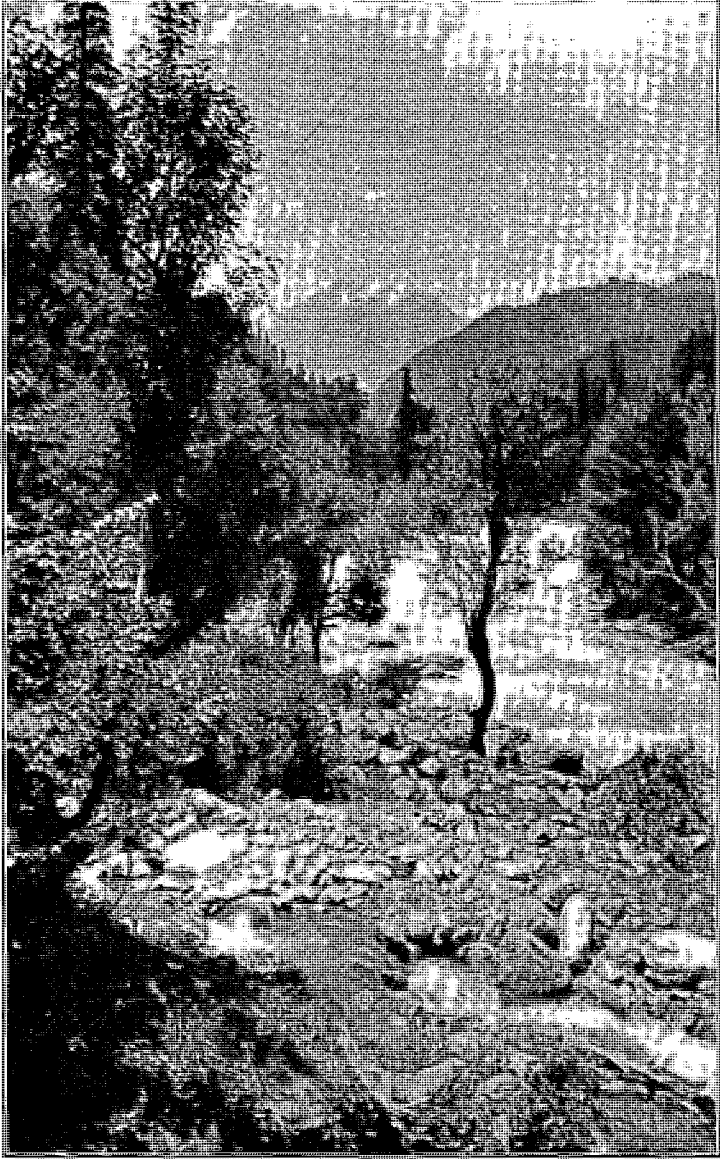


[Frontispiece.]



THE LIDAR RIVER, NEAR PAHLGAM, KASHMIR.

Along its banks breed Plumbeous Redstarts, Brown Dippers, Himalayan Whistling-Thrushes, and, where islands occur, Common Sandpipers may be met with. Up the shady side-streams Western Spotted Forktails are not uncommon, but are seldom seen on the main river.

THE NIDIFICATION
OF
BIRDS OF THE INDIAN EMPIRE

BY

E. C. STUART BAKER, C.I.E., O.B.E., F.Z.S. ETC.

VOLUME II.

TURDIDÆ—STURNIDÆ.

WITH SIX PLATES.

LONDON :

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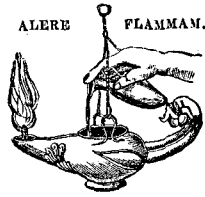
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P R E F A C E

THE present volume deals with those families contained in volume ii of the 'Fauna of British India,' excluding the *Cinclidæ*, which were included in the first volume of this work. It also deals with the families *Irenidæ*, *Oriolidæ*, *Graculidæ* and *Sturnidæ*, which form part of volume iii of the 'Fauna.'

These families, 12 in number, contain 111 genera and 319 species, or 527 species and subspecies. To these, however, must be added no less than 13 species and subspecies which have been described or resuscitated since the 'Fauna' was published, giving a total of 540.

Of these 540 there are 75 birds which do not breed within the limits of the Indian Empire. Of the remaining 465 species and subspecies, the nidification of 403 is described in the present volume, while of the other 62 nothing is known in regard to their nesting habits or, at least, nothing has been yet recorded. That is to say, there still remains about 13 to 14 per cent. of our Indian breeding birds of whose breeding habits we know nothing.

Of these 62 forms it is true that most breed on the higher Himalayas or in the extreme boundaries of East and South Burma, which have been much neglected from an oological point of view. On the other hand, some are extremely common birds, living in places which have been well worked, such, for instance, as *Cisticola erythrocephala*, which abounds on the grassy plateaus of the Nilgiri Hills.

In comparison with our knowledge of nidification at the time of Oates's edition of Hume's 'Nests and Eggs' in 1898, an enormous advance has been made. Comparison is, of course, difficult, as at that time subspecies were not recognized, but, roughly, the

percentage of birds of which we now know the breeding has advanced from about 55 to 86 per cent. This, however, shows how much there is still to be done, especially when we remember that in some cases the nidification recorded requires confirmation and that in other cases the record is that of a single nest and its contents. In addition to the finding of entirely new eggs, we have much to learn as to the range of variation, of colour, shape and size in those which are already known ; length of incubation period, construction of nest, courting displays and many other points also still require elucidation.

All these wants may be seen from a perusal of the present volumes and, it may be hoped, they will initiate a more systematic, methodical and thorough collection, not only of eggs, but of all the facts connected with the breeding habits of the birds which lay them.

E. C. STUART BAKER.

6 Harold Road, S.E. 19.
30th May, 1933.

LIST OF PLATES

(from photographs taken by Capt. R. S. P. Bates and Mrs. Bates).

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THE NIDIFICATION
OF THE
BIRDS OF THE INDIAN EMPIRE.

Order **PASSERES** (*cont.*).

Family **TURDIDÆ**

(THRUSHES).

Subfamily **BRACHYPTERYGINÆ**

(SHORT-WINGED THRUSHES).

Brachypteryx major.

THE SLATY-BREASTED SHORT-WING.

(481) **Brachypteryx major major** (Jerdon).

THE RUFIOUS-BELLIED SHORT-WING.

Brachypteryx major major, Fauna B. I., Birds, 2nd ed. vol. ii, p. 10.

This handsome Short-wing is found in the Nilgiris from about 5,000 feet to almost the highest hills. It occurs also in the Bramahagiris and adjoining hills.

It keeps to the well-wooded *sholas* in between the hills all over the Nilgiris, breeding, apparently, both on the ground in hollows in banks and in holes in trees, while Davison also took nests from crevices in rocks. Undoubtedly, however, holes in trees are much the most often selected as sites for the nest.

Hume, referring to the nests found by Carter, writes of them as follows:—"Mr. Carter took them from holes or depressions in banks in the Nilgiris in April and May. They closely resemble nests of *Niltava macgrigoræ* from Darjeeling. They are soft masses of green moss, some 4 or 5 inches in diameter externally, with more or less of a depression towards one side, lined with very fine dark moss-roots. This depression may average about $2\frac{1}{2}$ inches across and $\frac{3}{4}$ in depth but they vary a good deal. Mr. Carter

says :—‘ I have found the nests of this species about *sholas* (*i. e.*, jungles not amounting to forests). The old birds are very shy about returning to the nest when watched.’”

Davison found it breeding in the Nilgiris during the same months (April and May) in holes of trees and crevices in rocks.

Betham, also writing of the Nilgiris (Journ. Bomb. Nat. Hist. Soc. vol. xiv, p. 620, 1902) says it “is fairly common but requires looking for; it is of a retiring nature and loves deep shade but not thick jungle. I obtained three nests, on the 4th, 15th, and 29th May, the two first each contained two callow young and the last two fresh eggs, so that two would seem to be the full complement. The sites chosen were natural holes or hollows in trees, a few feet from the ground; these are filled up with a mass of green moss and finished off in a neat cup, lined with fine black moss-roots, and are very pretty. The nests were not difficult to see as no attempt is made to conceal them, and the trees selected were free from moss, lichen or any sort of parasitic growth.”

Bates gives an exactly similar description of a nest found by him. This was in a natural cavity in a tree “at the edge of a tiny glade through which flowed a small stream. All round this open patch the wood was particularly thick, rendering this quite a secluded spot, although, in reality, the path ran within thirty yards of it.” The owner of the nest was very shy.

Cardew, Howard Campbell and others all describe the nest as being nearly always built in holes of trees quite low down, though Cardew did take one or two in holes of banks.

The breeding season extends from the middle of March to early June, but May is the chief breeding month. Capt. H. Packard took one nest as early as the 17th March close to Ootacamund, whilst Cardew took others in April.

The eggs are invariably two only in number.

The ground-colour is a very pale olive-brown, but the whole surface is so completely covered with minute freckling of reddish-brown that, unless looked into carefully, the eggs appear to be uniform rather dark olive-brown, in some cases the olive tint being almost extinguished by the freckles, so that the egg is quite brown. In one or two of Hume’s eggs, now in the British Museum, the markings are rather more definite blotches, which are more numerous at the larger end, forming ill-defined caps. In one pair in my series the brown freckles are almost obsolete and these two eggs appear to be unicoloured olive-green.

In another pair the freckles form quite a well-defined ring round the larger end, being as usual elsewhere.

In shape the eggs are long ovals, tending towards elliptical; a very few are shorter ovals and less elliptical. The texture is fine, close and strong, always with a slight gloss, sometimes rather strong in fresh eggs.

Fifteen eggs average 23.7×16.5 mm. : maxima 25.9×16.4 and 23.1×17.3 mm. ; minima 22.0×16.0 and 24.0×15.9 mm.

(482) *Brachypteryx major albiventris* (Fairbank).

THE WHITE-BELLIED SHORT-WING.

Brachypteryx major albiventris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 11.

This race replaces the preceding in the Palni Hills and Travancore. Birds from the extreme North of Travancore show signs of a rufous wash on the flanks, thus approaching the Nilgiri bird.

This Short-wing's nidification appears to be in every respect exactly like that of the Rufous-bellied bird, just a pad of green moss with a depression in the centre, built in a hole in a tree or, less often, in a hole in a bank.

I can find very little to show at what elevations it breeds. Oates says that in Travancore it occurs at 1,000 feet, but Ferguson, Bourdillon and others all say that they have not met with it, and that it does not breed, below 3,000 feet. Probably its normal breeding range may be put at between 3,000 and 5,000 feet, whilst it is sometimes found up to 7,000 feet.

Captain Horace Terry took two nests of this bird near Kodaikanal on the 3rd and 7th June, each with two eggs, one placed "in a hole in a tree between 4 and 5 feet from the ground, a deep cup of moss; the other, in a hole in the bank of a path running through the *shola*, was of green moss and a few fern-roots. Inside, 1.75 inch deep and 2.5 inches across; outside, a shapeless mass of moss filling up the hole it was built in. The nest was very conspicuous to anyone passing by."

Fairbank took a nest from a natural hole in a tree about 2 feet from the ground, Cardew took one from a similar position and Howard Campbell took many from natural holes in trees, all of these being found well inside shady *sholas* and often near water. One nest taken by Howard Campbell was not from a tree. This, which he sent to me, "was found in a hole in a bank and not in a tree, as is usually the case. It was of the ordinary type, cup-shaped, and made entirely of green moss with a lining of roots. Externally the nest was very massive, fitting into the hole in which it was placed. As the bird drew attention to it by slipping off the nest when we were some yards away, we had not to hunt for it, but it was not at all well concealed. It contained one egg slightly incubated."

This particular egg looks as if coloured light olive-green all over but, if looked into very carefully, is seen to be faintly flecked with reddish, rather more obviously so at the larger end. All my other eggs, of which I have a fair series taken by Howard Campbell, Captain H. Terry and others, are like those of the preceding bird and could not individually be separated from them but, as a series, are a rather richer and redder brown in tint.

In shape they are the same long ovals and they are quite similar in texture also.

Fourteen eggs average 23.9×16.8 mm. : maxima 25.5×17.0 and 23.2×17.5 mm. ; minima 21.0×16.0 mm.

The number laid is practically always two, very rarely one.

The nesting season in the Palnis seems to last from early April, Howard Campbell having taken a nest on the 4th of that month, to early June, when Terry took both his nests. The only clutch from Travancore in my series was taken by T. F. Bourdillon on the 7th March.

Larvivora brunnea.

THE INDIAN BLUE CHAT.

(484) *Larvivora brunnea brunnea* * Hodgs.

THE INDIAN BLUE CHAT.

Larvivora brunnea, Fauna B. I., Birds, 2nd ed. vol. ii, p. 14.

This Blue Chat breeds in the Himalayas from Kashmir and Garhwal to Sikkim and Bhutan. A form of Blue Chat breeds also freely in the Chin Hills, where many nests were seen by Livesey, who has obtained skins for me which I cannot distinguish from the typical Himalayan bird. It has been reported as breeding in the Nilgiris, though without any proof, while Davison's supposed nest of this bird was probably that of the Rufous-bellied Short-wing. Darling's eggs were also "wrong 'uns" and, as Mandelli's eggs are not described, we must ignore his note also. Stevens does not say how high it breeds in Sikkim but notes that "*Larvivora brunnea* breeds sparingly at all elevations from 5,000 feet upwards." In Murree Rattray, Buchanan and others took its nest between 5,500 and 8,000 feet ; in Garhwal Whymper and Osmaston found many from 7,000 feet to above 11,000 feet, "but only in the well-wooded portions," whilst in Kashmir it would appear to breed between 5,500 and 9,000 feet and possibly still higher.

The birds keep closely to deep forest and thick jungle of various kinds and during the breeding season the hen bird is exceptionally shy and secretive, though the cock bird shows himself far more in the Summer than in the Winter, singing constantly on some prominent perch not far from the nest. The nest is placed on the ground, generally on a bank and very often beside some jungle-path running through forest, or in some natural hollow or ditch. They are almost invariably very well concealed, frequently hidden in between the roots of a bush or in a recess well hidden by surrounding ferns, bracken or other cover. Most nests are made chiefly of dead leaves, moss and a few roots but Osmaston also found dry weeds-

* Stresemann has separated the race from Szetschwan under the name of *L. b. dendrobiastes*, so our bird must now come under a trinomial as above.

stems, and lichen used in their construction. The lining is nearly always of hair but often with a few feathers added.

About 1896-8 a good many observers came across the nest of this Chat, and of these Osmaston was probably the first. He writes (*Journ. Bomb. Nat. Hist. Soc.* vol. xi, p. 71, 1897):—"This is a very common bird throughout the Tons Valley, at elevations of from 8,000 to 11,000 feet. I found two nests.

"The nests were built on a bank by a frequented footpath at about 8,000 feet elevation, and were exactly similar, both in position and construction, to those of the English Robin, but the eggs were of a uniform pale blue. There were four eggs in each nest."

In the same year (1896) Davidson found its nest in Kashmir (*Ibis*, 1897, p. 10). On the 11th June he found a nest which he describes as "almost on the bare ground between the fallen tree and a bare branch, and was a very large and loose mass of dead and decayed leaves, lined with a very few horse-hairs. On the 14th we found another nest of a similar description, with four eggs pretty hard set. It was in a hole on the ground in thick forest."

Davidson found the hen bird very shy. Bell, who was with Davidson, found the nests and once waited an hour and again two hours for the hen bird to return, without result. Davidson then took his place, and in half an hour the hen returned and perched on a bare stump some sixty yards away. Twice he went up to the nest and put the hen off without getting a shot, but was eventually successful in shooting it.

Magrath found this Chat very common on the hills about Thandiani and also obtained nests which he says are "built of moss and leaves, and lined with hair and a few feathers, is usually placed in a crevice in a rock or under a stone in a gully and near thick cover, and is, as a rule, wonderfully well concealed."

Magrath also notes that during the breeding season the male bird "throws off his secretive habits to a great extent, and is to be seen displaying his beauty to advantage, perched on a bush or branch of a tree."

The chief breeding month is June, but many birds breed in the last week of May in the lower mountains, whilst Whympster took one on the 1st July in Kashmir and Bates found one with three fresh eggs on the 17th of that month.

The full clutch is nearly always four but, occasionally, only three eggs are laid, and Whympster once took a clutch of five on the 10th June in Garhwal.

The colour is a beautiful pale blue, quite unspotted and exactly the same in tint as that of the eggs of our English Hedge-Sparrow. They are extraordinarily constant in depth of colour, and among the twenty or so clutches I have seen there have been no variations at all, but of course fresh eggs are rather brighter than hard-set ones, or those which have been kept for some time.

Fifty eggs average 20.0×14.6 mm.: maxima 21.6×15.2 and 20.0×16.0 mm.; minima 18.4×14.1 and 18.9×14.0 mm.

In shape the eggs are true ovals, occasionally rather more obtuse at the smaller end. The texture is very fine and close and, though the surface has no gloss, it is very smooth and silky.

(485) *Larvivora wickhami* Stuart Baker.

THE CHIN HILLS BLUE CHAT.

Larvivora wickhami, Fauna B. I., Birds, 2nd ed. vol. ii, p. 15.

The only country in which this bird has so far been found breeding is in the Chin Hills, where it seems to be extremely common between 4,500 and 7,000 feet.

The first note on this bird's nidification is that of Wickham, who discovered the bird in the Chin Hills (Journ. Bomb. Nat. Hist. Soc. vol. xxv, p. 750, 1919):—"This bird was obtained by me on the first of May on the march from Fort White, Chin Hills, to the plains; the nest was situated on the cleared space above the actual side-cutting of the hill-side mule-track; at this place the cutting was about 4 feet high. The nest was placed under a dried bracken leaf, bent down, made of leaves and moss and lined with hair. The parent bird fluttered off as I came near, into the jungle below the path but, waiting for it, I secured it on its return, which was very soon. The white legs dropping as it flew away off the nest were most conspicuous."

The bird, which was sent to me for identification, was a male, forming an interesting instance of a bright-coloured male assisting in incubation, though this must be very exceptional even with this species, as Livesey never saw a male on the nest. After this, K. C. Macdonald obtained some nests which he gave away to Harington and Mackenzie, but the only data are that they were taken between 11th and 15th May and that the nests were lined with feathers.

T. R. Livesey saw many nests of this bird in the Chin Hills and obtained several clutches of eggs. A most interesting letter from him contains the following information:—"I caught two of these hen birds; one, myself, on her nest and one was brought to me by a boy with her nest and eggs. They were both the same and there was no doubt about them, for I had a pair nesting within twenty-five yards of the front of my window at Haka. I watched the males fighting and the nest being built etc. The little cock used to sing when seated on the posts of my garden fence and also in a Pine-tree six feet from the nest. His bright blue back and shining supercilium were most conspicuous. It is now the end of the Rains and these Blue Chats have disappeared and I no longer hear their song, which in April, May and June was to be heard in every little patch of jungle.

It is a sweet little short song-note, 'Zee-ee-ee-ee-ee-whi-hoo,' a long plaintive 'zee' ending up with a quick 'whi-hoo.'

"These Blue Chats are common at Haka and at least four pairs nested within a hundred yards of my bungalow, but each pair of birds had an area to themselves. In April and May the cock birds do a lot of fighting and drive each other about and then sit and sing on the tops of bushes and even as high up as forty feet or so on trees, whilst I have also seen a cock singing when seated on a telegraph wire. One sees very little of the hen birds beyond a chance glimpse as they fly from one patch of cover to another with a direct swift flight a few feet above the ground.

"The nests of the Blue Chats are small and well concealed and very like those of the Dark-grey Bush-Chats, whilst it is placed in similar places. Two built near my house could not be seen until the grass was parted by hand. They were lined pretty thickly with black hair which showed up the blue eggs admirably, whilst the body of the nest was made of fine roots and grasses.

"They breed in fairly open spaces. I took one nest with fresh eggs about 25 yards from my house, just outside my fence, which was in a more or less open field, tucked away in the grass among some rose-bushes under a pine-tree. Another one was in a bush like a gorse-bush, built just at the foot of it and about three yards from thick cover. It seems to use much the same sort of position for its nest as the Dark-grey Chat likes but I have not found any nests on steep bare banks by roadsides such as is often used by that bird, though I found one nest in a small tank, covered by grass a foot to 18" high, by a small disused path.

"The cock bird is never seen on the nest though he never seems to stray far from it, and is very fierce and bold in protecting his territory."

They lay four eggs of a beautiful Hedge-Sparrow blue, much brighter and bluer than the eggs of the Burmese Dark-grey Bush-Chat, the only bird's with which it would be possible to confuse them breeding in Burma in similar situations. They could not, of course, be distinguished from those of *L. brunnea* but are, perhaps, a trifle paler. The only eight eggs I have seen average 18.4×14.15 mm. : maxima 19.0×14.6 mm. ; minima 17.9×14.0 and 18.1×13.9 mm.

They apparently breed in April and May only.

(488) *Heteroxenicus cruralis* (Blyth).

THE WHITE-BROWED SHORT-WING.

Heteroxenicus cruralis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 17.

This Short-wing breeds from Sikkim to Eastern and Southern Assam and thence into the Chin and Kachin Hills to Karenni. In Sikkim it breeds at all heights from 5,000 feet to 10,000 feet,

at which height Stevens shot a breeding pair; in Assam they breed from 5,000 feet up to 9,000; in the Chin and Kachin Hills apparently from 6,000 feet upwards; whilst in Karenni they probably only breed in a few places on the highest ridges.

It keeps almost entirely to forest or thick brushwood at all seasons and prefers such, even of these, which are green, wet and mossy, with plentiful rocks and boulders breaking up the undergrowth.

The first nest ever taken of this bird contained an egg of *Cuculus poliocephalus* in it under two of the foster parent. This nest was taken by a Mr. F. Gleadow at an elevation of about 9,500 feet in the Tons Valley and given to Osmaston, who at the time did not know what the nest was. "The nest was cup-shaped, made of moss and lined with thin black fern-stalks. It was placed up against a low rock and concealed by a bunch of ferns growing out of the same" (Journ. Bomb. Nat. Hist. Soc. vol. xi, p. 471, 1898.)

In 1903 Osmaston took seven nests round Darjiling, and from them was able to indentify the above. Of these nests he writes (*ibid.* vol. xv, p. 511, 1898):—"The bird is not uncommon in the dense mossy forests from 6,000 to 8,000 feet. It has a pretty short song of a few notes which, however, ends up harshly.

"I found seven nests of this species this year between 15th June and 15th July. They were all domed structures composed entirely of moss and lined with fine roots, with a large opening, about 2" to 2½" across, on one side.

"They were all built up against the face of a moss-covered vertical rock or tree-trunk, the nest being so neatly incorporated into the mossy covering of the rock or tree that it was almost impossible to say where the nest began and where it ended. The entrance to the nest is often parallel to the face of the rock or tree and is so artfully concealed that the presence of a nest is rarely suspected until betrayed by the exit of the parent bird.

"The full complement of eggs is three, though only two are sometimes laid.

"They are long ovals, pure white, with a slight gloss.

"The mean of the measurements of 15 eggs gave .90" × .64"."

In the Khasia Hills they breed earlier than in Sikkim, for I found eggs from the middle of May to the middle of June on some of the highest ridges, 5,000 to 6,200 feet, making a similar domed nest of moss to that described by Osmaston.

They were all found in very damp shady forest of Oak and Rhododendron, growing very densely, with a thick green undergrowth of bracken, ferns and bushes. Everywhere there were many orchids and long streamers of vivid green moss growing all over the trunks of trees and on the great rocks which showed their heads in numbers above the bushes. The nests were woven into these masses of green moss, the entrance in most cases being between the nest and the face of the rock or tree and the nest

itself looking like a bulge in the moss surrounding it. The bird was rare and we never found more than two nests in a season and often none at all.

The eggs are as described by Osmaston, pure white, with a fine satiny texture and a slight gloss. In shape they are rather long ovals, with the smaller end often slightly pointed. A few eggs are rather broader.

Thirty-one eggs, including Osmaston's, most of which are now in my collection, average 22.7×16.0 mm.: maxima 23.2×15.6 and 23.1×16.5 mm.; minima 19.8×14.3 and 20.1×14.1 mm.

As already stated, the season in Assam for laying is May and early June, and in Sikkim, at all events at the higher elevations, between early June and late July.

The male bird, as with so many others of the Short-wing Chats, seems to breed as often in the immature as in the mature plumage and, it may be, that some males never acquire this in the Eastern portion of their range.

Heteroxenicus nipalensis.

THE SHORT-TAILED CHAT.

(489) **Heteroxenicus nipalensis nipalensis** (Hodgs.).

THE NEPAL SHORT-TAILED CHAT.

Heteroxenicus nipalensis nipalensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 19.

This Chat is spread throughout the Himalayas from Sikkim and Nepal to Eastern and Southern Assam and thence through the Chin Hills and Arrakan Yomas to Tenasserim.

Pershouse found a bird of this species breeding in the Bhamo Hills but, as no specimens were obtained, we cannot say to which race it belonged.

In Sikkim Stevens gives its breeding elevation as between 4,700 and 7,000 feet but says that in North Assam it occurs, probably in Winter only, right down to the foot-hills or even in the plains. In South Assam we found it breeding abundantly at all elevations above 3,000 feet up to the highest peaks, probably up to 8,000 feet. Osmaston also took a nest near Darjiling at about the latter height.

Although an odd nest may be taken now and then in scrub-jungle, especially in deserted cultivation surrounded by forest, or even in bamboo-jungle, this little Chat normally breeds in dense damp forest with plentiful green undergrowth. Like many other birds, it affects little open spaces, the banks of streams and similar spots more often than the deep interiors of the forests. It may, however, be found frequently breeding in the densest forest, in moist shady places far removed from an opening of any sort.

It places its nest most often in low thick bushes, or almost as often in among the moss growing on tree-trunks or rocks, and it seems to have a great affection for the great decaying trunks of fallen trees, which are covered all over with moss, orchids and other kinds of vegetation, tucking the nest away among them so that it is very difficult to find. Occasionally it is built actually on the ground, generally on some sloping bank, which, however wet, allows most of the rain to run off. It is, apparently, never built at any great height from the ground, whether placed on tree, rock or small bush. Most often it will be found within 18 inches to 3 feet from it, less often 4 or 5 feet and, sometimes, as I have already said, actually on the ground itself.

The nest is shaped like an oval ball and is always domed. One of the first taken by myself had the following measurements:— External height 5·4 inches; diameter 3·9 inches; cavity 3×2 inches; entrance high up on one side about $1\cdot8 \times 2$ inches. Other nests might be as much as half an inch less each way outside, but not many would be found to exceed the above. They are well and compactly put together and stand quite a lot of handling and pulling about without coming to pieces. The materials in most cases consist mainly of bamboo-leaves, dead leaves of trees and skeleton leaves, loose materials in themselves but well bound together with long roots and strands of green moss. Both roots and moss are thoroughly twisted in and out of the loose materials, whilst the moss is also used largely in coating the exterior of the nest. This varies, though, greatly in extent. I have seen nests which looked as if made entirely of moss and others in which the moss only showed through in scattered patches here and there. Wherever they are placed the nests are wedged in among the moss, orchids or twigs of the bush and the material is seldom, if ever, wound round the latter or built in *with* the former. The lining is in two parts: first a layer of rhizomorph, roots, or very fine fern-stems and then skeleton leaves, of which quite a thick pad is usually placed at the bottom of the cavity. Scraps of grass, bark and fibre of various kinds are often mixed in with the dead leaves but, whatever other materials are made use of, skeleton leaves always seem to preponderate.

Gammie and Mandelli both took the nests of this bird near Darjiling at about 5,000 feet and these are described as very similar to those found by myself.

The breeding season is a long one and I have found eggs from early April to late July. Most birds, however, are late breeders and more eggs are laid in June and early July than at any other time.

Both birds assist in incubation and, of the great number we trapped on the nests, the sexes were very fairly divided. Both birds also take part in the construction of the nest.

They are shy, retiring little birds, slipping quietly off the nests when disturbed and, after a flight of a few yards, diving into the

bushes; they return fairly quickly, however, to the nest if the disturber keeps quiet and still.

In the Eastern portion of its range the male bird seldom acquires the blue adult plumage and, even then, does so only partially, except in very rare cases. They breed constantly in the brown plumage.

The full complement of eggs is three or four, perhaps more often the latter, though I have found clutches of two more or less incubated. The eggs are in ground-colour a pale olive-green, sea-green or, rarely, pale olive-brown, but in most eggs the whole surface is so completely covered with innumerable tiny specks and freckles of light reddish-brown that they give one the impression of being unicoloured olive-brown eggs. In a few specimens the freckles may be less numerous at the smaller end, and I have one beautiful clutch of three marked only at the larger end, with coalescing freckles of rather bright reddish.

In shape the eggs are ordinary to rather broad ovals, often with the smaller end considerably compressed, though never very pointed. The texture is fine and clear and there is sometimes a slight gloss.

Sixty eggs average 19.5×14.6 mm.: maxima 22.4×15.2 and 22.3×15.6 mm.; minima 18.5×14.2 and 19.0×14.0 mm.

(490) *Heteroxenicus sinensis* Rickett & La Touche.

THE CHINESE SHORT-WING.

Heteroxenicus sinensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 20.

This Short-wing is really a Western Chinese form but has twice been recorded from within Indian limits, in both cases a female being caught on her nest and eggs, and in both instances, after I had locally identified them, the skins were sent to Dr. Hartert to compare with Chinese specimens, and by him the identification was confirmed.

In the first instance a bird was brought to Dr. H. N. Coltart with eggs and the remains of a nest by Trans-Dikku Nagas, which was said to have been taken at about 6,000 feet on an extension of the Patkoi-Naga Hills. This was in 1903. The second occasion was in 1907, when a Naga table-servant of mine, who was also a keen skinner and collector, went home for short leave and, on his return, brought me a small collection of bird-skins from Hungrum, North Cachar, all collected at about 5,000 to 6,000 feet, and which had all been trapped on their nests. Among them was another female of this species, a nest and three eggs. The nests had, apparently, been very much like those of the preceding bird but, perhaps, more bulky, though this may have been due to their having been much handled and knocked about before we saw them. They were domed and built of the same materials, a little moss outside and

many skeleton leaves in the inner portions and lining. Both were said to have been built among orchids on fallen logs in deep, wet, evergreen forest. Both were taken in the latter half of July.

The eggs taken in Assam are similar to those of the preceding birds. The ground-colour is not visible and the eggs appear to be uniform rather dark olive-brown, but with a high-power magnifying glass one can see the olive-grey ground showing through the tiny dark olive-brown specks. The three eggs taken in North Cachar measure 21.9×16.5 , 21.2×16.2 and 21.9×16.3 mm., showing them to be much broader, more bulky eggs than any I have seen among hundreds of those of *H. n. nipalensis*.

La Touche ('Birds of E. China,' p. 133, 1930) gives the following account of its breeding in North-West Fokhien:—

“The bird inhabits the dense dwarf-bamboo undergrowth in the forest (altitude about 6,500 feet) and is difficult to observe. The nest is built in April, and is a domed structure with side or front entrance, composed of moss with the egg-cavity strengthened with dry leaves and thickly lined with moss-roots. It is placed at a height of about 18 inches from the ground against the moss-grown trunk of a tree. The eggs are laid early in May. These are ovate inclining to oval, or sometimes pyriform in shape, of smooth satiny texture, orange or pinkish-buff, sometimes speckled with a slightly darker tint of orange. They measure 21.5×16 mm.”

Some of La Touche's eggs are now in my collection, and I think I would call them pale bright terra cotta rather than orange-tinted. Although in every other respect like the Assam eggs, the colour is so utterly different that I very strongly suspect that if ever sufficient material of the Assam bird is obtained it will prove to be at least subspecifically different. Only females having been got so far, the males may show that the bird is quite a different species.

Hodgsonius phœnicuroides.

THE LONG-TAILED SHORT-WING.

(491) **Hodgsonius phœnicuroides phœnicuroides** (Hodgs.).

THE NEPAL LONG-TAILED SHORT-WING.

Hodgsonius phœnicuroides phœnicuroides, Fauna B. I., Birds, 2nd ed. vol. ii, p. 21.

This handsome Short-wing is found between 6,000 and 12,000 feet elevation from Kashmir to Eastern Assam, whence it extends to Yunnan. Stresemann also says that this is the breeding form in Szetschwan, where one would have rather expected the Chinese race.

They appear to be birds of forest regions but of the more open rather than of the deeper forests, whilst at Gaggangir, in the Suru

Valley, Osmaston found them breeding in comparatively open country in rose-bushes on the banks of streams at 8,000 feet, which, he says, is unusually low for this species to nest.

The first account of its nesting is that of Osmaston (Journ. Bomb. Nat. Hist. Soc. vol. xi, p. 67, 1897), who writes :—" It is very common in the Tons Valley at elevations from 10,000 to 11,000 feet, but is rarely seen owing to its shy and retiring habits. I found twelve nests between June 5th and 11th, all of which contained two or three eggs, mostly fresh, and three seems to be the normal complement. They were placed in low bushes from one to three feet from the ground in open scrub forest. They were deeply cup-shaped, composed of brown grass without and lined with finer grasses."

The previous year (1896) Davidson and Bell had taken a series of their nests in Kashmir at Sonamurg, apparently at and above about 8,000 feet. Here they found it " not uncommon over a limited area along the edge of the forest on the right bank of the river. We never saw it more than a hundred yards from the verge of the forest, and it did not seem ever to enter the high forest, keeping among the bushes along its borders. Both sexes, however, were partial to thick cover and, except in the neighbourhood of the nest, were very shy. When, however, the nest was approached anywhere within a hundred yards or so the female appeared, sometimes accompanied by the male, and both kept in the vicinity of the searcher; and when the nest itself was discovered there could be no doubt as to the owner, as the female invariably appeared and kept moving about in the bushes within half a dozen yards, uttering a loud chattering cry.

" We found nine or ten nests, all similar, and placed in low bushes, generally about one or one and a half feet from the ground and not in the least concealed. They were thick deep cups, made of rough grass; one measured six inches in diameter outside and two and three-quarter inches inside, while the depth inside was four and a half inches. Internally they were lined with a few dead leaves, some fine grass, grass-roots, and a few feathers, and were most untidy structures. In all cases in which a full clutch of eggs had been laid the number was three" (Ibis, 1898, p. 12).

On the North-West Frontier Whitehead obtained a nest at Bulta-Kundi at 8,800 feet, similar in all respects to the above except that it was lined with hair. It contained four eggs. In Kalhar and the Nila Valley, in the Garhwal Hills, Whymper took many nests at 11,000 and 12,000 feet. These nests he describes as very deep untidy nests lined with feathers, sometimes fairly thickly but generally rather scanty.

The breeding season seems to be June and early July, though Buchanan took one nest on the 20th of the latter month containing three fresh eggs.

The normal full clutch of eggs is three but Whympere took four on several occasions in the Garhwal Hills and, as recorded above, Whitehead found four in a nest at Bulta-Kundi. The eggs are exceptionally beautiful, a very deep spotless blue with a shade of green almost as dark as the eggs of the White-throated Laughing-Thrushes, though with no gloss. They vary very little in depth of colour and the palest egg is still a very dark blue. The texture is very fine, close and fairly stout, with a soft sheen which in a few eggs might almost be called a gloss. In shape they are fairly regular ovals but, in some instances, are decidedly long and pointed.

Sixty eggs average 22.7×16.1 mm. : maxima 24.5×16.3 and 22.5×17.0 mm. ; minima 20.0×15.3 mm.

The Common Cuckoo often places its egg in the nest of this Chat, and in these cases the egg of the Cuckoo is generally blue also, though much paler than the eggs of the fosterer.

So far as is known the female alone carries out the duties of incubation, but it is quite possible that the male incubates during the nights and very early mornings.

Subfamily SAXICOLINÆ.

Saxicola caprata.

THE STONE-CHAT.

(492) *Saxicola caprata burmanica* Stuart Baker.

THE BURMESE STONE-CHAT.

Saxicola caprata burmanica, Fauna B. I., Birds, 2nd ed. vol. ii, p. 24.

This little Stone-Chat is extremely common over practically the whole of Burma, extending West to Assam South of the Brahmaputra and East to Yunnan and Siam. South it extends to Tenasserim.

They seem to breed at all elevations in Burma from the level of the plains up to 6,000 feet and, in Assam, certainly up to 7,000 feet in the Naga Hills, at which elevations its nest and eggs were taken by Col. H. Tytler and J. P. Mills. In North Cachar it was not rare in the grass-lands in the North-East between 1,500 and 2,500 feet but the higher hills were all too heavily forested and, though casual pairs turned up at odd times in odd places, especially in Winter, none ever bred. They are birds of open country, grass-lands, bush and scrub-covered hill-sides and plains and, wherever these are available, are common. It breeds in the plains near the hills but is certainly a more common breeding bird over 1,000 feet than under.

The nest is a cup-shaped affair made of grass, generally rather coarse, and lined with finer grass often mixed with hair and, sometimes, entirely with the latter. With the grass of the body of the nest is often mixed a few roots and, perhaps, a leaf or two, but grass always seems to furnish at least nine-tenths of the material used. The lining is neat and compact but the nest itself is often most untidy and carelessly built, although its position generally ensures its being held well together. In size, excluding the odd ends which stick out in all directions, the nests may measure anything between three and a half and four and a half inches across the top, with a cavity for the eggs something under three inches in diameter by half an inch to one and a half inches deep. The situation for the nest is one always on the ground but, otherwise, may be placed in almost any position. The favourite place is undoubtedly a grassy bank, with or without other vegetation and bushes, when the nest is either tucked away in some natural hollow among the roots of the longer, coarser grass and weeds or under a bush.

An interesting note of Wickham's (Journ. Bomb. Nat. Hist. Soc. vol. xxxiii, p. 817, 1928) shows the kind of places they sometimes select. He says of this bird that in the Upper Burma Hills it is "ubiquitous. Probably breeds more in the hills than in the plains, and it is probably the commonest of the common birds of the country. Whereas some nests are beautifully hidden under a bush, like our English Stone-Chat's, an empty tin or the hollow of a bamboo lying on the ground out in the open may be utilized; again, a favourite site is a hole in a bank, the nest just placed at the edge or under a clod. I have seen a nest actually down a hole in the ground and one also in a small grassy hollow in a field, absolutely open and exposed to the weather.

"Although fresh eggs may be taken in May, it begins to breed as a rule at the end of March."

In the Chin Hills Mackenzie, Macdonald, Hopwood and others took many nests, nearly all in banks quite close to the road, and others from holes in the banks of streams where these ran through open country. Although so common in the Chin Hills and occurring also in North Cachar, I never found it breeding in the Khasia Hills, although there was exactly the same country available, great stretches of grass-land, running for miles over rolling hills between 3,000 and 4,000 feet. In this kind of country in North Cachar I found the birds nesting freely, though we found very few nests because the ground was *too* extensive and the nests too well hidden among the roots of the grass. By watching the male singing his little song, perched on a tall grass-stem, we could sometimes work the grass all round until we kicked up the female.

In Pegu Oates found the nest "usually placed in a hole in the ground, the deep footprint of a bullock serving the purpose very frequently; sometimes placed on the ground under shelter of a tuft of grass."

An extraordinary instance of this bird's breeding is related by Judge S. M. Robinson (Journ. Bomb. Nat. Hist. Soc. vol. xxvi, p. 843, 1919):—"A Pied Bush-Chat laid her eggs this year in a rusty old kerosine tin lying on the ground behind the line of railway carriages occupied by visitors to Kalate. The tin was frequently picked up and carried about to show off the nest. The bird was caught by a servant and tied by the leg to his mistress's carriage, and she nursed and fondled it. When let go the bird returned to its nest. The tin was brought to show me some days later, the bird flying off the nest at the time. I took a Cuckoo's egg out of the nest (*Cuculus canorus*). In spite of these frequent attentions the bird still sat. Two days after I first saw it there were two more Cuckoo's eggs in the nest. The small bird has had her reward. She has hatched her brood and been spared the Cuckoo's."

The breeding season seems to be from early March to the end of May and many birds probably have two broods. In Maymyo Cook found them breeding in May but, at that time, many young birds of the year were already on the wing.

The full clutch of eggs is four but both five and three are laid occasionally, and in the Chin Hills Mackenzie took several fives, as did K. Macdonald round Pakokku and in the Upper Chindwin.

The ground-colour of the eggs is a very pale bluish-green, still paler yellowish stone colour, or pale dull buffy stone colour. The markings consist of small irregular blotches and freckles of light reddish-brown, numerous but not dense, over the whole surface of the egg. In some, however, the blotches are decidedly more numerous at the larger end and in a good many they form very definite rings, but in none that I have seen do they coalesce to make caps. In most clutches there is one egg which differs considerably from the others. Thus in one of the blue-ground type three eggs are normally marked with reddish-brown, forming fine rings round the larger end, whilst the fourth egg is immaculate except for the ring and a few specks inside it. In other clutches there is one egg much more heavily or much less heavily marked than the others, and in one clutch of three two eggs are normal and one is only faintly marked with grey.

In shape the eggs are short, broad ovals, only exceptionally pointed at the smaller end. The texture is rather fine and close but there is little or no gloss.

Sixty-two eggs average 16.8×13.9 mm.: maxima 18.5×13.8 and 17.1×14.6 mm.; minima 15.6×13.1 mm. These figures include a considerable number measured by Mackenzie, but the extremes are all of eggs in my own collection.

I have no eggs of the typical form from Java, but of our three Indian races it is interesting to note how the difference in the size of the birds agrees with the size of the eggs:—

Saxicola c. burmanica.. Wing 67 to 72 mm. ; eggs 16.8 × 13.9 mm.
Saxicola c. atrata..... Wing 70 to 81 mm. ; eggs 19.5 × 15.2 mm.
Saxicola c. bicolor Wing 67 to 77 mm. ; eggs 17.6 × 13.9 mm.

In Burma this Chat is frequently cuckolded by the Cuckoo (*Cuculus canorus bakeri*), Wickham, Cook and Harington taking numerous nests of the Chat with Cuckoos' eggs in them. Wickham remarks:—“I suppose I have taken more Cuckoos' eggs out of the nests of this species than the nest of any other bird.” Harington also writes:—“I found three nests containing Cuckoos' eggs; one nest found by P. F. Wickham when we were out together was placed at the bottom of a hole in the ground at least 12 inches from the entrance, which was so narrow that no Cuckoo could possibly have got in, so that the egg must have been rolled into the nest, which contained five eggs of *P. caprata* and one Cuckoo's egg, showing that the Cuckoo had probably been unable to take out the customary one in exchange for its own.”

So far as I know the male takes no share in incubation, whilst there is nothing on record as to whether both sexes assist in the building of the nest.

(493) *Saxicola caprata atrata* (Kelaart).

THE SOUTHERN INDIAN STONE-CHAT.

Saxicola caprata atrata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 25.

This large race of Indian Stone-Chat is very common in Ceylon in the Horton Plains, the Nuwara Eliya Plateau, Uda Pussellawa and the Uva Hill basin from 3,500 feet upwards. In Southern India it occurs in Travancore, South Mysore, the Palnis and Nilgiris over 3,000 feet. Birds from the Bombay Presidency from the Kanara District Northwards are all of the Northern smaller race, *bicolor*. In India it breeds on the hill-ranges of the South from 3,000 feet to the highest levels, wherever there is open country.

It is a very tame familiar little bird, breeding in gardens where there are suitable banks, on roadsides often and, as Davison remarks, in the banks of the busiest thoroughfares of Ootacamund. Often it will make its nest in a hole in a garden or retaining wall and even sometimes in a hole in a wall of a dwelling house or outhouse or tucked away under the eaves. Occasionally they will make their nests on the ground among the roots of grass, but this seems exceptional. A great many collectors have reported finding these nests in curious situations. H. Wait says he often took these nests from drain-holes in walls, three or four feet from the ground; Miss Cockburn found a nest in an old basket lying upside down in her vineyard; J. Darling, jun., found one nest built in a Swallow's

nest, while others taken by him were in holes in trees and on the ground "in the same kind of place as a Lark would breed in."

The nest is an untidy shallow cup made principally of grass and roots, very loosely put together and mixed, more or less, with leaves, all sorts, or any sort, of vegetable fibre and any odd bit of convenient material it may chance on. It has been known to make use of rags, bits of wool, cotton etc. and very rarely of moss, both green and dry. Carter found one nest in the Nilgiris made of "grass, a small bit of coir matting, fern-leaves and down of thistles but no lining." Generally there is a fairly good lining of hair, fur, wool or some other soft material, often mixed with a few feathers; sometimes the lining is but a poor one consisting merely of a few scraps of fibre or grass and at other times there is no lining at all. Hume says "in some nests there is a regular egg-cavity some three inches across and nearly an inch in depth, while in others a very slight depression towards the centre of the pad serves to contain the eggs." He gives the measurements of the nests as roughly four to five inches in diameter by about one to one and a half inches deep, but it must be remembered that the nests are often very shapeless and untidy in their outward appearance.

There is nothing on record about their breeding in Ceylon beyond the fact that Legge found the young "hiding in the grass on the Nuwara Eliya plains."

Wait says that it breeds in the Nilgiris from February to July, but the great majority breed in March and April and a smaller number in May. They certainly have two broods very often and, it is alleged, occasionally three.

The eggs are said to number three to five, perhaps about four clutches out of five having four eggs. They are similar to those of the preceding race but duller, darker yet not quite so profusely marked.

The ground is either pale sea-blue, never so bright as it is sometimes in the Burmese race, pale creamy or buffy stone or, occasionally, a dull greenish-grey, a colour I have never seen in *burmanica*. The markings are the same as in that bird's egg but average a good deal darker and, I think, more constantly form well-marked rings at the larger end. In all races of *Saxicola caprata* the clutch of eggs frequently contains one quite different to the rest, a characteristic found in many *Turdidæ*, whatever subfamily they may belong to.

In shape, texture and surface the eggs of all three races of *Saxicola caprata* are identical.

Fifty eggs average 19.5×15.2 mm.: maxima 21.0×15.2 and 20.0×16.2 mm.; minima 17.5×14.1 and 17.7×14.0 mm.

(494) *Saxicola caprata bicolor** Sykes.

THE NORTHERN INDIAN STONE-CHAT.

Saxicola caprata bicolor, Fauna B. I., Birds, 2nd ed. vol. ii, p. 26.

This little Chat is remarkable chiefly for the fact that, being a Northern form, it is yet much smaller than the Southern race, a reversal of the ordinary rule which is very rare. It is found over practically the whole of Northern India from the Deccan, Central and Northern Bombay Presidency to the Himalayas, and East from Sind to Western Assam. Over all this area it is found alike in the plains and in the hills up to at least 8,000 feet in the Sutlej Valley, but it is not found in the Himalayas farther East than Nepal, though in the plains it occurs in Behar and Bengal and has straggled into Kamroop, in Western Assam.

Like the other races, it frequents open country and is almost as tame and confiding in the way it haunts the surroundings of villages and towns as its Southern cousin and, like that bird, often breeds in gardens and in dwellings and outhouses. It is never found in forest, deep or open, but may sometimes be found breeding in scrub- and bush-covered fields.

The sites selected are not quite the same as those which the Southern bird most favours. This race in many parts of its habitat makes its nest more often than not on the ground among the roots of grass. Thus Blewitt says that all the way from Saugur to Sambalpur "the nests were always on the ground, of very simple construction, composed of grass-roots externally and lined with fine grasses or a little hair."

Again, from Saharanpur Col. G. F. L. Marshall writes to Hume:—"The only two nests that I have taken of this bird were structures of a most unique type; they were situated in the middle of tufts of sukery grass, the insides of which had been hollowed out so as to leave a circular space of bare ground in the middle about a foot in diameter, which was sparsely covered over with bits of grass; this circular space was roofed over by drawing the surrounding grass-stems together and weaving in other pieces so as to form a sort of dome."

Frequently, of course, it makes its nest in holes in banks, as found by Bingham at Allahabad and by Hutton in the Dhoon; many are made in holes in the sides of wells, as recorded by Adam from Sambhur, by Butler from Belgaum and by Hume himself. Wenden obtained a nest from a hole in the wall of a stable.

The nest is just like that of *S. c. atrata*, a roughly-made shallow saucer of grass, leaves and other oddments, more or less fitting into the hollow in which it is placed, but generally with a good lining

* Tiechurst retains the name *rossorum* for the Sind birds, but only on the grounds that they differ from *atrata*. If he had compared them with typical *bicolor* he would probably have seen that they were one and the same bird.

of fur, hair or fine grasses. Hume found nests made entirely of human hair and wool, while others have taken nests partly built of these materials or built of grass and only lined with them.

Nests found by Jones at Lahore were comparatively neat cups made of fine grasses, lined with hair and built in the bases of half-burnt tufts of grass in open burnt-out grass-land. Whympster at Naini Tal took most of his nests from banks on road-sides.

In Quetta Williams says that they are seasonal visitors, "arriving late in Spring and frequenting the open spaces near orchards. The breeding season is late, no birds nesting before May, although the male bird, who helps build the nest, is in full song before nesting operations commence. They continued to lay until mid-June.

"The nests are built in various places, holes in walls, under bushes, in the banks of nullahs and even in the holes in the karezes.

"They are merely pads of wool and horsehair, intermixed with fibrous materials and lined with horsehair."

The breeding season is almost entirely confined to March, April and May but, in Sind, Doig gives the season as March to August, and I have eggs from H. E. Barnes taken on the 5th August in the Eastern Narra.

The eggs number three to five and are individually indistinguishable from those of *S. c. bicolor* except in size. In my series there are a few unusual clutches worth describing. One clutch of five might be matched by many eggs of *Saxicola torquata indica*; the ground-colour is a grey-green minutely freckled all over with pale reddish, the freckles very faint and blurred. Another clutch has a pale but rather bright blue ground comparatively handsomely blotched with dark red-brown, dense in a ring at the larger end and sparse elsewhere.

One hundred eggs average 17.6×13.9 mm. : maxima 19.2×14.5 and 18.2×15.0 mm. ; minima 16.2×13.4 and 17.0×12.9 mm.

Although these measurements indicate that the eggs of the race are proportionately rather longer ovals than those of the two other races, this does not appear at all noticeable when one has series of all three before one.

The males of these Chats take part both in incubation and in the construction of the nest, a feature rare, though by no means unknown, in those cases in which the male is much brighter than the female in colour or colour-pattern.

The display of nearly all the Chats during the breeding season is much the same. The little cock mounts on to the top of some stone or bush, fluffs himself out, droops and quivers his wings and then flies high and quickly up into the air, descending slowly with outspread, rapidly beating wings and the white pattern of his plumage showing up vividly among the distended feathers. Sometimes after the descent he will sidle along the ground round or towards his mate, whilst at other times he will repeat his love-flight several times before making any further advances.

Saxicola torquata.

THE BUSH-CHAT.

(495) **Saxicola torquata indica** Blyth.

THE INDIAN BUSH-CHAT.

Saxicola torquata indica, Fauna B. I., Birds, 2nd ed. vol. ii, p. 28.

At the present time this Bush-Chat has been divided into many races, three of which visit India or breed within our limits, though even in this latter case the birds are migratory. Whether all the birds included under the name *indica* really belong to that race is very doubtful and Stevens has, I think, no doubt in his own mind that the birds breeding at the base of the Himalayas, say at 4,000 to 5,000 feet, or even less, should be separated from those birds breeding in Western Siberia, Turkestan, Transcaspia and Persia. The birds breeding in the Himalayas at the greater elevations, say 10,000 to 12,000 feet, may belong to the latter race, and it would certainly tax the eyesight of the most inveterate splitter to find any difference. I cannot, myself, find sufficient difference even to separate the low-hills breeding birds, though more breeding material might possibly enable one to do this. The birds actually shot off, or trapped on, their nests are certainly small, very white below and very vividly coloured, but they are almost exactly matched by individuals from the highest ranges. So, for the time being, I unite all our Indian breeding birds under the one name. On the other hand, the fact that these birds breed at the same elevations and same places as the White-tailed Bush-Chat shows that this latter must be given the status of a species and not retained as a race of *torquata*.

The Indian Bush-Chat breeds throughout the Himalayas at practically all elevations from the lowest foot-hills to 10,000 and even 12,000 feet. Davidson found it common over the greater part of Kashmir but rare above Sonamurg, 8,600 feet. On the West Harington and Whitehead took nests and eggs at heights between 10,000 and 12,000 feet at Bulta Kundi, in the Kurram Valley, in 1912 and 1914, whilst previously Whitehead had noted them as breeding freely between 5,000 and 7,000 feet and had seen young birds at 9,000 feet.

Its Eastern breeding limits are probably somewhere about Bhutan, as the Indian form certainly occurs regularly and numerous in Dhubri and Gowhati in Western Assam, but not in Eastern Assam, where it is only a casual straggler, as it also appears to be in North-West Burma. In Western India they breed in the Salt Range and in the Sulieman Hills and it has been recorded, possibly by mistake, as having nested in the Saharanpur district.

J. P. Mills obtained a Chat breeding in the Naga Hills at 7,000 feet upwards which, at the time, we put down to this race but, in the light

of what we know now, I should think was probably *P. t. przewalskii*. Stevens in many years' work in Eastern Assam never came across the Western race of this Chat, nor did Coltart and I in Lakhimpur, though it certainly occurred, even if but rarely, in Cachar and Sylhet.

It is essentially a bird of the open and never breeds in forest of any kind but, very often, it may be found nesting in comparatively thick scrub and bush-jungle on open hill-sides. It breeds freely in cultivated tracts, whether these have a few odd bushes or brambles or only patches of thick grass, and it is common in the wide stretches of long grass so frequently to be seen on many parts of the Himalayas. In many places stone walls, standing or broken down, take the place of bushes as breeding places. In reference to these Brooks gives the following interesting account:—

“At Almorah the young of the first broods were fully fledged by the middle of April. On the hills the cultivated land on the hill-sides is all terraced, and to keep up the earth low retaining walls of dry rubble-stone are built. In course of time these low walls, generally only 3 or 4 feet high, become rather broken and overgrown with grass and plants of different sorts. Sometimes even small thorny shrubs grow from the face of the wall. It is in holes and hollows in these walls that this Stone-Chat delights to build, the situation of the nest being generally near the top of the wall. The nest is always more or less hidden by grass and other plants which grow in the crevices of these walls. It is generally composed of moss, grass, fibres and fine roots, and lined with hair or sometimes feathers, in fact just the nest of the English Stone-Chat. In addition to the terraces on the hill-sides the bird breeds on open uncultivated hill-sides, where the ground is pretty well overgrown with stunted bushes which resemble the English blackthorn.”

Probably the favourite site for the nest is either at the foot of some bush, or a few inches off the ground in its thickest growth, wedged in among the twigs. Very often, too, it is placed in hollows, or even holes, in grassy banks and, wherever placed, is nearly always very well concealed.

Among other unusual places Hume took nests from walls of broken-down cattle-byres and once from the débris of an old and forgotten culvert.

The nest is cup-shaped, fairly compact and well put together when built in grass or bushes, more loosely and shapelessly put together when placed in holes in walls or banks. The chief material used is grass, generally coarse, but sometimes mixed with finer and often with a little moss, a few leaves, odd fibres and roots. The lining is nearly always of hair but sometimes of fur, or fur and hair mixed, whilst there are generally a few feathers mixed in as well. Occasionally the whole lining is of feathers and, in such instances, many more are used and only soft ones selected for the purpose.

The breeding season is very extended. Hume says "April and May seem to be the months in which they mostly lay ; but they have certainly two and, possibly, three broods, and I have had eggs sent me in from Koteghur as early as the first week in March and as late as the middle of July."

In Murree Rattray took more eggs in May and June than earlier in the year, most of his nests being found round about 6,000 feet. From the Woolar Lake in Kashmir I have had eggs sent me which had been laid in each month from early April to late July.

The number of eggs laid in India is four or five, more often the latter than the former, whilst farther North the usual number seems to be six.

The ground-colour is a light, rather greyish-green blue, sometimes very dull and grey, occasionally fairly bright and more blue. They are freckled faintly but rather profusely with pale reddish, these marks practically coalescing in a well-marked ring round the larger end in four eggs out of five. In some clutches the markings are obsolete except for the rings and a few freckles inside the rings, the ground-colour showing up well and giving a much brighter tone to the egg. One clutch of four eggs in my series has no markings, and the ground-colour is a comparatively clear blue-green.

In shape the eggs are broad blunt ovals ; the texture is fine but the surface is glossless, except in the lightest-marked eggs, which have a faint gloss.

One hundred eggs average 16.9×13.5 mm. : maxima 18.5×14.0 and 16.2×14.5 mm. ; minima 15.4×13.0 and 15.8×12.6 mm.

So far as has been recorded the male bird takes no part in incubation, whilst I can find nothing in regard to which sex is responsible for the construction of the nest.

Incubation takes thirteen days.

The display of the male is very like that of the Bush-Chat, consisting of love-flights with distended plumage, which strengthens the contrast in colours and shows off the white to a greater extent.

(496) *Saxicola torquata przewalskii* (Pleske).

THE TURKESTAN BUSH-CHAT.

Saxicola torquata przewalskii, Fauna B. I., Birds, 2nd ed. vol. ii, p. 30.

This Eastern form of the Indian Bush-Chat breeds in Eastern Tibet and probably throughout the higher ranges of hills in Yunnan, Western China, the Kachin Hills, Bhamo Hills and Shan States. Almost certainly, also, the birds found breeding in the Naga Hills should be referred to this race. Again, though its nests and eggs have never actually been taken in the Chin Hills, a Bush-Chat breeds in some of the higher ranges, which also will probably be

found to be of this race. Schonwetter says that all the breeding birds of Eastern Turkestan are of this race, that it is very common and that many nests were taken by Najiroff near Naryn, of which he kindly sent me a clutch.

Major Stanley Pershouse took the nest of a Bush-Chat in the Bhamo Hills near Sinlum Kaba, at about 6,000 feet, containing hard-set eggs on the 6th April, on which same date a year previously J. P. Cook had also taken a nest containing five fresh eggs at Monywa; a note on this nest reads:—"Nest a shallow pad of roots and grass lined with hair and some feathers and placed in a hollow in a bank under a thick root of a tree standing in sun-grass land." These five eggs average 17.2×13.8 mm. and cannot be distinguished in any way from the most common type of egg of the Common Indian Bush-Chat.

The eggs given me by Schonwetter are the same in colour but are longer eggs, and average 18.7×13.25 mm.

(498) *Saxicola leucura** (Blyth).

THE WHITE-TAILED BUSH-CHAT.

Saxicola torquata leucura, Fauna B. I., Birds, 2nd ed. vol. ii, p. 31.

I can find nothing on record about the breeding haunts of this Chat except T. R. Bell's interesting notes, quoted by Ticehurst in his articles on the "Birds of Sind" (*Ibis*, 1922, p. 629), and one note by Harington (*Journ. Bomb. Nat. Hist. Soc.* vol. xviii, p. 686, 1908), but it undoubtedly breeds along the whole of the foot-hills of the Himalayas from North Assam to the Garhwal and Kuman Terai, whilst it was also found by A. J. Currie breeding in the grasslands near swamps near Mooltan. In the extreme West it is very common, though very local, in Sind, but its breeding depends greatly on the rainfall and the growth of vegetation. Whistler also shot male specimens of this species at Ferozepur on the 6th and 17th April on the banks of the River Sutlej, where they were probably breeding. In Assam Stevens found it breeding and took a certain number of nests in the vast tracts of thatching-grass which run for many miles on end at the foot of the hills, broken here and there by swamps and by the various mountain-streams. Here they built in the sun-grass, anything from three to five feet high, rather than in the longer elephant-grass and reeds which grow actually in the swamps. About Garhwal and Kuman Whympers writes:—"I never saw them in our parts except in the Terais and Bhabers, so that 1,500 or, at the outside, 2,000 feet is their limit, though doubtless, if there were swampy ground and heavy grass, I can

* I have already shown (*antea*, p. 19) that this Chat cannot be retained as a subspecies of *torquata*.

imagine them following it up hill considerably higher. Their nests are very well concealed, and a favourite site is a tangled mass of grass brought down by floods and stranded; and I have seen a nest fully two feet inside one of these masses. The only way I could find nests was to go about until a female joined a male and then watch the former back on to her nest, a very difficult job in the long grass they frequented, and only really to be carried out with any success from the back of elephants. I have found but one nest which was not very well concealed, and that was in among the roots of thatching-grass on a sloping bank. I never saw these nests far from water, though this might be the stagnant water of a swamp or the bright and sparkling torrent of a hill-stream. The nests are, so far as I can see, indistinguishable from those of *P. maura* but, though the hens may look alike, the cock-birds are very easily distinguishable."

Ticehurst writes:—"Mr. Bell says that at the end of April 1904 he had seen several pairs in the Keti Shah Forest near Sukkur, and on revisiting the place at the end of March 1906 he again found many pairs. They affect the inundated land only, that is to say, open ground in the immediate vicinity of backwaters of the Indus on which later vetches are grown and on which tussocks of grass and low tamarisks flourish. In such a place on the 28th March he saw a pair and marked the female to the nest, which was situated under a little heap of dead tamarisk leaves, left after clearing the field for sowing. The nest was placed in a depression and made of dead tamarisk leaves lined with a few dead grasses and three or four Black Partridge feathers, and measured $4\frac{1}{4}$ in external, $2\frac{1}{4}$ in internal diameter and $1\frac{1}{4}$ inches deep." Other similar nests were found with three or fewer young or eggs, and in 1905, on the 14th March, he found another with three fresh eggs in a field of vetches.

Stevens took a series of nests of a Chat which he at first believed to be those of this bird, but further experience showed him that those he took in the higher mountains of Sikkim and Nepal were all the Common Indian Bush-Chat, and of the others he writes:—"In the light of subsequent information there can be little doubt the majority of the birds remain in the plains throughout the whole year and they breed at the plains level much earlier than was suspected before their breeding grounds are submerged with the rise in the rivers and before the S.W. Monsoon has exerted its full force. A series from Dansiri Mukh on the Brahmapootra obtained on 14.2.11 are undoubtedly breeding birds, and my remarks anent the advanced condition of the sexual organs bears out this deduction; while specimens obtained at Hessamara on the Subansiri, where I obtained Chat's eggs, were in April in well-worn breeding plumage."

Nests and eggs of a Chat taken in April and May 1909 were sent to me by Stevens, some marked *Saxicola leucura* and others marked *Saxicola torquata* subsp. These are all undoubtedly *leucura*.

Stevens, in conversation, recently told me that the nests of these birds were typical Bush-Chats' nests and were built on the ground hidden right under the dense mat of broken grass all round the roots and were most difficult to find unless the birds got up at one's feet. The nests found, he had come to the conclusion, must have been second nests, as the birds were obviously breeding in February and March.

In the Kuman Terai Whympfer found nests from the 17th March to the 10th May, while Harington obtained a nest with three hard-set eggs at Pakokku on the 20th February in the plains. This, he says, was placed in a mass of débris on a sandbank in the lower Chindwin River.

In all well-identified nests three were found to form the full complement of eggs laid, whilst in one nest taken by Whympfer there were only two.

In appearance the eggs are like those of the Common Bush-Chat but are rather redder eggs on an average, the markings being a little more definite. One clutch of three taken by Whympfer is a very pale blue, dusted all over with light red, whilst another clutch is pale blue unmarked with any red at all. The eggs taken by Harington were similar to these last.

Twenty-four eggs average 18.0×14.0 mm. : maxima 19.1×14.1 and 16.8×14.6 mm. ; minima 16.4×14.4 and 17.5×13.6 mm.

(501) *Rhodophila melanoleuca* Jerdon.

THE BLACK-AND-WHITE CHAT.

Oreicola jerdoni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 35.

Rhodophila melanoleuca, ibid. vol. viii, p. 620.

This little Chat is found all along the Himalayan Terai and adjoining plains from Behar and Eastern Bengal, through Assam, parts of the Chin and Kachin Hills and along the lower hills of Central Burma to Prome.

This is a bird of the vast stretches of thatching-grass, elephant-grass and "kine"-grass growing in the plains all along the bases of the Himalayas and also extending into the upland grass-plains and rolling hills intersecting the foot-hills in many places and, in others, running up to an elevation of nearly 2,500 feet. Assam seems to be its home, *par excellence*, and it is very common in many places in Sibsagar and North Lakhimpur.

The first nests taken were those obtained by myself in North Lakhimpur. "In April 1904, when touring in the North of Lakhimpur, I found these birds extremely numerous in the wide grass-plains running along the foot of the hills; they were present literally in hundreds and soon showed by their actions that they were breeding. A Miri, who was with me, told me that he knew of a patch of grass

where they nested, and we accordingly went to a wide grass-plain, about two miles across, covered with sun-grass about four feet high, and situated, in a bee-line, some eight miles from the nearest hills. Here four of us hunted for four hours but, though there were many birds, undoubtedly engaged in nesting, we could find no nest. At last, as work called me back to camp, I ordered a halt and we all returned to the road. As we reached it, my foot struck a tuft of grass and out flew a female *O. jerdoni* (= *R. melanoleuca*) and on looking down and parting the grass we found the much-sought-for prize, a nest with four eggs. It should be explained that the so-called road was nothing but a track through the grass-plain, covered with short grass and with tufts of stubbly sun-grass dotted about its surface. In one of these tufts at the edge of the road the nest was placed, right in among the roots, which appeared to have been worked out by the birds to form a hole in which it could be placed. Until the roots were torn on one side nothing could be seen except the outer edge of the nest. This was a compact little cup, made entirely of black roots and coarse black fibres and lined with fine grasses and grass-roots. It was so well put together that, though the outer material was all interlaced with the grass-roots growing round, it still retained its shape and consistency when torn out.

“The inner cup was very tiny, only 1.8 in. in diameter and about 1 in. deep, but the outer diameter and depth were, roughly speaking, about 6 and 4 inches respectively.

“The nest contained four eggs, rather hard set. This was on the 20th April.

“In 1904 we found only one more nest, although men were specially set to work for them for days together; they were most terribly hard to find.

“In 1905 we procured six more nests, two of which were taken by Mr. H. Stevens in ekra fields at the foot of the Daffa Hills. These were built in among the roots of the ekra.

“The four other nests were taken by myself and my men. Two were found in places just like that first described, except that they were situated in the grass-plains themselves and not in open places. The remaining two were taken from holes in banks. One was taken from a hole in a sandy bank, forming the side of a rough pit from which soil had been taken to make the road. The bank was covered with very coarse short grass but, except for a few scattered bushes, the surrounding country was quite open—in fact, grazed down to within a few inches by numerous cattle. The pit itself was more or less overgrown with coarse grass, as the cattle could not conveniently graze there.

“The last nest was taken from a hole in the bank of a village track. All over this part of the road the grass was some inches high and extremely dense; on one side the ground sloped upwards and

formed a shelving bank where the grass was longer and there were many weeds and small bushes. Among the grass-roots was a small natural hollow in which the nest had been placed and was discovered by the bird flying out as we passed.

“Other nests found later were much the same as that first described, it being very noticeable that in the majority of instances very dark material was used. In a few, however, the nest was composed chiefly of stuff that looked like cocoa-nut fibre and was, I believe, the fibrous outer parts of ekra-roots; this was light yellow in colour. In shape the nest externally merely fits into the place in which it is built, but the inner cup seems to be always very neat and very well finished, averaging some two inches in diameter, and being a very regular hemisphere.

“When trying to find the nest by watching the birds I was doomed to many disappointments, as they kept dodging into holes and crannies among the roots, apparently in search of food, constant inspections of these places resulting in nothing.”

My nests were found in April and May and, undoubtedly, most birds had then finished breeding for, later, Stevens found that many bred in February and March in grass-lands that were flooded in April and May, when the first snows melted in the hills above them. Some birds he actually found breeding in grass-covered sandbanks in the centres of rivers, and completely flooded when these rose.

In 1905 Harington found it breeding at Bhamo, at 2,000 feet, “in a swamp of kine-grass or Briar Jungle at the bottom of the Polo-ground.” He encountered the same difficulties that we did in finding the nest but, at last, succeeded in taking a hen unawares and, starting her off her nest, “we found the nest on the ground and completely hidden in the long *dhoob* grass which was growing under the brambles. The nest was composed of fine grass and roots, lined with a few feathers, and contained four eggs which were, unfortunately, on the point of hatching” (*Journ. Bomb. Nat. Hist. Soc.* vol. xvi, p. 741, 1905).

The breeding season is February to early April in Assam, though it is true that my own nests were taken in April and May. Breeding on the ground, as the birds do, in areas liable to be flooded with the first melting of the snows, it is obvious that laying must take place in time for the birds to be on the wing by mid-April. A few birds breeding on slightly higher ground may breed later, but it is more likely that my nests were second nests of birds whose first attempts at breeding had been failures.

Harington's nest was taken on the 21st May, at Bhamo.

The full complement of eggs seems to be four or, less often, three. In colour they are a beautiful deep turquoise-blue, almost the colour of Hedge-Sparrows' eggs. The texture is very fine and close, finer and closer than in the eggs of the Indian Bush-Chat, some eggs having quite a strong gloss.

In shape they are broad, short ovals, very little compressed at the smaller end.

Thirty eggs average 16.2×13.3 mm. : maxima 18.0×13.6 mm. ; minima 15.2×12.4 mm.

The cock bird takes no part in incubation, unless by night, but he keeps an extraordinarily sharp look-out upon intruders. Perched on the summit of a bush, or on some reed or grass-stem higher than those surrounding it, he utters a low "chirrrr" whenever anyone approaches, and the hen slips sway off her nest through the long grass without showing herself even for a moment.

Rhodophila ferrea.

THE DARK GREY BUSH-CHAT.

(502) **Rhodophila ferrea ferrea** (Gray).

THE WESTERN DARK GREY BUSH-CHAT.

Oreicola ferrea ferrea, Fauna B. I., Birds, 2nd ed. vol. ii, p. 36.

Rhodophila ferrea ferrea, *ibid.* vol. viii, p. 620.

This Chat breeds throughout the Himalayas, from the Afghan Frontier to Eastern Assam, between 4,000 and 8,000 feet, and is, apparently, most common between 5,000 and 7,000 feet. It extends some distance into the Himalayas and has been found nesting in Kashmir. Hume says that they are found "South of the first snowy ranges and, in some cases, where these are broken through by large rivers, up the valleys of these latter, far beyond these ranges." In Sikkim it has been recorded up to 9,000 feet by Blanford.

The Dark Grey Bush-Chat frequents cultivated areas, open hill-sides covered with grass, flowers or bushes, and are, perhaps, especially fond of hill-sides plentifully supplied with these and having, in addition, numerous boulders, stones or outcrops of rock. Many birds build in the banks of unfrequented roads, sometimes even in those which are frequented. No summary of the situations in which their nests may be found can be better than that of Hume. He writes :—"The nest is placed on the ground, sometimes under some large overhanging stone or stout earthen clod ; inside, or more or less concealed by, a tuft of grass or weeds ; sometimes in a little depression in the hill-side under some thick bush, often under some great bulging root of a forest tree and, occasionally, but rarely, in some hole in the loose stone walls that in the hills protect and support our roads. It is a tolerably neat cup-shaped structure, sometimes slight and loosely put together, sometimes comparatively massive and compact, composed chiefly of moderately coarse grass,

fine twigs or moss, and lined either with finer grass-stems, fine roots, horsehair or soft fur; sometimes a great deal of vegetable fibre and even a little lichen is incorporated in the sides and towards the bottom of the nest. Externally they vary in size from 3.5 to 4.5 in. in diameter, and from 2 to 3 inches in height. The cavity is about 2.5 in. in diameter and rarely much more than $1\frac{1}{2}$ in depth; very often it is barely an inch."

Round about Simla Dodsworth took many nests for me, and in a letter sent with them writes:—" *Oreicola ferrea* is extremely common in these hills between 5,000 and 8,000 feet. They lay from four to five eggs, sometimes only three but, in these cases, it is generally a second laying. The nests are made of grass, roots, leaves, etc., often well lined with fur or hair. Sometimes they are very slightly and clumsily built, sometimes they are quite compact, well-made cups. As regards sites, they are generally in these hills placed in holes or hollows in banks, under a boulder, a large root of a tree or in an actual hole in the bank. At other times they are placed on the ground among the roots of grass or bushes, which screens them from bad weather and from sight. They lay from the middle of April to the end of June."

Jones took a few nests later than this in the Koti State, and I have eggs taken by him up to 5th July. Marshall and Cook took them still later in Koloo and the Valley of the Sutlej, recording that they "took numerous nests between the first of May and end of July."

Rattray and others took nests around Murree chiefly in May and June at about 5,000 to 7,000 feet, and at Mussoorie P. Mackinnon and Hutton obtained them at 6,000 and 7,000 feet in the same months. In Sikkim it is a common bird and breeds at elevations above this, for St. J. Hickley sent me eggs from Gnatong, but normally it breeds at about 5,000 feet, at which height Gammie and Müller took a great many nests, while Osmaston also obtained some, and it is interesting to note that the latter found them breeding "in very open forest, in sloping banks."

As will be seen from the above notes, the principal time of breeding is from the end of April to the middle of June, but that many birds breed earlier and some much later. Most birds have two broods, and it is quite probable, as Hume suggests, that some have three broods in the year. I do not think the male ever incubates and, though Hodgson sent one nest and eggs to Hume with the male bird, he does not say it was caught on the nest. As a rule the cock sits on the top of some bush not far from the nest and notifies the hen when it is time for her to leave it.

The eggs number four or five, very rarely six, and are in appearance just like those of the Common Indian Bush-Chat, but of course larger and, perhaps, as a series, rather more marked with reddish. A few clutches have a pale buffy ground-colour, the red freckles being mainly confined to a well-marked zone round the larger end.

Among unusual clutches one of five has the ground-colour a uniform pale dull blue-green without any markings; another clutch of four has the ground pale clay, very faintly freckled with pale reddish, rather more numerous in an indistinct ring at the big end; yet another clutch looks an almost uniform dark olive-green.

The texture is fairly fine and close, the shell stout in proportion to the size of the egg and sometimes with a faint gloss, rarely at all pronounced.

One hundred eggs average 17.9×14.2 mm. : maxima 19.3×15.0 and 18.1×15.1 mm. ; minima 16.1×13.2 and 18.0×13.1 mm.

(503) *Rhodophila ferrea haringtoni* Hartert.

THE EASTERN DARK GREY BUSH-CHAT.

Oreicola ferrea haringtoni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 38.
Rhodophila ferrea haringtoni, ibid. vol. viii, p. 620.

This form of Bush-Chat takes the place of the last bird in the Chin Hills and all Northern Burma to Yunnan and the Western Chinese Hills, breeding in large numbers from 4,000 to 7,000 feet and probably a great deal higher.

The Eastern Dark Grey Bush-Chat breeds both in comparatively open land and in scrub and bush-jungle. In the Bhamo Hills it selects sites on bracken and grass-covered hill-sides, with patches of forest, bamboo-jungle and cultivation dotted here and there over its whole extent. I have no record of it ever having been found breeding in tree-forest but Wickham says (Journ. Bomb. Nat. Hist. Soc. vol. xxxiii, p. 817, 1929): "It certainly does not confine itself to open grass-lands like the subspecies *ferrea* is stated to do. In habits it appears very different to *O. jerdoni*, which enjoys open country. *O. f. haringtoni* likes the jungle, although its nesting-site is generally an open bank."

Its eggs were taken by Styan and others in China as long ago as 1897. La Touche ('Handbook Birds of E. China,' p. 155, 1930) sums up its breeding in China as follows:—"The Grey Bush-Chat is one of the commonest birds in the hilly districts of South China. It breeds very abundantly at Kuatun in N.W. Fokhien, where I took many nests. These were all placed in holes in the ground, or in stone walls or earth-banks, generally near bamboo-plantations or woods. Breeding takes place in April and May. The nest, like many 'hole nests,' is made in two parts, one being a very neat cup of grass and fine roots, the sides being higher than the front and back, lined with fine grass-stems, coir and pigs' bristles, and the other a rough mass or irregularly shaped cup, containing the inner part and filling up the cavity. Unlike the eggs of the Indian bird, those of the Chinese bird are generally a plain turquoise or 'Hedge-Sparrow' blue but some clutches are faintly speckled with pale red."

The first person to take the nest and eggs within our limits was K. Macdonald, and Harington, quoting his notes, records "several nests in April on Mt. Victoria. Of fifteen eggs taken *not one* was spotted or marked in any way." Then Harington records his own taking of the nests in the Bhamo Hills (Journ. Bomb. Nat. Hist. Soc. vol. xix, p. 299, 1909):—"I found two nests with eggs in April at Sinlum. One found about 6 p.m. on the 18th April had four fresh eggs, the nest being placed on the top of a road-cutting about 7 feet from the ground."

Mackenzie and Hopwood found this bird to be very common in the Chin Hills and took many nests at Heinsin, about 5,000 feet, Haka, about 5,000 feet, Haingyan, 6,000 feet, Mt. Victoria, 5000 to 7,000 feet, and other places in the district between 3,000 and 6,000 feet. From Mackenzie's notes I gather the following details:—"The birds are not confined to the open hill-sides, though they possibly frequent these more than other places. Even to these, however, the word open can only apply in a modified sense, for though here and there on these hill-sides there may be patches of short grass, especially after the early spring jungle-fires, the greater part of them is covered with bracken, long grass, raspberry and blackberry vines and bushes, interspersed with stretches of forest or bamboo jungle. We found a very favourite site to be a bank or road-side cutting running round the contour of one of these hills, and many of our nests were found by flushing the hen bird off the nest as we walked along these rough jungle tracks. In some cases the nests were placed on the ground or in shallow holes among the roots of thick grass or under bushes; some were built in actual holes in the bank or under a stone or fallen tree, but they were always well screened from view. Another favourite site was wedged in among the roots of some fair-sized tree growing on a bank.

"On the other hand we found a few nests placed in banks in light forest in mixed scrub and bamboo jungle.

"The nests were rather massive affairs, cup-shaped, of course, internally but, externally, just fitting into the depression, hole or hollow in which they were built. Outwardly they were composed almost entirely of grass and moss well interwoven, forming a deep cup with thick walls and bottoms. Mixed with the moss and grass there might be a varying proportion of scraps of bracken, roots, fibrous material of various kinds and other jungle oddments. As a rule the nests were lined with fine grass, often of a yellow tint, mixed more or less with bark-fibres etc. and often with a considerable amount of hair. In one nest the lining was, in fact, almost entirely of goat's hair. We took eggs throughout April and May, but undoubtedly the great majority were laid during the former month. The full complement of eggs laid was five, but we also took four fairly often and sometimes only three."

Sometimes this Chat breeds actually in the plains, as a nest with four eggs was taken by Mr. J. J. Rorie for Hopwood in the plains

of the Ruby Mines district. Cook also took nests at very low levels below Kalaw in the Shan States.

Unlike our Indian birds, this race seems to be a very regular breeder, commencing to lay in the last few days in March and continuing to lay up to the end of May, while I have no records for June. This would seem to imply that they do not have two broods in the year.

Curiously enough, the eggs of this race, though the two races from India and Burma are so very closely alike, are very different from those of their Western cousin. The ground-colour is the same grey-blue-green as that to be seen in the best and brightest coloured eggs of *R. f. ferrea* but, whilst the eggs of that bird are freckled with reddish, those of this bird are normally either immaculate or so nearly so as to give the impression of being spotless. A few eggs may be faintly freckled with pale red and I have one clutch of Mackenzie's which is well marked with pale reddish caps, composed of innumerable reddish freckles. I have seen no eggs with either a clay-coloured or buffish ground and, as a series, they are exceptionally constant.

In shape and texture they do not differ from the eggs of the preceding bird, though they average rather larger.

Fifty eggs average 18.4×14.4 mm. : maxima 19.8×14.5 and 19.1×15.0 mm. ; minima 16.5×14.0 mm.

The hen bird alone incubates, neither Mackenzie nor Hopwood having ever flushed the cock off the nest.

(505) *Ænanthe alboniger* Hume.

THE LARGE BLACK-AND-WHITE CHAT.

Ænanthe alboniger, Fauna B. I., Birds, 2nd ed. vol. ii, p. 40.

This fine Chat is found from Persia to Afghanistan, Baluchistan, Kashmir and Sind.

Its breeding in India has never been proved, but Ticehurst found two nests occupied by these birds for roosting purposes, which, presumably, must have been their own. He says (*Ibis*, 1922, p. 632):—
 "Hume's Chat is confined to the higher hills of the Khirthar; the most easily accessible place is in the limestone hills of Laki (2,000 feet), which here abut on the Indus and the N.W. Railway. I visited these hills on the 9th February and 2nd March. The nullahs here have a dried-up water-course and scattered bushes and trees manage to exist; the sides are steep, boulder-strewn slopes, the tops of which meet the sheer cliff-face, and here, where the largest rocks broken off from the cliff have come to rest in the top of the slopes, is the home of this bird.

"From the state of the organs of those obtained in March I should say they would probably breed early in April. Close to where I found

two pairs I found two apparently old nests, identical in construction and situation. They were placed in weather-worn cups in the face of huge limestone rocks lying on the slopes and some 20 feet up from the boulder's base. They were composed of a twig foundation, the outside of which was well plastered with mud into which chips of limestone were incorporated; the lining was soft grass."

Currie found them breeding in some numbers near Kerman, building their nests inside holes in mud ruins, anything from a few inches to two feet in. One such nest, found in April with five fresh eggs, was taken from two feet down in a hole, the nest made of little bits of stone with a rather poor lining of grass, feathers and hair. In front of this was a barricade of stones, highest next the nest and then shelving off towards the entrance of the hole. This particular barricade weighed two pounds. A second clutch of three eggs was taken from the same nest on the 24th May.

Currie writes me, *re* the nests of this bird:—"They generally select a site for their nest in a crevice or hole in a rock, sometimes so high up in the faces of crumbling cliffs as to be quite inaccessible without ropes; at other times quite low down, yet equally impossible to get at without blasting-powder, being so far inside, narrow crevices into which the arm cannot enter. The barricade of small flat stones always shows where there is a nest. About Kerman the nests were easier to get, many being built in deserted mud buildings, some in accidental holes in the walls, others in holes in which rafters had been inserted. Even here the usual barricade of small stones was always built up in front of the nest. They begin to breed early, many in April or even March, and they have second broods in the end of May. They lay four or five eggs."

The few eggs I have seen have all been a very pale skim-milk blue; some are quite spotless, others have a few speckles of pale red, while a few others have the markings rather more distinct and forming a ring round the larger end. One egg generally seems to be better marked than the rest in each clutch. In shape the eggs are broad ovals, some distinctly pointed at the small end, others quite obtuse.

Twenty eggs average 22.5×16.8 mm. : maxima 25.0×17.1 mm. ; minima 20.3×16.5 and 22.3×16.1 mm.

(506) *Œnanthe picata* Blyth.

THE PIED CHAT.

Œnanthe picata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 42.

This Chat breeds in South-East Persia, Afghanistan, Baluchistan, the North-West Frontier of India as far North as Samana, Chitral

and Gilgit. Rattray took a good many nests from 1895 onwards at Parachinar, Kurram Valley, between 4,000 and 6,000 feet. Betham obtained really magnificent series around Quetta in 1906, where Williams took a yet further, and equally representative, series in 1924-5. Here they were breeding in considerable numbers between 4,000 and 8,000 feet. Professor Valentine Ball found it breeding in the Suliman Hills, beyond Dera Ghazi Khan, and obtained three young birds in a nest on the 10th of July at 5,880 feet. Barnes found this "Pied Stone-Chat very common and breeding in Chaman, arriving at the end of February and leaving in September." He found one nest on the 20th March "built in a hole in a tree, composed of dry grass, lined with feathers and containing four eggs."

Betham furnishes the following summary of its breeding round Quetta :—"I first noticed this bird building on the 1st April, taking my first clutch on the 12th of that month, and I continued to find nests with eggs up to the 28th May. The nesting habits of this bird are very similar to those of *Thamnobia*, that is, the Brown-backed and Black-backed Robins, except that they do not haunt inhabited houses. They are very plentiful round Quetta, where the favourite nesting sites are in holes in steep river banks or under rocks and stones in the barer hill-sides; I have also taken eggs from nests placed in old walls round cultivated fields, deserted huts, built either in holes or under the eaves, the latter only rarely, and sometimes in the roofs. The nest is very much of the Robin type, made of roots, twigs or straw, mixed with all sorts of odds and ends and grass. The lining is of hair, wool or any other soft material which may be handy, the cavity usually being of some depth and quite well finished off.

"The number of eggs most usually found in a full clutch was five but I once took six."

To the above summary a few interesting points are added by Williams, who says that this Chat "is to be found wherever there are banks, fallow fields, broken and tumble-down buildings. It is found in the hills up to about 8,000 ft.

"In the breeding season, April to June, the cock bird has a fine song and shows off his black and white plumage to advantage while dancing before his mate.

"The nests are pads or shallow saucers, with no definite cup, of various materials such as grass, feathers, wool, tow and bits of rag, lined with hair and wool. They are placed in holes in banks, walls, houses, under rocks and in piles of dried silt at the mouths of 'karezes' (underground passages for the carriage of water to cultivated patches)."

The latest nest taken by Major Williams contained four hard-set eggs on the 10th June.

From the above we see that the breeding season lasts from the last week of March to the middle of June but, in three out of every four instances, the eggs are laid in April, except at Parachinar, where Rattray took nearly all his nests in May.

The eggs number four to six, Williams taking several clutches containing the latter number. Five is the usual number, but four only by no means unusual.

The wonderful series of eggs in my collection, which I owe to the three gentlemen quoted above, show a very fine range of variation. The most common type of egg has the ground-colour a very pale blue, grading from skim-milk blue to a fairly definite, though still pale, blue-green. This is never so deep as in the eggs of Thrushes or Hedge-Sparrows, but is much the same in tint as a dark egg of a Starling. The markings consist of tiny specks and freckles—they are never big enough to be called blotches—which are thinly scattered at the larger end. In most eggs the freckles are very pale reddish, in a few rather darker and, very rarely, almost a reddish-brown. A good many eggs have thinly marked but fairly definite rings about the larger end and a few have a good number of spots scattered everywhere over the surface. Occasionally a clutch of unspotted eggs may be met with and, more often, a clutch with some of the eggs unmarked and the others only very feebly freckled. I have seen only one clutch of eggs with a truly white ground and with the usual red specks in rough zones round the larger ends. This was taken by Betham at Quetta, and neither he nor Williams obtained any others like it.

The texture of the eggs is quite fine and close and nearly all eggs have a gloss, sometimes highly developed. In shape they vary from ordinary to rather long ovals, a good many eggs being decidedly pointed at the smaller end. Occasionally they are short, broad ovals.

Eighty eggs average 20.8×15.4 mm.: maxima 23.0×16.1 and 21.5×16.4 mm.; minima 18.0×14.4 mm.

(507) *Œnanthe capistrata* Gould.

THE WHITE-HEADED CHAT.

Œnanthe capistrata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 43.

The White-headed Chat breeds in many places on the North-West Frontier of India, North to Gilgit, where it was obtained by Scully together with the preceding form. It also breeds in parts of the Samarkand Province of Turkestan and probably other areas also. It certainly also breeds in Afghanistan but its exact range is not known.

On the North-West Frontier Whitehead (Ibis, 1909, p. 217) found it breeding in the Kurram Valley "freely round Parachinar, from 4,500 to 6,500 feet, but rarely as high as 9,000 ft." Rattray also says that "in July at Parachinar they were common and breed freely"; finally, Fulton (Journ. Bomb. Nat. Hist. Soc. vol. xvi, p. 50, 1904) says that he found specimens at Chitral "at elevations of 7,000 to 11,000 feet during May, June and July. In May I found a nest at 7,500 feet at the foot of a small shrub."

There is practically nothing on record about the breeding of this Chat, unless, as is very likely, some of the accounts of the breeding of the Pied Chat recorded in Hume's 'Nests and Eggs' apply to this bird. Whitehead has a short but interesting note in 'The Ibis' (*loc. cit.*), where he writes:—"Frequenting both desert country and open cultivated land and especially common by the roadside. The nest, a neat grass structure, is usually placed in a hole in the bank of a nullah, or under a stone in the nullah bed, occasionally in a cairn of stones. The eggs are pale blue, varying a good deal in shade, marked with red spots, also varying much in shade and distribution, and average $\cdot 79$ in. \times $\cdot 53$ in. The full clutch is five. Two broods at least are reared in a season."

A clutch of eggs sent me by Whitehead has the following note with it:—"Nest a typical Wheatear's nest in a hole under a stone, made of grass and a little dried moss, lined with hair and wool. Eggs fresh, Thandiani, between 6,000 and 7,000 feet, May 1907." In this clutch three eggs are pale, rather bright blue, with a few very faint freckles at the larger end, the fourth is a rather paler blue, with more freckles of a darker shade, chiefly in a ring at the larger end. In shape and texture they resemble the eggs of the preceding bird. They measure about $19\cdot 3 \times 15\cdot 1$ mm.

Eggs taken by Ruckbeill in Turkestan are similar but are more heavily spotted.

(508) **Cenanthe opistholeuca** Strickland.

THE BLACK-BELLIED CHAT.

Cenanthe opistholeuca, Fauna B. I., Birds, 2nd ed. vol. ii, p. 44.

This Chat has almost exactly the same breeding range as the preceding bird. It extends from Turkestan, Afghanistan, Baltistan, Gilgit and along the frontier of North-West India as far South as Thull.

Fulton says that this Chat "is the commonest bird in the highest valleys (Chitral) in summer up to elevations of 10,000 feet and in the valleys in Winter. There were numerous young birds as low as 6,000 feet in June and July."

Lieut. Kinchin, of the Kuman Militia, obtained several nests of

this Chat near Parachinar on the North-West Frontier in May 1905, which he sent to Rattray with one or both the parent birds. The nests are described as "made of grass-stems and a few feathers, lined with grass and hair and placed in holes in rocks, about 9" to 12" inside, at 4,500 feet upwards." These nests were taken between the 7th and 27th May. Two nests contained each five eggs and a third nest only two. One clutch of five is so pale a blue that it appears white unless placed alongside a really white egg. The pair of eggs are almost as pale, whilst the other clutch, of five, are a pale blue. When carefully examined, all the eggs have a few very faint specks of pale reddish at the larger end but, unless so examined, they appear immaculate. They vary from rather broad to rather long ovals in shape and are distinctly pointed. The texture is fine and close but the gloss not very pronounced.

Twelve eggs average 20.2×15.5 mm. : maxima 21.4×14.3 and 20.0×16.1 mm. : minima 19.9×15.6 and 21.4×14.3 mm.

Ænanthe leucomela.

THE RUSSIAN PIED CHAT.

(509) ***Ænanthe leucomela leucomela*** Pall.

THE SIBERIAN PIED CHAT.

Ænanthe leucomela leucomela, Fauna B. I., Birds, 2nd ed. vol. ii, p. 45.

The breeding range of this Chat extends from South Russia, the Caucasus, Trans-Caspia, Turkestan, Persia, Afghanistan, Tibet and Eastern Siberia into Northern China in the East and into Gilgit and Kashmir on the West.

Like other Chats, this bird haunts open places, both cultivated tracts and deserts and the rocky bare sides of hills and mountains. The only account of its nidification within our limits is that of Biddulph (Ibis, 1882, p. 277), quoted by Hume:—"I took a nest of this Chat in Astor on the 26th June, at an elevation of 7,000 feet, containing five hard-set eggs. It was placed about a foot deep in a wall of loose stones supporting a built-up road on the mountain side, over which was constant traffic." Wardlaw-Ramsay, writing of this bird in Afghanistan, says:—"The nest is very difficult to find, and I have sat sometimes for half an hour or more hoping that the bird would give some indication of its whereabouts. The only nest secured contained but one egg. The nest was placed under a collection of small rocks piled up by the torrent in the then dried-up bed of a mountain stream. A considerable number of huge stones had to be removed before the nest could be got at."

