Both our nests (see Pl. XV) were like those of the average *A. pratensis* in site and construction, only of smaller size. The eggs — just like some in the Brit. Mus. of *brachyurus* from Natal — are yellowish white, plentifully sprinkled all over with straw-yellow spots, dots and freckles, with a few larger clouds of the same colour and secondary purplish greys: most of the markings faint, and all soft-edged. In coloration, very like average eggs of *Macronyx capensis*, and some varieties of *Motacilla cinerea*. Size of the three, av. $15.7 \pm 3 \times 12.8 \pm 2$.

Compared with the Type of *leggei*.

The Systema classifies *brachyurus* and *leggei* as two different species, but this material added to what Vincent and I obtained in the Rhodesian Congo in 1930 makes the racial relationship evident. It would be well to add to Ogilvie-Grants original description of *leggei* "above colder and darker". Our Ubena-Uhehe highland birds are *above*, as *leggei*, and *below* like *brachyurus* i. e. not so white as *leggei* but yellowish tinged on the chin and throat and over the buffy breast.

147. *Macronyx croceus* (n^o) *fülleborni*.

COLL. 2 ♂ breeding, Njombe, Dabaga, XI, XII; 1 ♂ breeding, Mufinde (BELL), XII.

Common all over the highland downs, and breeding there during the rains. Several nests found but no eggs. Precisely like the typical *croceus* in behaviour. Absent from the uplands.

Compared with the Type and Co-type of *fülleborni*, also with examples in the Berlin Mus. from Langenburg, Ngomingi, Tandalla and Ufipa. Our birds are near *fülleborni* but have the head-top rather less dark, whitish borders posterior to the black bridle and cravat, and below are paler yellow with more buff overwash. Type of *ascensi* not examined.

- H 148. **Macronyx ameliae ameliae.**
 COLL. 1 ♂ about to breed, Njombe (swamp-side), XII. Wing 90.
 One of an evident pair, the only examples we saw during our two visits to the swamp. Certainly absent from the dry downs of the highlands, and never seen in the uplands.
- U 149. **Turdoides jardinei kirki.**
 COLL. 3 ♂, 2 ♀, not yet breeding I, and breeding II, III; all Iringa.
 No more than fairly common in the bush-stuffed water-courses in the middle ground of the uplands, and breeding during the latter half of the rains.
 Absent from the highlands.
- H 150. **Pseudoalcippe stierlingi.**
 COLL. ♂, ♀ pair and 1 ♂, 3 ♀, all breeding, Njombe (forest), XII.
 ♂, ♀ wings 66 ± 1 , tails 58 ± 1 , irides dark venetian red.
 Common in the highland forest, but more often heard — a sweet Robin-like "meeting to-morrow" or "wadi wadaigo" — than seen.
 Breeding in worn dress. No nests found.
 The Type of *P. stierlingi* is labelled "Iringa". Dr. STIERLING tells us that the specimen, obtained by his native collector, was probably taken somewhere near Iringa. According to our experience, it cannot have come from any part of what I have called the "uplands" during the rains, that is during its breeding-season. Possibly, occasional individuals wander down into the uplands during their off-season, but if so they must accept an environment quite different to that which they choose to breed in.
 But I think the more likely explanation is that the specimen came from the Uhehe highland-forests within thirty miles of Iringa, as, for instance, from the Dabaga loc. (which is part of the present administrative Iringa *District*).
- U H 151. **Pycnonotus tricolor fayi.**
 COLL. 1 ♀, with her full clutch of two eggs, Njombe, XI; 1 juv. ♀ about three weeks old, Iringa, II.
 Common in both the uplands and the highlands and breeding during the rains. Nests and eggs typical.

152. **Phyllastrephus fischeri placidus.**

H

COLL. 4 ♂, 5 ♀ in complete [post-nuptial] moult, Njombe and Dabaga (forest), XII, I, II.

Common in the highland forests. Probably breeding towards the end of the dry-season. Absent from the uplands.

Compared with the Type of *placidus*.

153. **Arizelocichla masukuensis roehli.**

H

COLL. 2 ♂, 1 ♀ in complete [post-nuptial] moult, Dabaga (forest) II.

We did not notice the difference between this and the next species until we began to work out the collection in England. It is evidently common in the Uhehe highlands. That it is lacking from our large series of *Arizelocichla* from the Ubena highlands can be no more than chance, for LOVERIDGE took specimens at Kigogo by Mufinde. Absent from the uplands.

Compared with the Type of *roehli* and four others from Wilhelms-tal. I notice that in 4 p. 187, BANGS and LOVERIDGE place their Ubena birds as *masukuensis*.

154. **Arizelocichla chlorigula.**

H

COLL. 11 ♂, 4 ♀, XII end of breeding; I, II in complete, post-nuptial, moult; and 4 ♂, ♀, juvs. XII, II; all Njombe and Dabaga (forest).

Very common in the forest and forest-jungle of the highlands. All their song-calls are Bulbul-like, but distinct from *Pycnonotus*. Both these species of *Arizelocichla* evidently breed in the highlands towards the end of the dry-season, just extending into the early rains, and are absent from the uplands.

Compared with the Type of *chlorigula* and also with that of *chlorigula schusteri*. I think only differs by being in a better state of dress, therefore confirming the surmise in the Systema.

155. **Muscicapa striata striata.**

COLL. 2 ♂, 2 ♀, Njombe XI, XII, Iringa I.

Quite a common winter-visitor to both the uplands and the highlands.

156. *Ficedula hypoleuca semitorquata*.

COLL. 1 ♂, highlands at Sao, I and 1 imm. ♂ completing moult to adult, Iringa I.

A fairly common winter-visitor to the uplands, but comparatively scarce in the highlands.

H 157. *Alseonax adustus subadustus*.

COLL. ♂ parent with full clutch of two eggs, Njombe (BELL), XI and ♂, ♀ pair, recent breeding and ♂ parent with 1 juv. about three weeks old, Njombe XII; 1 ♀, after breeding, Dabaga II. Wings ♂, ♀, 64 ± 2 .

Fairly common in the tree-growth fringing the highland streams, and breeding there from the last part of the dry-season into the early rains. Absent from the uplands.

Nest, as in Plate XV, built on a tree-branch overhanging the stream.

Eggs, pale, dull turquoise blue very faintly marked with clouds of rust-red stippling, nearly all of them towards the blunt end. Size, 18.2×12.5 , 18.2×12.3 .

Except for the sepia tints above and below being noticeably a shade darker and colder these birds match the Type of *subadustus* and aggregate from N. Nyasaland and S. E. Congo basin; ♂, ♀ wings 65 ± 1 . Possibly quite like *A. a. fülleborni* Rchw. O. M. B. 1900 p. 122, Rupira, Tang. Terr., which is not mentioned in the Systema, and I have not examined.

U 158. *Parisoma böhmi böhmi*.

COLL. 3 ♂, 1 ♀, Iringa, I after recent breeding; II, III commencing post-nuptial moult.

Not common in the uplands, and there no higher than the river plain. Breeding-season evidently much the same as for the last species. Absent from the highlands.

Compared with the Type of *böhmi*.

U 159. *Bradornis pallidus suahelicus*.

COLL. 2 ♀, commencing post-nuptial moult and 1 juv., about four weeks old, Iringa I, II.

Fairly common in the middle ground of the uplands, and evidently breeding there during the last months of the dry-season and the early rains. Absent from the highlands.

160. *Bradornis griseus griseus*.

COLL. 1 ♂ recent breeding XI, 4 ♂ in complete, post-nuptial, moult, and two juvs. about four weeks old, I, II, all Iringa.

Status, breeding-season, etc. as for *B. pallidus*, only more common. Two of the adults are almost pure albino.

Compared with the Type of *griseus*.

161. *Dioptornis nyikensis*.

COLL. 5 ♂, 6 ♀ and ♂ parent of full clutch of two eggs, Njombe XII, I, end of breeding; Dabaga II in complete, post-nuptial, moult.

Common outside the edges of the highland forest patches and evidently breeding during the last month of the dry-season and the early rains. Absent from the uplands. They often cock up their tails like a *Copsychus*.

Nest, fifteen feet up a twenty foot, evergreen tree in the edge of a patch of forest-jungle, on top of one of the horizontal, out-stretched boughs at a 30° fork; a very neat compact structure (externally 115 diam., internal cup only 65 diam. and 25 deep) made of two kinds of lichen, with a few small and three larger feathers tucked into the inner cup as a scanty lining. Eggs, oval, medium turquoise blue, strongly spotted and small blotched with red-browns and secondary purple greys, most of the markings near, and in a wreath around, the blunt end; size 22.7 × 16.0, 22.7 × 16.3.

Compared with the Type of *D. nyikensis*.

162. *Melaenornis pammelaina tropicalis*.

COLL. 5 ♂, 5 ♀ in complete and nearly complete new dress, 1 imm. ♀ about three months old and 1 juv. about five weeks old, Iringa II, III. Wings ♂, ♀, 105 ± 7.

Common in the lower half of the wooded hills of the uplands, evidently breeding during the same time as the previous Fly-

catchers, and then collecting in several family parties together. Absent from the highlands.

Our young bird is strongly spotted, and the immature is almost in complete first-winter, equals adult, dress.

Compared with the Type of *tropicalis*.

H 163. **Chloropeta natalensis massaica.**

COLL. 4 ♂, 1 ♀ about to breed, Njombe, XII; 1 ♀ recent breeding and 1 juv. ♂ about four weeks old, Dabaga II.

Common in the thick, secondary "bush"-growth which replaces destroyed forest and, aberrant like its form is for a Flycatcher (*Muscicapidae*), breeding *during* the rains.

Absent from the uplands.

H 164. **Batis mixta.**

COLL. 4 ♂, 5 ♀ recent breeding, Njombe (forest), XII; 3 ♂, 1 ♀ in post-nuptial moult, Dabaga (forest) II. ♂, ♀ wings 62 ± 2 , tails 33 ± 2 , and irides scarlet lake to scarlet madder.

Common in the highland forest and forest-jungle and evidently breeding there, like the mass of the *Muscicapidae*, towards the end of the dry-season and just into the early rains. Absent from the uplands. Compared with the Type of *B. mixta*. Note the extension of range to the southward.

Except for the very short tail, *males* of this species are very like males of *B. capensis dimorpha* of Nyasaland (of which the Brit. Mus. has five males and ten females, including the Type), but the *females* are of markedly different coloration.

U H 165. **Batis molitor puella.**

COLL. 1 ♂, recent breeding, Njombe (riparian tree growth), XII; 4 ♂, 2 ♀ mostly in complete, post-nuptial, moult, and 1 imm. about two months old, Iringa, I, II, III. ♂, ♀ irides bright chrome yellow.

Common in the lower and middle ground of the uplands and breeding there when the mass of the *Muscicapidae* do. Very scarce in the highlands and, unlike *B. mixta*, by no means a forest bird there, but probably one of those species whose range gets extended

beyond its headquarters through the tendency of individuals to wander along the threads of the peculiar riparian growth. Note the entirely different colour of the irides of these two *Batis* species whose plumage is not so very unlike.

Compared with the Type of *puella*, also with the Type of *B. mystica* which seems to me to be no more than a *B. m. puella* with a very slight aberration from the aggregate in its coloration.

166. **Trochocercus albonotatus albonotatus.**

H

COLL. 4 ♂, 2 ♀ end of breeding, Njombe (forest), XII; 3 ♀ in complete, post-nuptial, moult, and 1 juv. about two months old, Dabaga forest, II.

Common in the highland forest and forest-jungle and breeding there when the mass of the *Muscicapidae* do. Absent from the uplands.

167. **Tchitrea viridis suahelica.**

U H

COLL. Njombe, 1 ♀ with her full clutch of two eggs, XI and 1 ♀ in complete new dress, not breeding, XI; Iringa, 1 ♀ in complete new dress, not breeding, III.

Fairly common in both the uplands and the highlands and evidently breeding there when the mass of the *Muscicapidae* do. Nest (see Pl. XV) and eggs typical.

Our birds have a faint leaning towards the paler coloration *below* of the southern *plumbeiceps*, but in all other respects are *suahelica* according to comparison with its Type and aggregate.

168. **Turdus libonyanus cinerascens (= niassae).**

U

COLL. 1 ♂ commencing post-nuptial moult and one juv. ♀ about six weeks old, Iringa, III.

Absent from the highlands, rather scarce, and secretive at this season, in the uplands and apparently breeding there during the early part of the rains.

Compared with the Types of *cinerascens* and *niassae*, which, of course, differ slightly as described; but it seems to me that, whether from Nyasaland or northern Tanganyika Territory

(Tabora, etc.), much the same differences of both size and colour tints, especially those of the lower side, occur among the aggregate from either territory. Hence the above title.

169. *Geocichla gurneyi usambarae*.

COLL. 1 ♂ (recent-breeding), Njombe (forest), I.

This Thrush lives in the depths of the forests, and is probably not uncommon, but we found it very difficult to see them for more than a few seconds at a time, and we can say nothing more about its breeding than what this specimen showed. Our specimen agrees with the Type of *usambarae*, and a series of seven from Usambara (RÖHL), and *not* with the much browner, less olive back'd *otomitra*.

U **170. *Geocichla litsipsirupa stierlingi*.**

COLL. 7 ♂, 4 ♀ first year and older birds, the latter in complete, post-nuptial, moult, I, II and completed III, and 2 spotted young about six weeks old moulting to adult dress, I, II; all Iringa.

Common in the middle ground of the uplands and evidently breeding towards the end of the dry-season. Absent from the highlands.

Compared with the Type of *stierlingi*.

U **171. *Monticola solitarius*¹⁾.**

COLL. 1 ♂, 5 ♀, in slow, pre-nuptial, body-moult I, nearly completed II; all Iringa.

A rather common winter-visitor to the uplands, generally to be found among the granite blocks in the lower woodland.

Not noted in the highlands.

172. *Oenanthe oenanthe oenanthe*.

COLL. 1 ♀ and 1 imm. ♂, Njombe, XII; 3 ♀, Iringa XI, I, II. Wings, ♂ 100 ± 1 ; ♀ 94 ± 2 .

A winter visitor in small numbers to both the uplands and the highlands.

¹⁾ We should have expected *Monticola saxatilis* — Editors.

173. Oenanthe pileata (n?) livingstonii.

U H

COLL. 1 ♀ commencing complete [post-nuptial] moult, Njombe, XI; 3 ♂, finishing complete (post-nuptial) moult, and 1 imm. ♂ about two months old, moulting into adult dress, all Iringa, I, II. Wings ♂ 93 ± 2 , ♀ 88.

Rare in the highlands, and not common in the uplands, being, like *Eremopteryx*, almost confined to places like the golf-links and the most open and sandy spots in the middle-ground there. That the breeding-season of these birds had been towards the end of the dry-season is evident from their dresses, but I am not at all sure that they bred where we found them in Tanganyika Territory. Our specimens run curiously darker and colder coloured *above* — some of the mantle feathers with blackish centres, and the nape and hind-neck of an ashy grey appearance, despite the buff tipping of the feathers there — than any but exceptional birds from Kenya. They are the smaller size of *livingstonii*.

174. Cercomela familiaris falkensteinii.

U

COLL. ♀ parent and 1 juv. ♀ three weeks old, XI, ♀ parent and 1 imm. ♀ nearly in first winter dress, II; and 2 ♂, 1 ♀, II, III; all Iringa.

Common in the middle ground of the uplands, and evidently breeding there towards the end of the dry-season. Absent from the highlands.

Compared with the Type of *falkensteinii*.

175. Thamnolaea cinnamomeiventris subrufipennis.

U

COLL. 7 ♂, 1 ♀, in complete, post-nuptial, moult I, II, or new dress II, III; 2 juv. ♀ about four weeks old, I, and 2 imm. ♀ moulting to first-winter = adult-dress, I; all Iringa.

Common at the granite blocks in the wooded hills, and evidently breeding there from the latter part of the dry-season just into the early rains. Absent from the highlands.

176. Saxicola torquata promiscua.

U H

COLL. 2 ♀ parents with their full clutches of 3 and 4 eggs, XI, 4 ♂ breeding, XI, XII and 2 juvs., XI, II; Njombe and Dabaga.

Common in the highlands on the open ground, and evidently breeding there from the latter part of the dry-season, probably with second broods, into the early rains. Absent from the lowlands. Nests and eggs just like those of *S. t. torquata* — if perhaps with rather more versatility of nest-site. Size of six eggs av. $17.5 \pm 3 \times 13.7 \pm 2$.

177. *Saxicola rubetra*.

COLL. 1 ♀, Njombe, XI.

A (scarce) winter-visitor to the highlands. Never seen in the uplands.

U H **178. *Cossypha heuglini subrufescens*.**

COLL. 2 ♂ and 1 ♀ parent with her full clutch of two eggs, Njombe XII; 2 ♀ breeding, and 2 juvs., Iringa, I, II, III. Wings, ♂ 100, 101; ♀ 92, 93.

Common in both the uplands and the highlands; generally by water-side, but not always, for the nest of Njombe was in a grove right out on the downs.

Breeding during the rains. Nest and eggs very like those of the species in South Africa.

H **179. *Cossypha caffra iolaema*.**

COLL. 2 ♂, 2 ♀ [recent] breeding, XII, in complete [post-nuptial] moult, II and one juv. ♀ about 4 weeks old, II; Njombe and Dabaga.

Less common, found only in the highlands, in cover on hillsides away from water, and breeding rather earlier than the *heuglini*. Compared with the Type of *iolaema*.

H **180. *Sheppardia cyornithopsis [bangsi]* Fried., Occ. Pap. Bost. V, 1930, p. 323.**

COLL. 1 ♀ [paired] and near breeding, Njombe (forest), XII.

This specimen is like the three adult females from Amani (forest) which, now in the Brit. Mus., are discussed by SCLATER and MOREAU in 6 pp. 15, 16, except that the white feathers of the lores

and supercilium are strongly tipped with "orange tawny" like those of the throat, and the difference cannot, of course, be ascribed to immaturity. I regret that we can add nothing to what has been said in MOREAU's excellent account of the bird. Our bird was right inside the forest-jungle in company with another like it, probably its male. Absent from the uplands.

Pace the Systema, this is surely? quite a different bird to the large-bristled *Vibrissosylvia* despite the likeness of coloration.

181. *Alethe macclounii*. H

COLL. ♂, ♀ pair and 1 ♂, 1 ♀, all breeding, Njombe (forest) XII. Probably fairly common inside the forest, but a skulker and we never got to know much about this bird. It has a harsh, grating alarm note like that of the Nightingale (*Luscinia*). Absent from the uplands. Compared with the type of *macclounii*.

182. *Erythropygia leucophrys sclateri* Grote, Bateleur II 1930, p. 14. U

COLL. 1 ♂ breeding, XI, and 6 ♂ in complete [post-nuptial] moult; all Iringa.

Common at the base of the wooded hills in the uplands and probably breeding towards the end of the dry-season. Absent from the highlands.

Compared with the Type of *sclateri*.

What is the generic difference between *Erythropygia* and *Agrobates*? In life they are extraordinarily alike¹).

183. *Pogonocichla stellata [johnstoni]*. H

COLL. 1 ♂, 6 ♀ all breeding, Njombe XII, Dabaga II (forests).

Common in the forest and forest-jungle of the highlands, and about the most conspicuous of all the species who live there. As Professor NEUMANN has shown me²), there is very little perceptible difference between the skins of *adults* of *P. s. johnstoni* and *orientalis*. In the large Brit. Mus. series the Nyasa (*johnstoni*) adults run a trifle more golden tinted in the green mantle than the equatoreal (*orientalis*) adults, but are not

¹) See also Grote, Mitt. Zool. Mus. Berlin 16, 1930, p. 37. — Editors.

²) and see J. f. O. 1912, p. 497

seventy-five percent separable, whereas young *johnstoni* have a soft pattern of yellow and light to medium dull grey-green and young *orientalis* have a bold, spangled pattern of yellow and dark greens to blackish — quite different in appearance.

As we have no young from Iringa Province the racial name is best put in square brackets.

184. *Sylvia communis communis*.

COLL. 1 ♂, 1 ♀, Njombe, XII.

A not uncommon winter-visitor to the highlands, frequenting the bushes in the *hollows*. Not seen in the uplands.

185. *Sylvia borin*.

COLL. 2 ♂ in extreme worn dress, Njombe, XI, XII and 1 ♂ in complete new dress, Dabaga II.

Quite a common winter-visitor to the highlands, frequenting the outer foliage of the evergreen trees in the forests and forest-jungles. Not seen in the uplands.

186. *Sylvia atricapilla atricapilla*.

COLL. 2 ♂, 1 ♀ all in complete new dress, Njombe XII, I.

Less common than *S. borin*, but a by no means scarce winter-visitor to the highlands and frequenting the same environment. Not seen in the uplands.

Note the confirmed extension of range to the southward, and that all these three species of *Sylvia* seem to winter in the highlands, but not in the uplands.

187. *Acrocephalus arundinaceus arundinaceus* [not *zarudnyi*].

COLL. 1 ♂, 2 ♀ in complete fresh dress XII, I and 1 (? imm.) ♀ in complete moult, III, Njombe (stream-edge), and Iringa (river-edge).

A fairly common winter-visitor to both the uplands and the highlands.

188. Acrocephalus palustris.

COLL. 2 ♂, in completed, and completing moult to, summer dress, Iringa (river-edge), II.

Probably a fairly common winter-visitor to the uplands, but little seen.

189. Acrocephalus schoenobaenus.

COLL. 2 ♂ in worn dress without moult, Njombe (swamp and stream-edge), XII.

A rather common winter-visitor to the highlands. Not noticed in the uplands, but very likely overlooked there.

190. Phylloscopus trochilus [eversmanni].

COLL. 1 ♂ and 1 (? sex), both in worn dress without moult, Njombe (hollows), XI; 1 (? sex) in complete moult to summer-dress, Iringa, I.

A winter-visitor to both the uplands and the highlands, but not common.

All three specimens are alike and I am nearly sure *eversmanni*.

191. Bradypterus cinnamomeus nyassae.

COLL. 1 ♂, 2 ♀ about to breed in worn dress, Njombe, XII, I. Wings ♂ 63, ♀ 59 ± 1; tails ♂ 78, ♀ c. 71.

Probably quite common in the bush-jungle which replaces recently destroyed forest in the highlands but, as usual with *Bradypterus*, very skulking. They can be attracted to within short range if one makes sucking noises. We did not get their song-call. Absent from the uplands.

Needless to say, there is a great deal still to be found out about the members of this genus, and probably a great deal of help will be required from the living birds before they can be satisfactorily classified. I expect there will prove to be not so many different species as given in the Systema's classification, but it is, no doubt, a wise one for present purposes. Having compared our birds with a series of eighteen *cinnamomeus* from Abyssinia and the highlands of Kenya and Uganda (♂ wings 63 ± 3, tails 70 ± 5; ♀ wings 60 ± 2, tails 67 ± 3) and also with the Type of *nyassae* ([♀] wing 60, tail 70) and the only other one in the Brit. Mus. Coll. from Nyasaland (Nyika, ♂ wing 65, tail 75), I have no doubt of the specific identity of *nyassae* and *cinnamomeus*. Both are of the same size and proportions and plain colour-pattern with clear

eyestripe, long- and broad-tailed birds, who inhabit similar environment in highlands, but whereas *cinnamomeus* is *above* a bright foxy-red colour, and *below* strongly washed with the same, *nyassae* is, *above* snuff (or Prout's) brown with the head darker and colder, and the tail and upper tailcoverts redder, and *below* white with rust-reddish brown clouds and suffusions except on the chin, throat and midbelly. The differences are racial and amount to little more than the one aggregate being richer in "red" pigment than the other.

This is, of course, a different species to the *usambarae*, *roehli*, *thin-tailed*, "forest"-species, and the *broad-tailed* swamp species like *brachypterus* and others.

U 192. ***Calamornis leptorhyncha*** ["Small" *Calamornis*].

COLL. 1 ♀, near breeding, Iringa (swamp), II.

Probably common enough in the swamps of the uplands, but we could not work them properly as the water was so deep. I have recently written about the birds of this genus in our account (LYNES & SCLATER, for Ibis still in M/S) of my 1930—31 tour with JACK VINCENT through Central Africa etc. —

U 193. ***Calamonastes simplex undosus***.

COLL. 8 ♂, 3 ♀, 7 imm. and juv. ♂ ♀, Iringa, XI, I, II, III.

Common all over the lower and middle ground of the uplands, and probably commencing to breed in October, i. e. before the first showers of rain are ever expected there. We had strong evidence of two broods for, besides what we saw the birds doing, up to mid-February we took quite young birds and also adults in complete, presumably, post-nuptial, moult, while up to mid-March some birds kept up their noisy cries as if still sexually active. We could never find a nest. Absent from the highlands.

Compared with the Type of *undosus*.

H 194. ***Schoenicola brevisrostris***.

COLL. 3 ♂ about to breed, Njombe, XI.

Common, almost abundant, in the highlands, frequenting moist bottoms of the hollows clothed thickly with mat-grass, over which they flit, courting with loudly-rustling wings. They breed during the rains, but we found none of their nests. Absent from the uplands.

Genus *Apalis*.

The constitution of the genus *Apalis* is still subject to diversity of opinion.

In southern Tanganyika Territory we met with five different kinds of birds which the Systema places in the genus. My impressions derived from acquaintanceship with these birds in the field, and later from working them out and comparing them with Genus *Cisticola* (according to the constitution proposed in my own 1930 Review) are that the first four of them are well classified in one genus, as birds of very similar form¹⁾ and proportions, whether viewed in the field or examined in the museum — as we found them when breeding noisy little creatures frequenting the middle foliage of trees, with variety of coloration in the plumage but not in the bare parts, a marked feature. The fifth viz. *angusticauda* differs considerably, as will be specified.

I have not been able, yet, to understand their moults. It looks as if some of them have a pre-nuptial moult, but with what is called in the *Cisticola* Review "imperfections" All our specimens are in the dresses in which the birds breed and I think it will be necessary to examine plenty of specimens taken at the end of the dry —, i. e. the birds' off-season, before "skins" can be fully appreciated.

In life all five are extremely unlike the only other "*Apalis*" species I know, viz. *A. rufifrons* (Rüpp.).

Apalis thoracica murina Reichw.

Apalis thoracica interjectiva Bangs & Loveridge, Proc. New Engl. Zool. Club, XII, p. 93, 1931.

Typ. loc. Kigogo n. Mufinde, Iringa Prov. of Tang. Terr.

The systema classifies nine races of *Apalis thoracica*, eight of which occur in South Africa and are classified by AUSTIN ROBERTS in his 1924 Check-list as of four different species. Our two birds, both known to occur in the Ubena highland-forests within at any rate forty miles of one another, are certainly both bar-throated, and with similar dark head-tops, but are otherwise so very different in coloration — in general terms, *interjectiva*, green

¹⁾ Quite a number of small characters of form are unlike the *Cisticoline*.

above and yellow *below* and *murina* grey *above* and white *below* — that, short of there being some mutational colour-phase or other heterodoxy to explain it, they almost must be classified as two different species. And I notice in the Brit. Mus. collection just similar differences in bar-throated *Apalis* sp. taken at King Williams Town and Grahamstown.

H 195. ***Apalis thoracica murina*.**

COLL. 2 ♂ ♀ pairs and 4 ♂ 4 ♀ all breeding, and one clutch of two fresh eggs (parent escaped), all Njombe (forest), XII, I. Wings ♂, ♀ (note the equality) 51—54; tails ♂ 47—50, ♀ 45—47. Both sexes, irides conspicuous pale primrose yellow, legs and feet brown madder, claws in contrast sepia, bill and mouth all *black*.

Common in the forests and forest-jungles of the highlands, and breeding there during the rains. Absent from the uplands.

Nest woven onto the pendant frond of an evergreen shrub. just above the foot-herbage inside the shady forest; a compact ball of moss and lichen, with wide, side-top entrance well lined with fine pedicels of flowering plants mixed with Asclepiad pappi. Eggs, light turquoise blue, lightly marked with faint dull Indian red irregular clouds and freckles, more or less scattered over the surface but mostly towards the blunt end; size, 17.2 × 12.9; 17.0 × 13.0.

Compared with the Type of *murina*.

H 196. ***Apalis* (? sp.) *interjectiva*.**

COLL. 1 ♀ with her full clutch of three eggs and 1 ♀ breeding, Dabaga (forest), II. Wings 51, 52.

Except for the different coloration of their plumage (not bare parts) we noticed no difference between these birds and the *murina*; our visits to Dabaga were such a "rush" that we never compared their voices.

The fact that we found only *murina* in the Ubena highlands is clearly, from LOVERIDGE'S experience, only because we overlooked *interjectiva* there, and that we did not find *murina* in the Uhehe highlands during our two short visits to Dabaga is no evidence of its absence there.

Nest, scarcely different in any respect to that of the *murina*, equally inside the forest, site the same except the evergreen shrub upright and the nest a little higher viz. thirty inches above the ground, and its construction only different by the absence of *Asclepiad* pappi.

Compared with the original description of *interjectiva*.

197. ***Apalis alticola*.**

H

COLL. 6 ♂, 4 ♀, Njombe and Dabaga, XII about to breed, I and II breeding. Wings, ♂ 58 ± 1 , ♀ 54 ± 1 ; tails ♂ 58 ± 2 , ♀ 49 ± 1 . Bare parts as *A. murina*, except irides ♂ ♀, raw sienna.

Common in the highlands and breeding there during the rains. Not a forest-bird, but mostly found in the riparian tree-growth, less often in the groves on the downs. Song-calls conspicuously loud and varied, quite unlike those of *A. t. murina*. Absent from the uplands.

Compared with the Types of *Apalis alticola* (♂) and *Burnesia brunneiceps* (♀).

198. ***Apalis flavida aequatorialis* (in size) \cong *golzi* (in coloration).**

U

COLL. 6 ♂, 4 ♀ I about to breed, II, III breeding and 1 juv. ♀, III; all Iringa. Wings ♂ 54 ± 1 ; ♀ 51.

Bare parts, ♂ like *A. alticola*, except that the otherwise black bill has narrow cutting edges and a tip of pale grey; ♀ different from own male in bill and mouth being less black.

Common in the uplands, but seldom seen there above the river-plain, where it frequents the leafy *Acacia* and other trees.

Breeding and conspicuously noisy during the rains. Song-calls distinctive of its species. Absent from the highlands.

Compared with the Types of *golzi* and *neglecta*, and the original description of *aequatorialis* whose Type was not available.

199. ***Apalis bamendae [strausae]* Boulton, Ann. Carnegie Mus. XXI.**

H

1931, p. 53; typ. loc. Mt. Rungwe, 5650 ft.

COLL. 2 ♂ ♀ pairs and 2 ♂, all breeding, Njombe (forest), XII, I. Wings, ♂, 51, 52, ♀ 49, 50; tails, ♂ 55—59, ♀ c. 50.

Bare parts, ♂, ♀ alike, like *A. alticola* i. e. bill and mouth all black, iris hazel, etc.

This "red"-chinned race (according to post-Systema classification) of *bamendae* is fairly common in the highlands, frequenting the evergreen foliage of the trees on the outer edges of the forests and forest-jungles but, according to our experience, difficult to find through having no conspicuous song-calls. Breeding during the rains. Absent from the uplands.

These agree with BOULTON'S original description of his two June, i. e. dry-season specimens, except that in ours (1) *above* there is no fuscous wash over the deep neutral grey, (2) the lower tail-coverts are only faintly, not strongly washed with tawny, and (3) the tails are longer.

So far as I can judge from the condition of the dresses of our birds, there is an imperfect pre-nuptial moult of the head, body and tail feathers, but whether or not these Rungwe/Njombe differences are seasonal is for future inquiry.

H 200. *Apalis bamendae* [n' chapini].

COLL. 1 ♂, 1 ♀ recent breeding, 1 ♀ finishing a complete moult, Dabaga (forest), II. Wings ♂ 52, ♀ 48, 50; tails, ♂ 57 (breeding tail).

Probably the species is as common in the Uhehe as in the Ubena highlands, and this *white*-chinned race of it more or less prevails in the former but not in purity, for our three specimens show rufous tinges of impurity in the chin, such as might be expressed by "*chapini* > *strausae*" Absent from the uplands.

U 201. *Apalis angusticauda*.

COLL. 7 ♂, 2 ♀ not yet breeding XI, but breeding I, II, and 1 juv. ♂ III, all Iringa. Wings ♂ 48 ± 1 , ♀ 45, 46; tails ♂ 50 ± 3 , ♀ 46 ± 1 .

This little understood bird is fairly common in the middle ground of the uplands thought absent from the highlands, and despite all our endeavours to make it better known, we regret being unable to tell much more about it than what can be read from our ten specimens.