Ratray found them common round Parachinar in July 1898 and saw several pairs about with young birds but was, apparently, too late for eggs.

This Chat in Russia seems to breed sometimes in open grasslands, though even in these it selects a hole under a boulder in which to place its nest. Elsewhere over the whole of its range it builds almost invariably in clefts in rocks, in loose piles of stones, less often in stone walls or under stones and boulders on the ground.

Oates says that it breeds commonly in Northern Kashmir and Gilgit but I cannot trace the grounds on which the statement is made, for Biddulph, Scully etc. all state that it breeds, if at all, only in small numbers.

They are common in Ladak, and Ludlow (Journ. Bomb. Nat. Hist. Soc. vol. xxvii, p. 143, 1920) records taking two nests:—“Two clutches taken, each containing four eggs. First nest taken on 25th May, 1919, in a hole in a rock on the Ooti plain near the Tso-Morari Lake at an altitude of 15,500 feet. Second nest taken in a *Mani* wall at Thugji on the Tsoke Chumo Lake on 2nd June, 1919, at an altitude of 14,000 feet. Nests of dried grass with a mixture of wool, hair and feathers. In both instances the eggs were hard set, with embryos about a week old. Eggs light blue, with brownish-red spots at the broad end, measuring 21–22×15·5–16 mm.” Meinertzhagen (Ibis, 1927, p. 582) found them at 6,800 and 8,000 feet, and says that “they were common all the way from Kargil to Skardu and had bred, many broods still being fed by parents.”

The breeding season appears to be late May and June and four to six eggs are laid.

In appearance these are typical Chats' eggs. Compared with a series of the Siberian Chat, the eggs of the present bird are duller as a series; many have a distinct greenish tinge and they are much more heavily marked; the freckles in some instances become definite spots and small blotches, and the pale red, though still the prevailing colour, is sometimes a dark reddish-brown. The spots are distributed in the usual manner and often form zones at the larger end. Individual clutches may be indistinguishable from those of *picata* but I have seen no eggs of that bird with the dark green tinted ground, nor so heavily marked as are many eggs of *leucomela*.

Forty eggs measured by myself average 19·6×15·1 mm.: maxima 20·3×15·8 and 19·7×16·1 mm.; minima 17·9×14·6 and 20·1×14·3 mm. These are all eggs taken in the East of this Chat's range. Jourdain gives the average of forty-one eggs as 19·29×15·08 mm.: maxima 20·8×15·2 and 18·8×16·0 mm.; minima 17·1×14·9 and 18·5×13·5 mm.; the last measurements might almost be consigned to the abnormal.

***Cenanthe finschi*.**

THE GEORGIAN CHAT.

(510) ***Cenanthe finschi barnesi**** Oates.

THE EASTERN GEORGIAN CHAT.

Cenanthe melanoleuca melanoleuca, Fauna B. I., Birds, 2nd ed. vol. ii, p. 47.
Cenanthe finschi barnesi, *ibid.* vol. viii, p. 620.

The Georgian Chat is found from Georgia and Transcaspia to Persia, Afghanistan and Baluchistan, breeding throughout this area in suitable places.

Within our limits it has been found breeding in Baluchistan, a Mr. Webster having taken a nest and eggs in the Mashing Kelat State, whilst Major Williams found another nest near Quetta.

It is, apparently, a Chat which frequents the most arid and desolate of stony wastes and rocky hills, keeping aloof from cultivation of any kind. Williams obtained it in the Quetta Valley in "the dry low foot-hills at about 6,000 feet elevation." Here it flitted about in the dry water-courses and boulder-strewn hill-sides, where the only vegetation was a little half-burnt-up grass or a few stunted bushes.

The nest is cup-shaped, made of fine grass, mixed with other materials and lined with wool, hair or fur, or any of these mixed. It may be placed under a stone, in a cliff or hole in a rock-face, a pile of stones, or in a hole in a bank. Of the two nests taken in Baluchistan, Webster's was "in a hole in a bank, made of fine grass, hair, wool etc. and lined with hair and wool; it contained five eggs and was taken on 7. 4. 26." The second nest taken by Williams, which was "found in May, was placed under a small heap of stones and was a shallow saucer of sticks, fibrous plant-stems, grass and hair." This also contained five eggs. In the first nest the female was caught on the nest and in the second case shot off it.

The breeding season lasts from the end of April to the end of June and this Chat possibly, like so many others, often has two broods in the year.

Outside our limits this Chat lays four to six eggs which are said to be just like those of the typical form, or of *C. l. leucomela*. Hartert gives the measurements of forty-one eggs which, included with thirty measured by myself, give an average of 19.3×14.2 mm.

* I am still very doubtful if the name *barnesi* can stand; the specimen unfortunately selected by Oates as type is much nearer true *finschi* than all the other Indian specimens which bear out his diagnosis. If the type be considered a wandering specimen of true *finschi*, then Oates's bird must be given a new name. Ticehurst goes into this question very thoroughly in 'The Ibis,' 1927, p. 71.

Fourteen Baluchistan eggs average almost the same— 19.3×15.4 mm.: maxima 20.4×16.4 and 20.3×16.6 mm.; minima 18.6×14.8 and 18.8×14.5 mm.

Thirteen eggs taken by Pitman in Mesopotamia average bigger still— 19.8×15.4 mm.

The eggs in my own series are much brighter in colour; some are bright, almost Hedge-Sparrow blue, with a fine sheen. The markings also are generally brighter, darker and richer and, in most eggs, more numerous.

Cenanthe ænanthe.

THE WHEATEAR.

(511 a) **Cenanthe ænanthe argentea** Lönnberg.

THE EASTERN WHEATEAR.

Cenanthe ænanthe ænanthe, Fauna B. I., Birds, 2nd ed. vol. ii, p. 48 (part.).
Cenanthe ænanthe argentea, Lönnberg, Arkiv f. Zool. vol. v, p. 22, 1909:
Buru, Lake Baikal.

In the 'Fauna' I united *argentea* with the typical form, although with considerable doubt. With the examination of further material, in addition to re-examination of that previously available, it seems to me that *argentea* must be admitted.

Its range appears to be Central Asia East of Lake Baikal and South through Turkestan and Persia to Baluchistan. Two birds from Quetta certainly would have to be placed with this race.

It is remotely possible that this Wheatear may occasionally breed in the Baluchistan Hills, so I have included it in this work.

The only note I have on its breeding is from Ludlow, who obtained two addled eggs from a nest in a marmot's hole at Karquitash in Turkestan, at an elevation between 8,500 and 9,000 feet, on the 20th June, when the young birds had flown but were still about the nest with both parents. The nest was of the usual Wheatear type. The two eggs are a pale skim-milk blue, unspotted, with the normal close fine texture of most Wheatears' eggs, and measure 20.3×15.1 and 20.8×15.1 mm. The birds were very common and Ludlow shot several specimens, now in the British Museum.

(512) **Cenanthe isabellina** (Temm. & Schleg.).

THE ISABELLINE CHAT.

Cenanthe isabellina, Fauna B. I., Birds, 2nd ed. vol. ii, p. 49.

This beautiful Chat is found breeding over a very wide area from South Russia, where it is common in some of the steppes, through Asia Minor, Palestine, Afghanistan, Baluchistan, Persia, Turkestan and Tibet to Eastern Siberia and North-West China.

The Isabelline Chat keeps much to bare rocky hill-sides and sandy, stony deserts but, occasionally, also frequents cultivated tracts which have been abandoned but upon which there is rather more growth than on the surrounding country. For breeding purposes, however, it seems to keep entirely to broken country, especially stony desert and hill-sides in which there are many ravines with steep rocky sides and boulder-strewn bottoms. The nest is a typical Wheatear's nest and is as described below by Betham and Williams. The former, in letters to me, describes its breeding well:—"This bird is extremely common round Quettah in Spring and breeds abundantly. It is an early breeder, commencing to nest towards the end of March, and I have found young in the nest as early as the 11th April and another on the 16th April with young nearly fledged. Nests with eggs may be found all through April, and in May and June they have second broods, possibly sometimes a third. The latest I have recorded for eggs is the 2nd June, but second broods may be found up to the end of this month.

"Owing to this Chat's wariness, its nest is not easy to discover. The bird seems to divine you are after it and its nest and acts accordingly, seldom betraying its home unless there are chicks already hatched. The only nests I found were by watching the birds building, in which case I waited to give them time to lay full clutches, or by seeing them feeding their young.

"The nesting habits are peculiar. Every nest I have found has been placed at the end of a rat-hole, and these always such as have several other passages and channels leading out of it. The burrows selected seemed to be generally winding ones, and the eggs are placed in a chamber rather larger than the tunnel and may be somewhat enlarged or hollowed out by the bird itself, though I am not sure. The tunnels, however, are never made by the bird. The entrance gives no indication of holding a nest and there is never visible any barricade of pebbles.

"The nest itself, which is generally placed one to two feet down the burrow from the mouth, is composed of wool, hair, roots, feathers, cotton, coir, rags, or any other material which is both soft and handy, a conglomerate mass with a depression in the centre, usually rather shallow, in which the eggs are deposited. These are a pale spotless blue and extremely beautiful. Five is apparently the usual complement, although I have taken six occasionally, and more than once four, showing signs of incubation.

"From several nest-holes I have dug out dead half-fledged young birds. It is a common thing also to find toads and dung-beetles occupying the same burrow as that in which a nest is placed, though they are, as a rule, in one of the side passages.

"During the breeding season the male makes himself very conspicuous by his courting display. He seats himself on some jutting boulder or bush, puffs out his feathers and jumps up into the air,

uttering a curious guttural note and ascends slowly, with tail outspread and all his rump-feathers erected and showing spotlessly white in contrast to their black margins. When he has got up some thirty or forty feet he floats slowly sideways down, finally alighting on some raised ground or the top of a mound, never on the flat ground."

Later Williams was equally successful in obtaining a series of this bird's nests and eggs round Quetta. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xxxiii, p. 603, 1929):—"The site chosen for the nest is generally a discarded rat's or discarded Bee-eater's hole. When built in the latter it is easy to dig out, but when in a rat's hole the chances of ever reaching the nest are very remote owing to the numerous diversions in the burrow.

"The nest is a shallow saucer made of wool, grass-stems, tow, feathers and bits of string and rag, lined with hair and wool.

"I have seen the nuptial display of various birds, but that of this bird is, I think, the most remarkable. With drooping wings and outspread tail the male approaches the object of his affections, uttering the while a pleasant whistle. When within a foot or so of her he rises about 18 inches off the ground and flutters in a rapid oscillating movement in front of her, only the black and white of his plumage being visible against the drab-coloured earth. After the performance he alights near her and struts round with outspread wings and tail, gaily singing all the time. He then shoots up into the air, hovers and performs aerial stunts, pouring forth his song the while. Gradually his song becomes disjointed and he slowly descends to earth in a spiral motion and, on alighting, slowly approaches his lady love with a hesitating run, both wings adroop and tail still outspread, chirping with satisfaction. All through this wonderful exhibition the female takes not the slightest notice, but carelessly preens her feathers or feeds."

It should be noted that in 1902 (Journ. Bomb. Nat. Hist. Soc. vol. xiv, p. 603, 1903) Marshall recorded the Chat as very common round Quetta in the hot weather, when he found two or three nests with young about April 20th.

The eggs, as Betham and Williams have said, are laid any time from the 1st of April onwards, second layings being made in late May and early June. The full clutch is nearly always five, though both four and six may rarely be taken. In colour the eggs are a pale blue, varying very little in depth of colour; in a few there may be half a dozen or so pale red freckles, generally at the larger end, but nine out of ten eggs are unmarked. Most eggs are rather broad ovals and not blunt, but others are decidedly long and decidedly pointed. The texture is of the usual hard, fine character, with a highly developed gloss.

Sixty Baluchistan eggs average 23.7×17.4 mm.: maxima 25.0×16.6 and 23.0×18.0 mm.; minima 19.8×15.1 mm.

Since the 'Fauna of India' was written I have received the magnificent series from the Betham collection and others from Williams, and these completely upset my previous measurements and show that Indian eggs, so far from being smaller, average much bigger than those taken from Russia and elsewhere. At the same time it may be that many of these latter have been wrongly identified.

***Cenanthe deserti*.**

THE DESERT-CHAT.

(513) *Cenanthe deserti atrogularis* (Blyth).

THE CENTRAL ASIAN DESERT-CHAT.

Cenanthe deserti atrogularis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 51.

This Desert-Chat breeds throughout Central Western Asia from South Caucasus to East Persia, Afghanistan, Baluchistan and North-East Kashmir.

The nest is much the same as that of other Wheatears, a pad of grass, roots, fine twigs etc., much mixed with wool, hair and any other soft material which may be handy, lined with wool or hair or both mixed and, sometimes, a few feathers also. Outwardly the nest is a shapeless mass of material, whilst the depression is a shallow one, roughly about 4 inches across by one or less in depth. It is placed, as a rule, in holes in the ground, sometimes on the flat, more often in banks, mounds or the sides of ravines. The holes are nearly always those of the mouse-hare, rats etc., but it may, alternatively, be built in a hole under a stone, a cleft in a rock, among loose stones or in a hole in a wall around what was formerly cultivation. Wherever it may be placed the country selected is nearly always of the wildest and most forbidding deserts of stone or sand and, even when they are built in man-made walls, these are the broken-down ones round derelict fields which have reverted to their original condition of desert.

In Kohat, where, however, Whitehead says it does not breed, he found them frequently on cultivated land, and remarks that they do not keep so exclusively to the desert as some of its allies.

It has only twice been found breeding within our limits. Marshall first found a nest with young in a hole in a bank near Quetta where, also, the nest and eggs having been taken by Williams, who thus records his find:—"In Spring and Autumn this Chat is to be met with in fair numbers in the low foot-hills chiefly to the North-West and North of the Quetta Valley. A few pairs remain to breed in the Quetta Valley itself. The localities they frequent in the breeding

season are in the stony wastes, which form the predominating feature of the foot-hills, where there are only a few hardy shrubs and a sprinkling of camel-thorn.

"A nest found on the 15th May, from which the bird was shot and identified, was built in a hole in the bank of a dry nullah, situated in the type of locality described. The nest was built of grass, hair and wool, lined with hair and wool.

"There were four eggs of a very pale blue colour, slightly glossy, with a few faint markings at the large end.

"They average 20.0×15.4 mm."

Ludlow obtained a clutch of five eggs, slightly incubated, from a nest built in a hole in an *Ephedra* mound on the 13th April. This was near Beturru-Jam, on the Akra-Tekkes road, at an elevation of only 4,000 feet, which, as Ludlow remarks, is remarkably low for our birds, which are said to breed at elevations upwards of 10,000 feet. Both birds were shot and proved to be somewhat intermediate between *atroregularis* and *oreophila* in character, though agreeing with the former in size. As, however, they were considerably North of the breeding area of *oreophila* they must, I consider, be attributed to *atroregularis*.

I have two clutches of eggs received by Kuschel from Sarkal in Baluchistan, and others from Kuldscha in Turkestan.

The breeding season appears to be April and May.

The ground-colour of the eggs is pale blue, fairly dark for a Wheatear's egg; some clutches are only faintly freckled with tiny specks of reddish scattered about the larger end; one clutch has small blotches and spots of deep reddish at the larger end, where they form a rough zone and are scarce elsewhere; other eggs are intermediate between the two. In shape they vary from a short squat oval to a long oval with much pointed smaller ends. They have a decided gloss.

Thirty eggs average 19.7×15.4 mm.: maxima 20.6×15.5 and 20.0×16.1 mm.; minima 19.0×15.0 and 19.5×14.7 mm.

(514) *Cenanthe deserti oreophila* Oberholser.

THE TIBETAN DESERT-CHAT.

Cenanthe deserti oreophila, Fauna B. I., Birds, 2nd ed. vol. ii, p. 52.

The present form of Desert-Chat breeds in parts of Kashmir, Ladak and Tibet between 10,000 and 16,000 feet but, apparently, very seldom under 11,000 feet.

Meinertzhagen describes it as "a bird of the wildest regions but disliking steep slopes." He obtained nests in Ladak, one on 7th June near the Pangkong Lake at 14,300 feet and two other

nests with four eggs each at Debring at 15,700 feet. The first was placed in a "mani" wall, the others on the ground under huge boulders.

Ludlow (Ibis, 1928, p. 59), in writing of the birds of Gyantse, notes that these Chats "arrive about the middle of April in Southern Tibet and are fairly numerous between 13,000 and 15,000 feet. They seem to prefer waste land and are generally met with at the mouths of stony barren nullahs. They breed towards the end of May, either in the mud 'chortens,' stone walls or in holes in rocky hill-slopes. One nest that I found was placed in a hole under a rock. I was unable to reach the nest properly, so pulled it out, when, to my disgust, I found it empty. I replaced it clumsily but, on visiting it a few days afterwards, I found it contained four eggs. This seems to be the usual clutch. The nest is a fairly biggish structure of grass and straw interwoven with wool and feathers and lined with a mixture of wool and hair."

Ludlow also took a nest at Upshi, 40 miles from Leh, on the 6th June, at about 11,800 feet.

Osmaston found them breeding commonly in Ladak and writes (Journ. Bomb. Nat. Hist. Soc. vol. xxxi, p. 981, 1927):—"This bird is found at high elevations only in Ladak. They frequent rocky, sandy desert country, both plateaux and steep hill-sides, from about 10,000' up to 17,000', where they are often the only birds to be seen. They are nowhere numerous.

"They are early breeders, nidification commencing in May. Nests are placed under rocks or stones or in the 'mani' walls, and are composed of small sticks and dry grass, lined with hair and feathers."

I have had numerous nests and eggs sent me from Tibet taken from 12,000 feet upwards. In Tibet the favourite site seems to be a hole in one of the "mani" or boundary walls, tucked away well inside the wall and often built under a pile of stones where the wall has half fallen. At other times it is placed in holes in the sides of ravines, rocks or precipices or just on the ground under rocks, boulders and piles of stone. The nest is a very rough structure, generally made principally of small twigs, grass and roots mixed up with wool and hair and often with such oddments as feathers, scraps of rag, straw etc. Outwardly it is of no particular shape and is just a pad of all these materials mixed together, but there is always a fairly well-shaped cavity for the eggs which is thickly or thinly lined with wool and hair, sometimes mixed with feathers.

Osmaston obtained a very fine series of eggs in Ladak on the Taklang Pass, 16,500 feet, the Tsor Chumo Lake, 15,000 feet, and the Tso Kár Lake at 15,400 feet, all his nests being taken in June, which seems to be the normal breeding month. The eggs always seem to number four or five, the former much more often than the latter.

The ground-colour is a bright pale blue, varying a good deal in depth, perhaps depending considerably on the time they have been incubated. In markings they agree with the preceding subspecies, though I have seen none quite so richly or boldly blotched as are one or two clutches of that bird.

Thirty-two eggs average 22.1×16.3 mm.: maxima 23.9×16.7 mm.; minima 20.1×16.0 and 20.8×15.0 mm.

Cenanthe xanthopyrna.

THE RED-TAILED CHAT.

(515) **Cenanthe xanthopyrna chrysopygia** (De Filippi).

THE PERSIAN RED-TAILED CHAT.

Cenanthe xanthopyrna chrysopygia, Fauna B. I., Birds, 2nd ed. vol. ii, p. 53.

This Red-tailed Chat breeds in South Turkestan, South and East Persia and Baluchistan to the North-West Frontier of India.

It occurs in Chitral, the Kurram Valley and other places on the frontier in Summer and undoubtedly breeds there, though possibly at high elevations and, so far, its nest and eggs have not been found.

The only collector who has taken the nest within our limits is Major C. H. Williams, who obtained several round Quetta, about which he gives us the following very short note (Journ. Bomb. Nat. Hist. Soc. vol. xxxiii, p. 604, 1929):—"A rather rare bird, breeding in only a few localities, and its nests are hard to find. The site generally chosen is a hollow in a cave or cliff-face; this cavity is filled with small flat pebbles and the sides of the nest are supported by a rampart of small flat stones, the nest itself being built of grass and lined with fine grass-stems.

"The eggs, four to five in number, are pale blue, slightly glossy, and very sparingly marked with brick red; sometimes there are no markings at all.

"The average size of the eggs is 20.7×15.9 mm.

"The birds breed during April, May and June, my first clutch being taken on the 13th April and the last clutch on the 16th June."

To this Williams adds, in a letter to me:—"The clutch of eggs now sent you were taken from a nest made of grass, shaped like a very rough and shallow saucer, the cavity well lined with hair; it had the usual base of small stones and was protected by a rampart of the same."

In 1920 Currie took several nests in the hills near Kerman, and the following note is compiled from his letter and notes sent me

with eggs, nests and birds, the latter being identified by Mr. H. F. Witherby and myself:—

“This Chat is a summer migrant to the mountains near Kerman and is a fairly common breeder between 6,000 and 9,000 feet. The nests are placed in holes in all sorts of positions. I have taken them from holes in old mud walls, stone walls or from holes under rocks, and their favourite site, I think, is a hole under a stone or rock in the steep side of one of the bare rock gorges so common in these hills, very rugged, stony and bleak and, for the greater part of the year, very dry and arid, and with little vegetation beyond dried-up patches of withered grass and a few stunted bushes. The nests are placed well inside the holes, usually about two feet or so, and sometimes a great deal more, perhaps quite beyond reach. The nest itself is a shallow saucer or pad, roughly and meagrely built of coarse and fine grass and lined with finer grass or hair, most often the latter. In front of the nest there is invariably a rampart built of small flat stones, leaving sufficient room for the ingress and egress of the bird. Sometimes a great number of stones are employed—in one case there was over a quart of them—and the labour to the bird must be immense.

“The breeding season lasts from the end of March and early April up to the end of June, and most birds are double-brooded.”

The number of eggs laid in a full clutch seems to be four or five and I have no record of six. In colour they are a very pale blue, amongst the palest of Chats' eggs, one clutch taken by Currie being practically white, whilst the darkest eggs I have seen were much lighter blue than the palest eggs of *deserti*. Occasionally the eggs are quite spotless but, as a rule, they are very lightly and sparingly speckled with light red, whilst, in a few instances, the markings are stronger and darker and form rings round the larger end.

In shape most eggs are long, rather pointed ovals.

Twenty-two eggs average 21.1×15.9 mm. : maxima 23.0×15.6 and 22.4×16.2 mm. ; minima 19.7×15.6 mm.

(516) *Cercomela fusca* (Blyth).

THE BROWN ROCK-CHAT.

Cercomela fusca, Fauna B. I., Birds, 2nd ed. vol. ii, p. 54.

This Chat, the best known and most familiar of all our Indian Chats, is a resident practically throughout the United Provinces, the Southern Punjab, the extreme North-East of the Central Provinces and Rajputana East to Cutch.

Whistler ('Popular Handbook of Indian Birds,' p. 72) gives a very good summary of the haunts of this bird:—“The Brown Rock-Chat is a common and familiar species, found both in arid stony wastes, in deep ravines and on earthy cliffs, on rocky hills

and in and about villages and towns. It is a great frequenter of buildings, flitting in and out of the empty chambers and through the gaping windows of ancient palaces and forts, perching in the cornices of tombs and mosques, and living even in the more frequented houses and offices of a work-a-day world, the friend alike of rich and poor. It comes into rooms even when there are people moving and talking within."

As regards their nesting-places, little can be added to what Hume wrote long ago:—

"It is a great frequenter of old buildings, and all the grand Mahomedan and Hindu ruins, forts and palaces, mosques and temples afford nesting-sites for one or more pairs of this species. They are tame and fearless. A pair built for years regularly in my house at Etawah and they often build about native huts. Deep ravines and earthy cliffs also attract them, and thousands of birds build yearly in that vast network of ravines that fringes the courses of the Jumna and Chumbul from opposite Agra to Calpee. Others nest in quarries, and I got several nests from these in the neighbourhood of Futtehpour Sikri.

"Holes in walls, whether mud or stone, and in earthen cliffs and banks, ledges and chinks in rocks and quarries and the like, are the sites chosen, and in these they build."

Very often they will build their nests in houses which are occupied and Mr. W. H. Mathews (*Journ. Bomb. Nat. Hist. Soc.* vol. xxvi, p. 845, 1919) says that "a very favourite nesting-site is the ledge that often runs round the top of a wall inside the bungalow, about three inches or so below the level of the ceiling; while corners of shelves in the unused rooms are also very frequently used."

Again, Mr. L. S. White (*ibid.* p. 667) says that in the Banda district of Bundelkhand "every Inspection House had its pair of Brown Rock-Chats, which nested inside the house, usually in the bath-room, to which they had access through the drain-opening when the house was shut up. I found several of the nests, which are placed either in the corner of one of the shelves on the wall or else on the cornice, and I was surprised to find that they were invariably built on a foundation of small pebbles or gravel. Mathews, already quoted, also refers to this last feature of their nests, though in the nest described by him the pebbles were replaced by a pile composed of broken bits of earthen pots, some of them over two inches in diameter.

It is curious that this trait should not have been referred to by Hume himself or by any of his correspondents except Butler, but Jesse, in one of his notes, says:—"This Chat, like the Wheatear, sometimes has pebbles in the base of the nest or surrounding it, especially on the outside when it is in a hole."

Butler says: "The nest is usually built in holes in rocks, buildings or stone walls and, when in the former, is often supported by a heap of small stones and pellets of dry earth, forming an embankment

that extends 6 to 10 inches beyond the side of the nest. I have noticed it in so many cases that I look upon it now as a rule rather than an exception."

Curious places in which this bird's nest have been found are recorded. Bingham notes:—"I have found nests . . . and on one occasion at the base of a thick growing bush." Again, Col. A. E. Butler at Mt. Abou found one made in the empty nest of a Swallow, probably *Cotyle concolor*.

The nest is a very rough cup, when placed in a hole, fitting into it; when on a ledge measuring anything between 4 and 5 inches in diameter externally and with an egg-cavity about $2\frac{1}{2}$ inches across by 2 inches or less deep.

The articles used most often in its construction are grass, both fine and coarse, and roots, but all sorts of material are made use of—Khuskhus, wool, hair, feathers, moss, weed-stems, bits of rag, cotton, a scrap of cast snake-skin or any soft oddment lying about close to where the nest is being built. Sometimes only an odd bit or two of one or more of these items are woven into the nest; at other times a great deal is used, especially wool or hair, half the bulk of the nest possibly consisting of these. As a rule there is a good lining of wool, hair or feathers; sometimes all three, sometimes one only, sometimes hardly any at all and, rarely, of fine grass only.

The nesting season is very prolonged and many birds breed twice and three times in the season. Eggs may be found over the greater part of its breeding area any time between March and August, most being laid in April and May, whilst on Mt. Abou Butler took them as early as February.

The normal full clutch of eggs is three, but four are not uncommon, while Barnes once took five.

The eggs are quite typical Chats' eggs. The ground-colour is the usual pale blue, perhaps not quite so bright as in the eggs of the *deserti* and other groups, yet darker than in the Wheatear type of egg. I have seen no eggs quite spotless but some are nearly so, whilst others have very faint frecklings of pale red at the larger end only. Most eggs are fairly well marked with small specks and spots of pale red at the larger end, where they often form a ring. A few eggs have the markings darker, a reddish-brown, while a few have them more evenly distributed over the whole surface of the egg.

In shape the eggs are generally rather broad, short ovals, but others tend to a long, rather pointed oval. The surface is fine and smooth but only moderately glossy.

Fifty eggs, including some of Hume's, average 20.5×15.5 mm. : maxima 22.3×16.5 mm. ; minima 18.5×15.1 and 19.0×14.7 mm.

Apparently only the female incubates and I can find nothing on record to show whether the male assists in building the nest.

Butler says that "during the period of incubation both birds are extremely pugnacious and vigorously attack any small birds, squirrels, rats, lizards etc. that venture to approach the nest."



ENICURUS MACULATUS MACULATUS.
The Western Spotted Forktail.
(Near Pahlgam, Kashmir, 7,200 ft., 13.6.32.)

9

Like most Chats and Wheatears, these birds as a rule have a very definite breeding territory which they defend against all others of their own kind but, occasionally, this system must be abandoned, as two or more nests have been found in the same building or close together in the same cliff or rock-face, the two pairs of birds living in perfect amity, though it is quite possible that they may have well-defined hunting areas.

Subfamily ENICURINÆ

(FORKTAILS).

Enicurus maculatus.

THE SPOTTED FORKTAIL.

(517) *Enicurus maculatus maculatus* Vigors.

THE WESTERN SPOTTED FORKTAIL.

Enicurus maculatus maculatus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 57.

This Forktail is found from the extreme North-West Frontier, throughout the whole of the Himalayas South of the higher snowy ranges and West of Nepal. It is very common in Garhwal and the Simla Hills and possibly extends into Western Nepal for some distance.

Probably every collector in the North-West Himalayas has taken the nest and eggs of this bird and it is not necessary to repeat each individual's experiences, which are all much the same. Hume thus summarizes his own and his correspondents' notes on the subject:—"The nest is almost always placed in close proximity to water, sometimes completely hidden in a rocky niche, sometimes on a bare ledge of rock more or less overhung by drooping ferns and sometimes on a sloping bank, at the roots of some old tree, in a very forest of club-moss. The nest is cup-shaped, fully 4 inches across and from 2½ to nearly 4 inches in height, the cavity being sometimes shallow, sometimes deep. It is composed of very various materials—moss, moss-roots, horsehair, silky fibre and the like; but a quantity of dead, more or less skeleton, leaves are always intermingled, and at times form the chief lining, which, however, according to my experience, is more commonly fine rootlets."

Most collectors describe the nests taken by them as much like the above but, undoubtedly, the greater number emphasize the fact that their nests have been constructed almost entirely of fresh green moss with a lining composed of nothing but a fairly thick

layer of skeleton leaves placed over an inner lining of tiny moss-roots. It is true that Brooks and Cock both write of nests made of moss and fibres or lined with dry leaves and roots, but in the latter case the dry leaves were probably skeleton leaves and the roots were also probably placed under these and not mixed with them.

The following gentlemen, who all took many nests of this bird, and saw numerous others which they left alone, write as follows:—

“I took another of the beautiful nests of this bird yesterday, the 20th May, just like all the rest that I have ever seen, vivid green on vivid green, with a background of black wet rock. The bird seems to pick the freshest and greenest moss possible and to build its nest in among the same material in some hole or crevice in rock or among boulders. The lining never varies, skeleton leaves over the moss and moss-roots” (P. Dodsworth).

“Nest on a ledge of rock by a stream, made of green moss and lined only with perfectly skeletonised leaves; a very lovely nest, and just like the many others I have taken” (S. L. Whymper).

“Nest of moss, lined skeleton leaves; a compact cup-shaped structure, placed in a rocky bank of a small stream” (A. E. Jones).

“Nest of wet green moss, solid and compact, lined with skeleton leaves, placed on moss-covered rock overhanging torrent in dense mixed forest” (B. B. Osmaston).

This Forktail breeds over a very wide range of elevation, between 3,000 and 12,000 feet and, occasionally, down as low as 2,000 feet. The favourite elevations are doubtless those between 4,000 and 7,000 feet and, in many places in Kashmir and the North-West Himalayas, it is extremely common at these heights in well-wooded and forested country. Where the streams run through the open country these birds and their nests will but seldom be seen, but every shady reach of stream running through forest has its pair of Forktails.

The principal breeding months are May and June but they also breed freely in April and well into July. Whymper, round about Naini Tal, took many nests in each of these months, as did Dodsworth and Jones in the Simla States.

The number of eggs in a full clutch is three or four, the former more often than the latter.

The ground-colour of the eggs is a pale buffy stone, less often a pale grey-green or creamy. In most the whole surface is rather freely freckled or spotted with light reddish-brown, in only a few more numerous at the larger than the smaller end. In some eggs the markings are not so plentiful and are larger, becoming small blotches, and in these the secondary spots of inky grey are more definite and obvious but, with a glass, they may also be seen, even in those eggs with the finest and most profuse speckling. Occasionally a clutch may be found with one or more of the eggs faintly clouded with lavender-grey, the primary markings being almost entirely wanting.

In shape the eggs are long, rather narrow ovals, often considerably pointed at the smaller end; exceptionally shaped eggs, such as broad ovals, are seldom met with.

The texture is neither very fine nor very close and few eggs have any gloss.

Fifty eggs average 24.8×17.6 mm. : maxima 27.0×18.0 and 24.2×19.1 mm. ; minima 22.3×17.2 and 24.5×16.8 mm.

(518) *Enicurus maculatus guttatus* Gould.

THE EASTERN SPOTTED FORKTAIL.

Enicurus maculatus guttatus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 58.

The range of the Eastern form of Spotted Forktail extends from Sikkim, through Assam, both North and South of the Brahmapootra River, to the Shan States, Yunnan and Northern Siam. It is also the form found in Eastern Nepal, the two races probably meeting and merging into one another in the centre of that still little-known country.

In Sikkim Stevens gives the breeding limits as between 4,000 and 7,200 feet but it will probably be found breeding at much lower elevations than this and also somewhat higher. Gammie took many nests below Darjiling as low down as 2,000 feet, whilst another was taken at 5,000. In Assam it nests regularly down to 3,000 feet and casually as low as 2,000, whilst it is also a common breeder at 8,000 feet in the Naga Hills where there are suitable streams. In Cachar I found it frequently on the highest ridges of the Barail Range up to 6,000 feet.

It is essentially a forest bird, haunting the streams where they run through this but leaving them severely alone when they debouch into open grass-lands or cultivation. In such situations they will seldom be seen except when flitting up or down the streams as they pass from one forest to another.

Always they haunt either rivers and streams or the moist forest-paths, big-game tracks and similar open spaces. Their favourite nesting-sites are along these also. When on the streams the nests may be placed in between moss-covered boulders and rocks, in a hole or cleft of a rock just above the rushing water or ten or more feet above it. Less often it may be tucked away among the roots of a tree growing on the bank and, rarely, it may be placed in a convenient hollow under some steep or overhanging bank. When placed away from the stream itself it may be among the roots of a tree, or between boulders on a forest bank or beside some tiny spring which filters through the moss and rank vegetation of a ravine. Wet, however, the surroundings of the nest must always be, and rheumatism seems to have no terrors for this little bird. I have seen the nest built actually under a waterfall through

which the parent birds had to dive to their home, and I have seen it placed under boulders and rocks over which ever ran a thin sheet of water, the drippings from which splashed the outside of the nest itself and sometimes even the quite unconcerned inhabitants.

A not very unusual site is upon some fallen tree lying more or less in the stream itself. Here it may be hidden in a crack or hole in the trunk or in among the débris caught between the boughs or among the smaller branches.

The nest itself is very beautiful and varies but little in size, shape or materials. In the very great majority of cases it is made of moss alone and lined with skeleton leaves. The moss chosen is always vividly green and fresh, keeping so long after it has been used and abandoned by the birds, yet never conspicuous, simply because it is made of the same moss as that growing in luxuriant patches all around it. I think the only nest I have ever seen which caught the eye at once was one built in a hole in a perfectly flat black rock-face and, even in this case, the non-expert bird-lover would probably have passed it by as a queer little tuft of moss. As a rule nothing is mixed with the nest-moss except the roots of the same and the mud which clings to these, making the nest very heavy and solid. Occasionally the moss-roots seem to be made use of as an inner lining under the skeleton leaves but this is not frequent, and is much more characteristic of the Western form. Still more rarely the nest is made of moss-roots rather than moss and I have seen one nest made practically entirely of this material, including the lining. A few dead leaves may also sometimes be found in the base of the nest but, probably, these are usually leaves which have already been in the hollow before the nest was built.

The inner cup is almost hemispherical, measuring roughly about $3 \times 1\frac{1}{2}$ inches or rather less, whilst the outer measurements are about an inch greater either way or conform to the shape of the hollow or crevice in which the nest is placed.

Gammie found nests that had, apparently, been occupied for two years, "for their walls were living masses of roots of neighbouring plants and green moss of one or more years' growth." I have never found nests occupied for more than one year, though I have frequently found old nests looking as green and fresh as when first built. The lining of these, however, was generally battered and disordered.

The birds breed from the middle of April to the end of June but I have had fresh eggs taken up to the last week in August, almost certainly a second brood.

Both birds take part in incubation and both assist in the construction of the nest.

The eggs are three or four in number, generally the latter, and are just the same as those of the Western Spotted Forktail. It is noticeable, however, that the rich, buff type with dark red-brick spots and specks is more often met with in the eggs of the Eastern than in those of the Western form.

Of exceptional varieties in my collection the following are worth notice. A clutch in which three eggs out of four appear to be a very pale olive-stone, immaculate unless very closely examined, whilst the fourth has a few dingy brown blotches and a faint lilac mottling. Another clutch has a pale green-grey ground, one egg having a few largish blotches of sienna brown, coalescing to form a small deep brown cap at the larger end; another egg has the normal pale brown freckles, while the other two form links between the two extremes.

One hundred eggs average 24.9×17.3 mm.; maxima 26.3×18.1 and 25.9×18.2 mm.; minima 23.5×16.5 and 25.8×16.0 mm.

The above figures show that the eggs of this bird are rather narrower ovals than those of the preceding bird.

(519) *Enicurus schistaceus* Hodgs.

THE SLATY-BACKED FORKTAIL.

Enicurus schistaceus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 59.

The most Western points from which the Slaty-backed Forktail has been recorded are the Valleys of the Surjoo and Ramgunga in Kuman. Thence it extends throughout the Himalayas to Eastern Assam, practically the whole of the hill-country of Burma, Shan States, Yunnan, Siam and the Indo-Chinese countries to Southern China.

The elevations at which this Forktail breeds are decidedly lower than that of the preceding species. In Assam we found it not uncommon in Summer at 1,000 feet and even lower than this in the Dibrugarh district in the foot-hills around Margherita, where we took nests at about 700 feet. On the other hand it may be found breeding up to about 5,000 feet, though more often below than above 4,000. Like the last, it is a forest bird, but its nest is nearly always built on the banks of streams and not often by tiny springs and brooklets alongside forest-paths. In the Chin Hills, also, Wickham, who remarks that "it is common in all these hills," says that it keeps more to the bigger streams than "the wee streams up the hills that *E. guttatus* delights in."

Bingham found it breeding near Kaukarit at about 2,000 feet and Darling took two nests in the foot-hills at the bottom of Nwalabo Mountain in Tenasserim.

The sites selected by this Forktail for its nest are much the same as those chosen by the Spotted Forktails except that, as I have already said, they seem to be restricted to the banks of streams. They may be placed in among boulders, on ledges or in crevices of rocks, among the roots of trees or in holes in banks. A site often made use of by this bird, and very seldom by the Spotted Forktails, is a hole in a dead tree-stump overhanging a stream. Wickham,

Darling, Stevens and Coltart all obtained nests built in such holes, and I myself have also seen several. Some of these latter were built at a considerable height, six or seven feet in more than one instance, but generally in decayed hollows quite low down and, in every instance, overhanging the banks of a stream.

They are, I think, earlier breeders than the Spotted Forktails. Many birds lay in the first week of April and I have taken more nests and eggs in that month than in any other, though they breed freely all through May and June in the higher hills and I have seen eggs, though very rarely, in July and August, all probably second layings. Gammie took nests in Sikkim in May and July but Bingham found nests in Tenasserim on the 1st of March with eggs and on the 13th of that month another with unfledged young, whilst Darling took two nests in the same district of Burma on the 8th April.

In the Chin Hills Mackenzie and Hopwood found them breeding almost entirely in April.

In China (Howlik) Jones and Kershaw obtained eggs during May.

The nest is very similar to that of the Spotted Forktails but is smaller and generally deeper in proportion, the inner cup possibly averaging about 2 inches both in depth and diameter, some being smaller even than this. It is an equally beautiful and well-built nest of brilliant green moss but, sometimes, more dead leaves and roots are employed in the construction of the base. The lining is the same, skeleton leaves being invariably used for this purpose, neatly matted down all round the sides as well as at the bottom.

The eggs are three or four in number, generally four. In appearance these are of two types: one, the least common of the two, is exactly like a washed-out poorly-marked specimen of *E. m. guttatus*, very often with a rather more distinct pinkish tinge; the second type has the ground-colour a very pale bluish-white sparsely but boldly speckled or spotted with rather dark reddish-brown primary spots and often with secondary ones of inky purple and lavender. I have one very unusual clutch with a pinky white ground spotted in a similar manner with light reddish and with underlying and not very conspicuous marks of pinkish-grey.

In shape the eggs are generally rather broad ovals, though long ovals are not rare, and the texture is closer than in the eggs of the *E. maculatus* group, a few eggs possessing quite an appreciable gloss, especially those of the second type.

One hundred eggs average 21.4×16.3 mm. : maxima 24.0×17.0 and 22.2×17.2 mm. ; minima 20.0×16.0 and 21.2×15.2 mm.

Both parents take part in incubation and both assist in building the nest.

As with other Forktails, this species nearly always seems to have a very well-marked territory within which no outsiders of its own kind are permitted to feed, though it has no objection to Wagtails, Redstarts and other birds feeding and breeding within it.

(520) *Enicurus immaculatus* Hodgs.

THE BLACK-BACKED FORKTAIL.

Enicurus immaculatus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 61.

The Black-backed Forktail breeds in the sub-Himalayas from Garwhal, where it is very rare, to Eastern Assam and thence throughout the Burmese lower hills South to the Malay States. I have nowhere found this to be a really common bird, like the Slaty-backed and Spotted Forktails, but it breeds in some numbers in the foot-hills and adjacent plains, so far as the ground is broken and forested, in Assam. They breed occasionally as high as 2,000 or even 2,500 feet and I have a single record of one pair breeding at about 3,200 feet, a quite exceptional record.

Although this little bird breeds generally on small streams in dense forest, its nest may also be found some distance from these in among rocks and boulders in ravines through which a little water always trickles, except in the driest months. In Assam we found it nesting in very dense forest, the ground much broken up and the heavy undergrowth mixed with outcrops of rock, covered with moss, ferns and orchids, over which little cascades of water fell when the rain was heavy. Such rock-faces seemed a very favourite site, the nest being tucked away on a ledge or in a crevice over which the water fell either in considerable volume or just dripped according to the rainfall. After heavy rain the birds had to dive through the cascade to get to their nests. On the whole I think they were better concealed in these places than are most Forktails' nests, but other sites were often chosen, such as hollows in fallen trees, on the banks of streams etc., just like those selected by the two preceding species.

In Assam they breed chiefly in April and May, a few birds laying during the last weeks in March. In the Bhamo Hills Wickham found them breeding later than the other Forktails, taking nests in May. In Pegu Oates took a nest with three eggs on the 20th April, whilst still further South Hopwood found one, also with three eggs, on the 16th of March. In the Chin Hills Mackenzie, Hopwood and others report them as breeding from the end of March to May.

The nest is quite typical of the family: the usual cup-shaped nest of bright green moss lined with skeleton leaves, the body of the nest sometimes containing roots and a few dead leaves, whilst under the skeleton leaves there is a layer of fine moss-roots in about one nest in five. The eggs generally number three only, four being rather exceptional.

Most eggs are rather like small pinkish eggs of the Spotted Forktails, but are rather feebly marked with indefinite freckles and small irregular blotches rather than well-defined spots. Although I have only a comparatively small series of these eggs, some of the clutches

are quite unusual. One, the first I ever took, has a pale stone-grey ground-colour profusely speckled all over with dark purplish-brown, the markings even more numerous at the larger end than elsewhere. The nest was the normal type of the family and the birds were caught on the nest, or it would have been hardly possible to accept them as Forktail's eggs. Another clutch has a pale sea-green ground with rather large blotches of light reddish-brown and lavender, dense and coalescing at the bigger end and sparse at the smaller. Yet a third clutch of three is of the normal type but has the freckles confined to the extreme larger end, where they form small caps.

In shape the eggs are broad, short ovals, much less pointed at the small end than the eggs of the Spotted Forktails.

Twenty-eight eggs average 20.8×15.8 mm. : maxima 21.6×16.0 and 21.2×16.3 mm. ; minima 20.0×15.6 and 20.3×15.1 mm.

An abnormally large clutch of eggs taken by Hopwood in Tharra-waddy measure from 23.2×16.0 to 25.0×16.0 mm.

As usual in this genus both sexes incubate and both assist in the building of the nest.

Enicurus leschenaulti.

THE BLACK-BREASTED FORKTAIL.

(521) **Enicurus leschenaulti indicus** Hart.

THE INDIAN BLACK-BREASTED FORKTAIL.

Enicurus leschenaulti leschenaulti, Fauna B. I., Birds, 2nd ed. vol. ii, p. 62.

This fine Forktail occurs in the Himalayan foot-hills from Sikkim to Eastern Assam and practically throughout all Burma as far South as Tenasserim and as far East as the Kachin and Bhamo Hills. It is a bird of the plains and foot-hills so far as the streams are clear and swiftly running, with rapids, falls and shingly bottoms. Its highest elevations for breeding purposes cannot be much over 1,000 feet and it is almost confined to the dense humid forests between this elevation and the rough country at their feet. In Winter we found it on quite big streams in the plains but I know of no instance of it breeding on these.

In the breeding season it is more exclusively a bird of the dense forest than any of the other Forktails and builds its nest less often on the banks of the bigger forest-streams. Coltart took most of his nests from ravines running through dense tropical forest, always soaking wet and covered with rank, coarse vegetation, especially ferns and palm-ferns. Here the nests were placed on high steep banks, sometimes rocky, sometimes not, among the roots of palm-ferns or other trees. Holes in trees and in rocks, or snug

retreats between boulders were not nearly so consistently chosen as with other Forktails, although, of course, these were selected occasionally. My own experience of the bird was the same in North Cachar and the other hill-ranges in the Surrma Valley, though it was not nearly so common a breeding bird there as in Lakhimpur.

The breeding season is from early April to the end of May, a few birds breeding in June.

The nest is the usual typical Forktail's nest, made almost entirely of green moss and lined with skeleton leaves. It is a larger, more bulky nest than that of any other species and differs also in being mixed to some extent with dead leaves, roots and fibre, more especially in the base and lower portions of the walls. In a few nests the base is composed chiefly of dead leaves and rests on these without any intervening moss. Sometimes, also, the lining is of roots and other fibrous materials without the superimposed lining of skeleton leaves. One found by Cook near Thandoung "was built into a mossy bank, and the exterior of the nest being composed of moss, it was difficult to distinguish from its surroundings. It was lined with fine grass and fern-stems." Owing to the wet positions in which it is generally built, the nests are soaked through except for the skeleton-leaf lining, which keeps out the damp in an extraordinary manner; some of these wet nests will weight nearly two pounds though, when dried, they do not weigh more than three or four ounces. Two nests taken by Dr. Coltart and myself in the Margherita forests each weighed almost exactly two pounds, the walls and base being so wet that the water could have been squeezed out of them. They were built between boulders over which water trickled all through the rains and, although projections prevented the water falling *into* the nest, each little splash sent drops against the walls.

The outer measurements of the top of the nest are, roughly, about $4\frac{1}{2}$ inches but the base may be two or three inches more than this, according to the position in which it happens to be placed. The moss, as well as the other materials, when used, are well compacted together and the fine inner lining of roots, rachides etc. is closely and thoroughly interwoven so that the skeleton leaves lie flat and very neatly. The inner cup is generally rather less than three inches across, varying in depth from one to three inches, but in most nests it is over two.

The full clutch of eggs is four, or sometimes three, in Assam, though in Burma the few nests taken have only had two or three eggs or young birds.

The typical eggs of this species are much deeper in colour than those of any other species of *Enicurus*. The ground-colour varies from a pale cream to a deep rich buff and the markings consist of specks and freckles of brick-red or brownish-red scattered thickly over the whole surface, with numerous secondary specks of lavender.

In some eggs the specks become small blotches and in these they are generally less numerous and show more of the ground-colour. Occasionally the marks are more faint and cloudy, making the eggs look an almost uniform buffy brick-red. From this type, which includes about three clutches out of four, they grade into others similar to the normal type of egg of the Spotted Forktail group.

In shape the eggs are long and, often, pointed ovals, and the texture seems rather harder and closer than in any of the eggs of the other Forktails, whilst often there is a faint but distinct gloss noticeable in the buff eggs, though none in those of the *E. maculatus* type.

Forty eggs average 24.6×17.7 mm. : maxima 26.1×17.4 and 25.7×18.9 mm. ; minima 23.6×17.5 and 24.7×17.0 mm.

(522) *Enicurus leschenaulti sinensis* Gould.

THE CHINESE BLACK-BREASTED FORKTAIL.

Enicurus leschenaulti sinensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 63.

This Forktail seems to be found throughout the greater part of South Central China, extending into Yunnan and the Shan States.

La Touche writes of this bird's breeding :—"The nest is placed on a ledge of a rock by waterfalls or cascades. One taken by me in the Peling Hills near Foochow in May was outwardly composed of moss, and had an inner cup of fine grass-roots and tendrils, with skeleton leaves as final lining. There were four eggs, of smooth texture, with very little gloss, buffish-orange, spotted and lightly speckled with two shades of warm brick-red over underlying reddish-lilac spots. The shape is ovate or pyriform oval. They measure from 23.5×18.0 to 25.0×17.5 mm."

It certainly breeds in the Shan States but I can find no record of the nest having been found.

(524) *Hydrocichla ruficapilla* (Temm.).

THE CHESTNUT-BACKED FORKTAIL.

Hydrocichla ruficapilla, Fauna B. I., Birds, 2nd ed. vol. ii, p. 64.

This handsome Forktail occurs from Mt. Nwalabo in Tenasserim, South through the Malay Peninsula and South-West Siam to Sumatra and Borneo.

The only note I can find on the breeding of this Forktail is that of A. L. Butler (Journ. Bomb. Nat. Hist. Soc. vol. xii, p. 422, 1899) :—

"I do not remember to have seen an account of the nidification of this species. I took a nest in May this year on the Larut Hills, Perak, at 2,500 ft. elevation. The nest, very robin-like in external

appearance, was placed in a crevice in a moss-covered rock at the edge of a bridle-path and, being covered with green moss, harmonized well with its surroundings. It was composed of dead leaves, moss and clay, the large amount of the latter material employed making the nest remarkably heavy. There were two eggs, measuring 1 in. (=25.4 mm.) \times .75 in. (=19.0 mm.), glossy china white, spotted with rufous, principally in a zone round the larger end, with a few pale purplish-grey marks underlying the spots."

Microcichla scouleri.

THE LITTLE FORKTAIL.

(525) *Microcichla scouleri scouleri* (Vigors).

THE HIMALAYAN LITTLE FORKTAIL.

Microcichla scouleri scouleri, Fauna B. I., Birds, 2nd ed. vol. ii, p. 65.

This quaint little Forktail is found all along the Himalayas from Gilgit and Chitral to Eastern Assam and thence into the hills of Northern Burma to the Shan States and Yunnan.

Although only possessing a short tail instead of a long one, this little bird is a typical Forktail in all its ways but is one of those which are found at the higher elevations only. In Tibet it has been recorded in Summer as high as 12,000 feet and may breed at this elevation, but the highest record I can find for its nest is 8,500-9,000 feet near Sonamurg, taken by Ward. Whymper took several nests in the Garwhal Hills between 7,000 and 8,000 feet in the year 1903 onwards, and three years earlier than this Osmaston took a nest in the same hills at 7,000 feet. The first two nests ever taken, except one by myself, were found by Rattray on the Aglar River and the Kamptee Falls, near Mussoorie, at 3,500 and 4,000 feet respectively, whilst other nests have been taken by Jones, Dodsworth and others at all heights between these two extremes. In North Cachar I took one nest at about 3,500 feet, whilst in the Khasia Hills they breed down to about 4,500 feet, wherever there are rapid streams with waterfalls and torrents. It is a forest bird, like all other Forktails, but I have seen two nests taken just on the outskirts of forest where the hill-torrents debouched from it and ran for a few hundred yards down the boulder-strewn hill-side, where the latter was covered with long grass, dense bush and scrub-jungle.

It seems to have a passion for waterfalls and often builds its nest in holes or clefts of the rock or on some small ledge right under the falling water, through which the birds have to dive to pass to the nest. The first nest I ever took was built in a cleft in a rock-face over which a tiny waterfall fell at the time I took it, but which

developed into a roaring cascade after heavy rain. The rock was at the junction of a deep ravine and the Laisung stream and the nest was just on a level with my eyes as I crept round the rock, coming so suddenly on the nest that I grabbed the sitting bird on it before she had time to fly. Later, nests taken by myself were in similar positions, with the exception of one taken from a mossy bank overhanging a stream. Rattray took two nests from holes in rocks, in one case actually under the Kamptee waterfall.

Other nests have been taken in holes in rocks on the banks of streams, while Whympner took one "from a very wet cave beside a stream, the nest occupying the only dry spot in it," and a second "under a foot-bridge over a stream."

In vol. xxi, p. 257, of the 'Journal of the Bombay Natural History Society' Dodsworth has a long note on the nidification of this Forktail.

On the 13th May, 1910 he observed the birds courting, though he failed to find the nest but, "the following year, one of my hunters reported on the 24th April that he had found a nest of this species. On the 26th I visited the spot, an ideal haunt for this intrepid little bird. The water from the stream rushed down a wall of rock fully 125 feet or more in height, falling with a deafening noise in a dense mass of foam and spray. Here, about 50 feet above us, in a niche in the face of the wall by the side of the water, and over which a small slab of stone projected, was placed the Forktail's nest. Some moss was growing below it and, as the sides of the latter were composed of the same material, it blended admirably with its surroundings. So well was concealment effected, that it would have been utterly impossible to have discovered the nest, unless betrayed by the birds themselves.

"The nest was reached by means of a rope thrown from above, and contained one egg and one young.

"The elevation of the spot was 5,500 feet."

On the 29th April he records finding two more nests.

The first "could not be approached on account of its dangerous position. It probably contained either hard-set eggs or young ones just hatched, as the old bird sat very tight."

The second "contained three eggs on the point of hatching. Compared with the position of the other nests, this one was easy of access and was not more than twelve feet up. The nest was completely hidden by a large quantity of water which fell continuously over it. So well was it concealed that, although I was not more than half a dozen paces from it, I could not see it. To get in or out of their home the birds had to pass through this dense sheet of water.

"The nests in both cases were deep cups, composed exteriorly of moss, and lined with fine moss-roots and dead and skeleton leaves, in fact they were simply small editions of the nest of the Western Spotted Forktail.

“When *in situ* the moss composing the external layers was quite fresh and damp; by the time they reached home the moss had dried up and began to drop off, and the structure assumed a shrivelled-up appearance.”

Dodsworth gives the measurements of four nests taken by him as follows:—“Egg-cavity: diameter, 2.25” to 2.4”; depth, 1.6” to 1.76”; externally: diameter, 3.6” to 4.5”; height, 2.25” to 3.5”; thickness of walls, .65” to 1”; thickness of bottom, .6” to .9”.”

To this excellent account Dodsworth adds a description of the weight and measurements of a few eggs.

All the nests taken by myself and other collectors agree so exactly with the description given by Dodsworth that there is little to add. Rattray took a nest, “lined with fine grasses, containing three eggs on the 27th June.” Whymper also records of two nests taken by him that one was “lined with fine grass and partially skeletonised leaves,” and another was “lined with ringal leaves and partially skeletonised other leaves.”

It would appear, therefore, that skeleton leaves are not always used alone.

The breeding season in the Simla Hills is April and May but, in the adjoining hills of Garwhal, Whymper took eggs in June and Osmaston in May. In Sikkim Primrose took a nest with three eggs on the 10th June. The latest date I have recorded is 21st June (Rattray, Mussoorie) and the earliest 4th April (Khasia Hills, taken by myself).

The full clutch of eggs is three, though Ward once found four, whilst occasionally two only are incubated. Normally the eggs have a pure white ground sparsely speckled with light reddish, sometimes very faint, and generally more numerous at the larger end. In a clutch taken by Rattray the marks are pinkish-red, whilst in another set taken by Jones in Simla the specks on one egg are brownish. The extremes are represented by a set of three pure white eggs taken by Dodsworth (Journ. Bomb. Nat. Hist. Soc. vol. xxi, p. 1327, 1912) and by a pair taken by Rattray in the Sinde Valley which are much more freely marked with reddish-brown and which have a few large blotches of purple-brown. In one clutch of eggs the ground is faintly tinged with pink.

In shape the eggs are broad ovals, very little compressed at the smaller end. The texture is fine and close but only rarely faintly glossy.

Twenty-five eggs average 20.1 × 15.0 mm.: maxima 21.4 × 15.6 mm.; minima 18.3 × 14.8 and 19.4 × 14.4 mm.

Dodsworth weighed four eggs, two weighing 31 grains and two 33, but all these were very hard set, and fresh eggs would have weighed considerably more.

Hitherto only hen birds have been caught sitting on the eggs or shot off it but I have no doubt, judging from the other species of *Enicurus*, that both sexes take part in incubation.

As in one instance both birds of a pair have been seen diving through the water carrying moss to the nest, it would appear that in the work of construction the female is at least assisted by the male.

Subfamily PHŒNICURINÆ.

(526) *Phœnicurus frontalis* Vigors.

THE BLUE-FRONTED REDSTART.

Phœnicurus frontalis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 69.

The Blue-fronted Redstart breeds from Afghanistan and Gilgit throughout the whole of the Himalayas to the hills of Assam, North of the Brahmapootra, Tibet, Chin, Kachin Hills and the Northern Shan States to Western China.

This is a Redstart of very high elevations. The lowest height at which I have any record of its breeding is that of a nest taken by Ward near Apharwat, in Kashmir, at about 9,000 to 10,000 feet. Osmaston took the nests in Tehri Garhwal, at 11,000 to 12,000 feet, whilst Whymper, *in epistola*, writes :—" I don't think this Redstart breeds in these Hills under 11,000 feet, whilst, on the other hand, it must breed up to some 15,000 feet. I have actually taken nests with eggs at 13,500 and 14,500 feet and have seen the birds still higher."

As usual, no one has ever recorded the kind of country in which one must hunt for this bird during the breeding season but Whymper informs me that they generally breed on more or less open hill-sides, the one essential being lots of boulders, rocks or stones in holes of, or under which, they can place their nests. Sometimes these hills are covered with stubbly grass and a few scattered bushes ; sometimes there may be a large number of these latter and, occasionally, the hills may be more or less covered with Juniper, whilst the lower parts have the pockets and hollows filled with Rhododendrons.

Osmaston gives a general idea of the country of the Tons Valley, in which he took his nests, as follows :—

"The locality visited by me is a rather isolated group of hills in the upper Valley of the Tons River, and is situated about 40 miles North of Chakrata.

"The altitude of the main ridge (called Changsil) varies from 8,000 to 13,000 feet above the sea and the vegetation of this zone consists of silver and spruce firs at the lower elevations mentioned, passing, as we go up into Karshu, Oak, Birch, Rhododendron and lastly, about 12,000 feet, grass only."

Judging from this description and from the fact that Osmaston took all his nests at about 11,000 feet (the eggs are now all in my

collection), the hills must have been mainly grass-covered, with a certain amount of Juniper and other bushes and a few scattered Karshu Oaks.

Osmaston was the first collector to obtain nests and eggs of this bird, concerning which he writes:—"I found two nests of this pretty Redstart on the 25th and 29th May (1894) respectively, at about 11,000 feet. The former contained three hard-set eggs, the latter four half-fledged young. The nests were very similar in construction and position, being placed in holes in rocks, about three feet from the ground, and composed of moss interwoven with a woody composite plant and some grass and lined with moss, a few feathers and musk-deer hair. The eggs were rather long ovals, coloured pinkish café-au-lait, with a zone of confluent pinkish brown markings and a few grey specks near the larger end.

"The bird I shot off the nest."

In 1897 Osmaston found another series of nests, of which some were in holes in rocks near the ground, while others were built in hollows in the ground under stones and boulders, sometimes concealed by tufts of grass.

Later Whymper found them breeding in the Garhwal Hills in several of the higher valleys, obtaining nests with eggs up to nearly 15,000 feet. Most of his nests were taken from holes under rocks and boulders, sometimes fairly well hidden but, at other times, quite exposed. He also tells me of two very unusual sites from which he took nests:—"This nest was in low juniper growth at about 12,000 feet, but another nest was built about 30 feet up a tree. I saw the birds building and could not believe it was *frontalis* until eventually I shot the bird off the eggs. I saw a great many of their nests, chiefly with young and practically always in banks. The nest in the tree was made of moss with a lining of hair and feathers, as usual. On another occasion I took one from a hollow in a birch-tree fully 20 feet from the ground. All the nests we found were made chiefly of moss, usually with a foundation of coarse grass, whilst the lining was always of hair, more or less mixed with feathers. As a rule the nest was fairly neat and compact, but twice I found nests built in holes from which other nests had been ejected by the Redstarts, and in these two instances they were rather untidy."

A nest taken by Whitehead in the Kurram Valley at 2,300 feet was built outwardly of grass, then moss and lined with hair. This was placed in a hollow under a stone.

All the eggs referred to above were taken between the first and last day of June but, as both Osmaston and Whymper found well-fledged young birds in the first week of that month, it is obvious that many birds must lay in May.

The number of eggs in a full clutch is generally three, sometimes four, the latter about one in every four nests.

The ground-colour of the eggs varies from a very pale pinky grey or pinkish-stone colour to a light buffy stone but they are so densely covered all over with minute specks of pale reddish that most eggs look almost unicoloured. A few in which the specks are so fine as to hardly show appear to be a uniform pale lavender-grey; from this they range to a pinkish café-au-lait. In some eggs the freckles are heavier and coalesce to form cloudy rings of darker colour round the larger end; in others, though this is quite exceptional, the markings are larger, giving rather a mottled appearance to the egg, whilst in two eggs only, one each in clutches of three, the markings form definite small blotches of reddish.

In shape the eggs are long ovals, of very fine, smooth but glossless texture, and are rather fragile.

Fifty eggs average 19.4×14.75 mm.: maxima 21.4×14.6 and 20.3×15.3 mm.; minima 18.1×14.2 and 20.0×14.0 mm.

(527) *Phœnicurus schisticeps* (Hodgs.).

THE WHITE-THROATED REDSTART.

Phœnicurus schisticeps, Fauna B. I., Birds, 2nd ed. vol. ii, p. 70.

The exact breeding range of this Redstart is not really known, but it has been obtained in Summer in Nepal, Sikkim, Tibet and Kansu. It is a bird of the highest elevations, being found in Sikkim at 10,000 feet in Winter. Stevens, it should be noted, doubts if it ever breeds in that State, and its breeding in Nepal also seems very doubtful.

Pleske records its breeding in Kansu and found its nest on the 11th May, a cup made of moss and lined with hair and feathers. The eggs he describes as reddish-pink, faintly spotted with light brown, *i. e.*, the same type of egg as that laid by *frontalis*.

I have had two sets of eggs sent me from Tibet, one from North of the Chambi Valley and one from above Gyantse, both taken at elevations of about 12,000 to 14,000 feet. In one case a skin of a female *P. schisticeps* was sent with the eggs but, in spite of this, I cannot be sure that the identification is correct, and they may be those of *P. hodgsoni* or *P. ochruros*. The nests were "cups of grass, roots and fibre, lined with hair and wool and placed in holes in the stone boundary walls which Tibetans build round their fields."

They were taken on the 8th May and the 3rd June and contained three and four eggs respectively, which are a uniform pale blue but rather darker and softer in texture than would be normal for the eggs of either *P. hodgsoni* or *R. ochruros*. They are broad, blunt ovals in shape, and the measurements vary between 20.4×15.2 and 19.1×14.3 mm.

(528) *Phœnicurus aureus* (Pall.).

THE DAURIAN REDSTART.

Phœnicurus aureus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 71.

The Daurian Redstart breeds from Lake Baikal through East Siberia, Mongolia, Manchuria and Korea to Japan and to North-East China. To the South it has been found breeding as far as Tibet.

The only record of this beautiful Redstart's breeding within our limits is that of Col. F. M. Bailey, who writes (Journ. Bomb. Nat. Hist. Soc. vol. xxii, p. 368, 1913):—"Two nests containing four and three eggs were found. One was on the ground under a root at Kong-Se-Ka, 12,500 feet, on the 8th June and the other in a hole in a wall at 11,000 feet between Yen-ching and the Kia-la on the 10th June."

La Touche found it very common in North-East Chihli during the breeding season and had many nests brought to him in May, June and early July containing four to six eggs in the complete clutches. The nests he describes as "shallow rough pads, or cups made of moss, soft grass-strips, and feathers (pheasant's and, in one instance, domestic fowl's). They were all taken from holes in walls or rocks."

The eggs, which La Touche very kindly gave me, vary in the most extraordinary way and are most interesting, for, this particular Redstart having been proved beyond all doubt to lay such very varied types of eggs, it shows how very careful one would have to be before discarding alleged eggs of some of the less well-known Redstarts.

The following are the principal types of eggs laid;—

(1) Ground pure white, speckled with light brick-red and with a few small blotches of rather darker red, the markings forming rough zones round the larger end and sparse elsewhere.

(2) Ground pale pink, more profusely speckled with red, paler than in (1), and forming better-defined rings at the big end.

(3) Pale blue, about the same in depth of colour as a pale egg of a common English Thrush, similarly marked with dull light reddish blotches, most numerous in a ring round the larger end.

(4) Duller blue, with a livid grey tinge, indistinctly speckled with pale reddish freckles, sparse everywhere, but more numerous in the usual zone.

(5) The same blue as (4), but with larger markings of more definite shape and darker colour, as well as being much more numerous everywhere. The indications of a ring at the larger end are hardly noticeable in these eggs.

In shape these eggs are: (1), (2) and (3) rather long ovals and in (4) and (5) shorter, broader ovals. The texture is fine but not very close, and the surface varies from dull to fairly glossy.

Fifty eggs average 19.0×14.1 mm.: maxima 19.1×14.3 and 19.0×15.0 mm.; minima 17.0×13.2 mm.

(530) *Phœnicurus hodgsoni* (Moore).

THE CHESTNUT-BREASTED REDSTART.

Phœnicurus hodgsoni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 74.

The breeding range of this Redstart is Ladak, South and Eastern Tibet, Western China and, probably, Central Northern China.

This bird breeds in great numbers in Tibet. Ludlow (Ibis, 1898, p. 60) writes:—"What has been said of *rufiventris* applies almost verbatim to this species. It arrives and departs at the same time, nests in the same situations, lays similar coloured eggs, of the same size, and seems to be equally abundant."

Of *rufiventris* he says:—"This bird begins to arrive in Gyantse during the last week of March and departs during the first half of October. It is very common all along the Gyantse-Phari road and nests in May and June at all elevations between 13,000 and 15,000 feet. The nest is placed in stone walls, holes in banks and underneath rocks on hill-slopes and is composed of dry grass, fibres and moss, with a hair lining. The eggs are pale blue and the normal clutch is either four or five."

One nest of this bird was obtained on the 18th June, 1905, by Ward at Chusal, Ladak, and the female shot off the nest, but it must be very rare there, as no subsequent observers have met with it.

A very large series of these eggs has been collected for me on the Gyantse Plain, Phari, and Yatung by many collectors, who all speak of it as one of the most common Tibet breeding birds at all elevations above 12,000 feet.

Curiously enough, although so many observers speak of this Redstart as affecting the vicinity of water, I have no records of its nest having been placed in holes of trees or banks of streams, or by cultivation water-ways. The favourite site seems to be a hole in one of the stone boundary walls of the Tibetan fields, which may be either a hole caused by a single stone falling out of place or one in among a pile of those where the wall has crumbled away and fallen down. At other times the nest may be built in the hole of a wall of some deserted hut, a hole in a bank or some hollow under a boulder on the ground or inside a cleft in a rock-face.

The nest itself is a shallow saucer, sometimes more a pad than even a saucer, of roots, grass, fine stems of plants and moss. In a few nests dried moss is the principal material used but, in most of them, grass and roots form the major part of the nest. The

lining is of fur, hair and wool, sometimes all three mixed, sometimes only one or two of these materials. In some nests, also, there is wool mixed in with the body of the nest.

The breeding season is during May and June but numerous nests may be taken with eggs during July and August, and it is possible that many birds have two broods during the year.

The earliest eggs sent to me were taken on the 9th of May but I have been told that they occasionally are to be found in the last week of April. My latest eggs were taken on the 3rd August.

The normal full clutch of eggs is four or five, very rarely six. In colour they are pale blue but, as a series, they are decidedly darker than those of *P. ochruros*, though any individual clutch may be matched by the eggs of this bird. On the other hand, I have clutches of *P. ochruros phœnicuroides* which are paler, nearer pure white, than any I have seen of the Chestnut-breasted Redstart and, again, one clutch which is an even deeper blue.

Marked eggs are very rare, though in two clutches in my series some of the eggs are very faintly freckled at the larger end with pale reddish. One clutch of four eggs has deeper blue bands round the smaller end, very strongly marked in three, only faintly in one. In other clutches I have seen similar bands, but these are only due to excessive constriction during reverse oviposition causing excessive flow of pigment by pressure on the colour-ducts.

In shape the eggs are rather long, pointed ovals, though abnormal shapes seem common. Thus in one clutch taken in Tibet the eggs are all ellipses, varying from short to long; in another they are very narrow, long ovals, much compressed at the smaller end.

Fifty eggs average 20.4×14.7 mm. : maxima 22.3×14.5 and 21.2×16.0 mm. ; minima 19.1×14.5 and 21.0×14.0 mm.

Apparently only the hen bird incubates, but it is possible that the cock shares a part of this duty by night.

Phœnicurus ochruros.

THE PERSIAN REDSTART.

Phœnicurus ochruros phœnicuroides.

THE KASHMIR REDSTART.

Phœnicurus ochruros phœnicuroides, Fauna B. I., 2nd ed. vol. ii, p. 76.

The Kashmir Redstart is found from Gilgit, Afghanistan and Baluchistan to Kashmir and Ladak, but it does not breed in the Southern outer ranges to Kuman, the Simla States, Garhwal Hills etc.

They breed in some numbers in Baluchistan at all heights over 10,000 feet. Whitehead found it common in the Kurram Valley at this elevation and up to 12,000 feet, taking several nests,

while Harington found the same at Khagan. It breeds also throughout the higher ranges of Kashmir and is common in some parts, but nowhere so common as in Ladak, where it is one of the most numerous of Passerine breeders.

Osmaston remarks of this Redstart (Journ. Bomb. Nat. Hist. Soc. vol. xxxi, p. 982, 1927):—"The great majority cross the Himalayan barrier into Ladakh, but a few remain to breed on the Kashmir side of that range.

"They breed at all elevations from about 10,000 feet up to the snow-line at 17,000 feet. Male birds are not infrequently seen breeding in female plumage. They are one of the commonest birds in Ladakh, being found in and round villages and cultivation as well as in desert tracts. The nest is built very frequently in a stone wall, or under a rock or stone on a mountain slope."

Harington and Whitehead found them breeding in open country on the North-West Frontier but, according to Ticehurst, this is not always the case, for he notes (*op. cit.* p. 709):—"In the afforested area of N. Baluchistan from Kalat to Fort Sandeman this Redstart is a summer visitor, breeding at from 7,000 to 11,000 feet, and is one of the commonest birds *in the forest*" (the italics are mine). In Kashmir and Gilgit, as in Ladak, they breed entirely in the open. Grass-covered hill-slopes, with boulders and rocks for nesting purposes and, perhaps, a little Juniper-scrub and a few odd stunted trees are their favourite resorts, whilst in Ladak they may be frequently met with in real bleak desert.

They build their nests as a rule in holes in rocks and under stones, holes in standing walls and in broken-down heaps, in both used and deserted buildings, more rarely in holes in trees and stumps and often in holes in banks. Whitehead took two nests from holes in the sides of cuttings made for the hill-roads. When built in walls they are generally placed well inside them, sometimes as much as 18 or 24 inches, in spite of which the Cuckoo, *Cuculus canorus telephonus*, manages sometimes to place its eggs in them, as Osmaston saw three Redstarts feeding a young Cuckoo in the Suru Valley in July and remarks:—"How the mother Cuckoo obtained access to the nest of this Redstart for the purpose of oviposition is a mystery, as nests are placed in holes among stones."

The nests are like those of the preceding bird—pads or shallow cups of roots, grass and fibrous material, sometimes more or less mixed with grass and lined with wool, or hair or fur, or with a mixture of any two of these or all three. Ticehurst says that in Baluchistan the nests are made of grasses, Juniper-bark and feathers, whilst Osmaston also mentions feathers being found in one of the nests taken by him.

In Ladak Osmaston and Ward found them breeding from the beginning of May to the middle of June. In Baluchistan, Ticehurst says they breed from May onwards but, probably, many birds have two broods, for Harington and Whitehead took nests with fresh

eggs in July, the latter obtaining a clutch of four such eggs on the 27th July at Sulu Sar in the Kurram Valley.

The full clutch of eggs is probably four or five. Osmaston took many threes in May, but these were all fresh and almost certainly incomplete clutches. I can find no record of a set of three showing signs of incubation. In colour they are a very pale blue but average paler than those of *Phœnicurus hodgsoni*. One clutch is, however, as dark as the eggs of the common European Redstart but, on the other hand, another clutch is so pale as to appear white unless closely examined. Occasionally one or more eggs in a clutch may be very faintly marked with reddish and I have seen one clutch with all the eggs so marked.

In shape they vary from moderate to rather long ovals, often considerably pointed at the smaller end. The texture is fine, close and hard, with a very high gloss, this sufficing to distinguish them from the eggs of the Common Redstart, however dark they may be.

Sixty eggs average 19.9×14.3 mm.: maxima 20.7×14.3 and 20.1×14.1 mm.; minima 18.2×12.0 mm.

All the specimens sent me as having been trapped on, or shot off, the nests have been females.

(532) *Phœnicurus ochrurus rufiventris* (Vieill.).

THE EASTERN INDIAN REDSTART.

Phœnicurus ochrurus rufiventris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 77.

The Eastern race of the Common Indian Redstart is found in Tibet and, rarely, in Sikkim during the breeding season. East it extends into Yunnan and thence into the mountains of Central and North China as far East as Mongolia. Wickham records it as staying in the Shan States as late as April but there is nothing to show that it breeds there, and birds of this species may also be seen in Assam up to the end of that month and even during the first week in May.

They are extraordinarily common birds in Tibet, and breed in great numbers in the Gyantse Plain and at all heights from 10,000 or 12,000 feet up to 17,000 feet, *i. e.* the Summer snow-line.

There is little that can be written about this form which has not already been said about the preceding bird. Since 1907 British officials in Tibet have, from Steen onwards, taken many of their nests and eggs. The following note is a summary of the remarks sent me with a fine series of their eggs taken round about Gyantse:—"This bird is extremely common throughout South Tibet; further North we cannot say, as we have not been very many miles North of Gyantse. It breeds in great numbers between 11,000 and 15,000 feet and even up to 17,000 feet. It makes a very untidy cup-shaped nest, but with the base well compacted

and matted together. Sometimes the nest only forms a sort of soup-plate-shaped affair at the bottom of the hole in which it is built, while the cup is never a very deep one. It is made of roots, grasses and dead leaves, the last-mentioned only being used as a rough base for the real cup of roots and grass. Sometimes a little dried moss is used but never green. It is always well lined with wool, fur or hair and sometimes with the addition of a few feathers, the favourite materials being goat's or yak's hair or the fur of the mouse-hare. It may be placed almost anywhere in any convenient hole. Road-side cuttings, banks of streams, heaps of loose stones or boulders, holes in rocks and cliffs, or under a stone on the ground, sometimes in holes in old buildings and, now and then, even in those in occupied houses, either of mud or stone. Perhaps, however, more often than in any of these, the nest is placed in the walls of fields of crops or in the retaining walls of the terraced cultivation. Now and then a nest may be taken from a hole in a tree or in a rotted stump but such are quite exceptional.

"The bird sits very close and will not leave until she is almost touched."

Ludlow says that moss, among the other materials, is used in the nest, and that the lining is usually of hair. He gives the normal breeding elevation as between 13,000 and 15,000 feet.

The breeding season seems to be May, June and July, about an equal number of nests with eggs having been taken in each of these months.

The full clutch of eggs numbers from four to six and in colour, shape and texture they are, as one would expect, quite indistinguishable from those of the Western form. Occasionally one meets with spotted eggs and also an odd egg or two with a deep blue ring round the smaller end.

One hundred eggs average 20.0×14.6 mm.: maxima 22.0×15.0 and 21.0×15.4 mm.; minima 18.4×13.8 mm.

The female seems to carry on the whole of the duties of incubation.

Phœnicurus erythrogaster.

THE GREAT REDSTART.

(533) ***Phœnicurus erythrogaster grandis*** (Gould).

THE AFGHAN GREAT REDSTART.

Phœnicurus erythrogaster grandis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 78.

This fine Redstart breeds in the higher hills and mountains of Afghanistan, Gilgit and thence through Kashmir to Tibet and Kansu.

There is very little on record about the breeding of this Redstart within our limits but Whistler records finding its nest at Lahul at 16,000 feet. Its eggs have been described as pure blue and as measuring about 22.0×15.5 mm., but the identification must have been wrong in these cases, as Osmaston has now found two nests (Journ. Bomb. Nat. Hist. Soc. vol. xxxi, p. 982, 1927), of which he writes as follows:—"This bird occurs rather sparingly in Ladakh at considerable elevations only. In the winter months they appear to move down to 10,000 feet or, perhaps, lower in the Indus Valley. In May they move up to their breeding haunts at from 13,000 to 16,000 feet. They frequent streams and mountain torrents. Superficially they strongly resemble *Chaimarrhornis*, the White-capped Water-Redstart, from which, however, they may at once be distinguished by the white wing-patch. Nidification commences early, fresh eggs being obtainable in the first week in June. Nests are rather bulky affairs, composed of wool and dried grass, matted together and lined with hair and a few feathers.

"The eggs, four in number, are white, marked with pale rufous or chestnut, and resemble well-marked eggs of the English Robin.

"Seven eggs average 22.4×17.0 mm."

In sending me these eggs Osmaston gives the following additional information:—"The first nest, taken on the 7th June, was placed in a hole in a Mani (boundary of field) wall, invisible until several stones had been removed. It was placed about five feet from the ground and was built of dry grass and weeds and profusely lined with wool, a little hair and two or three feathers. The second nest was taken on the 9th, was similar in description and was built in the same kind of wall at a height of about 4'. The eggs, four, were on the point of hatching, and one was broken in the attempt to blow it."

We do not know how long incubation takes with this bird, but it cannot well be less than thirteen days, so that it would appear that complete clutches must sometimes be laid by the last week in May and that this and June are the breeding months.

The eggs are white, in one clutch feebly freckled all over with pale reddish; in the second more boldly speckled with darker reddish, principally at the larger end, where they form zones. In the first clutch the eggs are broad, blunt ovals in shape, the second longer and much more pointed. The texture is fine and hard but not very glossy.

According to my measurements the eggs average only 22.1×16.9 mm.: maxima 23.6×17.0 and 23.4×17.3 mm.; minima 21.0×17.0 and 22.0×16.3 mm.

(534) *Chaimarrhornis leucocephalus* (Vigors).

THE WHITE-CAPPED REDSTART.

Chaimarrhornis leucocephala, Fauna B. I., Birds, 2nd ed. vol. ii, p. 79.

The White-capped Redstart is found from Afghanistan, Gilgit and Baluchistan on the West, throughout the Himalayas through Kashmir to extreme Eastern Assam, both North and South of the Brahmapootra, Tibet, Setchuan to the Yangtse.

This Redstart breeds at all heights from 6,000 to 16,000 feet and, perhaps, higher still, but its general breeding elevation may be considered as between 8,000 and 14,000 feet.

It is essentially a bird of the rapid running rivers and streams and never breeds away from these, but it is found equally often on those running through virgin forest and on those winding in and out of the grass- or bush-covered mountains at the higher elevations. It, however, does not often breed on the very tiny streams and waterways which force their way down ravines in dense tree-forest, with trees meeting overhead. Light and space and air seem to be needed just as much as torrent, rapid and waterfall.

The nest is a bulky cup, measuring as much as 6" in diameter by $2\frac{1}{2}$ " to $3\frac{1}{2}$ " deep. It is built mainly of moss, more or less mixed with roots, leaves and other oddments, lined with wool, hair and roots, sometimes one, sometimes another and sometimes all three mixed.

The favourite site for the nest is in a hole or crevice of a rock overhanging water or among the boulders on the banks. Often it is placed on the bank itself, hidden in a hole or depression in moss, grass or weeds; at other times it may be built under an overhanging edge of a bank or among the roots of a tree on the waterside. Occasionally it has been taken from holes low down in dead trees, whilst Whymper records having found two nests of this bird placed in cavities in fallen trees.

June and early July seem to form the chief breeding season, but I have had eggs sent me from Tibet which were taken in May, one as early as the 19th, whilst on the other hand some were taken in the last few days of July. Again, Whymper notes that by the 15th June some young were ready to leave the nests and that others had already left, yet on the 30th July he saw a pair repairing an old nest for another laying. They must often have two broods, more especially in the lower and middle elevations, and Major Magrath gives an interesting account (Journ. Bomb. Nat. Hist. Soc. vol. xix, p. 149, 1909) of two broods raised near the engine-house of the Murree Waterworks:—"Captain Skinner found the nest, just after the young were hatched, on a bank above the engine-house. While still feeding their brood the parents again started nesting in a weep-hole of the revetment wall of the embankment on which the engine-house and tanks stood. This second nest was not more than 15 yards

from the engine and within a foot of the top of the embankment, where men were constantly passing to and fro. I learned subsequently that this nest was never completed and that a third was built close by in another weep-hole of the same embankment."

It is interesting to note that Major Magrath speaks of the parents constructing the second nest, so, apparently, although only the female incubates, the male assists in building the nest.

The eggs vary from a type similar to rather boldly speckled bluish-white eggs of some of the *Phœnicurus* group to a type as heavily marked as many eggs of the Magpie-Robins.

The ground-colour is a pale sea-green, not varying much in depth of tint, but in some brighter, in others duller. Most eggs are rather boldly and profusely marked all over with rather dark reddish-brown, usually more numerous at the larger end, where they occasionally form caps or rings. In addition, there are underlying blotches of lavender and neutral tint, sometimes darkening to inky purple. At the extremes of difference in marking some eggs are quite heavily marked with fair-sized blotches and others only lightly speckled with light reddish-brown. One handsome clutch of three has heavy red-brown blotches, forming caps at the big end, while they are sparse elsewhere. A second, still more handsome clutch has the ground rather extra clear pale sea-green, one egg unmarked and the other three with small caps of very rich chocolate-brown at the extreme larger end.

Fifty eggs average 24.6×16.8 mm.: maxima 25.2×16.7 and 23.8×17.3 mm.; minima 22.2×17.0 and 22.3×15.9 mm. In shape they are generally rather long ovals, well compressed or blunt at the smaller end. The texture is rather coarse for a Redstart's egg but, in a few eggs, the surface is slightly glossed.

Rhyacornis fuliginosa.

THE PLUMBEOUS REDSTART.

(535) **Rhyacornis fuliginosa fuliginosa** (Vigors).

THE HIMALAYAN PLUMBEOUS REDSTART.

Rhyacornis fuliginosa fuliginosa, Fauna B. I., Birds, 2nd ed. vol. ii, p. 81.

This little Redstart has a very wide range. It occurs both in Afghanistan and Baluchistan and thence right through the Himalayas, in the whole of the higher hills of Burma, to Tenasserim. Thence again it extends East throughout Siam and the Indo-Chinese countries to Central and South China and Hainan, being replaced in Formosa by *R. fuliginosa affinis*.

In Assam it breeds freely between 3,500 and 6,000 feet but, in the Himalayas, it breeds from about 4,000 feet up to 13,000

and even 14,000 feet. Stoliczka "found it breeding near Losar, in the Spiti Valley, at an elevation of 13,000 feet," but Macdonald sent me birds, nests and eggs from Tibet taken at least a 1,000 feet higher still.

The nests I have personally taken have nearly all been built in crevices in rocks, in between stones or roots of trees on the banks of streams, or in holes in the banks themselves. It does not matter whether the bank is a sloping moss- and weed-covered one, or just a perpendicular earth-cliff, any hole will do for the purpose. One or two I have taken from low down in natural hollows in trees alongside streams and, very rarely, I have taken them from rocks and banks at a distance from the stream itself. In Shillong a very favourite and very beautiful position for the nests was on a high rocky slope overlooking the Umiam stream at an elevation of about 4,800 feet. Here they were always placed in hollows in, or between, stones, while they were absolutely hidden by a blazing glory of Azaleas and Rhododendrons.

Brooks took two nests near Mussoorie "in the crest on the top of the small steep bank formed by the excavation for the road on the hill-side above the river. The top edge of the excavation was 7 or 8 feet above the footpath, and the nests were placed in small shallow holes or cavities and were overhung by tufts of grass."

They never seem to be placed far inside holes and, in most cases, the outside wall of the nest is flush with the entrance or even projects beyond it. Occasionally it is not placed in a hole and Whymper records (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 236, 1906) a very unusual position:—"It may be news to some readers that the Plumbeous Redstart sometimes builds in trees. Up the Liddar Valley in Kashmir this summer, on two occasions, I saw them building and afterwards secured the eggs ten or twelve feet up, the nest being placed like a Flycatcher's against the trunk of a fairly large tree near the water's edge. At one camp there was a bird sitting on a nest placed on a ledge of rock, as they ordinarily are, and within twenty yards there was another pair building fully fifteen feet up the trunk of a large tree."

The nest itself varies considerably. In four cases out of five it is a very neat, compact, well-made cup of moss, green and fresh, with a certain number of dead leaves in the base and lower walls and a good number of fine roots welded in with the moss. The walls are stout but very well finished off internally, though externally they may more or less fit into the hole in which they are built. The lining is of fine roots, rachides or, less often, of wool or hair. Unusual linings have been found, such as "pure white goat's-hair" (Cock), "silky vegetable fibre, some white and some red" (Gammie), or bright red *Convolvulus* tendrils (by myself).

The other type of nest, though made principally of moss, may have all sorts of untidy materials added, such as fine weed-stems,

tiny roots, and grasses which hang about in all directions outside the nest. The contrast between the two types is well shown by the two nests in the plate.

The majority of eggs are laid in May and June but I have taken nests all through April and July in the Assam Hills. Rattray also found them breeding as early as April near Murree, and Coltart took nests during this month in Lakhimpur.

The full complement of eggs in a clutch is four or five, the latter number being often laid, whilst occasionally three only may be incubated.

The ground-colour is usually a very pale dull grey-green, sometimes rather brighter and almost a sea-green. In some clutches the ground is almost white and in others a pale grey stone colour, varying from this to a rather warm buff. The markings range from tiny specks of pale reddish, scattered fairly thickly over the whole surface, to rich red-brown blotches, generally more numerous at the larger end than elsewhere and often forming ill-defined or well-defined rings or caps. In a few eggs the blotches are more umber-brown than red-brown and, in these, the secondary markings of inky grey are more numerous and give a purple tinge to the egg.

Taken as a series the eggs of this Redstart remind one very much of those of the Black-backed and Brown-backed Indian Robins.

In shape they are broad ovals and the texture is neither very fine nor very close, whilst the surface is glossless.

One hundred eggs average 18.7×14.5 mm. : maxima 20.2×14.9 and 20.0×15.5 mm. ; minima 17.2×14.1 and 19.0×13.5 mm.

The female alone incubates, so far as I am aware, but both birds take an equal share in the construction of the nest.

They apparently have no territory during the breeding season, the nests often being built within a few yards of one another, whilst two pairs may be seen feeding quite amicably on the same stretch of river even when they are occupied in obtaining food for their young. Their nuptial display consists of a fluttering flight with distended plumage, very like that of males of the Wheatears.

Cyanosylvia suecica.

THE RED-SPOTTED BLUE-THROAT.

(537) *Cyanosylvia suecica pallidogularis* (Sarudny).

THE EASTERN RED-SPOTTED BLUE-THROAT.

Cyanosylvia suecica pallidogularis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 85.

The various races of *C. suecica* have recently been reviewed by Tugarinov (Ann. du Mus. Zool. de l'Acad. des Science de

U. R. S. S., 1928). He admits eleven Asiatic races and, of these, it is probable that more than the number of subspecies hitherto accepted as occurring in India do visit it during the cold weather. All Osmaston's and Ludlow's skins of breeding birds taken by them on their nests in Ladak prove to be *abbotti*, as suggested by Ticehurst (Journ. Bomb. Nat. Hist. Soc. vol. xxxi. p. 493, 1929). It is now also definitely certain that all these birds must be treated as races of the one species, *Cyanosylvia suecica*.

It is doubtful if *pallidogularis* or any of the pale forms breed within our limits, but there is one May specimen and one August specimen of *pallidogularis* in the British Museum collection, obtained at Gilgit, which *may* have been breeding birds.

Both nests and eggs differ in no way from those of the next bird, and eggs taken by Niginoff at Naryn-Prechervalskij average about 19.3 × 14.1 mm.

(539) *Cyanosylvia suecica abbotti* Richmond.

THE EASTERN WHITE-SPOTTED BLUE-THROAT.

Cyanosylvia cyanecula abbotti, Fauna B. I., Birds, 2nd ed. vol. ii, p. 86.

The breeding range of this Blue-throat extends from the Pamirs, through Northern Kashmir, Baltistan and Ladak, to Western Tibet. As already mentioned, Tugarinov has reviewed the races of this bird and, according to his distributions, our subspecies is replaced by others in the country North of Baltistan.

This Blue-throat seems to be a very common breeding bird over a great part of Ladak, where nests, eggs and young were taken by Ludlow, Watken and Osmaston between 9,000 and 11,000 feet. Some of the birds obtained by Ludlow, as well as those later on shot by Osmaston off their nests, had no white on the throats, the patch being all red, this leading to the belief that both the White-spotted and Red-spotted Blue-throats bred in Ladak in the same area. Many individuals, however, of the former have no white, or very little, on the throats and, when the skins were available for examination, they all proved, without exception, to belong to the White-spotted species.

The birds nest in open hill-sides covered with grass and low thorny scrub, preferring damp, or even wet, ground and the vicinity of streams. Watken (Journ. Bomb. Nat. Hist. Soc. vol. xxix, p. 699, 1927) obtained one nest "placed at the foot of, and in the middle of, a mass of young willow shoots round a willow-tree, and consisted of fibrous roots lined with much finer ones and fine dead grass leaves. The nest was 2½" across the centre by 2" deep." This was a very unusual site, apparently, and neither Ludlow nor Osmaston found one in a similar position. Ludlow (*op. cit.* vol. xxvii, p. 143, 1924) found "two nests at Bhot

Karbu on the 24th June, 1919; the first contained four very much incubated eggs, the second four newly hatched young. Nests placed on the ground amongst long grass and low bushes, cup-shaped and built of dried grass." Another nest found on the 25th at Mulbek, a day's march from Bhot Karbu, was similar, and contained four slightly incubated eggs. Osmaston remarks (*op. cit.* vol. xxx, p. 477, 1928):—"The chief breeding place of this species is undoubtedly Ladakh, where they frequent the low thorny scrub in or near stream-beds, especially in damp or swampy spots." In vol. xxxi, p. 983, Osmaston gives the following fuller description of other birds' breeding habits:—"This species is fairly common in Summer in Ladakh in the Indus Valley and its tributaries between 9,000' and 11,500'. They are found chiefly along river beds and streams and they are very partial to wet ground covered with a low thorny shrub, *Lonicera spinosa*, in fact they are rarely or never seen except in or near this thorny scrub, and wherever a decent sized patch of this scrub occurs one may be almost sure of finding one or more pairs of this species.

"Nidification commences in May, fresh eggs being available from the last week in May throughout June. The nest is a most difficult one to locate, being placed on the ground well concealed in grass at the base of a thorn-bush. Except for the exit of the parent bird, the nest would generally escape detection. The nest is composed of dry grass only."