It breeds in the rains, but even then is an elusive little creature, little seen and only heard by an acute ear, even when, as sometimes, the cock bird takes his stance on a bare twig at the tip-top of a tree, and can be seen to sing by the movements of his bill. Perched thus, save for his longer tail, he looks extremely like the *ruficapilla* race of *Cisticola fulvicapilla*, for which species he has sometimes, pardonably, been mistaken in the museum. Its ways of life do not suggest generic identity with the preceding four species of *Apalis*, nor do some of the qualities of its form, notably the short, brown coloured bill and needle-pointed outer primary and yet, for reasons given in my review of genus *Cisticola*, I think it is equally unacceptable in that genus and that that opinion is strengthened by now finding the young lacking the black tongue-spots which are so characteristic of Cisticoline youth.

There is very fair evidence of a pre-nuptial moult akin to that in *Cisticola*—at Iringa taking place about November-December—but none that I know of, of the changes resulting from such a moult.

The bare parts, not hitherto recorded, are as follows:—

Breeding male. *Iris*, raw-sienna; *legs* and *feet*, flesh; *bill*, flesh with medium sepia culmen and dusky tip to lower mandible; *mouth*, flesh with palate, sides of lower jaw and basal half of tongue smoky to blackish. Thus, nearly Cisticoline.

Breeding female. As male, except bill rather paler and whole mouth flesh.

Juv. male about three weeks old. *Iris*, pale sepia; *legs* and *feet*, pale pinkish flesh; *bill*, yellow ochre with vandyk brown culmen and tip of lower mandible; whole *mouth* yellow ochre, with discolorations, tongue almost immaculate, no more than the faintest (grey) indication of spots on the flanges. Thus, not Cisticoline.

Compared with the Type of *A. angusticauda*.

202. *Sylvietta whytii jacksoni*.

COLL. 1 juv. ♀ about four weeks old, Njombe (riparian), XII; 1 ♂, 1 ♀, 1 juv. about three weeks old, Iringa I, and 1 imm. ♂ about two months old, Iringa III.

Fairly common in the uplands and breeding there from the end of the dry-season up to the early rains. Scarce in the highlands, in fact our specimen is one of the only two (in company) we ever saw there, and I think that this is one of the upland species which is represented in the highlands only by occasional individuals wandering up-stream from lower ground along the riparian growth. Compared with the Type of *jacksoni*.

U 203. ***Eremomela griseoflava abdominalis*.**

COLL. 1 ♂ parent of full clutch of two eggs and 1 ad. (? sex) in worn dress I, and 1 ♀ in complete new dress, III; all Iringa.

Fairly common in the middle ground of the uplands and evidently breeding there during the end of the dry-season and first half of the rains. Absent from the highlands.

Nest and eggs like those of *E. g. griseoflava* we found in Darfur, described in Ibis 1925. Size of eggs 16.0×11.7 and 16.0×11.5 . Compared with the Type of *abdominalis*.

U 204. ***Eremomela scotops citriniceps*.**

COLL. 10 ♂, ♀ I commencing, III finishing complete [post-nuptial] moult, and 1 imm. ♂ about three months old, III; all Iringa.

Common in the middle ground of the uplands and apparently breeding there towards the end of the dry-season. Absent from the highlands.

Compared with the Type of *citriniceps*.

U 205. ***Camaroptera brevicaudata noomei*.**

COLL. 1 ♀ breeding, I, 1 parent and juv. ♂, and 1 ♂ ♀ pair, parents of young abroad, III; all Iringa.

Rather an uncommon bird, frequenting the leafy thickets along the water-courses and breeding during the rains in the uplands. Absent from the highlands. In all that we saw of its ways, just like its Darfur representative *brevicaudata*.

These specimens are matched by examples from the northern Transvaal and Portuguese East Africa.

Genus *Cisticola*.

As I hope to publish in the near future an up-to-date appendix to my 1930 *Cisticola* review I will say no more here about *Cisticolae* than what is particularly appropriate to this account.

The most noteworthy features of general interest are (1) that of the ten species we met with, only one (*natalensis*) inhabits both the uplands and the highlands, (2) the ranges of *lais* and *aberrans* are extended to the northward, the latter by a new racial form, and (3) the discovery of the hitherto unrecorded nest, eggs and behaviour of *nigriloris*.

All species except, apparently, *nigriloris*, have the regular seasonal mode of dress, and all breed, as usual, during the rains.

The letter "S." for summer-breeding and "W." for winter = off-season dress will be used here as in the *Cisticola* Review. All our specimens have been compared with their Types and aggregates of their own and/or nearest kind.

206. *Cisticola ayresii ayresii*.

COLL. 16 ♂, ♀ S. XI about to breed, XII, I, II breeding, and 1 juv. ♀, II; all highlands at Njombe, Sao and Dabaga.

Common all over the dry, short-grass stretches of the downs in the highlands. Unlikely to inhabit the uplands unless there be similar ground there which we never found.

H

207. *Cisticola brunnescens cinnamomea*.

COLL. 11 ♂, ♀ S. and 1 imm. nearly in first S., Njombe (swamp), XI, XII, about to breed and breeding; 2 ♂, 2 ♀ breeding Sao, I.

Common in the highlands, but according to the bird's wont, only on moist or wet ground, therefore very local. The river-plain and basins of the uplands have some possible ground for *brunnescens*, but we never saw a sign of the species there, and it is probably absent from the whole of Tanganyika Territory below the 1800 m. contour.

H

208. *Cisticola lais semifasciata*.

COLL. 13 ♂, ♀ S. breeding, Njombe XI, XII, and Dabaga II.

Fairly common in the highlands, and choosing just the same kind

H

of breeding ground there as the species does in South Africa — the vicinity of one of the small rock-outcrops in the folds of the downs with its associated grass and small bushes is much liked around Njombe. Absent from the uplands.

These birds are just like the Type and the Nyasa highland *semi-fasciata* aggregate, and as there too, they seem to begin their breeding-season rather early.

U 209. *Cisticola chiniana fischeri*.

COLL. 5 ♂, ♀ W. and moulting to S., XI; 18 ♂, ♀ S. breeding, I, II, III, 1 juv. II and three full clutches of three eggs I, III: all Iringa.

Common in the river-plain and less so in middle ground of the uplands, a distribution which results from the birds' faithfulness to that trait of behaviour associated with their own race, viz. living in no spot that is not, characteristically, thorny; and a fact worthy of note because the soft-natured *Brachystegia* woodland on the hills of these uplands, which *chiniana fischeri* rejects is precisely the environment which *chiniana fortis* selects (faute de mieux thought it be) in the S. E. Congo. Absent from the highlands. The *Cisticola* Review requires correction in respect of *fischeri's* mode of dress.

The nests (see Pl. XIV) and eggs are typical, the eggs including wide variety of coloration.

U 210. *Cisticola woosnami woosnami*.

COLL. 1 ♂ moulting to S., XI, 22 ♂, ♀ S. breeding, I, II, III, 7 juv. ♂, ♀, III and four full clutches of two eggs; all Iringa. Wings ♂ 66 ± 2 , occ. 69.

Common in the wooded hills of the uplands from their bases to their crests, *woosnami's* extreme lowest point just overlapping *chiniana's* highest — a matter of environment and only indirectly of altitude. Absent from the highlands.

Hitherto but little known, all these four nests (see Pl. XIV) are of the common *Cisticoline* "ball-type", placed low down in grass ingrown with a small shrub or two, and the eggs, remarkably

constant for a *Cisticola*, are all turquoise blue, well, but finely marked with dull Indian red to purple markings.

These birds are practically inseparable from the Type and Uganda aggregate of *woosnami*, if perhaps — in a millimeter or two larger wing — slightly inclining to *lufira*.

211. *Cisticola natalensis*.

U H

COLL. 9 ♂, ♀ moulting to S., XI; 8 ♂, ♀ S. breeding, XII, I, II, and three full clutches of three, three and two eggs, XII; highlands at Njombe, Sao and Dabaga, and uplands at Iringa. Wings, ♂ 71 ± 2 , ♀ 61 ± 2 ; summer tails ♂ 49 ± 2 , ♀ 44 ± 1 .

Fairly common but rather local in both the uplands and the highlands. The nests (see Pl. XIV) and eggs are typical, the eggs including wide variety of coloration.

One nest contained four nearly fresh eggs, but the fourth rather differently coloured and sufficiently larger to be a cuckoo's egg — identification impossible having shot the parent *natalensis*, before seeing the fourth egg.

I do not now give a subspecific name to these birds; they are like *valida*, brown "half-bakes" with a regular winter dress which is not like that of the occasional *valida* reversions to buff-striped (*strangei* winter-like) dress. (See Cist. Rev.)

212. *Cisticola nigriloris*.

H

COLL. 1 imm. ♂ completing moult to adult dress, XI, 25 ♂, ♀ breeding or near breeding, XI, XII, I, II, 2 juv. ♂, ♀ II and (with BELL) two full clutches of three and two eggs; all highlands at Njombe and Dabaga.

Common, in fact abundant, in the hollows and valleys in the highlands, a thoroughly representative highland species, found nowhere else, but in this large block of highlands in East Central Africa.

The behaviour of this bird is just like that of the other three members of the black-lored group in *Cisticola*, with noisy, piping duet to quintette, style of courtship, and it continues through-

out the whole summer, so BELL tells us, even when there are plenty of young abroad.

It is difficult to tell from our already-breeding examples what kind of a pre-nuptial moult these birds have: in the rule it seems to be a very imperfect one in the old birds, so much so that they might almost be said to have the perennial *mode* of dress with irregular, pre-nuptial renewals of the feathers, but we hope before long to get some October, November examples.

The nest (see Pl. XIV) of the common Cisticoline ball-type, its common site among tall grass, and our two clutches of eggs are turquoise blue, well marked with various "reds" and secondary purplish greys, but BELL has lately taken others, some of which are very different, and show that *nigriloris* is characteristically Cisticoline in the varied coloration of its eggs.

U 213. *Cisticola galactotes suahelica*.

COLL. 11 ♂, ♀ S. breeding, I, II, III, 2 juv. ♂, ♀. III and two full clutches of four and five eggs, II, III; all Iringa (riparian).

Common in the swamp and summer flood-ground of the river at Iringa, nowhere else in the uplands, and absent from the highlands altogether.

The nests (see Pl. XIV) are typical and the eggs are typical *suahelica* in their red heavily stippled colour pattern.

These southern birds are just like the Tabora-Kilosa's in coloration, but run a trifle larger, and the Cisticola Review requires correction in respect of *suahelica's mode* of dress.

H 214. *Cisticola cantans*.

COLL. ♂, ♀ pair and 1 ♀ moulting to S. XI; and 3 ♂, 1 ♀ breeding XII, I, II; all highlands at Njombe and Dabaga.

Fairly common in the hollows of the highlands but, curiously, absent from the uplands.

These birds, in their summer dress, are just like *pictipennis*, but they have a winter-dress which typical *pictipennis* lacks. The winter, which differs from the summer dress, will be better described when full winter, not moulting specimens are available.

215. **Cisticola aberrans njombe** Lynes, Bull. B. O. C. LIII, 1933 p. 170. H
 COLL. 18 ♂, ♀ and imm. ♂, ♀ moulting to S., XI, 8 ♂, ♀, S. breeding XII, I, II and three full clutches of three eggs, XII, II; all highlands at Njombe and Iringa.

Common, almost abundant, in the hollows of the *downs* in the highlands, where they find much the same kind of environment as do the South African members of their species, whom *njombe* closely resembles in behaviour.

The nests (see Pl. XIV) are typical and the eggs are just like those of South African *aberrans* in coloration.

216. **Melocichla mentalis orientalis.** H

COLL. 1 ♂ near breeding, Njombe, XI.

Common in the highlands, living in the hollows and valleys, and breeding there during the rains. [Absent from the uplands.] During December we watched a pair building their nest just below our guest-house at Njombe, but for some reason or other they deserted it. The sweet song of the cock added a charm to our home.

217. **Prinia mistacea tenella.** U

COLL. 3 ♂, 3 ♀ breeding, all, except one of them, parents of four full clutches of three eggs, Iringa I, II, III.

Common in the uplands, everywhere below the wooded hillsides and breeding in the rains. Notably absent from the highlands.

Nests (see Pl. XV) and eggs typical, of the latter both the "blue" and the "red" types, with the rich markings reminding one of small glossy eggs of *Fringilla coelebs*. Size of the four clutches respectively, $17.5 \pm .3 \times 11.2 \pm .1$; $15.0 \pm .2 \times 11.2$; $15.5 \pm .3 \times 11.1 \pm .3$; $15.4 \pm .3 \times 11.2 \pm .2$.

HIRUNDINIDAE (SWALLOWS).

So far as the number of different kinds is concerned we were rather well off in our swallow populations — eleven species —, but it is particularly tiresome to be able to say so little about the status of any of the species, when the majority must be suspected of being non-resident.

218. *Hirundo rustica rustica*.

COLL. 3 ♂, ♀ and 2 imm. ♀, Iringa, I, II.

A common winter-visitor to both the uplands and the highlands. In the highlands at Njombe from November to January they were apparently stationary, if a bit roving, at Iringa many left, northward bound, in excitedly twittering swarms during March, but fresh arrivals from the south maintained the numerical strength of the Swallow population, which continued to include a good proportion of last years birds, still with their short, juvenile tails up to the day of our departure on 25 March.

H 219. *Hirundo angolensis angolensis*.

COLL. 2 ♂, 2 ♀ breeding XI, I, and 1 ♀ with her full clutch of three eggs, XII; all Njombe.

Fairly common and breeding during the rains in the highlands at Njombe. We did not pay attention to Swallows at Dabaga, but are almost sure that *angolensis* was absent from the uplands. Whether the Njombe birds were resident there or only summer-visitors as (fide the Systema) the species is in Langenburg District, we could not discover.

Nest, plastered on to the side of one of the wooden beams underneath the bridge across the stream at Njombe post, just like that of *H. rustica*, only without any underneath support from the woodwork.

Eggs, just like eggs of *H. rustica*; size av. $18.5 \pm 2 \times 13.5$.

U H 220. *Hirundo griseopyga griseopyga*.

COLL. 2 ♂, 2 ♀ on the point of finishing a complete moult, Njombe XII, I; 1 imm. ♂ completing moult to adult dress, Iringa II.

Small parties often seen, in both the uplands and the highlands, but always transient.

According to our observations, and the dresses of these specimens, *griseopyga* is probably not a resident either in the uplands or the highlands, but a fairly common passage migrant, and all the birds we saw, northward bound after having bred somewhere to the southward of us.

221. *Hirundo atrocaerulea*.

COLL. 10 ♂, ♀ breeding and one full clutch of three eggs, Njombe XI, XII; 1 ♀ laying eggs and 1 juv. abroad, Dabaga II.

Common in the highlands, breeding there during the rains, and there is fairly good evidence of its being a resident. Absent from the uplands. In the highlands, *atrocaerulea* is much more of a "country" bird than is *H. rustica* in Europe, nevertheless it will use both sheds and hand-made pits for nest-sites. A pair nearly completed their nest inside one of our guest-house sheds and were then driven away by a pair of *H. rufula*, when they began to renovate [their] last years nest at the opposite end of the shed. Our nest with eggs was three foot from the bottom of a ten-foot-deep pit, wedged into a foot-hole in the side of the pit.

Nest and eggs both like those of *H. rustica*; size of the eggs av. $19 \cdot 2 \pm 3 \times 12 \cdot 5$.

I am not sure whether it is generally known that it is only the male *atrocaerulea* who has the long-streamer tail, but it is so.

All our eleven adults and a few proved breeders from Nyasaland are alike, *steely-purplish* glossed, whereas specimens in the Brit. Mus. from South and equatorial East Africa (unfortunately lacking breeding data), although like ours in size, are nearly all *steely-blue* glossed.

The Systema suggests that *atrocaerulea* breeds in South and winters in equatorial East Africa.

Glosses, unless they are very apparent, are often inconstant and controversial qualities, nevertheless there is suggestion here of the possibility of there being resident individuals of *atrocaerulea* in Central Africa, who are to some extent recognizable in the museum from the aggregate of (supposed) migratory individuals of the same species found to the northward and southward of them.

Every year, in the Mediterranean, resident individuals of a number of species have migrant individuals of their species — some racially distinct, others not — passing to and over their heads. Is not this so also within Africa proper: and is *atrocaerulea* an example? It only wants a little discriminate collecting and observation by residents to answer the question.