Osmaston's notes, sent me with his eggs, show that his nests were all found in wet places and practically all well hidden in grass in thorny scrub. In shape they were deep cups made only of dry grass lined with the same. They were all taken between the 26th May and 10th July, so that June seems to be the regular breeding month. Watken remarks that, though he did take one nest with incubated eggs on the 29th July, nearly all the birds he then saw were busy feeding their young.

The full clutch of eggs seems to be always four, though three only may occasionally be laid. In colour they vary from a rather dull "sage" or olive-green to a bright sage or olive-brown. When looked at casually they appear to be practically unicoloured but, when examined carefully, they are seen to have numerous pale freckles of dull light reddish scattered over the whole surface. In shape they are rather short, blunt ovals, rarely slightly pointed at the smaller end. The texture is smooth and fine, the shell rather fragile, with the surface glossless or nearly so.

Thirty-six eggs average 19.1×14.2 mm.: maxima 20.0×14.2 and 19.7×14.6 mm.; minima 18.3×13.6 and 18.5×13.3 mm. A pigmy egg, not included in the above, measures only 14.0×11.2 mm.

Grandala cœlicolor.

THE BLUE GRANDALA.

(541) **Grandala cœlicolor cœlicolor** Hodgs.

THE INDIAN BLUE GRANDALA.

Grandala cœlicolor, Fauna B. I., Birds, 2nd ed. vol. ii, p. 89.

This magnificent Chat is a bird of the highest elevations in the mountains of Garhwal, Nepal and Sikkim, breeding close to the snows at heights over 16,000 and probably up to 20,000 feet.

The only collector who has ever obtained its nest and eggs (Whymper) writes as follows (Journ. Bomb. Nat. Hist. Soc. vol. xx, p. 115, 1911):—On July 15th we found a nest with two young at 16,700 feet; it was placed under a ledge of rock at the top of a snow-bank and was very neatly built of fine moss with a lining of feathers: a rather large nest, 9 inches across, internally $3\frac{1}{4}$ inches. The eggs must have been laid by June 15th, when the place would have been inaccessible from snow. The nest was discovered by seeing the female catching little white moths in the grass and flying off with them, but it took several days, as she went up fully 1,500 feet to her nest, and the mist (which was incessant over 14,000 feet) made it very difficult to follow her. I kept the young alive for six days on white moths and ant-eggs, when they died very suddenly. One other nest with two young was seen. Up to June 25th these birds were about in small flocks of from five to ten, feeding at 14,000 feet, and some of them must have been building at that time fully 2,000 feet above their feeding-grounds, so it would seem they do not separate into pairs when building, and this makes the nest more difficult to find."

In 1911 Whymper's collector, Jowar Lal, at last succeeded in getting eggs (*op. cit.* vol. xxii, p. 196). Whymper records "in the Journal of May 20th, 1911, the finding of the nest with two young, and in June of that year my collector got a nest with two slightly incubated eggs from the same locality, securing both parent birds. The eggs are distinctly meruline in appearance, being greenish-white, spotted and marked with reddish-brown and with purplish under-markings; they measure $1.06 \times .81$ and $1.12 \times .75$ of an inch and there is some dissimilarity in the eggs, the shorter one being greener and the more heavily marked. The markings are distributed all over, there being no ring or cap. The nest and its position were similar to that formerly described by me."

This nest was taken on the 15th June at 16,000 feet. The two eggs, now in my collection, are very different to one another. One, a long narrow egg measuring 29.7×19.4 mm., has the ground-colour a buffy clay and is marked with blotches of reddish-brown and with secondary blotches of pale purple-lavender. The second

egg, much broader and shorter, which measures 27.3×21.0 mm., has the ground a distinct green and is much more heavily blotched with reddish-brown, the underlying marks of lavender being almost obscured. This egg is very like many eggs of the Nilgiri Blackbird, whilst the other approaches more nearly the Missel-Thrush type of egg.

The texture is rather coarse and the surface almost glossless.

Calliope pectoralis.

THE HIMALAYAN RUBY-THROAT.

(543) **Calliope pectoralis pectoralis** Gould.

THE WESTERN HIMALAYAN RUBY-THROAT.

Calliope pectoralis pectoralis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 92.

The Western form of the Himalayan Ruby-throat breeds from Afghanistan and Baluchistan, through Kashmir, Ladak, the Simla States and Garhwal, to Nepal. It breeds in these mountains at elevations of 9,000 feet upwards, but generally above 11,000 feet. Whitehead found it breeding in some numbers between 12,000 and 13,000 feet in the Kurram Valley, whilst Whympers took many nests between 13,000 and 14,000 feet in the Garhwal Hills. In these same hills, in the Tons Valley, Osmaston also took nests between 12,000 and 13,000 feet. In Kashmir Ward, Buchanan and others have found them breeding at considerably lower levels, such as near Agharwat at 9,000 feet.

Hume's account of the nest and eggs ('Nests and Eggs,' vol. ii, p. 97) is of course wrong, as no Ruby-throat ever lays buff eggs. The first authentic description of this bird's breeding is that of Osmaston (Journ. Bomb. Nat. Hist. Soc. vol. xi, p. 68, 1897), who writes:—"On June the 7th and 9th, in the Harki Dun, I was lucky enough to stumble on two nests of this bird which, owing to the careful manner in which they were concealed, would certainly have escaped my notice had they not been betrayed in both cases by the sudden exit of the bird near my feet. The nest is a *domed* structure with a large opening on one side near the top. It is rather loosely constructed of coarse grass and lined with finer grass. The locality selected was an open rocky slope with grass and low scrub between the stones and rocks, and the nests were placed on the ground among the grass and scrub. The eggs, fresh in both cases, were three in one nest and four in the other."

All the nests found by Osmaston seem to have been of the domed shape but this is not invariably so, and sometimes they are of the ordinary cup-shape. Whympers (*op. cit.* vol. xvii, p. 237) says:—" *Calliope pectoralis* occasionally builds a domed nest; the first

clutch of eggs I got was from such a nest after seeing many ordinary undomed nests with young. It was a ball of dry grass placed among short grass and quite in the open, *i. e.*, without any rocks or bushes about it. Afterwards I saw the nests with a sort of half-dome. They use nothing but grass for their nests." Buchanan, writing of the nests he first took in Kashmir, says:—"The nests which I found were at an elevation of about 11,000 feet. They were cup-shaped, made of grass and placed on sloping ground under a tuft of grass or small bush."

Although the shape of the nest varies considerably, the sites chosen do not. They are always in the open, generally on sloping hill-sides covered with grass and preferably on those with stones and rocks lying about, interspersed with small bushes. They are usually very well concealed, nearly every nest found having been given away by the female, a very close sitter, leaving it almost at the foot of the finder. Almost invariably the nest is made of dried grass only, the lining being of rather finer grass than the rest of the nest, though Whympfer found burhel hair used as a lining in two or three instances.

The breeding season seems to be almost exclusively June, but an odd clutch may be laid in the last week of May, while Crump collected their eggs as late as the 20th July for Ward and myself on the Kashmir-Ladak borders.

The number of eggs laid is three or four, generally the latter; in colour they are rather dull Hedge-Sparrow's-egg blue, in many with a tinge of green and almost invariably with a certain amount of pale reddish speckling or freckling at the larger end, where they often form an indistinct ring or cap. Occasionally the freckles are more numerous and well defined and, in such cases, they are scattered over the whole surface. One clutch taken by Whympfer is a very pale skim-milk blue, with the usual freckling, though very faint, at the larger end. In shape the eggs are rather long ovals but very little compressed at the smaller end. The texture is rather fine and close and most eggs have a slight gloss.

One hundred eggs average 21.6×15.4 mm. : maxima 23.3×16.4 and 23.2×16.5 mm. ; minima 20.0×14.4 mm.

(544) *Calliope pectoralis confusa* Hartert.

THE EASTERN HIMALAYAN RUBY-THROAT.

Calliope pectoralis confusa, Fauna B. I., Birds, 2nd ed. vol. ii, p. 93.

This race of Ruby-throat occurs in the Eastern Himalayas from Northern Sikkim, through South Tibet, to the hills North of North-East Assam, where it is found in Summer at 12,000 feet and upwards.

There is nothing on record as to the breeding of this race, but I have one clutch of three eggs taken by Capt. R. Steen, I.M.S., North of the Chumbi Valley on the 22nd June, at about 14,000 feet.

The nest was a semi-domed grass affair, placed in a slight hollow in the ground under a small bush growing in a wide grassy plain, broken by rocks and stones and with a good many bushes.

The eggs are like those of the preceding bird, dull green-blue faintly freckled with reddish. They are, however, rather larger than most, measuring 22.6×16.0 , 23.0×15.9 and 22.3×15.3 mm.; they are also longer in proportion and decidedly more pointed. They were fresh when taken.

(545) *Calliope tschebairwi* Przewalski.

THE TIBET RUBY-THROAT.

Calliope tschebairwi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 94.

The Tibet Ruby-throat breeds in Ladak, Tibet and Kansu, probably at heights between 10,000 and 16,000 feet, though at present there is nothing on record about its breeding.

The only nest and eggs known are those taken by Crump for Col. A. E. Ward and given to me by the latter together with the skin of the parent bird. These were taken on the 11th June at Phoulbiang, Ladak, and the nest is described as "a rough untidy globe of grass in a hollow among the thick short tussocks of grass on an open hill-side; taken at about 12,000 feet."

The eggs are a pale skim-milk blue and must certainly be quite abnormal, but they are exactly matched by the pale clutch of eggs of *Calliope p. pectoralis* taken by Whymper in Garhwal. In shape they are very long and decidedly pointed, measuring 24.5×16.3 , 24.0×16.1 and 23.8×16.2 mm.

Tarsiger chrysæus.

THE GOLDEN BUSH-ROBIN.

(546) *Tarsiger chrysæus chrysæus* Hodgs.

THE NEPAL GOLDEN BUSH-ROBIN.

Tarsiger chrysæus chrysæus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 95.

This subspecies of Golden Bush-Robin breeds from Nepal, through Sikkim, to the hills of Assam, both North and South of the Brahmapootra. It also occurs, and probably breeds, on the higher hills of Manipur, the Chin and Kachin Hills. It has also been recorded from Yunnan, whence one would have expected Stresemann's Setschuan race, *isabellinus*.

In the Himalayas it breeds at considerable elevations. Hodgson says that it breeds in the Central Hills of Nepal but does not say at what height. Osmaston took several nests in Sikkim at about

11,000 to 12,000 feet; Hickey took one nest above Gangtok at about 8,000 feet, and this latter is probably about its lowest breeding elevation in the mountains North of the Brahmapootra. In the hills South of Assam it, however, breeds much lower down. In North Cachar I obtained one nest at 6,000 feet and in the Naga Hills it breeds at 7,000 feet, and again, from the Chin Hills I have had a nest and eggs sent me taken at about 7,000 feet.

Hodgson says that "it is shy, solitary and bush-loving. It lays from three to four eggs of a pale verditer blue, regular oval eggs about 0.72×0.5 , and makes its nest on the ground, in holes of rocks or banks, or at the base of some decaying tree. The nest is a compact saucer, composed of moss and moss-roots and lined with sheep's wool and a few soft feathers. One nest obtained in August measured 4.62 in diameter and 1.37 in height externally; the cavity measured 2.75 in diameter and 1.12 in depth."

About Darjiling Osmaston found it breeding from 11,000 feet upwards in thin open forest of Rhododendron-bushes, Silver Fir and Birch. The nests were in every instance built on the ground on steep slopes and fairly well concealed. They were made of moss and grass and lined with hair; cup-shaped and never domed.

The breeding season, according to Hodgson, is May to August. Osmaston took his nests in the last week of May and in the first two of June; Hickey found his on the 2nd July and Hodgson, as already recorded, obtained one in August.

The eggs are a pure pale verditer blue, decidedly paler than an Accentor's eggs and distinctly darker than those of *Phoenicurus ochruros* or *P. schisticeps*. In shape they are rather broad ovals but often decidedly pointed at the smaller end. The texture is rather fine and close but, though smooth, practically glossless.

Twenty-one eggs average 19.7×14.8 mm.: maxima 20.3×14.8 and 20.2×15.2 mm.; minima 19.0×14.2 and 19.4×14.1 mm.

(547) *Tarsiger chrysæus whistleri* Ticehurst.

THE SIMLA GOLDEN BUSH-ROBIN.

Tarsiger chrysæus whistleri, Fauna B. I., Birds, 2nd ed. vol. ii, p. 97.

The Western form of Golden Bush-Robin is found in Summer, from about 6,000 feet upwards, in the Himalayas from the North-West Frontier to Simla and Garhwal.

Osmaston remarks (Journ. Bomb. Nat. Hist. Soc. vol. xi, p. 66, 1911) that in the Tons Valley "this pretty little bird is fairly common, but only at high elevations of from 10,000 to 12,000 feet in the birch and rhododendron scrub, where it breeds. It is very shy and difficult to observe and keeps principally to the dense patches of rhododendron. I found one nest only at about 12,000 feet on June 3rd, placed in a hole in the ground at the root of a small

bush in the open, but close to a patch of rhododendron bushes. It contained three hard-set eggs of a uniform pale blue colour. This bird does not descend below 8,000 feet in these parts except in Winter."

The following year, 1897, Osmaston took a second nest with two eggs at 10,500 feet on the 10th June, the nest being similar but concealed in herbage among Birch and Rhododendron bushes. A third nest found by Whymper near Kalhar, in the same hills, was placed in a hole in a bank, well concealed by grass and bushes; this was at about 10,000 feet.

Rattray found it rare round Murree but took one nest at Changla Gali on the 29th June, 1903, and Buchanan found a second on the 22nd June, 1909, in the same Gali. The first nest was said to have been "in a hole in a bank, rather large, made of dead leaves and moss, lined with fine grasses. The hole was under a large stone." The second nest was "a cup of deal leaves, a little grass and roots, lined with the latter and placed under a stone in forest on the banks of a ravine."

June seems to be the principal breeding month and all eggs so far recorded were taken during that month. The eggs are, as one would expect, exactly like those of the preceding race, but one pair taken at Murree are rather darker blue than any others I have seen.

Twelve eggs average 20.5×14.6 mm.: maxima 21.5×16.0 and 21.0×16.3 mm.; minima 19.2×14.1 mm.

Ianthia cyanura.

THE RED-FLANKED BUSH-ROBIN.

(549) *Ianthia cyanura rufilata* (Hodgs.).

THE NEPAL RED-FLANKED BUSH-ROBIN.

Ianthia cyanura rufilata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 99.

This graceful little Robin is found from Nepal throughout the Outer Himalayas to Eastern Assam, both North and South of the Brahmapootra, extending thence East to the Chin and Kachin Hills, Shan States, Northern Siam and Yunnan. It probably breeds from about 7,000 or 8,000 feet upwards, as it is found in the Naga Hills in Summer at these elevations, but Stevens says that in Sikkim it is a bird of very high elevations and, even in Winter, occurs at over 10,000 feet.

The only nest taken, one by W. P. Masson, was found above Darjiling at about 10,500 feet. It was taken on the 4th June on the Singalila Ridge above Darjiling and was described by him as being a deep cup of dry grass and moss, lined with hair, probably of Serow, as it was very coarse and wiry. It was placed in a small

hollow among the roots of a tree on a grassy bank, the female being shot as she was approaching the hole and quite close to it.

The three eggs contained in this nest are just like those of the better-known Kashmir bird. The ground is pure white and they are lightly marked with pale reddish freckles, confined to the larger end.

They measure 20.0×13.3 , 19.1×13.3 and 19.1×13.2 mm.

So far as is known at present it is a bird of the forest, but not of the deepest and most humid, though very little has been recorded about its habits or its habitat.

(550) *Ianthia cyanura pallidiora* Stuart Baker.

THE KASHMIR RED-FLANKED BUSH-ROBIN.

Ianthia cyanura pallidiora, Fauna B. I., Birds, 2nd ed. vol. ii, p. 101.

This Bush-Robin, which is comparatively common in many parts of Kashmir, extends on the West to the Afghan and Baluchistan frontiers and on the East to the Simla States and Garhwal Hills, breeding throughout its range between about 8,000 and 14,000 feet. In Kashmir it sometimes breeds at lower elevations, for Hume says: "Further West in Kashmir they breed as low as 6,000 ft. and I have eggs taken there in the latter half of May and the first half of June." Stoliczka did not think it occurred West of Nachar, "and not below 8,000 ft. It breeds near Chini and, even here, almost only at the limit of trees, at about 12,000 feet. It is often seen about Korzog in Rupshu at an elevation of between 15,000 and 16,000 feet." About Sonamurg Davidson and Bell saw many nests built from 9,000 feet upwards. In Garhwal Whymper and Osmaston found no birds below 10,000 feet and some as high as 12,000. In the Kurram Valley Whitehead found a nest at 10,000 feet but, in the Simla Hills, Skinner took a nest on "the Chor" under 9,000 feet. From the above it would seem that they only breed exceptionally under 8,000 feet.

At the greater elevations the birds nest in thin forest of scattered Birch, Silver Fir and Rhododendron or on practically open grass and bush-covered slopes of hill-sides. They seem to prefer very steep slopes, for Davidson (*Ibis*, 1898, p. 25) says: "They were placed either among the roots of fallen trees or on slopes so steep that it was difficult to traverse them with a gun in one's hands." Sometimes, however, they breed in fairly dense forest, especially at the lower levels, as in the Simla States and near Murree.

The nest is placed in holes in banks, under fallen trees or in among their roots (a very favourite site, according to Whymper), hollows in the steeply sloping ground of woods or, very rarely, in holes and natural hollows in dead tree-stumps. They appear to be nearly always well concealed, either tucked away far inside the hole or adequately screened by protecting roots or herbage.

The nest is cup-shaped, rather roughly and loosely put together the principal material being grass, though this may be more or less mixed with moss, roots and dead leaves. Nests sent to Hume from Kashmir by Brooks are said to have been made of "moss and grass, lined with soft white grass." Most of the nests found by Whympers had a good deal of wool in the lining, while those obtained by Osmaston had, in several instances, a lining of musk-deer hair.

The breeding season commences in May, some eggs being laid during the last ten days of that month. It continues all through June, whilst Whympers took fresh eggs as late as the 27th in the same month.

They lay three to five eggs, generally four. Skinner, however, found one nest containing seven eggs. These may have been laid by two birds or may have been two clutches from the same pair, the first having gone wrong. The early date, however, 24th May, would seem to infer that they are a genuine clutch of seven, the more so in that none of them showed any signs of staleness.

In colour they are a pure chalky white, rarely very faintly tinged with pink; a few eggs are immaculate but, generally, they are faintly freckled at the larger end with pale pink, where the specks often form a zone, usually ill defined, occasionally well marked. One clutch taken by Whympers in Garhwal on the 3rd June is mottled with pale dull pink, in one egg the mottlings assuming the character of large blotches distributed over the whole egg. These eggs are also rather exceptionally long and pointed, most eggs being shaped broad ovals, sometimes blunt, sometimes rather pointed at the smaller end. The texture is fine and rather close, the shells being fairly stout for the size of the egg, whilst the surface varies from glossless to slightly glossy.

Sixty eggs average 17.8×13.5 mm. : maxima 19.0×14.2 and 18.0×14.5 mm. ; minima 16.1×13.3 and 17.4×13.0 mm.

The birds are not at all shy, but they are so quiet and unobtrusive in their habits during the breeding season that they do not attract attention. The males breed in immature plumage, not more than one out of every three males nesting having the fully adult coloration.

Ianthia indica.

THE WHITE-BROWED BUSH-ROBIN.

(551) ***Ianthia indica indica*** (Vieill.).

THE INDIAN WHITE-BROWED BUSH-ROBIN.

Ianthia indica indica, Fauna B. I., Birds, 2nd ed. vol. ii, p. 102.

This Bush-Robin is found from Western Nepal, throughout the Outer Himalayas, to Eastern Assam, the Shan States and Yunnan. Osmaston has also found it breeding in the Garhwal Hills. It

breeds at lower levels than the preceding bird and, in the Khasia Hills, I obtained it in the breeding season at and above 5,000 feet, taking nests on the ridge above Shillong on, but below, the crest at about 5,600. It was, however, rare except from November to March and most birds undoubtedly left for the higher ranges before starting nesting. In Garhwal Osmaston took its nest at about 11,000 feet. In the Khasia Hills the bird was confined to open Pine forest or to the grass-slopes bordering them. The nests I personally found were all built in very open ravines running through rather thin Pine forests. In the ravines themselves only a few scattered pines were to be found but a number of small Oaks, Rhododendron-trees, Daphne-bushes and Raspberry-brambles grew in some profusion; the banks were well covered with moss and ferns and concealment of the nest was easy. Two of the nests taken by myself were built in hollows under stones and two in holes among the roots of trees, all four being within three or four feet of the tops of the ravine banks, which were, for the greater part, masses of rocks and boulders, with vegetation growing rankly between them, while their faces were covered with luxuriant moss, orchids and small ferns. The nests were made almost entirely of a very soft, rather crinkly grass mixed with a little dried moss and lined with very fine maidenhair-fern roots. One pair of birds, of which I took two nests, always made, or found ready made for them, a pad of leaves on which the nest was built. They are rather untidy structures, loosely put together, though they stand a good deal of handling, as the grass is thoroughly intertwined. They measure internally about $2\frac{1}{2} \times 1\frac{1}{2}$ inches, whilst outwardly they conform to the shape of the hole if a small one, or measure up to 6 inches across if placed in larger hollows, but they do not necessarily fill up the whole space.

One of my collectors took nests for me from the same ravine, some years after I had left India, which were identical both in structure and position and, possibly, made by the same two pairs of birds.

They breed early and my first nests were taken in the middle and end of April and the second in early June; if their second nests were taken the birds bred again at once and were then left in peace. They were extraordinarily tame and the parents kept close about the nest as we stood quietly by and watched them. Every now and then the male would display to the female; perching on the top of a rock or small bush, he would drop his quivering wings to his feet; then, after a quick bow, the wings would be slightly raised and quivered faster than before, whilst his tail was expanded and jerked several times up and down. Sometimes the plumage display would be accompanied by a few dancing steps and then, after a few minutes, feeding would be resumed or an advance made to the female, who treated the whole show with quiet contempt. So tame were the birds that those caught on the nests

and released after examination—very quickly—were within a few minutes hopping about the bushes as if nothing had happened. Curiously enough, it was the male we always caught on the nest, and in each case he was in only semi-adult plumage, though I saw others in Winter in fully adult dress.

The eggs number three or four and are quite indistinguishable from those of the preceding species.

The average of seventeen eggs, all, I believe, that have ever been taken, is 17.7×13.6 mm.: maxima 18.4×14.0 and 18.0×14.2 mm.; minima 17.0×12.4 and 17.3×12.3 mm.

(553) *Adelura cœruleocephala* (Vigors).

THE BLUE-HEADED ROBIN.

Adelura cœruleocephala, Fauna B. I., Birds, 2nd ed. vol. ii, p. 104.

The nests and eggs described in Hume's work as taken by himself certainly do not refer to this bird, but those taken by Wardlaw-Ramsay may have been correctly identified. The colour of the latter eggs is exceptional, but a clutch taken by Whympfer, who knew the bird well and took several nests, is, apparently, much the same.

It is found in the breeding season from Turkestan to Afghanistan, Baluchistan, Kashmir and as far East as Sikkim and Bhutan. Records of its Summer habitats are rare. Buchanan, who was probably the first to take a fully authenticated nest of this species, sent me a female from Murree, shot off its nest above Changla Gali at 10,000 feet; Whitehead found it breeding in the Kurram Valley at 11,000 but records it as "abundant from 7,500 feet to 12,000 feet"; Whympfer took several nests between 10,000 and 14,000 feet in Garhwal; whilst Whistler records taking its nest in Lahul, but gives no further details.

It breeds both in forest and in scrub-jungle and, perhaps exceptionally, on more open mountain slopes which are only covered with grass, thorny low bushes and stunted Rhododendrons. Generally the nest is built in a hollow in a bank, some natural hole under a stone or among the roots of a tree and, wherever placed, it seems to be always very well hidden. Whitehead found one nest at Bulta Kundi, Kurram Valley, built on a fallen tree, secreted between the loose bark and the wood, whilst a second was taken from a hole at the foot of a Silver Fir. Buchanan's nest, taken near Changla Gali, was "built in a hole of a tree, 5 feet from the ground," a site which seems to be rare, if not abnormal.

Whympfer says that the females sit so close and are so difficult to dislodge from their nests that they seldom give the position away, whilst they are so well hidden that it is most difficult to find them. Most of his nests were obtained by watching the birds

collecting building material and tracking them to their nests. Even this, however, was hard and often fruitless work, for the birds are very wary and secretive when nest-building and soon seem to become aware that they are being watched.

The nest is cup-shaped and is normally built mainly of grass, more or less mixed with moss and roots, lined with hair and, nearly always, a certain number of feathers. Sometimes a few soft and small twigs are employed in the construction of the nest, whilst one of those taken by Whitehead is described as "a solid cup of twigs, coarse grass and moss."

The normal breeding season seems to be from the end of May to the end of June, a few eggs being laid in July.

The eggs, which number three or four, generally the latter, vary from a pale grey-green stone-colour to a pale dull creamy buff. If carefully examined they are seen to be invisibly speckled with faint light red, the specks sometimes becoming more conspicuous and forming zones round the larger end but, in both my palest and darkest clutches, the markings are quite invisible without a glass. An abnormal clutch of three has the ground a creamy buff, in two eggs quite strongly speckled all over with reddish, and in the third well blotched with reddish and also with a dark well-defined ring of coalescing reddish freckles at the larger end. I can match these eggs with those of the Verditer Flycatchers', but there is no doubt about them, as the birds were watched building the nest, from which they were taken. The shell is very fine and close, with a slightly glossy surface, and in shape the eggs are short, broad, rather pointed ovals.

Thirty eggs average 19.3×14.4 mm. : maxima 20.3×15.2 and 20.0×15.3 mm. ; minima 18.3×13.8 and 18.4×13.3 mm.

(554) *Muscisylvia leucura* Hodgs.

THE WHITE-TAILED BLUE ROBIN.

Notodela leucura, Fauna B. I., Birds, 2nd ed. vol. ii, p. 106.

Muscisylvia leucura, *ibid.* vol. vii, p. 111.

This Robin, which was described from Nepal, extends East through Sikkim to the extreme East and South of the Assam Hill ranges and thence through those of Burma and the Malay States as far South as Perak. North-East it occurs in Yunnan, Shan States, Northern Siam and Annam. Blyth recorded it from as far West as Mussoorie, a record which has never been confirmed, but Dods-worth obtained it in the Simla States.

The White-tailed Blue Robin breeds freely in Sikkim from about 4,000 feet up to 8,000 or 9,000 feet and Stevens observed it in the Mai Kola Valley, East Nepal, at the former elevation. In Assam it breeds from 4,000 to 7,000 feet in great numbers and between 3,000 and 4,000 and, again, between 7,000 and 9,000 feet in smaller numbers.

It is entirely a forest bird, so far as my own observations go, keeping preferably to evergreen forest of big trees with plenty of undergrowth and, almost invariably, close to some small stream. In the Khasia Hills it also frequented Pine forest but kept to the borders of the streams, along which there was always a considerable mixture of evergreen, small tree- and bush-jungle. I never saw the bird or its nest in the drier portions of Pine forest, nor did any of my collectors ever take its nest in such areas.

It places its nest among boulders beside streams or in wet ravines, in grassy or mossy banks in similar places; sometimes in among the roots of trees overhanging streams or, less often, in holes in dead trees or stumps a few feet from the ground. Its favourite site, however, is a crack or hole in the face of some vertical rock on, or close to, the banks of a stream, the hollow selected being most often a comparatively small one.

A very unusual position from which I took one nest was in among the branches, close to the trunk, of a tree which had fallen across a stream. This nest was rather large and domed and, until the bird flew out, I half expected it to be a very neat nest of a Dipper.

The nests found by me in the Assam Hills were almost invariably cup-shaped, but they were equally invariably placed in such positions that they were well protected from above and, of those found in more or less open banks, perhaps one in every ten was domed or semi-domed. In Sikkim most nests seem to be domed. Gammie writes thus of nests sent by him to Hume:—"Two nests of the White-tailed Blue Robin taken in May at 5,000 feet elevation were placed in the face of banks, among scrub near large forest. They were hooded with lateral entrances and each contained three set eggs. They were composed of fine roots intermixed with a few leaves; a few pieces of green moss were stuck here and there on the outside to aid in concealment. Externally they measured $5\frac{1}{2}$ inches wide and the same deep; the egg-cavity is 2.5 inches wide by 1 deep, with an entrance of 2.25 diameter."

Hume adds to this: "Numerous nests of this species sent me from Sikkim show that the nest is always a compact, more or less deep cup, more or less hooded or domed where plants or rocks do not form sufficient shelter. The chief material of which the nest is always composed are extremely fine black fibrous rootlets felted closely together; a good many dead leaves are generally incorporated towards the base of the structure, and fern-leaves (withered or green) and green moss are in many cases more or less profusely woven on to the outer surface of the sides. Where, as sometimes happens, the nest is placed in a cleft of a bank, it consists entirely of dead leaves and black rootlets, only a little moss being attached to the outer lip of the cup or the summit of the hood, as the case may be."

To the foregoing description there is little to be added but, in the Assam Hills, the birds used far more green moss in the construction of the outer parts of their nests, so that they appeared to be made

entirely of living green moss, lined with fine roots; it was only, therefore, when the nests were pulled to pieces that their real construction could be ascertained. I have seen nests placed in small holes in the flat face of a rock on which there was no vegetation of any kind and which shone black and wet with the constant trickle of water draining over them. The vivid patch of green moss was very conspicuous but, to those not knowing what to look for, would have been passed by as a patch of moss growing in a crevice.

The cup-nests found by me averaged about 6 inches in diameter by 4 inches deep externally, or rather less, by 2 inches internally either way.

Most birds breed in May and June but I have taken eggs as early as the 4th April and as late as 10th August, the majority of birds having two broods every year, using the same nest for the two broods.

The female does most of the incubation but not all, as I have several times snared the males on the nest. The male also takes part in the building of the nest.

The eggs generally number three only in Sikkim but in Assam nearly always four.

Examined cursorily they appear to be uniform pinkish clay-coloured eggs, varying from very pale cream to a deep buff clay-colour. If examined closely with a magnifying glass they will be seen to be closely stippled all over with pale reddish clay and, in a few eggs, the stippling is visible to the naked eye, occasionally the markings becoming tiny well-marked blotches. The texture is hard, fine and very close, most eggs having a fine surface-gloss, whilst only exceptional eggs are glossless. In shape they are moderate ovals, very little compressed at the smaller end. Individual eggs could hardly be distinguished from those of *Niltava grandis* but, as a series, they are more uniformly coloured, harder shelled, more glossy, as well as being a broader oval in shape.

One hundred eggs average 23.3×17.1 mm. : maxima 25.4×18.1 and 24.1×18.4 mm. ; minima 20.1×17.4 and 21.4×15.9 mm.

(555) *Callene frontalis* Blyth.

THE BLUE-FRONTED CALLENE.

Callene frontalis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 107.

This Robin is only found in Sikkim at elevations probably between 6,000 and 12,000 feet.

The only note on the nidification of this species is in Hume's 'Nests and Eggs,' to the effect that Blyth says "that Mr. Hodgson figures the nest of the Blue-fronted Callene as domed and like a Wren's, with clay-coloured eggs. There is no such figure amongst the many hundreds of original drawings (of which those in the British Museum are mostly copies) lent me by Mr. Hodgson."

Callene and *Notodela* are in many ways very closely allied and the nests and eggs described are, therefore, what we might expect, and it is possible that Blyth may have seen a drawing of Hodgson's which was afterwards lost.

Saxicoloides fulicata.

THE INDIAN ROBIN.

(556) *Saxicoloides fulicata fulicata* (Linn.).

THE BLACK-BACKED INDIAN ROBIN.

Saxicoloides fulicata fulicata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 109.

This familiar little Robin breeds over the whole of Ceylon and Southern India, roughly North to a line drawn across the peninsula from Ahmadnugger on the West to the Godaveri on the East, though the birds on and about this line are intermediate between this, the Southern form, and the Brown-backed or Northern Indian form. It is found in practically any kind of country which is not too heavily forested but is more numerous in dry areas than in those which are very wet, whilst it does not seem ever to ascend hills over 3,000 feet and not often those over 2,000 feet. On the whole it may be said to be a bird of towns and villages, a haunter of the precincts of humanity, but it is also found breeding on waste lands, in scrub and broken country far from villages, as well as in roadside banks and walls. It is difficult to say what this Robin's favourite breeding site is. Normally it makes use of a hole of some kind, but, what kind, does not seem to be a matter of any importance. Holes in banks, in walls, in buildings, occupied or empty, in trees, in rocks, in the ground under stones are all frequently made use of, whilst empty tins, boxes etc. often take their fancy equally well.

Most extraordinary sites are sometimes selected. Aitken often found nests in haystacks and "one between the broad leaves of a cactus and another in a lamp hanging under the porch of a bungalow"; Wenden obtained nests "in railway cuttings, where several trains passed daily within 8 feet of them; one on the top of a wall under the thatch of an inhabited hut; another in a hole in the gate-post at the entrance to my compound"; Blanford came across a nest "inside the bamboo of a dhooly in the verandah of Captain Glasfurd's house at Sironcha"; finally, Mr. Ivor Macpherson had a pair in his garden which made their nest in an elephant-skull.

On open rocky hill-sides they build commonly under the rocks and stones as well as in holes in the former, while occasionally a nest may be found in a hollow at the roots of a tuft of coarse grass or under a bush.

The nests may be made of almost any material. Those most often used are small fine twigs, roots, coarse and fine grasses, coir, leaves and dried moss. Wenden's description of the nests would do for most. He writes:—"The exterior dimensions of the nest vary with the nature of the hole in which it is built; but no matter how large the hole may be, it seems to be the habit of the bird to fill up the whole space level with the top of the nest. The internal dimensions are about $2\frac{1}{2}$ inches diameter by $1\frac{1}{2}$ deep. The outer materials are coarse, but soft grasses of sorts, dry stems of neem-seeds, and here and there a feather. This is generally carelessly and raggedly put together; but the lining of very fine roots, grass, hair, wool and often pieces of onion-peel and snake-skin is neatly interwoven."

Blanford, referring to the nest built in the dhooly, says that it was made of fragments of string, grass, horsehair and a snake-skin. Davison found a nest in a roadside wall made of rotten grass, straw and some threads of woollen cloth. Cast snake-skins seem to be very commonly used and, among other materials reported as having been employed in the construction of nests, have been feathers, cotton-wool, strips of cloth, boot-laces, bits of fur and skin of various animals, lichen and fibre from Plantain-trees.

The breeding season in Ceylon may be said to be all the year round, for there is no month in which Wait, Phillips, Tunnard and others have not taken eggs, and it is difficult to say which are the favourite months. November, December and January are those in which eggs are seldom laid and, of the remaining nine, perhaps May and September are those in which most eggs are laid. In Southern India more birds breed in April, May and June than during the rest of the year, but many breed in July and August (Wenden, Betham), whilst others lay as early as March (Vidal and B. Aitken in Bombay Presidency) and "February and earlier" (E. Aitken, Poona).

Most birds breed twice during the year and sometimes three broods are raised. More often than not the same nest is used twice and at other times a new nest is built within a few yards of the old one.

In Ceylon the number of eggs laid is almost invariably two and very seldom three, while in Southern India the reverse is the case, three being usually laid. Four eggs are, apparently, never laid by this subspecies.

The ground-colour of the eggs is a very pale greenish-, greyish-, or yellowish-white, never, so far as I am aware, quite pure white. The markings vary from rather large specks to small blotches of various shades of reddish-brown or, less often, greyish-brown, with others underlying them of neutral tint and lavender. Both primary and secondary marks are distributed numerous over the whole surface but never sufficiently thickly to hide the ground-colour. They are nearly always more numerous at the larger end than elsewhere, yet seldom form very marked rings or caps. In most

eggs the secondary markings are hardly visible but, in some, they dominate the others and give a very grey tone to the colour. Taking into consideration a large series of this very common egg, variation is small in comparison with the eggs of many other species.

In shape the eggs are rather long ovals, seldom rather pointed. The texture is only moderately fine, the shell fragile and either glossless or only faintly glossed.

One hundred eggs average 20.8×14.8 mm. : maxima 23.9×15.0 and 21.3×15.9 mm. ; minima 18.3×14.5 and 20.6×14.0 mm.

The male bird helps in the construction of the nest but, according to Wenden, does not share in the incubation. He adds : " I have for hours watched a male flirting about in front of the hole where the hen was sitting, or perched close by, warbling prettily, and several times he took food to her."

Although such a confiding little bird, taking but little notice of people passing backwards and forwards within a few feet of its nest, it deserts on very small provocation, and objects to it being handled or even too closely inspected.

(557) *Saxicoloides fulicata cambaiensis* (Lath.).

THE BROWN-BACKED INDIAN ROBIN.

Saxicoloides fulicata cambaiensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 111.

The Northern race of Indian Robin is found North of the area occupied by the preceding subspecies practically to the foot-hills of the Himalayas from Sind and the Punjab to the drier, less heavily wooded portions of Eastern Bengal, Midnapore, Chota Nagpur and Western Behar. It does not occur in the flat alluvial districts of the Sunderbans or in Mymensingh, Dacca and adjoining districts. It ascends hills to about 2,000 feet or, perhaps, a little higher, whilst Whitehead found it in the Kurram Valley up to 3,000 feet.

There is little that can be said about the breeding habits of this Robin which has not been already said about its Southern representative. Hume summarizes his information as follows:— " The Brown-backed Indian Robin breeds throughout the plains of Upper India from March to August, during which period it has always two and often three broods. If disturbed, especially if the nest be robbed, it generally (but not always) constructs a fresh nest ; otherwise it uses the same nest (only cleaning out the old and replacing it by new lining) for the whole season, and at times for two or three successive seasons. One pair reared eight broods in one and the same hole in my compound in three seasons. It builds commonly in holes in walls or banks, in niches in temples, under the eaves of huts etc. ; but it also builds not infrequently in thick bushes. In Mr. Nunn's garden in Bichpooree I found two nests between the bayonet-shaped leaves of plants of the *Yucca globosa*, wedged in against the stems.

“The nest varies much in shape, size and materials, according to the situation and locality. When placed in holes they are usually merely soft, more or less circular, pads of soft grass, with a small central depression lined with horse, or even human, hair, fine roots or vegetable fibres, cotton, wool or anything else that comes handy, with very frequently scraps of snakes' skins incorporated. Sometimes even in holes a regular, but shallow, cup-shaped nest is built, and this is always the case when bushes and, as a rule, when ledges in buildings or banks are chosen, and then roots and grass, loosely but sufficiently firmly interwoven, form the body of the nest, which is lined with similar materials to those used when nesting in holes. I have seen very neat nests, very different to the ragged pads which commonly satisfy our Robin, between 4 and 5 inches in diameter externally and nearly 3 inches in height, with a cavity some 2·5 in diameter and 1·5 in depth.”

Although bushes as sites for the nests are very rarely chosen by the Southern birds, the Northern form often makes use of them. Marshall, Blewitt, Adam, Barnes, Jones and others have all recorded nests taken from bushes and small trees. Not infrequently, also, it makes its nest in tussocks of thick grass or in hollows among the roots of either grass or low bushes, while it has also been found wedged in among the spear-shaped leaves of both Aloes and Pine-apple plants.

As with most other common birds, curious sites are often selected for the nests. Marshall records one “built between two bricks in a native brick-kiln in course of preparation. The hen bird was sitting on the nest with the people working within a few feet of her. Another nest was on the sill of a blind window, and a third was in the hole for the punkah rope to pass through the wall.”

Anderson writes:—“Two pairs of these Robins built close to the Futtehguh church three years ago; one pair took up their abode in a tin watering-pot which had been placed in a slanting direction in a bush; the other pair took possession of an old piece of cloth that had been thrown over the bough of a tree, and which formed a sort of loop or bag at the bottom, inside of which the nest was built.”

In Sind Eates has found nests, containing three or four eggs, in the walls of wells, in addition to the other normal positions already referred to. Ticehurst, however, notes (*Ibis*, 1922, p. 369) about Sind:—“The Indian Robin is very much a bird of the desert, where scattered Euphorbias and a few camel-thorn bushes alone struggle for existence, or in places which, where more bushes occur, might be dignified by the name of open scrub-jungle. Here it is more noticeable, as birds are very scarce. It seemed, therefore, all the more remarkable to me to find it common in quite thick damp ‘kaku’ grass and ‘kandi’ jungle on the Narra Canal; to cultivation, however, and the vicinity of habitations it seemed quite foreign, and I do not remember meeting with it in such situations.”

They seem sometimes to breed in company, two pairs of birds having often been recorded as breeding within a few yards of one another, whilst Col. A. C. McMaster says that three pairs built in the roof of his house in Kamptee.

Many observers have noted this little bird's liking for cast snake-skin as a material both for the body and the lining of their nests. Arundel Begbie, commenting on this, writes:—"I have found so many cases where this has been done, and invariably with what seemed to be an attempt at a pattern, that it appears to me impossible that it was mere chance. In each case the nest has been lined with the usual horsehair, and worked into the lining have been two narrow strips of snake-skin in the form of a cross." Both McMaster and Adam found scraps of mica also in the nests. Possibly the glistening of the skin and the mica attracted the birds, which seem to have a liking for bright material for nesting purposes. One of the three pairs nesting in McMaster's house built their abode of scraps of coir-matting and lined it with red wool.

The breeding season, as noted by Hume, lasts from March to August, but the great majority of eggs are laid in March and April.

The eggs number three or four in a full clutch, though occasionally two only are laid. In Sind Ticehurst says that "four to six is the more usual number" and that "Ludlow has a clutch of seven eggs." In colour and shape they are much the same as those of *S. f. fulicata*, already described, only varying from them in being larger.

One hundred eggs average 21.1×14.9 mm.: maxima 23.0×15.7 and 22.1×16.0 mm.; minima 17.1×15.0 and 18.0×13.3 mm.

Copsychus saularis.

THE MAGPIE-ROBIN.

(558) **Copsychus saularis saularis** (Linn.).

THE INDIAN MAGPIE-ROBIN.

Copsychus saularis saularis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 113.

The range of this very common bird may, roughly, be said to be the whole of India except extreme South-West Travancore. It also occurs over the whole of Burma from the North to South Tenasserim, the Shan States, Yunnan and China. It is not found in certain tracts in the North-West of India, though there are very few places from which it is totally absent. Ticehurst, however, says that "there are enormous areas in N.W. India where it is quite unknown or very local and rare." He does not mention these areas or say where they are and, probably, it will be found that over most of them the "Dayal" does occur, though,

perhaps, locally migratory and not in great numbers. It is said also to be very rare in parts of Central Burma in the driest areas, though nowhere is it entirely absent.

It ascends the Himalayas to a height of about 6,000 feet and higher in some places, where it has followed, like the Kite and the House-Sparrow, mankind in his search for cooler climes. It is common in the Khasia Hills up to 6,200 feet, is found in Sikkim, according to Stevens, up to 5,500, but has occurred and bred at Darjiling over 7,000 feet. Jones records them up to 6,500 feet in the Simla Hills, where Dodsworth also found one pair breeding at about 7,000 feet. At these higher elevations it appears to be only a Summer visitor, returning to the lower hills and plains in Winter.

Although the Magpie-Robin is most common in cultivated tracts round towns and villages, where it breeds frequently in the gardens of the former and in the scrub and bushes around and in the latter, it is also found in light forest, scrub-jungle and more or less open country far from any human habitations. In the Assam Hills I have found several nests built many miles from the nearest traces of man's handiwork.

Normally the "Dayal" places its nest in holes in trees, walls, banks or buildings or under the eaves of the latter. They also make use of holes in bamboos, both those which have been used in building and in those lying derelict in the jungle or still remaining in the original clump; occasionally they are built *inside* bamboo-clumps, hidden in among the masses of fallen leaves, spathes and other wind-blown rubbish which always accumulates in them. In Shillong one pair bred every year in such a position in a clump of giant bamboos standing in my garden. Every year the birds selected the same site, renewing or rebuilding the old nest and always bringing up two broods, though each year only one or two out of the ten hatched lived to be more than a few months old.

Sometimes, though very rarely, the "Dayal" builds on small trees and bushes. The first nest I ever took was an untidy cup of twigs, grass and rubbish, built on a platform of twigs on a horizontal branch of a dense thorny bush overhanging a pond. Hodgson says that they build their nests sometimes "in the interior of a low prickly plant"; Bingham records a nest *said* to have been taken from a thick bush; according to Hume, Beavan also obtained a nest, or nests, from a thick bush and, finally, E. Aitken saw birds taking nesting material "up to the middle of a Cypress tree" in which there were no holes to breed in.

As a rule the Magpie-Robin builds his nest at no great height from the ground, but Bates, who found it to be the most common of birds in the station of Mercara, says:—"From many notes on the subject in Hume's 'Nests and Eggs of Indian Birds' it is evident that the Magpie-Robin does build at considerable heights from the ground, but as an exception rather than as a rule. In

Mercara, however, nests at some 40 feet from the ground-level seemed to me to be the rule, and nests built in gables of houses and other low situations the exceptions. One nest I observed to be in the crown of a very tall palm. It must certainly have been at least 60 feet from the ground."

The nest is a very rough affair, an untidy cup made of grass, roots, leaves, twigs and all sorts of oddments which, if the nest is built in a town or village, may include scraps of cloth, cotton, rags, bits of skin, goat and cattle-hair etc. The lining may be made of anything, a fairly neat one of grass or roots, a less tidy one of wool or hair, or a most untidy one of feathers and other miscellaneous articles. When placed in a hole in a tree the nest is often little more than an untidy ill-made pad; sometimes, indeed, it is barely as much as this, looking more like a collection of wind-swept débris, caught by chance, rather than by design, in the hole.

For so common a bird the breeding season is not a very long one. In most places the great majority of birds breed during May and June; in Belgaum most breed in the latter half of April and early May, and in Assam the same weeks are selected. Odd nests with fresh eggs may, however, be found any time from the last week in February up to the end of July, and many pairs, perhaps most, have two broods in the season, generally using the same nest for both families.

The number of eggs laid ranges from four to six, but the latter number is exceptional.

The ground-colour varies from a pale sea-green, pale clear blue or pale yellowish-green to rather darker shades of the same colours. In two clutches out of every three the eggs are boldly and profusely blotched over the whole surface with primary markings of light to rather dark reddish-brown or dark umber-brown, with others underlying of pale lavender and purple-grey. In most eggs the markings are numerous but distinct, with the ground-colour showing up well; in others they are still more numerous and less well defined, covering nearly all the ground, whilst in others again the blotches are reduced to small spots or even specks. In nearly all they are rather more numerous at the larger end than elsewhere, but rings or caps at this end are rare.

Immaculate blue eggs sometimes occur, and I have seen two clutches of these and one or two others bright pale blue with just a few bold spots and specks of blackish-brown. A very beautiful clutch taken by Inglis in Behar has two eggs bright unspotted blue, one bright blue with a very large patch of neutral tint underlying a whorl and two or three small blotches of rich brown; the other two eggs are yellowish-brown, with patches of light brown and scrawls and lines of blackish-brown.

In shape and in size the eggs differ greatly, but the normal shape may be said to be a rather long oval. The texture is fine and close, the shell stout and moderately glossy.

One hundred eggs average 21.9×17.1 mm. : maxima 25.0×18.5 mm. ; minima 18.1×15.3 mm. Pigmies and abnormally shaped eggs are not rare, but these have not been included in the above measurements.

Both birds take part in incubation, though the hen sits more than the male in the daytime ; both sexes also help in the construction of the nest.

Incubation is said to take twelve or thirteen days, but I have not verified this myself.

(559) *Copsychus saularis amœnus* Horsf.

THE MALAY MAGPIE-ROBIN.

Copsychus saularis musicus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 114.

Copsychus saularis amœnus, ibid. vol. vii, p. 113.

The Malay Magpie-Robin occurs within our limits in peninsular Burma throughout Southern Tenasserim. Outside the confines of the Empire it is found throughout peninsular Siam, the Malay States, Sumatra, Borneo and Java.

This Magpie-Robin is the same familiar, habitation-haunting bird in Southern Siam and Burma as its cousin is in India. Messrs. Mackenzie, Hopwood and others found it breeding in Tenasserim in much the same positions as the Indian bird selects, while the nests themselves are also very similar, except that they do not show that the birds have any fancy for cast snake-skins as a material for the lining. In Southern Siam both Williamson and Herbert found it very common, and both of these gentlemen obtained fine series of their eggs for me. Herbert writes of their breeding habits (Journ. Nat. Hist. Soc. Siam, vol. vi, p. 114, 1923) :—
“ It may be seen in every private garden and is essentially a resident of the compound. It is confiding and very fearless and has many of the pugnacious habits of the home Robin. It is definitely ‘cock o’ the walk’ in its own domain and will challenge all comers.

“ The nesting site is usually a branch hole in a hollow tree, though it is not uncommon for the birds to build in the little spirit (“ Pi ”) houses *, which make very excellent nesting boxes. Another nesting site which has been adopted year after year by presumably the same pair of birds or their offspring, for I never came across another instance of it, was the cup-shaped end of a bamboo, which was left standing when the top half had been cut away. The nesting season is from early April to the end of July.”

* The little “ Pi ” houses are put up by the superstitious for wandering spirits to come and dwell in. They consist of a one-roomed house, measuring about fifteen inches by ten, all very neatly finished and erected on a stick at about four feet from the ground.

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In Tenasserim they appear to breed principally in May and June and in Borneo Moulton obtained eggs, apparently hard set, on the 18th May.

The normal full clutch of eggs is three or four, and in colour they go through exactly the same range of variation as do those of the Indian bird; even the abnormal unspotted blue and other types are found in the eggs of the Siam bird as in those of the Indian.

Herbert made out the average of his eggs to be 21.0×17.0 mm.; but a bigger series, seventy eggs, give an average of 22.5×16.8 mm.: maxima 29.1×18.1 and 23.0×18.3 mm. (Borneo); minima 19.3×15.2 mm. (Tenasserim).

(560) *Copsychus saularis ceylonensis* Selater.

THE CEYLON MAGPIE-ROBIN.

Copsychus saularis ceylonensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 115.

So far as is known at present, this Robin is confined to Ceylon, but birds from the extreme South of Travancore are said to closely approach the Ceylon birds and, with more material for comparison, may have to be placed with that bird.

Although the Ceylon Magpie-Robin is just as familiar and humanity-loving a bird as its Indian relation, it seems sometimes to be found breeding inside light and even dense forest at considerable distances from any village. Usually, however, its nest is built in gardens, parks, round about villages and often in the buildings themselves, either under the eaves or in some convenient hole in wall or post. Its favourite site, perhaps, is a natural hollow in a tree at no great height from the ground, more often under than over ten feet. Both Wait and Phillips have taken nests and eggs from sites not usually selected by Magpie-Robins. Wait has taken one and Phillips two nests from holes in termites' mounds, while others have been taken from holes in the sides of borrow-pits beside roads through the jungle.

The nest is a rough, untidy cup or pad, fitting into the bottom of the hole in which it is placed, the depression for the eggs being often slight and sometimes practically absent. The materials, as usual with this species, may be of almost any kind of rubbish, though roots, grass and Cocoa-nut fibre form the staple article in most nests. Two nests taken by Jenkins in holes high up in Cocoa-nut palms seem to have been made entirely of the fibre torn from the trunks of the trees, one with no lining and one with a few scraps of paper picked up from the ground in the village in which the tree was growing. Sometimes the nest is very bulky, but often it is quite a slight pad of roots.

Wait has taken nests in every month from March to August and again, during the North-West Monsoon, in November and

December. March and April, however, seem to be the two favourite months and, perhaps, two out of every three eggs are laid in these two months. As is the case with so many other Southern birds, the Ceylon Magpie-Robin lays much smaller clutches of eggs than the Northern races; three is the normal full clutch, four being very seldom found, whilst two are frequently incubated.

In colour, shape and texture they do not vary from the eggs of the other subspecies, but I have seen no eggs of the unspotted or faintly marked blue type. As a series they are rather dark, rather dull eggs, few being at all boldly or handsomely blotched.

Fifty eggs average 23.1×17.3 mm. : maxima 25.4×16.3 and 24.2×18.0 mm. ; minima 21.0×17.1 and 21.4×16.0 mm.

(561) *Copsychus saularis andamanensis* Hume.

THE ANDAMAN MAGPIE-ROBIN.

Copsychus saularis andamanensis, Fauna B. I., Birds, 2nd ed. vol. ii, p.116.

This Magpie-Robin is confined to the Andamans, where it is very common, especially in the open country round the settlements and villages, as well as in the villages themselves. Osmaston, Wickham and Anderson took many nests in and round about Port Blair, mostly in holes in trees standing in the open spaces round the town or else in the gardens. Some, however, are taken in light open forest. They seem invariably to breed in natural holes and hollows in trees and, so far as has been recorded, never in the buildings themselves.

Osmaston describes the nests as rather untidy affairs of grass, roots, leaves and weed-stems, sometimes of one or two of these materials, sometimes of all four mixed. The lining is generally of fine roots and bents, hair also being sometimes used for this purpose.

The breeding season appears to be principally April and May, but eggs have been taken from March to July and, once, in August.

The normal full clutch is three, four being very exceptional, though once Wickham took a clutch of five.

In appearance they agree with the eggs of other Magpie-Robins, but as a series they are handsomely marked, many eggs having a comparatively bright blue ground-colour, boldly and handsomely blotched with deep vandyke brown, densest at the larger end, where in many they form well-marked rings or caps.

Fifty eggs average 23.1×17.2 mm. : maxima 25.3×17.4 and 24.4×18.1 mm. ; minima 20.4×17.0 and 20.4×16.0 mm.

Kittacincla malabarica.

THE SHAMA.

(562) **Kittacincla malabarica malabarica** Scop.

THE MALAY SHAMA.

Kittacincla macroura macroura, Fauna B. I., Birds, 2nd ed. vol. ii, p. 117.
Kittacincla malabarica malabarica, ibid. vol. vii, p. 113.

This is one of those unfortunate birds named after one locality (Malabar), yet with the type obtained in quite a different place (Pulo Condore). Latham's Long-tailed Thrush, on which the description is founded, having come from Pulo Condore, the name can only apply to the Malay race of Shama, which is found from South Tenasserim, through the Malay States, South-West Siam and Cochin China, to Pulo Condore and Hainan.

There is practically nothing on record about the breeding of this rather common bird except as recorded in Hume's 'Nests and Eggs.' Curiously enough, neither Mackenzie nor Hopwood obtained its nest in Tenasserim.

Davison records of its nidification in that district:—"I have only found two nests of this bird. The first I obtained on the 17th April on the road to Muta Myo, about 4,000 feet above sea-level. It was in a hole in an old stump growing on the side of a mountain torrent. It was built of dried leaves and twigs and the egg-cavity was lined with finer dry twigs. It contained two half-fledged young ones and an addled egg.

"The second nest I found at Shymootee, about 7 miles from Tavoy, on the 5th of May, 1874; it was placed in a hole at the top of an old stump. The materials of which it was composed were the same as in the other case, but much more in quantity. The hole went rather deep, and the bird had filled up the cavity to within 4 inches of the top of the stump, thus making the depth of the nest from top to base of foundation more than 12 inches. The hole in the stump measured only 3.5, the egg-cavity being 3 inches in diameter. The nest contained two partially incubated eggs and one addled one."

Bingham also writes of this bird in Tenasserim:—"On the slope of a steep spur of the east watershed range of the Meplay river, in dense bamboo forest, I found on the 4th April, 1878, a nest of the above bird. A woodpecker had made a hole in a partially dry wahbo bamboo (*Bambusa brandisiana*) of immense girth. Of this the Shama had taken advantage, and having stuffed up the hollow from the next knot to within three inches of the hole, had above that made a loose, cup-shaped nest of twigs and roots. The eggs were four in number, slightly set."

Finally, J. Darling, jun., took three nests on the 17th April, one "with 3 hard-set eggs, one with 3 hard-set and 1 rotten egg, and the other with 4 fresh eggs. This last was built in a hole in a tree 4 feet from the ground, in open forest, and was composed of a few twigs, lined with a few fern-roots; a very poor nest with scarcely any depression. 20 miles East of Tavoy."

Partridge sent me two nests with eggs from Victoria Point and another from about 20 miles South of that point. These were all taken from huge bamboos which had partly rotted and so allowed an entrance. In each case, also, the bamboo had been filled with dead leaves and miscellaneous scraps from the node below up to the entrance.

The breeding season appears to be from the end of February to the end of April, most eggs being laid in March.

As I have written in the 'Fauna,' the Shama seems to be the forest and jungle counterpart of the village-haunting Dayal, races of the two species being found over nearly the same stretches of country from India to the Austro-Malayan Islands. Whereas, however, the latter breeds in villages and towns and the open and cultivated lands around them, the Shama haunts forest of all kinds and is especially fond of bamboo, or bamboo- and shrub-jungle.

The eggs, three or four in number, are very like small, rather dull, densely-marked eggs of the Magpie-Robin, and small dark eggs of this bird cannot be distinguished from large eggs of the Shama. The ground-colour is pale grey-green, blue-green or bluish, densely marked all over with dark umber-brown, giving a general effect of a dull greenish-brown egg. A large series would probably give just as wide a range of variation as the eggs of the better-known Indian form, but all those I have as yet seen have been of the type described. The shape is normally a broad, blunt oval, but a few eggs are rather longer and narrower.

Twenty eggs average 22.1×16.9 mm.: maxima 23.6×16.9 and 23.0×17.5 mm.; minima 20.7×16.8 and 20.8×16.1 mm.

(563) *Kittacincla malabarica indica* Stuart Baker.

THE INDIAN SHAMA.

Kittacincla macroura indica, Fauna B. I., Birds, 2nd ed. vol. ii, p. 118.

Kittacincla malabarica indica, *ibid.* vol. vii, p. 113.

The Indian Shama is found over the greater part of India and Burma, South to Ceylon and the North of Tenasserim and East to Siam, Yunnan and North Cochin-China. On the West it does not occur in Rajputana, Guzerat or Sind and, roughly, its Western limit may be said to be a line drawn from the North of the Bombay Presidency to the Kuman Terai.

It is a bird of the forest and, though it may prefer that which is rather open, I have also found it in the dense evergreen and ever moist forest of the Assam Hills. It is equally often to be found in bamboo-jungle of all kinds, whether the small single bamboo or the huge giant clump species, and in secondary growth so long as there are old stumps or trees big enough to furnish holes in which to breed. It is found from the plains and foot-hills of the sub-Himalayas up to about 3,000 feet, occasionally wandering up and breeding as high as 5,000 feet. Its most common breeding ground, however, is from the foot-hills up to about 2,500 feet.

The normal situation for the nest is a hollow, large or small, in a dead tree, stump, or giant bamboo but, occasionally, the birds choose rather curious positions. In Assam both Coltart and I found several nests built hidden in the mass of rubbish which always accumulates in the lower parts of bamboo-clumps. The birds seem to form a hollow among and under the fallen bamboo-leaves and spathes, whilst the innumerable twigs which adorn the lowest nodes of the bamboos hold up more of these to form a roof. Such a nest is completely screened from view and is impossible to find unless one of the parent birds leave it as one approaches. Another curious site was one found by myself, practically on the ground under a fallen tree. The trunk rested partly on some stones and the birds had built their nests in a niche between one of these stones and the trunk. The nests are difficult to find but the cock bird sings so persistently, mornings and evenings, in the vicinity of the nest that by working all round where he has been heard singing the female can generally be put off her nest. She sits close but, though such a conspicuous little bird, slips so quietly off the nest that a sharp look-out has to be kept as one hunts or she will be missed.

In Kanara Davidson found nests built in cut bamboos which were standing leaning against the clump from which they had been cut, and he remarks that anybody could get any number of the nests and eggs by cutting down suitable bamboos and placing them against the clumps about 300 yards apart. The nests in bamboos he describes as very meagre.

During the day the hen alone carries on incubation but, possibly, the cock sits at night, and he relieves his mate in watching the nest and eggs for about an hour two or three times a day. Once the young are hatched he devotes less time to music and assists in feeding them.

The nest is much the same as that described for the preceding bird. As a rule it is a slight and untidy pad of roots and leaves, incoherent and of no particular shape, just chucked at the bottom of the hole in which it is placed. If this hollow is a big one, additional material, principally dead leaves, is used, and the hollow is more or less filled in and, when built in hollow bamboos, the material

generally fills the bamboo from the node below up to the entrance. Sometimes a fairly compact nest of roots, small elastic twigs and grass-bents is superimposed upon the loose leaves, but the lining seldom consists of more than a few fine roots and odd scraps of grass. When the nest is built in among the rubbish inside bamboo-clumps it is nearly always constructed of the finest aerial roots of the bamboos.

It seems never to be built at any great height from the ground ; between 4 and 6 feet seems to be the favourite height, but I have taken nests up to 8 and 10 feet and one, from a hole in a *Rhododendron*, about 12 feet from the ground.

The main breeding season is during May and June but I have taken eggs as early as the 13th April and as late as the 14th August. These late nests are probably second attempts to bring up a brood, the first having come to grief in some way, but I do not think they are usually double brooded.

Stewart found them breeding in Travancore during April, whilst Osmaston took their eggs in the United Provinces terai in May.

The eggs number four, occasionally five, and sometimes only three and, in appearance, are like small, dull-coloured eggs of *Copsychus*. I have seen no eggs of the Shama similar to the blue ground, handsomely blotched eggs of the Dayal and, on the other hand, some are more pearly brown in general tint than any eggs of that bird. The normal colour is a pale dull green-blue ground heavily blotched all over with reddish-brown and with numerous secondary marks of lavender and grey. In shape the eggs are rather short, blunt ovals, varying from this to a moderately long oval, always, however, blunt at the smaller end.

Sixty-four eggs average 22.0 to 17.2 mm. : maxima 24.1 × 17.1 and 22.0 × 18.0 mm. ; minima 18.2 × 15.4 mm.

(564) *Kittacincla malabarica albiventris* Blyth.

THE ANDAMAN SHAMA.

Kittacincla macroura albiventris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 119.
Kittacincla malabarica albiventris, *ibid.* vol. vii, p. 113.

This Shama is confined to the Andamans, where it is a very common bird.

Writing in the 'Journal of the Bombay Natural History Society' (vol. xxxv, p. 891, 1932), Osmaston gives the following interesting description of its breeding habits :—

"This bird is common in all the densely forested portions of the larger and smaller islands of this group. They specially frequent ravines near water. They have some fine loud, clear notes, as well as some harsh ones. They are very noisy in March and April, and almost at any time of the year they will answer

anyone who whistles a few clear notes within earshot. Suspecting that the birds occupied clefts or holes in trees for nesting purposes, I had a number of boxes made—8" cubes—with a hole 3" in diameter on one side, and fixed them against the trunks of trees in dense forest wherever I heard a male Shama calling. This was done early in March.

"I visited the boxes periodically after this, but none were occupied until May 27th, when two contained nests ready for eggs. In the next month, *i. e.*, up to June 15th, 9 of the 12 boxes I had put up had nests with eggs, mostly 3, but one 4 and two with 2 eggs only.

"The nests filled the bottoms of the boxes. They were invariably made of dry bamboo-leaves, lined with black hair-like rhizomorph.

"Subsequently three nests of similar structure were found, one in a cleft in a buttressed-tree, 9' from the ground, and two others in holes in old rotten stumps, 5' up. I reared several of the young birds from the nest and kept them loose in my garden on Chatham Island. They were very fond of small centipedes. The cocks were exceedingly pugnacious. I utilized this trait in order to catch them when required. It was only necessary to show them a small mirror, when they would instantly throw themselves against the glass and could easily be caught in the hand."

Osmaston later found that they would make use of empty Cocoa-nut husks for breeding purposes, when placed in positions on trees at heights suitable for the purpose.

Wickham and Anderson also took the nests and eggs of this Shama in the Andamans, mostly from natural holes in trees in dense forest and, sometimes, apparently, from the old nesting-boxes and husks left behind by Osmaston.

The breeding season seems to be from late April to the end of June and Osmaston took eggs, now in my collection, from the 15th May to the 27th June.

The number of eggs laid is practically invariably three, very rarely two only, whilst Osmaston once only took a four.

In colour and shape they agree with the eggs of the other races of Shama but they have a wider range of variation. The majority of eggs are of the ordinary dull heavily blotched character but, among Osmaston's eggs, there are clutches with a pale blue-grey ground, very thickly blotched all over with pale pinky brown, a quite unusual type for a Shama's eggs. At the other extreme there are several clutches with a pale yellow-brown ground-colour almost obliterated with rich red-brown to lighter red-brown blotches. On the whole, also, the eggs of this race are very much more glossed on the surface than those of any other, one clutch of the brown type being *very* highly glossed.

Fifty eggs average 21.9×16.8 mm. : maxima 25.0×18.0 mm. ; minima 19.2×15.9 and 21.2×14.6 mm.

Subfamily TURDINÆ

(TRUE THRUSHES).

Turdus merula.

THE BLACKBIRD.

(565) **Turdus merula maximus** Seeböhm.

THE CENTRAL ASIAN BLACKBIRD.

Turdus merula maximus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 123.

As Meinertzhagen's *T. m. buddæ* seems to be quite indistinguishable from this race I include Ladak in its range. It is found from Garhwal to the extreme North-East Frontier, where Whitehead found it common near the head of the Khagan Valley between 12,000 and 13,500 feet. It occurs and breeds in Ladak and Tibet, nesting up to 14,000 feet.

Ward (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 482, 1906) records the fact that this fine Blackbird breeds at high levels in Kashmir, where Buchanan found a nest with three eggs above Agharwat on the 5th July 1903, which may be the instance Ward refers to, for there were no eggs of this Blackbird in his own collection. In 1909 Whitehead in the Kurram Valley, North-West Frontier, and Whympers, in the Nila Valley, Garhwal, both took several nests, whilst Whympers again took others in 1910 in the same valley.

In 'The Ibis' (1909, p. 221) Whitehead writes:—"In July 1908 I found this fine bird fairly common outside our limits near the head of the Khagan Valley (Hazara, N.W.F.P.) between 12,000 and 13,500 feet, either in parties of from three to ten, or occasionally alone. It was very wild and it was with difficulty I procured three examples." In 1909 he took three nests in the Kurram Valley on the 5th, 21st and 24th June. Of these three nests, one was under an overhanging bank and the other two in low Cypress bushes.

Whympers says (Journ. Bomb. Nat. Hist. Soc. vol. xx, p. 1158, 1910):—"Several pairs were seen at 12,000 feet and over, and several nests with young; the eggs must have been laid early in May, when the whole place was under deep snow. However, I was lucky enough to find one pair building in June and on the 27th got a fine clutch of four eggs from the nest, securing the birds. All the nests seen were massive structures of dry herbage and grass with a little earth on the foundation and very thickly lined with fine grass. They were all placed on ledges of rock, sometimes quite unconcealed, but the birds were very wary in approaching them. It is curious that the existence of this bird should have

been overlooked in these parts, as it is fairly common and much in evidence, both from its frequenting the open and from its rattling alarm call."

In his note-book on some eggs taken by him Whitehead remarks that the nest "was made of moss and grass with the mud attached. Mud cup, only a fine grass lining, 11,000 feet." Whitehead also notes that in one case he found the breeding male to be still in the red or juvenile plumage.

The breeding season is May and June, and all eggs taken so far have been in these two months, with the exception of the three taken by Buchanan on the 5th July.

The number of eggs in a clutch is three or four, generally the latter. In colour they are like large eggs of the common English Blackbird but with rather larger and more definite blotching, while, very frequently, one egg in the clutch has the blotches larger and much less numerous, standing out boldly on the pale blue or grey-blue ground-colour, very much like the eggs of the Missel-Thrush. In all eggs the ground-colour is pale and in some has a distinct yellow-grey tinge, whilst the primary markings are red-brown, so that the dominating colour is red-brown and not greenish, as in the common Blackbird. The secondary markings are of lavender or grey, less numerous than the primary and never prominent enough to dominate the tint.

In shape the eggs are long ovals, the texture rather coarse, the surface smooth but glossless, or very nearly so. A few eggs are shorter, stouter ovals.

Twenty-seven eggs average 33.05×23.45 mm.: maxima 34.9×23.7 and 34.5×24.2 mm.; minima 30.2×22.8 and 32.0×22.1 mm.

(566) *Turdus merula simillimus* Jerdon.

THE NILGIRI BLACKBIRD.

Turdus merula simillimus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 125.

The Nilgiri Blackbird is found in the Brahmagiri and Palni Hills, as well as in the Nilgiris, where it is an exceedingly common bird from about 3,000 feet to the summits of the hills.

Hume ('Nests and Eggs,' p. 88) gives a very full summary of this bird's breeding:—"The nests of this species, of which I owe a magnificent series to my friend Mr. Carter, are always, apparently, very massive structures, containing an inner skeleton of mud, completely hidden from sight by an exterior coating of moss or lichen, or fine or coarse grass-roots, and an interior lining of fine grass-roots. The bird appears to lay a slight foundation of dead leaves, lichen or fern, and on this to build a more or less deep cup on the wattle-and-dab principle—a few coarse grass-roots twisted together as a skeleton, and then thickly plastered with mud or wet mould. The cup thus made is often

about $4\frac{1}{2}$ inches in diameter and $2\frac{1}{2}$ deep. It is then covered externally, to the thickness of one or two inches, with whatever materials are nearest to hand, grass or other roots, dry slender ferns, soft green moss, or masses of tree-lichen. The interior of the cup is first lined with rather coarse roots and then finished off with fine ones. No particle of the clay skeleton is visible in the finished nest, which may average 7 inches in external diameter, stands about 4 inches high, and has an egg-cavity some $3\frac{1}{2}$ inches in diameter by 2 inches deep. In all nine nests now before me the inner earthen framework is present, but in some it extends scarcely more than $\frac{1}{2}$ inch up the sides of the nest, while in others it comes up to within $\frac{1}{4}$ inch of the upper margin. Owing to the different materials used in different localities for the external coating of the nest, these vary much in appearance; but some of them, entirely coated with moss or lichen, are among the most beautiful structures I know."

In spite of the size of the nest, it is built in a very short time, and Carter says:—"This Blackbird builds its nest in a remarkably short time. On one occasion I saw a nest completed in four days. It is just possible there may have been a portion of a day's work before I saw it; but even five days is a very short time for so small a bird to complete a nest which must weigh at least $2\frac{1}{2}$ lbs."

The nest is always placed in a bush or small tree in forest, generally in one of the *sholas* or wooded valleys found all over the higher Nilgiris. They are nearly always well concealed and are never placed at any great height from the ground, seldom, if ever, over 20 feet, and often not over three or four. Williams, who obtained many nests in Wellington, obtained them all in bushes between five and fifteen feet from the ground; Carter found them between three and twenty feet, while Bates's nests were also all within these limits. They are said to be very fond of dense bushes close to running streams, and one of the few exceptions to their building in bushes was a nest found by Miss Cockburn which was "built in a bank in a place a Robin would have chosen. The nest was quite exposed to view, and I frequently saw the birds sitting in the nest while I rode past."

Morgan, Williams and others all give fine twigs as one of the materials sometimes employed by this bird on the outside of the nest and Williams found some lined quite neatly with grass-stems.

Occasionally this Thrush breeds in gardens and both Howard Campbell at Kodaikanal and Packard at Ooty obtained nests built in such places. Both birds seem to take part in the construction of the nest, though the female does the greater part of the work. She also does the whole of the incubation, so far as is known at present.

The breeding season begins in March and continues till the end of June, but eggs have been taken both earlier and later.

Carter took eggs from the 25th March to the 18th May; Miss Cockburn says the breeding season is from April to July. In the Palni Hills Capt. Terry found nests in March and says that they were still breeding when he left in June. Williams took nests near Wellington between the middle of April and the 3rd July.

The number of eggs laid varies from two to four, possibly occasionally five. Davison, who says he took a hundred nests, gives the number as four or five; Jerdon gives the normal clutch as four; Miss Cockburn says they seldom lay more than four; Carter found one to three laid and never more. Of more modern collectors, the only one who seems to have found a four-clutch was Packard. Cardew, Betham, and Williams all found three to be the number most often laid and, finally, Bates found that in five nests two eggs only were laid and, of these, three pairs were in an advanced state of incubation.

The eggs differ from those of the Central Asian Blackbird, as the eggs of the latter do from the common Blackbird. Most eggs have a pale, rather greyish-blue ground, boldly blotched with fairly dark rich brown, with a few underlying blotches of neutral tint, both primary and secondary markings more numerous at the larger end than elsewhere. In some eggs the markings are more numerous, smaller, and are distributed over the whole surface, but even these would be boldly marked for an English Blackbird's egg. Rarely the ground-colour is a slightly yellowish grey. A very beautiful pair in my series has a pale but rather bright blue ground, the rich red-brown markings coalescing to form caps at the larger end, becoming scanty about the centre of the egg and absent altogether at the smaller end.

In shape the eggs vary from broad to long ovals, generally pointed at the smaller end, but sometimes obtuse and sometimes truly oval. The grain of the egg is rather coarse but the surface is smooth, and there is sometimes a distinct gloss, which, however, wears off rather quickly and is seldom to be seen in old specimens.

The average of fifty eggs is 29.3×21.3 mm. : maxima 34.0×22.9 mm. and 30.0×23.4 mm. ; minima 27.1×22.1 and 27.2×19.0 mm.

(567) *Turdus merula kinnisii* Blyth.

THE CEYLON BLACKBIRD.

Turdus merula kinnisii, Fauna B. I., Birds, 2nd ed. vol. ii, p. 126.

This little Blackbird is confined to the mountains of Ceylon, breeding principally between 4,000 feet and the summits of the highest hills. Phillips has taken nests with eggs at Mousakandi, below Gammadawa, about 3,000 feet and again at Patanagalla, above Gammadawa, at 5,000 feet. Tunnard also took several nests on the Upper Labookellie Estate at 5,500 feet.

Legge writes of the breeding habits of this bird :—“ The Blackbird breeds from April to June, building in a niche of a trunk, on a stump, or in a forked branch of a low tree ; its nest is composed of moss, grass and roots, strengthened with a few twigs, and is somewhat massive in structure, the interior being a deep cup lined with roots, most probably underlaid by a foundation of mud, as in the nests of other species. The eggs are four in number.

“ In the matter of situation it has a variety of choice, sometimes nesting, according to Holdsworth, in outbuildings in Nawara Eliya, and occasionally choosing the site of a rock, as will be seen from the following experience of Mr. Bligh. He writes me :—‘ I have often found this charming bird’s nest ; on one occasion it proved to be a strange structure, composed of seven distinct nests, which were fixed among the roots of a bush which grew out of a perpendicular rock above the ‘ Swallow’s Cave ’ at Dambetenne : it contained three young ones. The situation no doubt proving very safe and suitable, induced, perhaps, the same pair to build successively on the old nests, all of which presented a fresh green appearance, from the moss not readily drying in such a moist climate. These birds nest regularly near the Catton bungalow.’ ”

Aldworth, Tunnard and Phillips have taken nests and eggs in more recent years. The first-named found them breeding in dense jungle near the top of the Bhopal Range. Tunnard obtained his nests in unpruned Tea-bushes at 12 feet or under from the ground, these bushes being at no great distance from a “ Store,” where naturally many people came and went. One nest was built in a tree close beside a tank where a *Dhobie*, or washerman, was busy at work.

Phillips sends me the following interesting note on its breeding near Mousakandi, in 1931 :—“ Last year the *Strobilanthus* flowered and there was a great influx of Blackbirds and other species which eat the seeds, some of the former remaining to breed. Several nests were found, all of the same general type as those of *Oreocincla spiloptera*, i. e., a deep cup in the centre of a large mass of loose material, differing from those of that bird in being neater, better built and with deeper cups. The material used was in every case moss collected from the nearby tree-trunks, with a few scraps of dead leaves and rootlets, or a little fine grass and rootlets. All the nests were placed in low forks, some four to eight feet from the ground, in rather open situations in the jungle between 3,800 and 5,000 feet. The crowns of palm-ferns were also favourite sites for the nest. We took nests in March and April and one in November.”

The nests seem to agree well with Legge’s description, some being built in the immediate vicinity of buildings and human habitations and others well away in the interior of dense forest. They may be built on almost any kind of low tree or bush between 5 and 20 feet from the ground, but none of my correspondents

have taken them from ledges of rock or from buildings, as found by Bligh and Holdsworth.

They seem to have a very irregular or else a very protracted breeding season. Legge gives the time as April to June, but Tunnard took nests with eggs in October, February and March, Phillips in March and November, and Aldworth in April and May. It is, of course, possible that they have two breeding seasons.

Although Legge says that they lay four eggs, this number must be quite unusual. Two eggs seems to be the normal number, for such clutches, well incubated, have been taken repeatedly. One egg only is sometimes laid, while three eggs seems to be an exceptionally big clutch. They are handsome eggs and vary from the numerously blotched type of somewhat erythristic colour to eggs with grey-blue ground boldly blotched with dark reddish-brown or lighter chestnut-brown, the latter being very handsome. In all eggs there are freckles or blotches of lavender or grey, rather pinkish in tinge in the chestnut-marked eggs.

*In shape they are rather short, broad ovals, obtuse at the smaller end; in a few eggs the shape is not quite so squat. The texture is rather finer than in the eggs of *T. m. simillimus*.*

Fourteen eggs average 26.6×20.6 mm.: maxima 29.2×20.4 and 27.2×21.4 mm.; minima 23.3×20.6 and 25.6×20.1 mm.

(568) *Turdus merula bourdilloni* Seebohm.

THE TRAVANCORE BLACKBIRD.

Turdus merula bourdilloni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 127.

This Blackbird, hitherto called Bourdillon's Blackbird, is confined to the Palni Hills, southwards through Mysore and Travancore. In the latter it breeds above 3,500 feet and in the former down to 3,000 feet. In the Nelliampathy Hills A. P. Kinloch took several nests at about 3,500 feet.

Capt. Horace Terry was the first collector to find the nests of this bird, taking one with one egg on the 18th May, 1883, and one with two eggs on the 3rd June of that year. The parents were shot and the skins are now in the British Museum. Terry describes the nests as follows:—"The first nest was placed in the fork of a tree some fifteen feet from the ground, and was just like the nest of *M. simillima*. The body of mud, lined with fine grass, and the outside with coarse grass and roots wound round, and covered all over with green moss. A strongly built, rather shallow cup, 3.5 inches across and 2 inches deep inside; 5 inches across and 4 inches deep outside. It contained one very slightly incubated egg, just like the egg of *M. simillima*. On the 3rd June I found a similar nest with two fresh eggs and shot the male bird."

Bourdillon (Journ. Bomb. Nat. Hist. Soc. vol. xv, p. 466, 1904) says that this Blackbird is fairly common above 3,500 feet in Travancore, where a nest taken by him and Fergusson "was placed on an overhanging branch about 12 feet from the ground. It was composed almost entirely of fresh moss with a few roots and small sticks interwoven in the structure. The outside measurement was 8 inches long, 6 inches broad and 8 inches deep. The cavity of the nest was 3 inches deep and 4 inches across, the interior being lined with fine grass and roots and neatly finished off. The nest contained two fresh eggs." Another nest taken by Bourdillon on 14th May, 1907, was quite similar, both being taken in dense evergreen forest at 3,500 feet.

Kinloch took several nests in early April in the Nelliampathy Hills, the builders of which are now in the Bombay Museum. The nests were described to me as very bulky moss-nests, lined with grass and roots and with a middle layer of hard clay. They were all built on small trees in deep forest and, of three nests taken, two contained three and one four eggs.

The breeding season would appear to be April, May and June, but a greater knowledge of the habits of this bird might increase this duration greatly.

The number of eggs is probably most often three, rarely four, and sometimes only two.

In appearance the eggs are like those of *T. m. simillimus* and *T. m. kinnisii* and equally handsome. I have, however, a single egg in my series, the one taken by Terry, which is of the green Blackbird's-egg type and could be matched by many eggs of the European bird. One clutch of three is of the bold blue ground, sparsely blotched type so common in *simillimus*.

Twenty eggs average 27.6×20.5 mm. : maxima 30.1×22.9 mm. ; minima 25.6×20.3 and 29.6×19.0 mm.

Bourdillon describes it as a shy, silent bird, keeping almost entirely to the interior of evergreen forest and difficult to catch on the nest, a character very different to that of its nearest cousin in Ceylon, which is a vigorous and constant singer and easy to watch and observe in its building-quarters.

(569) ***Turdus merula nigripileus* Lafres.**

THE BLACK-CAPPED BLACKBIRD.

Turdus merula nigropileus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 128.

The Black-capped Blackbird is found in Western India North of the range of the Travancore bird, extending through the Bombay Presidency from the South as far North as Mount Abu and Sambalpur and to Raipur in the Central Provinces.

Wenden found many nests of this Blackbird near Khandalla from early July to early August in 1879, and Betham, 22 years later, still found it extremely common, breeding round Khandalla after the rains started and on to September, whilst Davidson obtained nests during the same months in Nassic and Taylor one nest in Mysore on the 25th May.

It would seem, therefore, to have a very definite breeding season, laying only during the rainy months of the year and not having two broods.

The nests are bulky cups made externally principally of moss, then of grass and coarse roots covered by a layer of mud and with an inner lining of rather finer roots and grass, quite neatly finished off. Leaves, small supple twigs, occasionally coarser twigs and lichen, sometimes form a portion of the materials used, but these vary in quantity considerably and are not always present.

Most nests are built in stout forks of small trees at any height between 5 and 25 feet from the ground; others may be placed in Mangoes or in similar large trees, but at no greater height, while others again are built in thick bushes. At Khandalla Betham frequently saw their nests in cactus bushes and hedges. The birds do not seem ever to frequent gardens and parks for breeding purposes, keeping to the lighter forest, broken ground and ravines at all elevations from the foot-hills to the higher ghats at 3,000 feet, and even up to 6,000 feet in some of the higher ranges. Betham says that "the birds seem to prefer open country, quite lightly wooded, for nesting purposes, and nearly all my nests have been taken in the open."

The number of eggs laid varies from three to five, both Davidson and Betham having taken clutches containing the latter number; three, however, is the most usual clutch.

In colour they seem invariably to be of the boldly blotched type, and eggs marked like the common Blackbird are quite exceptional. The ground-colour varies from a pale grey-blue to a rather bright pale blue, blotched with pale reddish to deep reddish or umber-brown. In the majority of eggs the blotches are most numerous at the larger end, where they may coalesce in patches yet never form rings or caps, while over the rest of the surface they are sparse. The secondary blotches are of purple-grey or pinkish-lavender and often of considerable size. A curious clutch taken by Betham has three eggs of the grey-blue type well blotched all over with dark reddish-brown and lavender, the other two eggs being clear pale green-blue lightly speckled with only reddish-brown and grey.

Fifty eggs average 27.4×20.9 mm. : maxima 29.4×22.1 mm. ; minima 24.8×20.0 mm.

(570) *Turdus merula albocinctus* Royle.

THE WHITE-COLLARED BLACKBIRD.

Turdus merula albocinctus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 129.

The White-collared Ouzel breeds throughout the Outer Himalayas from Eastern Kashmir, the Simla States, Garhwal Hills, Nepal and Sikkim to Eastern Assam, North of the Brahmapootra. South of this river it may possibly breed on the higher ranges of the Naga Hills East to the Patkoi Range, but it does not ever breed in Manipur or the hills of the Surrma Valley.

It is a bird of considerable elevations. Whymper found it breeding at Kharak, Kuman, at 10,000 feet, and again in the Garhwal Hills at 9,000 feet. He remarks: "... but they breed much lower; I always found a few in China Pahar, near Naini Tal, at 7,000 feet, though this was the lowest elevation at which they bred. In Winter they descend to the foothills if the seasons are very severe." In Dinsur, Kuman and Chakrata Osmaston found them breeding between 8,000 and 9,500 feet, whilst in Sikkim Stevens found it between 5,000 and 10,000 feet and Blanford records it as high as 13,000 feet in Summer.

Osmaston describes the nests as "massive cups made of moss chiefly outside, together with grass, roots, a few leaves and sometimes a certain number of twigs, usually small and pliable ones. The lining is nearly always of dried grass only, and roots are not used by the White-collared Blackbird for this purpose. The small Karshu oak seems a favourite tree as a site for the nest, a stout branch, often covered with moss, being selected for the purpose, at any height between five and twelve feet from the ground. I have also taken nests from Holly trees and Spruce firs, whilst occasionally they are built on the ground at the foot of trees growing on banks or steep hill-sides."

Whymper describes the nest as above, but found the sites most often selected were large cavities in Birch-trees or on Willow-trees which had been beaten down and bent by the snow.

They breed in forest, generally rather open rather than dense, while occasionally they make use of Oaks and Spruces standing almost in the open. They also seem to prefer those standing on the slopes and more broken hill-sides.

The breeding season would appear to be very restricted. Osmaston took his very fine series of eggs between the 5th May and the 21st June; Whymper obtained all his, another fine series, between the middle of May and the end of June, whilst Rattray found eggs about Murree up to the end of June and Otto Müller and Stevens each took a nest in Sikkim and Eastern Nepal in May.

The normal full clutch of eggs is three, but about one clutch in every ten numbers four.

The eggs are typical of the genus but are much more of the true Blackbird type than are the more Thrush-like eggs of the southern Thrushes; indeed, many eggs only differ from reddish eggs of the common Blackbird in being larger and rather more boldly blotched. The greenish type is quite exceptional. A few clutches are decidedly handsome, the greyish-green ground being heavily blotched all over with chestnut or reddish-brown, with many secondary blotches of pinkish-lavender or neutral tint. I have seen no eggs with the blue ground comparatively scantily marked, such as are so common in the eggs of the Nilgiri and other southern Thrushes.

One hundred eggs average 30.5×21.7 mm.; maxima 34.2×22.0 and 29.2×23.0 mm.; minima 27.5×21.0 and 32.2×20.0 mm.

(571) *Turdus boulboul* (Lath.).

THE GREY-WINGED BLACKBIRD.

Turdus boulboul, Fauna B. I., Birds, 2nd ed. vol. ii, p. 130.

This Blackbird has a very wide range, over the greater part of which it is very common. In and about Murree it breeds in great numbers between 6,000 and 8,000 feet and, in smaller numbers, up to 10,000 feet. Dodsworth and Jones took many nests in the Simla States between 6,500 and 7,500 feet; Osmaston obtained its nest at Chakrata at about the same elevation. In Nepal it was found breeding by Hodgson and, in the East of that State, Stevens took its nest as low down as 4,000 feet, but records that it also occurs up to 9,000 feet in Summer, whilst in Sikkim Gammie records it breeding at 4,000 and 5,000 feet, and Stevens at Gopaldhara between 4,500 and 6,500 feet. Though it occurs East to the Hills North of Sibsagar, I have no records of it breeding there, but I was surprised to find its nest South of the Brahmapootra on several occasions in the North Cachar Hills in hot, humid forests at 4,000 and 4,500 feet elevation.

It is a forest bird that, except in the Assam Hills, keeps to rather open forest or to the edges of, and glades in, the denser parts.

The site chosen for the nest varies greatly. Perhaps 50 per cent. of nests are built in small trees, often Oaks, at heights of, and under, about 25 feet. It is in such cases built either in a stout fork, on a bough at its junction with the trunk, or on some moss-covered excrescence, concealment, apparently, being a matter of little import. At other times it is built in banks in some natural hollow or among the roots of some large tree. A favourite position with this Thrush, as with many others, is in among the roots of some fallen tree, tucked away in a hollow from which the earth has fallen, and supported by the masses of exposed roots. Gammie, writing of the Grey-winged Blackbird in Sikkim, says that for the

nest "the favourite position is, at the height of 20 or 30 feet, right on the summit of a stump of a Ficus-tree, from which the Bhutias have cut the top, and pollarded for the sake of the leaves for their milch cows. The nest is kept in its place, and concealed, by the upright shoots springing away from below the stump end; the bottom of the nest fits the end of the stem."

The nest is the usual bulky cup, covered outside with moss and constructed internally of grass-roots and leaves, with a lining of finer roots or, more often, grass. Sometimes mud is used as an inner lining, but this is often dispensed with. Gammie took one nest on the 20th May in the Government Cinchona Reserve, of which he says: "No mud at all had been used in the construction of the nest"; whereas of another he says, "a neat compact shell is first made of twigs and moss, then a good coating of mud and, finally, a thick lining of fibry roots. Externally it measures about 6 inches across by 3.2 in height; internally the cavity is 3.5 inches in diameter by 2 in depth." Hodgson describes the nest as without a mud lining, but Sir E. Buck took one with "a layer of mud between external and internal layers."

The normal breeding season is May and June but, whilst a few birds breed on into July, some commence much earlier, Stevens having taken one nest with fresh eggs on the 8th March at Polpoti in Nepal. Horne took one nest with two eggs as late as the 8th August near Almorah.

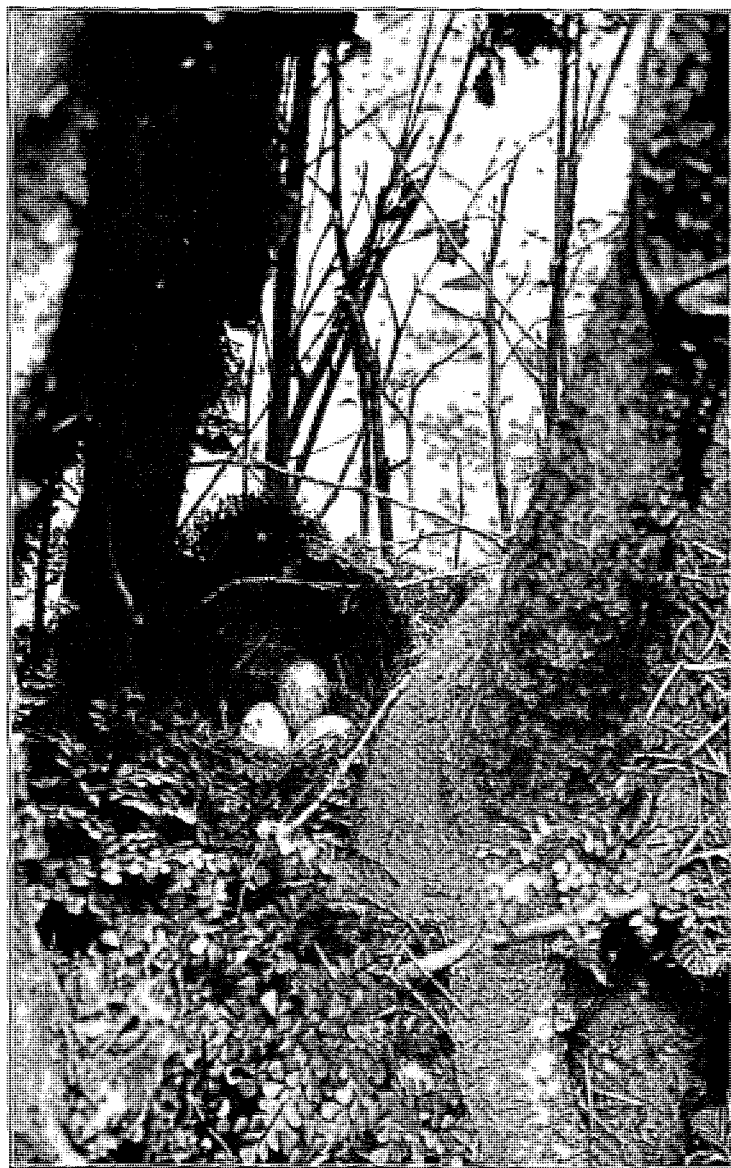
Three or four eggs are laid, there being no record of any clutch of five or of two which showed signs of incubation.

On one occasion Dodsworth took two fresh eggs from a nest on the 9th of June and on the 18th took two others which were considerably incubated. These, however, were undoubtedly just a normal clutch of four.

The eggs could not, I think, be distinguished from those of the preceding bird but they show a good deal more variation. In my series I have a set of four so closely marked with deep brownish-red that they appear to be almost unicoloured mahogany; another set has a pinkish stone ground, marbled all over with chestnut-brown primary and lavender-pink secondary blotches. In yet a third set the ground-colour is a distinct green, heavily blotched with dark reddish-brown, dense and coalescing at the larger end and then decreasing numerically towards the small end. Most eggs are like handsomely blotched eggs of the Blackbird, generally of the reddish type, whilst I have seen no eggs of the more Thrush-like character of the southern birds' eggs.

In shape they are rather long ovals, sometimes slightly pointed, and broad ovals are exceptional. The texture is fairly fine and close and most eggs have a slight gloss.

Fifty eggs average 29.0×20.9 mm.: maxima 33.9×23.3 mm.; minima 24.0×21.4 and 27.2×19.9 mm.



TURDUS RUBROCANUS RUBROCANUS.
The Western Grey-headed Thrush.
(Baisaran, Kashmir, 8,000 ft., 20.5.32.)

This Thrush is said to be extremely wary, slipping off the nest before the intruder is near enough to see it but, in N. Cachar, I found that, when disturbed, both male and female soon returned to the nest and it was easy to trap the female or shoot the male for purposes of identification. The female alone carries on incubation, so far as is known at present, but both birds share in the work of building the nest.

Turdus rubrocanus.

THE GREY-HEADED THRUSH.

(572) **Turdus rubrocanus rubrocanus** Gray.

THE WESTERN GREY-HEADED THRUSH.

Turdus castaneus castaneus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 132.

Turdus rubrocanus rubrocanus, *ibid.* vol. viii, p. 624.

This form of the Grey-headed Thrush is extremely common over the greater part of Kashmir, the Murree Hills and Kuman into Eastern Nepal. In Sikkim it is a rare bird and becomes still more so Eastwards, though it has occurred East as far as Manipur. West it was obtained in the "wooded nullahs of the Samana" by Whitehead, who also met with "a family party on the 9th of August on the Safed Koh at 8,000 feet." Stevens never found it breeding in Sikkim, though he obtained a female in breeding condition on the Singalila Ridge at 10,000 feet.

This Thrush breeds in forest and is particularly fond of well-wooded ravines and broken hill-sides between 6,000 and 8,000 feet. Rattray (*Journ. Bomb. Nat. Hist. Soc.* vol. xvi, p. 657, 1905) says that it is "common round Murree and one of the commonest birds round Changla and Danga Galis. Nests were in varied situations. I found them in banks, holes of rocks, among roots of dead fallen trees and in a hole in a tree-trunk up to 10 or 12 feet from the ground. Birds very tame; did not leave the nest until I came within three or four yards of the tree or nest."

Judging from the notes of my other correspondents, most nests seem to be placed in banks in hollows or among the roots of the larger trees, and especially do they resort to the earthy bases of the great fallen trees. Bates, however, found that they sometimes built their nests in hollows in decayed stumps, and he considered that such places were more often used than banks.

The nests are very like those of the Grey-winged Blackbird. As a rule they are massive, rather deep cups, made, like those of that bird, outwardly of moss, inwardly of roots, grass and leaves lined with fine bents or fine roots. Apparently very often the

nest is made without any mud lining, though Hume mentions earth as being one of the substances found in the base of the nest taken by him in Koteghur, and Davidson says that all those taken by him in Kashmir had mud linings. Fern-fronds and scraps of bracken are sometimes used both in the inner and outer construction of this Thrush's nest, and one taken in Changla Gali is described as being made almost entirely of "chips of dry fern-leaves and bracken."

The breeding season is May and June but I have eggs taken in the first fortnight of April by both Rattray and Buchanan, while Marshall got eggs just ready to hatch on the 20th March. Davidson also says that some birds must breed very early, as he shot young birds flying on the 28th May (*Ibis*, 1906, p. 223).

The eggs number three or four, one as often as the other. Taking them as a series they are, I think, nearer in appearance to the common English Blackbirds' eggs than those of any other of our Indian Thrushes except the Central Asian Blackbird but, even so, are much more boldly blotched and also brown in tint rather than green. There are no eggs with blue ground and scattered blotches of brown, as in the eggs of the southern Blackbirds, but one or two clutches have a pale grey-green ground handsomely and profusely blotched all over with large, irregular, primary marks of brown and secondary marks of grey, both kinds most numerous at the extreme larger end.

Fifty eggs average 30.6×21.6 mm. : maxima 35.0×21.0 and 29.6×22.8 mm. ; minima 28.1×21.2 and 30.4×20.5 mm.

(573) *Turdus rubrocanus gouldi* (Verr.).

THE EASTERN GREY-HEADED THRUSH.

Turdus castaneus gouldi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 133.

Turdus rubrocanus gouldi, *ibid.* vol. viii, p. 624.

This Thrush probably breeds in Eastern Tibet and Setchuan to Northern Yunnan. The only note recorded on its nidification is that of Col. F. M. Bailey (*Journ. Bomb. Nat. Hist. Soc.* vol. xxii, p. 338, 1913), writing about a trip taken "from Ta Chien-lu to Rima *via* Batang and Menkong on the Salween :—

"Gould's Thrush (*Turdus gouldi*).—Yulung Kung, 10,500 feet, one march from Tachien-lu. Nest of twigs and moss lined with grass, situated in a bush, 6 feet from the ground. The nest contained three eggs of a greenish ground-colour with reddish-brown markings. The eggs varied very little in size and averaged 2.95 cm. \times 2.01 cm. Tibetan name, *Chicama Gunka*."

(578) *Turdus atrogularis* Temm.

THE BLACK-THROATED THRUSH.

Turdus atrogularis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 137.

This Thrush's real breeding area is in Western Siberia and Western Central Asia, extending, perhaps, to Chitral and Gilgit. Occasionally it breeds in the Himalayas within our limits but such cases must be considered quite abnormal.

In 1904-5 Rattray took two nests with eggs and Buchanan obtained one. In reply to a letter from me, Rattray wrote:—"Your letter about *Merula atrigularis*. I found one nest last year with three eggs and one this with two eggs whole and one broken; these latter I sent you. The birds are around Dangagali in large numbers in May but then clear out, a few breeding about 9,000, 10,000 feet. Both nests were the usual twig-and-moss nest with lining of fine grasses, but with no mud in it, built on large branches of fir-trees near the main trunk at about 20 to 30 feet up. The 1904 nest was on a hill in dense forest about 9,000 feet and this year's on Miranjani about 10,000 feet."

Buchanan's nest, also containing three eggs, was found on the same peak—Miranjani.

Before this, however, I had bought a small collection of eggs collected by Captain Taylor in Sikkim. Amongst these were two clutches of eggs marked "*Merula maxima*"; later I obtained his collection of skins also, and then found two female Blackbirds, shot off their nests, which, though marked *maxima*, were really *atrogularis*.

So far as I know, the above are the only Indian-taken nests. Neither Rattray himself nor any one of the numerous collectors round Murree have ever again come on it breeding there, nor have Stevens, Osmaston, Inglis or any of the older collectors, such as Gammie, Mandelli etc., ever seen it in Sikkim during the breeding season.

Popham took numerous nests of this Thrush on the Yenesei and describes the nest as a deep, heavy cup made of moss, grasses and twigs, sometimes with, and sometimes without, an inner layer of mud and with a final lining of fine grasses.

Although only three eggs have been found in each of the Indian-taken nests, four, five or even six are found in Siberian clutches. All the Indian eggs were exactly like the most common type of English Blackbird's egg, whilst Siberian-taken eggs vary from this type to one with a brighter bluer ground more boldly blotched and freckled with light reddish. I have seen no eggs approaching the Thrush type.

In shape the eggs are normally rather long ovals, often decidedly pointed. The texture is fairly close and fine and, in a few instances,

there is a distinct gloss, which disappears when the eggs have been long taken.

Forty-seven eggs average 29.6×21.4 mm. : maxima 33.0×21.1 and 31.4×22.1 mm. ; minima 27.4×21.6 and 31.2×20.0 mm.

(579) *Turdus unicolor* Tickell.

THE GREY THRUSH.

Turdus unicolor, Fauna B. I., Birds, 2nd ed. vol. ii, p. 138.

This is certainly the most common of all our Thrushes breeding in the North-West of India, being found from the Afghan Frontier as far East as Sikkim. In this latter State it is by no means common, and Stevens believes that it breeds at much greater elevations than it does further West.

In Hume's time little was known of this bird's nests and eggs beyond two nests taken in banks by Marshall near Murree, two nests taken by Cock in the Sindh Valley, Kashmir, and one taken by Hume at Koteghur.

In Kashmir, round Srinagar, as well as in many other places, and in the Murree Galis, it is a very common bird, breeding in great numbers both in the well-forested galis and ravines and also in the more open country. Rattray and others took many nests round about Murree between 5,500 and 7,500 feet and they undoubtedly breed in these hills up to some 10,000 feet, as nests have been taken at about this elevation on Miranjani. Most collectors since Hume's time have found innumerable nests in Kashmir, where it is one of the most familiar birds, even in the neighbourhood of the capital, where they build in the groves, orchards and gardens. In Kashmir, although a good many nests may be found in banks, hidden in some natural hollow or in among the roots of a tree, most birds make their nests in trees at heights varying from 5 to 25 feet from the ground. As a rule the nests are placed in among thick clusters of shoots which completely conceal them, or where they are hidden by overhanging foliage or creepers but, less often, they may be in quite conspicuous positions. Osmaston found them often on Mulberry-trees, where they were well concealed, but one pair of birds built their nest, found by him, on an Apple-tree in a garden, obvious to any passer-by.

About Murree most nests were built in banks but Rattray saw several in trees 20 and 25 feet from the ground. The nests are compact cups of grass and roots, generally well covered with moss exteriorly and lined with finer grasses and roots. In some nests dead leaves, bracken and fern-fronds form a part of the materials used, and in some there is a certain amount of earth between the lining and body of the nest. Roughly, the nests measure between

6 and 7 inches across the top by rather more than half as much in depth, whilst the egg-cavity measures between 3 and 4 inches in diameter by $2\frac{1}{2}$ to 3 in depth. Like most Thrushes' nests, those of this bird are well made and stand a lot of rough handling.

The breeding season lasts from the end of April to the end of June. Hume took a nest on the 20th April at Koteghur, whilst in Kashmir Ward has taken fresh eggs as late as the first week in July.

The eggs number three or four, the only clutch of five I have seen being one taken by Ward on the 18th May near Srinagar.

The eggs vary very much. Typically they have a ground-colour ranging from pale grey-green to pale stone-buff and they are profusely blotched over the whole surface with pinkish-brown, reddish-brown or light brown. In some eggs the blotches, always more or less longitudinal in shape, are so numerous that they practically obliterate the ground-colour; in others they are not so numerous and are bolder in character. One type of egg is very like that of a Missel-Thrush. The ground is pale creamy buff, the markings consisting of chestnut primary blotches and pink-lavender secondary ones. Another clutch has the ground very pale grey-green with rather sparse but bold blotches of deep red-brown and others of pale lavender and pink-lavender; yet another clutch has the same ground-colour speckled with minute specks of light red, none as big as a pin's head. In texture the eggs are similar to others of the genus and in shape are generally rather long but very blunt ovals, about 25 per cent. being shorter and broader.

Fifty eggs average 27.8×19.5 mm.: maxima 30.0×19.3 and 27.1×20.3 mm.; minima 24.8×19.2 and 25.3×18.5 mm.

(580) *Turdus dissimilis* Blyth.

THE BLACK-BREASTED THRUSH.

Turdus dissimilis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 140.

This is the most Eastern of our Indian-breeding Thrushes. It is found in the hill-ranges of Assam, South of the Brahmapootra, and thence extends through the Chin, Kachin and Bhamo Hills and the Shan States to Yunnan. In Assam it breeds between 4,000 feet and the highest ranges, in the Khasia and Cachar Hills up to about 6,500 feet, in the Naga Hills up to 8,000 certainly, and 9,000 probably, and in Yunnan up to 10,000 feet.

It is a bird of densely forested country, breeding in the interior of damp evergreen woods with ample undergrowth. In the Khasia Hills its favourite haunts were mixed Oak and Rhododendron forest, every tree overgrown with luxuriant moss, orchids and tree-ferns, the ground below being broken up by huge boulders and rocky

ravines. In North Cachar I found its nest in rather more open forest of stunted Oak but, here too, the undergrowth was fairly dense; bracken, ferns, moss and orchids growing in the same great masses as in the Khasia Hills. In the Chin Hills both Hopwood and Mackenzie obtained it breeding in much the same kind of country, the nest always being built in dense forest and not open country, whilst Harington and Macdonald found it in similar country in the Shan States.

The nesting-site in Assam was always on a tree, most often between 10 and 20 feet from the ground, or a bush between 4 and 10 feet. The favourite site was undoubtedly a Rhododendron-tree, where, wedged into a fork of a gnarled and twisted branch, it was quite concealed by its mossy surroundings until the bird leaving it disclosed its presence. If a small Oak was selected, the actual position was in among dense clusters of leaves, which afforded effectual concealment. Similarly, if built in high bushes, it was always in those with dense foliage.

In the Chin Hills Mackenzie and Hopwood found that the birds made use of banks as nesting-sites as often as, or more often than, trees. Even in these cases they were carefully hidden by overhanging weeds or grass.

The nests are quite typical Thrushes' nests, but only in rare cases is there any intermediate mud lining between the body of the nest and the true lining. The main structure of the nest is a well-put-together cup almost entirely made of roots and grass, with a few dead leaves or fern-fronds incorporated with them. Inside this is the true lining, consisting of roots—the coarser underneath, the finer above—next the eggs. Outside the whole nest is nearly all moss, worked green and fresh into the inner structure of roots and grass. The dimensions of the whole nest are about 6 inches in diameter by nearly 4 inches in depth but, if all the straggling ends of moss are taken into consideration, the diameter would run up to 8 or even 9 inches. The inner cup, which is very neatly finished off, measures, on an average, about $3\frac{1}{2}$ inches in diameter by about $2\frac{1}{2}$ in depth.

A rather unusual nest taken by Mackenzie is described by him as follows:—"Nest on the ground; the base made of mud, on which was piled up moss with a shallow cup of roots on the top. The bird was shot off the nest." Another nest, also taken on the ground, was similar. On the other hand, the nests taken by Harington at Gangiri, Shan States, "are placed at the end of branches 12 feet from the ground and composed of moss and grass with plenty of mud. In fact the nests were very heavy for their size; lined with fine grass."

The breeding season in Assam is May and June, running into the early part of July. In the Chin Hills it seems to be from the middle of April to the second week in June, while further East again most eggs are laid in April and early May.

In Northern Burma this Thrush lays two to four eggs, as frequently Mackenzie took clutches of two which showed signs of incubation. In Assam, however, four was the normal clutch, three being unusual. The two nests found by Harington at 5,500 feet in the Shan States on the 15th May each contained three eggs.

The range of variation is extraordinary. A few eggs are of the ordinary greenish Blackbird type, more are of the erythristic type, and one pair, taken by Mackenzie, looks an almost uniform brick-red, so closely do the tiny longitudinal freckles cover the whole surface. From this closely marked form they range up to eggs with a pale green, yellow-green or buff ground, with a few large blotches of deep red or purple-brown. Other eggs are of the Missel-Thrush type, and others again are like eggs of the *Geokichla* group, pale, rather faintly marked with reddish-brown and pale lilac. One pair of Chin Hills eggs has a darkish dull green ground densely marked with blurred blotches of red-brown. Many eggs of this Thrush are only distinguishable by their texture from those of *Geokichla citrina*, these latter having a harder, finer shell, with much greater gloss.

In shape the eggs are rather broad ovals but usually decidedly compressed at the smaller end, whilst rather longer, more pointed ovals are not rare.

Fifty eggs average 26.8×19.8 mm. : maxima 29.2×20.0 and 27.2×21.0 mm. ; minima 21.0×20.0 and 26.0×18.3 mm.

Both sexes take part in incubation, as I have trapped both on the nest and eggs in day-time. Both also help in building the nest, though I cannot say whether the cock bird does more than bring the materials for his wife to incorporate in the nest.

They are not shy birds, and can generally be approached on the nest near enough for identification and, once or twice, I have had the female, much the bolder of the pair, sit tight on her eggs and blink at me from a distance of only two or three yards.

(583) *Turdus feæ* (Salvadori).

THE RUSSET-BACKED THRUSH.

Turdus feæ, Fauna B. I., Birds, 2nd ed. vol. ii, p. 143.

This very rare Thrush is found thinly scattered from the hills South of Assam and Manipur, through the hills of Central Burma, to Tenasserim. It is probably resident and breeds wherever found, though it may move vertically with the seasons. During the Summer it is found in the Assam Hills above 4,000 feet and generally above 5,000. In the North Cachar Hills it was very rare, being only found on the highest peaks of the Barail Range in the interior of evergreen forest. In the Khasia Hills it seemed

to be almost common some years, whilst in other years I failed to see a single specimen. In 1909 no less than three pairs bred in one extensive evergreen and mixed forest running from about 5,200 to 6,200 feet, the nests being found between 27th May and 5th July, nor were any of these three nests second attempts at breeding. After this year (1909) only odd nests were found, probably, on an average, one in every two years. The birds were very shy and, though one could sometimes track down a male by his sweet little song, it by no means followed that this sufficed to bring the female and nest also to book. So far as my own experience goes, with one exception the nest has always been built in trees and, though at no great height from the ground, always well concealed. The one exception was a nest, also found in 1909, which was placed in a dense Azalea-bush growing among thousands of others on the high cliff-side overlooking a stream. This last-mentioned nest was not more than four feet from the ground and completely hidden from anyone passing a yard or two away, and it was only discovered when the female flew out almost at my feet. When placed in trees the nest is equally thoroughly hidden, the favourite position being in the fork of an old Rhododendron, among thick foliage or long falling moss. The birds seem to have a predilection for building near water and, in every case, the nests found by me have been in trees overhanging tiny streams or the water finding its way through ravines.

The nest is quite a typical Thrush's; outwardly it looks like a deep green cup of moss averaging about $6\frac{1}{2}$ or 7 inches in diameter by a full 4 inches in depth. The cup for the eggs is small in proportion, seldom more than 3 by 2 inches. Inside the moss coarse and fine roots are well interwoven, often with quite a thick layer of dead leaves and scraps of bracken between them and the moss. Next comes a layer of mud, not nearly so well compacted as in the nest of an English Thrush, and often quite friable. The true lining is of roots, fine and coarse, fine bents and, in one instance, fine red tendrils from a climbing plant.

May and June are probably the normal breeding months, though, as stated above, I found one nest with two slightly incubated eggs on the 5th July.

Considering the few eggs I have seen, they show greater variety than those of any other Thrush known to me. Some eggs are just like those of the common Blackbird; others can be matched by those of the Missel-Thrush; one pair is an almost deep blue-green, marked at the larger end with a small cap of coalescing red-brown spots, which are absent elsewhere; yet another clutch, this of four eggs, has a still deeper, rather greener ground, boldly blotched with deep purple-brown blotches, coalescing at the extreme large end and boldly distributed elsewhere. Finally, a pair of fresh eggs are a very pale but bright sea-green, one boldly spotted with

brick-red, the other with hardly any marks beyond an irregular zone at the extreme larger end.

In shape the eggs are short to long ovals, always blunt and, in some, very little compressed at the smaller end. The texture is fine for a Thrush's egg, the surface very smooth and with a slight gloss, more than in most eggs of the genus, but never with the hard china gloss shown by the eggs of *Geokichla*.

Sixteen eggs average 27.3×19.8 mm. : maxima 29.2×20.0 and 27.8×20.8 mm. ; minima 25.7×19.0 mm.

(584) *Geokichla wardii* Blyth.

THE PIED GROUND-THRUSH.

Geokichla wardi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 145.
Geokichla wardii, *ibid.* vol. viii, p. 624.

The breeding range of this Ground-Thrush extends from the Sutlej Valley in the Himalayas to the extreme East of Assam North of the Brahmapootra, and it occurs, though very rarely, on the hills South of that river. East of Sikkim it is a rare bird but I have seen specimens from the mountains North of Darrang and Sibsagar and one from the Abor Hills North of Sadiya. It also straggles into the higher ranges South of the Brahmapootra and I took its nest on the Barail Range in North Cachar at about 4,000 feet. Their breeding range of elevation seems to be extraordinarily constant and every record seems to be between 4,000 and 6,000 feet, most of them being something very near 5,000 feet. In Hume's 'Nests and Eggs' there are recorded nests taken by Hutton at Jeripancee, near Mussoorie, at 5,500 feet ; Jaharpowah, in Nepal, where Hodgson took his nest, was about 4,500 feet, whilst Marshall (G. F. L.) took a nest near Nynee Tal at 5,000 feet. At this same place, Nynee Tal, and at other places round about, Whympers took many nests, all at about 5,000 feet, and Mackinnon took others again round about Mussoorie between 4,500 and 5,000 feet.

For breeding purposes the Pied Ground-Thrush frequents well-wooded ravines and nullahs and smaller patches of forest and jungle in open country, while it also breeds by roadsides and in gardens. In Whympers's garden at Nynee Tal these birds bred every year, and when their eggs were taken and the exactly similar eggs of the much more common Orange-breasted Ground-Thrush were substituted, the birds incubated, hatched and reared the chicks. In this garden the nests were placed in small Deodars, Mulberry or Orange-trees at heights between 5 and 15 feet. In ravines and other places any tree may be selected and similar heights made use of for nesting purposes, but they are usually built in fairly stout forks, clusters of twigs or strong horizontal branches close to the bole of the

tree. The nest taken by myself in North Cachar was in rather thin mixed evergreen and bamboo-jungle, in a ravine on the outskirts of dense evergreen forest. This was in a small, rather densely foliated sapling at about 8 feet from the ground.

The nest is distinctly typical of the Thrush family. In shape it is a deep compact cup made of green moss exteriorly; inside this there is a thick layer of coarse roots, sometimes mixed with grass, then finer roots, and again sometimes grass-stems forming a neat well-finished-off lining. In the nest taken by me there was no mud lining between the inner and outer layers of roots, nor do any of my correspondents mention any mud lining. On the other hand, Marshall says that the nest found by him was "built of moss and dead leaves and a little mud cemented together and lined with roots." Hodgson gives the external measurements of a nest as 6.25 inches across by 2.5 deep, whilst internally the cup was 3.5 × 2 inches. The nest taken by me was about the same, though if the loose ends of the outer moss were taken into consideration it would have been fully 8 inches across.

The breeding season seems to be late. Whympfer took nests between the 5th of May and 17th July but more eggs were taken in July than in any other month. According to him, also, this species is never double-brooded, while he states that both sexes take part in incubation, as well as in the construction of the nest.

The number of eggs laid is three or four, the former number much the most often. In appearance all eggs of this genus, though decidedly Thrush-like, are very pale when considered as series, though exceptional eggs may be matched by certain eggs of the genus *Turdus*. The ground-colour is usually a very pale bluish or creamy white, lightly speckled, blotched or freckled with pale reddish, sometimes rather thinly scattered over the whole surface, sometimes collected chiefly at the larger end, where rarely they may form a cap or zone. Occasionally a clutch or a single egg in a clutch may be rather more boldly spotted with darker reddish-brown, such eggs generally also having secondary marks of lavender. Exceptional clutches may have a buff ground freckled with light brick-red, or a pale greenish ground, mottled or blotched with reddish-brown.

The texture is exceptionally hard and close, with a very fine gloss.

In shape the eggs are broad to fairly long ovals, always, however, blunt at the smaller end.

Thirty eggs average 26.3 × 19.4 mm. : maxima 27.2 × 19.9 and 27.0 × 24.0 mm. ; minima 25.3 × 19.0 and 26.6 × 18.0 mm.

Geokichla citrina.

THE ORANGE-HEADED GROUND-THRUSH.

(587) **Geokichla citrina citrina** (Latham).

THE NORTHERN ORANGE-HEADED GROUND-THRUSH.

Geocichla citrina citrina, Fauna B. I., Birds, 2nd ed. vol. ii, p. 148.
Geokichla citrina citrina, *ibid.* vol. viii, p. 624.

This Orange-headed Ground-Thrush has an immense range and may eventually have to be divided into three races—a paler and slightly larger form from the extreme West and a more richly-coloured, very big form from the extreme East, Yunnan and Setchuan, with an intermediate form in the country between. At present only one form is recognized from Murree and Kuman to Yunnan, in Burma extending South to the North of Tenasserim and East to the Shan States, Western Siam and the Langbian Peak in Annam. It breeds throughout the whole of this range between the foot-hills and about 5,000 feet and, just recently, Law has discovered it breeding in the plains of Bengal at Baraset.

The dividing-line in the breeding range of this race and the Malayan form *innotata* is impossible to define, as over an enormous area from Tenasserim and South-West Siam to the Malay States specimens occur, some of which are intermediate between the two, and many from the same area which would appear to be quite definitely referable in some instances to the Northern and in other instances to the Southern race. I have, therefore, in the 'Fauna,' fixed an arbitrary dividing-line as the latitude of Tavoy in Southern Tenasserim.

This Ground-Thrush keeps very much to dense forest for breeding purposes, though on more than one occasion its nest has been taken both in bamboo-jungle and in thick secondary growth. In forest it places its nest in almost any well-foliaged bush or small tree from about 3 to 30 feet from the ground but, generally, between 4 and 15 feet. Hutton says that in Mussoorie it builds principally "in the forked branches of lofty trees, such as oak and wild cherry." In Assam, where this bird was very common, it had no preference, so far as I could see, for any particular kind of tree but, when building lower down, it certainly preferred tangles of Wild Raspberry or Blackberry vines to any other bush.

The nest, apparently, varies greatly in different parts of its area. In the Khasia and Cachar Hills and, again, in Lakhimpur, nests were all of the same type. Outwardly they were, in nine instances out of ten, made completely of moss; in the tenth instance the moss was mixed with roots, grass and a few leaves, sometimes more, sometimes less. Inside this was a layer of well intertwined coarse

roots, leaves and grass-stems and inside this was the true lining of fine roots, rachides, rhizomorph or fine bents. Fine roots were the favourite linings, but the proportion of each material varied in each nest, sometimes one only being used. The mud or clay inner lining so frequently made by various species of Thrushes is certainly not always made by this bird, and of those found by myself or brought to me by natives (always with one bird or both) I do not think that more than one in five had a complete mud lining. A few other birds had incorporated a certain amount of clay or mud between the coarse and fine root-layers but even this was unusual. No one of my own or of Hume's correspondents mentions a mud lining. Owing to the straggling nature of the external moss, the outer measurements of the diameter might be anything from 5 to 7½ inches but, omitting the untidy ends, the average diameter would be nearly 6 inches, with a depth of fully 3 inches. The neat egg-cavity measures about 3 inches across by about 1½ or rather more deep. Hodgson describes the nest as much like mine except for a lining of pine-needles. Hutton says that nests taken by him were externally "sometimes composed of coarse dry grasses, somewhat neatly woven on the sides but hanging down in long straggling ends from the bottom. Within this is a layer of green moss and another of fine dry woody stalks of small plants and a scanty lining at the bottom of fine roots."

A nest taken by Mandelli in July was placed in a fork in a bamboo cluster at about 5 feet from the ground, "a loose, untidy nest, composed exteriorly of dead leaves, bamboo spathes, a few twigs and pieces of decayed bamboo, all wound together with vegetable fibre. The whole of the nest is composed of much the same materials, except that interiorly there are more chips of rotten bamboo and more vegetable fibre and very little dead leaf; there is a mere pretence for a lining, a dozen or so very fine wire-like twigs being wound round at the bottom of the cavity."

Another nest taken by Oates in Pegu was "made of roots and strips of soft bark, the ends of some of the latter hanging down a foot or more. The interior lined with moss and fern-roots."

Oates does not give the elevation at which this nest was found but, apparently, it was in a ravine practically in the foot-hills. In Nepal Hodgson found it breeding at 4,000 to 5,000 feet, but Thompson says that in Kuman he "never found it except at 1,500 to 2,000 feet at most." Whymper, Rattray, Hutton and others found it about Murree, Mussoorie and Kuman at all heights up to 5,000 feet, whilst Stevens, Coltart and I obtained it breeding in Assam from the foot-hills up to 5,000 feet but, principally, between 2,000 and 3,500 feet. On the other hand I took one or two nests at 6,000 feet in the Barail Range.

The breeding season is principally May and June but, in Assam, I have taken eggs in the first week of April and as late as the

15th August, while I have one clutch from the Mackenzie collection taken at Dehra Dun on the 1st March, probably quite an abnormal date.

The bird sits close and will often allow one to watch it on the nest from quite near by. When leaving, it sometimes does so silently, whilst at other times it utters its beautiful loud whistle. Both sexes incubate and we trapped the male on the nest more often than the female. Both sexes also take an equal share in constructing the nest.

The eggs generally number four in a full clutch, sometimes three only, and occasionally five. They are like those of *G. c. wardii* but darker and better marked as a series. They also vary more, though this is doubtless due merely to my having had so great a number to choose from. I have seen many eggs much like rather pale eggs of the common Blackbird and others like erythristic eggs of the same bird. One clutch in my series of this type is so densely and closely marked that three eggs of the four look almost unicoloured buffy red. In great contrast to these are two clutches, laid by the same bird, which have the ground-colour a pale blue-green, unmarked except for dense caps of red-brown at the extreme larger ends. Another very extraordinary clutch of three stumpy, broad eggs has the ground a rather dark green well marked with dark brown, forming caps in two eggs at the large end. In this clutch there are numerous secondary blotches of dark brownish-lavender, though secondary markings are rarely at all obvious in normally coloured eggs.

In shape the eggs vary from broad to long ovals, as a rule obtuse, but occasionally pointed at the smaller end. The texture is very fine and close, the surface hard and highly glossed, it being in this last respect that *Geokichla* eggs are most easily distinguished from those of other Thrushes.

One hundred eggs average 25.6×19.3 mm.: maxima 27.7×20.0 and 25.5×21.3 mm.; minima 21.0×18.5 and 27.3×17.1 mm.

(588) *Geokichla citrina cyanotis* (Jard. & Selby).

THE WHITE-THROATED, OR SOUTHERN, ORANGE-HEADED
GROUND-THRUSH.

Geocichla citrina cyanotis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 150.
Geokichla citrina cyanotis, *ibid.* vol. viii, p. 624.

The Eastern limits of this Thrush have not been ascertained but, on the West of Southern India, it is common from South Travancore to North Kanara and thence to Nasik and Khandesh, whilst Davidson found it breeding at Kondabhari Ghat. Jerdon recorded this Thrush from Goomsoor, and recently the Vernay Expedition

found it common in the hill-tracts of Vizagapatam in well-wooded ravines and also not uncommon in suitable places in the Godaveri delta, while a single specimen was obtained in the Shevaroy Hills.

It is, like other races of this species, a forest-breeding bird and is found from the foot-hills, but generally above 1,000 feet, up to 4,000 feet. Davidson says that it is the common Thrush of Kanara and breeds in great numbers. Vidal found it common round about Dapuli in the Southern Konkan, where, so far from its being a forest bird, he records that "it breeds in the gardens about the Station in June, July and August." Mr. Jardine, who sent Vidal many nests and eggs, describes the former:—"The nest is made of roots, twigs and grass, with a good deal of mud. The egg-cavity is about $5\frac{1}{2}$ inches in diameter and from 2 to 3 inches deep. The nest is generally placed in a fork of a tree low down. The highest I ever saw was about 15 feet from the ground in a kongal-tree, but they are mostly found in mango trees."

Darling describes the nest as "very like a Blackbird's, a foundation of leaves and sandy clay, the main body of the nest composed of roots, intermingled with a few twigs and a little grass, and the cavity lined with roots and the slender petioles of the nelly-kai." Rhodes Morgan also refers to "the usual clay foundation which is found in almost all Thrushes' nests."

As a whole, therefore, the nests seem to differ from those of the Northern bird in having very little, or no, moss used as a material and in always having the clay foundation.

Davidson sent me many clutches of this bird's eggs but no description of the nest; but both Bourdillon and Betham, who sent me others, describe the nests as massive cups made of twigs, grass and roots, with sometimes moss and with "much mud incorporated."

The breeding season is generally June and July, after the rains break, but many birds breed in August. Rhodes Morgan gives August and September as the breeding months, and Betham also took eggs from July to September. On the other hand, in Travancore Bourdillon took nests with eggs or young in May and June.

Unlike the Northern race, the Southern bird is said to be very shy. Darling says of a pair he attempted to secure: "The birds were very shy. Directly I approached the nest the bird dropped noiselessly to the ground and crept away through the brushwood."

The eggs, three or four in number, cannot be distinguished from those of the preceding bird but, as a series, are darker and less boldly marked, and I have seen no variations at all striking in character.

Forty eggs average 25.0×18.5 mm.: maxima 27.0×19.1 and 25.1×19.2 mm.; minima 22.0×18.1 and 23.5×18.0 mm.

(590) *Geokichla citrina andamanensis* Wald.

THE ANDAMAN ORANGE-HEADED GROUND-THRUSH.

Geocichla citrina andamanensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 152.
Geokichla citrina andamanensis, *ibid.* vol. viii, p. 624.

This Thrush is restricted to the Andamans.

The only record I can find of this bird's breeding is that of Osmaston (*Journ. Bomb. Nat. Hist. Soc.* vol. xii, pp. 556-7, 1899). He writes :—

“ This handsome Ground-Thrush is fairly common near Port Blair. It is most often met with feeding among dead leaves in jungle. When approached quietly it does not fly, but works away from the intruder with long, bounding hops. It does not, however, by any means confine itself to forest, and is often seen on roads, manure-heaps etc., far from any jungle. I have counted as many as seven feeding together and all looked like old males, which, I think, collect together more or less when the hens are engaged in the duties of incubation.

“ They very often breed, if not in ‘ colonies,’ at least in very close proximity. On May 16th I found the following nests, all within 100 yards of each other, in a young clearing of padouk saplings :—

“ (1) Nest 15 feet from ground on bamboo boughs bending down horizontally ; one fresh egg.

“ (2) 8 feet from ground in fork of padouk sapling ; two young.

“ (3) Ditto.

“ (4) 10 feet from ground ; 3 eggs.

“ (5) 5 feet from ground in a soft fleshy-stemmed plant ; one broken fresh egg.

“ (6 & 7) Apparently new nests in padouk sapling, but in which the birds never laid.

“ (8) 8 feet from ground in a teak sapling ; two fresh eggs ; this last nest was about 200 yards away from the others.

“ There seemed to be no other nests near the spot, although there was a lot of similar cover.

“ I have another note of three nests within about 20 yards of each other.

“ Besides these, I have found many single nests, mostly with young, some of them in small trees in the open at some distance from jungle.

“ The nests are composed of a foundation of dead and skeleton leaves mixed with a good deal of earth or mud and a lining of roots and black hair-like fibres. They are, as a rule, conspicuous at 20 yards ; much easier to find than the bird is to shoot. The bird is very shy when nesting, slipping away off eggs or young before you are near the nest, and not putting in an appearance again

as long as you are in the neighbourhood. When you catch a fledged young bird, however, their natural shyness is forgotten in their distress and both birds flutter round and round you within a few feet until their offspring is restored to them."

Other nests and eggs taken by Wickham and Anderson agree in description with those taken by Osmaston.

The breeding season is May, June and early July. The earliest-taken clutch in my collection is one obtained by Wickham on the 14th May and the latest is one of Osmaston's found on the 3rd July.

The full number of eggs laid seems to be almost invariably three, though very rarely two only may be laid.

A wonderful series of this bird's eggs now in my collection, and taken by the gentlemen named above, show that they are similar to those of the other races but, if examined as a series, they are intermediate in richness of colouring between the eggs of true *citrina* and *cyanotis*. One is also struck by the number of clutches in which the eggs are handsomely blotched with chestnut. I have one clutch in which the ground-colour is very pale cream, the whole surface very richly marked with large and small blotches of chestnut, denser and coalescing at the larger end. A second clutch has the ground a pinkish-buff and is similarly marked, but with smaller blotches.

In shape and texture etc. they are quite typical of the genus.

One hundred eggs average 25.1×18.5 mm. : maxima 27.0×18.0 and 25.7×19.3 mm. ; minima 23.0×18.6 and 25.0×17.2 mm.

Arceuthornis viscivorus.

THE MISSEL-THRUSH.

(592) **Arceuthornis viscivorus bonapartei** (Verr.).

THE HIMALAYAN MISSEL-THRUSH.

Arceuthornis viscivorus bonapartei, Fauna B. I., Birds, 2nd ed. vol. ii, p. 154.

The range of this fine Missel-Thrush extends from Transcaspia throughout Central Asia as far South as the Himalayas, as far East in these mountains as Nepal and, in the North, as far East as Transbaikalia. I have also had three clutches of their eggs from Northern Tibet.

Whitehead found them breeding on the North-West Frontier in the Kurram Valley at 9,500 feet ; they breed commonly in many parts of Kashmir from 6,000 up to 10,000 feet and probably higher, whilst Whympster obtained them in Kuman, below the Pindari glacier, at about 12,000 feet. At Mugree Ratray found them breeding on Nagtiba at about 9,000 feet and took two nests.

In Hume's time the breeding of the Himalayan Missel-Thrush was not well known but he gives a good description of a nest taken by himself which would do for almost any other. He writes :— "I, as yet, only know of the Missel-Thrush breeding in the valleys of the Beas and the Sutlej, at elevations of from 6,000 to 8,000 feet. I have only taken one nest myself, but have had several sent me, and I find by my notes that the earliest was taken on the 6th April, the latest on the 22nd June. The nests are large deep cups, very like those of the Blackbirds, always placed, as far as my experience goes, in forks of trees, at no great elevation from the ground. The core is composed of clay and grass-stems, founded on a lot of dry leaves, fern, etc. ; externally there is a very thick coating of moss, grass and lichen, while internally there is a thick lining of soft grass. The nest I obtained above Juggut Sook, in the valley of the Beas, measured *in situ* 8 inches in diameter and nearly 6 inches in height externally."

As sites for their nests Missel-Thrushes seem to select very exposed positions in small trees quite in the open or in orchards and round about villages. Ward speaks of one nest sent me as being "very exposed and about six feet from the ground, built in an orchard and visible from a distance all round." When built in Deodars, Silver Firs, or similar trees, the dense foliage prevents them being seen from any distance, but they are nearly always placed on a stout branch next the trunk or in a fork quite low down, so that they cannot be overlooked by anyone close to them.

May and June appear to be the two regular breeding months, a good many birds commencing in April, the dates given by Hume covering all the many nests of which I have records. Both birds take part in incubation and both assist in the building of the nest. Incubation in the British race is said to take 14 or 15 days and is, probably, the same with our Indian bird.

The eggs number three to five, generally four, and are much the same as those of the English race but, as a series, less green and more livid pinkish. The ground varies from pale greenish-grey or, rarely, a clearer pale green to a dull livid pinkish. The markings, which are freely but not thickly scattered over the whole surface, consist of primary small blotches of light to darkish red-brown. These are generally rather more numerous towards the larger end but never form caps or zones. The secondary blotches, very seldom as numerous as the primary, are of pinkish-lavender. The eggs do not vary much but I have one clutch which has a pale clear sea-green ground, freckled, rather than blotched, with light reddish and lavender.

In shape they are rather long ovals, mostly blunt but, sometimes, quite pointed at the smaller end. The grain is rather coarse but the surface hard and smooth, with a gloss, sometimes much developed.

Fifty eggs average 31.3×22.4 mm. : maxima 34.0×23.0 and 30.6×23.6 mm. ; minima 27.4×21.4 and 28.5×20.7 mm.

Oreocincla dauma.

THE SMALL-BILLED MOUNTAIN-THRUSH.

(595) **Oreocincla dauma dauma** (Lath.).

THE HIMALAYAN SMALL-BILLED MOUNTAIN-THRUSH.

Oreocincla dauma dauma, Fauna B. I., Birds, 2nd ed. vol. ii, p. 158.

This handsome Thrush breeds in the Himalayas from Hazara to Assam at elevations of 7,000 feet upwards. It also occurs in the higher hills of North and North-East Burma, down the hills of Central West Burma to Tenasserim, though it has never been found actually breeding in these hills.

It ascends to very high levels for nesting purposes, Whympers taking its nest at 11,000 feet, while it has been observed in Summer up to 12,000, or the limit of tree-forest. This is one of the few Indian birds of whose habitat we have a pen-picture given, illustrated in this case with charming photos of the nest. Bates (Journ. Bomb. Nat. Hist. Soc. vol. xxviii, p. 99, 1925) describes the Lalab, Kashmir, as follows:—"A more charming spot I have never found. On one side the ground slopes abruptly for about 1,500 feet to the tiny land-locked Rampur Valley, a vale of enormous chenars, walnuts and fruit-trees, over whose further boundary a wonderful panorama of the whole happy valley still further below one, and of its surrounding mountain ranges, is obtained. The slopes on this side are not very thickly wooded. In fact there are few deodars, and but straggling patches of rhododendrons and other bushes. Though a wonderful prospect to the Pir Panjal themselves is obtained, it is nothing when compared with the surpassing beauty of the view into the Lolab and of the mountains which enclose it, with Nanga Parbat some 50 miles distant, yet dominating every intermediate range. My little *marg*, christened on my first visit the 'Saddleback,' cannot be much more than thirty yards across, and on this, the Lolab side, it dips most abruptly in one great sweep of unbroken forest to the hamlet-studded vale beneath, so far beneath that the whole has the appearance of a wonderful landscape painting of tiny green fields, the vivid green of the early rice, and orchards, woods and villages, with silvery streams winding amongst them, occasionally spreading into little glass-like lakes."

Then Bates goes on to narrate how in this country he found the nest of this Thrush:—"I was soon rewarded by my attention being drawn to a Small-billed Mountain-Thrush sitting tightly on its nest under a rotten stump surrounded by wild strawberries. It was in a beautiful situation a few yards down the hill on the Lolab side, and so among the thick deodar forest I have alluded to. As usual, she sat very close and allowed me to have a good look at her. The nest was made entirely of pine-needles. The only other nest of this

species which I have found was lined with pine-needles but had an outer shell of bents and roots."

Bates's nest of pine-needles was extraordinary in composition but the site, in dense Deodar forest, was very typical and just the kind of forest in which it breeds in Naini Tal, in the ravines of Murree, the Galis or Mussoorie, or, again, in the Garhwal Hills.

Usually the nest is, however, built in a fork of a tree, preferentially a Deodar, and sometimes, as with one taken by Whymper, a full 20 feet up. Occasionally, however, it is placed on banks in tangles of bush and brambles and then nearly always under the protection of a fallen tree or log.

The normal nest is as described by Marshall:—"A wide cup, not deep, built of moss rather substantially and neatly lined with stalks of maidenhair fern, still bearing a few of their leaves, and a few bents of grass. Its position was in the fork of a moss-covered rhododendron and beautifully concealed."

Most nests have some twigs, grass, leaves or other oddments mixed with the grass. The dimensions of the nests on the outside are, roughly, 7 to 8 inches across by about half these in depth.

The breeding season lasts from the end of April to about the third week in June.

Three or four eggs are laid in a clutch.

In colour the eggs vary from a pale yellowish-grey or grey faintly tinged with green to a darkish clay-buff. In many eggs the tiny freckles and pin-points of dark clay-red markings are so numerous that the eggs look unicoloured clay or buff. Some eggs are more definitely speckled lightly with pale reddish, whilst rarely they are blotched all over with comparatively dark reddish. Very often one egg in a clutch differs greatly from the others, being boldly and clearly blotched, whilst the others look unicoloured. I have one genuine clutch of four in which each egg differs from the rest. One is uniform pale clay; a second looks uniform rich reddish-buff; a third is pale clay-grey finely but sparsely marked with reddish specks, whilst the fourth is pale buff-clay freckled all over with light red.

In shape the eggs are broad ovals, generally blunt, though rather long and pointed ovals are not rare. The texture is hard, closer and finer than the eggs of *Turdus*, and there is always a distinct gloss.

Twenty-five eggs average 30.5×22.3 mm. : maxima 33.0×22.1 and 31.3×23.6 mm. ; minima 29.0×23.4 and 29.3×20.8 mm.

(596) *Oreocincla dauma neilghiriensis* Blyth.

THE NILGIRI SMALL-BILLED MOUNTAIN-THRUSH.

Oreocincla dauma nilgiriensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 159.
Oreocincla dauma neilghiriensis, ibid. vol. viii, p. 625.

The Nilgiri Mountain-Thrush is found breeding in practically all the mountains of Southern India from the Nilgiris to Central

Travancore, keeping above 2,000 feet and generally above 4,000, whence it is found up to the highest summits. Rhodes Morgan obtained several nests on the Nilgiri Hills, and Terry found one built in low trees in well-wooded *sholas* between 6 and 15 feet from the ground. Later Cardew and Howard Campbell took a good many nests and Betham also secured one or two. All describe the nests as being built between 5 and 20 feet (Betham) from the ground on trees standing well back from the edge of *sholas*. Usually they are placed in upright forks, but Betham describes one as built in the fork of a horizontal branch. The nest is a bulky but fairly compact cup measuring, according to Terry, "3.75 inches across and 1.75 inches deep inside, 6 inches across and 3 inches deep outside." These measurements are exceeded considerably by a nest taken by Betham said to be 8 inches across by $4\frac{1}{4}$ inches deep. The chief article used in its construction is green moss outwardly, more or less mixed with fine twigs, roots, leaves and grass; inside this is a layer of leaves and coarse grasses and, finally, the true lining of fine roots. In the nest taken by Terry a certain amount of fern was used in the base, and doubtless this is used when convenient, just as are the other materials.

All the eggs so far recorded of which I know have been taken between the 15th May and the 11th June but Morgan says that it "breeds from March to June."

The normal clutch of eggs seems to be two only, very rarely three being laid and, occasionally, only one. In colour they are a dull clay-brown, sometimes very faintly tinged with olive, and freckled or feebly blotched with pale reddish. As a series they differ from those of the preceding bird in being darker, duller and browner and more feebly marked. I have, however, seen but a small series, and a larger one would probably show greater variation.

Ten eggs average 32.5×23.2 mm. : maxima 35.1×23.2 and 31.4×23.5 mm. ; minima 30.6×23.3 and 32.0×23.0 mm.

Unlike its Himalayan cousin, the present bird is said to be very shy, hard to catch a glimpse of when on the nest, and very loth to return when once it has been disturbed.

(597) *Oreocincla dauma imbricata* (Layard).

THE CEYLON SMALL-BILLED MOUNTAIN-THRUSH.

Oreocincla dauma imbricata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 160.

This bird breeds in the Ceylon Hills between about 2,500 feet and the highest peaks. It builds its nest both in forest, more open jungle and in Tea gardens, placing it on trees between 8 and 25 feet from the ground. One nest, however, was found by Phillips "placed in a crack in a rock, about 15 feet up the side of a rocky gorge" running through forest at about 3000 feet elevation.

In 1922, T. E. Tunnard found a nest of this Thrush which he describes as follows (Journ. Bomb. Nat. Hist. Soc. vol. xxviii, p. 546, 1922):—"The nest is placed about ten feet from the ground in the fork of an Albizzia-tree, which trees are used as shade-trees for the tea in this district and are topped every six months. There is a strip of scrub-jungle within about 60 yards. The materials used are green moss and a few fresh fern-leaves; the lining is composed entirely of moderately fine black roots; there is no mud. The whole structure is neat, round and compact, and the cup is fairly deep and very wide. The birds are fearfully shy, at least the cock is, whereas the hen will let me up to the nest within about fifteen feet. The elevation is about 3,800 feet."

One egg of the two it contained was left in the nest and the bird finally deserted this on the 3rd September and then started building another nest within 200 yards of the first. Three old nests were later found in similar positions in Albizzia-trees. The rainfall in these parts is about 200 inches. Alford was, perhaps, the first collector to take this bird's nest and egg. The nest with one egg, a full clutch, as the hen bird, which was shot, contained no other, was found in the Bhopat Range on the 14th August, 1911. The nest, which was built on a "small tree at the edge of a stream running from the Bhopat Range to the Boga Valley," was "exactly like the Missel-Thrush's except that it was lined with the same black roots or stems used by Bligh's Whistling-Thrush."

Phillips found it breeding round Gammadawa and took nests at 3,000 and 4,500 feet. He describes the nests as "deep cups about 2½ inches across, lined with decayed roots and leaflets, in the centre of a large pyramidal collection of green moss with a few twigs in the foundation." Both nests were in damp evergreen forest—one in a small tree about 12 feet from the ground, the other, as already mentioned, in a rock.

Phillips describes the country round Gammadawa, where he took his nests, as "damp, virgin forests that clothe the steep sides of the mountain ridges which rise to between 3,000 and 5,000 feet above the low country. These forests are, for the most part, rocky and precipitous, the gnarled and twisted trees overgrown with mosses and lichen and the undergrowth dense where it has not been cleared for cardamums. The sodden leaf-carpet abounds with insect-life and land-leeches and forms a great attraction for many insect-eating birds.

Nests with eggs have been taken in March, April, August and September but we do not yet know enough about the breeding to say what is the normal breeding season.

The full clutch seems to be two, one only being sometimes incubated.

The eggs are much paler than those of the typical form and are a very pale olive-green, or olive-grey, faintly freckled with very pale reddish. One egg taken by Phillips has a pinkish ground

and the egg taken by Alford is more distinctly spotted sparsely with pale red and dark red-brown spots.

Six eggs average 30.5×21.2 mm.: maxima 35.2×22.0 mm.; minima 28.3×20.9 mm.

In texture they are like other eggs of this species, but in shape the very few eggs so far obtained have been long, blunt ovals.

Oreocincla mollissima.

THE PLAIN-BACKED MOUNTAIN-THRUSH.

(599) *Oreocincla mollissima mollissima* (Blyth).

THE SIKKIM PLAIN-BACKED MOUNTAIN-THRUSH.

Oreocincla mollissima mollissima, Fauna B. I., Birds, 2nd ed. vol. ii, p. 162.

This Thrush is found in Summer, and therefore must breed, from Nepal and Sikkim, through the mountains of Upper Assam, to Yunnan on the East and then South through the higher ranges of hills of Burma to North Tenasserim.

It is a bird of high elevations, probably keeping above 8,000 feet for breeding purposes, and it therefore seems unlikely that they will be found breeding anywhere South of Yunnan and the Shan States.

In Hume's 'Nests and Eggs,' p. 108, is the following incomplete note on its nidification:—"The nest of this species is a most lovely one. It is a deep, large, massive cup, composed entirely of beautiful green moss firmly felted together, the cavity thinly lined with extremely fine black fern- and moss-roots. Externally the nest is about 5.5 inches in diameter and 3.3 in height; the cavity is 3.5 in diameter and 2 in depth.

"The eggs are elongated ovals, sometimes excessively elongated, generally rather obtuse at both ends, occasionally pyriformed. The shell is fine and close-textured, but seems usually to have but little gloss. The ground-colour is nearly dead white. The markings, very densely set about the large end, where they are nearly confluent and fairly thickly set everywhere else, consist mainly of specks, spots, and moderate-sized and irregular blotches of two shades of red—one more of blood, the other browner or yellower. Intermingled with these are a few specks, spots and clouds of pale purple.

"These eggs, brought from Native Sikkim about the end of June, vary in length from 1.27 to 1.42, in breadth from 0.84 to 0.90, the average being 1.35 by 0.88."

A nest and eggs sent me from the Singalila Ridge, in Native Sikkim, taken on the 15th June at about 10,000 feet, agree with the above to the minutest detail and are probably correct, though they do not agree, so far as the nest goes, with another taken by Osmaston in 1909. This last nest was taken above Darjiling at about 11,000 feet

on the 10th June and the nest is described as "of moss and dried grass, lined with the latter and built in a cleft in a rock about 5 feet from the ground in dense forest." It contained two eggs, and these agree very well with those described by Hume, except that they are long, *pointed* ovals. They measure 32.1×21.0 and 32.0×21.2 mm.

It is curious that all the eggs taken so far of this race should be of the red-spotted, almost erythristic type which, though sometimes found, is quite exceptional with the much better known form from Simla.

(600) *Oreocincla mollissima whiteheadi* Stuart Baker.

THE KHAGAN PLAIN-BACKED MOUNTAIN-THRUSH.

Oreocincla mollissima whiteheadi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 163.

At present the only known breeding area of this Thrush is the Khagan Valley on the Indo-Afghan Frontier, while two other specimens were shot by A. E. Osmaston in Garhwal, one in April at 8,000 feet and one on the 20th June at 12,800 feet. These two birds were identified in the British Museum as *whiteheadi*. It may be that, when better known, this race will prove to be a high-level breeding form, nesting in rocks in open country above the forest level. It must be remembered, however, as already recorded, that Osmaston found the typical form breeding at 11,500 feet, also in a rock.

Unlike the typical form, which is essentially a forest bird, this is purely of the open country. Even the bird shot at 8,000 feet was obtained "in open rocky ground with scattered bushes growing here and there; it was accompanied by three or four others of the same species" and evidently not breeding (Journ. Bomb. Nat. Hist. Soc. vol. xxviii, p. 151, 1921).

The only nest taken of this subspecies was obtained by Whitehead in the Khagan Valley, and of this he notes:—"Nest just like that of an English Blackbird but big and roughly made, placed on a ledge of rock on a hill-side at an elevation of some 12,000 feet or more" (C. H. T. W.'s notebook).

In the Journ. Bomb. Nat. Hist. Soc. (vol. xxiii, p. 107, 1914) Whitehead remarks that this Thrush "differs from *O. mollissima*, which is a forest bird, in inhabiting bare rocky slopes above tree limits between 12,500 and 14,500 feet and in nesting in clefts in cliffs. One brood, just flown, I found on the 12th July on a snow-slope, the parents busily feeding them. Another on the 14th, not yet flown, in a cliff." The one egg in the nest found by Whitehead is exactly like those taken by Osmaston of the typical form. The markings might almost be called chestnut. In shape it is a long pointed oval and measures 32.4×21.5 mm.

(601) *Oreocincla mollissima simlaensis* Stuart Baker.

THE SIMLA PLAIN-BACKED MOUNTAIN-THRUSH.

Oreocincla mollissima simlaensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 164.

This Thrush is found from Chamba to the Simla States and Garhwal Hills, breeding from 9,000 to 14,000 feet. Its favourite breeding haunts in the Garhwal Hills, where nests were taken by Whympers, R. E. Skinner and Osmaston, seem to have been on the meeting-line of the tree-forest with the open country. The two first-named collectors obtained all their nests at or above 13,000 feet in the Nila and Dundar Valleys but Osmaston took his a good deal lower down, between 9,000 and 10,500 feet, in mixed forest of Oak and Fir etc. Nine out of ten nests are placed in trees or bushes of some kind but, occasionally, they are built on a rock, in a cleft or on a ledge, or on some projection on the face of a boulder.

Whympers, writing to me about this bird under the name of *dixonii*, remarks :—"I took the nest of this bird in the Dundar Nulla in Garhwal on June the 22nd, 1906, at 13,000 feet. The late P. W. Mackinnon had told me to look out for this Thrush, as Hume had founded his species on birds (or a bird) from these parts, and it was rather a doubtful species. I afterwards found the bird nesting in the Nila Valley, Garhwal, but it is not a common bird in these parts. All the nests (4) were placed in willows broken down by the snow and were ordinary Blackbird-like nests, though I did not see any mud in them. The eggs were always three in number, of the *Merula* type, not in the least like the eggs of *dauma*."

Osmaston's nests, with the exception of one built on a boulder, were all placed in trees, either Fir, Silver Fir or Karshu Oaks, the latter being the favourite, at heights between 6 and 12 feet from the ground.

The outer part of the nest seems nearly always to consist principally of green moss, but this may be mixed to some extent with weed-stems, small twigs and bits of sticks; sometimes a few of all, sometimes only one or two, of these materials. The lining is always of dried grass, which Osmaston says is sometimes rather striking from its pale yellow colour.

At the lower levels it breeds from the last week in April to the end of May or early June but, above 10,000 feet, no eggs have been taken before the 28th May, and most are laid in the middle and end of June.

The full clutch of eggs seems to be invariably three and, as Whympers notes, they are Meruline in appearance and not like those of *Oreocincla dauma*. Typically they are very like large, handsomely marked eggs of the common Blackbird, though they have a character of their own, hard to describe, yet enough to distinguish them, beyond their bolder marking. The ground-colour is, a darker, duller greenish, as a rule, than it is in a Blackbird's egg and, *inter se*, the markings differ considerably. On the whole they are more brown,

less reddish than they are in a Blackbird's egg. In a few the markings consist of the finest stippling, in others of small, rather longitudinal blotching, and in others of quite bold blotching. In all three types they are numerous everywhere, but the bolder blotches are often more numerous at the larger end, where they may form caps or zones. I have one clutch of the erythristic type laid by the two preceding races and I have one large single egg which really might be taken for that of *Oreocincla dauma*, but it is marked at the larger end with a cap of rich brown with a very few spots close to the cap.

In shape the eggs are long, pointed ovals, the texture fine and close but the surface glossless or nearly so.

Twenty-two eggs average 30.5×21.6 mm.: maxima 34.4×24.3 mm.; minima 28.1×21.3 and 30.1×20.8 mm.

The birds are shy and wild at all times and difficult to approach but, when breeding, are extra cautious. It is only when they have young that they become bolder and allow of closer observation. As soon as the young can look after themselves the parents become as wild as ever.

(602) *Oreocincla spiloptera* Blyth.

THE SPOTTED-WING THRUSH.

Oreocincla spiloptera, Fauna B. I., Birds, 2nd ed. vol. ii, p. 165.

This is one of the birds peculiar to Ceylon and is confined to that island, where it is found from the foot-hills up to the highest peaks, breeding both in forest, in more open but well-wooded ravines etc. and often in Tea which has been left to grow for seed.

Legge first found its nest and writes:—"In January 1873 I discovered the Spotted-wing Thrush in the low country of the Trincomalee District at an elevation of not more than 300 feet above the sea-level. At the same time I found its nest in the fork of a straight sapling about 4 feet from the ground. The structure was similar to that of the European Blackbird, but not so massive; it was composed of small twigs and lined with grass, and was a deep cup in shape. It contained two eggs."

Subsequently he added the following notes:—"The breeding season extends over the first half of the year. The nest is placed in the fork of a sapling a few feet from the ground, or among the roots of a tree on a bank or little eminence, and is a loose-looking, though compactly put together structure of small twigs, moss-roots, and grass, lined with finer materials of the same, the egg-cavity being a neat cup, tolerably neatly finished off."

A beautiful series of nine or ten nests has, since Legge's time, been taken by Phillips and another by Tunnard.

As regards its haunts, Phillips writes, *in epistola*:—"The Spotted-winged Thrush is a common resident throughout the district above 2,500 feet. It is often found in the same jungles as the Ceylon Thrush but it is also often seen in suitable cover near habitations.

A very favourite haunt, in which it often nests, is a plantation of large full-grown Tea-bushes, not far from the forest, which are being cultivated for their seed. I have examined many nests, taken during every month of the year except December, January, February and June. The most popular breeding season, however, is from March to May and then again in September. The great majority of the nests have been in low forks of bushes and saplings in the jungle and Tea-bushes in plantations, but one or two have been on ledges of moss-covered rocks in or near ravines. They are untidy nests but neatly finished off inside."

Phillips's nests agree well with the description given by Legge except that in every instance green moss forms the major part of the material used, whilst leaves also are frequently incorporated in the body of the nest. They were taken near Gammadawa, often in rather exposed situations, at elevations between 3,000 and 3,500 feet, whilst another nest sent me was taken at 4,500 feet, and I have had none recorded below 3,000, so that Legge's at 300 feet must have been unusual.

March and April appear to be the two months in which most eggs are laid, but I have eggs taken in July and August and Wait says that the breeding season is from January to May. The usual clutch is two only but Phillips found one of three while, occasionally, a single egg is incubated.

The eggs are very like small eggs of the Blackbird, though a series shows far more of the red type than of the green. In the former the ground is a pale cream or pale buff, occasionally fairly warm, the whole surface being thickly covered with small, rather long blotches, freckles and specks of light reddish-brown but in no eggs dense enough to give a unicoloured impression. The secondary marks are of lavender-pink and very pale reddish but are not observable except with a magnifying glass. In the green type the ground is a pale grey-green similarly marked with reddish-brown. In two clutches taken by Phillips one egg is of one type, one of the other.

Twenty eggs average 26.8×19.7 mm. : maxima 29.3×19.9 and 27.5×20.8 mm. ; minima 24.5×19.1 and 28.5×18.2 mm.

(603) *Zoothera monticola* Vigors.

THE LARGE BROWN THRUSH.

Zoothera monticola, Fauna B. I., Birds, 2nd ed. vol. ii, p. 166.

This fine Thrush is found in the Himalayas from the Sútlej Valley to Assam, both North and South of the Brahmapootra, Manipur and Chin Hills.

I found this bird breeding, though very rarely, in the North Cachar Hills between 3,000 and 6,000 feet. In the Khasia Hills it bred between 4,000 and 6,200 feet, some years being very rare,

at others almost common in exactly the same forests. On the 30th May, 1908, Whympers took its nest in Kuman at about 7,000 feet; on the 15th May, 1910, Venning obtained it breeding at Haka, about 6,000 feet; A. E. Osmaston got a nest at 8,000 feet in Garhwal and it breeds also in the Simla Hills at about 7,000 feet.

The Large Brown Thrush is a very shy, skulking bird with a beautiful mellow whistle which is much more often heard than the bird is seen. It keeps almost entirely to the deepest and most humid forest and, preferentially, to broken ground running up from streams or to ravines through which water runs more or less constantly. All the nests taken by myself have been close to running water of some kind, though never streams or other water sufficiently big to make a gap in the darkness of the forest. With one exception the nests I have seen *in situ*, or which have been recorded by other observers, have been on small trees or high boulders between 5 and 25 feet from the ground, very seldom over 15 feet. As a rule it is placed in a fork or on two or more interlacing horizontal boughs but, occasionally, on creepers or on some projecting mass of orchids or ferns on the trunk of a tree. The tree selected is nearly always one more or less covered with moss, which makes the large moss-covered nest look less conspicuous than would otherwise be the case. The one exception referred to was a nest placed against the face of a huge boulder, cuddled in among great wreaths of flowing moss and clumps of fern, much like our English Hart's-tongue fern, completely screening it from view.

The nest itself is very big and often very shapeless, whilst at other times it is quite a well-shaped cup. The first nest I ever took was a mass of wet moss, much mixed with earth and leaves and with an inner cup of coarse roots, soft twigs and bits of stick and then the true lining of finer roots and fern-rachides. The base of this nest filled in the fork of two big boughs of a small tree and was nearly a foot across but the cup was only about 4 by 2 inches deep. Another nest was made of exactly the same materials but was a fairly neat cup outwardly 6 inches in diameter by $3\frac{1}{2}$ deep, with a well-finished cup about 4 inches across by $2\frac{3}{4}$ in depth.

Other nests were intermediate in shape but the materials hardly ever varied, though I have seen bracken, fern-fronds, a few broad grass-blades, weed-stems and creepers used in small quantities in addition to the materials enumerated. In all my self-taken nests moss has been the main material used but Venning describes one nest in which there was very little:—"It consisted of a large lump of earth for a basis, intermingled with sticks and fibres and with a little moss worked into the outside, the whole being scantily lined with whitish roots or fibres. It was 4 inches across the interior and $1\frac{1}{2}$ inches deep, but the whole nest was about one foot in diameter."

The breeding season is May and June and I have taken eggs from the 3rd May to the 7th July.

The usual full clutch of eggs is three, though four is not very uncommon and sometimes two only are incubated. The eggs are quite typical Thrushes' and could all be matched with eggs of the Grey-headed Thrush, though as a series they are more richly and handsomely coloured. The ground ranges from pale grey-green or sea-green to dull pale olive-green and from pale cream or buff to warm buff. The markings in some eggs are pale indefinite specks and freckles of reddish; in others they are comparatively bold, though small, blotches of rather reddish- or purplish-brown; others are intermediate between these two extremes. In all eggs the markings are numerous over the whole surface and little more so at the larger than the smaller end; in some much of the ground is visible and in hardly any are the marks sufficiently dense to completely obscure it. Very rarely the blotches form rings or caps at the bigger end.

In shape the eggs are rather long ovals, seldom at all pointed at the smaller end. The texture is similar to that of the eggs of the true Thrushes and the surface has no gloss.

Fifty eggs average 30.0×21.3 mm.: maxima 33.0×21.2 and 31.7×23.3 mm.: minima 26.5×20.2 and 30.0×19.2 mm.

(604) *Zoothera marginata* Blyth.

THE LESSER BROWN THRUSH.

Zoothera marginata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 168.

The Lesser Brown Thrush has a breeding habitat extending from Sikkim to Eastern Assam, both North and South, the Chin, Kachin and Bhamo Hills, Yunnan, Siam and the whole of the hill-country of Burma South to Tenasserim.

It is found everywhere at lower elevations than the preceding bird and breeds freely at 3,000 feet in the Assam Hills. It haunts the same kind of forest as its larger cousin and, like that bird, is a most persistent frequenter of deep forest adjacent to small water-courses, whether these be at 2,500 or 7,000 feet, which elevations roughly, limit its breeding area. The sites selected for the nest are thick bushes, small trees or tangles of cane-brake, brambles etc., but one nest was obtained from thick bracken and fern resting on some fallen branches about 3 feet from the ground. Another unusual place in which we found a nest was in an Azalea-bush in very thick cover of Azaleas and Rhododendrons growing on boulder-land on the banks of the Umiam stream.

The nest is exactly like that of the Large Brown Thrush except that, so far as I have seen, it is never of the shapeless character sometimes adopted by that bird. The materials also are the same, though I took one queer nest in North Cachar which was "a rather massive, shallow cup, about 4 inches in internal diameter by rather more than one inch in depth; the exterior materials were coarse-

fern-roots, grass, twigs and dried stems of plants, all intertwined with one another and with here and there a dead leaf fastened in. The lining was of grass and fine fibres and was fairly thick."

The fairly neat moss-made, cup-shaped nests averaged about $5\frac{3}{4} \times 2\frac{1}{4}$ inches deep externally and $3\frac{1}{2}$ inches wide by $1\frac{1}{2}$ inch deep internally.

The breeding season is principally June and July but I have taken fresh eggs from the 21st May to the 3rd August. In Sikkim Gammie took a nest with three partially incubated eggs on the 31st May, and Mandelli another on the 29th July. The nests were taken at about 5,000 feet and are described as very much the same as those taken by myself.

Three or four eggs are laid which are like those of the preceding bird but more handsome and much more varied. Many eggs, most in fact, are like the two types and their intermediates already described, but others are different to any of these. Some of them are of the Missel-Thrush type, pale livid pinkish with sparse but bold blotching of red; another clutch has three eggs with a bright green ground boldly speckled and blotched with dark red-brown, whilst the fourth has a pale cream ground freckled all over with light red; another clutch has two eggs a warm buff densely blotched with deep red-brown, forming caps at the larger end, the third egg being bright green with very dark red-brown spots. Another very handsome type has a rich cream ground handsomely blotched with chestnut-red. Many clutches have one egg quite different in coloration to the others, a character not unusual in Thrushes' eggs, but I know of no other group in which the eggs of the same clutch contrast so startlingly with one another.

In shape the eggs range from ordinary ovals to rather long ones and the texture is typical of the genus *Turdus*. The eggs can always be separated from those of *Geokichla citrina* by the surface having little or no gloss.

Fifty eggs average 27.0×20.0 mm. : maxima 31.0×21.4 mm. ; minima 24.8×19.0 mm.

This bird is just as shy as the Large Brown Thrush and just as hard to get a sight of on the nest, but it returns quickly and is easy to snare. Both birds share in incubation and the Nagas caught both sexes on the nest. •

(605) *Monticola rufiventris* Jard. & Selby.

THE CHESTNUT-BELLIED ROCK-THRUSH.

Monticola erythrogastra, Fauna B. I., Birds, 2nd ed. vol. ii, p. 170.
Monticola rufiventris, ibid. vol. viii, p. 625.

This Rock-Thrush is found throughout the Himalayas from Murree (Whistler) to Setchuan. It also occurs in the mountains of Yunnan and Burma but may not breed in the latter. The Chinese

birds, which extend East to Fokhien, should probably be separated under another name.

They breed at all heights between 4,000 and 8,000 feet. In the Khasia Hills we found them common between 4,000 and 6,000 feet and in the Naga Hills they breed at least as high as 8,000 feet; Thompson found them breeding in Kuman at about 6,000; Rattray found nests near Murree between 5,000 and 7,000, and at Mussoorie, where Mackinnon also obtained nests, between 4,000 and 6,000 feet; Cock took a nest at Dharamsala at about 4,000 feet, whilst Hodgson seems to have got them at about the same elevation in Nepal.

I have seen many nests of this Thrush and the very great majority of these have been built in crevices or holes in rocks in the faces of cliffs or on ledges and projections forming part of the rock-face itself. Sometimes the rocks may have been huge boulders beside a path but, more often, they formed part of the precipitous cliffs abounding on the borders of the Khasia Hills district in Assam. In these the birds nearly always selected holes in which they could place their nests so as to be invisible both from below and from above, and most were detected by seeing the birds go in or out. Often, also, the sides of the cliff on the less vertical portions are well wooded and, even on the steepest parts, there is almost invariably a lot of vegetation growing in the broken places where earth has lodged. This, of course, makes the nest still harder to locate, even after one has noticed the parent birds.

Sometimes the nest is placed on banks, in hollows or among the roots of some tree, or on a ledge under the crest of the bank. In such cases a well-sheltered place in forest is usually selected and the nest is more or less concealed by the surrounding herbage.

The nest itself varies very much in construction, materials and size. Those built in crevices in rocks are, more often than not, very untidy, shallow cups or pads made of moss, roots, grass, straw, leaves and other vegetable oddments. Moss generally forms a considerable proportion of the nest but the birds seem to be satisfied with almost any material soft enough for the purpose and handy for their work. I have seen nests made entirely of grass and roots, one made entirely of very coarse grass, the ends of which stuck out many inches from the crevice and so betrayed the presence of the nest. Others are made partially of fern-fronds, bracken and lichen. When, however, the birds place their nest in a hole in a bush they make quite a neat compact cup-nest of green moss with a few dead leaves, roots or a little grass added, well lined with roots, fibre or grass and, very occasionally, with hair or wool. These latter nests average somewhere about $5\frac{1}{2}$ to 6 inches across by about 3 to 4 inches deep externally, and have small, compact egg-cavities of about $3\frac{1}{2}$ inches in diameter and a full 2 inches deep. The nests in crevices average much more across and run up to

8 inches, whilst in depth they are very seldom more than 2 inches, generally with very shallow receptacles for the eggs. A nest found by Hume, "placed at the root of a tree in forest, was composed almost entirely of moss." In Kuman Thompson describes some taken by him as made "of mosses, twigs and small roots, some six inches in diameter, on the ground under a rock or stump, or in a hole." Marshall, who found them breeding in clefts in banks round about Naini Tal, says that they were "neatly made of moss and lined with a little grass and a few roots."

I think they often have two broods. In Assam nearly all my eggs were taken in May and June, but I also found young out of their nests by the first week in the former month. So, too, Thompson obtained eggs in Kuman in June and July, whilst Marshall found "half-fledged young" and "just fledged young" between the 29th April and the 7th May. My earliest record for eggs is the 5th April (Kuman) and the latest 23rd July (Khasia Hills).

They lay four to six eggs, generally five or six, which are more like large eggs of *Muscisylvia* or of the genus *Niltava* than those of other Thrushes. The ground-colour varies from a pale yellowish cream, almost white, to a fairly deep buff, the whole surface densely covered with tiny freckles of reddish. As examples of the two extremes of coloration I have two clutches, one of which appears to be creamy white, just showing a faint cloud of freckles at the larger end, whilst the other appears to be a deep reddish-buff, uncoloured in two eggs but definitely freckled with dark reddish in the others. In between these two there is every shade of colour but, in nearly all, the freckles are obvious.

In shape they vary from short, broad ovals to rather long ovals, but in all they are blunt at the smaller end. The texture is fine, close and hard, the surface slightly to decidedly glossy.

Seventy-five eggs average 26.8×19.9 mm. : maxima 29.5×20.0 and 27.4×21.1 mm. ; minima 24.3×19.6 and 26.0×19.0 mm.

Both sexes take part in incubation but, apparently, the hen does more than the cock, as we seldom succeeded in snaring the latter on the nest. Both birds take an equal part in building the nest.

(606) *Monticola cinclorhyncha* (Vigors).

THE BLUE-HEADED ROCK-THRUSH.

Monticola cinclorhyncha, Fauna B. I., Birds, 2nd ed. vol. ii, p. 171.

The Blue-headed Rock-Thrush breeds throughout the whole length of the Himalayas from Afghanistan and Baluchistan to the Chin and Kachin Hills between 4,000 and 9,000 feet, whilst Davidson obtained it at 10,000 feet at Gund and Sonamurg, where it was breeding in some numbers. Whitehead says that "a few nest in

the Safed Koh," but does not give the elevation. In Assam, South of the Brahmapootra, it is very common in the Khasia Hills between 4,000 and 6,000 feet, a very rare breeder only in the Cachar Hills at 6,000 feet, and commoner again in the Naga ranges up to 9,000 feet. The breeding habits of this Thrush are very similar to those of its larger cousin, the preceding bird, although, as it is a much more common bird, they are far better known. The principal difference between the two is that, while the Chestnut-bellied Thrush prefers cliff-faces to banks in forest for nesting-sites, the Blue-headed Thrush decidedly prefers banks.

Marshall (C. H. T.) and Rattray in and around Murree found all their nests hidden in banks, tucked away in natural hollows, among the roots of trees, or just concealed by overhanging grass and weeds. At Naini Tal it also breeds in similar places but Whymper, who took several nests round about that town, found most of his on ledges of rock in forest. Thompson, writing also of Naini Tal, says that he found most of his nests between 3,000 and 6,000 feet, but all Whymper's were taken between 6,000 and 7,000 feet.

At Almorah Brooks found a nest built in a hole in an old retaining wall, overgrown with grass, while my collectors have twice taken eggs from nests built in similar positions in Shillong.

I took many nests in the Khasia Hills and, of these, about one in every four was built in cliff-faces, in a hole or fissure in a rock, or in among the roots of a tree clinging to the cliff-side.

The nests only differ from those of the preceding bird in being smaller and neater. In diameter they vary between four and five inches and in depth between two and three.

All the nests I have seen have been lined with fine roots, sometimes mixed with grass-stems, but both Hume and Thompson speak of hair also being used for the purpose (Hume's 'Nests and Eggs,' 2nd ed. vol. ii, pp. 103-4). Hume also notes that they sometimes incorporate pine-needles in their nests but, though all my nests have been taken in Pine-wood country, I have seen no pine-needles used, nor have I ever seen the birds breeding inside these woods, although they may be all round them.

The breeding season lasts from April to June and some birds undoubtedly have two broods. In Kashmir Ward has taken eggs as early as the 13th April and as late as the 5th August, and in Naini Tal Whymper took them from the 20th April to the 26th June. In the Khasia Hills I have seen young birds commonly in early May which had left their nests and, on the other hand, fresh eggs as late as the end of July.

The eggs are small replicas of those of the Chestnut-bellied Thrush but, as a whole, are more distinctly freckled, whilst in shape they are more consistently a short, broad oval. Unusually coloured eggs are very rare but I have one beautiful clutch which has an almost pure white ground freckled with reddish at the larger end,

forming a cap in three eggs and a broad zone in the fourth. The freckles are sparse elsewhere and completely absent on the smaller half.

The clutches are smaller than those of the preceding bird, numbering three to five eggs, the latter exceptional, the former not rare.

Both sexes incubate and both assist in the building of the nest and looking after the young when hatched.

Personally I have always found both male and female shy during the breeding season, very loth to visit the nest when watched, and leaving it before an intruder approaches the nest very close. This, however, does not seem to be always the case, for Marshall (G. F. L.) records: "The male was sitting as if allowing itself to be watched on the nest"; while Cock goes still further, and says: "Parent bird fearless, sometimes choosing a much-frequented road. The parent bird may be caught by hand when on the eggs."

Monticola solitaria.

THE BLUE ROCK-THRUSH.

(607) *Monticola solitaria longirostris* Blyth.

THE TRANSCASPIAN, OR HARTERT'S, BLUE ROCK-THRUSH.

Monticola solitaria transcaspica, Fauna B. I., Birds, 2nd ed. vol. ii, p. 173.
Monticola solitaria longirostris, *ibid.* vol. viii, p. 625.

This Blue Rock-Thrush only breeds within our limits in the Indo-Afghan and Baluchistan frontiers and, possibly, Gilgit. Outside our area it breeds North through Persia to Transcaspia. Whitehead says that it "breeds in the Samana and in the Kurram Valley above 5,000 feet," and Harington took a nest, containing three pigmy eggs, on the 10th June, at about 8,000 feet, on the Khagan ridge. In his own notes the nest is described as a moss and grass cup, lined with roots and built under an overhanging bank on a rocky hill-side.

The only other nest known to have been taken within Indian limits was found by Meinertzhagen at Quetta on the 14th May, 1914, and contained four eggs. These eggs are the usual pale blue of the Blue Rock-Thrushes, quite unspotted and, in shape, long, rather narrow ovals. The texture is very fine and close, the surface having a decided gloss. They measure 28.7×19.0 , 28.0×19.1 , 28.2×18.9 and 28.1×19.0 mm.

Wardlaw-Ramsay found that in Afghanistan "a few pairs remained throughout the summer and doubtless were breeding; but I did not find the nest."

(608) *Monticola solitaria pandoo* (Sykes).

THE INDIAN BLUE ROCK-THRUSH.

Monticola solitaria pandoo, Fauna B. I., Birds, 2nd ed. vol. ii, p. 174.

The Indian Blue Rock-Thrush has a very wide range, breeding over the whole of Kashmir, East to Tibet, Sikkim and the hills North of Assam. Mr. Cotton took its nest in Murree at about 7,000 feet, Dodsworth took many in the Simla States between 6,000 and 7,200 feet, and in Kashmir Buchanan took many, and other collectors some, between 5,000 and 8,000 feet. Few nests were taken below 6,000 feet and, possibly, it breeds at considerably higher elevations than 8,000 feet.

It is a bird of the open, rocky hill-sides and never of the forests beloved by the Blue-headed Rock-Thrush. Dodsworth (Journ. Bomb. Nat. Hist. Soc. vol. xxi, p. 1328, 1912) gives a full and interesting account of this bird's breeding and habits:—"This species is a tolerably common visitor to these hills [Simla States] arriving in April and leaving in September.

"In the neighbourhood of Simla it breeds at elevations of 6,000-7,200 feet, on bare rocky hills, during May and June. The nests are shallow saucers, in some cases mere pads, adapted to the shape of the cavities in which they are placed, and are composed externally of dry grass, lined with rootlets. The diameter of the egg-cavity does not exceed 4" and its depth is about 1½". The external diameter varies from 5" to 6" and the height is about 2½" or 3". The nests are placed sometimes in low stone walls, occasionally under boulders, but more frequently in fissures or crevices of large rocks.

"Between the dates 18th May and 20th June I found no less than eight nests containing young ones. Five of these nests had three young ones each and two four young each; the exact number of young in the eighth nest could not be satisfactorily ascertained as the latter was placed very far back in the fissure of a large rock.

"The nests of this Thrush, especially when they contain eggs, are most difficult to find, as the old birds are very wary and cautious in their movements, and it is only by patient and laborious watching that one can hope to be successful with them. The cock bird, though he helps in feeding the young, and is always much in evidence when the eggs are hatched, keeps far away from the scene when building operations are in progress. The hen bird alone carries the materials, and if she catches sight of one, or suspects that she is being observed, will sit on a rock, with the grass in her mouth, for whole hours at a time rather than give away the show.

"When there are eggs in the nest the hen bird sits very close, and on two occasions I have caught her on the nest. So far as my

experience goes, I do not think the cock bird takes any part in the hatching of the eggs."

There is little to add to the above. The breeding season seems to be chiefly in May and June but Buchanan took one nest near Srinagar on the 27th April which contained four eggs, and some of the nests found by Dodsworth with young must have had eggs in that month.

The eggs number three or four. In colour they are the usual pale blue, a little darker in colour than Starlings' eggs. Some eggs, perhaps one in four, have a few faint freckles of light reddish at the larger end, never conspicuous and often hardly visible. The only variation I have ever seen is an abnormal clutch with one normal blue egg and three a pale yellowish-green, covered with a white powder which does not seem to be fungoid but a calcium deposit over the pigment.

Thirty-two eggs average 26.0×19.1 mm. : maxima 29.0×20.0 and 27.7×20.1 mm. ; minima 23.3×18.0 and 24.3×17.7 mm.

(613) *Myophonus horsfieldii* Vigors.

THE MALABAR WHISTLING-THRUSH.

Myiophoneus horsfieldii, Fauna B. I., Birds, 2nd ed. vol. ii, p. 178.
Myophonus horsfieldii, ibid. vol. viii, p. 625.

This fine Thrush, often known as the Whistling Schoolboy, is resident in Western India, South of Bombay City to Travancore. The only other place in which it has occurred is in the Jetinga Valley, Cachar. These latter birds were the descendants of some tame birds liberated by a Tea-planter from the Nilgiris, and were much in evidence in 1886 but, fifteen years later, had all died out or become merged in the Northern Indian form.

According to Bourdillon and Ferguson, this Thrush breeds at all elevations from the foot-hills up to 6,000 feet in Travancore, while in the Nilgiris and the Wynaad they apparently breed still higher, wherever there are running streams and suitable building-sites. The variation in these sites is, however, extreme. Perhaps the favourite position is a ledge or crevice in a rock on or near the bank of some small stream in forest, open or dense, or tucked away in the bank of the stream itself.

Sometimes it makes its nest in a hole in a tree at great heights from the ground. Darling took one from a stump 11 feet from the ground in the Wynaad, whilst Miss Cockburn took two nests in the Nilgiris from holes in trees, one no less than 40 feet up and the other 30 feet from the ground. At other times it will build the nest on boulders in streams or on logs and tree-trunks which have fallen into them. Davidson and Wenden took two nests in the

Deccan, one from a ledge of rock 15 feet *inside* a railway tunnel and the second from a cutting just *outside* the tunnel. In both cases numerous trains passed daily within a few feet of the nests, the dust and the smoke from them settling on both nests and eggs. A more curious site than any of these is one described by Betham. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xiv, p. 815, 1903):— "I happened to sit down on the path just above the Roman Catholic Church at Khandalla on the 16th August when two 'Whistling Schoolboys' flew into a tree hard by; from there they went on and disappeared under the roof of the church. On going down, one of my men pushed his head through a broken pane and said he could see the bird on the nest. I followed his lead and was surprised to find the nest on the window-sill, with madam at home. I got hold of the keys and a long ladder to investigate. On going up I found three eggs. The female sat very tight and only left by compulsion. The men told me the birds built there regularly every year. This certainly seemed to be the case, as the nest was about a foot high, if not more, and one could easily see the remains of the old nests, which had been used as a foundation year by year."

The nest of this Thrush seems to be nearly always made of roots, generally taken from very muddy places, so that the nest is a very heavy affair. Davison says that it is "a very large structure. Exteriorly it is composed of roots, dead leaves and decaying vegetation of all kinds; the egg-cavity, which is saucer-shaped and comparatively shallow, is coarsely lined with roots." Darling describes the nest as "built entirely of roots. The foundation was of roots from some swampy ground and had a good deal of mud about it."

Both Frank and T. F. Bourdillon again describe it as made almost entirely of roots and fibre, though the former says that a little moss, and the latter a little grass, is also used. Aitken, Butler and others also state that muddy roots form the only material used but Betham and Stewart, who took many nests in Travancore, say that generally the outsides of the nests they saw were more wet green moss than anything else. Stewart found most nests built on ledges of rocks near streams and torrents in dense, damp forest and in each case these had been made of the moss growing on the rocks on which they were placed.

The nest seems invariably to be bulky as well as heavy, the materials, whether moss or roots, being compacted together, especially at the base, with wet mud. The measurements externally may be anything from 8 inches to a foot across and from 4 to 8 inches deep, the egg-cavity measuring about $4 \times 2\frac{1}{2}$ inches.

In the Nilgiris there would appear to be two breeding seasons, first in March and April and again in June, July and August. In Travancore and Bombay the three latter months seem to be the usual season, as it is also in the Deccan but, in the two former

provinces, there may be two breeding periods, as I have eggs taken by the Bourdillons in April and May, whilst Stewart took one nest as early as the 13th February. Probably throughout their range most birds breed twice.

The eggs number two to four, three being most often laid. In general appearance they are nearest to the eggs of *Oreocincla dauma*. The ground-colour is generally a pale clay, sometimes tinged with pink or buff. The whole egg is sparsely covered with specks, spots and small blotches of pale reddish, nearly always more numerous at the larger end, where they may rarely form small caps. In some eggs the markings are so small as to appear mere freckling, in others they are rather larger and become well-defined blotches. Most eggs have a few secondary markings of very pale lavender or neutral tint, but these are invariably small and inconspicuous. In many clutches one egg is strikingly different to the others, either more heavily blotched or more free from markings and, less often, with a different ground-tint. Pale green eggs are rare but I have one beautiful clutch of this colour taken by Osmaston at Paclmarhi.

In shape they are normally long ovals, often decidedly compressed and pointed at the smaller end. The texture is rather coarse, though the surface is smooth, and there is sometimes a slight gloss.

Forty-six eggs average 33.1×23.9 mm. : maxima 36.3×24.1 and 33.2×25.3 mm. ; minima 30.3×23.4 and 34.0×23.2 mm.

Myophonus cœruleus.

THE CHINESE WHISTLING-THRUSH.

(614) **Myophonus cœruleus temminckii** Vigors.

THE HIMALAYAN WHISTLING-THRUSH.

Myiophoneus temminckii temminckii, Fauna B. I., Birds, 2nd ed. vol. ii, p. 180.

Myophonus cœruleus temminckii, *ibid.* vol. viii, p. 625.

This Whistling-Thrush breeds from the North-East Frontier throughout the Himalayas to the extreme East and South of Assam, the Eastern Bengal hill-tracts, Chin Hills, Arrakan Hills and the western Kachin Hills. Between the Irrawaddy and the Chindwin the birds are intermediate between the Himalayan and Burmese races, some individuals approaching the one, some the other.

This Thrush breeds from the foot-hills commonly up to some 6,000 feet throughout its range. Above this height it is less common, though still breeding freely up to 8,000 feet and even 10,000 in Kashmir and 12,000 in Tibet. Although I have taken or seen *in situ* an

enormous number of this bird's nests, I do not think I can improve on Hume's description of its nesting-sites. He writes ('Nests and Eggs,' 2nd ed. vol. i, p. 120):—"The nest is almost invariably placed in the closest proximity to some mountain-stream, on the rocks and boulders of which the male so loves to warble; sometimes on a mossy bank; sometimes in some rocky crevice hidden amongst drooping maidenhair; sometimes on some stream-encircled slab, exposed to view from all sides, and not unfrequently curtained in by the babbling waters of some little waterfall, behind which it has been constructed. The nest is always admirably adapted to surrounding conditions. Safety is always sought, either in inaccessibility or concealment. Built on a rock in the midst of a roaring torrent, not the smallest attempt at concealment is made; the nest lies open to the gaze of every living thing, and the materials are not even so chosen as to harmonize with the colour of the site. But if an easily accessible sloping mossy bank, ever bejewelled with the spray of some little cascade, be the spot selected, the nest is so worked into and coated with moss as to be absolutely invisible if looked at from below, and the place is usually so chosen that it cannot well be looked at, at all closely, from above."

Among the various sites chosen, in addition to those mentioned by Hume, are hollows among roots of trees on banks of streams; occasionally a hole low down in a large dead stump; ledges on steep banks or rocks overlooking water and, often, in among the débris collected in the branches of a tree fallen into the water. A very exceptional site was one noted by Rattray, which was a hole about 10 feet up in a tree in forest, nearly half a mile from any stream or water. This was near Mussoorie. A very favourite situation is actually under a waterfall, even when this necessitates the parent birds dashing through the water to visit the nest. Sometimes it may be under a mere trickle of water finding its way along some forest ravine, but I once saw a nest under the Elephant Falls in Shillong over which a roaring mass of water some thirty feet wide fell continuously, though leaving gaps at the side through which the birds could enter. Damp and wet seem to be no deterrent, and many nests—I think I could say most that I have seen—have been built in places where they were more or less soaked with spray all the time. Apparently in the Western Himalayas the birds sometimes breed on streams where they run through more or less open spaces but, in Assam, they kept closely to deep forest and to the smaller streams not more than a hundred feet or so across. The only exception to this was on the Umiam stream in the Khasia Hills, where I have seen several nests in the banks where the stream ran through the golf-links and race-course. In these cases the nests were *always* most beautifully hidden.

All the nests I have seen in Assam were of the same construction and agree well with those taken by Unwin, Jardon, Thompson

and Hutton in the North-West and Kashmir. In shape they are very massive cups, though when placed in holes and crevices they may conform, so far as is needed, to the situation in which they are built. When on ledges of rocks or banks they are generally truly cup-shaped, measuring externally anything between 8 and 10 inches across by 4 to 6 or even 8 inches deep, whilst the internal cup would average about $4\frac{1}{2}$ inches in diameter by 3 inches or even more in depth. The great depth may in some cases protect the eggs from too great a soaking by the spray and even slightly shelter the sitting bird. The material used is, without exception, wet green moss, with or without the muddy roots attached, to form the whole of the outer part of the walls; moss on the outside, the roots pointing to and worked into the inner part. The lining is of fern-, moss- or other roots or, very rarely, fine grass or fibre. The nests are very compact, very strongly put together and very heavy, weighing three or four pounds. Odd scraps of grass, a few dead leaves, or a casual small twig may be mixed with the moss and moss-roots but these are, I think, picked up more by accident than design, and I have never seen a nest made of roots and twigs without moss such as the Southern bird so often makes.

The breeding season over the whole of its area is very long, from late April to August, and, undoubtedly, many birds have two broods in the year. Occasionally they may bring up two broods in the same nest but, as a rule, they make a new nest close by, and it is a common thing to find the nests within a few inches, or even on the top, of one another. They return to the same site for nesting purposes year after year and I have seen four nests within a few feet of one another on a long ledge of rock beside a waterfall.

A full clutch of eggs varies from three to five, though the latter is exceptional, especially in the North-West, where three seems more frequent than four. The eggs only differ from those of the preceding bird in being much less blotched. The very great majority of eggs look unicoloured unless carefully examined, when the faint red freckling may be seen. The ground varies from pale stone-green, pale olive-grey or pale creamy buff to warm buff. Of unusual eggs I have one clutch of three of which one egg is pale stone, spotted like a Rail's egg with dark red, the second is rather bright buff and appears unicoloured, whilst the third is deeper buff, quite handsomely blotched with reddish-brown. In shape and texture the eggs agree with those of the Southern Whistling-Thrush.

Two hundred eggs average 35.8×24.8 mm. : maxima 40.3×26.0 and 35.1×27.1 mm. ; minima 31.5×22.9 mm.

Both sexes incubate and I have seen both sexes bringing material to the nest and, I think, both took part in the actual building; unfortunately the nest was under a waterfall, and I could not see exactly what the birds were doing.