U H 222. **Hirundo rufula emini.**

COLL. 1 ♂, 1 ♀ breeding, Njombe XI, XII; 1 ♂, 1 ♀ breeding, Iringa I, III.

Common and breeding during the rains in both the uplands and the highlands. No knowledge of whether a resident or only a summer-visitor.

223. **Hirundo senegalensis monteiri.**

COLL. 1 imm. ♀ finishing complete moult into adult dress, Njombe XII.

There was every appearance of this species being no more than a scarce migrant passing through the highlands at Njombe during December, we never saw any later, anywhere.

U 224. **Hirundo abyssinica unitatis.**

COLL. ♂, ♀ pair and their full clutch of three eggs, II, 1 juv. ♀, II and 1 ♂ recent breeding, III; all Iringa.

Fairly common and breeding during the rains in the uplands. Absent from the highlands.

Nest with long entrance funnel stuck on to the underside of the corrugated iron roof of the rifle-butts. Eggs immaculate white, size of two 18.1×13.6 , 17.8×13.2 ; the third was on the ground below the nest, broken.

As MOREAU (in 6 p. 188) and others have observed, a dilatory bird over its nest building; this nest took five weeks to complete and there was no lack of mud nearby. No knowledge of whether resident or only a summer-visitor.

Compared with the Type of *unitatis*.

U H 225. **Riparia cincta suahelica.**

COLL. 3 ♂ near breeding, Njombe XI, XII; 1 ♂ parent of nest almost ready for eggs, Iringa II.

A riparian inhabitant of both the uplands and highlands, breeding during the rains.

No knowledge of whether a resident or only a summer-visitor.

226. *Riparia paludicola*.

H

COLL. 1 ♂ in complete moult, Njombe, XII.

According to our observations and the specimen, probably a rather scarce migrant passing through the highlands at Njombe during December not long after having bred somewhere else. Never seen in the uplands.

Our bird is not like *ducis* (Type examined), but nearer *paludicola*, only the whole lower breast, belly and lower tail-coverts are pure white, clearly separated from the cold sepia proximal one-third of the lower side.

**227. *Ptyonoprogne rufigula fusciventris* VINCENT, Bull. B. O. C. LIII, U
March 1933.**

COLL. ♂, ♀ pair 3 ♂, 2 ♀ breeding, I, III and full clutch of two eggs, III Iringa.

Common in the uplands and breeding there during the rains among the outcropping granite blocks and kopjes on the hillsides. Never seen in the highlands.

Nest just like that of *P. rupestris* in site and construction. Eggs, dead white well marked around the blunt end in a wreath, but little elsewhere, with bright, light rust-red and a few secondary violet grey spots and blotches. The eggs have the red markings of a brighter hue than those on most *Ptyonoprogne* eggs in the Brit. Mus., and altogether they are very like some eggs of *Parus major*: size, $18.2 \pm .2 \times 12.6 \pm 1$.

Compared with the Type and Mr. VINCENT'S aggregate of *fusciventris*.

228. *Delichon urbica urbica*.

COLL. 2 ♂, 2 ♀, Iringa and Dabaga, II, III.

Not a winter-visitor, but a passage-migrant in moderate numbers through the uplands and highlands during February and March.

229. *Psalidoprocne petiti orientalis*.

H

COLL. 2 ♂, 1 ♀ breeding, Njombe XII.

Common in the highlands and breeding there in December. We continually saw them there, flying silently about the outer edges of

the forest and forest jungle, but never traced one to its nest. Absent from the uplands.

Compared with the Type of *orientalis*.

U 230. *Psaldiprocne albiceps*.

COLL. 4 ♂, 1 ♀ and ♂♀ pair, breeding, Iringa I.

Common in the lower and middle ground of the uplands and breeding there during the rains. Had we paid attention to it, we should probably have found some of their nests in holes in the earthy bank of some of the flood water-courses at the base of the hills. Absent from the highlands.

U H 231. *Campephaga flava*.

COLL. 2 ♂ breeding, highlands at Njombe XII, and Dabaga II; 4 ♂, 6 ♀ breeding and near breeding I, II, III and 1 imm. ♀ commencing moult to adult dress, II, Iringa.

Common in the uplands below 1800 m altitude (i. e. about half way up the hillsides) wherever there are trees, but rather scarce in the highlands and there *not* a forest bird, but one of those scarce species whose presence is so intimately associated with the riparian tree growth as to suggest its being chiefly due to individuals wandering up-stream from their real home.

In the aggregate, the species appears to breed right through the rains, but I think that some individuals must begin a little earlier and very likely finish earlier than the mass.

U 232. *Coracina pectoralis*.

COLL. 1 ♂ finishing a complete moult, Iringa II.

This bird, the only one we ever saw anywhere, was one of an off-season band of mixed species (*Melaenornis* and others) roving through the upper tiers of the wooded hills. A stranger who had wandered away from its home while having its post-nuptial moult, perhaps.

233. *Dicrurus adsimilis adsimilis*¹⁾. U

COLL. 1 ♂ in complete [post-nuptial] moult and 1 juv. ♀ about six weeks old, I, 1 ♂ in complete new dress II and 1 imm. ♂ about four months old moulting to adult dress; all Iringa.

Common in the uplands and evidently breeding there towards the end of the dry-season. Notably absent from the highlands.

Having recently seen the Type of *Dicrurus münzneri*, W. L. SCLATER and I agree that it is *D. ludwigi* not *D. adsmilis* species, and he has noted it for correction in the Systema.

234. *Prionops poliocephalus*. U

COLL. 4 ♂, ♀ in complete, post-nuptial, moult, I, III; 3 old imm. ♂, ♀, III and 2 juvs. about two months old, I, III; all Iringa. Common in the lower and middle ground of the uplands and, during our visit there, going about the woodland and bush in parties of one or two families together, often in company with other species also roving in their off-season.

Probably breeding during the latter half of the dry-season. Absent from the highlands.

235. *Sigmodus retzii tricolor*. U

COLL. 1 ♂ in complete [post-nuptial] moult, Iringa I.

Our specimen was one of a roving family party about five strong, in company with similar parties of *Prionops*, *Phoeniculus* and other species, the only *Sigmodus* we ever saw anywhere. Probably the breeding season is the same as with the *Prionops*.

Absent from the highlands.

236. *Eurocephalus rüppelli böhmi*. U

COLL. 2 ♂, 3 ♀ in complete [post-nuptial] moult, Iringa I, II, III. Fairly common in the lower and middle ground of the uplands; at this season in parties. Probably breeding when the other *Prionopidae* do.

Absent from the highlands.

Compared with the Type of *böhmi*.

¹⁾ I follow Bates' classification in Bull. B. O. C. LIII 1933, p. 128.

U 237. ***Nilaus nigritemporalis***.

COLL. 2 ♂ in complete [post-nuptial] moult, I, II and 1 ♂ completing moult III and 3 imm. ♂, ♀ two or three months old, II, III; all Iringa.

Common in the lower and middle ground of the uplands and probably breeding there when the other *Prionopidae* do.

Compared with the Type of *N. nigritemporalis*.

U 238. ***Lanius collaris humeralis***.

COLL. 1 ♀, commencing complete [post-nuptial] moult, Iringa I. Common in the lower and middle ground of the uplands and probably breeding there towards the end of the dry-season.

H 239. ***Lanius collaris marwitzi***.

COLL. 1 ♂ in very worn dress after breeding, Njombe XI.

Common in the highlands, almost everywhere except in the forests. In early December we watched one building a nest, but it was never completed and very likely only the result of lingering sexual activity, for the general breeding-season of its kind had clearly concluded recently.

Compared with the Type of *marwitzi*. Note this example of racial, upland/highland difference.

240. ***Lanius collurio***.

COLL. 1 imm. ♀, completing moult to adult dress, II and 1 ♂ in complete new dress, III; both Iringa.

A winter-visitor in quite small numbers to the uplands, but in March a large increase there due to the passage northwards of birds who had been wintering further south. Not seen in the highlands, but very likely only because we were not there late enough in the year.

U 241. ***Laniarius funebris funebris***.

COLL. 1 ♂, 1 ♀ and ♂♀ pair, all breeding, 2 juv. ♂ three weeks old, each with one parent and 1 juv. ♂ about a month old; all Iringa, I, II, III. Irides: adults, dark Indian red, young, dark brown.

Common in the river plain, and breeding there during the rains. A great variety of song-calls: among those of the well-known Bush-Shrike type given in deep flute-like tones, perhaps only by the male, most characteristic are "what's worrying you" and a very deep guttural "who, who, who" We shot one hen bird, who seemed all alone making a perfect volley of weird calls, not flute-like and not alarm cries. Absent from the highlands.

242. *Laniarius fülleborni*.

COLL. ♂, ♀ pair and 7 ♂, 3 ♀ breeding; highlands (forest) at Njombe and Dabaga, XII, I, II. Irides, dark umber brown.

Common in the highland forests and forest-jungles and breeding there during the rains. Song calls remarkable and varied: MOREAU has described some that we noted, to which we can add, as being the most heard in these highlands, a loud, deep, flute-like "whhoo hoohoo" (probably from the cock bird) immediately followed by "whoeeee" in slightly different tone (probably from the hen bird).

Absent from the uplands.

The Type of *Laniarius murinus*, Reichw. 1901 (not mentioned in the Systema) is almost certainly the young of *L. fülleborni* Reichw. 1900. It is not related to a parent and as yet, there seem to be no [other] authentic young of *fülleborni* in museums.

243. *Laniarius ferrugineus major*.

COLL. 1 ♂, 4 ♀ breeding, highlands at Njombe and Dabaga, XI, II. Wings ♂ 102, ♀ 108, 102, 100, 96. Irides ♂, ♀ dark Indian red.

Common in the highlands and breeding there during the rains; not a forest bird but an inhabitant of the bush in the hollows and valleys, and sometimes of the small groves on the downs. If I correctly interpret MOREAU'S call-notes of this species in 6 p. 196, I think the rich repertory of our highland birds includes calls very much akin to those he gives for both his Usambara and coastal birds, besides others. With us the most usual one was the one so well known in South Africa, viz. "whhoo-hoo hööeee", the cock opening with the disyllable and the hen, sitting

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in rapt attention with head turned downwards as if determined not to be late with her share, following immediately with the flowing monosyllable.

But if this Boubou is the accomplished mimic it is said to be in South Africa, one can conceive the coastal and mountain birds in the Usambaras acquiring different call notes out of that propensity.

I am not quite sure of its absence from the uplands, our field-notes contain no mention of it, and we cannot remember ever having seen or heard it there, but may have been careless about it.

U 244. **Dryoscopus cubla hamatus.**

COLL. 1 ♂ parent with juv. ♂ abroad I, ♂♀ pair, 3 ♂, 2 ♀ breeding I, II, III and 1 juv. ♀ abroad III; all Iringa. Irides: adults, brilliant vermilion; young, grey.

Common in the uplands and breeding there during the rains. Absent from the highlands.

U 245. **Tchagra australis congener.**

COLL. 1 ♀, ♂♀ pair and 2 ♀, all except the first, parents of three full clutches of two eggs, Iringa I, III.

Common in the uplands and breeding there during the rains. Absent from the highlands. Nests, either in soft or thorny sites, from two to six feet above the ground, smaller and slighter than those of *T. senegala*, not unlike nests of *Sylvia hortensis*. Eggs, typical *Tchagra* in coloration, size of the six eggs av. $20.8 \pm 1.0 \times 16.0 \pm .4$.

In all three, the sitting bird was the hen. (Both sexes of *T. senegala* incubate.)

Compared with the Type of *congener*.

U H 246. **Tchagra senegala mozambica.**

COLL. 1 ♀ about to lay eggs, Njombe XI; 1 ♀ breeding, Iringa, I and 1 juv. ♀, abroad with ♀ parent, Iringa III.

Common in the highlands and breeding there during the rains, its sweet song and aerial courtship always in evidence, particularly on the middle-ground. In the highlands we flushed them

constantly from bushes on the downs and in the hollows up to mid-December, but never later, and the whole time never heard their song. According to her gonads our one November specimen was about to breed there, and for want of a more reasonable explanation can only feebly suggest that, unlike the wont of their kind, these highlands *senegala* must be mournful and secretive birds when breeding.

247. *Antichromus minutus minutus*.

COLL. 1 ♂ breeding, Njombe XI.

Fairly common in the highlands, in the rich riparian growth chiefly, and apparently breeding there during the rains, perhaps commencing rather before their advent. Not seen in the uplands.

248. *Chlorophoneus sulfureopectus similis*.

COLL. 3 ♂, 3 ♀ in worn dress after recent breeding I, II and in complete post-nuptial moult, III; all Iringa. Irides ♂, ♀ dark Indian red.

Common in the lower and middle ground of the uplands, and evidently breeding there shortly before the rains.

Absent from the highlands.

249. *Chlorophoneus nigrifrons nigrifrons* [= *münzneri*].

COLL. 1 ♂ (*münzneri*) and 1 ♀ (*nigrifrons*), both breeding. Njombe (forest); ♂ (*nigrifrons*) and ♀ (*münzneri*) [pair], breeding Dabaga (forest) II. Irides: ♂, ♀, scarlet lake.

No doubt fairly common in the highland forests, but like other Bush-Shrikes much more heard than seen, even when breeding, as these birds were during the rains. Absent from the uplands. Compared with the Types of *nigrifrons* and *münzneri*, and a very fair series of both kinds in the Berlin and British museums. It is not, of course, absolute proof that our two birds, taken in company with one another inside the forest and with gonads in corresponding state of breeding activity, are a pair (as stated in square brackets above), but after all we saw of these two differently coloured birds, we left the highlands convinced that *nigrifrons* and *münzneri* are no more than mutational forms of the

same species—such as STRESEMANN in 7 Taf. V has shown, for instance in the case of *Chlorophoneus multicolor* and *nigritorax*— and I believe that the truth about them will be best established by putting this not unreasoned hypothesis to the test than by working at it in any other way. The conclusion must, of course, be drawn chiefly from the living birds and I am sure that if our friends Mr. and Mrs. MOREAU at Amani will take the matter in hand, the truth will soon be found out. It will be seen in 6 pp. 198-200, that their observations also involve *C. n. abbotti* and *C. nigrescens*. I follow BOULTON in 1 p. 56 in classifying *nigrifrons* not (as in the Systema) a race of *rubiginosus* because, as he points out, *münzneri* (*nigrifrons*) has a weaker bill, a white, not cinnamon chin and throat and, I would add, black, not white lores.

Of the other different kinds in the Systema classification of *C. rubiginosus* and *nigrifrons* the only one which somewhat concerns this account is *C. n. manningi*. The Brit. Mus. has no *münzneri*, pale-phase specimens from Gazaland, the Belgian Congo or Nyasaland but enough of the *nigrifrons*, rich-phase from the Nyasa highlands to maintain *manningi* as a more orange-breasted race of the typical *nigrifrons*.

U 250. ***Malaconotus poliocephalus hypopyrrhus*.**

COLL. 1 ♂ commencing complete [post-nuptial] moult, Iringa, I. Fairly common in the lower and middle ground of the uplands and probably breeding there towards the end of the dry-season. [Absent from the highlands.]

H 251. ***Parus niger insignis*.**

COLL. 3 ♂ recent breeding XI, XII and 2 ♂ commencing [post-nuptial] moult, I, II; all highlands at Njombe and Dabaga. Fairly common and widespread over the more open ground in the highlands, and probably breeding there towards the end of the dry-season. Absent from the uplands.

U 252. ***Parus albiventris albiventris*.**

COLL. 3 ♂, 4 ♀ in complete, post-nuptial, moult, I, II, III and 3 juv. ♀ from about three weeks old in II to two months old in III; all Iringa.

Common in the lower and middle ground of the uplands, and evidently breeding there from towards the end of the dry-season into the early rains.

Absent from the highlands.

253. *Anthoscopus caroli sylviella*.

U

COLL. 2 ♂, 1 ♀ not breeding, Iringa I, III and 1 ♂ incubating full clutch of four eggs, Iringa, II.

Not common, but found here and there in the lower and middle ground of the uplands.

Absent from the highlands.

I do not understand the moults or the breeding-seasons. The male, shot from the nest, had recently had a complete moult and our two March birds were in complete moult.

Nest, typical in all respects; eggs also, i. e. pointed ovate, near glossless, pure white; size of the four, av. $13.8 \pm .1 \times 9.6 \pm .2$. Inside the fabric of the nest, underneath the clutch, was a fifth egg, stale, laid about five weeks back.