(615) *Myiophonus cœruleus eugenei* Hume.

THE BURMESE WHISTLING-THRUSH.

Myiophonus temminckii eugenei, Fauna B. I., Birds, 2nd ed. vol. ii, p. 181.
Myiophonus cœruleus eugenei, ibid. vol. viii, p. 626.

This, the least known of our Whistling-Thrushes, is found all over the Burmese Hills, East of the range of *temminckii*. It is common East of the Irrawaddy in the North and extends through the Shan States and Siam to Pegu and Tenasserim. On the East it occurs in Cochin China, and North is found in Yunnan, where it blends into the Chinese race, the true *cœruleus*.

Bingham, who was the first to take the nest of this bird, thus records his find:—"On the 16th April I was crossing the Mehkhanel stream, a feeder of the Mek-pa-lek, where it is a mere mountain torrent brawling over a bed of rocks strewed with great boulders. A small tree, drifted down by the last rains, had caught against two of these and, being jammed in by the force of the water, had half broken across and now formed a sort of temporary V-shaped dam, against which pieces of wood, bark, leaves and rubbish had collected, rising some six inches or so above the water, which found an exit below the broken tree. On this frail and tottering foundation was placed a round solid nest about 9 inches in diameter, made of green moss and lined with fine black roots and fibres, in which lay four fresh eggs. I hid myself behind a trunk of a tree on the bank and watched, gun in hand. In about twenty minutes a pair of *Myiophonus eugenei* came flitting up the stream and, alighting near the nest, sat for a time quietly. At last one hopped on the edge of the nest and, after a short inspection, sat down over the eggs with a low chuckle."

Nests collected for me by W. Partridge, jun., and sent me with birds and eggs, agreed well with Bingham's. One nest was built on a bank of a stream and two were placed in among masses of vines and creepers growing on trees which had fallen across the boulders in the stream. The nests were all massive cups of wet green moss, lined with fine moss-roots. They were all three taken in Tenasserim and contained three, three and four eggs respectively.

In this province they seem to breed from February to May, two of Partridge's nests having been taken on the 26th and 28th of February and the other on the 30th March. Possibly, however, like the other Whistling-Thrushes, they have two broods in the year, for Cook took four fresh eggs at Kalaw, Shan States, on the 23rd July.

The eggs are exactly like those of the Himalayan bird, but all I have seen, except the four taken by Cook, have been of the pale creamy or grey-green ground very feebly marked with pale reddish freckles. Of those taken by Cook, three are a deeper buff, more

strongly marked with reddish, whilst the fourth is like the normal type.

Twenty eggs average 36.7×25.4 mm.: maxima 40.3×26.0 and 35.1×27.1 mm.; minima 34.0×26.4 and 35.1×24.1 mm.

(616) *Arrenga blighi* Holdsworth.

THE CEYLON WHISTLING-THRUSH.

Arrenga blighi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 182.

This little Whistling-Thrush is confined to Ceylon, where it frequents streams in deep forest between elevations of about 3,000 feet and the highest peaks. In all its ways it seems to be very closely related to the Indian Whistling-Thrushes and its nidification is exactly the same.

The first collector to take its nest and eggs was W. Jenkins, in 1908 but, though he sent me a nest, with two sets of eggs taken from it, he failed to obtain the bird. Then in 1911 Aldworth took three nests and proved the authenticity of the eggs taken by Jenkins.

Aldworth writes of his nests and eggs:—"Each of these nests were in the rocky sides of mountain streams running down from the Horton Plains in very much the sort of site as that chosen by the Ring-Ouzel. The nests themselves very greatly resemble those of that bird in structure. Materials principally moss, lined with black roots resembling the stems of maidenhair ferns, only more pliable."

The nest taken by Jenkins was a deep, compact cup of bright green moss lined with fine black fern-roots, and measured about 8 inches across by fully 5 inches deep, whilst the cup for the eggs was just over $4 \times 3\frac{1}{4}$ inches. When wet and fresh it must have been very heavy. It was taken from a crevice in a rock overhanging a hill-torrent in dense forest below Nawara Eliya. On the 22nd April it contained two fresh eggs and on the 17th June, when again visited, had another single incubated egg.

Mr. T. E. Tunnard records the taking of yet another nest (Journ. Bomb. Nat. Hist. Soc. vol. xxviii, p. 1131, 1922):—"On March 30th of this year I found the nest of *Arrenga blighi* containing one egg on the point of hatching. I was climbing up a steep rocky ravine on the hunt for this particular nest when I saw one of the birds fly out from under a projecting ledge of rock. I could not reach the place from the same side, so had to cross a slippery face of rock and then recross again higher up stream in order to reach the spot whence I saw the bird fly out. There was the nest, about 9 ft. up, built on a fairly wide ledge under another projecting ledge and quite sheltered from rain or any drips from above. The nest was a large,

but neat and compact, structure composed entirely of moss and lined with fine fern-roots. Close to this nest, on other ledges of rock, I found three old nests of previous years in good preservation, owing to their being placed in sheltered spots, protected in each case from rain."

Mr. G. M. Henry gives a good description of this bird's habits ('Spolia Zeylonica,' vol. xiv, pt. 2, p. 343, 1928), and describes the sites of nests found in May in which the young were being fed by their parents. These sites were, like those already described, in ledges and holes in rock-faces over torrents, practically impossible of access and, according to Henry, it was difficult even for the parent birds to find their way in and out.

So far as is known at present Bligh's Whistling-Thrush breeds from the end of March to June.

The eggs, of which two or one only appear to be laid, are typical *Myophonus* eggs, differing only in being much smaller, whilst the variations cover the same types as those of that genus.

Ten eggs in my collection, including all those referred to above, average 30.8×21.8 mm. : maxima 34.3×20.3 and 31.2×22.3 mm. ; minima 29.0×21.3 and 34.2×20.3 mm.

(617) *Cochoa purpurea* Hodgs.

THE PURPLE THRUSH.

Cochoa purpurea, Fauna B. I., Birds, 2nd ed. vol. ii, p. 184.

The Purple Thrush breeds from Kuman in the Himalayas to Eastern Assam and thence practically throughout all the higher hill-ranges of Burma as far South as Tenasserim. It breeds above 3,500 feet, certainly up to 6,000, and probably up to 8,000 feet, haunting evergreen forests with lofty trees and heavy wet undergrowth. Occasionally in the Khasia Hills it breeds in the Pine forests but, like many other species which breed in these woods, keeps entirely to the ravines running through them in which other trees and some undergrowth also grow.

The first nest ever taken of this Thrush was by Mr. Horne in Kuman, though at the time some doubt was felt as to the identification. Brooks, who forwarded the nest and two eggs contained in it to Hume, thus describes Horne's note on the former:—"Nest very solid, of moss, built on a horizontal bough, 10 or 12 feet from the ground, in a small tree in a ravine near the top of Binsea. Interior nearly a true cup lined with white lichens, fine moss and principally black roots (very fine)."

I took several nests of this Thrush myself in the Khasia Hills and they agree fairly well with the above. The first nest I saw was built in a small tree growing in a deep and rocky ravine running

through Pine forest but densely covered on its banks with evergreen trees and undergrowth. The nest itself, which was on a branch about 8 feet from the ground, was very like that of *Zoothera* but much less compact and well put together and more shallow in proportion to its size. Outwardly it measured roughly about $6\frac{1}{2}$ inches in diameter by about $2\frac{1}{2}$ deep, with an egg-cavity about 4 by 2 inches or rather less. The ends of the materials of which it was composed stuck out untidily in all directions to a distance of some inches. Outwardly it appeared to be all green moss but, when pulled to pieces, a certain number of dead leaves, a few roots and scraps of fibre were exposed. The lining was entirely of fine black roots mixed with white thread-like scraps of some fungus or lichen and one or two broader pieces. This use of lichen or white fungus material in the lining seems to be distinctive of the nests of the Purple and Green Thrushes. The nest was placed in a fork devoid of all leaves and conspicuous at some distance.

Other nests taken by myself or my collectors were very similar to the above and generally had white lichen in the lining. One or two were built in straggling bushes, but most in small trees from 6 to 20 feet from the ground.

They breed from early May to about the middle of July and are not double brooded. Nests found by myself were taken between the 5th May and the 13th July, in both instances with fresh eggs.

The full clutch is normally three eggs, but I have twice had clutches sent me, with birds and nests, of four.

The eggs are typically Turdine and can be matched with many eggs of *T. rubrocanus*, *T. bouboul* or *T. unicolor* but, as a series, they are very richly coloured and handsomely marked. The ground-colour in the most common type is very pale to pale sea-green, handsomely blotched with bright reddish-brown and with secondary blotches of lavender and grey. In most eggs the markings are profuse everywhere, but more so at the larger end, where they sometimes form a cap. In the second type the ground is a pale reddish stone, the markings being similar to those in the first type but generally still more thickly laid on.

I have one pair of eggs a pale sea-green faintly flecked all over with pale reddish and lavender.

In shape the eggs are long oval, the texture smoother than in the eggs of *Turdus*, but glossless and not quite so strong in proportion to their size.

Fifty eggs average 31.3×21.6 mm. : maxima 35.1×21.5 and 31.2×23.0 mm. ; minima 29.3×20.5 and 31.2×20.3 mm.

Both sexes take part in incubation, as we have twice trapped the cock bird on the nest.

They are curiously quiet, shy birds, intolerant of observation, and slipping noiselessly off their nests when intruders are still at some distance.

(618) *Cochoa viridis* Hodgs.

THE GREEN THRUSH.

Cochoa viridis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 185.

The range of the Green Thrush is very much the same as that of the Purple bird, being found from Kuman and Garhwal to East and South Assam, the whole of the Burmese hill-tracts to Tenasserim and through the Indo-Chinese countries to Western China.

The only nest and eggs known to Hume* were sent to him from Sikkim, where they were taken in June at 10,000 feet, and from whence they have also been recorded at 11,000 feet. In spite of this, they are probably normally birds of much lower elevations. In the British Museum there are several Summer specimens from the Rammam Valley, in Sikkim, 2,500 to 3,000 feet, and they occur throughout the Assam Hills between 2,500 and 5,000 feet during the breeding season. They are rare birds and, from their shyness, quietness and their habit of frequenting dense cover, possibly appear to be even more rare than they really are.

I have only seen the birds and their nests in very dense evergreen forest with abundant undergrowth, nearly always, also, where the ground is precipitous, rocky and difficult to move in. Whymper, who took a nest near Naini Tal at 4,000 feet, found it in similar forest, and Hopwood also took it in "wet tropical forest" at Thandaung, Lower Burma, 4,000 feet. The nest may be placed in any small tree between 6 and 25 feet, but one near water is nearly always chosen for the purpose. No attempt at concealment is made, though in such thick forest the nest cannot be seen from very far.

The nest itself is exactly like that of the Purple Thrush. One taken by myself measured $6\frac{1}{2}$ inches in diameter by less than 2 inches deep, the cavity being about $3\frac{1}{2} \times 1\frac{1}{2}$ inches. The lining almost invariably contains white thread-like lichen, a material seldom used by birds other than the Purple and Green Thrushes.

The breeding season in Assam is from the beginning of May to the end of June, and Whymper once found it breeding in July.

The number of eggs in a clutch is two or three, very rarely four, and in appearance they cannot be distinguished from those of the preceding bird, though they average smaller, possibly due to two almost abnormally small clutches in my series.

Forty-two eggs average 30.4×21.3 mm. : maxima 31.1×21.2 and 29.3×23.2 mm. ; minima 26.8×19.8 mm.

* In 'Nests and Eggs,' 2nd ed. vol. ii, p. 111, reference is made to other nests found in Sikkim at 9,000 to 10,000 feet, but there is only one egg of this bird in the Hume collection. I cannot trace the source of this note.

Subfamily PRUNELLINÆ
(HEDGE-SPARROWS or ACCENTORS).

Laiscopus collaris.

THE ALPINE ACCENTOR or HEDGE-SPARROW.

(620 a) **Laiscopus collaris whymperi** Stuart Baker.

THE GARHWAL ACCENTOR.

Laiscopus collaris nipalensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 188 (part.).

Laiscopus collaris whymperi, *ibid.* vol. viii, p. 625.

In February 1915 I described this new race on three specimens obtained by Mr. S. L. Whymper in Garhwal, one of the distinguishing features being a rufous tinge. This tinge was shown to be due to make-up, and I suppressed this race in the second volume of the 'Fauna,' pending further material being obtained to show that the supposed differences held good. Whistler later obtained more material and shows that my other characters do hold good, and the race must, therefore, be maintained (*Ibis*, 1926, p. 561).

The range, apparently, of this race must be extended from the Garhwal Hills to Kashmir and Lahul, where the birds breed at very high elevations between 13,000 and 15,000 feet. The first collector, so far as I am aware, to take its eggs was Whymper, who notes as follows (*Journ. Bomb. Nat. Hist. Soc.* vol. xx, p. 1159, 1911):—
"Two nests were found with two and three eggs on June 27th and July 4th, both in precisely similar positions, being placed well under flat stones, at nearly 15,000 feet. The nests were beautifully made of moss throughout, no other material being used. The eggs were, of course, blue and unspotted. Later on several nests with young were seen."

Whymper writes me, *in epistola*:—"Two seems to be the normal clutch, as I saw many nests with two young. All the nests were placed under stones except one which was built under a ledge of rock."

B. B. Osmaston also found it breeding in Kashmir and writes (*Journ. Bomb. Nat. Hist. Soc.* vol. xxxi, p. 986, 1913):—"This species is found at high elevations in Kashmir in summer, breeding in precipitous ground above the tree limit at altitudes of 12,000' and upwards. It is also found in Ladakh at even higher elevations.

"A pair were seen above the Gangabal Lake, near Hara Mukh Mountain, on August 13th. They had a brood of well-fledged young, fully a month old. Another pair were seen below the Khardang Pass above Leh on July 23 at 16,500'."

Whymper's eggs, now in my collection, and another clutch of three taken on the 8th July, are of the usual dark blue of the Hedge-Sparrow's eggs and in shape are ovals, a little pointed at the small end. They vary in measurement between 23.3×16.9 and 22.1×16.0 mm.

(621) *Laiscopus collaris rufilatus* Severtz.

THE TURKESTAN ACCENTOR OR HEDGE-SPARROW.

Laiscopus collaris rufilatus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 189.

The Turkestan Hedge-Sparrow occurs during the breeding season over the greater part of Turkestan and the Pamirs to Ladak and Baltistan, where it meets the preceding form, and in the West to Gilgit and the North-West Indo-Afghan and Indo-Baluchistan frontiers, breeding within our limits at altitudes over 12,000 feet.

Whitehead (Ibis, 1909, p. 225) says that it "nests freely on the Safed Koh above 12,000 feet. I came across the first nest on the 1st July, 1906; it was placed under a rock on a steep slope, and contained three fresh eggs closely resembling those of our Hedge-Sparrow, but larger, averaging $.88" \times .57"$ [=about 22.35×14.47 mm.]. The nest was beautifully made of grass and roots, lined with moss and a little fur. On the 28th of July I came on two more nests built in crevices in cliffs, each containing two young ones, the most noticeable feature about them being their bright red gapes."

The only other clutch recorded of these eggs is one taken by Ward in N.W. Kashmir, near Gilgit. This nest is said to have been exactly like that of an English Hedge-Sparrow, placed very low down in wild-rose brambles. No elevation was given beyond the fact that it was "taken at a great height." It contained four eggs of the usual type, which measured 20.3×15.4 , 20.0×15.2 , 20.0×15.3 and 19.5×15.3 mm. It was taken on the 8th July, and the female sent to me with the eggs, so that the identification is satisfactory, although the eggs seem rather small.

(622) *Laiscopus collaris tibetanus* Bianchi.

THE TIBET ACCENTOR OR HEDGE-SPARROW.

Laiscopus collaris tibetanus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 190.

Hartert gives the breeding range of this bird as Gobi, Kansu in East Tibet, Chuanche and Ditschu and Kuku-nor. Two skins sent me with nests and eggs from Yatung, Gyantse and Rhamtso both appear to me to be referable to this form rather than to *nipalensis*, as I should have expected. The skins are so fragmentary, so dirty and stained, that one cannot judge the depth of colour, but the broad white edgings to the chestnut flank-feathers forbid.

one placing it with *nipalensis*. If my identification of these fragments is correct, the breeding range evidently extends into South and South-West Tibet.

It appears to be restricted to elevations above 12,000 feet, and probably breeds at least up to 15,000, where it haunts open plains with scattered scrub-jungle of roses, brambles and small thorny bushes, and with rocks, boulders and smaller stones scattered everywhere. Of the three nests sent me two were built low down in a matted tangle of rose-briars sheltered by boundary walls, whilst the third was in the open, built within a few inches of the ground in a low, very dense, thorny bush. In two cases, once from Gyantse and once from Rhamtso, skins were sent with the eggs for identification.

The nests were described as large, shallow cups of grass, roots and leaves, apparently willow-leaves, lined with soft grass and then with hair or fur. In one nest the inner lining was all of goats' hair, in the other two fur, which was principally that of the mouse-hare. The nests were taken on the 7th May, 14th June and 6th July and contained four, five and four eggs respectively.

A curious point about the three clutches is that they vary from an unusually pale to an exceptionally deep blue for the eggs of this genus, otherwise they are quite characteristic of it.

The thirteen eggs average 21.3×15.5 mm. : maxima 23.0×15.8 mm. ; minima 30.0×15.2 and 20.1×15.1 mm.

(624) *Laiscopus himalayanus* Blyth.

THE ALTAI, or RUFOUS-BREASTED, HEDGE-SPARROW.

Laiscopus himalayanus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 191.

The Rufous-breasted Accentor breeds from the Altai, Turkestan, Afghanistan, Baluchistan, Gilgit and Northern Kashmir, Ladak and probably Sikkim, to South-East Tibet. It certainly breeds in South-West Tibet, and I have had skins of birds sent me from Phari, Yatung and Rhamtso all obtained in Summer. It probably breeds at very high elevations, never under 10,000 feet, generally over 12,000, and often very much higher still. It must, however, be a very rare bird in South Tibet, as it was not met with on the Everest Expedition, nor did Ludlow meet with it round about Gyantse. The only two nests I have received of this bird were both from Yatung and taken at about 14,000 feet on the 7th May and the 4th July. One, containing four eggs, was built in a hollow at the base of a broken-down wall in among coarse grass and about six inches from the ground. The other, containing two eggs, was built at the base of a low, thorny bush, and also about six inches above the ground.

The two nests were typical Hedge-Sparrows' nests, rather bulky, untidy cups of grass, more or less mixed with leaves, roots and

fibre, and lined with wool. They measured, roughly, about 6 inches across the top by about $3\frac{1}{2}$ deep, whilst the egg-cavity was about 3 by 2 inches.

The eggs are normal Hedge-Sparrows' eggs in colour, shape and texture.

Ten eggs average 22.2×15.7 mm.: maxima 34.0×15.6 and 22.6×17.1 mm.; minima 20.7×15.0 mm.

(625) *Prunella immaculata* (Hodgs.).

THE MAROON-BACKED HEDGE-SPARROW.

, *Prunella immaculata*, Fauna B. I., Birds, 2nd ed. vol. ii, p. 193.

This Hedge-Sparrow is found throughout the Himalayas from Nepal to Western China. It does not occur in Kashmir, but Ward had in his collection a clutch of four eggs taken near the Pangong Lake, Ladak, in June 1908. It breeds in Sikkim at elevations of 10,000 feet upwards and appears to be decidedly common in Tibet, whence I have had many skins, nests and eggs sent me. Here it appears to breed principally between 13,000 and 15,000 feet. Ludlow does not include it in his birds of the Gyantse Plain, but I have had eggs sent me labelled Gyantse but said to have come from the high ranges to the East.

Although this is one of the least well known of the Hedge-Sparrows which come into our area, it cannot be uncommon as a breeding bird in some parts of Tibet between 12,000 and 17,000 feet, as I have had many skins sent me with nests and eggs. Nor can this bird, with its maroon-coloured unstreaked back, be mistaken for any other.

It appears to breed only above the tree limit in the bleakest and barest of hill-sides, where the only vegetation is the Tibetan furze, a little stunted grass and the small thorny bush which seems to grow here and there over the whole of the Tibetan plains and plateaus. Here the nest is built on, or nearly on, the ground, in a tussock of grass, in a bush of gorse or in one of the thorn-bushes. Generally they seem to be well concealed and the bird sits close until approached within a pace or two, sometimes until the bush is actually shaken. The nest itself is a very typical *Prunella* nest, rather large and bulky for the size of the bird, and strongly, though untidily, constructed. The greater part of the material consists of dead, coarse grass, but this is mixed, to a varying extent, with dead leaves, pliant twigs, roots and other oddments, these being used more often in the base of the nest than elsewhere. The outer cup may measure anything between 5 and 7 inches in diameter and between $2\frac{1}{2}$ and 4 inches in depth, but the cavity is about $2\frac{3}{4} \times 1\frac{1}{2}$ inches and is neatly finished off with rather finer grass and thickly lined with fur, goats' hair or wool.

The breeding season lasts from the end of May to the end of July but a few birds breed earlier, and I have a clutch taken as early as the 9th May and another as late as the 29th July.

The eggs in a clutch number three or four, rarely five, and are of the usual Hedge-Sparrow blue, the most noticeable character being the curious constancy in the depth of colour. In shape they are broad ovals, often slightly pointed at the smaller end. The texture is, as it always is in this genus, fine, the surface smooth and silky to the touch but never glossy.

Fifty eggs average 19.5×14.6 mm.: maxima 22.0×14.2 and 19.5×15.3 mm.; minima 17.5×14.0 mm.

As I have had three or four males sent me said to have been shot directly off the nest, it would appear that both sexes take part in incubation.

(626) *Prunella rubeculoides* (Moore).

THE ROBIN HEDGE-SPARROW.

Prunella rubeculoides, Fauna B. I., Birds, 2nd ed. vol. ii, p. 193.

The present species is the most widely spread of the genus, being found from the Afghan Frontier, through Kashmir, Kuman, Garhwal, Ladak, Sikkim and Tibet, to Western China in Setchuan, breeding at all elevations between 10,000 and 16,000 feet, but more often over than under 12,000.

In Ladak Ward says: "The Robin Accentor is one of the commonest of birds found in Ladak, making a rather large cup-shaped nest of coarse grass lined with goats' hair, wool or some similar material. The nest is placed low down in bush-jungle and the birds seem to seek the vicinity of some stream."

In Tibet it is very common, breeding in the higher ground surrounding the Gyantse Plain. Many nests are placed in sedges or rushes growing alongside irrigation ditches or small streams, others in low bushes of thorny scrub; sometimes in thick *Salix* and at other times on the ground in tussocks of grass or under bushes. Bailey took one nest near Dochen, in Tibet, at 15,500 feet, which was placed under a tuft of rushes by a stream and a second near Phari, under a bush of dwarf Rhododendron, at 14,500 feet. Ludlow also took two nests at Kaka which were built in sedges. In many parts of Tibet the bird must be very numerous, as I have certainly had sent to me five nests of this *Prunella* to every one of all the others put together, though some of these are by no means rare. Osmaston took many nests of this species in Ladak between 13,000 and 15,000 feet, all built in a small thorny "Tama" bush (*Caragana* sp.) and it is interesting to note that all his nests were made of grass and weed-stems, thickly lined with hair of Yak, Marmot and Hare.

Macdonald, Steen, Kennedy and others who have sent me eggs all describe the nests they found as being made principally of grass, often with long roots and weed-stems to assist in binding the nest, but nearly always with a mixture of moss. The nest found by Bailey at Dochen is described as "neatly constructed of moss, lined with hair and wool."

Over the whole of the area in which they breed June seems to be the month in which the great majority of eggs are laid but a fair number are laid in July and a few at the end of May.

The eggs number three to five but the latter is exceptional, and I have had none such sent me.

They are quite indistinguishable from the eggs of other species of *Prunella* both in colour and texture.

Sixty eggs average 19.5×14.5 mm. : maxima 21.4×15.0 and 20.9×15.6 mm. ; minima 18.2×15.0 and 19.0×14.0 mm.

Unlike our English bird, which generally has two, and sometimes three, broods, all our Indian forms seems to be single-brooded. Ludlow found in Tibet that the birds were not shy. He notes :— "It has been stigmatized as a skulker in the new edition of the 'Fauna,' vol. ii. I cannot confirm this from my own experience, as I found it particularly confidential and conspicuous, especially in Winter."

(627) *Prunella atrogularis* (Brandt).

THE BLACK-THROATED HEDGE-SPARROW.

Prunella atrogularis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 194.

Until comparatively recently this species of Hedge-Sparrow was not known to breed in Tibet and it was thought to be confined to Central Asia—Altai, Turkestan and Dzungaria ; but in 1919 I had two nests sent me with skins of this bird, said to be the owners of the nest, and again, in 1922, two more, one with a skin and the other without. In the twenty-five or thirty years that I had collectors working for me in Tibet no other breeding specimens were ever obtained. Ludlow never met with it breeding and it was not collected on the Everest Expedition. At the same time it is common on migration from Afghanistan to Sikkim and it is quite possible a few may stay to breed in Tibet. Macdonald was no ornithologist, but it seems unlikely that he could have got hold of wrong parents to what are obviously *Prunella* eggs of some kind.

All four of the nests sent me were made of coarse grass and fine grass-bents, with no mixture of moss or other materials, and all were densely lined with goats' hair well matted in. According to Macdonald all four were placed within a few inches of the ground, effectively hidden, two in the small, thorny, Tibetan bush (*Caragana*), which grows everywhere, one in a rose-bush and one in brambles. They were taken on the 11th and 18th June and 12th and 20th July, all at over 14,000 feet, "above Yatung" and at Phari. Three nests contained four eggs each and the fourth nest three eggs only. They are, of course, just like the eggs of other *Prunellas*.

In Central Asia they lay as many as six eggs in a clutch but, otherwise, the nidification is said to be much as described above.

Thirty eggs average 19.1×14.1 mm. : maxima 20.4×14.5 and 19.0×14.7 mm. ; minima 17.4×13.4 mm.

Prunella strophciata.

THE RUFIOUS-BREASTED HEDGE-SPARROW.

(628) **Prunella strophciata strophciata** (Blyth).

THE EASTERN RUFIOUS-BREASTED HEDGE-SPARROW.

Prunella strophciata strophciata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 196.

The Western limits of this race seem to be Garhwal, thence Eastwards through Nepal, Sikkim and Tibet, but how far East in the last country is not yet known. Whymper found it a common bird in the Nila and other valleys in Garhwal, breeding between 13,000 and 16,000 feet. He also took one nest at Kalhar, in the Kuman, at 14,000 feet, which he considers was of this bird. In Tibet it seems to be common in many places, though Ludlow says he did not observe it round Gyantse. I have had, however, many nests sent me from the neighbourhood of Gyantse with parent birds, all labelled Gyantse, so they must breed close to that place. Others have been sent me from Hramtso and Chambi, Sikkim and Tibet.

In Nepal Hodgson says the Rufous-breasted Accentor breeds "from May to August on the high naked ranges of the Himalayas, in Sikkim and Nepal. The nest is placed upon the ground in tufts of sunputti-grass, and is composed of grass-roots and moss lined with sheep's wool and the hairs of yaks. The nest is a hollow cup; one measured externally 4.12 in diameter and 2.5 in height; the cavity was 2.62 in diameter and 1.5 in depth. They lay three or four eggs."

Several collectors in Tibet have found the nests built in low thorn-bushes, Roses, Dwarf Rhododendrons and Willows. Whymper found nearly all his nests in Willows and describes them "as outwardly not very tidy, made of grass, roots and moss, but finished off beautifully inside with moss and fine grass and lined well with wool, hair or fur."

A. E. Osmaston also found them breeding in Willow-scrub. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xxviii, p. 150, 1921) :—"In the Gorthi Valley bordering Tibet I also met with this Accentor. During the first week of August I found three nests, from one of which the birds had already flown. The nests were placed 12" to 18" above the ground in low, rather dense willow-scrub (*Salix sclerophylla*). They were rather deep, substantially built cups. On the outside were a few twigs or coarse herbaceous stems, and this was followed by masses of green moss, mixed with wool and hair (of the Marmot). Moss fructifications were conspicuous throughout the structure, and especially in the interior, but I doubt if they were collected separately from the moss itself. All these nests were at 13,500 ft. elevation."

Whympfer found three to be the normal clutch, and in the large number of nests seen by him only one had four; in fact early in 1906 he wrote:—"I never got more than three eggs and commonly two only." In Sikkim and Tibet they lay three or four equally often.

The breeding season is principally June and July but a few birds may lay in the last week of May and a few others as late as the first half of August.

The eggs are like all other Hedge-Sparrows' eggs, but it is noticeable that many are long, pointed ovals, whilst the variation in size is very great.

Eighty eggs average 19.4×14.4 mm. : maxima 22.0×15.9 mm. ; minima 17.2×12.8 mm. The last measurements are really abnormally small and the next smallest are 17.9×14.2 and 19.8×13.5 mm.

Both sexes take part in incubation but there is nothing on record as to the construction of the nest and whether it is carried out by both or by the female only.

(629) *Prunella strophhiata jerdoni* (Brooks).

THE WESTERN RUFIOUS-BREASTED HEDGE-SPARROW.

Prunella strophhiata jerdoni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 197.

The Western form of this Hedge-Sparrow extends from Afghanistan and Baluchistan through Gilgit and the whole of Kashmir in the higher ranges. The birds of the Simla States, if they really ever breed there, would seem to be of this race but, though one or two collectors have recorded the finding of this race in the Garhwal Hills, all the specimens I have seen have been of the darker Eastern race.

Jerdon's Accentor, as this race has hitherto been called, is not, like the preceding bird, an exclusive frequenter of bare tracts above tree-level, but ranges far lower, well into forested areas at 9,000 feet upwards, for breeding purposes.

B. B. Osmaston thus describes their haunts (Journ. Bomb. Nat. Hist. Soc. vol. xxix, p. 499, 1923):—"Common in the viburnum, skimmia and juniper scrub, both in the open forest and above the limit of trees from Gulmarg up to about 11,500 feet.

"Nidification commences early in June. Nests are usually built in the dense scrub about 1 to 2 feet from the ground but one nest was found on a fir-bough 7 feet from the ground.

"Nests are built of thin sticks, moss and lichen, lined with fine dry grass, a little hair and feathers. Four, or sometimes only three, eggs are laid, of a uniform blue."

Later (*ibid.* vol. xxxi, p. 986, 1927), in his notes on the "Birds of Kashmir," he adds:—"This is a common bird in silver fir and birch forest from 9000' to 11,000'. Nests are usually placed in low



PRUNELLA STROPHIATA JERDONI.
The Western Rufous-breasted Hedge-Sparrow.
(Sonamurg, Kashmir, 1931.)

bushes, also not infrequently in the foliage of a lower branch of a silver fir and sometimes as high as 10' from the ground."

In the Khagan Valley Whitehead took the nest at Sulu Sar, 11,300 feet, with five eggs, on the 28th June.

Ward, who took numerous nests in Kashmir, sent me the following note with a series of nests and eggs :—

"The Hedge-Accentor is quite common in some parts of Kashmir, though nowhere so numerous as the Robin-Accentor. The nest is generally placed in Juniper-scrub but I have also taken it from Pines, in the thickest part of the foliage, near the end of the boughs. It is like the home Hedge-Sparrow's nest but neater, and moss forms the greater part of the material used, whilst it may be lined with moss, fur, hair or wool, most often with the latter."

To the above descriptions of the nests there is little to add, but Davidson took one nest (Ibis, 1898, p. 27) "on a stunted pollard birch tree, about 8 feet up, composed of moss, birch-bark, reed-stalks, lined with hair and a few feathers; outwardly it was completely covered with pieces of birch-bark and, as it looked exactly like the adjoining bough, it was very difficult to discover."

The breeding season is from early June to the middle of July, a few birds breeding a little earlier or a little later, but it seems always to be single brooded.

The number of eggs laid varies from three to five, the latter number not being very rare, whilst Buchanan once took six eggs in a nest at Apharwat on the 23rd June.

The eggs are like all other eggs of the genus and forty average 19.05×13.8 mm.: maxima 21.1×13.0 and 19.9×14.6 mm.; minima 17.3×13.3 and 21.1×13.0 mm.

As a series the eggs strike one as being more long and narrow than other *Prunella* eggs.

Davidson says that it is "not a shy bird, hopping about on the ground or low down on the fir-trees within a few yards of the onlooker."

Prunella fulvescens.

THE BROWN HEDGE-SPARROW.

(630) *Prunella fulvescens fulvescens* (Severtz.).

THE TURKESTAN BROWN HEDGE-SPARROW.

Prunella fulvescens fulvescens, Fauna B. I., Birds, 2nd ed. vol. ii, p. 198. .

The Brown Hedge-Sparrow occurs from Turkestan to Ladak and Tibet. It is not uncommon breeder in Ladak, where Ward obtained its nest and eggs as long ago as 1906. It is not, however, as common there as in South and South-West Tibet, where it breeds in very great numbers and whence I have had many eggs

sent me by Captains Steen and Kennedy and the many collectors who followed them at Gyantse.

Ludlow gives the following description of its nesting (Ibis, 1928, p. 63):—"This is a resident bird and particularly abundant around Gyantse throughout the year. In Summer the majority seem to leave the plain in order to breed at slightly higher elevations in the side nullahs opening into it. At this time of year it is also found at all elevations between 13,000 and 15,000 feet along the Gyantse-Phari road. It breeds in June and July, in wild briar, barberry and Tibetan furze-bushes, making a nest of grass and fibres and lining it with wool, hair, and the cottony growth of plants. Three or four unspotted eggs of the usual Hedge-Sparrow type are laid."

With various skins, nests and eggs sent me by Macdonald were notes which may be summarized as follows:—The nests are rather bulky for the size of the bird, compact, well-built cups made principally of coarse grass and moss, but with these are mixed stems of plants, soft pliant twigs, a few dead leaves, mostly willows, and other oddments. Tiny tough twigs of a small thorny shrub are often used. The lining is various and may be of any kind of hair, fur or wool but, probably, the two favourite articles are yaks' hair and wool. Between this, the true lining, and the nest there is nearly always a layer of fine grass or grass-stems, finer than that used in the body of the nest. It is never placed very high above the ground, seven or eight feet as a limit, and generally only a few inches above it. It may be built in any convenient bush, but brambles and thorny vines are more often used than any other and, next to these, it prefers the common Tibetan thorn-bush. They breed from the first few days of June to the end of July and nests may be taken right up to the end of August. Three is the number of eggs laid most often, but often four and, occasionally, five. These are not to be distinguished in any way from those of other Hedge-Sparrows.

Sixty eggs average 19.5×14.3 mm. : maxima 21.3×14.9 and 19.4×15.1 mm. ; minima 18.3×14.0 and 19.1×13.3 mm.

The bird is said to be very tame and to sit so close on its nest that often it does not leave until the bush in which it is built is actually touched. Sometimes, so well concealed is the nest, the departure of the bird is the first hint of its existence.

In Turkestan the bird breeds earlier than in Tibet and Ladak and most eggs are said to be taken in the end of May and early June.

Family MUSCICAPIDÆ

(FLYCATCHERS).

Muscicapa striata.

THE SPOTTED FLYCATCHER.

(631) **Muscicapa striata neumanni** Poche.

THE EASTERN SPOTTED FLYCATCHER.

Muscicapa striata neumanni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 202.

It is rather hard to define the breeding area of this race of our common Spotted Flycatcher. The European bird extends into Northern Persia, yet Petherick's birds, obtained breeding in Central and South Persia, all seemed to me to be the Eastern form, whilst those obtained breeding in Palestine were nearer also to it than to the Western bird. Yet all through Asia Minor, to the Caucasus, Mesopotamia and Western Persia, the birds are of the latter race. In Turkestan and all Eastern Siberia, South to Afghanistan and Baluchistan, the breeding form is *neumanni*.

Within our limits it breeds commonly near Quetta. Ticehurst (Journ. Bomb. Nat. Hist. Soc. vol. xxxi, p. 704, 1926) says:—"The Spotted Flycatcher is an overseas visitor to N. Baluchistan, breeding in the forest area from 7,500 upwards; at lower elevations it is a passage migrant. It breeds commonly round Ziarat and full clutches (4 to 5 eggs) may be found at the end of May. I noticed a few still in their breeding haunts to the end of September but most had gone."

Williams was fortunate enough to take a nest and eggs. He writes (*ibid.* vol. xxxiii, p. 602, 1929):—"I have found it breeding in the Quetta Valley but it must be considered a rare bird. I have seen a few birds in April and May around Quetta where there are a few large trees and water.

"On the 18th May, 1920, a nest was found, built in a crevice in a *Tangi*, from which three eggs were obtained. The *Tangi* was at an elevation of some 6,000 ft. and the nest was built of grass-roots and dried moss, lined with fine grass and moss-roots."

Scully also informed Hume that this Flycatcher breeds in the Pine forests in Gilgit, at elevations over 8,000 feet.

In Afghanistan Wardlaw-Ramsay took two nests, one situated on the lowest fork of an edible Pine about six feet from the ground and the other in a crevice in a Juniper-stump.

In South-East Persia, where this race seems to be extremely common, the sites of their nests are as varied as those of the Western

bird. Many are built in large trees, either in bifurcations of big branches, against the trunk itself, or in creepers growing over it. Some are placed in holes and crevices in old buildings, or on protected projections of the walls; others, though not so often, are placed on rock-faces or just inside fissures.

The breeding season lasts throughout May and June and I have clutches taken from the 3rd May to the 26th June. They appear to be single brooded.

The eggs are indistinguishable from those of the Common Spotted Flycatcher and have the same great range of variation. The most common types are: (1) A pale greenish ground, blotched, to a varying extent, with pale to rather dark reddish-brown, and with underlying but inconspicuous blotches of lavender. (2) A pale buff or stone ground, similarly marked, but with more red than brown blotches. In both types occasional clutches are so heavily marked that but little of the ground shows, but in most they are numerous yet show up the ground-colour well. Another type, though not a common one, has the ground-colour a pale olive-grey, while others have a comparatively bright green ground. Truly erythristic eggs occur but are rare; in these the ground is a bright cream or light buff, densely marked with light red or brick-red. I have also one clutch in which the eggs are like large eggs of the Willow-Warbler.

One hundred eggs average 18.35×14.2 mm.: maxima 21.0×14.2 and 20.0×15.0 mm.; minima 16.0×15.0 and 17.9×12.9 mm.

In shape they are generally rather broad ovals, decidedly smaller at one end. The texture is fine and close, though glossless or almost so.

Both sexes assist in building the nest and both take part in incubation. They are tame, familiar little birds and do not seem to shun observation, even when nesting.

Hemichelidon sibirica.

THE SOOTY FLYCATCHER.

(632) **Hemichelidon sibirica fuliginosa** Hodgs.

THE NEPAL SOOTY FLYCATCHER.

Hemichelidon sibirica cacabata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 204.

Hemichelidon sibirica fuliginosa, *ibid.* vol. viii, p. 627.

This little Flycatcher ranges during the breeding season from Nepal to Eastern Assam, Tibet and Kansu. Southwards it extends throughout the higher Burmese ranges to Tenasserim and peninsular Siam. It is not, however, certain that it breeds in these hills, and in the Himalayas it breeds at 6,000 feet upwards.

The only collector to take these eggs, recorded in Hume's 'Nests and Eggs,' was Hodgson, who, to quote Hume, "figures the nest, placed on the stump end of a broad broken branch—a very massive, rather shallow pad, with a cup-shaped cavity composed of moss and lichens and lined with black roots. The nest is about 4 inches across and less than 2 high, and the cavity is a little less than 1.75 inch in diameter."

Since Hume's time there have been no further records, but Masson took two nests for me in 1909 which he sent me with the eggs and one of the parent birds. The two nests are quite well-made cups—not mere pads—of moss, both dried and green, but principally the latter, mixed with a few roots and with a few leaves at the base which may have been wind-blown into the hollows in which they were built. The lining was of fur—like rat-fur—very thick and matted into the bottom and sides of the cavities, which measured about $2\frac{1}{2}$ inches across by nearly 2 deep. Both nests were built in natural holes in living Birch-trees, one at 10 feet and the other at 15 from the ground.

The trees, it was said, were growing in fairly dense mixed forest at about 10,000 feet. Each nest contained three fresh eggs and were taken on the 9th and 10th June.

One clutch of eggs has a very pale grey-green ground, lightly freckled and blotched, principally at the larger end, with light reddish-brown. The second clutch has a clay ground and is freckled all over with slightly darker reddish, thick enough to make the eggs look uniform light reddish-brown at a little distance. The grain is very fine but the surface dull.

The six eggs average 17.1×12.2 mm. : maxima 17.6×12.1 and 16.9×12.7 mm. ; minima 16.8×12.1 and 17.4×12.0 mm.

(633) *Hemichelidon sibirica gulmergi* Stuart Baker.

THE KASHMIR SOOTY FLYCATCHER.

Hemichelidon sibirica gulmergi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 205.

The Western form of Sooty Flycatcher is found throughout the North-West Himalayas from Afghanistan, Baluchistan and Gilgit, through Kashmir, to the Simla States and Garhwal, breeding from 8,000 feet upwards. Brooks states that it breeds in the Pine-woods of Kashmir at 7,000 feet, whilst Rattray took several nests at 7,500 round Changla-Gali and Dunga-Gali. These heights are, however, exceptionally low, and more birds will be found breeding above than below 9,000 feet. It certainly breeds up to 11,000 feet and, possibly, up to the tree-limit.

Davidson (Ibis, 1898, p. 20) writes of this little Flycatcher as follows :—"This was one of the latest migrants. We saw a pair near Gund, evidently passing through, on the 23rd May, and we found small flocks and pairs at Sonamurg on the 1st June. These

increased in numbers later on, and we discovered nests half built on the 3rd. They, however, take a long time to build, and the nests we found on that date did not contain the full clutch of four until the 16th, but we also saw other nests in process of building on this later date. With one exception, all the nests found were on horizontal branches of large spruce firs in very open forest, and generally 30 or 40 feet from the ground. The nests were large, solid, cup-shaped structures of moss and were placed about half way along the branch on the upper side. The number of eggs was either three or four. The birds might be said almost to breed in colonies, as in one place we found five nests in a circle with a radius of less than fifty yards. We do not think this bird bred under 9,000 feet."

Rattray describes nests and sites very much as above but found the nests sometimes as low as ten feet from the ground. Whymper, who took their nests at 10,000 feet in the Nila Valley, Garwhal, found them on the upper parts of large branches, not against the trunks, but sometimes close to it, about 20 feet from the ground. Of the nests he writes:—"They make very neat nests of moss and lichen, lined with hair. They reminded me of Chaffinches' nests."

They are late breeders. In Kashmir few birds lay until the second week in June, but in the Murree Hills Rattray and Buchanan took a few full clutches in the last week of May. Fresh eggs may, however, be found until about the middle of July. They are single brooded, but birds which have their nests and eggs destroyed will build again, and such nests may be found up to the end of July or even early August.

The full clutch of eggs is equally often three or four, but I have one five in my series.

In colour the eggs appear to be a pale olive-grey or olive-stone, practically unicoloured, unless examined closely. The ground varies from pale olive-grey to equally pale olive-buff or olive-stone, and they are freckled, densely at the larger end, sparsely elsewhere, with very pale reddish which sometimes forms a fairly well-defined cap at the larger end. Occasionally a clutch may be taken with a very pale sea-green ground definitely marked with small blotches of reddish, showing up well and clearly, while other clutches between these two extremes also sometimes occur.

In shape the eggs are rather broad ovals, *not* much compressed at the smaller end, but a few eggs are rather long ovals, with the smaller ends somewhat pointed. The texture is very fine, the shells brittle, even in proportion to their size, and the surface quite dull and glossless.

Sixty eggs average 16.1 × 12.1 mm. : maxima 17.2 × 12.7 and 17.1 × 12.8 mm. ; minima 15.0 × 11.6 mm.

(635) *Hemichelidon ferruginea* Hodgs.

THE FERRUGINOUS FLYCATCHER.

Hemichelidon cinereiceps, Fauna B. I., Birds, 2nd ed. vol. ii, p. 206.

Hemichelidon ferruginea, *ibid.* vol. viii, p. 627.

The Ferruginous Flycatcher breeds in the Himalayas, at 4,000 feet upwards, from Garwhal to Eastern Assam, Manipur and the higher hill-ranges of Northern Burma, into the Shan States and Western China.

In Assam I found this bird breeding between 4,000 and 6,000 feet, generally at about 5,200, though one nest obtained near Gungong was under 3,000 feet, a most exceptional occurrence. The only three nests I ever saw were, in two instances, in stunted Oak forest, with ample undergrowth of Jasmine, Caladiums and bracken. The forest was very humid and every tree well covered with luxuriant moss and orchid growth. In the third instance it was built in very dense mixed jungle of small clump-bamboo, tree and bush growing in a deep ravine running through grass-land. The two nests built on trees in Oak forest were neat, though rather massive, little cups of green moss and lichen, lined with hair-like roots, probably fungoid. They measured, roughly, $4\frac{1}{2}$ inches across by about 3 deep, the cavities for the eggs being about 2×2 inches. One nest was built on a projection where a large branch had been broken off from the trunk of a tree, about 25 feet from the ground, the other was built on a natural swelling in the trunk a few feet higher on another Oak-tree in the same forest. These were taken on the 4th and 14th May. The third nest differed from the other two in being placed in a dead stump not more than 15 feet from the ground. This nest was composed solely of moss, even to the lining. Inside, where it fitted into the shallow hole, it was shapeless, but on the outer side it was neatly finished off as a sort of half cup. Two nests contained single eggs, the third three, the latter being taken on the 29th May. The nests are very difficult to find, as they seem to be generally placed in or on the moss with which they are built and are, therefore, invisible at a very short distance. All my nests were found by the bird flying off and, even then, in one instance, the nest could not be seen until the tree had been climbed.

Osmaston found this bird nesting near Darjiling and writes (*Journ. Bomb. Nat. Hist. Soc.* vol. xv, p. 513, 1904):—"This is a common Flycatcher between 6,000 and 8,000 feet, frequenting open glades in lofty Oak forest. I found three nests in June and July at about 7,000 feet. Two were almost inaccessible, built on slight projections caused by broken branches near the top of big dead trees, 40 or 50 feet from the ground. The third was on the side of a branch of a small tree (*Turpinia pomifera*) about 10 feet from the ground.

“The nest is composed of moss, lined with a mixture of white lichen and black rhizomorph. The egg-cavity measures 2" across by 1¼" in depth.”

Later, Osmaston took other nests with eggs in June and July. All the nests he found had either two eggs or three young ones.

The breeding season at the higher elevations appears to be June and July but, below 6,000 feet, May and June.

The eggs, two or three in number, are very much like those of *Hemichelidon sibirica* and cover much the same range of coloration, but those taken by myself are a deeper brown.

Nine eggs average 17.9×13.6 mm. : maxima 19.2×13.3 and 19.0×14.3 mm. ; minima 16.2×12.2 and 16.7×12.0 mm.

The birds, so far as I have been able to observe them, are the most quiet, sedentary and least restless of all the Flycatchers. I have seen one sit for hours on the same branch, just flitting silently off every now and then after some passing insect and then returning at once to its perch. It is very crepuscular and more lively in the dusk and early mornings. It gives no help in finding the nest and generally wears out a watcher's patience before giving away its whereabouts. Both sexes incubate.

Siphia strophciata.

THE ORANGE-GORGETED FLYCATCHER.

(636) *Siphia strophciata strophciata* Hodgs.

THE HIMALAYAN ORANGE-GORGETED FLYCATCHER.

Siphia strophciata strophciata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 208.

The breeding range of this little Flycatcher extends from Kashmir to Assam North of the Brahmapootra. It has been recorded also from North Borneo (? subsp.) and from Western China. I also noticed it in May and June, at about 6,000 feet, in the Barail Range, but I failed to find any nest, and they may not have been breeding birds.

Osmaston, who has taken many nests of this Flycatcher, found them breeding in Chakrata and the upper valley of the Tons River at about 9,000 feet and near Darjiling at about 10,000 feet. Whympier took a nest in Garhwal at about the last-mentioned elevation.

Osmaston, who was the first collector to find its nest, thus describes it (Journ. Bomb. Nat. Hist. Soc. vol. ix, p. 190, 1894) :—“On May 23rd I noticed a bird fly into a hole, about eight feet from the ground, in a dead Yew-branch, which I found, on examination, contained a nest with two freshly hatched young and an addled egg.

“I watched the parent birds for some time with binoculars. They were very wary and would not again visit the nest. However, I saw sufficient to satisfy myself as to their identity.

“ On the following day I found a second nest of the same species in a rift in a Karshu Oak, about five feet from the ground. It contained three much incubated eggs, exactly similar to the egg found on the previous day. The nest was rather a loose structure, cup-shaped, composed of moss and maidenhair rachis, lined with the latter chiefly, but also with a few feathers and some yellow papery substance resembling birch-bark. I shot one bird, the male, for identification.

“ The eggs were pure white, elongated ovals, and fairly glossy.

“ The above nests were both found at an elevation of about 9,000 feet.”

Other nests found by Osmaston were in most cases like the above, but one, also found in a rift in a Karshu Oak, was made almost entirely “ of paper-like bark, fibre and roots, lined with two or three feathers.”

Another nest was built in among the moss on a rock-face. Whymper's nest was made, as usual, with moss, “ lined thickly with hair and wool and three Koklas-feathers next the eggs,” and was built “ among the exposed roots of a tree.”

This lining of a few feathers, often of some size, seems to be a characteristic of this Flycatcher's nest, though one would imagine them to make a most uncomfortable bed.

They invariably breed in forest and, generally, in pretty thick cover. In the lower elevations this consists of Silver and Spruce Firs, passing, as one works North, into Karshu Oak, Birch, Rhododendron, Juniper and then, at 12,000 feet, into open grass-land.

The normal clutch of eggs is three, though once Osmaston found four. They are all pure white, slightly glossy, with stout shells for so small eggs. In shape they are rather long ovals, often much pointed at the smaller end.

Twenty-three eggs average 18.1×13.5 mm. : maxima 19.2×14.0 and 19.1×14.3 mm. ; minima 17.0×13.2 and 17.2×13.0 mm.

They are early breeders, one nest with three eggs having been taken by Osmaston on the 27th April, and from thence onwards all through May to the 9th June.

(637) *Siphia strophinata fuscogularis* Stuart Baker.

THE ASSAM ORANGE-GORGETED FLYCATCHER.

Siphia strophinata fuscogularis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 209.

This race of the Orange-gorgeted Flycatcher has only been recorded within our limits in the Shan States. It was described from Annam.

Robinson records a nest and eggs taken by him as agreeing exactly with Osmaston's description of the nesting of the preceding bird. The nest was built in a shallow hollow about five feet from the ground, in a large tree. It contained three white eggs which measured 19.0×13.5 mm.

Siphia parva.

THE RED-BREASTED FLYCATCHER.

(638) *Siphia parva parva* (Bechst.).

THE EUROPEAN RED-BREASTED FLYCATCHER.

Siphia parva parva, Fauna B. I., Birds, 2nd ed. vol. ii, p. 210.

The European Red-breasted Flycatcher breeds from South and Eastern Europe to West Siberia.

Capt. Perreau records it as breeding in Chitral (Journ. Bomb. Nat. Hist. Soc. vol. xix, p. 906, 1910). He writes:—"One pair, the only ones I saw during the summer, bred in the upper Drosh Garden." Perreau knew the bird and the identification is probably correct, but the occurrence was quite unusual, and the birds may have been *S. p. hyperythra*.

(639) *Siphia parva albicilla* (Pall.).

THE EASTERN RED-BREASTED FLYCATCHER.

Siphia parva albicilla, Fauna B. I., Birds, 2nd ed. vol. ii, p. 211.

The Eastern Red-breasted Flycatcher breeds in Eastern Siberia, West of the Yenesei, Transbaikalia and Ussuri and probably in Eastern Turkestan South to Tibet.

Three supposed nests of this little bird have been found within our limits, two by Ward in Kashmir at elevations of 10,000 feet and one in Tibet, at about 12,000 to 13,000 feet, by Macdonald's collectors. This last nest, which contained five eggs, was taken by some men who had been sent to the Rhamtso Lake to try to get eggs of the Brown-headed Gull and the Tibetan Tern. On their return to Gyantse, among other eggs, nests and skins, they produced this nest, with the five eggs and one parent bird. The skin, very fragmentary and extremely malodorous, was undoubtedly that of a Red-breasted Flycatcher, and seemed to me referable to this race. The nest was made chiefly of dry moss with a little grass and was well lined with fur, which appeared to be that of a *Lagomys*. It had evidently, when complete, been a rather deep little cup, well shaped outwardly but fitting into the hollow on its inner side. It was said to have been built in a small hollow in a Willow-stump beside a small stream. It was taken on the 29th May.

In 1908 Col. Ward obtained a nest in Ladak at 12,000 feet through Crump, together with both the parent birds. These were sent to me, and I had no doubt that they were *albicilla* and not *parva*. The nest was not sent but was said to have been a cup of moss and grass lined with soft hair or fur. It was built against

a boulder, half hidden in a hollow, in one of the high boundary walls. Taken on the 30th May. In 1930, when I secured Col. Ward's collection of eggs, I found among them a third clutch of three taken at "Dachgaon, Kashmir. Nest in hole in Gad-tree, 10,000 feet, 16.6."

The eggs are indistinguishable from those of *Siphia p. hyperythra*, which are well known. In two clutches the ground is a very pale grey-green, and in the third an equally pale dull creamy. They are freckled at the larger end with pale reddish, which forms broad zones at the larger extremity; outside this zone the freckles are scanty, disappearing altogether on the smaller half.

In shape the eggs are broad ovals, in one clutch decidedly pointed at the smaller end. The texture is very fine and fragile, with a faint gloss.

A double-yolked egg measures 18.4×13.2 mm. The remaining eleven average 16.2×12.3 mm. : maxima 16.9×12.8 mm. ; minima 15.6×12.3 and 16.0×12.1 mm.

(640) *Siphia parva hyperythra* Cab.

THE INDIAN RED-BREASTED FLYCATCHER.

Siphia parva hyperythra, Fauna B. I., Birds, 2nd ed. vol. ii, p. 212.

This fascinating little Flycatcher breeds in some numbers from the Afghan boundary and Gilgit to Garhwal and, probably, Western Nepal.

In Kashmir it breeds freely, and Osmaston thus sums up its habits (Journ. Bomb. Nat. Hist. Soc. vol. xxxi, p. 987, 1927):—"This is a very common species in Kashmir in the summer, breeding in June in the side valleys, e. g., Sind and Lidar, at from 6,500 to 7,500 feet. They are very partial to mixed forest of hazel, walnut, cherry, willow, etc., especially where there is a dense growth of perottia.

"The nest is placed in a hole in a small tree at a height of from 5' to 20' from the ground. It is usually invisible from the outside and can only be obtained by enlarging the small entrance-hole. It is composed of skeleton leaves, moss, strips of bark, etc., and is lined with finer strips of bark or with hair.

"The eggs, four or five in number, are very pale green in ground-colour, marked, chiefly at the broad end, with pale pinkish-brown."

Davidson (Ibis, 1898, p. 20) obtained nests in the neighbourhood of Gund and Kular between 6,000 and 7,000 feet. He describes the nests as generally "composed of dead leaves mixed with moss and lined with a few feathers and hair; one, however, was composed exteriorly of dead leaves and interiorly of decayed pieces of wood and one or two horse-hairs." Of the nine nests he took, all in holes of trunks and branches of trees, "two were within 6' of the ground, three from 10' to 15' and the others from 20' to 40'."

They breed at higher elevations than 7,500 feet occasionally, as Livesey took them in the Rampur Fir forest above the Wolar Lake at 7,800 feet, whilst Buchanan took them at and near Pahlgaon from 7,000 to 8,000 feet.

They commence to lay in the end of May but most birds breed in June. They have a very restricted breeding season. Livesey took a clutch of five on the 18th May, but I have seen no others taken until the last week of that month, and there are no records of it laying in July.

The eggs number four or five and are typical of the species but, taking them as a series, they are not so reddish as those of the European Red-breasted Flycatcher, yet more red than the few supposed eggs of the Eastern race. The ground-colour is almost invariably a pale grey-green, occasionally a little brighter and bluer, the markings consisting of small specks of very pale reddish disposed rather densely in a zone or cap at the extreme larger end, and very sparse elsewhere. Occasionally the ground has a faint pink or buff tinge.

Fifty eggs average 16.1×12.3 mm. : maxima 17.3×12.3 and 17.0×13.1 mm. ; minima 14.9×12.4 and 15.0×11.9 mm.

Muscicapula concreta.

THE WHITE-TAILED BLUE FLYCATCHER.

(641) *Muscicapula concreta cyanea* (Hume).

THE HIMALAYAN WHITE-TAILED BLUE FLYCATCHER.

Cyornis cyanea, Fauna B. I., Birds, 2nd ed. vol. ii, p. 215.

Muscicapula concreta cyanea, *ibid.* vol. viii, p. 628.

This fine Flycatcher is found in the mountains of the Malay Peninsula as far South as Perak and occurs throughout Tenasserim and peninsular Siam.

A single specimen was brought in by Patkoi Nagas to Dr. H. N. Coltart, together with the nest and one egg, the skin being eventually sent to the Tring Museum. A later nest, also brought in by Nagas, and referred to this species, was later ascertained to be that of *Muscicapula unicolor*.

The first nest consisted entirely of moss and was in shape a deep cup which the Nagas said had been wedged into a hole in a rocky bank of a ravine running through dense forest. The lining was of moss-roots only. The nest was much knocked out of shape in carriage but when *in situ* would, I should imagine, have measured about 7 inches across by 4 deep. The cup was fully 3×2 inches. The Nagas informed us that they had found a similar nest of this bird previously with young.

The single egg, which was taken on the 25th June, is exactly like a very large egg of *Muscicapula rubeculoides*. The ground-

colour is a pale buff-stone, stippled all over with rather dark reddish, the specks almost confluent at the larger end, where they form an ill-defined cap. It is in shape a broad, blunt oval, the texture fine and the surface distinctly glossy. It measures 23.9×18.0 mm. full.

We cannot say exactly at what elevation this nest was taken, but the Nagas' village was situated at about 5,000 feet and the nest was taken above this, probably between 5,000 and 7,000 feet.

This bird was extremely common in the plains in the cold weather, and Coltart obtained a fine series for the Tring Museum. We fully expected to find that they differed subspecifically from the Tenasserim birds, divided as they are by so great an area, but they appear to be identical.

(642) *Muscicapula hodgsonii* (Verreaux).

THE RUSTY-BREASTED BLUE FLYCATCHER.

Cyornis hodgsonii, Fauna B. I., Birds, 2nd ed. vol. ii, p. 216.

Muscicapula hodgsonii, ibid. vol. viii, p. 628.

This handsome little Flycatcher ranges from Sikkim, through all Assam and all the hill-ranges of Burma, to Muleyit in Tenasserim. North-East it is found as far as Yunnan and Kansu. It is probably a resident breeding bird over the greater part of the area where it is found, merely moving vertically with the seasons. Stevens says that in Sikkim he did not observe it in Summer below 7,000 feet but, in the Assam Hills, it occasionally breeds as low as 4,000 and frequently at 5,000 to 6,000 feet. I have taken several nests personally at these heights in the Khasia Hills, and Tytler took others between 6,000 to 7,000 in the Naga Hills. In the Cachar Hills it was a very rare bird and only casually straggled below 6,000 feet.

The birds select rocky ravines running through deep forest in which to nest. Occasionally these may be running through Pine forest, but this is exceptional, and only when the ravines themselves are densely clothed with Rhododendrons and green undergrowth. The favourite site for the nest is one wedged in between rocks or stones in steep banks which are wet and covered with moss, orchids, ferns and lichen. Here, in some small natural hollow, the nest is placed, always perfectly concealed from view. Now and then a nest may be placed low down in a dead stump, but only if it is covered with moss or other vegetation; still less often I have seen it built in or under clusters of Hart's-tongue fern growing a few feet from the ground on the trunks of Rhododendrons.

Nests found by Tytler in the Naga Hills were always placed in hollows in the banks of the ravines and never, I understand, in holes in trees or stumps.

In the Khasia Hills they sometimes bred in the very thick and humid forests of Oak, Rhododendron and Pine growing on steep

and rocky hill-sides at an altitude of 5,800 to 6,200 feet. Here the nests were placed between boulders on the steep, often almost precipitous hill-sides.

The nest itself is very like those of the Niltavas and other Flycatchers. The body is built entirely of living green moss, while such oddments as dead leaves, scraps of roots, lichen and fibre, which may be found mixed with the moss, are probably only picked up with it. The lining is all of fine roots and, in those seen by me, black fern-roots only.

A curious nest found by Bailey in Southern Tibet is said to have been made "of moss hanging in a lump on dead branch of a tree 4 feet from the ground; two fully fledged young birds"—Rong Valley, Po Me, 7,500 feet, on the 8th July.

The breeding season lasts from about the middle of April to the end of June.

The full complement of eggs laid is four or, very rarely, five. In colour the eggs range from a pale grey-green to a warm buff, faintly stippled all over with light reddish, the markings so minute that they hardly show up against the ground-colour except as slightly darker caps at the larger end. Occasionally the ground-colour is a pale cream, rather more definitely marked with reddish in zones round the big end. As a series, however, when looked at from a little distance they look like unicoloured eggs, deeper in tint at one end than the other. In shape they are broad, blunt ovals, with fine grain but very dull surface.

Forty eggs average 17.8×13.4 mm. : maxima 19.2×14.0 and 19.0×14.1 mm. ; minima 16.2×13.0 mm.

The birds are very close sitters and, though they are very shy, retiring little birds, it is very hard to make them desert. Twice I have known two clutches of eggs laid in the same nest and taken, and then yet a third laid and the young hatched and brought up. Unlike the males of most of the more vividly coloured Flycatchers, the male of this species takes at least his share of incubation, and we have caught the male on the nest more often than the female.

Muscicapula hyperythra.

THE RUFIOUS-BREASTED BLUE FLYCATCHER.

(643) **Muscicapula hyperythra hyperythra** Blyth.

THE INDIAN RUFIOUS-BREASTED BLUE FLYCATCHER.

Cyornis hyperythra hyperythra, Fauna B. I., Birds, 2nd ed. vol. ii, p. 217.
Muscicapula hyperythra hyperythra, *ibid.* vol. viii, p. 628.

This little Flycatcher is found from Garhwal, Nepal and Sikkim to Eastern Assam and the Chin Hills.

It occurs during Summer between 4,000 and 8,000 feet and may

breed at still lower elevations in the hills of Eastern Assam. Coltart and I both saw the bird during May, June and July in the foot-hills about Margherita between 1,000 and 1,500 feet and, though we never found the nest, it must have been breeding near by. In the hills above, at 4,000 feet, it was extremely common, and the Nagas brought Coltart many nests and eggs, invariably with the birds, which they snared on the nests.

In the Khasia and Cachar Hills it was a rare bird and I took few nests, in the former all above 4,000 feet, but in the latter I found one at Laisung a little over 3,000 feet.

The nests are all built in very dense forest and all those taken by myself were in very wet green places, where there was luxuriant undergrowth and all the trees were covered with moss and parasites. Below, the ground was broken up with boulders and outcrops of rock and most of our nests were placed in hollows between boulders, holes or crevices in rock-faces, or else well hidden between large jutting-out roots of trees. The favourite site was a hole in a mossy bank under a boulder or in a rock covered with moss. Once I had a nest taken from a hole in an old stump standing in a ravine in deep forest.

The nest is a tiny cup of living green moss lined with very fine black moss-roots or with black maidenhair-fern rachis. Neither I nor Coltart ever saw any other material used. Inside the nests may have averaged about 2 inches in diameter by 1 or less in depth but, outwardly, they conformed to the shape of the holes in which they were built. The Nagas described the situations in which they had taken the nests which they brought in to us as similar to the above. As their villages were situated between 4,000 and 7,000 feet, the nests were certainly taken at the same heights.

The breeding season is an early one and we had nests and eggs brought to us by Nagas in the middle and end of April and from thence onwards to the end of June. Most eggs, however, are laid between the 18th April and 15th May.

The normal full clutch of eggs is four, though occasionally three only may be laid, whilst I found one set of five in the Khasia Hills.

They are quite typical *Muscicapula* eggs but, on the whole, very richly coloured. The ground varies from a pale yellowish-grey or stone-colour to a fairly deep pinkish-red. In the pale yellowish eggs the markings consist of faint stippings of pale pinkish- or brownish-red, scattered over the whole surface. In the eggs with a reddish ground the markings vary from frecklings of rather deep red-brown, so numerous that the eggs appear unicoloured, to well-defined blotches and mottlings of reddish-brown. One clutch of three is different to either of these types and looks as if it was entirely coloured olive-brown.

In shape the eggs are broad ovals, the texture fine and close and the surface varying from glossless to highly glossed, the darker the egg the higher the gloss.

Forty eggs average 17.5×13.8 mm. : maxima 18.9×14.0 mm. ; minima 16.3×13.9 and 17.1×13.4 mm. The eggs give one the impression of being very big in proportion to the size of the bird.

The Nagas snared both males and females on the nest, and I once put a male off the nest when I almost kicked it in passing, so that evidently both take a share in incubation.

Muscicapula tricolor.

THE SLATY-BLUE FLYCATCHER.

(645) **Muscicapula tricolor tricolor** (Hodgs.).

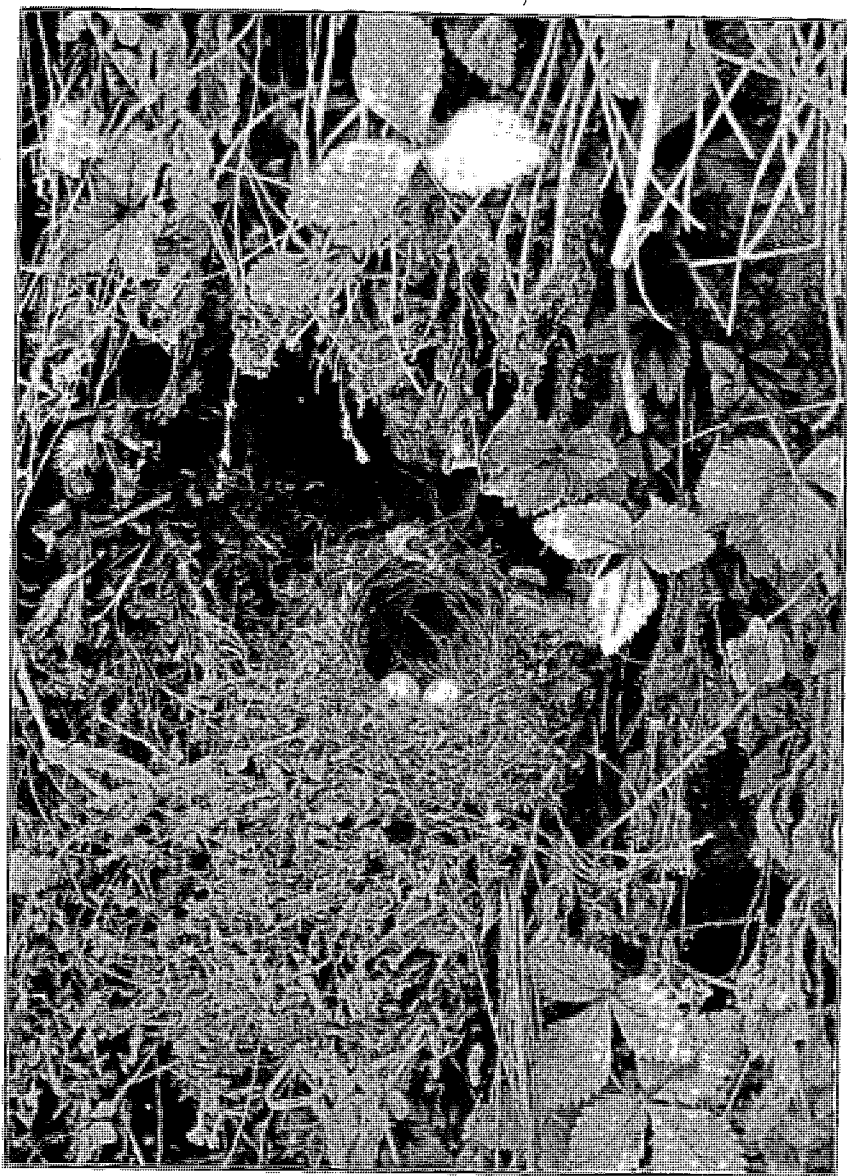
THE WESTERN SLATY-BLUE FLYCATCHER.

Cyornis tricolor tricolor, Fauna B. I., Birds, 2nd ed. vol. ii, p. 219.
Muscicapula tricolor tricolor, *ibid.* vol. viii, p. 628.

The Western form of Slaty-blue Flycatcher is found from the Afghan Frontier, throughout Kashmir and the Outer Himalayas, to the extreme East of Assam, North of the Brahmapootra River. Birds in the Khasia Hills are rather intermediate, and in the 'Fauna' I referred them to this race but, after further examination, I consider it advisable to retain these birds with the Eastern form. Many species of birds in the Khasia Hills show a much greater affinity to birds North of the Brahmapootra than do those in the adjoining hills, an interesting fact accounted for by geologists, who show that this great river, which so often forms the dividing line between subspecies, at one time ran South and East of these hills, linking them with the Northern and separating them from the Southern races which inhabit the other ranges. Apparently the Khasia Hills birds have been long enough in the South to become very much darker than those in the North, yet not quite long enough to bring them to quite the same pitch of rich coloration as attained by most Southern birds.

This is one of the common birds of Kashmir and everyone who has worked that State has found many of its nests. It breeds from 4,000 to 10,000 feet but, generally, between 6,000 and 9,000 feet. In Garhwal Whymper found it breeding at 9,000 feet and Whitehead obtained it at Torhana, in the Khagan Valley, at 9,500 feet. In the Simla States it breeds at lower elevation, Dodsworth and Jones getting nests between 6,000 and 7,500 feet. The highest elevation of which I have any record is 10,000 feet in the Chambī Valley.

This is a forest Flycatcher, breeding in almost any kind of forest which is fairly dense. Osmaston says that "it is a very common bird in the silver fir forests of Kashmir, breeding from about 8,000 to 10,000 ft. in June and July," and it seems to prefer coniferous woods to others.



MUSCICAPULA TRICOLOR TRICOLOR.
The Western Slaty-blue Flycatcher.
(Pahlgam, Kashmir, 7,400 ft., 1.6.32.)

Both Brooks and Cock took many nests in Kashmir which they sent to Hume, who thus describes them ('Nests and Eggs,' 2nd ed. vol. ii, p. 3):—"The nests are massive little cups, with an external diameter of from $3\frac{1}{2}$ inches to nearly 4 inches and from $1\frac{3}{4}$ to $2\frac{1}{4}$ inches in height. The egg-cavity is comparatively small, not exceeding 2 inches in diameter and $1\frac{1}{4}$ inch in depth. The principal material of the nest is fine moss, but with this is intermingled a quantity of fine wool and fur, a few cobwebs and, especially towards the base of the nest, tiny dry leaves, lichen, and fir-needles. There is no separate lining, but the interior of the egg-cavity has the moss and wool very compactly and smoothly woven together, so as to form a beautifully soft and even bed for the eggs to lie on. The nest is a neat little cup placed in a hollow in the side of a tree-trunk."

There is little one can add to this beyond the fact that the nest is sometimes definitely lined with fur, wool and a few feathers.

The site chosen for the nest is, in five instances out of six, a natural hollow or crevice in the bark of a tree-trunk. Davidson says:—"The position of the nests varied; most were in crevices in trees, but not so deeply in as in the case of *Siphia*, and we could generally get the eggs out without requiring an axe. The nest consisted of moss and hair and a few feathers; they were generally low down, in only one case exceeding 10 feet, and that was only 18. In two instances, however, we found nests of this bird placed against the trunks of trees." Nests as high as 18 feet must be exceptional, for Ward says they usually build quite low down and Osmaston says "the nest is placed generally well within reach of the hand."

Occasionally a nest may be found built on a horizontal branch, generally close to the trunk, and in such positions they only differ from the other nests in being well-finished cups all round instead of being more or less shapeless where they fit into the back of the hollow.

The breeding season is a short one, extending over May and June, and few complete nests will be found before the 10th May or after the 25th June. The birds are undoubtedly single brooded, though stolen or destroyed nests and eggs are often replaced by others.

The eggs in a full clutch number three or four, more often the latter, but I have never seen or heard of a clutch of five. The ground-colour varies from a pink so pale that it appears almost white to a rather warm creamy pink. Most eggs are minutely speckled with pinkish-red, so finely distributed that many eggs seem to be a uniform pale pink; others have the marks denser at the larger end, where they form well-defined rings or caps. I have one set only in which the markings form definite blotches and these are practically all at the larger end, where they show up well against the almost white ground.

The texture is very fine and many of the eggs, especially those most unicoloured, have a strong gloss.

One hundred eggs average 15.8×12.1 mm. : maxima 17.1×12.0 and 15.1×12.9 mm. ; minima 14.9×12.0 and 15.3×11.8 mm.

Many males breed in juvenile or semi-mature dress, a character remarked on by Brooks, Davidson and others.

(646) *Muscicapula tricolor cerviniventris* Sharpe.

THE EASTERN SLATY-BLUE FLYCATCHER.

Cyornis tricolor cerviniventris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 220.
Muscicapula tricolor cerviniventris, ibid. vol. viii, p. 628.

This, the Eastern race of the preceding bird, takes its place in the hills South of the Brahmapootra, the Chin Hills to Yunnan in the East, and South through the Shan States and Siam and the central hills of Burma to Karenni. In the Chin Hills Hopwood and Mackenzie found it breeding at about 5,000 feet, while in the Khasia Hills I found a few nests between 5,000 and 6,200. They seem to keep entirely to thick wet forest with much undergrowth, wandering about in the lower branches of the higher trees and the taller undergrowth. I never saw them in forest composed entirely of Pine but, where this grew, closely mixed with Rhododendron, Oak (*Quercus serratifolia*) and other trees, a few pairs of these birds were sure to be met with all the year round and, during the breeding season, making their nests, in every case seen by myself, in holes or crevices in gnarled and aged Rhododendron-trees. The nests were all placed just inside small holes, so that the outer part of the nest was flush with the outside of the hole, and all were within reach of my hand when I stood on one of the moss-covered rocks by which they were surrounded.

They were very carefully concealed, blending so well with their green and dripping surroundings that I never succeeded in finding a nest that was not shown me by the bird flitting off it when I was within a few feet of her.

The nests were all just like those of the Western form—very neat little cups of green moss, lined with fur (that of bamboo-rats in those I found), and well finished off with cobwebs and down. Between the fur and the body of the nest there was always an intervening layer of fine roots.

The breeding season in the Chin Hills seems to be from the end of April to the middle of May but, in the Khasia Hills, the few nests we found were from the 29th May to the 17th June.

The full clutch of eggs is three only and they are quite indistinguishable from those of the Western form.

Twenty eggs average 15.8×12.0 mm. : maxima 17.2×12.1 and 15.6×13.0 mm. ; minima 13.1×10.8 mm.

Muscicapula superciliaris.**THE WHITE-BROWED BLUE FLYCATCHER.**(647) **Muscicapula superciliaris superciliaris** (Jerdon).**THE WESTERN WHITE-BROWED BLUE FLYCATCHER.**

Cyornis superciliaris superciliaris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 221.
Muscicapula superciliaris superciliaris, *ibid.* vol. viii, p. 628.

This pretty little Flycatcher is one of the most common of breeding birds throughout the Lower Himalayas as far East as the Simla States and Garhwal, extending Northwards throughout Kashmir, though in lessening numbers, breeding at all elevations between 5,000 and 10,000 feet.

In Simla, where they are extremely numerous, Jones and Dods-worth took many nests at about 7,000 feet. In Murree, Mussoorie etc. Marshall, Rattray, Mackinnon and others took them at from 5,000 to 7,500, and Marshall says "the general average elevation was about 6,500. Bates took one nest at Tiderwat, Kashmir, at 10,000 feet.

As regards its habitat in Kashmir, Osmaston writes (*Journ. Bomb. Nat. Hist. Soc.* vol. xxxi, p. 987, 1927):—"This bird, so common in the hill-forests in Garhwal and Kuman, is not very common in Kashmir. It is found in the mixed forest of blue pine, silver fir and broad-leaved species at from about 6,300' to 9,000', and here they breed." Davidson found them numerous at Gund over the wooded hills, at an elevation of 7,500 feet and upwards.

At whatever height they are found breeding it will always be in well forested country, though the woods themselves may be of rather scattered Pines or of mixed character and far more dense.

The nests are always placed in holes or rifts in trees, though the height from the ground and the nature of the hole varies greatly. Thus, of three nests taken by Davidson at Gund, "the first was in a disused hole of a Woodpecker, 20 feet from the ground; the second in a hole in a thin tree only 12 feet from the ground, while the last was over 25 feet, in a rotten branch of a dead tree."

Hume says that they make their nests "occasionally between two stones of the terraced wall of some fallow or deserted field." Osmaston once actually found "the birds had appropriated the deserted nest of a Wren.

The nest is a well-made little cup of green and dried moss lined with fibre or roots. Sometimes it is lined with hair and rarely with a few feathers. Bates describes the nest taken by him at Tiderwat as "composed of a layer of moss, then a layer of birch-bark and finally lined with hair." Osmaston says the nests "are composed of moss and grass and are lined with fine strips of bark and a little hair."

The egg-cavity is a tiny neat cup averaging something under $1\frac{3}{4}$ inch across and varying in depth from 1 to $1\frac{1}{4}$ inch. Outwardly the nests conform to the shape of the hole in which they are built but, as the birds usually select small holes, they are seldom more than three or four inches in diameter.

The breeding season runs from April to July and, perhaps, some birds have two broods. In and around Simla Jones and Dodsworth took or found nests with eggs from the middle of April to the end of June; Davidson took two nests in Gund between the 20th and 28th May and Bates took his nest at Tiderwat, with three fresh eggs, on the 21st July.

The normal full clutch of eggs is four, occasionally three; Osmaston certainly speaks of three to five eggs as the full complement, but I have never seen a five and there were none such in his collection when he made it over to me. Hume also says they lay from four to six, but no other collector has ever found more than four.

They are quite unlike those of the *tricolor* group and, instead of being pink eggs, vary from pale olive-greenish to dull stone-buff in ground-colour, while the markings range from pale reddish-brown in the green eggs to warm reddish-brown in the other type. In the pale green eggs the marks consist of minute freckles at the larger end, where they coalesce to form a cap and are sparse elsewhere. In the red eggs they consist of the same minute frecklings but, so numerous over the whole egg, that it looks as if uniform rich red-brown. Intermediate eggs occur, but the large majority are definitely of one or other of the extreme types.

In shape they are rather broad, short ovals, but rather longer ovals are not rare. The texture is close and fine but the surface glossless or nearly so.

One hundred eggs average 16.0×12.2 mm. : maxima 17.2×12.2 and 17.1×13.0 mm. ; minima 14.2×11.9 and 14.5×11.5 mm.

Many males breed in immature or half full plumage. I can find nothing on record as to which sex incubates or builds the nest or how long incubation lasts.

(648) *Muscicapula superciliaris æstigma* Gray.

THE LITTLE BLUE-AND-WHITE FLYCATCHER.

Cyornis superciliaris æstigma, Fauna B. I., Birds, 2nd ed. vol. ii, p. 223.
Muscicapula superciliaris æstigma, ibid. vol. viii, p. 628.

The present bird, which is undoubtedly only the Eastern form of the White-browed Blue Flycatcher, breeds in the Outer Himalayas from Nepal to Eastern Assam both North and South of the Brahmapootra. Further East it occurs in the Chin, Kachin and Bhamo Hills to Karenni and to Yunnan.

In Sikkim Stevens only found this Flycatcher from September to April, between 4,000 and 5,000 feet, but never in the breeding season.

In the South Assam Hills it breeds between 5,000 feet and the higher hills, whilst in Cachar I twice found it breeding at elevations under 5,000 feet.

The only known nests are those taken by Bailey in Tibet and by myself in Cachar and the Khasia Hills. Here I found it breeding both in dense evergreen forest and once in Pine forest. In two cases the nests were built in small natural hollows low down in dead stumps of trees, one standing on the edge of a little-used foot-track through evergreen forest and the other in a mixed forest of Pine and Oak. In each of the other instances the nests have been built in holes or rifts in Oak- or Rhododendron-trees between 5 and 8 feet from the ground.

The nests are the same compact, neat little cups as those made by its Western cousin, composed of well-matted moss, more or less mixed and solidified with cobwebs, vegetable down and cotton and lined either with fine roots or with fur. I have never seen any feathers used in the lining of this nest and the fur in one nest was that of a bamboo-rat and in another that of a monkey.

The nests were all found between the 10th and 30th May but they certainly breed in June, though I failed to find nests in that month.

The nest found by Bailey was taken by him at Su Lungba, 10,800 feet, on the 25th June: "Nest of moss lined with fine moss and a little hair, in a cleft of a tree four feet from the ground; four eggs, hard set."

The eggs number three or four and are quite indistinguishable from those of the Western race, though I have none of the palest green type.

Twelve eggs average 15.6×12.2 mm.; maxima 16.2×12.4 and 15.0×12.9 mm.; minima 14.6×12.3 and 15.6×12.0 mm.

Both sexes take part in incubation and both assist in building the nest, though the male may restrict himself to bringing the material, whilst his wife does the actual building.

They are not shy birds and, when their nests are discovered and robbed, both flutter round with great excitement and noise. The male breeds in semi-full dress and, possibly, in the Assam Hills at all events, seldom acquires the full plumage. Of the breeding males I have seen, shot or trapped not one has been in full dress.

Muscicapula melanoleuca.

THE LITTLE PIED FLYCATCHER.

(650) ***Muscicapula melanoleuca westermanni*** Sharpe.

THE BURMESE LITTLE PIED FLYCATCHER.

Cyornis melanoleuca westermanni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 224.
Muscicapula melanoleuca westermanni, ibid. vol. viii, p. 628.

The Little Pied Flycatcher breeds from Assam, South of the Brahmapootra, throughout the hill-ranges of Burma and, probably,

of the Malay Peninsula. It is also found in both Siam and Yunnan and is, possibly, a resident breeding bird in the mountains of both these countries.

Mackenzie had a nest with four eggs and the parent bird brought to him in the Chin Hills but gives no description of them nor the date on which they were obtained. The eggs were not in his collection when it came to me.

Tytler took nests and eggs near Kohima, at between 6,000 and 8,000 feet, in May and June and, *in epistola*, informs me that both nests and eggs were exactly like those taken by myself and about which I had written to him.

I found this bird breeding both in North Cachar and the Khasia Hills, generally between 5,000 and 6,000 feet, though I took one nest at 3,800 feet. The birds were rare, and such quiet, unobtrusive little things that they were difficult to find in the dense evergreen forests they generally frequented. The only other forest I ever found them in was fairly dense Oak, the trees outgrowing very thickly but with ample undergrowth of Jasmine, bracken and Caladiums, whilst everywhere there was a green mass of moss, ferns and orchids. The ground, both in the evergreen and in the Oak woods where they nested, was very broken up, usually very steep, and always with many outcrops of rock, clothed with the same luxuriant verdure as the trees. The cock bird has a sweet, though feeble, little song but, when near the nest, the only sound I ever heard them make was a feeble croak or an equally feeble squeak, neither of which I realized at first came from a bird.

The nests were quite typical of this group of Flycatchers. My first nest, taken on the 29th April, 1895, was described in 'The Ibis' (1906, p. 272):—"A tiny cup of moss, moss-roots and stems of maidenhair ferns, all neatly and compactly interwoven, the moss only showing outside. The lining was of the very finest hair-like roots alone, many of those being of considerable length, yet wound round with the greatest possible neatness. It was placed on the ground on the rocky side of a steep hill and was semi-protected both above and on both sides by stones, in the hollow between which it was fitted. All around grew bracken, wild balsams, and small ferns, and the nest was quite concealed from view, but was found by a Naga through the actions of the parent birds," both of which he snared.

All the nests I saw were identical in construction but were in differing sites. A second nest, taken at 6,000 feet, was wedged in a hollow under a rock on a steep, almost precipitous hill-side; a third was taken from a split in the face of a rock; a fourth from a hollow formed by two large intertwined boughs of a Rhododendron-tree; while a fifth was taken from a hole among the massive, contorted roots of a tree, and a sixth from a hole in the trunk of another tree. They never seem to be built at any height from the ground whether in tree or rock, and the highest I have seen was not more than 4 feet up.

The breeding season is from the end of April to the beginning of June, and I have taken fresh eggs from the 29th April to the 2nd June.

The full clutch is three or four. In appearance the eggs are quite typical of the genus. If casually examined they appear to be uncoloured reddish-brown eggs but, if carefully examined through a powerful glass, the ground-colour is seen to be a warm buff, the whole surface so densely covered with minute specks of rather dark reddish-brown that the ground cannot be seen. The texture is fine and close with but little or no gloss. The shape is a broad regular oval and is very constant.

Thirty eggs average 15.1×11.9 mm. : maxima 16.1×12.2 and 15.9×12.3 mm. ; minima 14.1×11.5 and 15.0×11.2 mm.

Both sexes take part in incubation and specimens of both were trapped on the nest. I have no information in regard to the building of the nest.

(651) *Muscicapula sapphira* Tickell.

THE SAPPHIRE-HEADED FLYCATCHER.

Cyornis sapphira, Fauna B. I., Birds, 2nd ed. vol. ii, p. 225.

Muscicapula sapphira, ibid. vol. viii, p. 628.

This Flycatcher probably breeds from Sikkim to Eastern Assam and the Chin and Kachin Hills. In Sikkim no one has ever taken a nest, but Stevens saw it in Summer in the warmer valleys, and believed it bred at about 6,000 to 7,000 feet.

It is essentially a forest bird and was not uncommon in the stunted Oak forest at 6,000 feet in North Cachar, as well as in the thick evergreen forest down to 4,000 feet. I found one nest at the latter height and a few others about 6,000 feet, and the former altitude must, I now think, have been very unusual.

The first nest taken of this bird was found by Nagas on the 4th May, 1891, the female being trapped on the nest and afterwards identified in the British Museum. This nest and other nests taken later are described in 'The Ibis' (1906, p. 273) :—

"I took no nests of this species on the ground nor did any of my collectors ; all were placed either in, or half in, holes and hollows of tree-stumps. Where they were altogether inside, the entrance was often quite exposed, but where they projected at all they were always well concealed by moss, lichens, ferns, or orchids.

"For the size of the birds the nests were often bulky, the materials filling up hollows, sometimes 8 inches across, whilst the depth of the nest itself was as much as 3 or 4 inches.

"In all cases the materials used were of the same kind, principally moss, this, in the main, consisting of long thin sprays taken from neighbouring trees, which were covered with hanging moss

often as much as 18 inches in length. At the base of the nest this was thrown in anyhow and was much mixed with roots, lichen, fern-stems, small bits of bark, and other similar materials; but, as the nest itself began to evolve from the materials, the rougher articles were discarded, and finally a neat little cup was formed almost entirely of moss, moss-roots and the rachides of maiden-hair ferns, while in a few cases feathers were also incorporated with the other materials, or sometimes a little cotton-down. The interior of the cup was rather more than 2 inches in diameter and 1 inch in depth, but in some cases the depth exceeded the width.

“The full complement of eggs is four.”

The birds breed in May and June and probably some eggs are laid in the end of April, as I have seen quite advanced young in early May.

The eggs vary very much. The first clutch of eggs taken had the ground a very faint creamy white, the larger ends stippled with pale red, these marks coalescing to form distinct zones. These eggs measure 16.6×13.0 , 16.2×11.8 and 16.0×11.5 mm. and are probably rather abnormal both in shape and colour.

Other eggs range from rather pale yellowish-grey to a warm buff-stone in ground-colour and from the faintest stippling and freckling of pale reddish to a dense stippling of reddish-brown so thickly disposed as to make the eggs look all of this colour.

In shape and texture they are typical of the genus and sixteen eggs average 15.4×11.8 mm.: maxima 16.2×12.2 and 16.0×12.3 mm.; minima 15.0×11.6 mm.

Both sexes incubate but I have never seen a nest being built. The male frequently breeds in immature plumage and I have seen very few in really full dress.

Muscicapula pallipes.

THE WHITE-FOOTED BLUE FLYCATCHER.

(653) **Muscicapula pallipes pallipes** (Jerdon).

THE INDIAN WHITE-FOOTED BLUE FLYCATCHER.

Cyornis pallipes pallipes, Fauna B. I., Birds, 2nd ed. vol. ii, p. 228.
Muscicapula pallipes pallipes, *ibid.* vol. viii, p. 628.

This Flycatcher is restricted to the South-West of India, from Belgaum to the extreme South of Travancore, breeding in the hills from the level of the plains up to 4,000 feet but, principally, between 1,000 and 2,000 feet.

I have a clutch of three eggs taken by Davidson in 1889, fully scribed in his own handwriting as those of this Flycatcher but,

probably, not identified until much later, as even in 1893 he was uncertain of the bird's breeding habits. Later, he and T. R. Bell took many nests. The first properly authenticated nest was that taken by A. S. Cardew in June 1894. Of this he writes:—"In the same month I found the nest of another bird, *Cyornis pallidipes*. The nest was found at an elevation of 4,000 feet above the sea. It was placed in a hole in a bank under the protection of a large rock, and by the side of the old ghât-road or riding-path to Coonor, on which scores of people pass up and down daily. It was composed of roots on the outside, with a few dried leaves, and lined with pine-fibres and contained three young a few days old." Davidson's first nest was taken in mixed deciduous and evergreen forests, fairly open and with little undergrowth.

Stewart, who took many nests of this Flycatcher, writes to me as follows:—"This Flycatcher keeps to damp forest, where the nest is usually found near water. The nest is generally placed on a ledge of a rock, or in a hole in a tree-stump, a few feet from the ground, and is built roughly and untidily of moss. Nearly all those I took myself were at elevations between 1,000 and 2,000 feet, where the bird is fairly common, but I have heard it in suitable forest up to 4,000 feet. *Cyornis pallipes* breeds chiefly during the rains, but I have found nests as early as February and as late as September."

Davidson describes a nest taken by him as "a cup of green moss, lined with lichen, fine shreds of grass and a few fine roots. Outwardly it was roughly and untidily built, but the cup itself was neat and well finished. It was placed inside a rather large hollow in an old dead stump, a couple of feet from the ground, and well hidden by moss and creepers."

The eggs almost invariably number four in a full clutch and are more like small eggs of *Copsychus* and *Kittacincla* than those of other Flycatchers. The ground varies from pale dull sea-green to a warm yellowish-stone. Most eggs are richly and profusely blotched all over with dark brown, or chocolate-brown, the blotches more numerous at the larger end, where they sometimes form zones or caps. In some they are very thick all over the surface but never so much so as to make the eggs look unicoloured. Most eggs have secondary blotches of grey or pale brown but these are very inconspicuous. In shape they are short, blunt ovals, occasionally a little compressed at the smaller end. The texture is rather coarse and the surface has a slight gloss, not always present.

Forty-five eggs average 20.2×15.5 mm. : maxima 22.0×16.0 and 20.9×16.5 mm. ; minima 19.4×15.0 and 20.1×14.6 mm.

They appear to be very shy birds at the nest and very difficult to watch on to them. There is no information at present as to incubation and which sex constructs the nest.

Muscicapula unicolor.

THE PALE BLUE FLYCATCHER.

(655) **Muscicapula unicolor unicolor** (Blyth).

THE INDIAN PALE BLUE FLYCATCHER.

Cyornis unicolor unicolor, Fauna B. I., Birds, 2nd ed. vol. ii, p. 230.
Muscicapula unicolor unicolor, ibid. vol. viii, p. 628.

This fine Blue Flycatcher breeds in the Outer Himalayas, between 5,000 and 8,000 feet, from Sikkim to the Chin Hills.

Very little is known about its breeding but it is undoubtedly a bird of humid subtropical forests. Mandelli found it breeding in Native Sikkim and sent Hume two nests, of which one was taken on the 1st August. Hume describes these nests as follows:—
 “It is a massive cup of moss and fern-roots strongly felted together, about 3·75 inches in diameter and 2 inches in height exteriorly, with a shallow central cavity about 2 inches in diameter and 0·75 inch in depth. It contained two eggs nearly ready to hatch off; it was placed in a depression in the trunk of a huge tree about 10 feet from the ground. Another nest of this species sent me from Sikkim was a felted mass of that peculiar grey stringy lichen that is commonly called ‘old man’s beard.’ It was little more than a pad 4 inches in diameter and 1 inch in thickness, with a slight hollow in the centre for the egg, and was placed in a hole at the junction of a large branch with the trunk of a tree.”

Since Mandelli’s time no European has taken the nest, but twice, in the five years I was in Margherita, Trans-Dikku Nagas brought down nests, eggs and birds to Dr. Coltart and myself from hills between 5,000 and 7,000 feet. The two nests were both exactly alike, massive cups of green moss mixed with moss- and fern-roots and lined with the latter. In size the inner cup was about $2\frac{3}{4}$ inches across by nearly 2 deep, the outside evidently having been made to fit into the holes between stones in which the Nagas said they had been placed. Both nests were said to have been built in ravines or banks of watercourses running through heavy forest. One nest contained two and the second four eggs, and they were taken about the first week in April and about the 10th June.

In Shillong I never came across this Flycatcher, but one of my collectors has recently sent me two nests and eggs with the skin of a female of this species. These two nests, taken on the 9th and 12th May respectively, each with four eggs, are probably of the same pair of birds. The two nests, one taken in 1926 and one in 1930, were compact moss-nests lined with moss-roots and lichen and had been placed in between boulders on the banks of a little stream running through Pine forest but with heavy evergreen

growth along the banks of the stream itself. The two nests were built in spots within a few yards of one another.

The eggs, although so large, are quite typical *Muscicapula* eggs. One pair is exactly like the most common type of *pallipes* egg; another set of four has a deep yellow buff ground practically obliterated by numerous freckles and small ill-defined blotches of dark reddish-brown, making the eggs look as if uncoloured bright chocolate-brown. The two other clutches are intermediate, the one nearer the *pallipes* type, the other nearer the chocolate set in appearance.

In shape they are broad, blunt ovals, the texture very hard and fine, glossless in the light-coloured pair, highly glossed in the others.

The fourteen eggs average 23.1×17.5 mm.: maxima 24.2×18.1 mm.; minima 21.5×17.3 and 23.0×16.8 mm.

The females were snared on the eggs in all four instances, but released in one case.

Muscicapula rubeculoides.

THE BLUE-THROATED FLYCATCHER.

(657) *Muscicapula rubeculoides rubeculoides* * (Vigors).

THE INDIAN BLUE-THROATED FLYCATCHER.

Cyornis rubeculoides rebuculoides, Fauna B. I., Birds, 2nd ed. vol. ii, p. 231.
Muscicapula rubeculoides rubeculoides, ibid. vol. viii, p. 628.

The typical form of Blue-throated Flycatcher is found throughout the Lower Himalayas from Kashmir, Kuman, Garhwal and the Simla States to Eastern Assam, both North and South of the Brahmopootra, to the Chin Hills, Northern Chindwin and Yunnan.

The Flycatchers of this genus are nearly all frequenters of ever-green forest, and the present bird keeps entirely to such forests between 2,500 and 6,000 feet, occasionally wandering as high as 8,000 feet. In Assam I only found it breeding in one valley as low as 2,500 feet. This particular valley was densely wooded with enormous trees and ample undergrowth, while down the centre there ran a beautiful little stream, sometimes racing head-long over rocks and boulders and at others placidly meandering in deep pools over which the tropical vegetation hung in deep shade.

* With some hesitation I am following the lines I adopted in vol. viii of the 'Fauna' in accepting Robinson's and Kinnear's views as regards the subspecific dividing of this group of Flycatchers. This means we have within Indian Empire limits :—

M. r. rubeculoides—Himalayas to Manipur, Chin Hills and Upper Chindwin.

M. r. rogersi—Arrakan Yomas and Lower Chindwin.

M. r. dialilaema—South Shan States to Thayetmyo.

M. r. glaucicomans—South Tenasserim and thence East to Hupeh.

In the latter reaches two or three pairs of these birds bred annually, making their nests in the mossy banks, or in between boulders where the sides were steep and rocky. Nowhere else in Assam have I known them breed under 3,000 feet, above which they may always be found in country similar to that described. Hopwood observed them breeding in the Chin Hills and in the Upper Chindwin at 5,000 to 6,000 feet. Osmaston took a nest near Dehra Dun at about 3,000 feet or a little over, while Whymper found it to be a common breeding bird round Naini Tal at about 5,000 feet. Hutton records nests taken at the same height near Mussoorie and, finally, Cock took nests in Kashmir, where it is not a common bird, but does not record the elevation. The greatest height from which I have received nests and eggs was from Kohima, where Field took a nest with four eggs at "over 7,000 feet."

The site of the nest varies considerably. The favourite position is undoubtedly a hollow in a mossy bank, or a hole in a rock on the banks of a stream or in a ravine in dense forest, while I have taken them from holes in dead stumps, crevices and holes in living trees and, once or twice, from among thick clumps of ferns and orchids growing on the trunks of moss-covered trees. One I found in a crevice in a Cachari temple completely screened by the creepers growing over it. I had been sitting up in the temple all night over the body of a man, killed by a tiger, and when daylight came I stepped down the side of the great rock, from which the temple had been carved, nearly putting my foot into the nest, from which the frightened little birds wildly dashed, just in time to escape destruction. Hopwood took two nests built in clefts in epiphytic Figs.

The nest never seems to vary at all. The outer materials are always green moss, with a few additions, not always present, of roots, small dead leaves, or a little lichen. The lining is nearly always of very fine moss- or fern-roots, the rhizomorph of lichen, or the finest of grass-roots. Very rarely hair is used, as in a nest found by Osmaston, but in some hundreds of nests I do not think I have seen three such linings.

In shape the nest generally conforms to that of the hollow in which it is built. The outer wall, which is usually flush with the opening and very seldom far in, is always well rounded off and finished, and in the few nests I have seen built in situations allowing of it, the whole nest has been neatly rounded and finished off in hemispherical cup-shape. The egg-cavity is generally about 2 inches in diameter by 1 inch or more in depth.

Hume describes the nests as being sometimes merely a small pad of roots placed in a hole in a tree, while one built in a hollow bamboo was a shallow saucer about 4 inches in diameter, composed of the fine stems of some pennated leaf, carefully curved round, and one or two dead leaves.

They are early breeders but many birds have two broods, laying twice in the same nest or less often, making a new nest not far from the old one for the second family. This I know to be the case, though Hodgson says they are single brooded. Twice I have had pairs of these Flycatchers rear two broods in ravines not 200 yards from my bungalow garden. I have taken eggs from the 3rd April to the 4th August, but Mackenzie obtained three fresh eggs from a nest on the 27th March in the Chin Hills, where he and Hopwood found most birds breeding in April and early May. About Naini Tal Whympers found them to lay in May, June and July, while in Nepal Hodgson says that they lay in April, the young being ready to fly in June and July.

The normal full clutch is four, rarely five, and occasionally three only; I have also one of six.

In colour, if looked at superficially, as a series, they appear to be unicoloured pale olive-brown eggs, some darker, some paler and some more strongly tinged with olive than others. If looked into carefully it is seen that the ground-colour in most is a pale olive or yellowish-stone, stippled over very closely with olive-brown or reddish olive-brown. In the minority of eggs the ground-colour is more in evidence and the spots and freckles less numerous except at the larger end, where they may coalesce to form ill-defined caps or rings. A few clutches have the eggs very pale yellow-stone colour, with freckles and tiny blotches of light reddish-brown, nearly always more numerous at the larger end than elsewhere. These eggs approach those of the genera *Niltava* and *Eumyias*.

Sixty eggs average 18.7×14.3 mm. : maxima 20.3×14.0 and 18.2×15.5 mm. ; minima 17.2×14.1 and 18.4×13.6 mm. A pigmy egg in the six-clutch referred to above measures only 13.8×11.4 mm.

Although this is a genus in which the male greatly outshines the female in *conspicuous* beauty, the former takes a great share in the incubation and I have repeatedly caught him on the nest. Hodgson also says that both sexes hatch and rear the young. Perhaps the perfection with which the nest is always hidden permits of his sitting in safety. The eggs take eleven or twelve days to hatch, but I cannot be quite certain which.

(659) *Muscicapula rubeculoides dialilæma* Salvadori.

THE KARENNI BLUE-THROATED FLYCATCHER.

Cyornis banyumas dialilæma, Fauna B. I., Birds, 2nd ed. vol. ii, p. 233.
Muscicapula rubeculoides dialilæma, *ibid.* vol. viii, p. 629.

According to Robinson and Kinnear, this race is found from the Shan States South to Thayetmyo, thence ranging far South into Tenasserim and peninsular Siam, and certainly breeding as far South as Ye in Tenasserim.

Owing to the absence of skins of the parents of eggs taken in the area occupied by this bird and closely allied species, it is impossible now to identify a great many of them. The only clutch of eggs in my collection which can be satisfactorily retained as those of this Flycatcher is one taken by Hopwood on the 24th March at Sainghoo.

The nest was described to me by Hopwood as a mere pad of roots, moss and a few leaves placed in a hole in a dead bamboo, resting on the node below the entrance-hole. The bamboo was one cut from a clump, but still upright against it, growing in very dense bamboo-jungle. The birds, however, are, as a rule, haunters of evergreen forest rather than of bamboo-jungle, and its breeding in the latter is, perhaps, exceptional.

The three eggs are just like those of *M. r. rubeculoides* and are of the pale type, with fairly definite caps at the large end, where the tiny freckles form a hazy cloud or cap.

The eggs measure 17.0×13.9 , 17.3×14.1 and 17.1×13.9 mm.

Muscicapula whitei.

THE BHAMO BLUE FLYCATCHER.

(659 a) *Muscicapula whitei whitei* Harington.

THE BHAMO BLUE FLYCATCHER.

Cyornis whitei Harington, Ann. & Mag. Nat. Hist. ser. 8, vol. ii, p. 245, 1908: Bhamo.

Muscicapula whitei whitei, Fauna B. I., Birds, 2nd ed. vol. vii, p. 135.

Robinson and Kloss define the range of the Bhamo Blue Flycatcher as follows:—

“Upper Assam, Upper Burma to French Laos, Yunnan and Tonkin, and through the Shan States South to Karen-nee and South Tenasserim.”

Under the name of *Cyornis banyumas diablilcema* Wickham thus describes the nesting of this species:—“I found this bird common in the latter [Shan Hills], and it breeds on the crags at Thoungyi. I shot the female off a nest, but this hardly helped me to identify the species, and I subsequently got a male. The nests are neat and well hidden against the moss-green trunk of a tree, sometimes quite low down. I found the nests in May and June, but I believe they also sometimes breed much earlier than this, as I shot a young fully-fledged male early in March. This young bird had a blue tail and a bluish tinge to all its feathers: it was with its parents.” This young male was undoubtedly a bird of the previous year.

Harington took several nests with either three or four eggs in April and May in the Bhamo Hills round Sinlum Kaba, at about 5,000 feet, while Cook took nests in the same place in 1913 and near Kalaw, in the Shan States, in 1912. These were all taken in April, but

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beyond this Cook has given no description of the nest, as he thought the birds were all the same as *M. r. rubeculoides*, and in a letter to me he merely says "the eggs and nests are exactly like those you found in North Cachet," *i. e.*, moss nests lined with roots and placed in holes in banks, dead trees, or rocks.

The few eggs in my collection are all like the dark unicoloured, or nearly unicoloured, eggs of *M. r. rubeculoides*.

Ten eggs average 20.5×14.5 mm. : maxima 20.5×14.5 and 18.5×15.2 mm. ; minima 17.9×14.0 mm.

Muscicapula tickelliæ.

THE BLUE FLYCATCHER.

(660) **Muscicapula tickelliæ tickelliæ.**

THE CENTRAL INDIAN BLUE FLYCATCHER.

Cyornis tickelliæ tickelliæ, Fauna B. I., Birds, 2nd ed. vol. ii, p. 234.
Muscicapula tickelliæ tickelliæ, *ibid.* vol. viii, p. 628.

Robinson and Kinnear give the range of Tickell's Blue Flycatcher as "practically the whole of India west of Calcutta, but not in Sind, and rare in the sub-Himalayan tracts." Apparently they do not consider that any form of *tickelliæ* occurs in Assam or Burma until we reach the form *sumatrensis* in peninsular Siam. This curious hiatus does not, however, actually occur, as I have received blue females with nests and eggs from Karenni (Cook), Upper Chindwin (Hopwood), and South of Ye (Partridge). The last was undoubtedly *sumatrensis* but, in view of what we now know about the *Muscicapula* (*Cyornis*) group, it would not be possible to definitely name the others, though, at the time I got them, I had no doubt as to their being true *tickelliæ*. The skins, unfortunately, are not in the British Museum and we cannot now trace them.

This Flycatcher breeds at all elevations from the plains, up to about 6,000 feet, over the whole of Central India and South-Western India, and again in Behar and parts of Western Bengal. It is a very common breeding bird in the Bombay Presidency. Davidson says:—"The Blue Robin is one of our commonest birds at this season [July] along the ghats, and its pretty metallic song seems never to cease if you wander along any of the nullahs. Its nests, of which I have found many, including four or five with eggs, were placed in hollows, either in banks or in the roots of trees, and were composed of dead leaves, lined with fine roots, sometimes intertwined with hair."

From the above it will be seen that in the Western Ghats the nest differs conspicuously from those of the *rubeculoides* group in having no moss on the outer walls. Nunn also describes a nest

as similar to those obtained by Davidson—"a small, rather deep cup, compactly woven of fine grass-roots, and lined with similar materials, but of a still finer quality; externally a few dry leaves were incorporated in the structure." Terry and Kinloch, again, describe the nests they obtained in the Palni Hills as made of grass.

This, however, is not always so. Miss Cockburn writes that a Nilgiri nest taken from a hole in a tree "was composed almost entirely of moss and moss-roots, the latter forming the lining, a good many leaves being incorporated in the exterior surface. The nest was between 3 and 4 inches in diameter externally; the egg-cavity very shallow."

Betham, who took many nests round Poona, says of them:—"Common in certain localities, where they haunt shady groves and ravines, the male singing very prettily during the breeding season. They build in banks, holes and recesses in trees and walls and often on the window-ledges of old disused houses, where they are very conspicuous. The nest is a deep, solid cup composed of moss, twigs and grass, with which skeleton leaves are often mixed. They are lined with bents, fur, hair, etc."

Betham also has a very interesting note (Journ. Bomb. Nat. Hist. Soc. vol. xiv, p. 398, 1902), in which he gives details of several curious sites for nests found round Poona:—"Last year I found several more nests of this pretty little bird. The first was situated down a well where a brick had been displaced. On the 26th of June I found three nests. One was situated in a bank under a prickly-pear root, another in a crevice in a Banyan-tree and a third in a rubbish heap of dry leaves, all well concealed. In addition to the above, I found two more, one in a hole in a tree and the other in the face of a wall where a brick had been displaced, quite exposed. The nest is very solid, built of roots, in which a certain amount of earth is incorporated, and embellished with dried and skeleton leaves."

Unlike the *rubeculoides* group of Flycatchers, this bird is far more familiar in its habits and much less of a jungle-bird. Although on the whole they prefer the forest and shady ravines, they will breed in the vicinity of villages and towns, in gardens and, as Betham shows, actually in unoccupied houses. In proportion this bird nests far more commonly in holes in trees and less often in holes in banks than does the Indian Blue-throated Flycatcher, though nests may often be found in the latter or in holes in rock-faces or in river-banks.

The breeding season is a late one over most of its breeding area. In the Western Ghats, Poona and Central India they breed from May and June on to as late as August. In Monghyr, however, Ollenbach took a nest with three eggs on the 9th March, whilst the one Hopwood found in the Upper Chindwin was taken on the 28th of that month. In the Nilgiris Miss Cockburn says that they lay principally in May and June.

The full clutch of eggs is three or four but they occasionally lay five, and Buchanan took one nest with six eggs at Mana, in the Punjab, on the 2nd July.

In colour they cannot be distinguished from the eggs of the Indian Blue-throated Robin but, as a series, they look even more unicoloured than do these eggs, and in many eggs it is impossible to see the freckles, the whole surface being a dull olive-brown, rarely tinged with rufous or reddish.

Eighty eggs average 18.4×14.2 mm. : maxima 19.6×14.3 and 18.5×15.3 mm. ; minima 16.8×13.6 and 18.0×13.4 mm.

(661) *Muscicapula tickelliae sumatrensis* Sharpe.

THE SUMATRAN BLUE FLYCATCHER.

Cyornis tickelliae sumatrensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 235.
Muscicapula tickelliae sumatrensis, ibid. vol. viii, p. 628.

Robinson and Kinnear do not admit the occurrence of this Flycatcher within our limits, though they say that it is very common on the Eastern side of peninsular Siam and occurs over the greater portion of Siam and the Indo-Chinese countries. The birds obtained by Partridge at Ye, in Tenasserim, were undoubtedly of the Southern race, and I have little doubt that the single bird obtained by Cook in Karenni was the same.

The nest taken by Partridge was a deep moss nest, lined with roots, said to have been taken from a hollow in a low moss-covered stump standing in a ravine in evergreen forest.

The three eggs were broken in transit to India but were just like those of the preceding bird. They were taken on the 13th April.

(662) *Muscicapula tickelliae jerdoni* (Blyth).

THE CEYLON BLUE FLYCATCHER.

Cyornis tickelliae nesaea, Fauna B. I., Birds, 2nd ed. vol. ii, p. 236.
Muscicapula tickelliae jerdoni, ibid. vol. viii, p. 628.

This Blue Flycatcher is confined to Ceylon, where it is a resident breeding form from the foot-hills up to 4,000 feet, wherever there is forest. Wait says that it is sometimes to be seen in semi-wild village gardens where there are Jak-trees, but it does not, apparently, breed in these. He records about the nidification of this bird :—
“ I have taken eggs as early as February and as late as June. The nest is rather a deep little cup of dead leaves, moss and grass, lined with finer materials and placed in holes in banks or trees. Three is the usual number of eggs.”

Phillips has sent me several nests from Kitulgala, a small village about 700 feet in elevation, and from Mousakande, where the nests

were taken at 2,500 and 3,000 feet altitude. Of the former village he writes :—“ Kitulgala is a small village at the foot of the hills on the main road to Hutton. Though I give the main elevation as 700 feet, the Estate runs up from 500 feet up to 2,000 and 3,000 feet. There is still much unopened jungle all round it. The average rainfall is 200” a year.”

The nests are described by Phillips as varying from mere pads of moss, roots and decaying leaves to quite well-made, deep little cups of the same materials, lined with fine grass or fine roots. One nest was placed in a hole in a rock, the others in hollows in banks in heavy forest.

Nine eggs, all I have seen, average 19.5×14.8 mm. : maxima 20.1×14.8 and 19.2×15.1 mm. ; minima 19.0×14.7 and 20.1×14.6 mm.

They cannot be in any way distinguished from those of other birds of the genus, but are, perhaps, rather more rufous, less olive than most.

(663) *Muscicapula magnirostris* (Blyth).

THE LARGE-BILLED BLUE FLYCATCHER.

Cyornis magnirostris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 236.
Muscicapula magnirostris, ibid. vol. viii, p. 628.

The Large-billed Blue Flycatcher is found from Nepal to the hills of East and South Assam but seems to be everywhere a rare bird. It was least uncommon in the Khasia and Cachar Hills, where I found it breeding between 2,500 and 6,000 feet, generally above 4,000 feet. In Margherita, in Eastern Assam, it straggled down as low as 1,000 feet in Summer and all over the adjacent plains in Winter, though even there it was a rare bird.

Apparently the nests have only been taken by myself, except for one taken by Dr. H. N. Coltart, when out with me in Margherita.

There is not much I can add to my remarks made in ‘ The Ibis ’ for July 1896 ; there I say :—“ The nidification of this bird very closely resembles that of *C. rubeculoides* and *C. tickelli*, differing only in a few minor respects, among which those most easily discerned are the following :—*C. magnirostris* makes a rather larger and deeper nest than does either of the Flycatchers above-mentioned and, again, it is less tidy ; secondly, the large-billed Flycatcher almost, if not quite, invariably places its nest actually on the ground, whereas the other two species build their nests, more often than not, in hollows in old stumps or in the tangles of creepers and plants which cover them.

“ *C. magnirostris* is not common in North Cachar, but in late April or early May a few nests may generally be found in the lofty valleys to the East of the district. Here the bird generally selects

some dark ravine, where it makes its nest of moss and moss-roots, lining it with the same, and placing it in some natural hollow among the plants upon a bank, or between the roots of a tree or, more rarely still, at the foot of some shrub. In whatever place it may be built, it is nearly always well hidden, and it would not be an easy nest to find were it not for the male bird's habit of perching close to the nest and singing its cheerful little song with great persistence and energy. Once only have I taken the nest from a hollow in a tree, and this one was found in a stump covered with a plant which looked like a Virginia Creeper, as well as with moss and lichen. This nest was not so bulky as most, measuring only about 5" across and about 2.5" in depth. The average nest would measure about 6" in diameter outwardly, but, of course, exact measurements can seldom be taken, the nest more or less conforming in shape to the hollow in which it is placed and, when such hollow is rather large, it is often a very massive structure. In these instances many leaves and other scraps of rubbish are used to fill in the sides, in addition to the moss of which the true nest is made. The egg-cavity is generally considerably over 2" across the top and the depth is often as much, seldom under $1\frac{1}{2}$ ".

"They breed principally in the end of April and early May, a few late pairs not having their eggs laid until the end of that month. They affect shady ravines and cool evergreen forests for breeding purposes. Like all the Blue Flycatchers, this bird is a very close sitter, but it is also a shy bird, and a nest once handled is sure to be deserted."

In the Khasia Hills we found a few nests in June and one on the 2nd July but, I think, these were probably second broods when the first had come to grief. This late nest was also built in a rather unusual site, a hole in an old Rhododendron-stump about 2 feet from the ground.

The number of eggs laid is four or five, occasionally only three. They are quite typical of the genus, but unicoloured eggs are the exception, and the majority are quite obviously blotched eggs. The variation in colour is also greater, although I have not seen very many clutches. I have one clutch pale sea-green, or grey-green, with small blotches of pale brown, more numerous at the larger end, where they form caps; another set has a buff-stone-ground richly marked with small chocolate-brown blotches, numerous everywhere and forming broad zones at the larger extremity; a third clutch has two eggs normal pale olive-green with light reddish freckles, while a third egg is pale, with a big smudge of red at the larger end, and the fourth is pure white, except for a similar red smudge.

Forty eggs average 19.1×14.6 mm : maxima 20.4×14.6 and 20.1×15.2 mm. ; minima 17.1×14.1 and 18.0×13.5 mm.

(664) *Muscicapella hodgsoni* (Moore).

THE PIGMY BLUE FLYCATCHER.

Nitidula hodgsoni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 237.

Muscicapella hodgsoni, *ibid.* vol. viii, p. 630.

This tiny Blue Flycatcher is found in the Himalayas from Nepal to Eastern Assam, both North and South of the Brahmepootra. It probably breeds from 6,000 feet upwards in tree-forest with ample undergrowth. I never found its nest in either North Cachar or the Khasia Hills and it appears to retire to the more lofty Naga Hills for breeding purposes.

The only person who has ever taken its nest is Masson, who sent me one from which the young flew when he found it. The nest was a tiny saucer of green moss, lined with roots, said to have been wedged in among the thick stems of a creeper growing over an old stump. It was taken on the 20th July, the young being old enough to flutter about the higher trees after they left the nest.

Eumyias thalassina.

THE VERDITER FLYCATCHER.

(665) *Eumyias thalassina thalassina* (Vigors).

THE COMMON VERDITER FLYCATCHER.

Stoparola melanops melanops, Fauna B. I., Birds, 2nd ed. vol. ii, p. 239.

Eumyias thalassina thalassina, *ibid.* vol. viii, p. 630.

This Verditer Flycatcher has a very wide breeding area. It is to be met with over practically the whole of India North of Mysore, Travancore and Madras, though it is not found in Sind. In Burma it occurs over the whole of the Northern districts and as far South as Tenasserim, where it is replaced by the Malayan form, *S. t. thalassoides*. It is common on the East in the Shan States, Siam, Annam and Yunnan. It is not found in the Andamans and Nicobars.

Buchanan, Marshall, Rattray and many others observed it breeding commonly round Murree, between 5,000 and 8,000 feet; Hume, Cock, Jones and Dodsworth record it as equally numerous in the Simla States, whilst at Mussoorie Hutton says: "This is a common species throughout the mountains up to about 12,000 feet." In Sikkim Jerdon, Gammie, Mandelli and many others found it in great numbers between 3,000 and 8,000 feet in the breeding season and, finally, in the hills South of the Brahmepootra this Flycatcher was one of the commonest breeding birds of any family between 4,000 feet and the highest hills, but more often over than under 4,500 feet, though, on the other hand, it bred sometimes as low as 3,000 feet.

Normally this Flycatcher places its nest in a hole in a bank, in among rocks and boulders or in a hole or crevice in some big rock. The place selected is almost invariably a ravine in heavy evergreen forest and, if it has a small stream running down the centre, so much the better. Of these rocky ravines, those with steep precipitous sides, covered with moss, ferns and other vegetation, whether in evergreen or in coniferous forest, are the favourite kind of place; here the nests are tucked away well inside the holes and out of sight while, at the same time, they are well screened from view by the vegetation growing luxuriantly over the rocks. Sometimes it is placed in a comparatively shallow niche but, in such cases, it is made of the moss which surrounds it and cannot be detected without very careful search. After banks and rocks the site next most often chosen is a hole in some rotten stump or dead tree not too high from the ground.

Other places for the nests are given by different observers. Hume mentions one built in the wall of a shed, and both he and Hodgson recorded one which was "resting on the fork of a branch," a position in which I have never seen one. Col. C. H. T. Marshall writes that in Murree "the Verditer Flycatcher always builds under the small wooden bridges that cross the hill-streams. We found more than half a dozen nests all situated under these bridges." Thompson says that these Flycatchers have the same habit in Naini Tal and that one bred regularly every year under a small bridge near his house. Brooks found nests in holes in steep banks "or in a hole in some unfrequented building, under the rafters of the verandah of a dwelling-house and under the eaves of a house-roof. Once I found one in a small niche inside a building or cover built over a well or spring; the size of the little building, which had a domed roof, was about 6 feet square. The floor was water, about 3 feet deep, and directly opposite the door was the small niche in the wall, about 8 inches wide, and here the bird sat on its nest, in full view of every native who came to draw water." Jerdon also says that at Darjiling they sometimes build their nests under the eaves of houses.

The nest is, I think, always much the same. The outer lines conform more or less to the shape of the hollow in which it is built when placed in a small hole, but it is very neat and well finished, the outer wall always being most carefully rounded off. The egg-cavity, very compact and well finished, measures about 2 inches across the top and is often deep in proportion, sometimes as deep as wide and never less than an inch. The greater part of the material used is green moss, which may be more or less mixed with roots and a little fine fibre, with, perhaps, a few dead leaves in the base. The lining is always fine roots, generally of the moss of which the walls are composed. Brooks and Jerdon both say that hair is sometimes employed in the lining and Thompson says that in Naini Tal the walls are sometimes partly constructed of dry coarse grass.

The breeding season is a long one and, in the Assam Hills, I have taken or seen fresh eggs from the 4th April to the 13th August, and I think many pairs have two or even three broods. Godwin-Austen had fully-fledged young brought to him in the middle of May. Probably the majority of eggs are laid between the 15th April and the 15th June.

Both sexes incubate and we have frequently caught both on the nest. Both also help in the construction of the nest, though the male does little more than bring the materials to his wife, who fashions them into the nest. The male seems to sit during the early mornings and the evenings and the female during the day.

The nest, if made early in the season, may take anything from a week to a fortnight to construct but, if late in the season, is sometimes completed in three or four days, both birds working feverishly at it, long hours at a time. Incubation takes twelve to thirteen days.

The normal full complement of eggs is four, rarely five, and sometimes only three.

Most eggs are a pale creamy pink, with a faint ring of tiny reddish blotches round the bigger end, the freckles sparse inside the ring and even more scanty elsewhere. I have never seen a clutch of pure white eggs but some are so nearly white that they appear to be so unless matched with really white ones; nor have I ever seen a completely unmarked set, though the freckles are sometimes very faint and scanty. At the other extreme one gets eggs of a fairly warm cream, more richly and deeply marked with bright reddish, and I have one set almost white, with broad zones of rich deep chestnut blotches, all coalescing.

In shape the eggs vary between broad and long ovals, often considerably pointed at the smaller end. The texture is rather fine, decidedly close, and in many eggs there is a strong gloss, whilst in but very few is this altogether absent.

Two hundred eggs average 19.3×14.6 mm. : maxima 22.0×15.2 and 20.3×16.0 mm. ; minima 17.0×14.0 and 19.0×13.8 mm.

Many eggs are almost inseparable from the eggs of *Niltava sundara*, though the eggs of this latter bird are generally a good deal larger and, taken as a series, are warmer in colour and a little more definitely flecked all over and less definitely zoned.

(666) *Eumyias thalassina thalassoides* (Cab.).

THE MALAY VERDITER FLYCATCHER.

Stoparola melanops thalassoides, Fauna B. I., Birds, 2nd ed. vol. ii, p. 241.
Eumyias thalassina thalassoides, ibid. vol. viii, p. 630.

This subspecies of Verditer Flycatcher extends from the South of Tenasserim, down through peninsular Siam and Burma, to the Malay States, Sumatra and Borneo.

There is nothing on record concerning the nidification of this Flycatcher, but its nests and eggs have been taken in Borneo by Dr. Sobey and by W. A. T. Kellow in the Malay States. The latter says, *in epistola*, that they are quite indistinguishable from those of the Ceylon Verditer Flycatcher.

(667) *Eumyias ceylonensis* (Gray).

THE CEYLON VERDITER FLYCATCHER.

Stoparola sordida, Fauna B. I., Birds, 2nd ed. vol. ii, p. 241.
Eumyias ceylonensis, *ibid.* vol. viii, p. 630.

The Ceylon Verditer Flycatcher is, as its name implies, confined to Ceylon, where it breeds at all levels between 2,000 feet and the highest peaks. Legge says that it frequents "the outskirts of forest, the edges of clearings, the borders of mountain streams, or the sides of roads and paths, in preference to the depths of the jungle."

It is said to be common above Kandy, 2,000 to 2,500 feet, and again in the forest about Newara Eliya. It must occasionally, however, occur actually in the plains, as I have two eggs, taken from near Mt. Lavinia, which are undoubtedly those of this bird.

Bligh, as quoted by Legge, and again by Hume, writes:—"The nest is generally in various suitable places, such as a shallow hole in a rotten stump or in the trunk of a forest tree; and I once found it in a trunk of a felled tree, well protected by a thick branch of a coffee-bush which grew over it. It is composed of moss, lichens, and grasses, lined with fine fibrous materials, and is like a Black-bird's in miniature. The eggs are dull white, thickly sprinkled and blotched with dull reddish."

Wait writes ('Birds of Ceylon,' 2nd ed. p. 59, 1932):—"The breeding season is from March to May. The nest is placed in the crevices of trees, or on ledges on the banks of streams, or of path-cuttings. It is a deepish cup of moss, the outside wall being built up from the ledge on which it rests, and is lined with a few fine vegetable fibres."

Kellow, who took two nests on the 1st March above Kandy, describes them as "beautiful cups of living green moss, lined with moss-roots and wedged into hollows in rocks in the banks of a tiny streamlet running down a ravine in dense forest. Both nests, which were not far apart, were almost concealed by hanging ferns and moss."

The breeding season, as noted above, seems to be always from March to May, and the small series in my own collection, taken by Kellow, Aldworth and Phillips, were all obtained between the 1st March and the 4th May.

The full complement of eggs is two or three and in shape and texture they agree with those of the Northern Verditer Flycatchers, as, indeed, they also do in colour.

White eggs, as described by both Wait and Legge, must be rare and I have none such. All mine have a distinct pinkish ground varying from a very pale creamy pink to a fairly warm salmon-pink. The whole surface is lightly and rather thinly freckled with pale reddish, in most eggs the markings more numerous at the larger end, where they tend to form rings or caps.

Eleven eggs average 20.5×14.8 mm. : maxima 22.2×15.7 and 21.0×16.0 mm. ; minima 20.0×14.2 and 20.4×14.1 mm.

(668) *Eumyias albicaudata* (Jerdon).

THE NILGIRI VERDITER FLYCATCHER.

Stoparola albicaudata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 242.
Eumyias albicaudata, ibid. vol. viii, p. 630.

The Nilgiri Verditer Flycatcher breeds in all the hill-ranges of South-Western India from the Nilgiris to South Travancore, and I have records of its occurrence and breeding in the Palni Hills, the Wynaad, Palghat and Southern Malabar.

They breed from 3,000 feet to almost the tops of the hills but, most often, between 4,000 and 6,000 feet.

They are the most familiar of all the Verditer Flycatchers in their habits, and frequent gardens, parks and the surroundings of villages, as well as breeding in the well-wooded bottoms of valleys, called *sholas*, in the Nilgiris.

The most charming account of this bird's nesting may be found in Bates's book 'Bird-Life in India,' p. 68, but it is, unfortunately, too long to quote. Bates describes instances of the extraordinary tameness of the female on her nest when being photographed in a very dark *shola*.

Normally they breed in holes in banks or in dead trees, either by roadsides or in the *sholas*, but they are said also often to nest in buildings. Miss Cockburn records that in Ooty she "had the pleasure of finding three of the Blue Flycatchers' nests. The first one was built in a bower (not far from our house), the walls of which, being of stone, and having many little holes, a pair of these birds had chosen a snug one to hatch their young in. The other two nests were in holes in the banks of roads."

Davison says that, though generally they breed in holes in banks, he has found nests placed under the eaves of houses, while Darling, jun., refers to even more curious nesting-sites. He writes that they nest "in banks, trees and rocks at any convenient height from the ground, sometimes as high as 30 feet. I have found two nests in bridges between the planking and beams and two under the eaves of houses." Williams, again, obtained a nest at Wellington, where the bird is extremely common, "placed on an iron strut of a bridge, over a hill-stream, in the angle formed by the strut and buttress."

The nest seems to be made invariably with green moss, while the lining is generally of fine roots or hair-like fibres. Both Carter and Williams mention feathers as being sometimes used and, in Wellington, Williams took several nests in which quite a number of feathers had been incorporated in the lining. Most nests are neat soft pads of moss, with quite a small egg-cavity, about 2 inches across and 1 inch deep, placed well back in the hollow. Sometimes, however, when the hole is a large one, the birds collect a great mass of moss, perhaps with a few leaves, roots and twigs added, with which they fill it up. One nest, taken by Williams from a hole in an overhanging bank, had a moss-pad measuring a foot across by several inches in depth. Concealment seems to vary according to taste; some birds hide their nests in holes in trees and banks, well overgrown with moss, ferns or other vegetation, while others, again, build them in holes, the mouths of which are visible to every passer by.

In the Nilgiris they lay from March to May and in the Palnis as late as the first half of June. In Wellington, however, few birds breed after April.

The normal clutch of eggs is two or three, perhaps more often the latter, and no one, except Miss Cockburn, ever found four. This lady, on the other hand, says "they always lay four eggs."

Individual eggs could not possibly be distinguished from the eggs of the Northern Indian Verditer Flycatcher but, taken as a series, they average a rather deeper, warmer salmon-pink. I have one pair of pure white eggs, taken by H. R. Baker in the Nilgiris, and a very handsome single egg, obtained by Howard Campbell, which has a pinkish-white ground with a dense ring of deep reddish-brown, or blood-red, blotches at the larger end.

Sixty eggs average 19.9×14.8 mm.: maxima 22.0×15.5 and 20.5×16.0 mm.; minima 18.4×15.0 and 18.8×14.0 mm.

This is one of the very common birds, very easy to watch and observe, of which we want to know much more. I can find no observations as to which sex incubates the eggs, feeds the young or constructs the nest, nor do we yet know what is the period of incubation.

Anthipes monileger.

THE WHITE-GORGETED FLYCATCHER.

(669) **Anthipes monileger monileger** (Hodgs.).

THE SIKKIM WHITE-GORGETED FLYCATCHER.

Anthipes monileger monileger, Fauna B. I., Birds, 2nd ed. vol. ii, p. 244.

This little Flycatcher has been recorded from Sikkim, East to the hills of Northern Assam, between elevations of 3,000 and

7,000 feet during the Summer, whilst Stevens has more recently recorded it from Nepal (Journ. Bomb. Nat. Hist. Soc. vol. xxx, p. 63, 1924).

The only record of this bird's nidification is in Hume's 'Nests and Eggs,' p. 13, where he describes nests sent to him by Mandelli from Sikkim. He writes:—"One was found at Lebung at an elevation of about 5,800 feet on the 13th May, when it contained four fresh eggs. The nest was placed in a depression of the ground in the midst of grass and low jungle. The other was found in June near the same place, on the ground also amongst the grass on a bank. The one nest is a very shallow saucer composed of very fine moss closely felted together, and with a few dry grasses and dead leaves incorporated at the base, also one or two feathers. It is about 3.5 inches in diameter, with a small central depression, and a little excessively fine grass is intermingled with the moss on the whole upper surface. The other is very similar but slightly larger, and has the whole base and sides completely coated externally with dead semi-skeleton leaves."

Hume describes the eggs as "moderately broad ovals, somewhat pointed at the small end, with a very fine compact and glossy shell. The ground-colour is nearly pure white, there is a conspicuous freckled streaky brownish-red zone about the large end, and spots, specks, and tiny streaks of the same colour sparsely scattered about the rest of the surface of the egg. A few purple spots are intermingled with the red markings of the zone.

"The eggs measure 0.72 by 0.53 (18.2 × 12.9 mm.) and 0.75 by 0.55 (19.0 × 13.4 mm.)."

Like Hume, "I am scarcely inclined to believe in the authenticity of these eggs." It is, however, possible that the eggs were those of the Flycatcher, but were brought to Mandelli in the nests of some other birds. The eggs agree well with those of *Anthipes m. leucops*, of which I have seen a fair number in their nests *in situ*, but the nests themselves are certainly not what one would have expected.

(671) *Anthipes monileger leucops* Sharpe.

THE ASSAM WHITE-GORGETED FLYCATCHER.

Anthipes monileger leucops, Fauna B. I., Birds, 2nd ed. vol. ii, p. 245.

This race of White-gorgeted Flycatcher is found in the Assam Hills South of the Brahmapootra. It also occurs in Manipur, the Chin and Lushai Hills and the hills of Central Burma at least as far South as Karenni. Probably, wherever found, it breeds, as, so far as I have observed, it is very sedentary and moves very little in elevation at the change of seasons. I have found it, in both Summer and Winter, between 3,000 and 6,000 feet but, generally, between 2,500 and 4,500 feet, and at all times in thick

cover, not always forest, but sometimes dense bush-jungle, bamboo-jungle with grass and shrub undergrowth, or deep tree-forest. Nowhere have I found it common and as, in addition, it is a shy, retiring little bird, it is one hard to find and equally hard to observe for more than a few odd moments.

The first nest I ever took of this bird was found on the 3rd May, 1895, at an elevation of about 4,800 feet. It was built on the bank of a small but deep ravine running through rather dense forest, being placed on the ground in among the roots of a bush, and so well concealed that I should never have spotted it but for the bird leaving it at the moment of my passing. A glimpse at the nest showed me it was something new, so nooses were set about the entrance, and within a quarter of an hour both birds had returned and been caught. The nest was a globular affair of grass, leaves and a few ragged old bamboo-leaves, neither very neatly nor very compactly put together, with a lining of very fine grass-stems. Outwardly it measured about 6 inches in its longest diameter by about $4\frac{1}{2}$ in breadth, the egg-chamber being about $2\frac{1}{2}$ inches in diameter by rather less than $3\frac{1}{2}$ in depth.

Another nest, much like that just described, was brought to me by a Naga boy the same day, together with the female, which he had caught on the nest. This nest was taken from a pile of loose stones fallen from the side of a jungle-track and quite overgrown with bushes.

Other nests taken later were very similar to the first two; some were rather neater and more compact, thus making the external measurements rather smaller each way. In one or two nests a few dead leaves were added to the fabric of the walls and in one there was a little dry moss also. Every nest I have seen *in situ* was ball-shaped, but they are so flimsy that they stand no rough handling, and this may account for Mackenzie describing it as cup-shaped. He writes:—"Nest a deep cup in the grass at the base of a tree-stump; built of grass, leaves, and a very little moss, lined with fine grass-fibres. A few bamboo-leaves and skeleton leaves were worked in with the other materials." This nest, which was taken in the Chin Hills at about 6,000 feet, contained four eggs, off which the bird was shot.

The entrance to the nest is always very large and very badly finished off, so that any disturbance of the loose leaves round it makes them fall back, the dome of the nest being destroyed.

Most nests are placed on the ground on banks or among boulders, but I have taken one from a thin fork of a dead sapling, about 3 feet from the ground, quite hidden in a rank growth of ferns and Caladiums. I have also seen one built in an upright fork of a dense bush within a few inches of the ground.

All my eggs, as well as the single clutch taken by Mackenzie in the Chin Hills, were laid in May but we know too little about this

bird's breeding to say how long the breeding season lasts. As, however, I have seen eggs almost hatching on the 8th May, it must certainly sometimes breed and lay in the end of April.

The full complement of eggs is four, and no smaller clutch than this has been taken showing incubation. I have also seen four young in the nest.

The eggs have a china-white ground, with small freckles and blotches varying in colour from pinkish-red to rusty red and reddish-brown. In nearly every egg these markings are sparse everywhere except in a dense ring round the larger extremity, and get fewer still towards the smaller end. The clutch taken by Mackenzie only differs from others in being rather more densely marked.

In shape the eggs are broad, blunt ovals; the texture is hard and fine, with a strong surface-gloss.

Twenty-four eggs average 18.2×13.8 mm. : maxima 19.7×14.0 and 19.0×14.1 mm. ; minima 17.2×13.9 and 17.3×13.2 mm.

The great difference in the nests and eggs of this genus when compared with those of *Cyornis* and *Olcynis* is most striking. The nest is more like that of the genus *Ochromela*, whilst the eggs approach those of the Paradise Flycatchers.

Of the birds trapped on their nests in North Cachar, two were males and one female.

***Olcynis olivaceus*.**

THE OLIVE FLYCATCHER.

(673) *Olcynis olivaceus poliogenys* (Brooks).

THE SIKKIM OLIVE FLYCATCHER.

Anthipes olivaceus poliogenys, Fauna B. I., Birds, 2nd ed. vol. ii, p. 247.
Olcynis olivaceus poliogenys, *ibid.* vol. viii, p. 631.

This subspecies of the Olive Flycatcher extends from Sikkim Eastwards to the whole of Assam, North and South of the Brahmaputra, through Manipur, Lushai Hills and Chin Hills as far as the Irrawaddy. As I have explained (*vide supra*), I cannot separate *saturator* Robinson and Kinnear from *poliogenys*, so the above area remains as given in the 'Fauna.'

With the exception of Coltart, Primrose and myself, no one seems to have found the nest of this Flycatcher. In North Cachar and the Khasia Hills it is common, but I failed to find many nests, possibly because I worked for it at too high elevations. My first nest was taken at about 3,000 feet and it may rarely breed as high as 5,000, but, undoubtedly, most birds in Assam breed from the foot-hills and the broken ground at their base up to about 2,500 feet. In Lakhimpur Coltart and I found many nests at about 1,000 feet

elevation. Here they bred both in the well-covered ravines and in patches of jungle of almost any description, as well as in the wet tropical forests. I also once found a nest in a ravine in scrub- and bamboo-jungle, but this was, I think, exceptional.

Nests and eggs are exactly like those of *Cyornis rubeculoides*, the female of which also very closely resembles that of *A. o. polio-genys*.

The nest is placed in a hollow in a bank or among boulders, or else in some hole in a dead stump or in a rotten bough or trunk of a still living tree. Always, however, it is low down, and I have no record of any nest more than three feet above the ground. Primrose, who took some nests of this Flycatcher in the Gooma Reserve, a forest in the plains of the Goalpara district, found them always placed among or under boulders on banks in the forest, the birds selecting ravines with rocky banks well in the interior of thick forest.

The nests taken by the three of us seem to have been all of the same description, well-made compact cups of which the main material was green moss, mixed in varying degree with dead leaves and grass. Some nests have a good many of these, more especially in the base and lower part of the nest, while others have only an odd scrap or two, possibly picked up with the moss. The lining is generally a good one of fine roots but, at other times, it consists merely of tiny soft bits of the same moss as that contained in the body of the nest. The egg-cavity measures, roughly, 2 to 2½ inches in diameter by about half that in depth and is very neat and well finished, but outwardly the nest may be either a beautiful rounded cup or it may fit into the hollow in which it is placed.

The breeding season lasts from the middle of April to the end of June, most eggs being laid before the 15th June.

These could not possibly be distinguished from those of the genus *Cyornis*. The ground-colour is a pale olive-green, olive-yellow or olive-buff, always dull; the whole of this is practically obliterated by tiny specks of reddish, sometimes rather light, sometimes a deep red-brown. Many eggs, unless carefully examined, look unicoloured olive-brown, reddish-brown or dark brown; a few have the freckles and small blotches fairly distinct and, very rarely, they are more numerous at the larger end, where they form rings or caps.

In shape the eggs are broad, obtuse ovals, the texture is fine and close and the surface has a decided gloss.

Forty eggs average 18.5 × 14.6 mm. : maxima 20.4 × 15.3 and 19.3 × 16.0 mm. ; minima 16.8 × 13.4 mm.

Both sexes share in incubation but I have no knowledge as to which sex builds the nest.

Alseonax latirostris.

THE BROWN FLYCATCHER.

(675) **Alseonax latirostris poonensis** Sykes.

THE INDIAN BROWN FLYCATCHER.

Alseonax latirostris poonensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 249.

In the first edition of the 'Fauna' Sykes's *poonensis* was treated merely as a synonym of *latirostris*, which, in turn, was believed to be a breeding bird of high Northern latitudes only. Later the differences between the two races were admitted and, finally, it was ascertained to breed in India as well as in a huge area in Northern Asia, extending from Japan to the Himalayas and to many places in the plains of India. The nests and eggs have been taken by Davidson, in Mhow, and the adjacent ghats by Messrs. B. Shelley, F. E. Kemp and General Betham, and in Dagshai by Capt. R. A. Skinner. It breeds freely in Japan but, curiously enough, has never been known to breed in China, where La Touche says it is purely a migrant. One would have thought that some difference in plumage must exist between our Indian sedentary bird and the wide-ranging migrants from Japan, but I can detect very little, though Japanese birds may average darker. On the other hand, the Japanese form averages smaller than the Indian, although the measurements overlap.

The first record of its breeding in India is that of Lieut. B. A. G. Shelley (Journ. Bomb. Nat. Hist. Soc. vol. ix, p. 223, 1894). In this he writes:—"I am forwarding to you today a nest and four eggs of the Brown Flycatcher (*Alseonax latirostris*). These eggs I obtained near here on the ghats. The first nests were taken by Sergt. Kemp and myself on the 17th ult. (June), on which occasion the eggs were perfectly fresh; the last were taken on the 30th, when fresh and hard-set eggs and young birds were met with. With one exception all the nests have been found on the dwarf teak trees, which grow so plentifully on the ghats. They are, as a rule, built on thick, bare, horizontal branches, at some little distance from the trunk and, on an average, 18 feet from the ground. The bird seems to prefer the more secluded nullahs to breed in, generally selecting for this purpose a tree close to the bank. The nest, as you will see, is rather a large one for so small a bird."

Later, Betham took several nests of this Flycatcher on the same ghats (*ibid.* vol. xix, p. 988, 1909), but again omits to describe them. He took nests on the 20th and 27th June and 11th July.

Fortunately the nest is described by Davidson (*ibid.* vol. xi, p. 668, 1898), who took one near Birchia, in Kanāra. He describes how, after noticing a bird fly past which he identified as a Brown Flycatcher, he eventually "saw it light on a lump on the branch,

and, returning, saw there was a nest. The nest was a large solid one composed of green moss and lichen and lined with a few fibres and some feathers, mostly orioles'. It was about 15 feet from the ground and in the middle of a horizontal branch."

Kemp sent me some eggs with notes describing the nests as "large, rather untidy cups of moss and lichen, lined with roots and fibres and a few feathers, placed on horizontal boughs of small trees in nullahs in forest. The nest was placed either next the trunk or a short distance from it."

Nests taken by Skinner in Dagshai were similar to those described.

Betham notes, *in epistola* :—"I took many nests at Simrole, about 10 miles from Mhow, in June and July. The birds breed on biggish trees about 30 feet or so from the ground. The nests, which are more or less wedged into stoutish forks or built on horizontal boughs, are compact, cup-shaped structures, composed of soft material, snug and warm. They are made of moss, moss-roots and lichen and lined with roots and feathers."

All the eggs recorded have been found between the 16th May and 21st June, the earliest being taken by Kemp and the latest by Betham.

The full clutch of eggs is undoubtedly four in India, although five and six are laid in Japan.

They are typical little *Cyornis* eggs and only differ from those of *C. rubeculoides* in size and in being, as a series, much more an olive-grey than olive-brown. The stippings also are much more minute and, unless examined with a strong magnifying glass, the eggs appear to be quite unicoloured. They vary very little but the brown tinge is more decided in some than in others. I have seen no eggs in which the freckles form a definite ring or cap, but in a very few eggs there is a hazy, darker appearance at the larger end.

The difference in size between Indian eggs and those of the Japanese bird is very striking. Forty Indian eggs average 17.4×13.1 mm., while thirty Japanese only average 15.9×12.9 mm. The maxima for Indian eggs is 19.2×14.0 mm.; minima 16.0×12.6 mm. Japanese birds' eggs run as small as 15.0×12.4 and 16.0×12.0 mm.

(676) *Alseonax ruficaudus* (Swinhoe).

THE RUFOUS-TAILED FLYCATCHER.

Alseonax ruficaudus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 250.

The Rufous-tailed Flycatcher breeds over practically the whole of the North-Western Himalayas from Afghanistan and Baluchistan through Gilgit, Kashmir and Kuman to the Simla States and Garhwal. It breeds at all elevations from 7,000 feet upwards, Whymper having taken its nest at a height of 11,000 feet at Dunajiri, in Kuman.

This Flycatcher frequents forests of Spruce and Deodar, the outskirts, and sometimes the interior, of evergreen forest, or, occasionally, banks in more or less open country.

Davidson (Ibis, 1898, p. 22) thus records his experience of its nidification in Kashmir:—"This was much the commonest of the Robin-Flycatchers about Gund; higher up, about Sonamurg, we found it rare, only seeing one pair, the nest of which we took on the 12th June, with four eggs, at the junction of the lowest branch of a spruce-fir with the trunk, some ten feet from the ground. At Gund we found many nests; they were large solid cups, generally built within reach or, at the most, fifteen feet or so from the ground on the stumps of pollarded trees, the branches of which had sprouted and were covered with leaves. In two cases we found nests placed against the trunks of large fir-trees. They were composed of moss and lined with hair and feathers, and bound round the outside with spiders' webs. The number of eggs was either three or four. The birds, though very common, were shy when breeding, and deserted several of the nests we found; they also took so long a time to build that on the 31st May we had to leave nests that had been in process of building a fortnight before, either unfinished or without a full complement of eggs."

Bates gives an interesting note on a nest (Journ. Bomb. Nat. Hist. Soc. vol. xxx, p. 102, 1924) which he took on his way to the Lolab Pass. His road "skirted a wood consisting of small trees resembling Hazels. It was within the edge of this wood that I made the acquaintance of the Rufous-tailed Flycatcher. The result of our meeting was one of the prettiest photographs I possess. The sunlight was struggling through the leafy pall above, dappling the nest and its surrounding with little golden patches. The nest itself was a beautiful piece of workmanship, snuggling in a fork ten feet or so from the ground, and fabricated from soft mosses and lichens, lined with hairs, many of them white. It was as neat as and, in fact, very like that of a Chaffinch. It contained four pure white eggs."

Sometimes the nest is placed in holes in banks. Whympers, both in Kashmir and in Kuman, found nests in banks close by foot-hills in forest or close by. He also took one nest in a "great fracture in a Deodar" and another built 30 feet from the ground in a fir-tree.

Ratray also found nests on banks in forests of Fir, though most were taken from the trees themselves at heights of 5 to 15 feet.

The body of the nest seems to be always of moss and lichen, but the lining varies. Feathers always form a part but sometimes it is mostly of hair, such as that of Musk-deer, Serow, Barking-deer or other coarse harsh kind. Occasionally it is said to be of roots or grass-stems but never of *soft* fur.

The breeding season is principally from the middle or latter half of May to the end of June but I have eggs taken as early as the

12th May (Whymper (Garhwal, 9,500 feet)) and as late as the 10th July (Rattray (Murree Hills, 7,500 feet)).

The full complement of eggs is three or four, perhaps more often the latter. They are very like those of the preceding bird but much paler and more olive-blue, less brown. Very rarely the blotches or freckles are quite distinct and show definitely on the ground-colour. Some eggs look almost blue, with just a faint reddish cap at the larger end, and I have one clutch which is a *very* pale grey-blue, the larger end showing the faintest sign of a cap of reddish stippling. Bates, as recorded above, once found a clutch of four pure white eggs.

In shape the eggs are broad, blunt ovals, the texture very fine and close but soft and glossless.

Fifty eggs average 17.3×13.2 mm. : maxima 19.1×13.5 and 18.0×13.6 mm. ; minima 15.6×12.9 and 15.7×12.1 mm.

Alseonax muttui.

THE RUDDY-BROWN FLYCATCHER.

(677) *Alseonax muttui muttui* Layard.

THE INDIAN RUDDY-BROWN FLYCATCHER.

Alseonax muttui, Fauna B. I., Birds, 2nd ed. vol. ii, p. 251.

Alseonax muttui muttui, ibid. vol. viii, p. 632.

This Flycatcher occurs during the Summer from Sikkim to the extreme East and South of Assam. In Sikkim it must be a rare bird. Mandelli procured three specimens but Stevens never saw one. In Assam it is a common bird, but so quiet and secretive for a Flycatcher that it never attracts one's attention.

I was fortunate enough to find a few nests of this species in North Cachar, where it bred on the highest ranges, at 5,000 feet upwards, in evergreen forest, sometimes haunting little open glades and breaks made by streams but, at other times, breeding in the densest portions. I found two nests near Hungrum in the mixed Oak and evergreen forest, where there is always damp green verdure all through the year and, though the trees themselves are rather stunted and not very close together, bracken, Raspberry, Jasmine etc., always grow in profusion. Of these two nests one was placed quite close to the ground in a fork of a semi-pendent Raspberry-vine standing in a tangled mass of grass and weeds; the second was placed in a mass of creepers and moss against a small but old and gnarled Oak-tree. Both nests were very well hidden but were given away by the hen bird darting off the nest as I passed.

Other nests were very similar and were all placed in tangles of vegetable growth of some kind, and in no instance were they built in holes in trees or banks, though the Nagas assured me that such was sometimes the case.

In the Khasia Hills an odd nest or two was found in the dense Oak and Rhododendron forests at about 6,000 feet and once I took a nest at Cherrapoongi as low down as 4,000 feet. This was in a wild Jasmine which, though not very dense itself, was choked with other weeds and brambles.

The few nests I have seen, not more than a dozen all told, have been very neat compact little cups made entirely of green moss and lined with fine moss-roots. In no nest have I seen any other material, though occasionally a small leaf, pieces of leaves, or grass may be incorporated in the moss, accidentally in all probability. They measure about $3\frac{1}{2}$ inches outwardly in diameter by about $1\frac{1}{2}$ to 2 in depth, the very neat little egg-cavity being about 2×1 inch.

The breeding season is early, my North Cachar eggs being taken from the 1st May onwards, whilst one taken in the Khasia Hills contained four slightly incubated eggs on the 27th April. My latest eggs were taken on the 24th May, but I have others collected in early June.

The birds lay from three to five eggs, the first being probably an incomplete clutch. Typically they are of the same character as those of the Brown Flycatcher. Some eggs look as if they were uniform pinky brown, others as if uniform grey-blue or reddish-grey. In one clutch the stipplings show fairly clearly and in this there are very faint indications of a ring round the larger end. In my small series are two clutches which are sure to prove abnormal when we have larger series to judge by. The first contains three eggs which appear to be unicoloured rather rich red-brown eggs; the second contains four eggs, which are pale creamy stone, faintly stippled with yellowish-red. In both cases the birds were captured on the nest, in one case a male, in the other the female.

Twenty-eight eggs, all I have been able to measure, average 16.9×13.8 mm. : maxima 18.4×14.1 and 18.2×14.3 mm. ; minima 16.0×13.0 mm.

As already noted, both sexes have been trapped on the nest, so evidently both take a share in incubation, but I have no knowledge as to which bird constructs the nest.

(678) *Ochromela nigrorufa* (Jerdon).

THE BLACK-AND-ORANGE FLYCATCHER.

Ochromela nigrorufa, Fauna B. I., Birds, 2nd ed. vol. ii, p. 253.

As regards its breeding distribution, there is nothing to add to that given in the 'Fauna':—"The hill-ranges of South India from Cape Cormorin to the Wynaard at 2,500 feet upwards. It is very common in the Nilgiris, Palni and Travancore Hills. Neither Col. McMaster's record of its occurrence in the Berars nor Mr. Mitford's in regard to Ceylon have ever been confirmed."

This beautiful little Flycatcher breeds in well-wooded valleys in the Wynaard and Nilgiri Hills and in the larger woods of the

Palni Hills, whilst in Travancore both Bourdillon and Stewart say that it frequents the interior of dense forest. In the Nilgiris it is numerous anywhere above 4,000 feet, but still more so above 5,000, and in Travancore up to the highest valleys. It comes also lower down for breeding purposes, for Bourdillon has taken nests at 3,000 feet and Stewart at 3,500. Both these gentlemen, however, say that it is a bird of rather curious distribution, very common in some places, equally rare in others which appear to be much the same.

The site selected for the nest is usually low down in a clump of weeds, ferns, brambles or bracken, at any height from a few inches off the ground up to about 4 feet. Perhaps 2 to 3 feet is the height most often chosen. Darling noted that "the bird is fond of building in the cluster of new shoots that rise, from the stump of a tree that has been felled. Usually the nests are at heights of from 1 to 3 feet from the ground, but I have found one placed actually on the ground."

Bourdillon found one nest placed as high as eight feet from the ground but, in a letter to me, he says that most nests are "in weeds less than three feet above the ground."

Bates, writing of this bird, remarks of two nests found by him :— "Both occupying the entire top of short, straight-stemmed, large-leaved plants—a common feature of the sholah's undergrowth." Of others he writes :—"All were in very shaded positions, three anchored in ferns where a number of fronds crossed, one in gorse and two in other bushes." Miss Cockburn also found one nest in the Nilgiris built in a clump of reeds.

In Travancore the breeding season seems to be March and April but, in the Nilgiris and more Northern hills, most birds lay between the end of April and the end of May. Bates found two newly-hatched young in a nest on the 18th July, so that some birds, at least, must lay as late as the first week of that month.

The nest is very like that of *Anthipes monileger*, an untidy ball made of sedge-blades, coarse grass or rush-leaves, sometimes unlined, at other times lined with finer grass-blades and grass-stems. The materials are generally rather loosely and roughly put together and come to pieces when the nest is removed from the site. Bamboo-leaves occasionally take the place of other broad leaves and grasses on the outside of the nest whilst, in Travancore, Bourdillon says that the nests are nearly always composed of the coarse blades of the reed known locally as "eerul" (*Beesha travancorica*). Many nests are built on a sort of foundation of dead leaves.

In size the nests vary greatly. Two found by Bates were each "more or less domed structures some six or eight inches in width and a little more than this in depth." Others "were mostly of small dimensions, being about four inches across and six inches in length." Hume gives the internal dimensions of the egg-cavity as being about $2\frac{1}{2}$ inches in diameter and fully $2\frac{1}{4}$ in depth.

The full clutch of eggs seems to be almost invariably two, though Davison said that he had sometimes taken three. I have, personally, never seen a three, and Messrs. Darling, Cardew, Packard, Rhodes, Morgan, Bourdillon and others all say that more than two eggs are never laid.

The eggs are more like small eggs of the Verditer Flycatcher than any others of the family. Most eggs have a pale greyish-white or buffy-white ground, faintly but profusely freckled all over with pale pinky grey or reddish; in many of these they are most numerous and confluent at the larger end, where they form very indistinct, ill-defined caps or, still more rarely, zones.

Occasionally one comes across a pair, or one of a pair, which has a white ground, prettily freckled with bright, but pale, pinkish-red, and I have one such pair with deep red caps at the extreme larger end. In two other pairs in my series there is one egg of the normal type and one which has a very pale grey-green ground, with a fine bold cap of deep red at the big end. Another pair has a warm buff ground, densely freckled all over with light red and with still denser rings of deep red at the larger extremity.

In shape the eggs are long ovals, very little compressed towards the smaller end, many eggs being almost ellipses.

The texture is very fine and close and, though Hume says they have a slight gloss, this is very seldom the case, in the great majority the surface being quite dull.

Thirty eggs average 18.4×13.1 mm. : maxima 19.2×13.2 and 18.9×13.4 mm. ; minima 17.2×13.0 mm.

Culicicapa ceylonensis.

THE GREY-HEADED FLYCATCHER.

(679) *Culicicapa ceylonensis ceylonensis* Swains.

THE CEYLON GREY-HEADED FLYCATCHER.

Culicicapa ceylonensis ceylonensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 254.

Owing to Ticehurst having separated the race found in the North-West of India under the name *pallidior*, the range of the present bird is not quite so extensive as given in the 'Fauna.' It should, therefore, now read:—Ceylon, the whole of India, excluding Sind, the North-West Frontier Province, Kashmir and the North-West Himalayas from the Western frontier to Nepal and Sikkim. It is found from Assam throughout Northern and Central Burma and Northern Siam.

This little Flycatcher breeds almost entirely in forest, and is most partial to ravines in evergreen bush- and tree-jungle at all elevations between 3,000 feet and the highest peaks. Hume says that in the Wynaad it breeds above 3,500 feet and in the Nilgiris above 4,500,

but it certainly breeds down to 3,000 feet in both, though, perhaps, not very often.

Although so common, no one has taken the trouble to record more than a few brief notes as to its favourite haunts. In Assam the two things necessary appeared to be deep shade and humidity. As a rule we found it well inside evergreen forest of lofty trees where the sun, if it came through at all, merely showed in tiny patches here and there, never strong enough to dry the reeking moss and fern-growth which covered every tree and outcrop of rock. Here the little birds flitted about, more like members of the *Seicercus* and *Abroscopus* genera than the true Flycatchers. Sometimes they would select a perch and hunt from it but, far more often, they would flit from one point to another, fluttering up and down in the air as much like a butterfly as a bird. Here, also, they made their beautiful little homes, fastening them to the sides or faces of rocks or to the trunks of the great forest-trees, covered, as a rule, with the same moss as that from which they fashioned their nests. These were invariably fastened to the rock or tree itself and not merely pendent or attached to the long moss. In shape small half cups or half inverted cones, they were made of moss and long moss-roots wonderfully matted and felted together into a very compact substance. The egg-cavity seldom measured as much as two inches in diameter by nearly as much in depth but the outer wall of the nest often ran down the side of a tree or rock for some inches, the moss wedged well into the crevices of the bark or rock so that a strong pull was required to detach the nest from its support. I have seen nests outwardly over 6 inches deep, although the diameter may not have been half this. Darling also speaks of nests built against tree-trunks in the Nilgiris measuring as much as 6 inches in depth and projecting 4 inches from their support. The lining is generally of the same material as the walls but Davison says that it is sometimes made of moss-roots. Outwardly lichen, both green and white, is often used for decorative purposes, especially when, as is sometimes the case, the nests are built on trees or rocks covered with lichen instead of moss. Cobwebs, it should be noted, are generally used, both to help in felting the material and in attaching the nest to the bark or rock-face.

The nests are often placed at great heights from the ground, sometimes as much as 30 or 40 feet, but more generally between 5 and 20 feet, while I have one nest taken from as low as 3 feet on a mossy trunk of a Rhododendron-tree.

The breeding season over the greater part of its area is April, May and June, but in Ceylon Phillips took a nest with three eggs on the 28th February.

A normal full clutch of eggs is three or four, the latter being the largest number ever laid in the South, though I have occasionally found five in Assam.

In ground-colour the eggs are of the palest creamy buff or grey, practically white, only very rarely with any one of these tints

at all pronounced. The primary markings consist of blotches and specks of grey with secondary blotches of pale yellowish-grey. As a rule the marks are sparse over the whole surface, except in a dense ring round the larger end. In some eggs the zones are not quite so dense and the markings are more scattered. In one clutch of three in my series the blotches are few and very large, interspersed with small specks; in another set of three the blotches coalesce to form blackish-grey rings with an olive-yellow tint where the secondary markings show at the end of the ring. A third clutch of four has the ground really white and the freckles very faint and sparse.

In shape the eggs are short, broad ovals, the texture fine but very brittle, and the surface dull and glossless.

One hundred eggs average 15.1×12.0 mm. : maxima 17.6×12.3 and 16.0×12.9 mm. ; minima 13.9×11.8 and 14.8×11.4 mm.

(679 a) *Culicicapa ceylonensis pallidior* (Ticehurst).

THE SIMLA GREY-HEADED FLYCATCHER.

Culicicapa ceylonensis ceylonensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 254 (part.).

Culicicapa ceylonensis pallidior Ticehurst, Bull. B. O. C. vol. lxvii, p. 108, 1927: Simla.

Ticehurst's race of this Flycatcher is found from Afghanistan and Baluchistan, through the whole of Kashmir and the Southern Himalayas, to the Simla States and Garhwal, breeding between 4,000 and 7,500 feet.

Dodsworth and Jones took many nests of this little bird in the Simla States, the former sending me a fine series of the eggs. His various remarks, *in epistola*, may be summarized as follows:—“This little Flycatcher is very common in the Simla States, as well as round about Simla Town itself, breeding between 5,500 and 8,000 feet. It haunts oak and deodar forest but is found wherever the country is thickly wooded, preferring spinneys and ravines in forest where there are trees and rocks covered with thick long moss, amongst which it places its lovely little purse-nest, built entirely of the same green moss and lined with finest roots. The nests are placed up against the tree or rock and are not pendent in any way from the growing moss, though this conceals them effectually from view. They build at any height between 5' and 15' but, occasionally, when they place their nests on trees, at much greater heights. They lay three or four eggs, but nearly always the latter number, in the months of April, May and June.”

Betham found them breeding about Dalhousie in June and writes:—“They are very plentiful, affecting rocky woods and building a beautiful little pocket-nest of moss and lichen, lined with hair and fine roots, which it places against some tree-trunk

covered with the same green moss and lichen. They are built at any height from 3 to 20 feet or more up and are very difficult to find unless the birds are noticed when building."

Gammie records that in Sikkim he "found this species breeding in open forest in May and June at about 5,000 feet above the sea. One nest found on the 10th June contained four fresh eggs and was placed in a longitudinal scar on the underside of a large leaning tree (not moss-covered) about four feet from the ground. It was neatly made of moss bound together with cobwebs and attached to the rough scaly bark of the tree by the same materials. The outer moss was intermingled with a few lichens of the same colour as those growing naturally on the tree, and the cavity was most beautifully lined with the red fruiting stalks of a small moss. I did not know before that moss fruit-stalks were of any further use (independent of their species) than being pretty to look at, but here we have a charming use both for them and the much-despised cobwebs."

The breeding season is late April, May and June; sometimes however, they must breed much earlier, as Colonel G. F. Marshall says of their breeding round Naini Tal:—"I think they must have two broods in the year; I have as a rule reached the hills in the middle of May and, until this year, I never got eggs or saw any signs of building until the first week in July, though I watched the birds carefully. This year I came up in the middle of April and found several nests with eggs before the first week in May, and again they are building in the first week in June. All the nests that I have seen were, without exception, against the moss-covered trunks of large hill-oaks about 30 feet from the ground and unsheltered by foliage."

A full clutch of eggs numbers three or four only and I have no record of any greater number. In shape, colour etc. they cannot be distinguished from those of the preceding bird.

Forty eggs average 15.0×12.0 mm. : maxima 16.4×11.8 and 15.5×12.4 mm. ; minima 14.1×11.7 and 14.2×11.2 mm.

Niltava grandis.

THE LARGE NILTAVA.

(682) *Niltava grandis grandis* (Elyth).

THE SIKKIM LARGE NILTAVA.

Niltava grandis grandis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 257.

This beautiful Flycatcher is found from Nepal to Eastern Assam, both North and South of the Brahmapootra, to the Chin Hills and Manipur, breeding at elevations between 3,000 and 7,000 feet.

In Sikkim Stevens gives their Summer range as between 4,700 and 6,000 feet, but Gammie found nests up to 7,000 feet round Darjiling.

The site selected for the nest is invariably in fairly thick cover and generally in evergreen forest. Very rarely I have seen the nest built in ravines in bush- or bamboo-jungle, but it will only be found in these when there is ample green and mossy undergrowth in the ravine itself. It was a very common bird in North Cachar and in the Khasia Hills, where its favourite resorts were deep and rocky ravines running through dense and humid forest, with a good flow of water along the bottom. Next to these ravines the nests were most often found on the rocky banks of the bigger streams in the same kind of forest. Nearly all the nests I have seen *in situ*, well over a hundred in number, have been built in among large boulders, in holes of, or in among the long moss growing on, the faces of big rocks beside streams and waterfalls. In nearly every case the surroundings were mossy, and situations are nearly always selected in which long moss conceals the nest from view. In Assam other sites were rare. I have seen one or two nests in holes in dead tree-stumps, one or two others tucked away among the great roots of some forest-tree and yet one or two more built under fallen logs. Rather more often the nest may be placed on steep banks in forest, either among the roots of a tree or in some natural hollow among the undergrowth. Outside Assam, however, their nests have been found built against the sides of trees.

Gammie writes :—"A favourite position for the nest is against the side of a gigantic buttressed tree, about four or five feet up, in the angle formed by two of the buttresses." A more curious site still is mentioned by Hodgson, who says :—"They are placed on the branch of some tree, between three or four slender shoots, at an elevation of a few feet above the ground."

The birds often build in places where the nest is constantly more or less wet. In Shillong a pair built annually on a ledge of the rock-face of the Elephant Falls, the spray from which fell over the nest in a shower whenever the falls were swollen by recent rain. Another pair had their nest in a deep crevice in a rock down which, just behind the nest, ran a constant trickle of water which also, when increased by rain, ran over the edge of the nest. In spite of these disadvantages the Flycatchers managed to raise a proportion of their broods each year.

The nest is made entirely of fresh green moss and is lined with the fine roots of the same, well matted and intertwined with one another. Occasionally a few maidenhair-fern rachides or a little rhizomorph of some fungus may be found mixed with the moss-roots.

The nest usually conforms in shape to the hole or crevice in which it is placed and is often very bulky. I have seen nests a full foot across one way and about 8 inches the other, though the inner cup

is the usual neat hemisphere, measuring only about 3 inches in diameter by $1\frac{1}{2}$ deep. When it is built against the side of a rock or tree it is a massive cup between 5 and 6 inches in external diameter by about 4 inches in depth. These nests would be circular cups but for the fact that the side against the rock-face is, as a rule, flattened and very thin.

The breeding season is May and June in Assam but, in the Chin Hills, Hopwood took nests with full complements of eggs in the latter half of April. I have also seen one or two belated nests with eggs in the first half of July. They are, I believe, single brooded but, of course, often have a second nest if the first comes to grief before the chicks have attained any size.

The full clutch of eggs is four but I have seen a five, and have also seen three only incubated occasionally.

Many of the eggs could not possibly be distinguished from those of the White-tailed Blue Chat but, as a series, they are decidedly more freckled and blotched and not so unicoloured. The ground-colour varies from the palest creamy white or pinkish-white to a quite warm buff. Most eggs are distinctly freckled with light reddish or buffy brown, while in a very few the freckles become real blotches. In others, again, the markings are so minute that the eggs look all one colour, except for a faint cloud-like cap at the larger end, where the specks are densest and darkest.

In shape the eggs are broad, blunt ovals, occasionally a little lengthened and slightly compressed at the smaller end. The texture is fine and close and the unicoloured eggs have a distinct gloss, though not so highly developed as it is in *Muscisylvia*.

One hundred eggs average 24.3×17.8 mm. : maxima 26.1×18.0 and 23.0×19.0 mm. ; minima 20.4×17.0 and 21.0×16.0 mm.

Niltava sundara.

THE BEAUTIFUL NILTAVA.

(684) *Niltava sundara sundara* Hodgs.

THE NEPAL BEAUTIFUL NILTAVA.

Niltava sundara sundara, Fauna B. I., Birds, 2nd ed. vol. ii, p. 259.

Hodgson's, or the Nepal, Beautiful Niltava occurs in the Outer Himalayas from Nepal and Sikkim East to Assam, the Chin, Kachin and Bhamo Hills into Northern Siam. South it is found throughout the higher ranges of Burmese hills into Tenasserim.

In 1926 Ticehurst drew attention to the fact that the North-Western bird differs from the typical form and gave it a name, overlooking the fact that Lesson had already named the race from Murree *fastuosa*.

The Beautiful Niltava breeds in great numbers in the Assam Hills between 3,000 feet and the highest peaks. In Sikkim Jerdon, Gammie, Osmaston and others found it breeding from about 3,500 feet upwards. Hodgson found it breeding commonly in Nepal but does not say at what elevations. Like its larger cousin, it frequents wet humid forests in preference to any other, yet may often be found in Pine forests provided there are rocky ravines with water running through them and plenty of green vegetation on the banks. The sites selected are just the same as those of *Niltava grandis*, but the present bird more often builds its nest either in a hollow among the roots of a tree or else in a hole in a grass- or moss-covered bank. I have also taken more nests from holes in trees, those chosen being nearly always in old stumps, upright or fallen, which are covered with moss and other parasitic growth. Perhaps one nest in three may be built in one of these three situations, the other two being placed in holes, clefts, or crevices in moss-covered rocks beside water. The nests are invariably, so far as my own experience goes, very carefully concealed, and one never finds a nest half buried and half jutting out from the face of a rock, even when the surrounding moss exactly resembles the nest itself.

The nest is very neat, compact and well put together and is an exact replica of that of the Great Niltava, only differing in being a trifle smaller. Hodgson gives the measurement of one nest as being "exteriorly about 5 inches in diameter and 3 in height. The cavity is about 2.5 inches in diameter." Another nest measured: "external diameter 4.5 inches, height 3; internal cavity, diameter and depth 1.5."

The very many nests I have seen agree well in size with the second of those taken by Hodgson, though some are a good deal smaller, and I have taken nests under 4 inches across by under 2 deep. The measurement of the first nest described by Hodgson is, I think, rather exceptionally large.

The breeding season everywhere is May and June, though Hodgson in Nepal and Masson in Sikkim also took eggs at the end of April. My earliest date is 23rd April and my latest 17th July, both exceptional dates.

They are single brooded, though birds which have been robbed build and lay again within ten days and, if again robbed, will continue to build yet another nest. I have known a Niltava breeding in a ravine close to my house have three nests robbed, the first after the young had hatched, yet succeeding with its fourth clutch. The culprit in this case was, I think, a snake. The first three nests were all within a few yards of one another in clefts in the same rocky face of the ravine, but the fourth nest was built in a hole in a dead stump.

The full clutch of eggs numbers four, though occasionally three only may be laid. They are just small replicas of the eggs of the

Great Niltava and go through the same range of variations. Taken as a series they are decidedly more definitely blotched and freckled than the eggs of the larger bird and, perhaps, a trifle darker and more richly tinted.

One unusual clutch of four eggs has them all coloured like the eggs of the Little Forktail. The ground-colour is a very pale pinky cream, the markings consisting of small, pale red blotches, numerous at the larger end and scanty elsewhere.

In shape and texture they are typical but average longer, and not so broad in comparison.

One hundred eggs average 21.4×15.8 mm. : maxima 22.2×16.0 and 20.9×16.8 mm. ; minima 19.7×15.1 and 20.0×14.6 mm.

Both birds assist in the construction of the nest but the male bird seems to do very little of the work of incubation, though I have occasionally snared him on the nest. Incubation takes twelve days, perhaps thirteen. Of four eggs laid in a nest close to my garden the last was deposited on the 1st June ; on the 14th all had hatched and looked as if some hours old.

(684 a) *Niltava sundara fastuosa* Lesson.

THE MURREE BEAUTIFUL NILTAVA.

Niltava sundara sundara, Fauna B. I., Birds, 2nd ed. vol. ii, p. 259 (part.).
Niltava sundara fastuosa, ibid. vol. viii, p. 632.

The Murree Beautiful Niltava occurs from Murree to Mussoorie, and seems to be common everywhere during the breeding season between 5,000 and 7,000 feet, occasionally being found both a little lower and a little higher.

In its nesting habits there is nothing to record that has not already been written about the preceding bird. It builds its nest in exactly the same kind of situations and in the same kind of country. Rattray found several nests round Murree and writes :—
“Common round Murree at about 6,000 feet, but none at either Changla or Dangagali. Nests difficult to find. Generally placed in a hole in the bank of a shady nullah, but I have found them in a hole in a tree-stump and at the roots of bushes.”

It is possible that a greater number of individuals of this race build in banks than do those of the Eastern form. Jones and Dodsworth both observed this Niltava breeding in banks, and Hume found his only nest “placed in a hollow at the base of an aged oak.”

Normally the nest is just the same beautiful cup of green moss, lined with roots, made by the Nepal Niltava, but Hume describes his nest as “a mere pad of moss, about 5 inches in diameter and $1\frac{1}{2}$ inch thickness, with a very broad shallow depression in the middle. In and about the inner surface of this depression a certain amount of very fine silky fur and one or two downy feathers were interwoven, making a kind of lining.”

The nesting season is May and June, but may sometimes extend into early July.

The normal full clutch of eggs is four, but sometimes three only are laid. They are, of course, quite indistinguishable from those of the preceding race.

Fourteen eggs, all I have been able to measure; average 20.7×15.9 mm.: maxima 22.0×15.3 and 20.0×16.0 mm.; minima 19.7×15.1 and 20.6×15.0 mm.

(685) *Niltava macgrigoriæ* (Burton).

THE SMALL NILTAVA.

Niltava macgrigoriæ, Fauna B. I., Birds, 2nd ed. vol. ii, p. 260.

This small species of *Niltava* has a far wider range than either of the larger species. It occurs in the breeding season from Mussoorie to Eastern Assam at elevations from 3,000 to 6,000 feet, sometimes being found another 1,000 feet higher, while in the Naga Hills it has been met with at 8,000 feet. In Sikkim Stevens gives its breeding elevation as 3,000 to 5,000 feet and up "to 6,000 feet or thereabouts." It is common in the Chin Hills, Kachin and Bhamo Hills of Burma South to Tenasserim while, on the East, it extends to the Shan States and Siam.

These little Flycatchers keep very closely to evergreen forest for breeding purposes, but they choose lighter patches, with not too dense an undergrowth, and undoubtedly prefer the edges of open glades, banks of rivers and streams and other partly open spaces where sunlight and ample insect-food can be obtained. The nest is nearly always placed by or near water, though this may be no more than a tiny streamlet trickling on from one boulder to another.

Of the sites chosen by *Niltavas* for their nests I have not noticed that this particular species makes use of one more than another. If, however, it has any predilection it is, I think, for small clefts in rock-faces on the banks of streams or for niches under the same rocks. In Shillong several pairs built annually on the banks of the Umiam stream, where one side rose above the stream very steeply for some 100 feet, the whole of this being covered with rocks and boulders between which grew Azaleas and Rhododendrons in dense masses. No searching in such a place would have revealed the nests, but the little cock birds could be noticed haunting one particular spot, sometimes singing cheerily on a projecting branch of Azalea, sometimes hawking flies. If one worked carefully round these points it was generally possible, with patience, to put the female off her nest and so find it.

When found, the nest is just like that of its bigger cousins, differing only in being smaller, Hume's nest-of 5 inches across probably representing the biggest made. I have found them as

small as $3\frac{1}{2}$ inches in diameter, though they are deeper in proportion than the nests of either the Great or the Beautiful Niltava.

The egg-cavity, compactly lined with matted moss and roots, generally measures slightly under 2 inches in diameter by $1\frac{1}{2}$ inch in depth, but Hume mentions a nest measuring " $2\frac{3}{4}$ inches in diameter by $1\frac{3}{4}$ inch in depth."

The breeding months are May and June and nine out of ten eggs are laid in these two months, but I have taken an occasional clutch in the last week in April and again in the first week in July.

Both birds assist in building the nest, though the male seems to do little more than bring the materials; both sexes also incubate but, I think, the male does so only for a short time in the mornings and evenings. The period of incubation is either eleven or twelve days, probably the latter.

The full clutch of eggs is four, though I have taken five and have occasionally seen three incubated.

The eggs differ considerably from those of the other species and, as a series, are much duller greyish- or yellowish-red rather than pinkish-red, as in the bigger bird's eggs. The ground-colour varies from the faintest creamy white to a pale greyish-yellow or, very rarely, a creamy pink. Many eggs are profusely blotched or freckled all over with pale dull reddish, the markings always more numerous at the larger end and often forming an indefinite ring or cap. Other eggs are less thickly covered and show more of the pale ground-colour. One clutch of four in my series has an almost white ground marked with red blotches, one egg being almost as boldly marked as a Tit's egg.

In shape the eggs are regular ovals and the texture is fine and close, and either quite or very nearly glossless.

One hundred eggs average 18.1×13.6 mm. : maxima 19.1×14.1 and 18.0×14.2 mm. ; minima 16.0×13.1 and 19.0×12.9 mm.

Tchitrea paradisi.

THE PARADISE FLYCATCHER.

(688) **Tchitrea paradisi paradisi** (Linn.).

THE INDIAN PARADISE FLYCATCHER.

Terpsiphone paradisi paradisi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 264.
Tchitrea paradisi paradisi, *ibid.* vol. viii, p. 633.

This common form of Paradise Flycatcher is found over the whole of India South of the foot-hills of the Himalayas. To the East it extends into Eastern Bengal but not to the districts East of the Bay of Bengal, which, though intermediate, are nearer *affinis*, whilst Assam birds are also nearer to that race.

As I now also accept *ceylonensis* as a good race, Ceylon and extreme South Travancore must also be excluded from the area of the typical bird.

This is purely a bird of the plains and does not ascend any of the hill-ranges of Southern India above some 1,000 or 1,500 feet, and but seldom as high as that.

One nest was, however, taken by Howard Campbell near Gooty, Madras, at the very exceptional elevation of about 3,000 feet. The clutch of four eggs which the nest contained is now in my collection.

The bird is very common in Behar, Bengal, Orissa and the United Provinces, less common, but plentiful, in the Southern Punjab and Central Provinces, and occurs throughout the Madras and Bombay Presidencies in most suitable localities. It is found in all well-wooded areas but not in deep forest. On the other hand, it often breeds in large gardens and orchards and round about villages, but its favourite site, at all events in North-East India, is a Mango-orchard, "bamboo-tope," or small spinney. Sometimes its nest is built in low Babool or other trees, or solitary clumps of bamboo standing in open cultivated areas or waste land. As a rule the nest is placed at no great height from the ground, 4 to 6 or 7 feet is, perhaps, the most usual but, when built in large trees, such as Mango and Tamarind, it may often be much higher, and 15 or 20 feet from the ground is not unusual. Concealment does not appear to be a desideratum, though the thick foliage of the trees selected does often hide the nest effectively. At the same time I have found the nest in quite conspicuous positions in small "Bér," Babool and Acacia trees, as well as in bamboo-clumps.

The nest is a very neat, compact cup composed principally of fine grass and fibrous material, well bound round and round, with rather broader grass-blades outwardly, thickly bound together with spiders' webs. In addition to grass other materials are used, in varying quantities; Cocoanut-fibre, roots and similar materials are frequently incorporated, while to these Hume adds horsehair, and I have seen goats' hair. Less often a little moss is employed to decorate the outside, and frequently spiders' egg-bags and cocoons are employed for the same purpose. The lining is of fine grass-stems very neatly put in and finished off. Most nests are built in vertical forks of branches, these, if small, being wound round with the material of which the nest is composed. Sometimes horizontal forks form the support and, rarely, they are suspended on creepers or in hanging branches.

In size the nest is somewhere between 3 and 3½ inches in diameter by about 2 or a little more in depth. Hume gives the size of an exceptionally big nest as 4 inches and an exceptionally deep one as 3 inches in diameter and 4 deep. He also says that sometimes the nests are very shallow, but most of those I have taken have been rather deeper than hemispheres.

The breeding season varies very little and nearly all birds breed in May, June and July, the majority waiting until the rains break in the middle of June, when insect-life at once becomes very plentiful.

There is nothing on record about which sex does the building, but I believe the female does all, or nearly all, the work. Again, though the male does incubate occasionally, the female does most of this also, at all events by day, though the cock may sit in the early mornings and late evenings.

The full complement of eggs is three or four, generally the latter in North-East India, the former in South and Western India. The ground-colour varies from a pink so pale as to appear white, unless placed alongside a really white egg, to a fairly warm salmon-pink. The markings consist of specks and small spots, occasionally larger spots, of bright reddish-brown, with secondary marks of lavender, subordinate to the others and sometimes absent. In a few eggs the spots become almost a deep blood-red. In the great majority of eggs the spots form a well-defined ring at the larger extremity and are scarce elsewhere but, in a few, they are rather more freely speckled over the rest of the egg as well. A clutch taken by Inglis has a really white ground; of these, three eggs have a very faint ring of pinkish-red specks at the larger end, while the fourth has only about a dozen round spots of deep blood-red dotted about the whole egg.

The texture is hard, fine and close, often with a strong gloss, while in shape the eggs vary from a broad, rather obtuse oval to a long, pointed one.

One hundred eggs average 20.2×15.1 mm.: maxima 22.2×15.6 and 21.9×16.0 mm.; minima 19.0×15.0 and 20.7×14.2 mm.

(689) *Tchitreia paradisi affinis** Blyth.

THE BURMESE PARADISE FLYCATCHER.

Terpsiphone paradisi affinis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 267.

Tchitreia paradisi affinis, *ibid.* vol. viii, p. 632.

The Burmese Paradise Flycatcher extends from Assam and the districts of Eastern Bengal throughout the whole of Burma and the Indo-Chinese countries to Yunnan and Annam.

* Recently Whistler and Kinnear (*Journ. Bomb. Nat. Hist. Soc.* vol. xxxvi, p. 90, 1932) commented on my denseness in not seeing the differences between the birds inhabiting Sikkim to Assam and those inhabiting the North-West Himalayas. Possibly birds from N.E. Himalayas are separable from *leucogaster*, and many systematists would consider them a good subspecies. As a matter of fact, however, they have nothing to do with *nicobariensis* and, if we want to split these birds up further, we must admit more races and restrict *affinis* to the extreme Southern form and create new races for central dry Burma and for the birds ranging from Sikkim to N. Burma. The Nicobar birds are so obviously different that the name cannot stand for either of these.

In its breeding habits the Burmese race differs very little from the Indian but is not so invariably a frequenter of cultivated tracts and of gardens and orchards. Though it does not shun these latter, it may be found in thin forest, scrub and secondary growth and, most often, in bamboo or in mixed bamboo- and scrub-jungle. Rarely it may even be met with in true evergreen forest. Oates says:—"I found the nest in the evergreen forests of the Pegu Hills on the 30th April," while in Tenasserim Darling, on the "21st April, found a nest just building, three feet from the ground, in a fork of a small sapling in bamboo-jungle, east of Tavoy."

It ascends the hills far more freely than does the common Indian form but not to so great heights as the Himalayan bird. At 2,500 feet it breeds freely over the whole of its area and has been found at odd times nesting at 3,000 feet, whilst I once took its nest at 3,500 in the Khasia Hills. In the plains it may be found wherever there is suitable cover and rough broken ground, but it is more common in the hills.

The nest differs in no way from that of its Indian relations, but one described by Oates is rather unusual. He writes (*Hume's 'Nests and Eggs,'* p. 26):—"The interior of the nest is a perfect hemisphere; exteriorly the depth is rather greater than the diameter.

"Interior diameter, about $2\frac{1}{2}$ inches.

"Exterior " " " $3\frac{1}{2}$ to 4 inches.

"The foundation and exterior were formed almost entirely of dry bamboo-leaves, well curved to shape, and of coarse fibres; the interior was formed with fine fibres and a few grass-stalks."

I have sometimes seen a few bamboo-leaves incorporated with the grass, but this latter has always been the main material used.

The eggs are like those of the preceding bird but, as a whole, they are deeper coloured, and the variety with the very pale ground is rare. A very pretty clutch of three, taken by Coltart, has the blotches larger and bolder than usual, one egg having a blotch over 6 mm. each way.

One hundred eggs average 20.0×14.9 mm. : maxima 21.4×15.0 and 21.2×15.9 mm. ; minima 18.6×14.4 and 19.5×14.0 mm.

Both birds take part in the construction of the nest, though the male generally merely brings the material. Both sexes also take part in incubation, though possibly the male only does so when the hen is feeding. The finest male I ever saw, with four large, flaunting, white tail-feathers, was trapped on the nest, and when we first found it he was sitting on it, a curiously conspicuous object from a great distance. The male often breeds in immature red dress and I have seen him nesting before he has even acquired the long red tail-feathers.

The nuptial flight of this bird is very beautiful. The male launches himself very slowly from some high twig and rises and drops every few yards, with slowly beating wings, his long white tail undulating behind him with each rise and fall as he flies round in small circles before once more alighting on the perch he first left.

(690) *Tchitreia paradisi leucogaster* (Swainson).

THE HIMALAYAN PARADISE FLYCATCHER.

Terpsiphone paradisi leucogaster, Fauna B. I., Birds, 2nd ed. vol. ii, p. 268.
Tchitreia paradisi leucogaster, *ibid.* vol. viii, p. 632.

The Himalayan Flycatcher extends throughout the Himalayas from Afghanistan and Baluchistan to Assam North of the Brahmapootra, breeding from about 3,000 feet upwards. Whympers obtained many nests round about Naini Tal, between 4,500 and 5,500 feet. Dodsworth and Jones found it abundant in the Simla States up to 6,000 feet, and the former found one nest at 7,000 feet in the Kote State. In Murree it certainly nests up to 7,000 feet but is most common at 5,000 feet, at which latter height Col. C. H. T. Marshall took ten nests in May, June and July. Rattray, however, took them at far higher elevations, and one nest taken by him in Nangtba, at 8,000 feet, represents the highest of which I have any record. It is common over the greater part of Kashmir up to about 6,000 feet, where it breeds in open country, orchards and gardens. The kind of site the Flycatcher selects is well shown by Bates in his accounts of its nesting ('Bird-Life in India,' p. 118), in which he writes:—"At the bottom the gorge suddenly turns and, opening out, discloses a good-sized village surrounded by shady orchards, chenars and mulberry-trees. I was seated at the foot of one of the latter, when my eye was attracted by the antics of a female Paradise Flycatcher in a neighbouring fruit-tree. She was fussing round a nest on which the male was seated, his filmy snow-white tail curving down in a most slender curve below the nest. Both sexes take part in incubating the eggs, and this is unfortunate from the point of view of concealment, as the glistening white plumage of the male makes him such a very conspicuous object."