Compared with the Type of *sylviella*.

254. *Oriolus oriolus oriolus*.

COLL. 1 imm. ♂ sexually inactive, in worn first summer and winter-dress, Njombe (forest), XII. Wing 153.

A winter-visitor to the highlands. Not seen in the uplands.

255. *Oriolus auratus*.

H

COLL. 1 juv. ♂ about 6 weeks old, Njombe (forest), I.

We constantly saw and heard Golden Orioles about the highland forests and forest-jungles near Njombe, but did not pay them much attention.

Probably the majority were *auratus*, and breeding there up to the early rains. Absent from the uplands.

256. *Oriolus monacha kikuyuensis* (in coloration) \cong *larvatus* (in size).

U

COLL. 3 ♂, 2 ♀ in complete, post-nuptial, moult, I, II, III and 3 juv. ♂ ♀ six to eight weeks old I, II; all Iringa.

Common in the uplands wherever the tree growth is suitable — from the river-plain up to middle tiers of the wooded hills — and evidently breeding there towards the end of the dry-season. Absent from the highlands.

H **257. *Corvus albus*.**

In November and December, common in the highlands at Njombe. In January, February, March, never one seen at Iringa. No doubt this Crow often wanders or migrates from the breeding-quarters it occupies in southern Africa during the dry-season, as it is known to do in some parts of northern Africa, *inter alia* Darfur.

U H **258. *Corvultur albicollis*.**

COLL. 1 ♂ not breeding, Njombe, XI.

Common, both in the uplands and the highlands during the rains, which is their off-season.

U H **259. *Cinnyricinclus leucogaster verreauxi*.**

COLL. 1 ♂ in new complete dress XI, 1 ♀ commencing complete, [post-nuptial], moult II, and 1 juv. ♀ about six weeks old; highlands at Sao and Dabaga, and uplands at Iringa.

Inhabits both the uplands and the highlands, but is not plentiful. Apparently breeds towards the end of the dry-season.

U H **260. *Lamprocolius chalybeus sycobius*.**

COLL. 1 ♂, 1 ♀ recent breeding, Njombe XII; 1 ♂, 3 ♀ finishing complete post-nuptial moult, Iringa I, II and 1 juv. ♀ about six weeks old, Iringa, I.

Common in the uplands, less so in the highlands and evidently breeding in both towards the end of the dry-season — perhaps just extending into the early rains but no later.

261. *Onychognathus morio shelleyi*.

COLL. 1 ♀ in complete, [post-nuptial], moult, Iringa I and 1 ♂ in almost complete new dress, Iringa III.

Rather scarce in the uplands, but, during our stay in the rains, found at some of the clusters of rock-outcrops, one [pair] at each, although breeding earlier, probably towards the end of the dry-season. Probably also inhabits the highlands, for we thought we occasionally saw them there. BELL has recently seen them not far below Njombe, and LOVERIDGE took one in the Ukinga highlands.

262. *Onychognathus tenuirostris*.

COLL. 4 ♂, 1 ♀, breeding and not breeding, Njombe, XI, XII. A colony of about ten pairs of *tenuirostris* live permanently (BELL) at each of the cascades in the Njombe highland streams and breed, literally, in them, building their nests in precisely the same kind of water-sprayed recesses as does the Dipper (*Cinclus*), so that one can only get at them by taking a shower-bath. The birds, too, can often be seen half-submerged grubbing for food among water-weed thinly covered by cascading water. During our visit, when not at their nests or feeding, the birds spend their day sitting about the trees at or near the cascades, now and again rising all together with cheerful cries to take a short cruise around. The breeding-seasons and moults are as yet difficult to understand. From Nov. 1931 to Jan. 1932 we saw no birds that did not look adult, and purposely avoided disturbing the birds for fear of spoiling our chance of eggs out of the three new-looking nests we found in December. As it turned out, only one of these nests ever held anything but a single fresh egg in one of them and that had disappeared four days later, and the five specimens we took as early as November were in, or nearly in complete new dresses with gonads half full size.

But BELL tells us that on 20 November 1932 he found young, well nigh fledged, and took a clutch of four eggs about two months later. Nest, cup-shaped, like a large nest of *Turdus merula* in appearance, resting on ledges of rock inside caves and crevices. The single egg we found was white marked with red.

U 263. **Spreo superbus.**

COLL. 1 imm. ♂ about six weeks old, II and 1 ♂ finishing complete moult and 1 ♀ post-breeding III; all Iringa.

Fairly common about the middle ground of the uplands and, during our visit, always in small flocks, probably having bred towards the end of the dry-season.

U 264. **Buphagus africanus.**

COLL. 1 ♂ not breeding, Iringa I.

I think this was the only one we ever saw and that it was probably on the move.

U H 265. **Zosterops senegalensis niassae.**

COLL. ♂, ♀ pair breeding (♀ laying eggs), Njombe (forest), XII; 1 ♀ laying eggs Iringa, I and 2 ♂, 3 ♀ in complete, post-nuptial, moult, Iringa II. Wings ♂♀ 59 ± 1 .

Fairly common in both the uplands and the highlands and breeding there up to the early rains, probably commencing towards the end of the dry-season.

In the uplands, frequenting the soft, thick foliated trees fringing the flood water-courses in the middle ground, and in the highlands, those at the edges of the forest-jungle.

H 266. **Zosterops virens stierlingi.**

COLL. 1 ♀ recent breeding I and 1 juv. ♂ of family party abroad, XII, Njombe (forest); 1 ♂ recent breeding, Dabaga (forest), II. Wings ♂♀ 58, 57.

Fairly common about the edges of the highland forest-jungles, and breeding there, probably when *Z. senegalensis* does. Compared with the Type of *stierlingi*, which is labelled "Iringa", but may have come from the highlands near Iringa. At any rate, according to our finding, *stierlingi* is a highland bird.

Compared with the Type of *stierlingi*.

NECTARINIIDAE (SUNBIRDS)

In our total of ten different species of Sunbirds we were, I think, well off, so far as variety is concerned.

It will be seen that nearly all of them bred with us during the rains, but, as in Darfur, during their last half, for we never took, nor saw, a single young Sunbird up to the day of our departure on 25 March, i. e. when two-thirds of the summer had come and gone, and the only eggs we found were still nearly fresh on the 22 March.

But from February onwards we had found new Sunbird's nests and been expecting them to hold eggs before March. Not one of these early nests ever bore fruit; for some reason unknown to us the birds deserted them and moved off from that territory, leaving the little pendant bags they had taken such pains to make to swing forlornly to and fro in the breeze, or be picked to pieces by other birds searching for material for their own nests. We can recall similar cases in Darfur, and in no case was it possibly attributable to interference on our part, for all the nests concerned were sky-high at the tips of outer branches of trees such as no one would attempt to get to without being quite sure there was something alive inside it. In working out these Sunbirds I have greatly felt the need of guidance over the sequence of their plumages and sought it in vain. Some examples will be specified in what follows.

267. *Nectarinia famosa aeneigularis*.

H

COLL. 3 ♂ in full new summer dress, about to breed, and 1 ♂ in complete, post-nuptial, moult to dull, off-season dress, Njombe XI, XII. Wings 73 ± 2 .

Fairly common in the highlands; not a forest-bird, but found mostly at the small groves on the downs or along the valleys. The dresses and gonads of our specimens give conflicting evidence as to breeding-season, and we can give no other information about it.

Our birds are like the smaller, bluer green, northern race of the species and agree with the Type of *aeneigularis*. One is a trifle

more green than the others, but there is a good deal of individual variety in the apparent colour of these metallic glosses.

So far as I can make out this is the only African Sunbird species in which the male is known to have a dull, off-season, dress. But I am nearly sure the males of some other African species have a dull, or partly dull, off-season dress, as do some of the Asiatic *Aethopyga* species, and intended to try and find out something about the sequence of plumages of the Congo *Nectariniidae*, when I get there.

268. *Nectarinia kilimensis arturi*.

COLL. 5 ♂ and ♂♀ pair, Njombe, XI, XII, I not yet breeding; 1 ♂ not yet breeding, Dabaga II; 2 ♂, 1 ♀ not yet breeding, Iringa II, III.

Common in both the uplands and the highlands, frequenting more or less open ground in both, and very often found feeding at *Loranthus* flowers. All our males are in very new looking complete dress and, judging by the gonads and our observation, the breeding-season would be the latter end of the rains.

Compared with the Type of *arturi*.

U **269. *Nectarinia melanogastra melanogastra*.**

COLL. 1 ♂ in new complete dress, soon to breed, Iringa II. Scarce in the uplands; if also in the highlands, it escaped our notice. Moults and breeding-season as for *N. kilimensis*.

U **270. *Cinnyris cupreus cupreus*.**

COLL. 1 ♂ not breeding, in new complete dress, Iringa XI, and 4 ♂ not yet breeding, but advancing, in good complete dress, Iringa I, II, III.

Common in the uplands. [Absent from the highlands.]

Moults and breeding-season as for *N. kilimensis*.

U **271. *Cinnyris mariquensis suahelicus*.**

COLL. 29 ♂, ♀ and imm. ♂, ♀, I, II in, or finishing moult into, complete new dress and III in full dress and breeding; all Iringa.

Abundant in the uplands. Absent from the highlands. Moults and breeding-season as for *N. kilimensis* or a trifle later. The Jan. Feb. birds finishing complete moult, all had only a few rectrices and outer remiges to complete, as is commonly the case with Passerine complete moults.

Compared with the Type of *suaehelicus*.

272. *Cinnyris venustus falkensteini* (= *niassae*).

COLL. 22 ♂, ♀ and imm. ♂, ♀, XI in complete moult, XII, I, II some in full new dress, but mostly finishing moult into it and III in full dress and breeding; highlands at Njombe and Dabaga and uplands at Iringa.

Very common in both the uplands and the highlands.

Moults and breeding-seasons as for *C. mariquensis*.

Compared with the Type of *niassae*, but not with that of *falkensteini* (in Hamburg Mus.).

That these two Types differ in the respects named goes without saying, but, if a very large series of *C. venustus* from the eastern side of Africa, like that now in the Brit. Mus., be examined, I think it will be found, that the *niassae/falkensteini* differences are not correlateable with geography, but occur in almost full degree as (? individual, ? age) variations nearly everywhere. It might be possible to say that in the south the males run, on the average, a trifle paler below and trifle less red shouldered, i. e. a trifle more *niassae*-like, than on the equator, but as I found myself unable to separate even one quarter of the Nyasa from the Kenya birds without looking at their locality labels, I have ventured to treat *niassae* as a synonym.

273. *Cinnyris chalybeus* (? *ludovicianus*).

COLL. 5 ♂, 3 ♀, all, except one, apparently adult and in complete new dress, without moult and not breeding, Iringa II, III. ♂ wings 61—64, bills 18.

Common in the uplands and evidently not breeding or going to breed during the rains.

These females are quite like adult female examples of *ludovicianus*, and so are the males, except that instead of having metallic

blue upper tail coverts like typical *ludovicianus* and all other races of *chalybeus* have in breeding dress, these feathers are plain blackish, concolorous with the rectrices, or in two cases also with a few of the small copper green metallic tips which often appear as blemishes in these feathers in other races of the species. In the Brit. Mus. collection the only two, apparently adult, males from Angola are like ours, without metallic blue tail-coverts, so also are two from the S. E. Belgian Congo (X and V), and one from Nyasaland (Nyambadwe I); but there are also two from Nyasaland (Nyika, VI) with the typical blue tail-coverts. All these are included in the Systema's *ludovicianus*.

The judgment of age of our specimens is derived from their gonads and plumage but, I regret, not also from their bones. What is the explanation?

It is possible that all our four "apparently adult" males are in some stage of immaturity that is not represented in a very large series of *chalybeus* from South Africa. The most unlikely explanation of all, as it seems to me, is that it indicates "a new subspecies"

H 274. *Cinnyris chalybeus* (n?) *manoensis*.

COLL. 1 ♂, completing moult to full adult dress, sexually inactive, highlands at Dabaga, II.

We know nothing about this bird of the highlands, except what is contained in the specimen. Compared with the Type of *manoensis*, which it resembles except in being considerably darker all below the scarlet breast-band, and also with the Type of *gertrudis*, which is different.

H 275. *Cinnyris mediocris fülleborni*.

COLL. 14 ♂♀ and imm. ♂, ♀, none breeding, the fully adult males in newish complete dress, the other males finishing complete moult from a dull, immature or off-season dress; highlands at Njombe and Dabaga, XII, I, II.

Common in the highlands, but apparently not breeding there at any period of the rains. Absent from the uplands. Compared with the Type of *fülleborni*.

276. *Chalcomitra amethystina kirkii*.

U H

COLL. 4 ♂ in complete new full dress, I soon to breed, III breeding; uplands at Iringa and edge of highlands near Sao. Fairly common in the uplands and breeding there in the latter half of the rains.

Doubtfully extending into the highlands proper.

277. *Chalcomitra senegalensis gutturalis*.

U

COLL. 3 ♂, in or almost in, complete new dress and about to breed, I, II, and 5 ♂, ♀ breeding in nearly new dress and 1 ♀ with her full clutch of two eggs III; all Iringa.

We never saw this conspicuous Sunbird until after we had been nearly three weeks at Iringa; then it became common and by March was breeding. There was in fact strong suggestion of the species being only a breeding-visitor to the uplands (like, for instance, *Cinnyris oseus* is to Jebel Marra in Darfur), but these birds may very likely have moved up from the midland plateau, quite a short distance.

Eggs, pale brownish clay with sepia "burnt" (dark centred) markings arranged in a, more or less, longitudinal pattern. Very like some eggs of the same species from Uganda.

278. *Cyanomitra verticalis viridisplendens*.

COLL. 3 ♂ not breeding, highlands at Dabaga, II. Wings 68, 69, bills 24, 25.

Not common, but found on two occasions feeding at *Loranthus* flowers with several other kinds of Sunbirds.

Our birds are like the Type and aggregate of *viridisplendens*, not the greener and rather smaller *niassae*.

Two are in good, full dress without moult and the other exchanging its glory for a dull, apparently off-season adult dress, one which is dull olive-green with dull black face, head-top, chin, throat and upper breast, the only traces of metallic gloss being some narrow, coppery terminal fringes on some of the feathers of the forehead and head-top.

There are some similar dresses in the Brit. Mus. collection of *C. verticalis* from West Africa.

U H 279. *Passer griseus suahelicus*.

COLL. 1 ♂ not breeding, Njombe XI; 5 ♂, ♀ breeding. Iringa, II, III.

At Iringa, abundant all over the township, and nesting there in the buildings during the rains, far less commonly in the bush and woodland.

Not properly a highland bird: the example taken there was one of three or four at the settlement, the only ones ever seen in the highlands and they did not seem to live there — perhaps scouts reconnoitring afield for new breeding-quarters.

PLOCEIDAE (WEAVER-FINCHES)

All our Weaver-Finches bred during the rains, some species, as will be seen, earlier than others, and that that difference of breeding-period was related to the kind of nest — so marvellously true, each one to its own distinctive and remarkable type — and the growth of the vegetation required for its site and construction, was often very evident.

H 280. *Ploceus stuhlmanni sharpii*.

COLL. 1 ♂ S.¹⁾, recent breeding, Njombe XII.

Not common in the highlands, and breeding there very early in the rains. Absent from the uplands.

Compared with the Type of *sharpii*.

H 281. *Ploceus bertrandi*.

COLL. 2 ♀ S. about to breed, Njombe, XI, XII. Wings 79, 80. Fairly common in the highlands at Njombe in the flat valley of the upper-stream and breeding there early in the rains, probably along the stream banks, but we identified none of the nests there. Absent from the uplands.

These agree with the Type and aggregate from Nyasaland.

I notice that examples of *bertrandi* from further north (Magogoni, Uluguru) have only the chin, not chin and throat, black and are probably representative of a new race.

¹⁾ S. for summer and W. for winter dress, in the PLOCEIDAE as in genus *Cisticola*.

282. *Ploceus jacksoni jacksoni*¹⁾.

U

COLL. 5 ♂, ♀ S. breeding and one full clutch of two eggs, Iringa II.

Common in the uplands and breeding there along the river banks from February onwards. Absent from the highlands. Nests, most often in little clusters of three or four, of the ball-with-flush-spout type, woven on to the ends of sprays of the very thorny *Acacia albida* saplings, hanging out over the water and a few feet above it.

Eggs. Turquoise blue, boldly marked with spots and blotches of browns and madders and secondary greys; size $20.4 \pm .4 \times 14.0 \pm .4$.