As an example of this bird's fearlessness, Bates relates how he cut down the branch on which the nest was, photographed it and then fastened it up again, and the hen returned within a few minutes and took up her seat upon it.

The positions chosen by the birds are much the same as those of the other races but they build them, on the whole, higher up.

Bates's nest was built 20 feet up in a Mulberry; some of those found by Whympers in his own garden at Naini Tal were between 15 and 25 feet from the ground. Again, writing of the nests, the latter says:—"They are generally perched high up on some tree that overhangs the side of a ravine, and are, consequently, somewhat difficult of access."

The breeding season is during May, June and July, though few birds breed after the middle of the last month. My earliest date for eggs is the 22nd April (Kuman, Jesse).

The nest requires no description beyond that given for the preceding birds of the same species.

The number of eggs laid is three or four, generally the former, and in appearance they only differ from those of the two preceding races in being, as a series, paler in colour. Almost white eggs are common, while those of a deeper salmon-pink are rarer.

Fifty eggs average 20.1×14.9 mm. : maxima 21.0×14.4 and 20.4×15.2 mm. ; minima 18.0×14.0 mm.

(690 a) *Tchitreia paradisi ceylonensis* (Sarud. & Harm.).

THE CEYLON PARADISE FLYCATCHER.

Terpsiphone paradisi paradisi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 264 (part.).

When I wrote the 'Fauna' I did not admit the Ceylon race to the status of a geographical subspecies. Further examination, however, confirms what I then said in regard to the deep rich coloration of the females and young, which I now consider should be recognized. The race is confined to Ceylon and to the extreme South of Travancore, whence I have a clutch of eggs taken by Stewart.

There is nothing one can say about their breeding which has not been said already about one or other of the subspecies already dealt with.

Wait writes ('Birds of Ceylon,' p. 65, 1932) :—"A fairly familiar bird, which is generally found in forest or in shady spots not far from water. It is by no means averse to the neighbourhood of man, and may often be seen in village gardens. The breeding season is chiefly April and May, but may occasionally extend as late as August."

He also notes :—"It is not very common above 2,000 ft., but is occasionally seen at quite high elevations, and such visits are apparently increasing. About March most birds appear to concentrate in the drier forest tracts."

In Ceylon the maximum number of eggs laid is three and often two only. They are just like those of the other races, but I have seen too few to be able to generalize. An extraordinary clutch of three very big, very washed-out eggs was taken by Stewart in the extreme South of Travancore on the 14th March. One of these is pale pink, faintly stippled at the larger end with darker pink ; the two other eggs are chalky white, with small, very faint blotches of grey.

Ten eggs average 20.2×15.3 mm. : maxima 21.5×16.3 mm. ; minima 19.0×15.0 and 19.8×14.8 mm.

As Ceylon birds are rather small, a larger series will certainly show smaller measurements.

Hypothymis azurea.

THE BLACK-NAPED FLYCATCHER.

(692) **Hypothymis azurea sykesi** Stuart Baker.

THE MADRAS BLACK-NAPED FLYCATCHER.

Hypothymis azurea sykesi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 270.

The distribution of this Flycatcher may roughly be said to embrace all India South of a line drawn from latitude 22° in the West to latitude 18° in the East, rising slightly in the centre to include the Central Provinces districts of Bandhara, where birds collected by MacArthur are undoubtedly of the Southern race. Sir Percy Cox also found this form extremely common in Sondagarh in the Central Provinces, and took a very fine series of nests and eggs.

The Southern race of the Azure or Black-naped Flycatcher breeds both in forest and in open country but does not, apparently, often nest in gardens and parks. In the South of the Central Provinces MacArthur describes them as breeding very commonly in thin forest, placing their nests in small saplings and high bushes at any height from 5 to 15 feet from the ground, but more often under 10 feet than over. They ascend the Southern hill-ranges to at least 3,000 feet and, possibly, a good deal higher.

No better description of the nest can be given than that of Hume ('Nests and Eggs,' vol. ii, p. 28), which I quote in full, as it suffices not only for the Southern race but also for the others:—"The nests are usually placed in slender forks of the exterior branches of trees, at no great height from the ground, or attached to some pendent bamboo-spray. They are deep, compact little cups, more massive than those of *Rhipidura* (= *Leucocirca*), though much of the same general type. The diameter of the cavity is from 1.5 to 1.75 inch, the depth from 1 to nearly 1¼, and the sides and bottom of the nest may be about ⅝ inch thick. The nest is composed internally of fine grass-stems, well woven together; externally of rather coarser grass and vegetable fibres; the whole partially coated with cobwebs, by which numerous small white cocoons and commonly some tiny pieces of dry leaves and lichen are attached to the nest. In nests from the Nilghiris a good deal of green moss is intermingled with the cocoons in the exterior coating. The nests, too, are somewhat larger, I think, than our Northern ones, having internal cavities of full 2 inches in diameter and 1¼ inch in depth." There is no true lining to the nests, but the finest grass-stems are used in neatly finishing off the egg-cavity.

Davidson took one nest near Goodalore fastened to a spray of bamboo which overhung the main road.

Davidson found them breeding in forested ravines in the ghats of South-West India; Williams took many nests in the South

of the Central Provinces on small trees in thin forest, generally in upright forks or on a horizontal branch at heights between 5 and 15 feet. Other nests were on similar small trees in open country, and they occasionally breed in large gardens with plenty of cover. Round villages with surroundings of mixed grass, tree and shrub-covered land they may often be found building their nests, and really the Black-naped Flycatcher does not seem to mind much where it places them, provided there is ample cover and not too much disturbance from human beings. Normally they are placed on small trees at and under 20 feet, but they have been recorded as high as 40 feet from the ground in large trees such as Mango, Banyan and Sâl. Sir Percy Cox, in Sondagarh, took his nests mostly in thin forest and well-wooded country in small trees, where they were built in vertical branches between 5 and 10 feet from the ground.

The breeding season is from April to August, though most eggs are laid in the latter half of June and in July, while in the Central Provinces many birds lay in August.

Hume says that "five is the maximum number of eggs and four the normal number." So far as the Southern race is concerned, three is undoubtedly the normal number and even four is most exceptional, while two only are sometimes incubated.

The eggs are perfect miniatures of those of the genus *Tchitrea*, and go through all the same modifications of ground-colour and markings. On the whole they are rather highly tinted and well marked. Many eggs have a bright salmon-pink ground, well freckled with bright pinkish-red at the larger end, where the spots often form a ring. A few eggs have a white ground and are boldly speckled with deep red-brown, the specks disposed as in the other eggs but contrasting boldly with the ground. Every intermediate stage between these two extremes may be obtained, but those with a warm salmon ground are in the great majority.

In shape they are moderate to broad ovals, sometimes a little pointed at the smaller end. The texture is fine and close, with a moderate gloss when fresh, though this soon fades.

Forty eggs average 17.8×13.5 mm. : maxima 18.9×13.4 and 18.2×14.1 mm. ; minima 16.2×13.0 mm.

(693) *Hypothymis azurea styani* (Hartl.).

THE NORTHERN INDIAN BLACK-NAPED FLYCATCHER.

Hypothymis azurea styani, Fauna B. I., Birds, 2nd ed. vol. ii, p. 271.

This little Flycatcher has an enormous range, embracing the whole of Northern India North of the range of the preceding subspecies ; thence it extends East and is found over the whole of Burma to Tenasserim, where it is resident and breeds. It also occurs throughout the Indo-Chinese countries to Hainan.

Over the Outer Himalayas it breeds, wherever found, up to 3,000 feet and, probably, a good deal higher. In Sikkim Stevens says it occurs up to 4,300 feet, whilst in the Khasia Hills one of my collectors took a nest at about 4,600 feet and a second at about 4,000. Both in these hills, however, as well as in the Cachar and Naga Hills, it rarely nests above 3,000 feet, and is most common between the foot-hills and 2,500 feet. In Margherita it was a very common resident both in the foot-hills and the plains, wherever there was dense evergreen forest or thick bamboo cover, the latter being a favourite resort. I do not think this race ever breeds in the open or round villages or gardens. Even in Burma it keeps to forest. Darling found it breeding in Tavoy in heavy forest at the foot of Nwalalo Hill; Mackenzie and Hopwood found it in similar forest near Prome and again in the North of Burma in the Chin Hills.

As regards its methods of nidification, there is little to add to what has been said of the Southern Indian birds. It may be noted that few nests are built more than 10 feet from the ground, and I cannot remember a single instance of a nest over 20 feet from it. The nests themselves only differ in being, I believe, rather smaller, a point referred to also by Hume. The external measurements of all my nests would be about, or under, $2\frac{1}{2}$ inches in diameter, though the depth varies greatly. Some nests are inverted cones, deeper than broad; others are deep cups, as deep as wide, while others are true hemispheres.

The breeding season is from the last ten days of April up to the end of June in the North. In Burma it breeds throughout April and to the end of May, occasional nests being taken later, while Mackenzie found one with three fresh eggs at Prome on the 20th June, though most birds in Tenasserim laid in April and early May.

Both sexes incubate and both take a share in the work of building the nest. The male was snared on the nest in North Cachar quite as often as the female, at all times of the day.

Incubation, I believe, takes twelve days.

The birds are much more shy than the Southern form and desert their nests on little provocation, though once the eggs are hatched, or nearly hatched, they sit very close. They, normally, only have one brood in the year.

The usual clutch of eggs is three, though four is not uncommon; but, while I have seen two incubated, I have never seen a set of five, as recorded by Hume. In Amherst, Mepak and other places in South Tenasserim Mackenzie found two to be the normal full clutch and three quite exceptional. They cannot be distinguished in appearance from those of *H. a. sykesi*, either individually or as a series.

Seventy eggs average 17.0×13.25 mm. : maxima 18.3×13.2 and 18.0×14.1 mm. ; minima 15.9×12.1 mm.

(694) *Hypothymis azurea ceylonensis* Sharpe.

THE CEYLON BLACK-NAPED FLYCATCHER.

Hypothymis azurea ceylonensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 272.

The present subspecies is confined to Ceylon.

Legge writes of this bird as follows:—" *H. azurea*, which is an inhabitant of our forest and damp jungle from the sea-level in all parts of the island to an altitude of 4,000 feet or more, breeds from April to July. I know of no little bird architect in our province who can excel it in the neatness and finish of its little habitation. A nest I found in a Western Province forest on the 2nd June, 1870, was fixed in the fork of an upright sapling at about four feet from the ground, and was made in the shape of a deep cup with an internal diameter of $1\frac{3}{4}$ inch; the materials of which it was constructed were fine strips of thin bark and moss, very neatly woven together, and the rim and exterior were fancifully decorated and bound with a cocoon-like substance; the lining consisted of fine creeper-tendrils, unmixed with any other material. The eggs were two in number, of a buff-white ground, spotted, mostly at the obtuse end, with light sienna-red and a few specks of darker hue."

The decoration with moss seems to be a feature of the Ceylon bird's nest, for Phillips describes two of his nests as being so adorned, while the only one found by Jenkins also had "moss woven into the exterior walls."

The breeding season is chiefly April and May but I have received one nest taken in February, and Legge says, *vide* above, "April to July."

The number of eggs laid is two or three, occasionally one only, while in colour, shape etc. they are quite typical of the species.

The few eggs I have seen and been able to measure must, I think, be abnormally large, as the average of eight eggs is 18.1×13.8 mm. : maxima 19.2×14.1 and 19.0×14.3 mm. ; minima 16.0×13.0 mm.

(695) *Hypothymis azurea tytleri* (Beavan).

THE ANDAMAN BLACK-NAPED FLYCATCHER.

Hypothymis azurea tytleri, Fauna B. I., Birds, 2nd ed. vol. ii, p. 273.

As its name infers, this Flycatcher is confined to the Andamans, where it is found to be, according to Osmaston (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 159, 1906), "common both in the forest and in and about Port Blair. It is wonderfully active, as well as fearless." The first nest ever taken is well described by Hume ('Nests and Eggs,' p. 30):—"A nest was found at Aberdeen, South Andaman, on the 23rd April, 1873; it was fastened to the branch of a small tree that overhung the path. In shape it was an inverted cone,

3 inches in depth exteriorly and $2\frac{1}{4}$ inches in diameter ; the egg-cavity, which is nearly hemispherical, is 2 inches in diameter and 1.1 in depth. The nest is very compactly woven of soft vegetable fibre, with which also it is firmly bound against the slender stem to which it is attached. Towards the exterior a good deal of green moss, a number of satiny white cocoons, and a little bright ferruginous fern-root have been incorporated in the nest, and the whole carefully coated, though not thickly so, with gossamer threads and spiders' webs, and the cavity of the nest neatly lined with black hair-like moss-roots."

Since then Osmaston, Wickham and Anderson found many nests and, roughly, the description of the nest given by Hume would suit any one of these, except that moss was very seldom used as a decoration for the outside, though the white cocoons and spiders' egg-bags are always in evidence. The shape may be either a deep little cup or an inverted hollow cone, while the principal material is described as "vegetable fibre" or, more rarely, soft grass.

Osmaston found them placed at heights varying from 5 to 10 feet from the ground, nearly always fixed in an upright fork of a branch of some small sapling.

The breeding season is from the end of April to the end of June. Wickham took his earliest nest on the 22nd April, while Osmaston took his latest on the 21st June.

The eggs, which number three, less often two, in a clutch, are just like those of the Indian bird but, when looked at as a series, appear to be less deep in ground-colour, more often white, or nearly so, and not so frequently warm salmon-pink.

Fifty-four eggs average 18.3×13.9 mm. : maxima 19.7×14.5 and 19.2×14.8 mm. ; minima 17.0×13.9 and 18.2×13.2 mm.

The maxima and minima are both represented in the Osmaston collection, which has passed into my possession since the 'Fauna' was published.

(699) *Chelidorhynch hypoxanthum* (Blyth).

THE YELLOW-BELLIED FLYCATCHER.

Chelidorhynch hypoxanthum, Fauna B. I., Birds, 2nd ed. vol. ii, p. 275.

This tiny Flycatcher occurs in the West in Simla and Garhwal, and thence through Nepal and Sikkim to the extreme East and South of Assam. It also extends throughout the Burmese higher ranges to Tenasserim, but whether and, if so, where it breeds in these hills is not yet proved. It certainly also breeds in Eastern Tibet and Yunnan.

The differing elevations at which these birds breed are very puzzling. Thompson found it breeding at about 1,000 feet in the Kuman Bhabar, West of the River Sarda ; I found its nest at 3,500 to 5,000 feet in the Assam Hills ; B. B. Osmaston took others

at 7,000 and 7,500 feet near Darjiling; A. E. Osmaston found them breeding in the Tons Valley at 11,000 and 11,500 feet; and finally, Whymper took a nest at 12,000 feet at Dandar, in Garhwal.

It is a bird of deep forest, haunting ravines and the banks of streams, and I have never seen it in open country except when migrating to low levels in the Winter.

In North Cachar I had two nests brought to me in May and found one myself with young in June. Two nests were built on horizontal branches of small trees hanging over little streams in dense evergreen forest; the other was built on the ridge of a great slab of rock jutting out from the bank of a stream in similar forest. The nests were all alike, tiny affairs with straight sides, the top and bottom being equal in size, or the latter slightly bigger. In diameter they measured externally about 2 inches by about $2\frac{1}{2}$ to $2\frac{3}{4}$ inches in depth, with egg-cavities about 1.4×1.1 inch. The only material used was fine fluffy moss, with the tiny roots still attached; this was well matted together, the roots more numerous inside than outside the nest, forming a very compact, strong little cup. In two nests the outer walls were plastered with cobwebs and white lichen; in the third, which was the first taken, there was no lichen at all. The two nests on branches were about 5 and 6 feet respectively above the ground, whilst that on the rock may have been 7 feet above the stream.

In 1896 B. B. Osmaston found a nest in the Tons Valley, in Garhwal, between 11,000 and 12,000 feet. This he describes (Journ. Bomb. Nat. Hist. Soc. vol. xi, p. 70, 1897):—"On June 11th I noticed a Willow-Warbler enter its nest high up on a bough of Silver-fir. My orderly was told off to scale the tree and, while he was thus engaged, I noticed a pair of Yellow-bellied Fantails in the same tree which seemed much upset by the intrusion. I watched them carefully and, just as my man reached the ground, I saw one of the Fantails settle down comfortably on what looked like a little lump of moss on a small branch of the fir, not six feet from where the Willow-Wren's nest had been.

"The nest is in shape rather cylindrical, $2\frac{3}{4}$ " in external diameter and $1\frac{1}{4}$ " across the inner diameter. The depth of the cavity is about 1" and that of the nest about 3". It consists of moss, firmly compacted together and covered with grey lichen. It has a scanty lining of moss fruits with their stalks."

The nest contained two hard-set eggs.

Later A. E. Osmaston took another nest in Garhwal and Whymper took many. The former describes his nest as exactly like that taken by his brother, but bigger, 3 inches in diameter and placed 15 feet above the ground on a horizontal branch of a Silver Fir.

Whymper says of one nest taken by him:—"Nest a very beautiful one, a truncated cone $2\frac{1}{4}$ " high, made of moss and lined with hair and feathers, completely coated outside with lichen. The cavity

is $1\frac{1}{4}$ " deep and about the same across. This was placed on a silver fir. Other nests were exactly similar but were usually built on deodars, rhododendrons and birch-trees, between 11,000 and 12,000 feet. They all contained three eggs."

My nests at the lower levels were taken in May, but all those at higher elevations, including those taken by B. B. Osmaston at 7,000 feet, near Darjiling, were taken in June.

Hodgson describes the nests of those seen by him in Nepal as exactly similar to those found by Osmaston. Thompson's nest was also similar but he gives the breeding season as May and June.

The normal full clutch seems to be three, though two nests were taken by Osmaston in Darjiling with only two eggs each.

The eggs are very beautiful, like tiny pink pearls, with a deeper pink flush at the larger end. In reality they have a ground-colour varying from almost white to a delicate creamy pink, marked with a faint ring at the larger end of deeper pink, composed of the most minute stippling. In some eggs the rings are well defined, in others hardly visible.

In shape the eggs are broad, obtuse ovals, the texture rather coarse, but strong for such tiny eggs, while the surface is quite glossless.

Twenty-four eggs average 14.4×11.3 mm.: maxima 15.3×12.0 mm.; minima 13.2×10.7 and 14.0×10.6 mm.

Leucocirca aureola.

THE WHITE-BROWED FANTAIL FLYCATCHER.

(700) *Leucocirca aureola aureola* (Lesson).

THE INDIAN WHITE-BROWED FANTAIL FLYCATCHER.

Rhipidura aureola aureola, Fauna B. I., Birds, 2nd ed. vol. ii, p. 277.

Leucocerca aureola aureola, ibid. vol. viii, p. 634.

This race of the White-browed Flycatcher is found over the whole of the plains of India with the exception of the extreme South of Travancore and Ceylon. It ascends the hill-ranges of Southern India and the Himalayas up to at least 5,000 feet, though its normal breeding range may be accepted as under 3,000 feet. Hutton found it breeding up to 5,000 feet in the Dhoon, and Ratray took nests up to 5,000, and probably rather higher, near Danga Gali, in the Murree Hills.

It frequents gardens, parks, the outskirts of villages and towns, open country and cultivated lands, and also, though to a much less extent, thin forest such as Sál. It is especially fond of Mango orchards, and a large percentage of its nests will be found on these trees, built at any height from 5 to 20 feet from the ground. Betham,

who took many nests round Baroda, found they were generally placed "rather high up, ten feet or over"; Whympers also says that in Bareilly "they nest generally on Mango-trees in gardens, rather high up, sometimes fifteen feet or so."

The nests are described by Betham as "rather wineglass-shaped than cup-shaped, and often even longer and cone-shaped." The extremes vary, however, very greatly, and a nest may be a flat saucer measuring nearly 4 inches across by less than 2 deep, as taken by E. H. Gill in the United Provinces, or a long, thin, wine-glass-shaped affair, resting on a thin horizontal branch, and with a thin tail of surplus material hanging below the nest. Either extreme is rare, but the shallow one much the more so, whilst a tail hanging pendent from the bottom of the nest is quite a common appendage. Probably most nests measure about $2\frac{1}{4}$ to $2\frac{1}{2}$ inches in width and the same, or rather more, in depth, with an egg-cavity half an inch less both in breadth and depth.

The nests are beautifully made little affairs, composed of fine grass-stems, sometimes, but not always, supplemented with fine soft vegetable fibre. There is no lining but, outside, the whole surface is plastered with cobwebs. The walls are very thin and very firm, in thickness varying between $\frac{1}{16}$ and $\frac{1}{4}$ of an inch, broadening towards the base, which is thicker and may even be as much as half an inch.

The nests are nearly always placed on horizontal boughs and, when these are of any size, the bottoms of the nests are thinnest in the centre and deepest at the sides, where they are more or less plastered into the bough with cobwebs. When placed on thin twigs the materials of the bottom of the nest embrace the whole of the twig, and then we often have the tail above referred to. Occasionally it may be built into a small upright fork or on the upper surfaces of the prongs of a horizontal fork.

The birds are very bold when breeding and are very hard to drive away from a site once chosen. Colonel A. E. Butler writes about a pair which he found nesting at Deesa:—"I found a nest on the 1st June containing one egg. The nest was placed on a small bough of a *Ficus religiosa* about 20 feet from the ground. I found another nest on the 18th June in another tree about 10 yards off, built by the same pair of birds, containing three much incubated eggs.

"On the 22nd inst. I visited the place again, and found, to my surprise, that the same pair of birds had built another nest on a small branch of the same tree within a few feet of the one I had taken on the 18th inst. On the 29th I sent a boy up the tree and found the nest contained three eggs. On the 1st July they built a nest on the stump of the bough broken off with the nest taken on the 18th June, and on the 10th July I took three fresh eggs from it. I visited the place again on the 24th July and found

another nest (the sixth) built on the other side of the tree. Strange to say, the old birds had built another perfect nest, this time on the same bough about one foot above, for what reason I do not know, as, of course, only the one (the lower) contained eggs."

According to Hume, "eggs *may* be found from the latter end of February to the early part of August, but the two chief periods are March and July."

Blewitt found them breeding in Jhansie and Saugor in July and August, taking four nests, all built on Neem-trees.

Adams took nests in Somastipur in April, and Inglis and Coltart took many nests in May, June and July on into August, most eggs being laid *after* the break of the rains in the middle of June. In Sind they breed indifferently from March to the end of June.

In the sub-Himalayas most birds breed during May and June.

The number of eggs laid is generally three but, sometimes, two only are incubated. I have never seen a four-clutch of this race.

It would be impossible to improve on Hume's description of the eggs, which I quote in *extenso* :—

"The eggs are typically moderately broad ovals, a good deal compressed towards one end, and almost invariably exhibit the typical Shrike-like zone. The ground-colour varies from pure white to very pale yellowish-brown or dingy cream-colour, and the markings are, as a rule, almost confined to a broad irregular zone, near the large end, of greyish-brown specks and spots, of greater or less intensity of colour, often more or less confluent or connected together by a dull haze of the same shade, and at times intermingled with spots or tiny clouds of very faint inky purple. The upper end of the egg inside of the zone is commonly thinly speckled with spots similar to those composing it. The lower portion of the egg below the zone is, as often as not, spotless; in other cases it is very thinly speckled like the space inside the zone."

As regards the very large number of eggs which have passed through my hands, all I can say is that I have never seen one with a really pure white ground, and very few indeed with the surface below the zone completely spotless.

One hundred eggs average 16.8×12.8 mm. : maxima 18.6×13.0 and 17.1×13.9 mm. ; minima 15.4×12.3 and 16.3×12.1 mm.

(701) *Leucocirca aureola burmanica* Hume.

THE BURMESE WHITE-BROWED FANTAIL FLYCATCHER.

Rhipidura aureola aureola, Fauna B. I., Birds, 2nd ed. vol. ii, p. 278.
Leucocerca aureola burmanica, *ibid.* vol. viii, p. 634.

This Eastern race of the White-browed Flycatcher is extremely common in Assam South of the Brahmapootra, and extends thence

South and East throughout Burma, the Shan States and West Siam. It is apparently found throughout the plains, as well as in all the hill ranges up to about 5,000 feet, and I found it breeding commonly at this height both in the Khasia and, though to a less extent, in the North Cachar Hills. It keeps less to open country and the vicinity of villages than does its Indian cousin, and may be found commonly in quite dense bamboo- and scrub-jungle and even, sometimes, in fairly thick evergreen forest. In North Cachar I found it very numerous in the open park-like lands in the North of the district. Here scattered Oaks, some of great size, grew everywhere on the rolling hills. Under these, grass—green and short after the annual jungle-fires in April, four feet and more in height, withered and yellow by the following February and March—grew in the higher parts of the hills while, in the pockets, scrub-jungle, dense reeds and coarse sun-grass grew in profusion. Here the little Flycatcher was very numerous, hawking for insects in the open and breeding in the shelter of the scrub-jungle.

Its nest differs in no detail from that of the preceding bird but the site selected is more often a thin horizontal branch of some small sapling between 5 and 10 feet from the ground than a big bough of a larger tree. It also sometimes breeds in bamboo-clumps, from which I have taken several nests.

Most eggs are laid in May but I have taken eggs from the 26th April to the 3rd July.

The normal full clutch is three and it is but seldom only two are incubated; on the other hand I have twice seen clutches of four eggs.

The eggs are quite inseparable from those of the Indian race, either individually or as a series.

One hundred eggs average 17.2×12.8 mm.: maxima 18.7×13.0 and 17.4×13.5 mm.; minima 16.0×11.6 mm.

(702) *Leucocircia aureola compressirostris* Blyth.

THE CEYLON WHITE-BROWED FANTAIL FLYCATCHER.

Rhipidura aureola compressirostris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 279.
Leucocerca aureola compressirostris, ibid. vol. viii, p. 634.

The present race of White-browed Fantail Flycatcher is found only in Ceylon and in Travancore. In the latter province it probably only occurs in the extreme South, but its extension North has not yet been defined.

In Ceylon Wait ('Birds of Ceylon,' 2nd ed. p. 65, 1931) defines its habitat as follows:—"In this Island it has a peculiar distribution, confined to the east and south-east. The western limit of its main haunts runs from Tangalla to Haputale, then across the Uva

Hills to the park country on the east of the central range as far north as the glades round Polannaruwa. It is found all over the Hambantota district, but does not appear to occur near the sea in the Eastern Province. Scattered colonies exist outside these limits in a few localities in the Galle and Matara districts, also in Pusselawa and other places in the central range."

As regards its nidification, Wait sums it up thus :—" The breeding season is from April to June. The nest is an exquisite little cup of fine grass, coated with cobwebs, and placed on the top of a bough or in a small fork. The two or three eggs are a creamy white, speckled generally in a fairly thick zone round the broad part of the egg with greyish-brown. Average size $.67 \times .51$ inch."

The only clutch of eggs I have seen of this race was taken for me by W. Jenkins near Kandy on the 14th January. The nest was described as being exactly like that of the Indian bird, "bound to a small horizontal twig with cobwebs, and with a tail of loose material hanging down below."

The three eggs have an almost white ground, with a dense zone of grey-brown spots at the larger end. The clutch can be matched with many of those of the two preceding subspecies, but the underlying spots of lavender and rather deep neutral tint are more numerous than usual. The three eggs measure 16.0×12.0 to 16.8×12.5 mm.

Leucocirca albicollis.

THE WHITE-THROATED FANTAIL FLYCATCHER.

(703) *Leucocirca albicollis albicollis* (Vieill.).

THE INDIAN WHITE-THROATED FANTAIL FLYCATCHER.

Rhipidura albicollis albicollis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 279.
Leucocerca albicollis albicollis, *ibid.* vol. viii, p. 634.

This form of White-throated Fantail Flycatcher ranges from Murree to Western Nepal and throughout the greater part of the Northern plains of India to Eastern Assam North and South of the Brahmapootra. It is found South in India as far as the Central Provinces wherever there is sufficient well-forested country. In the East it is common throughout Burma, in suitable parts, to the Indo-Chinese countries and Hainan. South it extends to the Malay States. In India it is not rare in the West, and is said to be even common round about Poona and still farther South. It breeds both in the plains and in the hills up to at least 7,000 feet, and has been recorded as a straggler up to 9,000. It is, however, rare above 6,000 feet, and about Murree, in the Kuman, Garhwal etc., 4,000 to 5,000 feet are its highest normal elevations, below which

it is equally common right down to the foot-hills and the plains, being common even in the hot steamy districts of Eastern Bengal.

It is difficult to record any differences between the breeding habits of this species and the preceding. One point is, perhaps, that it is decidedly more of a forest bird, and often breeds well inside deep, humid, evergreen forest. At the same time it haunts thin deciduous forest, dark dry Pine forests, and is frequently found in gardens of towns and villages and in the open country round about them.

Like the White-browed bird, also, it is in many districts especially fond of Mango orchards, breeding on the lower horizontal boughs of the Mango-trees just as that bird does.

The nests of the two species are indistinguishable; they may be shallow cups, deep wineglass-shaped affairs, inverted cones, or just deep cups. Like the White-browed bird, the White-throated often leaves a long tail hanging below the nest and, finally, the nest is built in exactly the same kind of positions and of the same materials.

Aitken (B.) speaks of the extraordinary familiarity of this little Flycatcher, and in the plains district around villages and in gardens it certainly is a most confiding little bird but, in the wilder areas, we found it by no means so tame and fearless.

Marshall (G. F. L.), writing of its nest, says:—"I found a nest of this species on the 5th June, near Bheem Tal, at about 4,500 feet above the sea. It was in a deep shady ravine choked up with briar bushes, the upper branches of which were all green and the lower boughs, shut out from the light, were all dead and bare. The nest was fixed on to one of the bare dead boughs about three feet from the ground."

This kind of position seems a very favourite one in the hills where there are no Mango orchards, and I must have taken at least a dozen nests from brambles in Pine woods just as above described by Marshall.

The breeding season is May and June, but I have taken fresh eggs from March to July. My own earliest records are 28th March (Margherita) and 7th July (Simla), but I am informed that eggs have been taken up to 23rd July in the Simla States.

No separate description of the eggs of this species is required, as they differ in no way from those of the preceding species. In number, however, four eggs are often laid by this species, about one clutch in every three being of this number and the others threes. Rarely, except in Burma, two eggs only are laid.

One hundred eggs average 17.3×13.0 mm.: maxima 18.2×13.5 mm.; minima 16.1×13.0 and 16.9×12.0 mm.

Leucocirca javanica.

THE JAVAN FANTAIL FLYCATCHER.

(704) *Leucocirca javanica javanica* (Sparrm.).

THE JAVAN FANTAIL FLYCATCHER.

Rhipidura javanica javanica, Fauna B. I., Birds, 2nd ed. vol. ii, p. 281.
Leucocerca javanica javanica, *ibid.* vol. viii, p. 634.

The Javan Fantail Flycatcher is found within our limits in Tenasserim in Southern Burma and must breed there, although I have no records of it doing so. It extends East into Siam and Cochin China and South through the Malay States to Sumatra and Java. From Siam, where Herbert and Williamson took fine series of this Flycatcher's eggs, which they kindly handed over to me, I have the following interesting note from the former:—"This is the only resident Flycatcher which is found in or around Bangkok, where it is very common and where this nest may be found in any compound. The bird prefers a shady spot and is usually found in the trees and bushes round the servants' quarters.

"The nesting season is from February to August and there is no doubt that the bird raises at least two broods; plenty of nests can be found in March and as many in June and July. The nest is a beautiful little structure, like a neatly woven basket, and in the form of an inverted cone; it is built of fibre and fine grasses and the outside is entirely coated with cobwebs. It is usually placed on a slender horizontal branch at a point where a twig branches off. The nesting material is securely bound round the branch, leaving a little beard hanging below which completes the point of the cone. A thin bamboo twig or the tip of a frail mango branch are favourite nesting places, and the site selected is usually one within 10 feet of the ground. The sides of the nest are less than $\frac{1}{4}$ inch thick and the outside diameter is seldom more than 2 inches."

The breeding season would appear to be even more extended than March to August, as given by Herbert, though it is probable that most eggs are laid in April, May and June and very few in February or September. A very fine series collected and given to me by Herbert and Williamson were taken between the 23rd February and 23rd July, but both these gentlemen also took other eggs in August.

The few nests with eggs which I have seen from Java and the islands were taken in April and May. The eggs are typical of the genus but, as a series, run rather dark, though I have one beautiful little clutch, taken by Herbert, which has quite a pretty delicate creamy yellow ground, and two others, taken by Williamson, with a white ground and very sparse grey specks in the usual zone.

The number of eggs laid is almost invariably two, three being very exceptional.

Fifty eggs average 17.4×13.0 mm.: maxima 19.1×13.2 and 17.4×13.6 mm.; minima 16.3×13.0 and 17.5×12.4 mm.

***Leucocirca pectoralis*.**

THE WHITE-SPOTTED FANTAIL FLYCATCHER.

(705) *Leucocirca pectoralis pectoralis* Jerdon.

THE NORTHERN WHITE-SPOTTED FANTAIL FLYCATCHER.

Rhipidura pectoralis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 282.

Leucocerca pectoralis, ibid. vol. viii, p. 634.

Since vol. viii of this Fauna was written Whistler has described (Bull. B. O. C. vol. lii, p. 40, 1931) the race from the Eastern Ghats of Madras under the name *Leucocirca p. vernayi*. Excluding, therefore, the Ghats, this little Fantail Flycatcher is found from Cape Comorin, North throughout Travancore, Mysore and Bombay, to the Aravalli Hills in Rajputana. East it extends to Raipur Chikalda, Goona, and Chanda. It is extremely common in the Nilgiris and other hill-ranges of Mysore and the South-West, but does not extend into the true plains East of these. Williams found it very numerous at Khamptee.

This is, perhaps, the most familiar and confiding of all the Fantail Flycatchers for, though it breeds in any thicket, *shola*, or small wood, it is just as often found nesting in gardens and in scrub round or in villages, where its ever restless movements and constant little song soon draw attention to it.

Miss Cockburn's notes to Hume ('Nests and Eggs,' vol. ii, p. 38) on this bird's habits and nesting are so charming that I quote them in full:—

"Though not very common in these hills [Nilgiris], they are to be found in pairs in certain localities, and their pleasing little song is frequently repeated.

"These Fantails are most restless and active, constantly flitting from one spray to another and snapping up small insects while on the wing. When seated on a branch their tails are raised and spread to the full extent, while their wings are lowered and their heads slightly thrown back. Sometimes they alight on the ground, where it is amusing to watch their activity, which is evinced in a kind of dance (with expanded tails), varied by a snap (like the noise of castanets) aimed at some unfortunate little insect, whose winged progress has suddenly been stopped by the keen-eyed Fantail.

"A pair of these birds are constantly in our garden, and do not show the slightest degree of shyness or fear, often allowing me

to stand and watch them quite close. They build an extremely pretty nest, very much resembling a wine-glass in shape, which, however, appears to be unfinished, and is left with straws hanging down in a careless manner. The upper portion of the nest is entirely composed of very fine straws, with a thin addition of spiders' webs outside to keep the whole structure firm, and also to strengthen its hold on the slender branch to which it is attached. I have sat for hours watching their untiring industry, and have been much amused to see the manner in which the latter part of the building was constructed. One of the birds would fly to the nest with a spider's web in its bill, and, after fixing one end, the little creature, taking hold of the other, would seat itself in the nest and give a sudden twist round and round until it had drawn the material sufficiently tight, when it would fasten it securely, thus giving a neatly finished appearance to the outside. They build low on large trees and always lay three eggs. These birds have built on peach-trees in our garden and, although we were most careful that no one should touch their nests, Squirrels, Crows, and Crow-Pheasants used to deprive them of their young. On these occasions the distress of the parents was sad to witness, but it seemed to last for only a few hours; before the day was ended their sweet song was renewed, and in less than a week another nest would be commenced.

“A pair of these Fantail Flycatchers once had their nest of young ones on an orange-tree, and when my cat went too near it (as they thought) they attacked her in such a manner, fluttering and chattering close to her ears, as to oblige her to take refuge under a wheelbarrow. These birds build in April and the following three months.”

Butler, writing from Mt. Aboo, gives a more detailed account of the nest and the kinds of position selected for it. He writes:—“The nest is one of the neatest little structures I ever saw. It is cup-shaped, with often a long untidy tail in continuation of its base. The interior is composed of fine grass compactly woven together, and the exterior is bound with cobwebs, which are wound round it so thickly that from the outside it looks perfectly white. Many of these cobwebs are attached to twigs, to give the nest support. It is generally placed in a fork of one of the small branches of some low thick bush about $2\frac{1}{2}$ or 3 feet from the ground, or on small branches of big trees or low bushes overhanging dry or watery nullahs running through thick jungle or clumps of high trees, in the shade of which these birds are so fond of hunting for insects.

“In one or two nests I found a few horsehairs in the lining.”

Most nests closely resemble those described above, but many people consider the nests shaped more like wineglasses than like cups, though the tail is not always present. Sometimes, also, as with the other Fantails, the nest is placed on a horizontal branch

or twig, the materials incorporating the whole of the supporting twigs and the cobwebs wound tight round it.

Rhodes Morgan says :—"The nest of this lively little bird is very difficult to find," but most observers note quite to the contrary. Betham writes to me :—"The nest is easy to find, as the birds give it away by fussing around. It is, however, difficult to obtain full clutches of their eggs, as this same fussiness attracts the attention of their enemies, who steal both eggs and young."

The breeding season over most of its area continues from April to July, inclusive, as stated by Miss Cockburn, but in Poona and Khamptee Betham and Williams obtained most of their nests in the latter part of June and in July, whilst Davidson and Wenden took a nest at Egutpoora, with three eggs, on the 6th September.

The normal full clutch consists of three eggs though two only are sometimes incubated. The eggs are typical of the genus and, individually, not to be separated from those of the other species, but, as a series, the ground-colour has, perhaps, a more decided brown tint, and most eggs might be termed a brownish-cream.

In texture and shape the eggs of the present species resemble those of the other species of the genus.

Fifty eggs average 16.2×12.7 mm. : maxima 18.2×12.3 and 17.3×13.0 mm. ; minima 15.0×11.6 and 16.2×11.5 mm.

Family LANIIDÆ

(SHRIKES).

Lanius excubitor.

THE GREAT GREY SHRIKE.

(706) *Lanius excubitor lahtora* (Sykes).

THE INDIAN GREAT GREY SHRIKE.

Lanius excubitor lahtora, Fauna B. I., Birds, 2nd ed. vol. ii, p. 285.

This Indian representative of the English Great Grey Shrike is found throughout the Central and Northern plains of India, extending as far South as Belgaum on the West and thence through the Deccan and Central Provinces to Eastern Bengal, where it has been found as far as Calcutta as a straggler only. In the North it occurs from Sind to Behar and is a resident breeding bird in the Western drier districts of Bengal. It is entirely a bird of the plains, though it occurs on the high dry uplands of the Deccan at about 2,000 feet and is very common in many of the more desert regions.

In the Himalayas it never occurs, so far as has been recorded, above some 1,500 feet and, even at this elevation, I have no knowledge of its breeding, while, for the most part, the dense forest and heavy rainfall over the greater part of the foot-hills of the Himalayas would suffice to shut it out from these areas.

It is not a shy or retiring bird and frequently breeds in the more arid waste land in the vicinity of villages, and is also common near many towns but, apparently, never builds its nest in gardens or compounds, which are probably too green and too wet for its liking.

They seem to be extremely common round about Delhi, where Bingham counted thirteen nests in an evening's walk. So, too, round Lucknow, where Jesse, on several occasions, came across many nests in a single day's nest-hunting.

Its choice of a situation for its nest varies somewhat. Blewitt, describing his experiences in the neighbourhood of Delhi, says that, in selecting a tree, "if it has a preference it is for the close growing roonj-tree (*Acacia leucophloea*)." Most observers, however, seem to think that on the whole it prefers trees which are not very densely foliated. Thus Reid and Jesse both found that round Lucknow small Babool-trees growing in open country were favourite nesting places; Butler says of the nests he found round Deesa that they were generally placed "in some low, isolated, leafless thorny tree (*Acacia sisyphus*, etc.), from 6 to 10 feet from the ground." It is never placed at any great height and, whilst most nests are built in branches under 10 feet up, few are placed over that height, while others are as low as 4 or 5 feet only.

The nest is a very large, bulky cup measuring anything from 5 to nearly 8 inches in diameter and nearly as much in depth, whilst the egg-cavity may be from 3 to 5 inches across and about the same in depth. Hume, however, gives rather more shallow dimensions. He writes:—"Generally the nests are very compact and solid, 6 or 7 inches in diameter, and the egg-cavity 3 or 4 in diameter and 2 to 2½ in depth, but I have come across very loose and straggling ones."

The materials of which the nests are composed vary very greatly and, as Hume remarks, it is very difficult to generalize about them. Coarse grass, grass-roots and small twigs, the latter often thorny, perhaps constitute the favourite articles and form the greater part of most nests. On the other hand, the outer parts of some nests are built almost entirely of the flowering ends of grasses. In many nests wool, hair, fur and, sometimes, feathers are worked in with the other materials, wool especially being often made use of. Besides these, odd scraps of rag, skin, bark, vegetable fibre and other oddments may all be found from time to time as component parts of various nests. The lining is more often of grass and roots than of anything else but, here too, wool and hair are often substituted for, or mixed with, the grass, while Hume found some nests lined with "silky vegetable fibre, mostly that of the putsan (*Hibiscus*·

cannabinus). Blewitt found one nest lined entirely "with old cloth pieces, very cleverly and ingeniously worked into the exterior frame-work."

They seem to be rather fond of building in company, though, in some cases, it may be that other birds build their nests in the same trees as the Shrikes in order to obtain the protection of these bold defenders of their own young. Nor is their faith in the Shrikes betrayed by the latter stealing their young for, I believe, in no instance do the Shrikes kill the young of those birds nesting under their protection, a curious fact which also obtains with many other birds, both *Raptores* and others.

Blewitt once found four nests of various birds in one tree within a foot of one another. Aitken similarly found four nests in a small Babool-tree, although, when found, only one was occupied.

Often the Great Grey Shrike will return to an old nest and lay in it a second year, sometimes repairing it and doing it up properly, but sometimes just making use of it in its dilapidated condition, without any attempt at reconditioning. Blewitt refers to this habit, and adds: "It is not only, however, in old nests of their own species that these birds make a home in the breeding season. At times they take possession of fabrics clearly not the work of any Shrike. Quite recently I found a pair of *L. lahtora* with four eggs in a small nest entirely woven of hemp, the bottom of which was thickly coated with the droppings of former occupants. Again, on the 8th June a nest was found on a roonj tree. This wonderful nest is entirely composed of what I take to be old felt and feathers.

"Evidently this nest was not originally made by the Shrike, but, as would appear, was taken possession of by it, after the brood of some other bird had left it."

The birds breed practically throughout the year, as eggs have been taken from January to October. Hume writes:—"The Indian Grey Shrike breeds from January to August, but the majority of my eggs have been obtained during March and April." This seems to be the general rule and few eggs are laid before March or after July, but a great many in May and June.

The number of eggs laid is most often four but five are not uncommon and, occasionally, three are incubated. In appearance the eggs—for Shrikes' eggs—are dull, and do not vary very greatly. The great majority of eggs agree with Hume's description:—"Typically the eggs are of a broad oval shape, more or less pointed towards one end, of a delicate greenish-white ground, pretty thickly blotched and spotted with various shades of brown and purple markings, which, always most numerous towards the large end, exhibit a strong tendency to form there an ill-defined zone or irregular mottled cap."

The ground-colour in my own series varies from a quite bright pale sea-green, through dull pale grey-green and buffy green, to

a very pale dull buff or yellowish-stone colour. The markings range in colour from a dull light brown to a deep, almost blackish-brown, with secondary blotches and spots of lilac and neutral tint, a few of these being unusually deep in colour for secondary markings. The blotches are, as a rule, of some size, but a few eggs are more speckled than blotched, and occasionally the blotches are still bigger and then generally fewer also. In a few eggs the secondary marks are more numerous than the primary, but this is rare.

One hundred eggs average 25.9×19.7 mm. : maxima 28.5×20.4 and 27.9×21.3 mm. ; minima 23.0×20.3 and 25.3×18.1 mm.

(707) *Lanius excubitor pallidirostris* Cassin.

THE BALUCHISTAN GREAT GREY SHRIKE.

Lanius excubitor pallidirostris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 287.

This Grey Shrike breeds from Trans-Caspia to Baluchistan, and through West Central Asia to the Tian-Shan and Lob Nor. Within our limits this Shrike breeds freely in British Baluchistan round Quetta, although there is practically nothing on record.

Ticehurst, in his "Birds of British Baluchistan" (Journ. Bomb. Nat. Hist. Soc. vol. xxxi, p. 701, 1927), says:—"Records which are borne out by specimens testify that this is the breeding race of Grey Shrike in N. Baluchistan, to which it is a summer visitor. It breeds locally through the Chaman, Quetta, Ziarat, Fort Sandeman Districts, and probably is the *lahtora* recorded by Ball from the Suleiman range ; it is not a bird of the highest hills, preferring the foothills and valleys, 5,000-7,000 feet. It must move down in September, as I only saw one on the Kach-Khawash road on September 25th, which is a favourite breeding ground. It probably breeds in the highlands of Kalat, as a juvenile obtained on Harboi appears to be of this race."

Ticehurst, apparently, also thinks it probable that this is the breeding Grey Shrike on coastal Makran. The only reference to its breeding-habits is that of Meinertzhagen (*Ibis*, 1920, p. 150), in which he records that this Shrike is "a summer visitor to the foothills (Quetta) and common locally, arriving in early March and leaving in early November. A nest found on 11. vi. at Spereragha contained four young about a week old, the nest being in a wild almond bush about 8 feet from the ground, and of the usual type. I found it especially common round Kach and Azim from June to August."

It is curious that neither Betham nor Williams refer to the breeding of this species about Quetta, which makes one wonder whether these breeding visitations are sporadic.

The few eggs I have seen differ in no way from those of *L. e. lahtora*.

(710) *Lanius vittatus* Valenc.

THE BAY-BACKED SHRIKE.

Lanius vittatus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 289.

This little Shrike is found over the whole of India as far South as Mysore, the Nilgiris, Palni Hills, and Travancore. North it extends into Sind, Baluchistan and the foot-hills of the Himalayas as far East as Northern Bengal. Sikkim seems to be missed in its Summer wanderings, for Stevens never met with it, though Inglis obtained a specimen at Haldibari in the Jalpaiguri District of Eastern Bengal. Dodsworth took its nest at about 5,000 feet at Budasa in the Patiala State and once at 6,000 feet in Kote State in the Simla Hills. Rattray and Marshall (C. H. T.) found them common in the Murree Hills, but not much over 5,000 feet. Rattray also found them breeding at Khar on the North-West Frontier.

Of this little Shrike it may be said that they breed anywhere or everywhere, excluding only the interior of evergreen forest. The nests may occasionally be found in gardens and often in the waste or grazing land round villages, any small tree or high bush serving as a site for the nest. They like small, solitary trees standing in cultivation or a bush in a tall fence. Butler, writing of Sind, says that these Shrikes "always retire from the more open parts of the country to low, thorny tree-jungle to breed." Ticehurst remarks, in reference to the same province, as follows:—"Eschewing quite bare desert which *lahtora* haunts, it may be met with almost anywhere where a few trees and bushes supply its requirements. In sparsely wooded parts, such as the scanty desert scrub-jungle met with in many places, it is commoner than *erythronotus*; but as soon as cultivation or little wooded parts are entered the latter more or less takes its place."

Hume gives a rough summary of the sorts of trees it prefers:—"The nests are placed indifferently on all kinds of trees (I have notes of finding them on mango, plum, orange, tamarind, toon, etc.), never at any great height from the ground, and usually in small trees, be the kind chosen what it may. Sometimes a high hedge-row, such as our great Customs hedge, is chosen, and occasionally a solitary caper or stunted acacia-bush. The nests (almost invariably fixed in forks of slender branches) are neat, compactly and solidly built cups, the cavities being deep and rather more than hemispherical, from 2.25 to fully 3.5 inches in diameter, and from 1.5 to 2 inches in depth. The nest-walls vary from 0.5 to 1.5 inch in thickness. The composition of the nest is various."

He then gives his own notes on different nests:—

"Compactly woven of grass-stems and a few fine twigs, but with more or less wool, rag, cotton, or feathers incorporated; there is no lining.

"The nest is rather massive, externally composed of wool, rags,

cotton, thread, and a little grass, the cavity rather neatly lined with fine grass.

“Composed almost entirely of cobwebs, with a few soft feathers, wool, string, rags, and a few pieces of very fine twigs, compactly woven. The interior was lined with fine straw and fibrous roots.”

From Hume's notes, however, and those of his correspondents, it would seem that nine nests out of every ten are deep solid structures made principally of fine twigs, with which are mixed all kinds of oddments, such as those enumerated by Hume, whilst the lining is of wool, grass, or roots, fairly well and neatly finished off.

A curious nest found by Ticehurst in Sind was “a very pretty, though conspicuous, object, composed of little else than Doves' feathers.”

Occasionally nests are built entirely of grass, or grass and roots, lined with the same.

They sometimes return to their old nests of the previous year, or patch up those of other birds to suit their own requirements.

Blewitt, writing from Delhi, remarks:—“I had frequently noticed on a tree in the garden an old Shrike's nest. It was in the beginning of May that a male bird suddenly made his appearance and established himself in the garden, and morning and evening, without fail, did it sit and alternately chatter and warble away for hours.

“In the beginning of June his singing suddenly ceased. He had secured a mate, and daily I watched for the nest which I thought they would prepare. Late on the evening of the 23rd June, happening to look up at the *old* nest, to my surprise I found it occupied by the female, the male the while sitting on a branch near her. Next morning, on searching the nest, I found four eggs.”

Writing on another occasion, Blewitt says:—“An old nest, evidently of last year's make, was brought to me the other day with five eggs, but the lining, as was done with the one in the garden, had been wholly removed and new grass and khus substituted.”

Most nests are placed in small trees below rather than over 10 feet from the ground but, occasionally, nests may be taken from 25 or even 30 feet up and, on the other hand, sometimes from bushes not more than 3 or 4 feet from the ground.

Over the greater part of its range April, May and June seem to be the favourite months in which to lay, but a good many birds lay on into July, and Hume thought June and July were the two chief laying months. He says:—“The greater body of birds not laying until the rains set in.” In Travancore they breed frequently in February and March. In Sind, also, Ticehurst found a nest with eggs on the 22nd March, while he saw young on the wing on the 11th April.

The number of eggs in a full clutch is generally four, though five is not rare and, sometimes, three only are incubated. They

are typical little Shrikes' eggs and, like those of other Shrikes, run through a wide range of variation. The ground-colour varies from white, with the faintest tinge of green or buff, less often of cream, to a warm yellowish-brown or sea-green. Very rarely the ground is really pure white. The markings consist of specks, spots and tiny blotches, nearly always dispersed in a dense ring round the larger end, fairly numerous within the ring and sparse elsewhere. In a few eggs these markings may be numerous everywhere but, even in these eggs, the zone is always well defined. In colour the primary markings are anything from pale grey-brown to almost blackish-brown, while the secondary ones, nearly as numerous as the primary, are of pale grey, pale lavender or, less often, of lilac-grey. These secondary markings are all distributed like the primary and often show up well among them. Very few eggs are boldly marked but I have a few such. One clutch of five has a yellowish-cream ground with a zone of bold spots of deep brown and inky grey; another clutch has a fine grey-green ground, boldly blotched with blackish-brown and deep lavender; these blotches numerous everywhere, but especially so in the zone where they are confluent.

The red type of egg, so common with many Shrikes, must be very rare. Neither Hume nor any of his correspondents mentions it, and the only one I have seen was a single egg taken by Bourdillon in Travancore.

Hume gives the average of forty-five eggs as 21.08×16.76 mm.; one hundred measured by myself average 20.8×15.7 mm.: maxima 23.1×16.2 and 22.1×17.1 mm.; minima 18.8×15.0 and 20.3×14.1 mm.

Both birds assist in the construction of the nest but the female bird seems to do most of the work, whilst the cock bird sits near her and sings. So, too, with incubation; the cock sits, but only rarely, being for the most part content to perch close by and sing to encourage her in her duty. He is, however, a good parent and takes his full share in obtaining food for the young.

Lanius collurioides.

THE CHESTNUT-RUMPED SHRIKE.

(711) **Lanius collurioides collurioides** Less.

THE BURMESE CHESTNUT-RUMPED SHRIKE.

Lanius collurioides *, Fauna B. I., Birds, 2nd ed. vol. ii, p. 291.

The Burmese form of Chestnut-rumped Shrike breeds from Assam, South of the Brahmapootra, where it is very rare, Manipur

* As Delacour has separated the birds from South Annam and Laos (Bull. B. O. C. vol. xlvii, p. 13, 1925), our bird must now have a trinomial.

and the whole of Burma, East to North-West and Central Annam and South to Tenasserim.

I first obtained this Shrike nesting in North Cachar in 1891 at Guilang, on the Barail Range, at an elevation of about 4,000 feet, but the bird was *very* rare, probably a straggler only into this district, and but little more common even in Manipur, though quite common in the adjoining Chin Hills.

This nest was exactly like those of the Black-headed Shrike, as built in North Cachar, but smaller. The only material used in bulk was the fine fluffy ends of flowering grasses, the flowering ends outside and the stems very strongly bound round and round inside, so that the nest looked like a soft ball of white fluff. The lining was of grass, also very neatly and firmly arranged, and with a few fine roots worked in with the grass. It measured about 5 inches in depth by about the same in width, with a cavity about 3 inches each way. The walls were rather more compact outside than are those of the Black-headed Shrike, for round and over the flowering ends a good many stems of grass had been bound, so that the feathery heads did not stick out all round to the same extent.

The nest was built in a fork of a tall straggling bush or small tree, about 6 feet from the ground, which grew on the outskirts of ever-green forest at the edge of some hill-side cultivation. The cock bird was singing loudly and very sweetly within a few feet of the nest and attracted my attention to it.

In 1901-2 Harington took many nests of this Shrike in the Southern Shan States at and around Myingyan. About these he writes (Journ. Bomb. Nat. Hist. Soc. vol. xiv, p. 598, 1903):—“It is a wonder this bird's nest has not been described before, as it is very common up here, especially during the breeding season, which is from April to the beginning of June. All the young birds have left their nests now (23rd June) and everywhere one goes you are greeted with the angry chatter of the old birds. Whilst they had eggs in their nest they were very silent and generally kept out of sight. The nest is usually placed on the top of small saplings against the trunks of trees and between the forks of good-sized branches at 5 to 12 feet from the ground. The nest is neatly made of leaves, lichen, feathers etc., covered with cobwebs, and lined with fine grass. The size of the nest varies a good deal; if placed in between branches it is much smaller and matches the tree-trunk, if concealed by leaves it is much larger.”

In a letter to me, sent with some eggs from Maymyio, he describes the nests as varying more than those of the Red-backed Shrike; he writes:—“The nests are all very deep cups, well made, with very thick walls and cups [? bases]. They are made principally of grass, often with the seeds or flowering ends on them, but they are mixed with all sorts of other materials, small twigs, thorny or plain, roots, odd dead leaves, and sometimes scraps of moss, lichen, or wool. Nearly always they are placed in thorny bushes, less often in high

thin bushes or in low saplings. They breed in March, April and May."

Cook describes a nest taken by him near Maymyio in April as exactly like that taken by me in Cachar.

Mackenzie and Hopwood found them breeding freely in the Chin Hills and Upper Chindwin between 4,000 and 7,000 feet. The nests taken by them agreed well with Harington's second description, but one nest taken by Mackenzie was decorated externally with yellow flowers. Wickham took other nests at Taunggyi in early April in open grass and tree country.

The breeding season seems to be March to early June, most birds laying in April and the first half of May.

The eggs number four to six, five being that most often laid.

They vary to an extraordinary extent in colour, possibly even more than do those of our common English Red-backed Shrike. The ground may be really white, though this is most exceptional, and from this it grades through very pale grey-green to a warmer, rather brownish-green, or from the palest creamy, sometimes tinged with buff or yellow, to a warm salmon. The markings consist of freckles of pale grey in some specimens, in others of blotches and spots of dark brown, olive-brown, or grey-brown, whilst in yet others with creamy or salmon ground they may be blotches or spots of reddish-brown, light red, or deep blood-red. In practically every egg these markings, whatever their colour, are most numerous at the larger end, where they form a dense zone, and sparse elsewhere. In this species the blotches are often very big and, as they coalesce and run into one another in the zone, this becomes occasionally a blurred and indefinite mass of colour. A few eggs have the markings, especially when they are very large, more or less scattered over the whole surface. The secondary markings of lavender, inky grey and, in the red eggs, lilac-grey are distributed in the same way as the primary and are often numerous enough to give a grey or purple tint to the massed markings as a whole. Red eggs are quite common among those of this species and occur in about one in every three clutches. Between the various extremes, the very pale grey and the deep red, the creamy yellow and the deep buffy brown, there is every possible link represented. Taken as a series they are very handsome and boldly marked but, compared with the eggs of many other Shrikes, they give one the impression of being marked in a rather blurred or smudgy manner.

In shape they vary from long, pointed ovals to short, broad ones, with the smaller end blunt and very little compressed. The texture is close and fine but quite glossless.

Two hundred eggs average 21.36×16.48 mm. : maxima 25.0×17.1 and 21.2×18.9 mm. ; minima 18.3×15.3 and 19.8×15.0 mm. The maxima are both almost abnormally large eggs but not double yolked.

Lanius nigriceps.

THE BLACK-HEADED SHRIKE.

(712) **Lanius nigriceps nigriceps** (Frank.).

THE INDIAN BLACK-HEADED SHRIKE.

Lanius nigriceps nigriceps, Fauna B. I., Birds, 2nd ed. vol. ii, p. 292.

This handsome Shrike occurs throughout the Central and Eastern Himalayas from Garhwal to Assam, both North and South of the Brahmapootra, and thence through the Chin and Kachin Hills to the Shan States and North-West Siam. It has also been found in Yunnan. It breeds at all heights from the plains up to 4,000 feet and thence, less commonly, up to at least 7,000 feet and, probably, at higher elevations still. North of the Brahmapootra it is not nearly so common as it is in the hills South of that river, or in Manipur and the Chin Hills. In Winter, of course, it wanders far into the plains. We found it breeding in some numbers in the low country in Margherita, where there is an avifauna which is found elsewhere between 1,000 and 3,000 feet, but I never knew it to breed in the plains of the Surrma Valley or any of the districts of Eastern Bengal where it is common in Winter. In Furreedpore, however, Cripps recorded it as a common breeding bird, preferring "open plains interspersed with bushes; the small bushes on road-sides also being a favourite haunt."

Thompson notes of its breeding "all along the south-western termination of the Kumaon and Garhwal forests, and is usually found in swampy, high grassy lands." He also found it in Mirzapore, but could not ascertain whether it bred there. He remarks of its Southern limit:—"It disappears after you go south-west of the Mykle Range, and on the range itself is only found near marshy places. This Mykle Range extends as far as Ummerkuntuk, with a spur going off north of that, and joining on with the Kymore Range, parts of which I explored in March last in Parganas Agrore and Singrowlee. Down in these places this *Lanius* was the common Shrike."

Although this Shrike breeds occasionally in evergreen forest and, more commonly, in thin Pine forest, it prefers quite open country and especially, perhaps, plateau grass-lands scattered with high straggly bushes which raise their heads only 3 or 4 feet above the surrounding long grass. In these and in the small stunted Oaks, which grow here and there in the same plateaus, they place their nests between 5 and 15 feet from the ground. Sometimes they build in orchards and gardens and often in cattle-grazed lands round villages. In North Cachar, between 4,000 and 6,000 feet, I found that most nests were placed in saplings and tall bushes

bordering openings in the forest where the hill men grew their rice or cotton. They also were often to be found in deserted fields in which the jungle had not yet had time to get too dense and tangled.

In Sikkim Gammie found them breeding in similar places. He writes :—" I found this Shrike breeding abundantly in the Cinchona reserves in May and June at elevations of from 3,000 to 4,500 feet above the sea. It affects open, cultivated places and builds, at 6 to 20 feet from the ground, in shrubs, bamboos, or small trees."

The very great majority of nests are placed in small trees and high bushes between 5 and 20 feet from the ground, but Cripps records that in Furreedpore he "took ten nests this season from the 11th April to the 4th June, with from one to five eggs in each. Four nests were placed in bamboo-clumps from 9 to 30 feet high ; one 40 feet from the ground on a casuarina-tree, one 20 feet up in a but-tree, and the rest in babool-trees from 6 to 15 feet high from the ground."

The nests, of which I have seen an enormous number *in situ*, some in my own gardens and orchards, have all been much alike. They are very large, bulky cups, the depth almost invariably greater than the diameter. Those I have personally measured have varied in external diameter from about 5 to $7\frac{1}{2}$ inches, and the depth from $5\frac{1}{2}$ to just on 8 inches, but the majority would be just over 5 across by nearly 6 inches deep. The walls and base are very massive, measuring from 1 to $1\frac{1}{2}$ inch thick, whilst the base may sometimes be 2 inches thick. The egg-cavity is comparatively small, measuring about $3\frac{1}{4}$ to 4 inches across and from 3 to 4 deep. It is often so deep that the sitting bird shows only her beak and tail above the rim.

All the Assam nests were built alike. The outer walls were constructed solely of the feathery white flowering ends of seeding grass, the long stems very firmly and compactly wound round so as to leave the flowering ends outside, making the nest a conspicuous feathery white mass. Inside the outer wall is an inner wall of coarse grass-stems and roots but, with these grass-stems, many other materials may be used to a varied extent. I have seen nests made almost entirely of very thorny twigs, the thorns protruding through the fluff of the outer wall ; often roots, a few odd leaves, tendrils, rachides and even bamboo leaves are made use of. The lining is always of grass, sometimes alone, sometimes mixed with roots and fibre.

Scully, writing of Nepal, gives a rather different description of the nest, and says that they are "large cup-shaped structures composed of grass-roots, fibres and fine seed-down intermixed. The egg-cavity was circular, lined with fine grass-stems."

Gammie describes his nests as being exactly like those found by myself and, like them, exteriorly chiefly composed of flowering grasses.

The nests are very compact and exceedingly well put together; they are almost invariably placed in an upright fork or between two or more vertical shoots, and the supporting twigs are very firmly fastened into the fabric of the nest.

The breeding season almost everywhere seems to be April, May and June, though I have taken belated nests with fresh eggs in July. An exception to this season is given by Thompson, who says that in Kuman and Garhwal they breed in July, August and September. The only eggs, however, I have seen from these districts have been taken in May and June.

The full clutch of eggs is from four to six, generally five.

In appearance the eggs are quite typical of the genus and, considering them as a series, they give one the impression of being very brightly coloured, definitely spotted eggs, the smudgy, untidily blotched eggs being in a very small minority. They go through the same range of variation as the eggs of the preceding bird except that I have never seen any with the very large ill-defined blotches not rare in the eggs of the Burmese bird. In the present species, also, the rings at the larger end are not so invariably well defined, and quite a number of clutches are fairly well marked all over the surface, though always more numerous at the larger end. The red type of egg is quite common, about one clutch in every three being of this description and many being extremely handsome, having a deep pink ground freely blotched with chestnut-red. Eggs with a very pale olive-grey ground, zoned or otherwise marked with darker grey, are exceptional, though I have examples of all the various types in my own series. One exceptional clutch has a bright yellow sea-green ground, with very bold zones of almost black spots mingled with secondary marks of lavender-grey. Another unusual clutch has a very pale salmon-cream ground, with markings of three colours scattered irregularly over the whole surface. The primary small blotches are a rich chestnut, the secondary of pinkish grey, and the third, evidently pigment deposited very early on the inner shell, of the faintest lilac.

In shape the eggs are typically rather broad ovals, very little compressed at the smaller end. A few are rather longer ovals, and yet fewer still are long ovals decidedly pointed. The texture is fairly fine, very close, and in a few eggs shows a faint gloss, quite absent in most.

Two hundred eggs average 23.6×17.9 mm. : maxima 26.2×19.0 and 24.0×19.2 mm. ; minima 21.0×17.0 and 23.0×16.5 mm.

So far as I know, the male takes no part in incubation beyond relieving his wife for about half an hour in the mornings and evenings, at which times we have trapped a few on the nest. As regards the building work, all he does is to bring the materials and hand them over to his wife. At the same time he is a good husband, intensely energetic in feeding the young and even feeding the female on the nest and, when not so engaged, he sits by her

and pours forth continually one of the most beautiful of all bird-songs, one of infinite variety, and pulsating with the joy of living and loving.

Incubation takes fourteen or fifteen days and the young leave the nest, fully fledged, in about the same period.

They are not as a rule double brooded, but a good many birds have two broods in a year.

(713) *Lanius nigriceps longicaudatus* O.-Grant.

THE SIAM BLACK-HEADED SHRIKE.

Lanius nigriceps longicaudatus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 294.

The present race of Black-headed Shrike is found within our limits only in Tenasserim, and it occurs also in central South Siam to the extreme South of peninsular Siam, Mackenzie and Hopwood taking nests with eggs near Mergui in May and June, while one of my collectors took others for me near Amherst.

Herbert (Journ. Siam Nat. Hist. Soc. vol. vi, p. 107, 1923) gives the following interesting description of its breeding :—

“ This is the only true Shrike found nesting in the neighbourhood of Bangkok, and it is very plentiful in the paddy-fields or other open parts of this country.

“ The usual nesting site is a small tree or bush in scrub-jungle, or not infrequently a solitary ‘ Makam-tate ’ tree (*Pithecolobium dulce*) out among the paddy-fields. The nest is built at 10 to 20 feet from the ground, and is a deep cup-shaped structure, composed of grass-stems and fine creepers firmly packed together, with a neat lining of roots and grasses. May and June is the nesting season.

“ The eggs show considerable variation in shape, but they are generally broad ovals slightly compressed towards one end, although elongated ovals are not uncommon. In coloration there are two types, but they are quite distinct and are never found in the same nest. The commoner one has a pale green or greenish-white ground, with specks and spots of sage-green or brownish-olive, intermingled with a few pale purple spots; these take the form of an irregular zone about the large end, with only a few markings on the lower parts. The other type has a pale stone or salmon-pink ground-colour, with blurred spots and specks of dull red and pale purple, and in this case also the markings are in the same form, though they are less numerous than in the previous type. Fresh eggs of the latter type have a very beautiful colouring before they are blown, and often have quite an apricot tint.

“ The shell is very fine and rather frail for the size of the egg, and there is little or no gloss. The size varies considerably.

“ Five eggs usually are laid, sometimes only four.

“ The eggs of the red type in my collection are distinctly smaller than those of the green, so it will be interesting to watch whether this is always the case.”

Williamson also took a good many nests round Bangkok in country and positions similar to those described by Herbert.

The eggs in my series cannot be distinguished from those of the Indian Black-headed Shrike but, probably because there is only a small series, the variation is much less. The two red clutches taken by Herbert are both of the *Dicrurus* type of egg, and could be duplicated by many eggs of the *Dicrurus leucophæus* group. I have seen one or two clutches only of this type among the eggs of the Indian race, but they are so rare that one might almost call them abnormal.

Forty eggs average 24.0×18.3 mm. : maxima 27.5×19.0 and 24.0×19.1 mm. ; minima 20.3×17.0 mm.

Lanius schach Linn.

THE CHINESE GREY-BACKED SHRIKE.

(714) **Lanius schach erythronotus** (Vigors).

THE RUFIOUS-BACKED SHRIKE.

Lanius schach erythronotus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 295.

There is little I can add to the remarks in the ‘ Fauna ’ on the breeding range of this Shrike, which I gave as follows :—

“ From the extreme North of India as far South, about, as Surat on the West, and thence in a semicircular line to the mouths of the Godavery River on the East. The birds in the Southern parts of the Central Provinces are of the next race, while those from the Northern Central Provinces are quite typical of this one, those in between being, as we should expect, intermediate in their characteristics. It occurs commonly throughout Sind in the West and as far East as Eastern Bengal, where, however, it is rare. It ascends the Himalayas up to at least 8,000 feet.”

Harrington found it very common at Peshawar, where he took many nests, though the birds may not be quite typical *erythronotus*. Ticehurst says that it is a Summer visitor up to 6,000 feet in Baluchistan and that it has been recorded as far West as Omarra in Mekran.

In Kashmir the highest altitude at which it has been found breeding is at about 8,000 feet near Gulmerg, but it is rare in that State above 6,000 feet and very common everywhere below that elevation.

Osmaston records a pair as having a nest and young at Kargil, Ladak, 8,900 feet. They were not shot and, probably, were *tephronotus*, which occurs undoubtedly in Ladak.

Rattray, annotating his 'Nests and Eggs,' writes :—" Very common at and below 5,000 feet at Koti Mardan ; D(era) I(smail) K(han) ; Mian Meer ; Murree and Mussoorie."

This Shrike, I think, prefers open cultivated country, dotted about with small and big trees, orchards and gardens, to any other kind. At the same time it breeds in waste land, grass land scattered with trees, and in scrub-jungle round villages and towns. It apparently also sometimes actually breeds in forest, as Ticehurst, writing of this bird in Sind (Ibis, 1922, p. 607), says :—" Both equally affect forest and scrub-jungle ; in the desert proper, however, this species is seldom rare." In Rajputana it is not common, but breeds sometimes in small thorny Acacias in very arid country. Both in Behar and in Western Bengal it occasionally nests in gardens, and Bingham found it nesting in the Nicholson Gardens in old Delhi.

As to the sites selected for the nests, Hume writes :—" The nests of this species are almost invariably placed in forks of trees or of their branches at no great height from the ground ; indeed, of all the many nests that I have myself taken, I do not think that one was above 15 feet from the ground. By preference, I think, they build in thorny trees, the various species of Acacia, so common throughout the plains of India, being apparently their favourite nesting haunts, but I have found them breeding on toon (*Cedrela toona*) and other trees."

Balbool and Acacia trees seem certainly to be their favourite nesting-trees, and in these they build at any height from 5 to 20 feet, the nest often being very conspicuous from a considerable distance when thus placed in small solitary trees. They have, however, been recorded as building at great heights in large trees. Thus in Bitchpore Mr. Munro took one nest in a Mango-tree, built in a fork 40 feet from the ground, and Coltart took two in Behar at about the same height from the ground, also in Mango-trees. Other places in which nests have been built are Cactus hedges (Gill), Casuarina-tree (Inglis), thorny creepers (Wardlaw-Ramsay) and trellis over garden bower, (Baker).

As regards the nests, Hume thus sums up his own experiences and those of his correspondents :—

" Internally the nest is always a deep cup, from 3 to $3\frac{1}{4}$ inches in diameter and from $1\frac{3}{4}$ to $1\frac{1}{2}$ deep. The cavity is always circular and regular, and lined with fine grass. Externally the nests vary greatly. They are always massive, but some are compact and of moderate dimensions, say not exceeding $5\frac{1}{2}$ inches in diameter, while others are loose and straggling, with a diameter of fully 8 inches. Grass-stems, fine twigs, cotton-wool, old rags, dead leaves, pieces of snake-skin, and all kinds of odds and ends are incorporated in the structure, which is generally more or less strongly bound together by fine tow-like vegetable fibre. Some nests indeed are so closely put together that they might almost be rolled about without injury, while others again are so loose that it is

scarcely possible to move them from the fork in which they are wedged without pulling them to pieces."

Of individual nests Hume mentions one made almost entirely of sun (*Crotalaria juncea*) fibre and cotton-wool, scantily lined with human hair and sheep's wool. Often the nests are made of thorny twigs and grass, or thorny twigs, roots and other fibrous material. Some nests are built of grass with the seeding ends still attached, and others entirely of coarse and fine grass-stems and blades.

The breeding season is principally May and June but many birds in the plains continue breeding on to August and even September, while others commence to lay in March. Bell took one nest with five eggs on the 24th March, while Ticehurst found four half-feathered young on the 13th April, both these nests being found in Sind. Ticehurst also refers to a pair using the same nest for two broods, a trait not nearly so common with this bird as with the little Bay-backed Shrike.

Many pairs have two broods in the year.

The eggs number four to six in a full clutch, five being the number usually laid.

On the whole the eggs are very like those of the Black-headed Shrikes, far more like them, indeed, in character of marking than they are to the eggs of the Great Grey Shrike, to which Hume compares them. As he says, the markings are feebler and less numerous than they are in *lahtora*, whilst the rings at the larger end are conspicuous, as in *nigriceps*. On the other hand, the red or salmon-pink type of egg seems to be much more rare and I have been able to get very few for my series. Probably not one clutch in twenty is of this type.

In shape and texture they also agree more closely with the eggs of the Black-headed than with those of the Great Grey group.

One hundred eggs measured by myself average 23.9×18.2 mm. ; one hundred measured by Hume average 23.4×18.0 mm. : maxima 27.4×18.0 and 25.0×19.5 mm. ; minima 21.3×18.0 and 24.0×17.0 mm.

There appear to be no notes on record regarding incubation or nest-building.

(715) *Lanius schach caniceps* Blyth.

THE SOUTHERN GREY-BACKED SHRIKE.

Lanius schach caniceps, Fauna B. I., Birds, 2nd ed. vol. ii, p. 296.

South of the range of the preceding bird this Shrike breeds everywhere to the extreme South of India and in Ceylon. On the East, even with the material supplied by the recent Vernay Expedition, its distribution has not yet been fully worked out, and it is possibly a much rarer bird in the East than in the West.

Nests and eggs of this race of Shrike are so identically similar to those of the last bird that it is difficult to say anything of the one that does not apply to the former.

Miss Cockburn says that in the Nilgiris she has seen nests with a base made of large pieces of rags or bits of old carpet, but doubtless the Northern bird, when such items are handy, would also use them. So, too, Davison mentions paper as an item in one nest but, though it has not been recorded, paper also has often formed part of the nests of many Northern birds.

One difference between the two races is that the Southern birds select bushes as sites for their nests far more often than do their cousins. Carter says that in the Nilgiris "this species breeds in April and May, placing its nest in large shrubs, orange-trees, and other low trees which are thick and leafy."

Davison says that they breed "in bushes or trees at about 6 to 20 feet from the ground; a thorny, thick bush is generally preferred, *Berberis asiatica* being a favourite."

In Ceylon, also, where they sometimes breed in the gardens, they are said to often select low thorny bushes for the purpose.

In the Nilgiris this Shrike breeds in April and May (Carter); March to July (Wait); February and March (Miss Cockburn). In Ceylon it apparently breeds from December to May, while in Travancore Stewart took a fine series of eggs in April and May.

No separate description of its eggs is needed, for they cannot be distinguished from those of the preceding bird. It should, however, be recorded that I have never seen any eggs of this bird of the red type.

One hundred eggs average 22.6×18.0 mm. (this is, of course, considerably smaller than those of *erythronotus*): maxima 24.9×19.2 mm.; minima 20.0×18.1 and 20.4×16.8 mm.

Again I can trace no records as to incubation, nest-building etc., although the cock bird is known to be an admirable father and husband, protecting both wife and young with the greatest pluck against all marauders, mammal and avian, no matter what their size.

(716) *Lanius schach tephronotus** (Vigors).

THE NORTHERN GREY-BACKED SHRIKE.

Lanius tephronotus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 297.

The present subspecies of Grey-backed Shrike is found at high elevations from Gilgit, through Northern Kashmir and Ladak, the greater part of Tibet and Yunnan into Western China. South it occurs again at 8,000 and 9,000 feet upwards in the Garhwal Hills, where Whymper found it breeding freely.

* Apparently this Shrike must be treated as a race of the Chinese Grey-backed Shrike (*Lanius schach*), and I now accordingly give it a trinomial.

This is certainly the highest breeding Shrike of all those which nest within our limits. Ludlow (*Ibis*, 1928, p. 58) says :—"The bird arrives at Gyantse during the first week in May and departs about the middle of October, a few remaining until the end of the month. It also occurs in the Chambi Valley, and I have seen it in Sikkim in Winter. Eggs are laid in June and July. The nest is generally situated in willows or thorny 'Hippophoe' bushes, and is an untidy structure of grass and wool. It is a very easy nest to find, as the parent birds nearly always betray its whereabouts by the harsh cries they utter. Clutches seem to vary from three to five. The bird will nest at any altitude so long as it can find a small tree or fair-sized bush, and I have taken eggs as high as 15,000 feet. Walton obtained this bird at Khamba Jong and Lhasa, and Wollaston found it in the Arun Valley."

Captain R. Steen, in sending some eggs of this species to Dresser in 1905, adds the following note :—"The nest was constructed of sticks, roots and wool, and lined with fine grass-roots; it was placed in the top of a young sapling, but this Shrike also builds in low bushes five or six feet from the ground."

Since Dresser received his eggs from Steen I have been fortunate enough to obtain a magnificent series from him and his many successors in Gyantse, the following being a summary of the many interesting notes sent me from time to time with the eggs.

This Shrike breeds in great abundance throughout the plateau plain of Gyantse and over the greater part of Tibet between 12,000 and 15,000 feet and, possibly, a great deal higher than this wherever there are small trees or even low thorny bushes in which they can place their nests. They build in almost any position. They perhaps prefer small saplings, young trees and the taller bushes, in which they can build at heights between 5 to 25 feet from the ground. Willows seem to be favourite trees for nesting purposes, the nest being wedged in among the young shoots springing from the pollarded crown. Sometimes, however, the nests are placed in low, thorny bushes and, more than once, it has been taken from positions within a couple of feet, or less, from the ground. Sometimes the tree or bush in which it is built is in scrub-jungle or in the spinneys round about Gyantse; sometimes it is in one of a row of pollard Willows alongside a stream or irrigation canal, while often it is in a solitary small tree or exceptionally high bush growing conspicuously in a stretch of the stunted thorn-bushes so plentiful on the Gyantse Plain.

The nest is a bulky, but stoutly built, deep cup, anything from 5 to 7 inches across and rather more in depth, while the egg-cavity, roughly, averages about $3\frac{1}{2}$ inches in diameter by about the same, or a little less, in depth. In the nests sent me the two materials invariably used are twigs and grass, the former often very thorny. These two items are, however, used in varying proportions, sometimes half and half and at other times practically entirely one

or the other. Nearly all nests have a good deal of sheep's wool or goats' hair matted in with the other material, and all sorts of oddments are also employed from time to time, such as roots, leaves, lichen, hair and even scraps of rag when the nest is built near a village. Some nests are fairly neat but others have the outer materials rather loose and sticking out in all directions. The lining is nearly always of rather fine grass, neatly and firmly wound and finished off. Rarely wool is also used in the lining.

The breeding season in Tibet is principally from the middle of May to the end of June but I have had eggs sent me taken from the 3rd May to the 14th August, and it is possible that, even at these elevations, this Shrike sometimes raises two broods.

The number of eggs laid varies from four to six, several clutches of the latter number having been sent to me.

The eggs, as a series, vary from those of *erythronotus* in being much more profusely marked over the whole surface and in having the zone at the larger end less well defined. Individual clutches can be matched by eggs from either of the other races, but bright, clearly spotted eggs are rare. In the great majority the ground is a pale grey-green or grey-stone colour, while the markings are grey, grey-brown, or brown, with numerous secondary marks of lavender and grey.

I have only seen one egg of the red type from Tibet, but Whympere obtained a red clutch at Harsil, in Garhwal, 9,000 feet. Here, it should be noted, all the nests were built in thorny bushes.

In texture and shape the eggs resemble those of the other races and I have seen none showing any gloss.

Two hundred eggs average 24.9×18.7 mm. : maxima 27.3×19.3 mm. ; minima 22.0×18.5 and 26.0×17.1 mm.

Lanius cristatus.

THE BROWN SHRIKE.

(719) **Lanius cristatus cristatus** Linn.

THE BROWN SHRIKE.

Lanius cristatus cristatus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 300.

Nearly all, or all, the old references to the breeding of this bird in India refer to another race and are, therefore, not quoted here.

For what it is worth, however, I give my description (Ibis, 1895, p. 330) of some nests taken by me in North Cachar. The birds trapped on these nests, with the exception of one or two in the Tring Museum, are now in the Bulgarian Museum. The identification has been accepted as correct, and it may be that casual birds do stop and breed on the Barail Range at odd times, instead of passing on to Siberia. Eggs and nests agree perfectly well with those of the Siberian birds. My description is as follows:—

“ This is one of the commonest birds in Cachar during the Cold Weather, and a certain number of birds stay every year and breed on the ranges to the East of the district, the Eastern spurs of the Barail Range, which are very lofty, appearing to be their favourite resorts. All the nests that I have seen of this bird have been much the same in construction as those of *Lanius nigriceps*, from which they could only be discriminated by their rather smaller size and, sometimes, by their proportionately more shallow shapes. They are neat, compact and very strongly put together cups, very nearly hemispherical in shape, the depth being a little in excess in proportion to their diameter. They are made entirely of grass, the inner portion being made of strips of sun-grass blades as well as the finer stems, and the outer part entirely of grasses in flower, so used that the flowering ends are kept outside, giving the nest, at a short distance, much the appearance of a ball of vegetable down. The measurements of the exterior of the nest vary a good deal, according to the amount of material used ; thus some are as much as 4 inches in diameter by about $2\frac{1}{3}$ deep, while others are little over 3 inches at their widest parts. The egg-chamber may roughly be said to measure, on an average, $2\frac{3}{4}$ by 2 inches or less in depth.

“ As a rule four eggs are laid but sometimes five are to be found, and once a nest was brought to me containing six young birds.”

Many years after this was written I found the same circumstances occurring in the Khasia Hills, where in some years several pairs of birds remained to breed instead of migrating with the main body. In some Summers not a pair was to be found, whilst in other years, as in both 1907 and 1909, at least two pairs remained and nested.

In these hills the nests could be distinguished at a glance from those of the very common Black-headed Shrike by their much smaller size and by their seldom having fluffy grass on the outside of the nest.

At Hungrum I took one nest on the 22nd April, but the breeding months for the few birds who remained to nest seemed to be May and June. In the Yenesei District Smirnoff found them breeding in June and July.

I have personally only taken clutches of four and five eggs and once seen six young, but in Siberia six eggs are often laid.

A few eggs could hardly be distinguished from very small eggs of the Black-headed Shrike but, typically, they are longer, narrower eggs, much more compressed and pointed at the smaller end. In colour they run through the same variations but, in most eggs, the spots are not so bold or distinct, are more numerous, and are scattered more over the whole surface. In most eggs, also, the rings are not so boldly defined at the larger end.

Sixty eggs average 21.8×16.9 mm. : maxima 24.0×17.1 and 23.0×18.0 mm. ; minima 20.0×17.0 and 22.0×15.2 mm.

(722) *Lanius cristatus phœnicuroides* Severtz.

THE RUFOUS SHRIKE.

Lanius cristatus phœnicuroides, Fauna B. I., Birds, 2nd ed. vol. ii, p. 303.

The Rufous Shrike breeds in Trans-Caspia, West Turkestan, South-West and East Persia, Afghanistan and Baluchistan. In Quetta it is extremely common and both Betham and Williams obtained very fine series of its eggs.

The eggs recorded in Hume's 'Nests and Eggs' as being those of *Lanius cristatus* are certainly not those of this species at all, probably, in Tickell's record, not even of this family. On the other hand, records of *isabellinus* breeding in Quetta do, we now know, refer to the present race.

Betham, who obtained birds off the nest and sent them to me for identification, was the first to record anything under its proper name about this Shrike nesting in Quetta. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 831, 1907):—"This bird is abundant on the hills near Quetta, and comes down very nearly to the plains surrounding it. It frequents the low thorn bushes, common on the hills. I took my first nests on the 13th May and my last on the 27th June, but these latter were at a much higher altitude. The nest is the usual massive cup-like structure common to all Shrikes, bits of rag being utilized when obtainable. The site is usually the centre of a low thorny bush. A few nests were found on road-side trees; these were placed where branches unite with the main stem, and were from 10 to 14 feet from the ground. Were I remaining another season, I am sure I could obtain as many clutches as I liked."

In letters to me Betham adds that the nest is made of twigs, roots and grass, often much mixed with wool and hair, the various items being well bound together. The lining is of grass or hair, and with these wool is also often intermixed. The nest is sometimes placed quite low down in scrubby thorny bushes, not more than a couple of feet from the ground, and it is often a business to get them out without damaging one's hands with the thorns. They are well concealed but, as the birds always give away the sites of their nests, they are very easy to find. They are common down to 5,000 feet and breed from that altitude to the tops of the adjoining hills between 9,000-10,000 feet, keeping to open ground.

Williams, who also found many nests at Quetta, says (*op. cit.* vol. xxxiii, p. 691, 1929):—"This bird is common in certain localities in the hills, but not in the Quetta Valley itself. It frequents open hill-sides scantily covered with bushes, and its presence is always known by its noisy call. The nest is a well-built one, a framework of sticks and twigs, the walls being built of grass, fibre, and fine flexible twigs well lined with soft grass. It is placed in thorny bushes at no great height from the ground."

The breeding season is from the beginning of May up to the end of June only, so, apparently, this bird is not double brooded, though it will, of course, nest and lay again if the first set of eggs comes to grief.

In the Tekkes Valley, in the Tianschan, Ludlow found them breeding in great numbers during the early part of June between 4,500 and 5,000 feet.

The eggs vary in number from four to six, whilst in coloration they show well all the varieties already described under the names of other Shrikes.

The most common type has the ground-colour ranging from the palest cream to a warm salmon-pink, marked with blotches of chestnut-red or light red and with secondary marks of pale lavender and lilac, never very conspicuous. In most eggs there is a very definite zone of spots at the larger end, the spots inside this ring being numerous and outside sparse; in some eggs the spots are larger, more scattered over the surface, while the ring is indefinite or lacking. In the other type of egg the ground varies from a pale yellow stone, olive stone, or sea-green to a slightly darker grey-green or brownish-green. The markings are of grey-brown, olive-brown or brown, with others underlying them of grey, both primary and secondary markings being distributed as in the red type.

Intermediate eggs between the two types occur but are exceptional, and about three out of five clutches are of the red type.

In shape the eggs are rather long ovals but they vary greatly, and some are as broad in proportion as the eggs of the Black-headed Shrikes.

One hundred eggs average 22.4×16.8 mm.: maxima 24.1×17.2 and 23.4×18.0 mm.; minima 21.0×16.7 and 21.3×15.9 mm.

Hemipus picatus.

THE PIED SHRIKE.

(724) **Hemipus picatus picatus** (Sykes).

THE BLACK-BACKED PIED SHRIKE.

Hemipus picatus picatus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 306.

This quaint little Shrike is found in Ceylon and over practically the whole of India South of Bombay, thence through the Deccan to Bengal, Behar, Eastern Bengal in the Chittagong and Tippera Districts, and thence again over the whole of Burma from the South Chin Hills and Arrakan to Tenasserim, the Malay States, Borneo, Java and Sumatra. East it occurs as far as Siam and ? Annam.

The only record of this bird's breeding in Hume's 'Nests and Eggs' is Davison's, for that given by Terry is undoubtedly wrong.

Davidson writes :—“ About the first week in March 1871 I found at Ootacamund a nest of this bird placed in the fork of one of the topmost branches of a rather tall *Berberis leschenaulti*. For the size of the bird this was an exceedingly small shallow nest, and from its position between the fork, its size, and the materials of which it was composed externally might very easily have passed unnoticed ; the hen bird sitting on it appeared to be sitting only on a small lump of moss and lichen, the whole of the bird's tail, and as low down as the lower part of the breast, were visible. The nest was composed of grass and fine roots, covered externally with cobweb and pieces of a grey lichen, and bits of moss taken apparently from the same tree on which the nest was built ; the eggs were three in number. The tree on which this nest was built was opposite my window, and I watched the birds building for nearly a week ; and again, when having the nest taken, the bird sat until the native lad I had sent up put out his hand to take the nest.”

In 1895 Cardew again took nests of this bird, recording the same as follows (Journ. Bomb. Nat. Hist. Soc. vol. x, p. 148, 1896) :—“ I have found three nests, but have only once succeeded in securing the eggs. The nests, which answer closely to Mr. Davidson's description (*supra*) are beautiful structures, completely coated on the outside with pieces of greenish-white lichen, and lined with the finest fibre. They are very minute, the egg-cavity measuring 1·5" across, and but little more than half an inch in depth inside. The nests I found were in each case placed high up on a bare branch of a Blue-Gum at Ootacamund, and were most difficult to see. One nest taken on the 24th March contained three eggs, which measured 0·6" by 0·45" each. Another nest was found on the 27th May, and also contained eggs, but it was fully 50 feet from the ground, at the far end of a branch, and the eggs were broken. In this case, after the female was shot, the male took her place on the nest.”

Davidson gives a short note of its breeding (*op. cit.* vol. xi, p. 665, 1898) :—“ Noticed occasionally in the forests of Kumta and Karwar, but not noticed at Karwar in the rains. Above Ghats it is generally distributed, and is no doubt a permanent resident. I have taken its nest only three times in Kanara. In all cases it was placed on silk-cotton trees, at that time devoid of leaves, and was almost quite invisible, as the moss and lichens composing it exactly corresponded with the colour of the bark. The nests are very minute and shallow. I have never seen more than two eggs or young in any nest ; but, as I have seen flocks of five and six, I have no doubt they occasionally lay more. The eggs I have were taken in March and May, and were greenish, mottled with darker green and brown ; they are broad ovals and very Shrike-like.”

In a letter to me Davidson adds to the above :—“ The Danj clutch was taken in very high tree-jungle, but the Kanara ones taken by myself were in mixed low jungle, in one or two cases almost scrub. All were in secluded places far from houses.”

T. R. Bell took clutches of three in Kanara, and the normal clutch seems to be three nearly as often as two. Some of Bell's were taken in the month of April. The only eggs I have seen, a clutch taken by Bell and those in Davidson's collection, have a dead white ground, in one case faintly washed with green, and they are densely marked all over with very dark brown primary blotches and inky grey secondary blotches.

Those in my collection measure 14.0×11.9 , 14.2×12.0 and 14.3×12.0 mm. Some of Davison's are much bigger.

(725) *Hemipus picatus capitalis* (McClell.).

THE BROWN-BACKED PIED SHRIKE.

Hemipus picatus capitalis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 307.

The Brown-backed Pied Shrike is distributed throughout the Lower Himalayas from Kuman to Eastern Assam. It is common in the hills of the Surrma Valley, Manipur, Chin Hills, North Kachin and Bhamo Hills into the Shan States, Yunnan and the Indo-Chinese countries as far East as Yuen Chung in China.

In Hume's 'Nests and Eggs' (vol. i, p. 329) there are descriptions of the nests and eggs of this little Shrike by three writers—Hutton, Jerdon and Gammie. Of the three, Gammie alone was correct in his identification, giving a very good account of the nest and eggs. He writes:—"Common as it is in Sikkim, I have but once taken its nest, and that in the first week in May, at 4,000 feet elevation. The nest is made of black, fibry roots, sparingly lined with fine grass-stalks, and covered outwardly with small pieces of lichen bound to the sides with cobwebs. It is a very neat, diminutive cup, measuring externally 1.9 inch across by an inch deep. Internally 1.5 by half an inch.