A small snake having nearly wormed his way out along the spray was about to raid this nest when we found it.

283. *Ploceus ocularius ocularius*.

U

COLL. 1 ♂ S. not yet breeding, Njombe XII; 1 ♀ breeding, I and 1 juv. III, Iringa.

Although inhabiting both uplands and highlands, not one of the common species in either. A mid-rains breeding-season.

284. *Ploceus xanthops xanthops*.

U

COLL. 3 ♂, ♀ S. breeding, XI, XII and 1 juv. ♀ about four weeks old XII, Njombe; 1 juv. ♀ about four weeks old, Dabaga II. Fairly common in the highlands, in the grass-jungles of the wider valleys and bottoms and breeding there very early in the rains, some pairs perhaps even a little before that.

285. *Anaplectes melanotis*.

U

COLL. 8 ♂, ♀ S., Iringa I not yet breeding, II, III breeding, and one full clutch of two eggs, III.

Fairly common in the lower, more open parts of the woodland in the middle ground, and breeding there in mid-rains.

¹⁾ cf. *P. j. jucundus* Friedm. Proc. Biol. Soc. Wash. 1931, p. 117.

Several nests watched but not examined because of their inaccessibility — all like the one taken, the well-known long-spouted structure of elaborately interwoven, "wiry" mid-ribs of leaves, hung aloft below the ends of boughs.

Eggs pale caerulean blue, one of average gloss, sparsely marked with little dark to light purple madder spots and dots, the other glossless, plain, strong blue (blunt end) shading to whitish blue (fine end), looking like an abnormal youthful bird's egg; size both, 21.5×14.0 .

U 286. *Quelea cardinalis cardinalis*¹⁾.

COLL. 9 ♂, ♀ S. breeding and many full clutches of two, occasionally three eggs, Iringa II.

Breeding in mid-rains in swarming colonies, generally in company with other weaver, Finches like *Euplectes* and others, in the long grass near the river.

Not met with in the highlands.

Nests of the watch-pocket type, every few yards apart or even closer to one another; eggs two in the rule, occasionally three, sometimes, but not always, the third egg suspiciously like that of another hen.

Eggs, white (75 %) or bluish-white (25 %), always well, often heavily marked with a sharpish pattern of freckles, spots and small blotches of red-browns to sepia-browns and secondary greys. Size of large number av. $17 \pm .5 \times 12 \pm .5$.

Many of the white grounded eggs very like eggs of *Phylloscopus sibilatrix* in size, shape and coloration.

H 287. *Euplectes orix nigrifrons* BÖHM 1884.

COLL. 3 ♀ W., Njombe XI; 7 ♂ S. breeding, Iringa II, III and two clutches of eggs, three full, two incomplete, III ♂ wings 67 ± 2 . Fairly common in the highlands, but rather local, breeding in company with *Quelea cardinalis*; with identical type of nest, only a trifle, if anything, larger, but the eggs plain turquoise blue. Absent from the uplands.

¹⁾ cf. *Q. c. pallida* Fried. Proc. Biol. Soc. Wash. 1931, p. 119.

Size of the eggs: clutch of three av. $17.3 \pm .2 \times 13.0 \pm .1$;
clutch of two, av. $19.7 \pm .2 \times 13.6$.

These birds are like *sundevalli* in coloration but of the smaller size which M. DELACOUR tells me should be called *nigritrons* 1884 = *wertheri* 1897 (pace the Systema).

288. Euplectes capensis xanthomelas.

H

COLL. 2 ♂ W., 2 ♀ W. without moult, Njombe, XI, XII, I. Fairly common at Njombe in the bottoms and wider valleys, but a late breeder with no sign, that we discovered, of even getting into summer dress when we left the place on 8 Jan.

Absent from the uplands.

289. Urobrachya axillaris phoenicea.

U H

COLL. 11 ♂, ♀ W. and moulting to S., Njombe, XI, XII; 6 ♂, ♀ S., Iringa, I about to breed, II, III, breeding.

Common in both the uplands and the highlands, frequenting chiefly the mat-grass jungles of the moist bottoms and valleys. Breeding-season, the mid-rains.

290. Coliuspasser macrourus macrourus.

H

COLL. 4 ♂, ♀ W. without moult, not breeding, Njombe XI, XII, I. Fairly common in the highlands at Njombe, in the bottoms and wider valleys but, like *Euplectes capensis*, a late breeder with no sign, that we discovered, of even getting into summer dress when we left Njombe on 8 Jan.

Absent from the uplands.

291. Coliuspasser hartlaubi psammocromius.

H

COLL. 1 imm. ♂, moulting into first-summer, sparrowy, dress, Njombe XI; 3 ♂ S. soon to breed, Njombe XI, XII and 2 ♂, 1 ♀ S. breeding, Njombe and Dabaga, I, II.

Common in the highlands and breeding in the mat-grass moist bottoms and valleys in mid-rains.

Absent from the uplands.

Compared with the Type of *psammocromius*.

U 292. **Coliuspasser albonotatus albonotatus** \cong **eques**.

COLL. 5 ♂ *S. albonotatus*, 3 ♂ *S. eques* and 3 ♀ all breeding and three full clutches of two eggs, Iringa I, II, III.

Very common in the uplands and breeding there in the mid-rains wherever there is open ground with long, or longish grass, whether in the moist river-plain or the "dry" middle-ground.

Both races in purity and, among our examples, none other, but we do not dare to say from field observation that mingled colour-characters do not exist there. A good example of one of the unusual ways in which geographical races meet and intergrade and, perhaps, serviceable as a reminder that there are a good many more ways than one of interpreting a single colour-character into its correct genealogical significance. Strong circumstantial evidence of one cock being mated with two incubating hens; polygamy may well be suspected.

Absent from the highlands.

Nest, built rather low down in the grass, of ball-type with large side entrance, outer framework of basket-woven grass-blades, old and new, lined with many strands of finest grass flower-heads stript of all their seeds and coiled around the interior "on the long", with a number of them projecting three or four inches to make a porch over the top of the entrance.

Eggs, pale turquoise blue, all of them well, to heavily, marked with freckles, spots, clouds and blotches, in a soft pattern of olive-browns and secondary olivaceous greys. Some of them not at all unlike eggs of *Acrocephalus arundinaceus*.

Size of the six eggs $19.5 \pm 1.0 \times 13.5 \pm .3$.

U 293. **Coliuspasser ardens ardens** \cong **concolor**.

COLL. 1 ♀ not breeding, Iringa, I; 6 ♂ *S. ardens*, 3 ♂ *S. concolor* and 4 ♀, all breeding, Iringa, II, III.

Common, in both the uplands and the highlands, and breeding in the mid-rains, preferring, on the whole, ground which is a little higher and has more bushes among the grass than does *C. albonotatus*. Like *albonotatus* both races in purity, but in one of our male *concolor* specimens it is just possible to see a faint, ghost-like, red throat-crescent, indicating mingling of the colour characters of the two races.

294. *Spermestes cucullatus scutatus*.

U

COLL. 1 ♂ soon to breed, from flock of seven, Iringa, I.
Not common in the uplands and there, no higher than the river-plain.

295. *Odontospiza caniceps*.

U

COLL. 1 ♂, 2 ♀ not [yet] breeding from flock of a dozen. Iringa I.
Probably scarce, but we did not pay much attention to flocks of small Weaver-Finches when there was so much to do with other birds who were breeding.

Note the extension of range to the southward.

296. *Cryptospiza reichenowi*.

H

COLL. 1 ♀ not breeding, Njombe (forest) XII.

This specimen in company with one other, probably her mate, was hopping about the dense thicket at the edge of a patch of forest-jungle, in the most secretive way. We never saw any others in the highlands, and the species is absent from the uplands.

This is a full red-backed female, just like the females of a new race of *reichenowi* which I think Mr. W. L. SCLATER will announce shortly.

297. *Ortygospiza atricollis muelleri*.

U H

COLL. 1 ♂, 1 ♀ finishing complete moult, highlands at Sao and Njombe, XI; soon to breed, Iringa III.

Found, but by no means commonly, in moist, grassy flats in the uplands and the highlands.

The evidence here — and I think it is an agreement with what is known of the species elsewhere — is of a complete moult about the end of the dry-season, the male bill being then black above and coral pink below, and a breeding-season commencing towards the end of the rains without change of dress but with the male bill changing to all deep vermilion.

H 298. *Ortygospiza locustella locustella*.

COLL. 2 ♂ finishing complete moult, XI; 2 ♀ not yet breeding, I; all highlands at Sao.

We only found this species at this one place — a big, short-grass flat at the edge of the highlands, with its sunbaked surface, clothed with sere grass when we passed in November, but wet and muddy, green with rich pasture grass and gay with bright irises and other lovely flowers when we repassed in mid-January.

It was also *Cisticola brunnescens* ground.

The evidence is of just the same moults, change in the bill colour, and breeding-season as for *O. atricollis*. I have recently given reasons for proposing this re-classification of what is called *Paludipasser locustella* in the Systema.

U 299. *Pytilia melba belli*.

COLL. 4 ♂, 1 ♀, Iringa, I not breeding, II soon to breed, III breeding.

Common in the middle and lower ground of the uplands and breeding there during the latter half of the rains.

Absent from the highlands.

Compared with the Type of *belli*.

U 300. *Pytilia afra*.

COLL. 2 ♀, not breeding, Iringa I.

Less common than *P. melba*, and we only found *afra* in the middle ground near the bases of the wooded hills.

Absent from the highlands.

U 301. *Lagonosticta rubricata jamesoni*.

COLL. 4 ♀ not breeding, I, 1 ♂ soon to breed II, ♂, ♀ pair, 1 ♀ breeding and 2 ♂ (incubating) with their full clutches of three and four eggs; all Iringa.

Common in the uplands where it seems to be practically confined to the wooded hills, from their bases where the woodland begins, right up to their crests, although more in the lower than the upper tiers. A thoroughly "country" bird, not like *L. senegala* "suburban".

Nests, rather loosely-made balls of dry, thin grass stems (hay), with side-top entrance, lined with fine grass (pedicels, etc.) and, in one of the nests, also a dozen doves' feathers; placed low down—six to twelve inches from the ground—in small stiff shrubs liberally ingrown with longish grass.

Eggs oval, white, rather below average gloss, size of the seven av. $14.2 \pm .8 \times 11.5 \pm .3$.

Compared with the Type of *jamesoni*, which is a quite spotless adult male from Matabeleland, and other examples in the Brit. Mus. from the Transvaal, Zululand, N. Rhodesia and Nyasaland (Zomba), some of which have occasional little white spots.

Our ten specimens are all practically spotless, and in that respect very different to the highland race of the same species next in our list.

302. *Lagonosticta rubricata haematocephala*.

H

COLL. 7 ♂ not breeding, Njombe XI, XII, I.

Common in the highlands at Njombe, with the same habits as the *jamesoni* race of the uplands. All, or nearly all, in twos—probable pairs—*during* this time.

Compared with the Type of *haematocephala*.

303. *Lagonosticta senegala ruberrima*.

U H

COLL. 1 ♂ not breeding, Njombe XII; 6 ♂, ♀ Iringa I, II not breeding, III breeding, and 1 ♀ incubating her full clutch of four eggs, Iringa III.

Common in the uplands and nearly always at, or near, human dwellings. In the highlands, also common at the Njombe post, but not seen elsewhere—very likely, one may say, *because* the human population in that district is so small and scattered, in the same way that in the British Islands one does not expect to find breeding Sparrows and Swallows where there is no human population. So different, in this respect, to *L. rubricata*.

Breeding season apparently the latter half of the rains.

Nest, a large, loosely-built ball of hay with side-top entrance and an untidy porch over it; lined with barndoor fowls' feathers,

and placed in bush, in the township. Eggs, oval, white, rather glossless; size, av. $13.9 \pm .4 \times 10.3 \pm .3$.

Our birds incline a trifle away from the average Uganda *ruberrima* in being not quite so red-backed, but are not nearly so brown-backed as South African *rendalli*.

The difference between the broad, longish tail of *L. rubricata* (σ c. 42 long, with central rectrix c. 10 broad), and the narrow, medium-length tail of *L. senegala* (σ c. 36 long, with central rectrix c. 7 broad) is striking.

H **304. *Coccygia melanotis kilimensis*.**

COLL. 7 σ , ♀ not breeding, Njombe, XI, XII, I; 1 ♀ near breeding, Dabaga II. Wings σ , ♀ 44—45.

Common in the highlands, and breeding there [during the latter half of the rains], before which they go about in parties of four to thirty strong, often in company with other kinds of *Estrildinae*. Absent from the uplands.

Compared with the Type of *kilimensis*.

H **305. *Estrilda astrild nyassae*.**

COLL. 5 σ , ♀ not breeding, from flock of fifteen, Njombe XII; σ , ♀ pair, begun breeding, Dabaga II. σ , ♀ wings 47 ± 1 .

Fairly common in the highlands and breeding there in mid-rains. Absent from the lowlands.

Our birds all have the whiter cheeks of NEUMANN'S *nyassae*, as BANGS and LOVERIDGE in 4 p. 219 say of their Dabaga birds.

U **306. *Estrilda rhodopyga centralis*.**

COLL. 1 (?sex), Iringa III.

Probably scarce in the uplands and absent from the highlands. More we cannot say. Our specimen was one of two, probably a pair, so close to one another in a bush in the middle ground that we hoped to get both at one shot but got no more than the one and that with all its body decimated. Note the extension of the species' range to the southward.

307. *Estrilda subflava clarkei*.

U

COLL. 5 ♂, ♀ not breeding, Iringa I.

In January, occasionally seen in flocks of thirty strong up on the middle ground at Iringa, and out of these came our specimens. Probably they were off-season rovers, who would breed during the latter half of the rains down in the river bed, where alone at Iringa they would find the breeding environment they like: but we paid little attention to them.

Compared with the Type of *clarkei*.

308. *Estrilda roseicrista marwitzi*.

COLL. 9 ♂, ♀ not breeding, Njombe XI, XII, I, Dabaga, first week of II.

Common in the highlands, up to the first week of February (which was our last opportunity of seeing the species), going about mostly in small parties, but sometimes up to thirty strong, and frequently in company with other kinds of *Estrildinae*.

Occasionally also seen in pairs, and one such pair shot actually *in coitu*, but this was only early erotics, for the gonads of both were minute. However, the bird probably breeds in the highlands during the latter half of the rains.

Compared with the Type of *marwitzi*.

309. *Estrilda erythronotus delamerei*.

U

COLL. Two ♂♀ pairs, one of which also with full clutch of three or four eggs, and 4 ♂, 2 ♀, I a few breeding, II, III all breeding. Wings ♂ 54 ± 1 , ♀ 51 ± 1 .

Common in the middle ground of the uplands, less so in the river-plain. Trees seemed to be an essential part of the environment, and the only nest we found was built half-way up a thirty foot, dense-foliaged *Ficus* tree.

Nest, a large, untidy ball of grass-stems with their flower-heads, lined with finer strands of the same, with side entrance from the top of which some of the grass lining projected like a porch. Eggs, oval, pure white, nearly glossless, three all alike size av. 14.6×11.4 , the fourth, markedly larger, 16.3×12.1 but

of the same shape and texture and incubation (nearly fresh). We thought this a rather shy, secretive bird.

Compared with the Type of *delamerei*, i. e. the paler, Kenya race of the bird with the black crissum, whose more northerly ranging counterpart with white crissum is classified as *Estrilda charmosyna*. Are these two really different species, or are they, like some others, only classified as such because, somewhere, both black and white crissum'd birds are found breeding a long side one-another?

U 310. ***Uraeginthus bengalus ugandae*.**

COLL. 3 ♂, 3 ♀ and 1 ♂ parent of two fresh eggs and one full clutch of four eggs, Iringa I about to breed, II, III breeding. ♂ wings 52-55.

Common in the lower and middle-ground of the uplands and breeding there in mid-rains. Notably absent from the highlands.

Nest and eggs typical; size of the eggs, clutch of two $14.4 \pm .1 \times 11.6 \pm 1$, clutch of four $15.1 \pm .4 \times 11.2 \pm .3$.

We kept a good look out for *U. cyanocephalus*, but never saw one until fifty miles south of Dodoma, on our homeward journey, where we took a ♂, ♀ pair building their nest on 26 March.

U 311. ***Granatina ianthinogaster ianthinogaster*.**

COLL. 1 ♂ gonads half-size, Iringa III.

Not uncommon in the uplands, but only in certain tracts of the river-plain where grow an unusual number of small treelets of the thorny *Acacia seyal* var. *fistula*, recalling in this respect similar tracts of dry thorn-bush country much nearer the equator, where the species has its headquarters.

Insufficient evidence as to breeding-season.

Note the southward extension of range of the species and the environment/distributional suggestion.

U 312. ***Hypochera codringtoni*.**

COLL. 1 ♂ near breeding, II and 1 ♀ about to lay her last egg, III; both Iringa.

Rather scarce, according to our experience, and only occurring in the uplands. Probably parasitic and certainly breeding during the rains.

Our birds are the large size of, and the male an exact match in metallic gloss, etc. with, the Type of *codringtoni*.

313. *Vidua macroura*.

U H

COLL. 3 ♂ S. not breeding, XII, III, 1 ♂ S. breeding III, 1 ♂ W. II, 1 ♂ moulting to S. I and 2 ♀ breeding I, III; Njombe, Dabaga and Iringa.

Common, in both the uplands and the highlands, and evidently, from the gonads of our species, breeding during the rains, but at irregular dates — a habit which is perhaps less unusual among parasitic birds than others? No proved eggs found, but several possibles.

314. *Steganura paradisea paradisea*.

U

COLL. 3 ♂ all breeding, III, Iringa. Tails, long and tapering 280 ± 10 .

Not common and little, if at all, above the river-plain in the uplands, and breeding there during the rains.

Absent from the highlands.

315. *Serinus mozambicus pseudobarbatus* v. SOM.

U

COLL. 2 ♂, 1 ♀ in, or finishing moult into, complete new dress, I, 1 ♂, 1 ♀ breeding, one ♂, ♀ pair and 1 ♀ with her full clutch of two eggs, III; all Iringa. Wings ♂, ♀ 70—73.

Common in the lower and middle ground of the uplands and breeding there, after a complete pre-nuptial moult, in the mid-rains. Absent from the highlands.

Nest very like that of *Serinus serinus* in Europe, the site, very likely an unusually low one, being a small, triple fork near the top of a four foot-high, leafy shrub.

Eggs. Like, but with the marking finer than, those of the average *Serinus serinus*; size $15.7 \pm .3 \times 12.2 \pm .2$.

Our birds are all alike and precisely like the description of *pseudobarbatus*, as are also specimens in the Brit. Mus. from Amala R. in SW. Kenya Colony and Dikulwe R. in the SE. Congo, and I entirely agree with what VAN SOMEREN says in 8 p. 328.

Evidently this is a large, softly-mottled, green backed race, inhabiting the western part of the interior plateau between the Kenya highlands and the northern rim of the Zambesi basin and apparently intergrading with *barbatus* in the north, in the Mt Elgon neighbourhood. Neither in Darfur nor in southern Tanganyika Territory does this species inhabit dry, thorn-bush country, and I expect that that would account for the "apparent" absence of the *species* between coastal and highland Kenya Colony.

U 316. ***Serinus sulphuratus shelleyi*.**

COLL. 12 ♂♀ finishing complete, pre-nuptial moult or in full new dress, Njombe XI; 3 ♂♀ about to breed, Iringa I, II, and 1 ♂ incubating his clutch of three fresh eggs, Iringa III.

Common in both the uplands and the highlands and breeding, after a complete pre-nuptial moult, in the mid-rains.

Nest, built in a small evergreen treelet, rather like that of the Greenfinch (*Chloris chloris*), but without any moss, lined thickly, but only at the bottom of the cup, with cotton-wool (near the township) and a little plant-down.

Eggs, like occasional, sparingly marked eggs of *Chloris chloris* in size and coloration ($19.8 \pm .3 \times 13.9 \pm .1$).

U 317. ***Poliospiza gularis reichardi*.**

COLL. 11 ♂♀ all breeding in complete new dress, Iringa, I, II, III. Common in the uplands, and breeding there, after a complete pre-nuptial moult, in the rains, from the January onwards. The *Brachystegia* woodlands in the lower tiers of the hills is their home, they like to breed in little colonies (as do both *Serinus mozambicus* and *Poliospiza leucopygia* in Darfur) of four or five pairs, and the cocks indulge in little courting "butterfly" flights, singing the while — as does the European *Serinus*, *Chloris chloris*, and certain other Finches.

We found no nests, but according to gonads, two would be the usual full clutch of eggs.

Absent from the highlands.

Compared with the Type of *reichardi*, with which examples from Langenburg, Ngomingi and Songea also agree.

318. ***Poliospiza angolensis reichenowi*.**

U

COLL. 1 ♂, 3 ♀ all breeding, Iringa I, II, III.

Less common than any of the other Canaries, but found here and there in the uplands, mostly down in the river-plain, but occasionally up in the middle ground.

Pre-nuptial moult and breeding-season as for *P. gularis*.

Absent from the highlands.

These are like Kenya birds, not the Uganda *somereni*.

319. (***Poliospiza* ?**) ***melanochrous*.**

U

COLL. 4 ♂♀ in complete, [post-nuptial], moult, and 1 juv. ♀ about a month old, Njombe XII, I. ♂♀ wings, 82, 83; tails 66—69; juv. ♀, wing 86, tail 73.

A curious bird, and in several ways unlike the African Canaries of *Serinus* and *Poliospiza*, for instance *melanochrous* evidently breeds (in these highlands) not in, but before the rains, and although when breeding they may, of course, have a more Canary-like home and behaviour, when moulting, the insides of the forest-jungles seemed to be their home — large, silent, dull birds, moving slowly about, several together, probably family parties.

Our young bird, however, was taken in some thick bush and small-tree jungle at the head of a hollow in the downs, and seemed to be without parents and being mobbed by some Weaver-finches, so that we took it for, perhaps, the young of some parasitic bird.

Absent from the uplands.

Compared with the unique Type of *P. melanochrous*, which, *pace* the Systema, is quite a different bird to *P. gularis*, but nearly related to *P. burtoni*, according to its size, proportions and form, and also apparently, from what has been recorded of *burtoni*, habitat; but whether these two birds are well placed in genus *Poliospiza* is, I think, open to doubt. Had we realized what our birds were when we were in the highlands, we should have brought home spirit specimens.

H 320. **Poliospiza whytii.**

COLL. ♂, ♀ pair, soon to breed, Dabaga, 7. Feb.

I regret being unable to say more about this little known species than that we found this pair at the edge of some forest-jungle patches at Dabaga and that their gonads indicated probable breeding during the latter half of the rains, after completion of a pre-nuptial moult, perhaps imperfect in some tracts.

Compared with the Type of *P. whytii*.

U H 321. **Spinus citrinelloides hypostictus.**

COLL. 3 ♂♀ not yet breeding, Njombe, XI, I; 6 ♂♀ breeding and ♂♀ pair with their one fresh egg, Iringa II.

Common in the lower and middle ground of the uplands, and breeding there, like the Canaries, after a complete pre-nuptial moult, in the rains from February onwards.

Less common in the highlands, not a forest bird there but one which frequents the riparian tree-growth.

Frequently found feeding in small flocks at Iringa, during the breeding-season, and the flocks containing birds actually breeding — laying eggs etc. — but, according to our experience, they did not nest in colonies.

Our nest, built well out on one of the upper branches of a fifteen-foot-high thorny *Acacia* at the river's edge, was a neat little structure of rootlets and bits of dry grass, externally decorated with lichen and cocoons bound on to the nest by cobweb and lined, only at the bottom of its cup, with a thick pad of yellow-brown plant-“wool”. Diameter at its very neat rim, external 70, internal 48.

The hen bird, sitting tight on her first-laid egg at midday, had to be pushed off it, and then would not fly away. She would have laid her second and last egg next day.

The egg is blueish white, fairly well marked with fine stippings, spots and clouds of pale and faint brown madder, very like most eggs of the Linnet (*Linota cannabina*), size 17.0 × 13.0.

We could never see any difference between this bird's ways of life and those of the several Canaries in Tanganyika Territory and its bill is surely at least as much like that of the typical *Serinus* as the typical *Spinus*?

Compared with the Type of *hypostictus*.

322. *Emberiza cabanisi orientalis*.

H

COLL. 1 ♂, breeding, Njombe XI.

Our one specimen, the only one we ever saw, came from one of the hollows in the downs, was in worn dress and probably near the end of its breeding-season. It is probably a highland species in these parts.

323. *Emberiza flaviventris flaviventris*.

U

COLL. 6 ♂♀ and 2 juvs., Iringa I, III and ♀ with her full clutch of three eggs, Iringa III.

Common in the lower and middle ground of the uplands, and breeding there from December onwards, very likely commencing earlier; our March eggs being evidently late ones, for by then most adults had begun their post-nuptial, complete moult.

Absent from the highlands.

Nest, the delicate little dry grass structure, and eggs the remarkable white — black scribed and spotted kind, both characteristic of the species. Size of the three eggs av. $18.7 \pm .3 \times 14.4 \pm .2$.

324. *Fringillaria tahapisi tahapisi*.

U

COLL. 11 ♂♀ all breeding, Iringa I, II, III.

Common and breeding during the rains in the lower and middle ground of the uplands, chiefly in the neighbourhood of the flood-water courses and following them upwards about half way to the hill crests, but no higher.

Absent from the highlands.

Appendix (a): References to literature.

other than the Systema and works easily quoted in the text.

<i>Reference in the text</i>	<i>Author</i>	<i>Subject and reference</i>
1	Boulton	"New species and subspecies of African birds" — Ann. Carnegie Mus. 1931.
2	Bowen	"The East African forms of "Pternistis cranchii" — Proc. Acad. Nat. Sci. Philadelph. LXXXII, 1930.
3	Friedmann	"Birds collected by the Childs Frick Expedition to Ethiopia and Kenya Colony" — Bull. U. S. Nat. Mus., 153, 1930.
4	Loveridge	"Reports on the Scientific results of an expedition to the southwestern highlands of Tanganyika Territory" — Bull. Mus. Comp. Zool. LXXXV, "Part I, Introduction and Zoogeography" Jan. 1933; and, with Bangs, "Part III Birds", Feb. 1933.
	Roberts	"Check-list of South African birds" — Ann. Transv. Mus. 1924.
6	Sclater and Moreau	. . . Birds of North-Eastern Tanganyika Territory" (Usambaras, etc.) — Ibis 1932, 33.
7	Stresemann	"Mutationsstudien" — J. f. O. 1926.
8	van Someren	"Birds of Kenya and Uganda, being Addenda and Corrigenda to my previous paper in Novitates Zoologicae XXIX, 1922" — Nov. Zool. XXXVII, 1932.

Appendix (b):

Name of type (as in the Systema). Author and original description as given in the Syst. Av. Aethiop.	Repository (Museum)	Label
<i>Francolinus levaillanti mulemae</i>	Brit.	Mulema, Uganda, March. 1903; ♂ (Doggett)
<i>Francolinus levaillanti crawshayi</i>	Brit.	Mt. Cheni Nyika, 7400 ft; 27 June 1905; ♂. (Crawshay)
<i>Pternistis afer (cranchii) böhmi</i>	Berlin	Kakoma, Tabora Distr., N. Tang. Terr.; (Böhm)
<i>Pternistis afer (cranchii) intercedens</i>	Berlin	Lake Rukwa, S. Tang. Terr.; 19 Sept. 1899. (Fülleborn)
ditto, Co-type	Berlin	Ikombe-Tandalla, S. Tang. Terr.; Dec. 1899. (Fülleborn)
<i>Columba guinea uhehensis</i>	Berlin	Iringa, S. Tang. Terr.; 29 May 1897. (Stierling)
<i>Centropus superciliosus loandae</i>	Brit.	N'dalla Tando, N. Angola; 21 Aug. 1908; ♂. (Ansorge)
<i>Gallirex porphyriolophus chlorochlamys</i>	Brit.	Ugogo, Tang. Terr.; 1880. (Kirk)
<i>Poicephalus meyeri matschiei</i>	Berlin	Ussandawe, Tang. Terr.; 3 Sept. 1893; ♂. (Neumann)
<i>Bubo capensis mackinderi</i>	Brit.	Mt. Kenia, 13 000 ft; 11 Sept. 1899; ♀. (Mackinder)
<i>Caprimulgus pectoralis guttifer</i>	Berlin	Mlalo, Usambara, Tang. Terr. (Röhl)
<i>Caprimulgus trimaculatus lentiginosus</i>	Brit.	South Africa. (A. Smith)
<i>Lybius albicauda</i>	Brit.	Ugogo, Tang. Terr. (Kirk)
<i>Lybius torquatus conigicus</i>	Berlin	Mlange, N. Angola; 13 Oct. 1879. (v. Mechow)
<i>Tricholaema lachrymosum ruahae</i>	Berlin	Uhehe, S. Tang. Terr. (v. d. Marwitz)
<i>Viridibucco simplex leucomystax</i>	Brit.	Sotik, Kenya highlands; 3 Oct. 1889; ♂. (Jackson)
<i>Campethera abingoni smithi</i>	Brit.	South Africa. (A. Smith)
<i>Mesopicos griseocephalus ruwenzori</i>	Brit.	Ruwenzori; 22 Febr. 1892; ♂. (Jackson)

List of types examined

Judged to be

Ad. ♂, well spurred, in nearly new dress without moult. Wing 170, tail 70, leg 50.

[Imm.] ♂, without spurs, in worn dress with some moult (? to adult dress).
Wing 165, tail 68, leg 46.

Ad. [♂] in fairly good dress. Wing 175, tail 71.

Ad. [♀] in worn dress. Wing 168, tail 63 (Apparently a poorly pigmental individual).

Ad. [♂] in about quarter-worn dress. Wing 183, tail 70.

Ad. [♂] in good dress. Wing 223, tail 118. (A peculiar, rather darkly tinted individual.)

Fully ad. ♀ in complete fresh dress. Wing 157, tail 205.

Ad. (? sex) in fairly good dress. Wing 182, tail 195.

Ad. ♂ in good dress. Wing 148, tail 70.

Ad. ♀ in worn dress except for a few new inner primaries. Wing 410, tail 220.

Ad. (? sex) finishing complete moult. Wing 153, tail 119.

Ad. [♀] in half worn-dress. Wing 185, tail 126.

Ad. (? sex) in worn dress. Wing 97, tail 55 = *Lybius leucocephalus albicauda*

Ad. (? sex) in half worn-dress. Wing 93, tail 58.

Ad. (? sex) in worn dress. Wing 73, tail 44.

Ad. ♂ in very good dress, with clear white moustache. Wing 54, tail 30.

Ad. ♂ in full, good dress. Wing 118, tail 66, bill 27 (skull 30).

[Imm.] ♂ in full moult to adult dress (nearly all the red belly feathers still in pin).

Name of type (as in the Systema). Author and original description as given in the Syst. Av. Aethiop.	Repository (Museum)	Label
<i>Mirafra africana nigrescens</i>	Berlin	Elton Pass Ukinga, S. Tang. Terr.; 20 July 1899. (Fülleborn)
<i>Mirafra fischeri zombae</i>	Brit.	Zomba plains, Nyasaland; 19 Dec. 1926; ♂. (A. Whyte)
<i>Eremopteryx leucopareia</i>	Berlin	Nguruman, N. Tang. Terr.; 26 June 1883; ♂. (Fischer)
<i>Tephrocorys cinerea saturator</i>	Berlin	Kondeland, N. of L. Nyasa. (Fülleborn)
<i>Anthus sordidus nyassae</i>	Berlin	Sangesi, Songea, S. Tang. Terr. (Fülleborn)
<i>Anthus leggei</i>	Brit.	Ruwenzori (S. E.) 3400 ft; 7 May 1906; ♂. (Ruwenzori exp.)
<i>Macronyx croceus fülleborni</i>	Berlin	Unika highlands, N. of L. Nyasa; 12 July 1899; ♂. (Fülleborn)
dito, Co-type	Berlin	same place; 11 July 1899; (?♂). (Fülleborn)
<i>Pseudoalcippe stierlingi</i>	Berlin	Iringa, S. Tang. Terr; 30 Aug. 1897; ♀. (Stierling)
<i>Arizelocichla masukuensis roehli</i>	Berlin	Mlalo n ^o Wilhelmstal, Usambara, Tang. Terr. (Röhl)
<i>Arizelocichla chlorigula</i>	Berlin	Kalinga, S. Tang. Terr. (Fülleborn)
<i>Arizelocichla chlorigula schusteri</i>	Berlin	Nguru Range, 2000 m, Tang. Terr.; 12 June 1913; ♂. (Schuster)
<i>Parisoma böhmi</i>	Berlin	Seke, Ugogo, Tang. Terr. (Böhm)
<i>Bradornis griseus</i>	Berlin	Magunda Mkali, Tabora Distr., Tang. Terr.; 4 Oct. 1880. (Böhm)
<i>Melaenornis pammelaina tropicalis</i>	Berlin	"Ukamba, Kenya Col."
<i>Dioptrornis nyikensis</i>	Brit.	Nyika plateau, 6000—7000 ft.; Nyasaland; June 1896; ♀. (A. Wythe)
<i>Batis capensis dimorpha</i>	Brit.	Mlanje plateau, 6000 ft; Nyasaland; 25 Oct. 1891; ♂. (A. Whyte)
<i>Batis mixta</i>	Brit.	Kilimanjaro, 6000 ft; 6 Aug. 1888; (? sex). (Hunter)
<i>Batis molitor puella</i>	Berlin	Mpapwa, Usagara, Tang. Terr.; 17 June 1890; ♂. (Emin)

Judged to be

-
- Ad. (? sex) in good dress. Wing 92, tail 48.
- Ad. ♂ in worn dress. Wing 78, tail 54.
- Ad. ♂ in worn dress. Wing 73, tail 39.
- Ad. (? sex) in worn dress. Wing 90, tail 60.
- Ad. (? sex) in worn dress. Wing 94, tail 68.
- Ad. ♂ with good remiges and rectrices, but worn head and body feathers.
Wing 64, tail 37.
- Ad. ♂ in fine new dress. Wing 105, tail 71.
- Ad. ♂ in fine new dress. Wing 108, tail 75.
- Ad. ♀ in good dress. Wing 65, tail 61.
Doubtfully from the uplands at Iringa, but probably from the highlands within
thirty miles of Iringa.
- Ad. (? sex) in good dress. Wing 83, tail 76.
- Ad. (? sex) in worn dress. Wing 90, tail 85. Not the original label, and precise
locality doubtful.
- Ad. ♂ in complete new dress. Wing 92, tail 91.
- Ad. (? sex) in worn dress. Wing 62, tail 63.
- Ad. (? sex) in worn dress. Wing 88, tail 66.
- Ad. (? sex) in fairly good dress. Wing 99, tail 89.
- Ad. ♀ in complete new dress. Wing 88, tail 73.
- Ad. ♂ in good dress without moult. Wing 60, tail 41.
- Ad. ♀ in good dress without moult. Wing 62, tail 32.
- Ad. ♂ in good dress. Wing 60, tail 43.

Name of type (as in the Systema). Author and original description as given in the Syst. Av. Aethiop.	Repository (Museum)	Label
<i>Batis mystica</i>	Berlin	Kikumbuliu, Ukamba, Kenya Col.; 16 Dec. 1894; ♂. (Neumann)
<i>Tchitreia viridis suahelica</i>	Berlin	Kiboscho, Kilimanjaro; 6 Jan. 1895; ♂. (Neumann)
<i>Turdus libonyanus cinerascens</i>	Berlin	Tabora, Tang. Terr.; 10 Aug. 1890; ♀. (Emin)
<i>Turdus libonyanus niassae</i>	Berlin	Zomba, Nyasaland; Aug. 1892; ♂. (A. Whyte)
<i>Geocichla gurneyi usambarae</i>	Berlin	Mlalo, nr. Wilhelmstal, Usambaras. (Röhl)
<i>Geocichla litsipsirupa stierlingi</i>	Berlin	Iringa, S. Tang. Terr.; 2 Jan. 1898; ♀. (Stierling)
<i>Cercomela familiaris falckensteini</i>	Berlin	Chinchoxo, Portug. Lower Congo. (Falkenstein)
<i>Cossypha caffra iolaema</i>	Berlin	Kalinga, S. Tang. Terr. (Fülleborn)
<i>Erythropygia leucophrys sclateri</i>	Berlin	Iringa, S. Tang. Terr.; Aug. 1897. (Stierling)
<i>Bradypterus nyassae</i>	Brit.	Mt. Mlanji, 6000 ft, Nyasaland; 26 Oct. 1891. (A. Whyte)
<i>Calamonastes simplex undosus</i>	Berlin	Kakoma, Tabora Distr., Tang. Terr.; 22 Febr. 1881. (Böhm)
<i>Apalis thoracica murina</i>	Berlin	Mararupia, Rovuma R.; 21 Sept. 1890. (Fülleborn)
<i>Apalis alticola</i>	Brit.	Old Fife, Rhodesian Congo; ad. ♂. (Manning)
<i>Apalis angusticauda</i>	Berlin	Kakoma, Tabora Distr., Tang. Terr.; 14 Febr. 1881. (Böhm)
<i>Sylvietta whytii jacksoni</i>	Brit.	Kamassia, Kenya highlands, 6000 ft; 23 Aug. 1896. (Jackson)
<i>Eremomela griseoflava abdominalis</i>	Berlin	Igonda, Tabora Distr., Tang. Terr.; 16 Jan. 1882. (Böhm)
<i>Eremomela scotops citriniceps</i>	Berlin	Kakoma, Tabora Distr., Tang. Terr.; 1881. (Böhm)
<i>Riparia paludicola ducis</i>	Berlin	Lugege, Ruanda; 20 Aug. 1907. (Schubotz)

Judged to be

- Ad. ♂ in good dress. Wing 60, tail 42.
- Ad. ♂ in complete new dress. Wing 81, tail 283.
- Ad. ♂ in half worn dress. Wing 111, tail 94.
- Ad. ♂ in complete new dress. Wing 110, tail 90.
- [Imm. (? sex) completing moult to adult dress]. Wing 113, tail (juv; and very abraded) c. 87.
- Ad. ♀ about one-quarter way through complete moult. Wing 131, tail (old central) 66.
- Ad. (? sex) in very worn dress. Wing 80, tail 53.
- Ad. (? sex) in very worn dress. Wing 89, tail 81. Not the original label, and precise locality doubtful.
- Ad. (? sex) in one-quarter worn dress. Wing 71, tail 67.
- Ad. [♀ by size] in good dress. Wing 60, tail 70.
- Ad. (? sex) in very worn dress (and very dirty). Wing 64, tail 51.
- Ad. (? sex) in good dress. Wing 53, tail 46.
- Ad. ♂ in fresh dress (but now much spoilt and discoloured in patches, probably from initial preservation in some impure liquid). Wing 58, tail 61.
- Ad. [♂ by size]. Wing 48, tail 52.
- Ad. (? sex) in good dress. Wing 62, tail 26.
- Ad. (? sex) in worn dress. Wing 58, tail 31.
- Ad. (? sex) in new head and body dress and moulting remiges and rectrices. Wing 59, tail 43.
- Ad. (? sex) in good dress. Wing 105, tail 49.

Name of type (as in the Systema). Author and original description as given in the Syst. Av. Aethiop.	Repository (Museum)	Label
<i>Hirundo abyssinica unitatis</i>	Brit.	Pinetown, Natal; 15 Oct.; ♂. (Ayres)
<i>Psalidoprocne petiti orientalis</i>	Berlin	Lewa, Usambara; 25 Sept. 1888; ♀. (Stuhlmann)
<i>Dicrurus ludwigii münzneri</i>	Berlin	Sanji, Mahenge, Tang. Terr.; 3 Aug. 1913; ♂. (Münzner)
<i>Eurocephalus rueppelli böhmi</i>	Berlin	Unijamanga, Bez. Langenburg; 25 Aug. 1908; ♂. (Fromm)
<i>Nilaus nigritemporalis</i>	Berlin	Ngoma, Tang. Terr.; 21 Oct. 1890; ♂. (Stuhlmann)
<i>Lanius collaris marwitzii</i>	Berlin	Ngomingi, S. Tang. Terr.; 28 Aug. 1899. (v. d. Marwitz 136)
<i>Laniarius fülleborni</i>	Berlin	Usafua, N. of L. Nyasa; 12 July 1899. (Fülleborn)
<i>Laniarius murinus</i>	Berlin	Muhanga, S. Tang. Terr.; 8 April 1900. (v. d. Marwitz)
<i>Tchagra australis congener</i>	Berlin	New Helgoland, S. Tang. Terr.; Dec. 1899. (Fülleborn)
<i>Chlorophoneus münzneri</i>	Berlin	Sanji, Mahenge, Tang. Terr.; 13 July 1913; ♂. (Münzner)
ditto, co-type	Berlin	same place as Type; 3 Aug. 1913; ♂. (Münzner)
<i>Chlorophoneus nigrifrons</i>	Berlin	Marangu, Kilimanjaro. (v. d. Marwitz)
<i>Chlorophoneus nigrifrons manningi</i>	Brit.	Nyasa-Tanganyika plateau; ♂. (Manning)
<i>Anthoscopus caroli sylviella</i>	Berlin	Usafua, S. Tang. Terr.; 6 July 1899. (v. d. Marwitz)
<i>Zosterops virens stierlingi</i>	Berlin	Iringa, S. Tang. Terr.; 1 May 1897; ♂. (Stierling)
<i>Nectarinia famosa aeneigularis</i>	Brit.	Sotik, Kenya highlands; ? (Jackson)
<i>Nectarinia kilimensis arturi</i>	Brit.	Melsetter, Rhodesia; 13 April 1906; ♂. (W. M. Stanley)

Judged to be

-
- Ad. ♂ in good dress. Wing 107; tail 79 outer and 37 central rectrices.
- Ad. ♀ in good dress. Wing 102, tail 81.
- Ad. ♂ in very good, fresh dress. Wing 112; tail 94 outer and 90 central rectrices.
- Ad. ♂ in half worn dress. Wing 134, tail 101.
- (? Ad. or old imm.) ♂ in full new dress except for the following old brown, and very likely juvenile feathers: — a few in head neck, all remiges and all wing coverts, less tertials. Wing 80, tail 48.
- Ad. [♂] in good dress. Wing 97, tail 121.
- Ad. [♂] in good dress. Wing 87, tail 84.
- Juv. (? sex), almost certainly young of *Laniarius fülleborni*. Wing 84, tail 82.
- Ad. (? sex) in complete new dress. Wing 76, tail 86.
- Ad. ♂ in complete new dress. Wing 86, tail 81 [= *Chlorophoneus nigrifrons nigrifrons* pale-phase].
- Ad. ♂ in good dress. Wing 87, tail 83.
- Ad. (? sex) in complete new dress. Wing 89, tail 85 = *Chlorophoneus nigrifrons nigrifrons* [rich-phase].
- Ad. ♂ in good dress (but now discoloured in patches, probably initial preservation in some impure liquid). Wing 92, tail 84.
- Ad. (? sex) in worn dress except good rectrices. Wing 54, tail 27.
- Ad. ♂ in complete new dress. Wing 61, tail 43.
- Ad. ♂ in good breeding dress. Wing 71.
- Ad. ♂ in good breeding dress. Wing 73; tail 115 central and 59 next central rectrices.

Name of type (as in the Systema). Author and original description as given in the Syst. Av. Aethiop.	Repository (Museum)	Label
<i>Cinnyris mariquensis suahelicus</i>	Berlin	Igonda, Tabora Distr., Tang. Terr.; 8 Aug. 1882; ♂. (Böhm)
<i>Cinnyris venustus niassae</i>	Berlin	Zomba, Nyasaland; Aug. 1892. (Johnston)
<i>Cinnyris chalybeus manensis</i>	Berlin	Missele, Langenburg, S. Tang. Terr. (Tessier)
<i>Cinnyris chalybeus gertrudis</i>	Berlin	Songea, S. Tang. Terr.; 5 Aug. 1900; ♂. (Stierling)
<i>Cinnyris mediocris fülleborni</i>	Berlin	Kalinga, S. Tang. Terr. (Fülleborn)
<i>Chalcomitra amethystina kirkii</i>	Brit.	Zambesi Distr. (Kirk)
<i>Cyanomitra verticalis viridisplendens</i>	Berlin	Bukoba, N. W. Tang. Terr.; 8 Oct. 1890; ♂. (Emin)
<i>Cyanomitra verticalis niassae</i>	Berlin	Rutenganio, N. of L. Nyasa, 5 June 1898. (Fülleborn)
<i>Ploceus stuhlmanni sharpii</i>	Brit.	Nyasaland. (Johnston)
<i>Ploceus bertrandi</i>	Brit.	Mlanji, Nyasaland; 16 Oct. 1891; ♂. (A. Whyte)
<i>Ploceus jacksoni</i>	Brit.	Kilimanjaro. (Jackson)
<i>Coliuspasser hartlaubi psammocromius</i>	Berlin	Tandala, S. Tang. Terr.; 11 May 1899. (Fülleborn)
<i>Pytilia melba belli</i>	Brit.	Ruwenzori, S. E., 3400 ft; 27 May 1906; ♂. (Ruwenzori exp.)
<i>Lagonosticta rubricata jamesoni</i>	Brit.	Tatin R., Matabeleland; 9 Dec. 1880; ♂. (J. S. Jameson)
<i>Lagonosticta rubricata haematocephala</i>	Berlin	Songea, S. Tang. Terr.; 11 May 1901; ♂. (Stierling)
<i>Coccopygia melanotis kilimensis</i>	Brit.	Kilimanjaro, 5000 ft; 6 Aug. 1888; ♂. (Hunter)
<i>Estrilda subflava clarkei</i>	Brit.	Natal; 8 Dec. 1881; ♂. (Reid)
<i>Estrilda roseicrissa marwitzii</i>	Berlin	Uhehe, S. Tang. Terr. (v. d. Marwitz)

Judged to be

-
- Ad. ♂ in good breeding dress. Wing 63, tail 45.
- Ad. ♂ in good breeding dress. Wing 50, tail 36 = *C. v. falkensteini*.
- Ad. ♂ in worn breeding-dress. Wing 61, tail 42, bill, 23.
- Ad. ♂ in full metallic dress with blemishes. Wing 60, tail 40, bill. 17½.
- Ad. ♂ in good breeding-dress. Wing 57, tail 43.
- Ad. ♂ in good breeding-dress. Wing 69, tail 54.
- Ad. ♂ in good breeding-dress. Wing 67, tail 50.
- Ad. ♂ in good breeding-dress. Wing 67, tail 41, bill 23.
- Ad. ♂ in fairly good breeding-dress. Wing 81, tail 57.
- Ad. ♂ in fairly good breeding-dress. Wing 83.
- Ad. ♂ in fairly good breeding-dress. Wing 73, tail 45.
- Ad. ♂ in worn breeding-dress. Wing 102, tail 248.
- Ad. ♂ in new dress except remiges half-worn. Wing 57, tail 45.
- Ad. ♂ in good, quite spotless, dress. Wing 46, tail 39.
- Ad. ♂ in good, well-spotted, dress. Wing 48, tail 41.
- Ad. ♂ in good dress. Wing 46, tail 32.
- Ad. ♂ half way through a complete moult. Wing 47, tail 33.
- Ad. (? sex), finishing a complete moult, only outer primaries to complete.
Wing 50, tail 48.

Name of type (as in the Systema). Author and original description as given in the Syst. Av. Æthiop.	Repository (Museum)	Label
<i>Estrilda erythronotos delamerei</i>	Brit.	Athi R., Kenya Col.; ♂. (Delamere)
<i>Hypochoera codringtoni</i>	Brit.	Molilos, nr. Petauke, Loangwa valley 2200 ft; 3 Febr. 1905; ♂. (Neave)
<i>Poliospiza gularis reichardi</i>	Berlin	Kakoma, Tabora Distr., Tang. Terr.; 1882. (Böhm)
<i>Poliospiza melanochrous</i>	Berlin	Tandala, Ukinga, S. Tang. Terr.; Dec. 1890. (Fülleborn)
<i>Poliospiza whytii</i>	Brit.	Nyika plateau; ♂. (A. Whyte)
<i>Spinus citrinelloides hypostictus</i>	Berlin	Moshi, N. Tang. Terr.; 24 June 1903; ♂. (Kittenberger)

Judged to be

Ad. ♂ in good dress. Wing 53, tail 51.

Ad. ♂ in one-quarter worn dress. Wing 70, tail 38.

Ad. (? sex) in good dress. Wing 77, tail 50.

Ad. (? sex) in complete new dress, except for a few half-grown outer rectrices. Wing 84, tail 71; bill 9 and $11\frac{1}{2}$ deep at base.

Ad. ♂ in fairly good dress. Wing 70, tail 71.

Ad. ♂ finishing a complete moult. Wing 64, tail 45.