"The whole nest, though quite a substantially built structure, is barely the eighth part of an ounce in weight. It was placed on the upper side of a horizontal branch close to its broken end, almost fifteen feet from the ground, and contained two fresh eggs."

Mandelli's nests and eggs agree well with that taken by Gammie.

Macdonald (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 188, 1906) found this little Shrike breeding at Popa and took two nests. He does not, however, describe either nests or eggs, contenting himself by saying that the birds give away their nests by sitting close.

I took a few nests myself during May and June in the Cachar and Khasia Hills. The description of the nests themselves might be that of Gammie repeated. They were shallow little cups, generally built on the upper surface of fair-sized branches of trees between 15 to 25 feet from the ground. The nest could seldom be seen from any points below, but the birds sat very tight, and by their agitation and fussiness gave away the fact that the nests

were close by. By retiring a few feet and watching the bird back on to the nest they could soon be spotted. The birds, both cock and hen, were very tame, returning very quickly to the nest even if one were standing in the open, only a few feet away.

The eggs seem to be of two types. In the one the ground is quite white, and the whole surface is blotched with rich chocolate and with underlying spots of inky grey, both kinds of spots more numerous at the larger ends, where they also form dense rings. The other type is exactly like the eggs of the genus *Staphida*. The ground is white and the surface is lightly speckled, spotted, or blotched with blackish-brown or, more rarely, reddish-brown, with the usual underlying inky spots, sometimes wanting in the feeblest-marked eggs. Every intermediate form occurs, and is represented even in my small series of eight clutches.

The breeding season in India is May and June and in Burma April. Gammie also took his nest in Sikkim in May, but Mandelli took both his, built within a few feet of one another, on the 15th August.

I have seen the cock bird incubating, so there is no doubt he takes his share in this duty, but I cannot say what he does in the building line.

Thirty-two eggs average 16.0×12.8 mm. : maxima 17.2×13.3 and 15.9×13.7 mm. ; minima 14.8×11.2 mm.

(726) *Hemipus hirundinaceus* (Temm.).

THE MALAY PIED SHRIKE.

Hemipus hirundinaceus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 308.

The only record of this bird's breeding is my own (Journ. Bomb. Nat. Hist. Soc. vol. ix, p. 3, 1894), and I give this for what it is worth, though I cannot believe the eggs belong to this bird. At the same time, I do not know by what other bird they can possibly have been laid. The birds were thrice identified, by myself, by Hartert, and by Leverkühn in Bulgaria, where the skins now are.

"I met with an undoubted specimen of this species at Laisung in 1888. The bird had been caught on the nest in a hair noose, and was brought to me with the eggs and nest. This latter was a beautiful little cup made of shreds of soft grass, covered outwardly by cobwebs. There was no lining of any sort, but so soft was the material used that none was required. It was built in a small fork of a branch at about six feet from the ground and, as far as I could ascertain from the Naga who brought it to me, in a very exposed position beside a track leading through some heavy forest.

"The eggs, of which there were three, are quite unlike those of *Hemipus capitalis* or any other Shrike with which I am acquainted.

"In ground-colour two are a pale yellowish-grey, in the third more a yellowish-brown. The markings consist of small, fine,

irregular lines and specks of vandyke brown, and others, paler and more cloudy, in colour a neutral tint or blue-grey; in the third egg there are also cloudings of pale sienna brown, while the bluish secondary blotches are confined to the extremity of the larger end, in the other two being fairly equally, though sparsely, distributed throughout.

“In general character these eggs are much like eggs of *Schoeni-parus mandellii*.

“They are regular ovals in shape, being but slightly compressed towards the smaller end; the texture is fine and close, with a decided surface gloss, though the shell is very thin and fragile.”

One egg was, unfortunately, broken, but the two remaining measure 18.6×14.5 and 19.1×14.5 mm.

In this case the cock bird was caught on the nest and the female just alongside. The eggs, of course, are much too big for this Shrike, even if they resembled them otherwise.

Tephrornis gularis.

THE WOOD-SHRIKE.

Lanius gularis Raffles, Trans. Linn. Soc. vol. xiii, p. 304, 1831.

(727) **Tephrornis gularis pelvica** (Hodgs.).

THE NEPAL WOOD-SHRIKE.

Tephrornis pelvica pelvica, Fauna B. I., Birds, 2nd ed. vol. ii, p. 309.

Tephrornis gularis pelvica, *ibid.* vol. viii, p. 625.

This Wood-Shrike occurs from Nepal to Eastern Assam and Manipur.

In 1924 Kinnear separated the Burmese race as *Tephrornis pelvica vernayi* (Bull. B. O. C. vol. xlv, p. 102, 1924), which is found over the greater part of Burma, in suitable localities, as far South as Northern Tenasserim, being replaced in Southern Tenasserim by Kloss's *T. p. annectens*. It occurs also in Yunnan and Siam, but is replaced in the East by other races, some quite recently recognized and named.

As Mandelli's supposed nest and eggs of this species are obviously wrong, there is no other record of its nidification than my own (Journ. Bomb. Nat. Hist. Soc. vol. ix, p. 3, 1894).

In the cold weather it is a social bird, collecting in small flocks and haunting more or less open country—grass-covered hills with scattered Oaks, small spinneys in hollows, open bamboo-jungle and thin secondary growth—but in the breeding season it leaves these haunts and frequents quite dense evergreen forest. While, also, it is found in all the foot-hills in Winter, in Spring it moves to the higher forests, breeding at 3,500 feet upwards, laying, so far as we know at present, in April and May.

I have only taken four nests of this bird, and all of these were taken from horizontal boughs of small or medium-sized trees standing in very wet, dense, evergreen forest at heights from 10 to 25 feet from the ground. The nests were all quite typical, and reminded one of Minivets' nests without all the outside adornments of lichen and moss. All four nests were broad, shallow saucers, very strongly and neatly put together but by no means bulky, and with quite thin walls and base. Roughly, they measured between 3 and $3\frac{1}{2}$ inches in diameter by about $1\frac{1}{2}$ in depth on the outside; internally the measurements are about half an inch less each way. They are made of fine grass-stems and roots, often more or less mixed with the thinnest and most pliant of twigs; all these are beautifully interwound together and then the whole of the outer wall well plastered with cobwebs. Two of the nests had a certain amount of grey lichen, a few scraps of moss and some spiders' egg-bags fastened on, with the webs as decorations, but in the other two there was hardly anything beyond the webs and a few egg-bags.

The number of eggs laid seems to be two or three, but they must lay more sometimes, as I have seen flocks in late Summer consisting of two old and four young birds.

The few eggs I have seen are exactly like huge eggs of *Pericrocotus*. The ground is white or faintly tinged with green or brown. In one clutch of three the markings consist of numerous small irregular blotches of inky brown scattered all over the surface, with similar secondary marks of inky grey distributed equally with the others. Another clutch has the markings fewer and bolder and restricted more to the larger end, where they also form indistinct rings. In this pair the primary spots are almost black and look more than ever like ink-blots. The other two clutches are intermediate.

In shape the eggs are very broad ovals, very little compressed at the smaller end. The texture is not fine and there is little or no gloss.

Nine eggs average 22.0×17.6 mm. : maxima 23.4×18.1 mm. ; minima 21.1×17.0 mm.

The male bird certainly assists in incubation, for we once trapped one sitting on the eggs.

(728) *Tephrodornis gularis sylvicola* Jerdon.

THE MALABAR WOOD-SHRIKE.

Tephrodornis pelvica sylvicola, Fauna B. I., Birds, 2nd ed. vol. ii, p. 311.

Tephrodornis gularis sylvicola, ibid. vol. viii, p. 635.

This Southern race of Wood-Shrike is found on the West coast of India from the extreme South practically to the latitude of Bombay City, extending East to the Nilgiris, Nelliampathy Hills etc.

How far West it extends we do not at present know, though the results of the Vernay Expedition may help to elucidate this.

This Wood-Shrike appears to be a bird of the forest, both deep and the more open, being found at all heights up to 6,000 feet.

Major Forbes Coussmaker furnished Hume with his only record of this bird's nest, together with the following good description:— "I took the nest of this bird on April 13th, 1875. It was composed of fine roots and fibres, neatly woven into a shallow cup-like nest, secured to the fork of a horizontal bough and fixed in its place with cobweb and covered externally with lichen, corresponding to that on the bough. It measured 4·2 inches in diameter externally, and 2·4 internally and ·7 deep. Both parent birds were shot." As usual, no word is said as to the situation in which the nest was found.

Bell and Davidson took several nests, and the latter, in letters to me, describes the places in which they were found as follows:— "The nest was built on a horizontal bough—which seems to be a favourite position for the nests of this family—of a fairly large tree standing in pretty thick jungle, though not very far in. I should judge it to have been 20 feet from the ground. It was made of fibres, grass and fine elastic twigs, all very well interlaced and bound with cobwebs and scraps of lichen and spiders' egg-bags. It was placed on a horizontal branch covered with the same kind of lichen as that on the nest."

Of another nest he says that it was exactly like the above, and that "it was built on a tree standing in a ravine in dense forest."

A. P. Kinloch, in sending me a nest and two eggs of this bird, remarks:— "The nest is a shallow saucer with vertical sides, made of the finest elastic twigs, roots and fine grasses, all tightly interlaced and bound to a horizontal branch with spiders' webs. The nest was taken in forest near a tea garden." The nest measures 4 inches externally across and a full 3 inches internally, the walls being very thin. It is possible that Coussmaker's measurement of 2·4 inches internal measurement is a slip for 3·4 inches, as the top of the walls could hardly have been ·9 inch thick.

The breeding season, so far as is at present known, is March and April.

The number of eggs in a full clutch is two only, and I have a single egg taken by Davidson which was partly incubated and certainly, therefore, all that would have been laid.

The eggs cannot be distinguished from those of the last bird, but the single egg, referred to above, has rather larger blotches of umber-brown, with more numerous secondary marks of inky grey; the ground-colour, also, of this egg is a distinct yellowish-stone.

Five eggs in my own collection and four others taken by Davidson and Bell average 22·0×18·0 mm. full: maxima 23·0×18·0 and 21·1×18·2 mm.; minima 21·1×18·0 and 22·4×17·8 mm.

(728 b) *Tephrodornis gularis annectens* Kloss.

THE TENASSERIM WOOD-SHRIKE.

Tephrodornis pelvica annectens Kloss, Journ. Fed. Malay States, vol. viii, p. 222, 1918.

Tephrodornis gularis annectens Fauna B. I., Birds, 2nd ed. vol. viii, p. 635.

This Wood-Shrike is found, according to Kloss, from South Tenasserim as far as Perles in the Malay States. In the 'Fauna' I did not admit this race, as it seemed to me that, though some individuals appeared to be intermediate between *pelvica* and true *gularis*, it was merely a case of an intermediate form occurring in the intermediate country linking the two together. Kloss, with more material at his command for comparison, considers it a sufficiently stable form within the limits given by him to be worthy of specific rank.

I can find no record of it breeding beyond the single reference in Hume's 'Nests and Eggs' to an egg taken "from the oviduct of a female shot by Davison on the 26th March 1874, near Tavoy in Tenasserim. The egg is rather a handsome one—very Shrike-like in its character, but rather small for the size of the bird. In shape it is a broad oval, very slightly compressed towards one end. The shell is fine and compact, but has no gloss. The ground is white, with the faintest possible greenish tinge. The markings are bold, but except at the large end not very dense—spots and blotches of a light clear brown, and (chiefly at the large end) somewhat pale inky grey. Where the two colours overlap each other, then the result of the mixture is a dark dusky brown, so that the markings appear to be of three colours. Fully half the markings are gathered into a broad conspicuous but very broken and irregular zone about the broad end. The egg measured only 0.86 by 0.69" (=about 23.8 × 16.3 mm.).

Tephrodornis pondiceriana,

THE SMALL WOOD-SHRIKE.

(729) *Tephrodornis pondiceriana pondiceriana* (Gmelin).

THE INDIAN SMALL WOOD-SHRIKE.

Tephrodornis pondiceriana pondiceriana, Fauna B. I., Birds; 2nd ed. vol. ii, p. 312.

Kloss having separated the Siam form under the name of *Tephrodornis p. thai* (Bull. B. O. C. vol. xlvii, p. 58, 1926), the range of the Indian Small Wood-Shrike has to be restricted accordingly. It occurs on the West coast of India, extending North to, but not including, Sind or Rajputana or further North; it ranges East

to the Southern and Eastern Central Provinces and United Provinces, and thence again into Eastern Bengal, Behar and the greater part of Burma to Tenasserim. East of Burma it is replaced in Siam and elsewhere (?) by *T. p. thai*.

In South-West India Ticehurst says his *pallidus* extends to Khandeish, but probably does not mean to include this province in its range, as the birds thence seem to be much the same, and as dark as, the birds from the wet Malabar districts, which are the same as those from Bengal and Behar.

The Small Wood-Shrikes are birds of open country and, for the most part, breed in cultivated lands, waste land, abandoned cultivated land, scrub and pastures round villages, and even in gardens and bushes in villages and towns. Occasionally, however, they breed in thin deciduous forest and in secondary growth or scrub-jungle.

Col. G. F. L. Marshall (Hume's 'Nests and Eggs,' vol. i, p. 333) gives a good description of the nest, and writes:—"The Common Wood-Shrike builds in the Saharunpoor district in the latter half of March, the young being hatched early in April. The bird is common; but owing to its small size and bark-like colour of its nest, the latter is very difficult to find. On the 8th April I fired at a specimen and missed it; it then flew off and settled in a fork of another tree about 30 feet from the ground. On looking carefully with an opera-glass, I saw that it was sitting on its nest. I drove it off and shot it. The nest was very small and shallow, cup-shaped, and wedged in between two small boughs at their junction, and not appearing either above or below. The egg receptacle was $2\frac{1}{4}$ inches in diameter. The nest was made of grass and bits of bark, beautifully woven together and bound with cobwebs, and exactly resembling the boughs between which it was placed or, I might say, wedged in. The eggs, four in number, were slightly set."

All collectors refer to this bird's nest as being very hard to find owing to its being externally finished off with scraps to resemble the branch on which it is built. If this is lichen-covered the nest will be the same; if of dark bark only the nest is covered with scraps of bark similar to that on the branch.

Davidson writes to me, in sending me eggs:—"The nests are small shallow saucers, made of fine stems of grass, weeds, fine elastic twigs and roots, closely worked in together with cobwebs, and covered on the outside with bits of bark, lichen, or moss to resemble the branch on which, or the fork in which, they are placed. They are rather stout little nests, measuring anything between $2\frac{1}{2}$ " and 3" in diameter by less than an inch in depth. They are placed sometimes on a horizontal bough, sometimes in a fork, and often wedged in between two thick boughs, when they are very hard to spot."

Inglis and Coltart took many nests in Behar, and the latter remarks:—"They are very common birds, and in Tirhut they breed

on trees and even bushes in compounds, roadsides, orchards, etc., as well as in light forest and secondary jungle. Their favourite trees are, without doubt Mangoes, and next to them Acacias. The nests may be within 6 to 10 feet of the ground, or they may be 30 feet up, but I think they like best branches not more than 10 or 12 feet from the ground. The nests are very hard to find, but the bird sits close and can be spotted on it whilst the pair to it is constantly passing backwards and forwards to the nest."

Over the greater part of its breeding range March to June seem to be the principal breeding months and, of these, March and April the two in which most eggs are laid. Vidal found one nest at Sávant Vádi, South Konkan, on the 18th February, with three hard-set eggs, "built low down in a mango-tree." Jerdon, however, obtained one nest at Nellore in August. In Poona Betham found it very common, taking many nests in March, all with three eggs, and all built "on branches low down in mango-trees."

The eggs number three or four, about two clutches in three being the former.

Many eggs are just small facsimiles of those of the *Tephrodornis gularis* group, eggs with white, or almost white, ground, boldly but not very heavily spotted with primary markings of blackish-brown, and other secondary ones of inky grey.

Other eggs have the ground a pale buff or grey-green and are marked with rather larger blotches of brown or grey-brown, rather smudgy in character and numerous everywhere, though more so at the larger end. The secondary markings are as in the other type. In one clutch of three taken by Betham at Poona the two classes of blotches, primary and secondary, combine to form a complete unicoloured ring round the big end. The normal shape is a broad blunt oval, but a few eggs are longer in shape, though never pointed. The texture is fairly fine and close but there is never any gloss, and the eggs are rather fragile for their size.

Fifty eggs average 19.3×15.8 mm.: maxima 21.0×13.8 and 19.3×16.2 mm.; minima 17.7×15.3 and 21.0×13.8 mm.

(730) *Tephrodornis pondiceriana affinis* Blyth.

THE CEYLON SMALL WOOD-SHRIKE.

Tephrodornis pondiceriana affinis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 313.

As its name implies, this race of the Small Wood-Shrike is restricted to Ceylon, where it is "rather locally distributed, but occurs over the low country and up to about 5,000 feet in the hills"; rarely it straggles up to the highest ridges and peaks some 1,000 feet higher.

Wait, in his 'Birds of Ceylon,' from which the above is taken, also says, on p. 91: "Generally found in low spreading trees, such

as *kagri* or *sariya*, round village compounds, by the roadside, on the edge of jungles, etc. It is, for instance, fairly abundant in the avenues of *sariya*-trees along the roads round Puttalam."

In notes to me he adds:—"Breeds freely in and round Puttalam from January to April, occasionally later, in the avenues of *suriya*-trees along the roads leading out of the town. The nest is generally placed at no great height, and is built in the fork of two smallish branches. It is a small shallow cup, the outside very cleverly stuck over with flakes of lichen so as to make it look like an excrescence of the bark rather than a nest."

Round about Matugama, at some 2,000 to 3,000 feet, Phillips found many nests built in small rubber-trees at heights varying from 8 to 20 feet from the ground. Here they were the same neat, small saucers, but were covered outside with scraps of bark like the branches and had no lichen on them. They were nearly all taken from March 1st to May 9th.

Tunnard writes of a nest found by him on a lichen-covered small flowering tree (Sinhalese *Ibonia*):—"The nest was a beautiful shallow little cup composed of lichen and bark fibres, felted all over outside with cobwebs; there was no special lining."

Eggs have been taken from the 12th January to the 28th June, on both these dates by Wait.

The number in a full clutch is two or three, the former more often than the latter, and in appearance the eggs go through all the variations mentioned as laid by the preceding race but, as a series, they are more boldly spotted, on a whiter, cleaner ground, like the eggs of the larger Wood-Shrikes. Buffy-tinted eggs are exceptional, greenish ones common.

In texture and shape they resemble the eggs of the other races.

Fifty eggs average 19.0×15.1 mm. : maxima 21.0×16.0 mm. ; minima 18.1×15.0 and 18.5×14.3 mm.

I have no notes on the period of incubation, methods of building, or what share the male bird takes in either operation.

(731) *Tephrodornis pondiceriana pallida* Ticehurst.

THE SIND SMALL WOOD-SHRIKE.

Tephrodornis pondiceriana pallida, Fauna B. I., Birds, 2nd ed. vol. ii, p. 314.

Ticehurst gives the range of this Shrike as "Sind, Punjab, Simla, Rajputana, western parts of United and Central Provinces (Bull. B. O. C. vol. xli, p. 56, 1920); to this he adds (Ibis, 1922, p. 612):—"It extends to Jodhpur, Mt. Aboo (Rajputana), south to Khandeish."

This Wood-Shrike appears to be rather more of a jungle bird than the other races. Ticehurst writes (*vide supra*):—"In the better cultivated parts of this province (Sind), especially in the 'babool' forests, the Wood-Shrike is tolerably common; elsewhere it is hardly met

with, though everywhere in the desert where 'babool' groves occur a few pairs may be found. It is quite resident, and is found throughout Sind right up to the Beluchi boundary, which seems to be the limit of its distribution westwards. The nesting season extends beyond the end of March to the end of June."

Osmaston took a nest near Dehra Dun at 1,500 feet in May "in thin forest," and again near Pachmarhi in April at 3,100 feet "in open dry hill forest." Jesse, however, in the United Provinces, found them breeding in small trees in open country and round villages.

The nest is, of course, just the same as that built by the other races. Hume describes the only one he ever took as follows:—"The nest was in a fork of a ber tree (*Zizyphus jujuba*), on a small horizontal branch, about 5 feet from the ground. It was a broad shallow cup, somewhat oval interiorly, with the materials very compactly and closely put together. The basal portion and framework of the sides consisted of very fine stems of some herbaceous plant, about the thickness of an ordinary pin. It was lined with a little wool and a quantity of silky fibre; exteriorly it was bound round with a good deal of the same fibre and pretty thickly felted with cobwebs. The egg-cavity measured 2.5 inches in diameter one way and only 2 the other way; while in depth it was barely .86. The exterior diameter of the nest was about 4 inches and the height nearly 2 inches."

In Sind the principal breeding months are March and April, but in the Punjab and United Provinces the birds continue to lay throughout May and into June, while Col. Sparrow also took a nest on the 6th June in the Central Provinces.

The eggs laid vary from two to four, Davidson having taken the latter number very hard set. Four is, perhaps, rather exceptional.

They are quite typical of the species but, examined as a series, are darker and duller than in either of the two preceding races, and often have a distinctly brownish-buff ground. A very curious pair taken by Davidson has one egg almost uniform dark clay-brown, smeared with ill-defined grey markings and a few specks of dark brown; the other egg has a pale stone-grey ground-colour, speckled sparsely with rich brown and with two or three very large blotches of rich chocolate-brown.

Thirty eggs average 18.9×15.1 mm.: maxima 21.0×15.6 and 20.2×16.0 mm.; minima 16.8×14.2 and 17.0×14.0 mm.

Family CAMPEPHAGIDÆ *

(MINIVETS and CUCKOO-SHRIKES).

Pericrocotus flammeus.

THE SCARLET MINIVET.

(733) **Pericrocotus flammeus speciosus** (Lath.).

THE INDIAN SCARLET MINIVET.

Pericrocotus speciosus speciosus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 319.
Pericrocotus flammeus speciosus, ibid. vol. viii, p. 636.

This very beautiful Minivet ranges along the Outer Himalayas from the Sutlej Valley to the hills of Eastern Assam, North of the Brahmapootra, and also the Khasia Hills now South of that river, but undoubtedly at one time North of it, that river having divided the Khasia Hills from the North Cachar Hills.

It breeds at all heights from 3,000 feet upwards, certainly to 6,000 and, probably, to 7,000 feet, in dense forest, preferring that which is evergreen, wet and with plenty of undergrowth. Rattray obtained its nest in Murree at about 5,000 feet, while Whympere took several nests round about Naini Tal at about the same elevations.

In the Khasia Hills I obtained one nest at 5,000 feet, and from Darjiling Masson sent Coltart another taken at about 7,000 feet, this being the highest elevation at which I have its breeding recorded.

The accounts of its nidification in Hume's 'Nests and Eggs' are either quite wrong or at least doubtful. Hutton's nest and eggs were undoubtedly those of a Shrike. Hodgson's description is good except for the expression "deep cup," as the nests of this, as of other Minivets, seem to be always very shallow. He says that "the nest is a beautiful deep cup, externally 3·25 inches in diameter, and rather more than 2 inches high, composed of moss and moss-roots, lined internally with the latter and entirely coated externally with lichen and a few stray pieces of green moss firmly secured in their places by spiders' webs. The nest is placed in some slender branch between three or four upright sprays.

A nest taken in the Khasia Hills is a *shallow* cup or saucer with upright walls, measuring over 4 inches across and barely an inch in depth inside. It is made of the finest twigs and coarse grass-stems beautifully interwoven and very lightly and strongly put together,

* As the name *Campephaga*, which applies to an African genus of Wood-Shrikes, is the oldest name, it must, therefore, form the basis of the family name rather than *Pericrocotus*.

with many cobwebs to further strengthen it. Outside it is covered all over with white scraps of lichen, tiny bits of bark and a few small bits of green moss. It was placed on the upper surface of a branch of a Rhododendron-tree growing in the densest and most humid of forests, the tree itself covered with the same lichen and moss as that decorating the outside of the nest.

Whympfer found all his nests built at the end of long slender branches of "Simul" trees at a considerable height from the ground, and the eggs were most difficult to get, having to be pushed out with a long stick into a net. The nests were in forks of the branches, not on the upper surface and, except that they were very shallow, agreed well with Hodgson's description.

The breeding season, so far as we know, is April (Hodgson only), May and June. Rattray took one nest on the 8th May, while Whympfer took another as late as the 23rd July.

A full clutch consists of two or three eggs, the one number as often as the other.

The eggs are of two distinct types. The clutch taken by Rattray and those taken near Darjiling and in the Khasia Hills are like the eggs of *P. brevirostris* except in size. The ground is a greenish-white, and they are marked profusely all over with rather longitudinal blotches of grey-brown or reddish-brown, denser still at the larger end; under these primary markings are others, smaller, but equally numerous, of lavender-grey.

In the second type the ground is a pale but clear sea-green; in two clutches the surface is lightly flecked with pale reddish blotches, quite faint and inconspicuous and, in the third, with darker specks of bright red-brown, fairly numerous at the larger end but scanty elsewhere. The shape is a long oval, often much compressed and pointed at the smaller end; the surface is fine and close and, in some cases, distinctly glossed.

Thirteen eggs average 22.4×16.8 mm.; maxima 24.4×18.2 mm.; minima 19.8×16.0 mm.

The cock bird incubates as well as the female and looks extraordinarily conspicuous when doing so if the light shines at all upon him.

(734) *Pericrocotus flammeus fraterculus** Swinhoe.

THE BURMESE SCARLET MINIVET.

Pericrocotus speciosus fraterculus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 320.
Pericrocotus flammeus fraterculus, ibid. vol. viii, p. 636.

The Burmese Scarlet Minivet is found in Assam in the Cáchar Hills, extending thence through Manipur and practically all Burma

* It is extremely difficult to work out the races of this Minivet, and I have, doubtless, included under this name several races which might with justice be separated. Robinson and Kloss (Journ. Siam Nat. Hist. Soc. vol. v, p. 246,

South to the Tenasserim Province and East through the Indo-Chinese countries to W. China and Hainan.

The first nest of this Minivet, and the only one taken by myself, was found on the 31st May, 1891, at Laisung, North Cachar Hills, in a comparatively open space with stunted and dead trees, plentiful undergrowth and dense humid forest all round within a couple of hundred yards. The elevation was about 4,000 feet, the side of a deep valley with steep mountains on all sides running another 2,000 feet higher, clothed with virgin forest, whilst below ran the Laisung stream, flashing clear water, now racing down rapids and, ever and anon, creeping along in deep and shady pools. In these beautiful surroundings the Minivets had selected a small dead tree, probably an Oak (? sp.), and at about 10 feet from the ground had built their lovely little nest in a fork of a rotten branch. The nest was a broad, shallow saucer measuring outwardly about 3.2 inches across by 1.5 inch deep, and inwardly 2.5 inches by 1 inch. It was made of fine grasses, fern- and moss-roots, a few fine soft twigs and thin weed-stalks, all interwoven and massed closely together with innumerable cobwebs, and then completely covered with white and grey lichen, the same as that which grew in scattered masses over the whole tree. It would have been quite impossible to have found the nest had not the male bird flown off it when we were only a yard or two away. When we had spotted the nest, a Naga went up the tree and prepared nooses and, within five minutes, the cock bird was back and caught. The nest contained two eggs similar to the pale type of egg of *P. f. speciosus*, but measuring 23.0×15.8 and 22.2×15.3 mm.

Another nest, taken by Dr. Coltart at Margherita on the 16th May, at 1,000 feet, and a third, taken by a Naga, at 6,000 feet, near Hangrum, in the North Cachar Hills, on the 12th June, were exactly similar, but Coltart's nest was covered with a dark grey-green lichen taken from that which grew all round it.

The eggs from both these nests are very small. They may be just abnormally small yet correctly identified eggs, and the Naga who brought me the second nest also brought a cock bird which he said he had captured on it. These four eggs measure only 20.0×14.7 and 20.0×15.0 mm. (Coltart) and 20.3×14.3 and 20.0×15.0 (Naga). In type they are exactly like better-spotted specimens of the pale eggs of *speciosus* taken by Whympfer, and the only other Minivet's eggs they resemble are those of *P. solaris*, also very common where the Naga took his nest, but not so in Margherita.

1924) have reviewed the species, under the name *P. speciosus flammiceps*, without clearing the matter up. Bangs named *P. yvetteæ* from N.E. Burma (Bull. Am. Mus. Nat. Hist. vol. xlv, p. 383, 1921). La Touche recognizes *P. s. bakeri* from Yunnan (Bull. B. O. C. vol. xliii, p. 54, 1922). Robinson and Kloss state, possibly quite correctly, that *fraterculus* from Hainan does not extend to Assam or Burma at all. Stresemann, the last to revise the species, extends *P. f. bakeri* to the greater part of Burma, and it is possible that all the nidification now described should, therefore, be under that name.

(737) *Pericrocotus flammeus flammeus* (Forst.).

THE ORANGE MINIVET.

Pericrocotus speciosus flammeus, Fauna B. I., Birds, 2nd éd. vol. ii, p. 322.
Pericrocotus flammeus flammeus, ibid. vol. viii, p. 636.

The Orange Minivet is distributed throughout South-West India from Khandalla to Cape Cormorin, breeding in the hills of Mysore, the Nilgiris, Palnis etc. and in those of Travancore and in Ceylon.

As regards South India, the only suggestion as to the kind of country it breeds in is Darling's remark that he found a nest at about 6,000 feet at Neddivattum on the 5th September, on a tall tree near the edge of jungle.

Miss Cockburn took several nests and eggs of this Minivet in the Nilgiris in June and July which she sent to Hume, who thus describes them :—

“The nests are comparatively massive little cups, placed on, or sometimes in, the forks of slender boughs. They are usually composed of excessively fine twigs, the size of fir-needles, and they are densely plastered over the whole of the exterior surface with greenish-grey lichen, so closely and cleverly put together that the side of the nest looks exactly like a piece of lichen-covered branch. There appears to be no lining, and the eggs are laid on the fine little twigs which compose the body of the nest.

“The nests are externally from 3 to 3¼ inches in diameter, and about 1½ inch deep, with an egg-cavity about 2 inches in diameter and about ¾ inch in depth. Some, however, when placed in a fork are much deeper and narrower, say externally about 2½ inches in diameter and the same in height; the egg-cavity about 1¼ inch in diameter and 1½ inch in depth.

“Miss Cockburn says that one nest was found on the 24th June on a high tree, the nest being placed in a thin branch between 30 and 40 feet from the ground. It contained a single fresh egg, which was broken in the fall of the branch, which had to be cut. This egg, the remains of which were sent me, had a pale greenish ground, and was pretty thickly streaked and spotted, most thickly so at the large end, with pale yellowish-brown and pale rather dingy-purple, the latter colour predominating.”

Another egg sent by Miss Cockburn is described as having a pale sea-green or greenish-white ground rather sparsely speckled and spotted with pale yellowish-brown.

This egg measured 0.9 by 0.67 inch, and another sent by J. Darling measured 0.88 by 0.68 inch; the second was in colour like that of Miss Cockburn's, but rather more thickly spotted.

Mr. T. E. Tunnard took two nests in Ceylon at about 5,600 feet, built in trees growing in a Tea Estate near forest. Of these two, one was placed “on the top of a horizontal branch in a fork made by an upright twig, about 50 feet from the ground. By a lucky

chance I was able to spot the bird on the nest with my glasses. In the afternoon a coolie went up the tree and successfully brought me down the nest and the two eggs it contained. The nest was composed almost entirely of lichen, and the lining and frame of the nest were made of the mid-ribs of dried leaves covered over with lichen and again felted over with cobwebs. The nest was very high, being 3 inches outside measurement, with a shallow cup for the eggs of only about $\frac{3}{4}$ inch. The diameter inside was about $2\frac{1}{2}$ inches."

The second nest was in a slender *Grevillea*-tree about 30 feet up and placed close to the trunk. The nest contained a single incubated egg.

This single egg is in colour a beautiful pale sea-green, lightly flecked all over with pale yellowish-grey-brown. It measures 22.9×16.8 mm.

The pair taken by Tunnard have a white ground, with flecks and innumerable very fine twisted lines of pale reddish, with others underlying of pale lavender. In one egg there are very few lines. These two eggs measure 23.1×17.2 and 22.8×17.2 mm.

Jenkins took a pair of Minivet's eggs, in a nest typical of the genus, which he believed were those of this species, but they are so small, 19.2×13.6 and 19.0×13.0 mm., that I cannot think he correctly identified the owner, which was probably *Pericrocotus c. malabaricus*.

Pericrocotus brevirostris.

THE SHORT-BILLED MINIVET.

(738) **Pericrocotus brevirostris brevirostris** (Vigors).

THE INDIAN SHORT-BILLED MINIVET.

Pericrocotus brevirostris brevirostris, Fauna B. I., 2nd ed. vol. ii, p. 323.

This little Minivet is a hill form, breeding from 3,000 feet up to 10,000 feet in the Himalayas from Gilgit in the North and Murree in the South as far East as Nepal. To the East it is replaced by *P. b. affinis* and the mountains of Tenasserim by *P. b. neglectus*, the nidification of both of these being still unknown.

The Short-billed Minivet keeps to open forest or to open country well furnished with large trees. In both the Garhwal and Simla Hills the birds seem to be particularly fond of grass-covered hillsides dotted all over with Deodars, many of great size. About Murree Rattray merely records that they are common everywhere, and that he took seven or eight nests on fir-trees and one on a Chestnut-tree, while at Danga Gali he took five from Cherry-trees, two from Chestnut-trees, and only one from a fir.

Scully, writing from Nepal, says that the Minivet breeds in forest during May and June at an elevation of 7,500 feet, and that

he took one nest with two eggs in the Sheopuri Forest on the 17th June. Hodgson also obtained a nest in the same forest on the 16th May.

Hume writes :—" It lays in May and June, building a compact and delicate cup-shaped nest on a horizontal bough pretty high up on some oak, rhododendron, or other forest tree. I have never seen one on any kind of fir-tree.

" Sometimes the nest is merely placed on, and attached firmly to, the upper surface of the branch ; but, more commonly, the place where two smallish branches fork horizontally is chosen, and the nest is placed just at the fork. I got one nest at Kotegurh, however, wedged in between two upright shoots from a horizontal oak-branch. The nests are composed of fine twigs, fir-needles, grass-roots, fine grass, slender dry stems of herbaceous plants, as the case may be, generally loosely, but occasionally compactly interlaced, intermingled and densely coated over the whole exterior with cobwebs and pieces of lichen, the latter so neatly put on that they appear to have grown where they are. Sometimes, especially at the base of the nest, a little moss is attached exteriorly, but, as a rule, there is nothing but lichen. The nest has no lining. The external diameter is about $2\frac{1}{2}$ inches, and the usual height of the nest from $1\frac{1}{2}$ to 2 inches ; but this varies a good deal, according to situation, and the bottom of the nest, which in some may be at most $\frac{1}{4}$ inch thick, in another is a full inch. The egg-cavity has a diameter of about 2 inches and a depth from 1 to 1.25 inch.

" Five seems to be the maximum number of eggs laid, but I have now twice met with three, more or less incubated, eggs."

The nest is quite typical of the genus, but it is rather deeper than most externally in proportion to its size. It is often built at great heights, and both Dodsworth and Jones have taken nests from trees at heights over 30 feet from the ground. Rattray, on the other hand, found several between 15 and 25 feet up.

The breeding season is principally April, May and June, but Osmaston took one nest near Mussoorie at 7,000 feet elevation on the 23rd March.

Although Hume speaks of five eggs being laid, I have never seen or heard of anyone else taking more than four, while three are quite frequently incubated.

The eggs have a white ground, never quite pure and sometimes definitely tinted with pink or green, more often the latter than the former. The whole surface is spotted and blotched with marks varying from light brown to blackish-brown, with secondary marks of pale lavender and inky grey. In a few eggs the marks are specks only, in others biggish blotches, but extremes are rare ; in a few eggs, also, the marks are scanty on the smaller half of the egg. As a whole they are richly marked, handsome eggs. The normal shape is a broad blunt oval ; the texture is smooth, and fine but very rarely glossy.

Fifty eggs average 19.8×15.1 mm. : maxima 21.0×15.0 and 20.2×15.9 mm. ; minima 18.6×15.1 and 19.6×13.0 mm.

(741) *Pericrocotus igneus* Blyth.

THE FIERY MINIVET.

Pericrocotus igneus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 325.

The Fiery Minivet occurs in the South of Tenasserim, through the whole of the Malay Peninsula and peninsular Siam, to Sumatra, Borneo and Palawan.

There is very little on record as to the habits of this Minivet. Robinson and Kloss say ('Birds of the Malay Peninsula,' vol. ii, p. 150, 1928) that "it is of rare and accidental occurrence above 3,000 feet. At lower elevations, especially in the hills of Negri Sembilan, and on the Gunong Pulai in Johore, it appears to be not uncommon.

"It frequents more open forest and lower trees than the other Malayan species of this genus."

The only person, so far as I know, to take its nest and eggs is Mr. W. A. T. Kellow, who obtained a nest with two eggs near Perak, which he sent me with the following note:—"The nest is a shallow cup just like that of *P. peregrinus*, a very neat compact little cup, or rather saucer, of fine twigs and roots all fastened together with cobwebs, and coated on the outside with tiny scraps of bark. It was placed on a small tree, about 20 feet from the ground, standing in comparatively open forest."

From the marks on the nest it was evident that it had been wedged into a fork of three small branches.

This nest and eggs were taken on the 7th May.

The two eggs are very like those of the Short-billed Minivet, for which I at first mistook them, but later the bird was sent me, and proved to be *igneus*. The ground is a pale yellowish-stone, and is profusely marked all over with blotches and specks of dark brown and lavender. The texture is like that of other Minivets' eggs and quite glossless.

The two eggs measure 20.5×15.2 and 20.5×15.1 mm.

Pericrocotus solaris.

THE YELLOW-THROATED MINIVET.

(742) *Pericrocotus solaris solaris* Blyth.

THE HIMALAYAN YELLOW-THROATED MINIVET.

Pericrocotus solaris solaris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 326.

This race of Yellow-throated Minivet breeds in the Himalayas, between 3,000 and 7,000 feet, from Nepal to Eastern Assam, both

North and South of the Brahmapootra ; Manipur, Chin and Kachin Hills, South to Tenasserim. In the Shan States to the East it is replaced by *P. s. ripponi*.

This is a forest Minivet and, though in the Cold Weather it may be found in open but well-wooded country, in the breeding season it seems to keep entirely to very lofty evergreen forest. In Sikkim it occurs at 10,000 feet in Summer and may very possibly breed at this elevation.

The only two nests with eggs taken of this bird are one taken by myself on the 3rd June at Hungrum, at about 6,000 feet, which contained two young and an addled egg, and a second, containing three eggs, at Shillong, at about the same elevation.

Both nests were identical ; one was taken from a branch of a stunted Oak-tree and the other from an old Rhododendron, both trees standing in rather open forest with ample undergrowth and every tree covered with parasitic growth of some kind. Both nests were made of the finest elastic twigs, roots and grass-stems, well interwoven and matted with cobwebs. In one there was a rather scanty adornment of grey lichen but, in the other, the outer walls were completely covered with this and, as the nest was wider at the base than the top, it looked like a small natural excrescence of the branch on which it was placed. The second nest was taken on the 1st June and contained three fresh eggs.

The second nest was exactly like the first but was covered all over with grey lichen like that among which it was built. Externally both nests measured about 3 inches in diameter and about an inch in depth, the measurement of the egg-cavity being about $2\frac{1}{2}$ inches by $\frac{3}{4}$ inch.

The single egg and the three-clutch probably represent the extremes of coloration. The single egg is about the most densely marked egg of any Minivet that I have seen, whilst the clutch of three is the palest. The single egg has the ground a pale yellow brown, and is densely marked all over with blotches of dark brown and with others, nearly hidden, of purple grey. In fact this egg could be matched with many eggs of the common House-Sparrow.

It measures 22.6×14.2 , and is undoubtedly abnormally large.

The three eggs contained in the second nest are very pale sea-green, flecked all over with tiny specks of pale reddish which, although numerous, are so small that they do not dominate the colour of the egg, which gives one the impression of being all bright, but pale, sea-green.

In shape they are long, rather pointed ovals, quite glossless in texture.

They measure 19.1×14.1 , 19.4×14.2 and 19.0×14.2 mm.

The birds probably breed from the end of April onwards, as all the flocks broke up early or late in April and kept after that month to evergreen forest.

Pericrocotus roseus.

THE ROSY MINIVET.

(744) **Pericrocotus roseus roseus** (Vieill.).

THE INDIAN ROSY MINIVET.

Pericrocotus roseus roseus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 328.

The Rosy Minivet is a bird of low levels and evergreen forests, both the more open and the deeper forest, between the plains and the Lower Himalayas up to at least 7,000 feet, but keeping generally below 5,000.

Marshall was the first to find nests and eggs at Murree at about 5,000 feet and, later, Rattray, Buchanan and other collectors took them in the same hills between 3,000 and 7,000 feet. In the 'nineties Mackinnon took several nests both at Dehra Dun and Mussoorie between 2,500 and 6,000 feet. In the Assam Hills I found them breeding from 2,000 feet upwards, whilst in Dibrugarh Cripps and, later, Coltart found them breeding in the plains. In Burma Hopwood found one nest, with a single hard-set egg, in the Lower Chindwin at about 2,000 feet, and Osmaston took a nest at Maymyio at about 3,500 feet.

As already stated, the nests are built on trees situated either in dense or open evergreen forest, very rarely on one of a clump or spinney of trees in open country. The only exception to this, so far as has been recorded, was the nest taken by Cripps, which "was placed on the upper side of a large lateral branch of a tree that grew on the main garden road, about 15 feet from the ground."

As a rule they are placed higher than this. Those I have seen myself were generally built on moss- and lichen-covered branches of Oaks about 20 or 25 feet from the ground. Rattray, Osmaston and Hopwood all took them from 30 feet or more, while, on the other hand, both Rattray and Coltart took other nests only 10 feet up in small trees.

As regards the nests, they are quite typical of the Minivets. They are the usual saucer-shaped affairs, with vertical, thin walls and thin flat base. The main materials are roots, long needle-like twigs and stems of grass, all interwoven and bound together with cobwebs, and then decorated outside with lichen, bark, or other material to blend with the site where they are built.

One taken by myself in North Cachar had the outer walls decorated with lichen and also with the seed-ends of grasses, these being matted down close with threads from spiders' webs. One rather curious character which I have noted in more than one nest is that the base and inner walls of the nest are lined with lichen, as well as the exterior walls.

Roughly the nests vary from $2\frac{3}{4}$ to 3 inches in width across the top and as much, or even a little more, at the base. The vertical outside walls may be from $1\frac{1}{4}$ to $1\frac{1}{2}$ inch high, and Hume describes Marshall's nest as $1\frac{3}{4}$ inch high. The cavity is about 2 to $2\frac{1}{4}$ inches in diameter by 1 inch or less in depth.

The breeding season is May and June and I know of no eggs taken in any other months.

The eggs are rather characteristic. Some are just like those of the Short-billed group, though not so handsomely blotched. Most, however, have the ground nearly white, pale clay, or pale olive-stone, while the markings consist of blotches of dark brown and lavender, not nearly so freely scattered about the surface as in *brevirostris*, and often decidedly more numerous at the larger end, where they form straggly rings, occasionally more dense and definite.

In shape the eggs are broad ovals, the texture normal and glossless.

Forty eggs, including those in the Hume collection, average 19.4×15.2 mm. : maxima 21.0×14.8 and 19.2×15.7 mm. ; minima 17.8×14.7 and 19.4×14.0 mm.

Pericrocotus cinnamomeus.

THE SMALL MINIVET.

(745) **Pericrocotus cinnamomeus iredalei** Stuart Baker.

THE INDIAN SMALL MINIVET.

Pericrocotus peregrinus peregrinus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 329.
Pericrocotus cinnamomeus iredalei, *ibid.* vol. viii, p. 636.

Ticehurst (*Ibis*, 1922, p. 613) goes at some length into the distribution of the race from Sind and shows, quite rightly, that the pale form is found as far West and South as Sirsa, in the Hissa district of the Punjab. This I fully accept and, some years ago, when examining some birds from Lahore collected by Jesse, I came to the conclusion that they would have to be included in the Sind trinomial. The typical form comes between the pale Sind form and the deep red form in the East, which comes as far West as Eastern Bengal. It would, perhaps, have been better had I designated some place in the eastern United Provinces as the type-locality. In my opinion, however, Ambala birds are definitely of the (*peregrinus peregrinus*) *cinnamomeus iredalei* form, and longitude 75° may be safely, even if arbitrarily, considered the Eastern limit of the Sind race. The fact that *peregrinus* appears to be merely a synonym of *cinnamomeus*, and to come, like that bird, from Ceylon, would not enable me to change my designation of the type-locality of the Northern bird.

The Small Minivet is a bird of the open country, breeding either in single trees standing in cultivation, waste land, roadsides and, though not commonly, even in gardens. More often, however,

it breeds in trees in Mango orchards, and it seems to be particularly fond of the Mango-tree for nesting purposes. Inglis (Journ. Bomb. Nat. Hist. Soc. vol. xiii, p. 628, 1900), writing of the Madhubani District, says:—"Very common. It breeds from the end of March to the middle of June. Hume invariably found their nests at a considerable height from the ground, but most of mine were taken at heights from 9 to 15 feet. The larger number were situated on young Mango-trees, one or two were on Babools (*A. arabica*), another was built on the nearly leafless branch of a pipul (*F. religiosa*). Only three nests were got on immense Mango-trees at heights varying from 30 to 50 feet. It is almost impossible to locate this nest, unless the birds are watched carefully, so closely do they resemble the tree on which the nest is built. I once found a young one and three *fresh* eggs in a nest, but three are the usual complement, and some birds lay only two."

The nest may be placed on almost any kind of tree, and in certain places certain trees seem to be favoured in preference to others. Blewitt says that in Jhansie and Saugur the Tamarind-tree is the favourite; in other places Babools seem to be most frequently used, while in yet others no particular kind of tree attracts them.

Most collectors have found in their experience that the nests are built at great heights, anything between 30 and 50 feet from the ground, but in Behar and Western Bengal I think under 20 feet is *much* more usual than over that height, and many nests are built almost within hand-reach without any climbing. As Hume, Inglis and everyone else has pointed out, the nest is most inconspicuous and difficult to detect, though the anxiety of the parent birds, more especially the cock, which continually visits the nest when the hen is sitting, gives it away.

The nest, like that of all Minivets, is very beautiful. Coltart gives, *in epistola*, an excellent account of the nest:—"In Somastipore the favourite site for the nest is an old Mango-tree, generally one growing in an orchard of these trees; in this it may be placed at any height between 5 and 25 feet and, personally, I have never come across any at the great heights at which it is generally said to build. In shape the nest is a small, very neat, compact cup, sometimes very shallow, sometimes very deep, the former when it is built on a fair-sized horizontal bough, the latter when it is placed in a fork, horizontal or perpendicular. Often it is built in tiny forks of slender branches on the extreme outside of the tree, but I think most of mine were on the upper sides of quite stout branches and invisible from below, though the tail of the sitting bird might sometimes be seen projecting over it. The nest is made of the finest twigs, not thicker than a hair-pin, grass-stems, roots and chips of dead leaves, all most beautifully bound together and then plastered over with cobwebs. There is no lining, the eggs being laid on the materials mentioned above, but the outside of the nest is plastered all over with tiny scraps of bark to make it look just like a knob of the tree on which it is built. When the

tree has lichen growing on it this is made use of instead of bark-chips. The shallow nests may measure about 2 to $2\frac{1}{2}$ inches in diameter, the external vertical walls being not more than an inch. The walls are very thin, especially at the lips, and the cavity only measures some $\frac{1}{4}$ inch less than the outside. The deeper cups, built in forks, are often as deep as they are broad, but this depends much on the fork in which they are placed. Often, too, they are smaller across than the shallower nests, and Hume gives the external diameter of two nests as $1\frac{7}{8}$ to $1\frac{1}{2}$ inch only. The full clutch of eggs is three, sometimes two only, these being nearly always laid in March and April, though I have taken them up to the end of June."

To the above I can add but little. Hume says that a few feathers are sometimes used in the construction of the nest, and he also says that "there appears to be rarely any regular lining, a very little down and cobwebs forming the only bed for the eggs, and even this is often wanting."

Blewitt's three nests, found by him in Tamarind-trees, were all coated externally, "for better disguise, with dried leaves of the tamarind-tree; the lining of very fine grass."

In regard to this little Shrike we actually have some record of the building of the nest, for Butler writes (Hume's 'Nests and Eggs,' vol. i, p. 342):—"I observed the birds first building on the 21st August, and the nest from below looked then almost finished. The cock and hen worked together, flying to and fro very busily with bits of lichen picked off the branches of another tree adjoining. On the 25th I watched the nest for some time, but the birds only came to it once, and then the hen bird went on and smeared some cobwebs round the outside, at least that is what she seemed to me to be doing. On the 28th I watched it again, and although both birds were in the adjoining tree, I did not see them go to the nest. On the 31st, about 10 A.M., I found the hen on the nest, and she remained on until about 10.30, when she flew off and joined the cock, who was sitting pluming himself on a branch of the next tree the whole time she was on the nest. Immediately she joined him he commenced catching flies and feeding her as if she were a young bird, and eventually they both flew away together. On the 3rd Sept. I found, as I expected, the hen sitting and the cock in another tree close by.

"I sent a boy up the tree and, as he approached the nest, which was some 30 or 35 feet from the ground, the hen bird became very uneasy. When the boy was within about 20 feet of the nest she flew off and joined the cock, after which I saw her no more.

"On the 6th September the same pair of birds commenced a new nest on another mango-tree about 20 yards off. On the 15th the hen bird began to sit, and on the 18th I sent a boy up the tree by means of a ladder and secured two more fresh eggs.

"In the bottom of both nests were three or four small black downy feathers, intermingled with the dead leaf-stems which formed the lining."

From the above we learn that the nest takes eight or nine days to build and that both sexes assist in its construction.

The breeding season in Behar and Western Bengal is chiefly March and April, but a good many birds lay in May and a few until the end of June. Elsewhere they seem to lay more after the rains have broken in June, and from thence on to August and even September. Even in these provinces, however, some birds lay earlier. In Ghazipur Gill took eggs in March and in Poona Williams took others in April, while around Lucknow Jesse took many from March to May. Bingham, also, took a nest at Delhi on the 27th March. Probably many birds have two broods, one in the early months and a second after the rains break and insect food is once more plentiful.

The normal clutch is undoubtedly three, though many birds lay only two eggs and very few four. H. E. Barnes took one four in Saugur, and I have one other four from Bareilly in the United Provinces.

The eggs vary very greatly. The most common type is one with an almost white ground, very faintly tinged green or, more rarely, with a buffy yellow. The primary markings consists of specks and small blotches of red-brown, deep purple-brown or blackish-brown, fairly numerous everywhere, but more so at the larger end, where they sometimes form zones. The underlying or secondary marks are of pale lavender, but are not at all conspicuous. Some eggs are pale greenish, with numerous small specks of brown; some, whether marked with blotches or specks, have well-defined zones at the larger end and are sparsely marked elsewhere. I have one clutch of two and another of three with pale pink ground blotched with bright brick-red, looking just like many Tits' eggs. Another has a pale stone ground with a few very large blotches of chocolate-brown mixed with secondary marks of pale lavender. Yet another has the ground a very pale grey-green, almost white, very faintly speckled with pale reddish at the larger end, where the marks form ill-defined rings.

In shape the eggs are broad ovals, never compressed at the small end. The texture is close, rather fine, and quite glossless.

Eighty eggs average 16.4×13.1 mm. : maxima 18.0×14.0 mm. ; minima 15.0×13.0 and 16.0×12.3 mm.

(746) *Pericrocotus cinnamomeus vividus* Stuart Baker.

THE BURMESE SMALL MINIVET.

Pericrocotus peregrinus vividus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 331.
Pericrocotus cinnamomeus vividus, ibid. vol. viii, p. 637.

This very handsome little Minivet is distributed from extreme Eastern Bengal and Assam, throughout Burma, into Cochin China, Yunnan and Annam.

It is a breeding bird from the plains up to about 4,000 feet in

Assam, but is least uncommon at about 3,000 feet, though rare everywhere. In Burma it nests from the level of the plains up to 5,000 feet though, here again, this height is exceptional.

In the North Cachar Hills it bred occasionally in the scattered Oak lands in the North of the district. Here most of the country consists of rolling hills, covered with brilliant green young grass in Spring, with great Oaks, having black trunks and limbs, growing everywhere in clumps or singly. On these Oaks the birds bred, but I usually visited this part in April and May for big-game shooting and never secured a nest with eggs, though I saw some young in May. They must have laid very early in April or even in March. The hills about here were between 1,500 and 2,500 feet, but in the evergreen forests to the West and South they certainly bred up to 4,000 feet, though I was equally unfortunate in never personally taking a nest with eggs.

In Burma Hopwood found them breeding in June and succeeded in finding one nest in his garden at Maymyio at 3,500 feet. This was placed on a bough of a pine-tree 15 feet from the ground but, he remarks, "nests are usually very high up in Oaks and Sehime trees and inaccessible."

In Siam the bird is common and Herbert gives the following description of its breeding:—"The nest is always very high up, in fact all those that I have seen have been 30 to 40 feet from the ground. Durian and Tamarind are the favourites and the leaf of a Betel-palm is sometimes used. The nest is small and is usually very shallow. It is built of fibres with an outer coating of lichen, and cobwebs are used for adhesive purpose with the fibre as well as for covering. A curious feature about the site of the nest is that there is nearly always a dead stump of branch by the nest, but it is generally standing out from the nest and helps to make it look more like an excrescence on the bough than it otherwise would. It will be realized that such a small nest in the top of a high branch is exceedingly difficult to see. The size of the nest is $2\frac{5}{8}$ inches in diameter on the outside, with an inside depth of $\frac{3}{4}$ inch. March and April is the breeding season, but I have taken eggs as late as June."

Later Herbert took eggs in February; all his clutches contained three eggs, except one of four.

In the Andamans Osmaston found them breeding in the "Rain" trees in May and June. Of three nests taken by him one was "on a small tree, about 20 feet from the ground," the others "on the top branches of Rain-trees (*Pithecolobium saman*)."

The eggs in a clutch vary in number from two to four, about five out of six numbering three. They are, of course, indistinguishable from those of the preceding subspecies and go through the same beautiful range of variations.

Fifty eggs average 16.8×13.8 mm. : maxima 18.5×14.7 and 18.1×15.1 mm. ; minima 15.2×13.2 and 15.5×13.0 mmr.

(747) *Pericrocotus cinnamomeus malabaricus* Gmel.

THE MALABAR SMALL MINIVET.

Pericrocotus peregrinus malabaricus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 331.

Pericrocotus cinnamomeus malabaricus, *ibid.* vol. viii, p. 636.

This Southern race of Minivet is found breeding in Ceylon and thence North to a line drawn roughly from Belgaum on the West of India to a little North of the City of Madras on the East.

This little Minivet breeds both on the outskirts of open forest and all round towns and villages. Davidson, *in epistola*, says:—"Nests just like all other Minivet's nests, shallow cups of twigs etc., covered all over with lichen, bark or chips of leaves and moss to make them look like lumps on the trees. There is no lining except, perhaps, a few stalks of grass. Most nests are very high up, and any tree will do for nesting purposes in orchard, compound, side of road, or one standing in cultivation."

It is impossible to say anything more of the present race's nidification which would not do equally well for any one of the others.

In Ceylon Phillips took the nests from comparatively low down in rubber-trees and in *Grevillea*-trees growing in Tea Gardens.

I have eggs obtained in Southern India taken in every month from March to October, but most eggs seem to be laid in July and August. In Ceylon most eggs are laid in April and May.

In India the hen lays three eggs and rarely as many as four or as few as two, but in Ceylon she generally lays two, while sometimes one only is incubated.

The average of thirty-four eggs is 16.6×13.4 mm. : maxima 18.1×13.0 and 17.0×14.0 mm. ; minima 15.1×12.8 mm. They exactly resemble the eggs of the other races and have the same curious variations, and are equally beautiful and richly coloured.

(748) *Pericrocotus cinnamomeus pallidus* Stuart Baker.

THE SIND SMALL MINIVET.

Pericrocotus peregrinus pallidus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 332.

Pericrocotus cinnamomeus pallidus, *ibid.* vol. viii, p. 637.

According to Ticehurst (*ante*, p. 294) the range I originally gave to this Minivet must be extended East to about longitude 75° , *i. e.*, roughly two-thirds of the Punjab on the West. South it embraces the whole of Rajputana.

Ticehurst says that this Minivet "is resident and fairly common wherever, even in the more desert parts, sufficient trees for its requirements are found. It is principally a bird of the acacia "babool," though also met with in other trees, as well as in guava

and mango plantations. I never was able to find the nest of these birds, but I believe it breeds in April and May."

Eates was successful in finding nests and eggs and sent me a clutch of three taken on the 20th April. He states that it was "a typical Minivet's nest on a Kanli-tree in fairly open forest on Las Belas banks of Habb River."

About Lahore Jones found it common and took several nests containing three or two eggs.

The breeding season in Sind is April so far as is known at present, while in the Punjab eggs are laid throughout March and April.

My small series of this bird's eggs are all similar to common types of eggs of the other races.

Eleven eggs average 16.4×13.2 mm. : maxima 17.3×13.2 and 16.3×13.6 mm. ; minima 15.7×13.0 and 16.0×12.8 mm.

(749) *Pericrocotus erythropygus* (Jerdon).

THE WHITE-BELLIED MINIVET.

Pericrocotus erythropygus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 332.

The White-bellied Minivet is resident and breeds over a great portion of Central and Southern India. It occurs in Central India and over practically the whole of the Bombay Province, North-West to Sind as a rare straggler, Rajputana and, in the North-East, to Oudh, Behar and the dry districts of Western Bengal. South it is found as far as Travancore, where Stewart obtained its nest and eggs.

In Hume's 'Nests and Eggs' the only notes on this Shrike's breeding are those of Davidson and now, after an interval of 33 years, there are still no others. Stewart obtained one nest in Travancore in a bush in forest, and Bell has also taken nests, while Barnes, so long ago as 1882, also took nests and eggs in Khandeish.

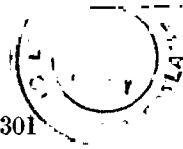
Unlike most Minivets, which prefer trees, very often at great heights, for nesting purposes, the present bird is a bush-builder, nearly always placing the nest in dense thorny bushes between 2 and 4 feet from the ground.

Davidson says of its nesting :—"Yesterday I took two nests of *Pericrocotus erythropygus*. Both nests were like those of *P. perigrinus* [= *cinnamomeus*] and were placed about $2\frac{1}{2}$ feet from the ground in a fork of a straggling thorn-bush among thin scrub-jungle. One contained 3 young birds and the other 3 hard-set eggs. I watched the nest, and found the cock sitting on the eggs, so there is no possibility of mistake ; but the eggs are not the least like what I expected."

This was written on the 25th August and, later on, apparently the following year, he writes again :—"I happened to be staying a few days at Arvee, in the extreme South of Dhulia, and found this bird breeding there in considerable numbers. This was at the end of August (26th to 31st), and I was rather late ; most of the

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PERICROCOTUS.

nest contained young, and in some cases the young were able to fly. I, however, found eight nests with eggs (most of them hard set). All the nests, which are small and less ornamented than those of *P. peregrinus*, were placed, from 3 to 4 feet from the ground, in a small common thorny scrub. They were all placed in low thin jungle and never where the jungle was thick and difficult to walk through. A great deal of the jungle round Arvee is full of anjan-trees, but none of the birds seem to breed in these.

"The nests are elegant little cups, reminding one of those of *Rhipidura albifrontata*, measuring internally about 1.75 inch in diameter and 1 inch in depth, the thickness of the walls of the nest being usually somewhat less than quarter of an inch. Interiorly the nest is composed of excessively fine flowering-stems of grasses, and externally and on the upper edge it is densely coated with fine, rather silky greyish-white vegetable fibres, in places more or less felted together. It is not ornamented exteriorly with moss and lichen, as those of so many of the *Pericrocoti* so commonly are, only occasionally one or two little brown patches of withered glossy vegetable scales are worked into the exterior of the nest."

The few notes that I have had from other collectors merely confirm the above and show that the birds always breed in thin forest or in thin scrub-jungle, that they always place their nests low down in thick thorny bushes and, finally, that the nests themselves are more like those of *Leucocirca* than of other Minivets.

It should be noted, also, that they are always placed in forks, sometimes horizontal, but generally vertical, and that they are never built on the upper side of horizontal branches.

Davidson took many nests in July, August and early September in Dhulia, Khandeish etc., but they also breed during March and April, though not so commonly, and probably many birds have two broods.

The full complement of eggs is two or three, the former quite as often as the latter. I have never heard of four eggs being laid.

The eggs are very different from those of any of the Minivets so far referred to. The ground-colour is greyish-white or, very rarely, greenish-grey, and they are densely covered with primary longitudinal blotches of grey-brown and paler secondary marks of grey, both being generally more numerous at the larger end, but not forming rings or caps. There is very little variation but, in some, the primary blotches are more brown and in others they are grey-black, with no tinge of brown at all. They are rather like, in fact, small darkly-marked eggs of the Tree-Sparrow.

The texture is finer and smoother than in most Minivets' eggs and, occasionally, there is a fair gloss. In shape they are stumpy ovals, sometimes slightly pointed.

Thirty eggs average 17.3×13.5 mm. : maxima 19.0×13.3 and 18.0×14.4 mm. ; minima 16.5×13.0 mm.

As Davidson shows, both sexes take part in incubation.

(750) *Pericrocotus albifrons* Jerdon.

THE BURMESE WHITE-BELLIED MINIVET.

Pericrocotus albifrons, Fauna B. I., Birds, 2nd ed. vol. ii, p. 334.

It is possible that this Minivet should really be treated as a race of the last, but there is a great area inhabited by no form of allied Minivet, and it may be that it was a race which, by the dying out of the linking forms, has attained the status of a species. It is found over practically the whole of Burma from the Chin, Kachin, Bhamo Hills and Shan States to Tenasserim.

Like the preceding bird, this Minivet breeds in thin forest or in scrub-jungle rather than in open country or in cultivation. Nearly always the nest is built quite low down in thick thorny bushes or in cane-brakes at heights between 2 and 5 feet from the ground, but Cook took one nest in Ataran, South Burma, built in a fork of a branch of a sapling about 15 feet from the ground.

Of its breeding in Myingyan Macdonald notes (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 189, 1906):—"The nest, which is very difficult to detect, is a tiny cup stuck in a fork, or on the top of a horizontal branch of a low bush from 4 to 10 feet from the ground. One nest was found on the 17th August and another at the beginning of May, both with eggs."

Both Mackenzie and Hopwood found it not uncommon in the Chin Hills and North Arrakan, and also took nests in Pakokku in June containing two or three eggs.

The nest appears to be very much like that of the Indian White-bellied Minivet but, when placed in trees, it is covered on the outside with lichen, bark, or lichen and moss. When in bushes, as it generally is, there are no decorations on the outside.

The eggs could not be distinguished from those of *P. albifrons* but, on the whole, are a trifle paler. One clutch taken by Venning at Haka, in the Chin Hills, on the 7th May is very pale, the primary markings in two eggs being almost wanting.

Fifteen eggs average 17.0×13.6 mm.: maxima 18.1×13.2 and 17.2×15.0 mm.; minima 16.2×13.6 and 17.0×13.0 mm.

All the eggs in my collection were taken in May and June.

Lalage melaschista.

THE GREY CUCKOO-SHRIKE.

(753) *Lalage melaschista melaschista* (Hodgs.).

THE DARK GREY CUCKOO-SHRIKE.

Lalage melaschista melaschista, Fauna B. I., Birds, 2nd ed. vol. ii, p. 337.

I can add nothing to the distribution of this Cuckoo-Shrike given in the 'Fauna,' which is: "The Himalayas, Murree to Eastern Assam,

both North and South of the Brahmapootra ; Manipur, Lushai Hills, Tippera, Chittagong, and the plains of India North of latitude 16°," but not breeding in the plains or the lower foot-hills.

In Murree Rattray and Buchanan took nests between 5,000 and 8,000 feet ; in Mussoorie Hutton, Mackinnon, and others have found the birds breeding between these same elevations ; in Northern Assam we found them breeding down to about 2,500 feet ; in Southern Assam I obtained many nests, both in the Khasia and North Cachar Hills, between 3,000 and 5,000 feet, whilst in the adjoining Naga Hills they breed up to 7,000 feet.

Although in the Winter they may often be seen in quite open country, especially if well wooded, I think that for breeding purposes they keep almost exclusively to forest. In Assam we found them both in the wet evergreen forests and the more open Oak forests at 5,000 feet, as well as in the Pine forests, both open and dense, between 4,500 and 5,000 feet. The birds were not uncommon but the nests are so inconspicuous that they were very hard to find, nor do the birds give them away so badly as the Minivets. Every now and then a male bird might be noticed flitting from one tree to another in an anxious manner and, if watched, might eventually be marked on to its nest, but they are not everlastingly flitting backwards and forwards to it, whether the hen is sitting or not. They are said generally to build their nests at great heights from the ground. Hutton, writing from Mussoorie, notes :—" This too is a mere Summer visitor to the hills, arriving up to 7,000 feet, about the end of March, and breeding early in May. The nest is small and shallow, placed in the bifurcation of a horizontal bough of some tall oak-tree, and always high up ; it is composed externally almost entirely of grey lichen picked from the tree, and lined with bits of very fine roots and thin stalks of leaves. Seen from beneath the tree the nest appears like a bunch of moss or lichens, and the smallness and frailty would lead one to suppose it incapable of holding two young birds of such size. Externally the nest is compactly held together by being thickly pasted over with cobwebs."

Hodgson, who says that this Cuckoo-Shrike breeds in the Central Hills of Nepal from April to July, gives a similar description of the nest, the dimensions of one such nest being 4 inches in external diameter by 1.75 in height.

Hutton's description of the nest would do well for most of those found by myself. They were all shallow saucer-shaped cups with the outer walls vertical or nearly so. They were all made of very fine pliant twigs, coarse roots and fibres, nearly always matted well together with cobwebs, both inside and outside. Sometimes chips of dead leaves are worked in with the other materials, and in one nest I found a long thin brown weed-stem taken twice round the inside, the roots and twigs crisscrossing it everywhere. Outside the nests are decorated with all sorts of oddments. Some, if built on lichen-covered branches, are plastered over the whole of

the walls with the same. Others merely have scraps of leaves, bits of bark, moss, or brown lichen stuck on, but the result, whatever the material used, is to make them look exactly like the branch on which they are fastened. The site selected varies considerably; some nests are built on boughs as wide, or wider than, the nests themselves; others are built in forks of biggish branches, while many are fastened to forks of one small branch or to two or three small branches, nearly always horizontal but, rarely, vertical. Nests taken by myself have not been at any great height from the ground, all, in fact, between 15 and 25 feet. The most massive nest I have seen measured externally $4\frac{3}{4}$ inches across by $1\frac{1}{2}$ deep, the egg-cavity being about $3\frac{1}{2} \times 1$. Most nests are a good deal smaller than this but, though they look frail, they are really exceptionally tough little structures.

They breed in May and June and I have taken all my nests in these two months.

Three is the almost invariable number of eggs laid, but I have taken two incubated eggs occasionally and once four.

In ground-colour the eggs are generally a pale grey-green or sea-green, very rarely a buffy green or pale buff. In the former the markings consist of longitudinal blotches of dark umber-brown and of secondary markings of inky grey and neutral tint. The two types are equally numerous all over the egg, becoming more numerous and tending to form rings at the larger end. In the buffy eggs the marks are red-brown, similar in character and distribution. The eggs vary very little but I have one clutch, taken by Mackinnon, in which the marks coalesce to form caps at the larger end and are sparse elsewhere, showing up the bright sea-green ground.

Thirty-three eggs average 24.3×17.4 mm. : maxima 26.5×18.0 and 23.0×16.3 mm. ; minima 22.0×15.8 mm.

Both birds incubate and both take part in the construction of the nest.

(754) *Lalage melaschista avensis* Blyth.

THE PALE GREY CUCKOO-SHRIKE.

Lalage melaschista avensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 338.

This race of Cuckoo-Shrike is found over practically the whole of Burma, Shan States, Siam, Yunnan and the Indo-Chinese countries to South China.

The breeding habits of this bird are, as one would expect, identical with those of the preceding bird, and there is nothing one can add to what has already been said in regard to the Dark Grey Cuckoo-Shrike.

In Tenasserim two nests were taken by one of my collectors in May; Pershouse took three nests in Maymyio in that month, and I have one from the same place taken on the 14th June. In China, round about Hongkong, Messrs. Jones and Vaughan took many nests with eggs in May, June and July.

Vaughan has recorded one clutch of six eggs but, with this exception, the number of eggs laid is said generally to be three, sometimes two and, once only, four.

They are not distinguishable from those of the Dark Grey Cuckoo-Shrike and are of the same two types, the first, and most common, giving one the impression of dark grey streaked eggs and the second of dark brown streaked eggs.

Thirty eggs average 33.7×17.9 mm. : maxima 25.1×18.0 and 23.3×18.7 mm. ; minima 20.3×18.0 and 22.8×16.5 mm.

(756) *Lalage sykesi* Strickl.

THE BLACK-HEADED CUCKOO-SHRIKE.

Lalage sykesi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 340.

This little Cuckoo-Shrike is found in India South of a diagonal line drawn from Bombay City on the Western coast of India to the North of the Eastern districts in Bengal and Assam South of the Brahmapootra. It is said to have occurred also North of the Brahmapootra but, in my thirty years' experience of that part of Assam, I never met with it myself nor heard of anyone else doing so.

It is a bird of well-wooded open land or thin forest and scrub, and is never found breeding in dense or humid evergreen forests. Blewitt, writing from Bundelkund, gives the following excellent account of its breeding habits :—

“ It is to be found in wooded tracts of country, but more frequently among thin large trees surrounding villages. Dr. Jerdon has correctly described its restless habits. In the latter end of July I procured one nest. It was found on a mowa-tree (*Bassia latifolia*), placed on and at the end of two small outshooting branches. When my man, mounting the tree, approached the nest, the parent birds evinced the greatest anxiety, flew just above his head, uttering all the while a sharply repeated cry. Even when one of the birds was shot, the other would not leave the spot, but remained hovering about and uttering its shrill cry. The nest is slightly made and constructed of thin twigs and roots ; the exterior is covered slightly with spiders' webs. If we except the size, the formation of this Cuckoo-Shrike's nest is almost identical with that of *Graucalus macei*.”

It does not place its nest at any great height from the ground. In Mysore Macpherson obtained two nests from Sandal-wood trees at 8 and 10 feet, respectively, from the ground. MacArthur took several nests in the Bilaspur district between 20 and 25 feet up in Acacia-trees.

Davidson writes (Hume's 'Nests and Eggs,' p. 347) :—“ This pretty little Cuckoo-Shrike is one of the earliest migrants in the rains, arriving about the 8th June, and breeding all along the scrub-jungles, which stretch between the Nassic and Khandeish

Collectorates. It appears particularly partial to the Angan forests and, so far as I remember, all the many nests I have seen have been in forks of Angan-trees. The nest is a pretty firm platform composed of fine roots."

In epistola Mr. Davidson informed me that he took nests in smallish trees, as a rule at heights between 10 and 20 feet.

Gill also took a nest near Ghazepur from about 20 feet up in a "Surram" tree overhanging the railway line, along which many trains passed daily.

In Ceylon Phillips took several nests, which he kindly gave me, at and around Matugama, which were all built on rubber-trees at about 10 feet from the ground. The nests he describes as neat little cups or saucers made of fine roots or grass well plastered over with cobwebs and decorated outside with bits of moss. As a rule the outer walls are not decorated much with anything but, occasionally, they have lichen, bark, or broken bits of leaves attached to make them agree with their surroundings, though they are always so small and inconspicuous that they are hard to find. He gives the dimensions of one nest as $2\frac{1}{2}$ by $1\frac{1}{4}$ inches deep internally and $3\frac{1}{4}$ by $1\frac{1}{2}$ externally.

In Ceylon they breed principally from the end of February to the end of April and in Travancore and Mysore during April and May but, farther North, in Bombay and the Deccan, and farther East, they breed just before or after the rains break, in June, July and August.

This Cuckoo-Shrike lays either two or three eggs, one number as often as the other, and I have never seen four. In Ceylon the number appears always to be two only, and Phillips once found a single egg on the point of hatching on the 5th March.

The eggs are small facsimiles of those of the Dark and Pale Grey Cuckoo-Shrikes but, perhaps, vary a little more. I have some Ceylon clutches which have quite a bright green ground boldly blotched with rich brown, thickly at the bigger end, sparsely at the smaller. Taken as a series, also, the blotches are less longitudinal in character.

Fifty eggs average 22.4×16.2 mm. : maxima 24.0×17.1 mm. ; minima 19.9×15.1 and 21.0×15.0 mm.

Lalage nigra.

THE PIED CUCKOO-SHRIKE.

(757) *Lalage nigra davisoni* Kloss.

THE NICOBAR PIED CUCKOO-SHRIKE.

Lalage nigra nigra, Fauna B. I., Birds, 2nd ed. vol. ii, p. 341 (part.).
Lalage nigra davisoni, ibid. vol. viii, p. 637.

The following note is given by Oates, but without any certainty as to where the nest was found, though he thinks it may have been at Camorta, in the Nicobars :—

“The eggs are quite of the *Graucalus* and *Campophaga* type but, perhaps, a little more elongated in shape. Very regular, slightly elongated ovals, with scarcely any gloss on them, the ground greenish-white, but everywhere thickly streaked and mottled and freckled over, most thickly about the larger end, with a dull, pale, slightly olivaceous brown intermingled with brownish, or in some specimens faintly purple-grey. The two eggs I possess measure 0.85 (21.6 mm.) and 0.87 (22.1 mm.) in length by 0.61 (15.5 mm.) and 0.62 (15.7 mm.) respectively in breadth.”

Kloss has shown that the Nicobar bird is not quite the same as the Malay form, though I certainly could not separate them on the material available in the Natural History Museum when I was working on this genus.

Graucalus macei.

THE LARGE CUCKOO-SHRIKE.

(758) *Graucalus macei macei* Lesson.

THE INDIAN LARGE CUCKOO-SHRIKE.

Graucalus macei macei, Fauna B. I., Birds, 2nd ed. vol. ii, p. 343.

This handsome but very noisy Cuckoo-Shrike is found over the whole of India from Travancore, North into the Western Himalayas, up to some 4,000 feet, as far East as Garhwal. On the North-East it extends to Western Bengal and Southern Behar. Its distribution in Southern India on the East is not defined, but it is possible that the results of the Vernay Expedition will assist in showing this.

It frequents both thin forest (as it has been found breeding in Sâl forests) and open well-wooded country. It appears not to be a very shy bird, nests being sometimes built on large trees close to human habitations or by frequented roadsides. More often, however, it selects trees standing in cultivation a little way from villages and towns.

In the Kherapore Hills, near Jamalpore, E. M. Ollenbach found many nests of this bird but was very unlucky in getting eggs, these nearly always being smashed in bringing down the nest. He writes, *in epistola*:—“The bird is very common here, making its nest in Sâl-trees in the Sâl forest round Jampalpole in the Kherapore Hills. The forest is not very dense and is easy to get about in, but the trees are particularly fine and big, and the birds seem to select the biggest as building-sites and, even then, not content with placing them in quite thin branches on the outside of the tree, generally choose branches at great heights. I have taken nests at about 25 feet from the ground but, more often, they are about 40 feet up, and I have taken them at 60. I don't think

they are very hard to find ; it is true they are small and inconspicuous, but they are not hidden at all carefully, and the birds themselves are so noisy and fussy that they themselves cannot escape attention and, once the birds are spotted, they soon give away the position of the nest. But a nest found is not a nest obtained and, of those I have seen, nothing like half have yielded their contents in safety. The small boys—one cannot employ heavy ones—can clamber like monkeys to within a few feet of where the nest swings gently backwards and forwards on branches too frail even to bear their weight. Then the branch has to be cut off and, in doing so, the eggs are very possibly jerked out of the shallow nest or, if the branch is sawn off successfully, the eggs fall out before they can be secured.

“The nests are very typical of the Minivets and other Cuckoo-Shrikes, quite shallow saucers, very small for so big a bird, seldom measuring more than $4\frac{1}{2}$ to 5 inches in breadth, and never more than $1\frac{1}{4}$ in depth. The walls are thin and frail-looking and the cavity for the eggs probably averages about 4 inches in breadth and 1 in depth.

“The nests are made of very thin, soft twigs—not branching ones—and of roots, fibres and grass-stems. These are all woven together and plastered over with cobwebs, but the materials are not tightly woven, and look as if they would fall apart. Outside the nest the birds use bits of lichen, bark, dead leaves, etc., to adorn the walls, these also being bound on with cobwebs. In spite of their frail looks, however, the cobwebs which are used in such abundance keep the structure together so well that it stands a lot of handling.”

Hume describes two nests sent him by Blewitt as follows :—
“They are broad shallow saucers, with an egg-cavity about 3 inches diameter and $\frac{3}{4}$ inch in depth, composed of very fine twigs, chiefly those of the furash (*Tamarix orientalis*). Exteriorly they are bound round with cobwebs, in which a quantity of lichen is incorporated. The nests are loose flimsy fabrics, which but for the exterior coating of cobwebs would certainly never have borne removal.”

Blewitt says that the birds pair in May, starting actual building operations in June, and lay throughout July and August.

Davidson found them breeding in North Kanara, where the birds were not uncommon, in March and April, but he says that in that district they were very shy, and the only three nests he obtained were found with difficulty.

In Ghazepur, United Provinces, Gill also took a nest in April, and Vidal took nests with eggs in the South Konkan in February and March.

On the other hand, Littledale found no less than six nests near Baroda in August and one as late as the 10th October, while Betham also took many nests at Baroda in August and September.

Davidson also took one near the Kondabhari Ghat in September, so that it would appear that this bird has two periods of breeding on the West of India—first February to April and again August to October.

The number of eggs laid is two or three, while single eggs have more than once been found to be incubated. As, however, the nests are built in such precarious places, it might be quite possible for them to be blown out of the nest.

A description of the eggs of this race will suffice for those of the other races also.

When first laid, the ground-colour varies from a pale to rich olive-buff, more rarely a pale but almost bright sage-green, and sometimes a pale grey sea-green. Generally they are handsomely blotched with rich chocolate-brown and with underlying blotches of lavender; in some eggs the blotches of both colours are smaller and, in one or two, quite small. They are distributed fairly numerous over the surface, but more so at the larger end, where, however, they never form caps or definite rings. Very shortly after being taken and blown the green tinge becomes much less pronounced and often, after three or four years, practically disappears; the buff, on the contrary, gets brighter and richer. They are very handsome eggs but, despite what Hume and other collectors have said, they do not remind me of Shrikes' eggs beyond being a little like some types of *Lalage*.

In shape the eggs are broad but very distinctly pointed ovals; the texture is hard, close and fine, the surface having a strong gloss, which does not wear off like the green colour.

Twenty-two eggs average 31.0×22.4 mm.; maxima 33.2×23.2 mm.; minima 28.8×22.5 and 30.2×21.3 mm.

Both sexes share in the incubation and I have seen both sexes in the Nepal race also active in carrying on building operations, the male both carrying and placing the materials.

(759) *Graucalus macei nipalensis* Hodgs.

THE HIMALAYAN LARGE CUCKOO-SHRIKE.

Graucalus macei nipalensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 344.

The breeding range of this Cuckoo-Shrike extends through the Outer Himalayas from Nepal to Western Assam, from the foot-hills up to some 4,000 feet, at which elevation Stevens obtained it in Sikkim. It also occurs, and is resident, in Northern Behar and North-East Bengal West of the Brahmapootra. I came across it in Goalpara in the forested country at some distance from the hills, and they probably breed there also.

I once saw a nest of this Cuckoo-Shrike in the Rangagora district built on an enormous tree, the branches of which overhung a forest

road leading from one Tea Garden to another, the bird flying off it as I approached it. I was riding at the time, and it was quite impossible to make arrangements to get at the nest, which was about 40 feet up and could not have been reached without bamboos as a ladder. This was on the 15th April and, from their behaviour, the birds had then either hard-set eggs or young.

(760) *Graucalus macei layardi* Blyth.

THE CEYLON LARGE CUCKOO-SHRIKE.

Graucalus macei layardi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 345.

This race is, as its name infers, restricted to Ceylon. According to Wait ('Birds of Ceylon,' 2nd ed. p. 76), this Shrike is "not very abundant, but fairly widely distributed in the drier forest tracts of the lower country. It also occurs in Uva and at other medium elevations, where the rainfall is not too heavy. It is rather a shy forest bird, generally found in tall trees in the neighbourhood of rivers and tanks. It breeds, apparently, in July and August, chiefly in *palu*-trees. The nest, which is small for the size of the bird, is a shallow cup of small twigs, lined inside with grass and leaves and felted with cobwebs to the top of a branch, or into a fork high up in a tree."

The only eggs I have seen were a pair taken on the 25th June. These are exactly like those of the Southern bird and measure 31.0×22.3 and 32.0×22.3 mm.

(761) *Graucalus macei siamensis* Stuart Baker.

THE BURMESE LARGE CUCKOO-SHRIKE.

Graucalus macei siamensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 345.

This is probably the best known of the large Cuckoo-Shrikes and it also has the widest range. On its extreme Western limits it occurs in Assam, South of the Brahmapootra, in the districts of Eastern Bengal East of the Bay of Bengal; practically the whole of Burma from the Chin, Kachin and Bhamo Hills to Tenasserim; Shan States and Yunnan; Siam and the Indo-Chinese countries. It is found alike in the plains near the hills and in the hills themselves up to 4,000 feet. In Assam we seldom saw them above 3,000 feet and they were also resident in the plains, but were most common between 1,500 and 3,000 feet in forest which was not too dense or humid. They also build in big trees standing singly or in clumps on the edges of cultivation or on those by roadsides running through well-wooded country. I have personally never

seen them breeding close to human habitations, nor have I any record of their doing so except in the Andamans, where these Shrikes are exceptionally common and sometimes make their nests on the Rain-trees in the avenues on the roads about the settlement of Port Blair. Here Osmaston took a wonderful series of their nests and eggs between the 5th of March and the 28th May, nearly all on Rain-trees (*Pithecolobus saman*), at heights of about 25 to 30 feet from the ground.

Except that in some cases the nests taken by myself in Assam were much higher up in trees—in one case, I think, about 60 feet, and in other instances still lower, down to 15 feet—the nests taken by Osmaston were in all respects like those taken by myself.

The most usual height was about 30 feet from the ground, but the nests were always placed in most impossible positions, generally in small outer forks of thin branches on the outside of the tree. It was easy for small boys to get within a few feet of the nest, yet quite impossible, as a rule, for them to get near enough to make a grab at the nest and its contents. Sometimes, however, they could get above it or else in such a position that they could gently shake the branch and drop the eggs, one by one, into a butterfly-net held just below the nest by another small boy. The eggs once in safety, the branch containing the nest could be cut off and brought down.

Two nests out of every three were placed in small horizontal branches. The third might be wedged into a vertical branch or built on the upper surface of a larger branch or upon two or more smaller branches growing close together. The nests were very small for so large a bird and were generally almost invisible from below until the bird showed exactly where they were. They probably average something between $4\frac{1}{2}$ and 5 inches externally by 2 or less in depth, the egg-cavity being about 4 inches by 1. The inside is very shallow, the base gradually sloping up to the lip, so that with care it is not difficult to shake the eggs out or to tip the nest so that they roll out without breaking.

The materials of which they are composed are mainly fine twigs, coarse roots and grass-stems, well interlaced without being tightly drawn, often made stronger by a few thin brown weed-stems or long grass-stalks being bound round about them. The whole is then well matted with cobwebs, inside and outside, while inside most nests will be found many tiny whole leaves or bits of larger leaves bound in with the spiders' webs. Outside I have only seen lichen used when the surrounding branches are also covered with it, but often they are decorated with bits of leaves, small scraps of bark and spiders' egg-bags, which are plastered on with cobwebs, the latter being wound, with some of the materials, round the supporting branches.

The nests look fragile and loosely put together but, as a matter of fact, are rather unusually strong, standing a good deal of rough usage on account of the large amount of cobweb employed.

Over the greater part of its breeding area two seems to be the usual complement of eggs laid, but Anderson and Osmaston both found one egg being incubated, and I once took a three in North Cachar.

The breeding season in Burma, so far as we know, and certainly in the Andamans, is March and April, a few birds breeding in May. In the Chin Hills Mackenzie took fresh eggs in April and early May while, in Assam, I found eggs in March, April and May.

The eggs resemble those of the other races and are very boldly-marked handsome eggs. I have one pair in which the ground-colour is definitely brown rather than buff, and another in which it is a clear yellow-stone colour. As a series the eggs are, perhaps, a little longer on the average than those of the typical form.

Twenty-four eggs average 32.1×23.5 mm.: maxima 36.2×22.0 mm. and 32.0×24.0 mm.; minima 30.0×22.2 and 30.3×21.3 mm.

Both sexes take part in incubation and both help in building the nest.

(762) *Graucalus dobsoni* Ball.

THE ANDAMAN CUCKOO-SHRIKE.

Graucalus dobsoni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 346.

This Cuckoo-Shrike is confined to the Andamans and, even there, seems to be a rare bird, keeping entirely to the interior of forests.

Nothing is known about its nidification beyond the fact that an egg, with the nest, which were taken during the latter half of April, were sent to me, together with the bird, for identification. The nest was quite indistinguishable from those of the other, better known, species, a shallow cup, fragile looking but really strong, on account of the many cobwebs with which it was bound. It was said to have been taken from very high up in a lofty tree standing on the outskirts of dense forest.

The egg is quite typical of the genus but is rather exceptionally dark and decidedly large, measuring 34.0×22.1 mm.

Family ARTAMIDÆ

(SWALLOW-SHRIKES).

(763) *Artamus fuscus* Vieill.

THE ASHY SWALLOW-SHRIKE.

Artamus fuscus Fauna B. I., Birds, 2nd ed. vol. ii, p. 348.

The Ashy Swallow-Shrike is found over nearly the whole of the Indian Empire from Ceylon to the Himalayas, East of a line drawn roughly from Godra in the Panch Mahals to Naini Tal in Kuman. It is resident throughout the plains and the foot-hills up to 2,000 feet, but ascends considerably higher in the Summer, breeding up to at least 5,000 feet, whilst Stevens has recorded them up to 5,700 feet at Seerjok and Turzam in Sikkim.

They are birds of well-wooded country and, I believe, are never found in dry, more or less treeless areas or in country where trees are represented by Acacias and similar vegetation alone. Above all other sorts of country they seem to love best small areas of cultivation surrounded by forest, but they may be found anywhere almost where there are trees suitable for building purposes.

In Eastern Bengal they may be seen wherever there are Date-palms (*Phoenix sylvestris*), either singly or in clumps, these being their favourite nesting-trees in this province, as, indeed, in most places elsewhere.

In some districts they will breed in gardens and in clumps of palms growing in villages. Davidson mentions three nests—two old and one new one with one egg—found by him in a ragged old Cocoanut-palm in a garden in the Tamkur district of Mysore on the 9th May.

In the Himalayas their favourite resorts are ridges or the rounded tops of grass-covered hills, at one time all forest which had been destroyed for cultivation, leaving many dead trees standing dotted about. These giants, too big to fell and, therefore, only ringed, stand, ghosts of the past, their great limbs stretching out gaunt and bare, often with holes and hollows, both in the greater boughs and in the trunks, which invite the attention of many birds.

In such places I have known some colonies, or sometimes single pairs, take up their Summer residence, build their nests and bring up their young. The nests in these cases are built wedged in between one of the great limbs and the trunk itself, or in one of the larger natural hollows. At other times, also, the birds make use of holes in trees. Thus Miss Cockburn in the Nilgiris found a nest "in a perpendicular hole of a dried stump of a tree about 15 feet in height."

Palms are, however, undoubtedly the trees most favoured in the plains. Date-palms, Cocoanut-palms and Palmyra-trees are

constantly referred to by Jerdon, Cripps, Davidson and others as being used for nesting purposes, sometimes by a single pair only but, more often, by small colonies. The largest colony I have personally seen consisted of about twenty pairs, the individuals of which seemed to keep together all day, yet I never succeeded in tracing anything like twenty nests. Six, I think, is the largest number I have found in one tree or in one group of trees, but the others may have escaped my search or have been situated at a little distance from the feeding-ground.

Nests built in palms are generally placed at the junction of one of the leaf-stems with the head of the tree and are hard to see, and at the same time well protected from rain and wind. Jerdon found one nest on the stem of a leaf of a Palmyra-tree, and Cripps gives the following description of a nest built on a Date-palm:—
 “The date-trees in this district are tapped annually for the juice, from which sugar is manufactured. The leaves and the bark for a depth of three inches are sliced away from one half of the trunk, the leaves on the other half remaining, and at the root of one of these the nest was built, wedged in between the trunk and the leaves; the external diameter was $4\frac{1}{2}$ inches, depth 3 inches, thickness of sides of nest $\frac{3}{4}$ inch.”

Gammie found the birds breeding in Sikkim at 3,500 feet on “dry ridges, on which there are a few scattered tall trees, from the tops of which it can make short flights after insects.

“It builds in holes of trees, on surfaces of large horizontal branches 30 or 40 feet up, or in depressions in ends of lofty stumps.”

In the hills where there are no true palms I have occasionally taken the nests from the heads of palm-ferns standing near the edge of evergreen forest.

The nest is a rather crude affair made of coarse roots and, sometimes, grass, roughly put together and with a shallow cavity for the eggs, seldom an inch, and often less than half an inch, deep. When placed in palms, the bottom of the hollow between the leaf and the trunk is filled in with roots and rubbish, such as dead leaves, bits of creeper and grass, the true nest then being placed on the top of the pad so formed. In diameter the nests may be anything from 4 to 8 inches, and are often oval rather than round and, sometimes, of no particular shape at all, just wedged in and fitting the gap in which they are built.

The breeding season varies considerably. Hodgson says that in Nepal “this species begins to lay in March, the young being fledged in June.” In Eastern Bengal they lay from April to the end of June. In Mysore Bourdillon found females in breeding condition in March, but took a fresh egg in May. In the hills from Sikkim to Assam they breed principally in April and May but, probably, have an extended breeding season, for even the birds of the same colony do not lay at the same time. Thus in one colony I have found chicks in May ready to fly and new nests

not yet laid in. In Siam Hartert found them laying from April to June, using Betel-palms exclusively for nesting purposes. In the Chin Hills Mackenzie took nests in April and May while, finally, Coltart took eggs as late as the 28th August near Margherita.

The full complement of eggs is two to four, the latter number rather exceptional, the first often the full number laid. In Siam Herbert and Williamson never found more than two eggs in a nest.

The eggs have a ground-colour ranging from the palest creamy white to a fairly warm cream. The markings consist of blotches of pale reddish to deep rich brown, scarce over the greater part of the egg but numerous in an irregular ring round the larger end. Secondary markings of grey or pale neutral tint are interspersed with the primary and, in the palest eggs, give a very grey tint to the general colour. In most eggs the markings are small blotches, in a few they are but specks and spots, while in a few others a certain number of very large blotches are scattered here and there among the smaller. A very handsome pair taken by Primrose near Kur-seong has bold purple-brown blotches in the usual ring and no marks on the smaller half.

In shape the eggs are generally a rather long, pointed oval—short, broad ovals being rare. The texture is fine, close and strong, but glossless or nearly so. The shell is stout in comparison with the size of the egg.

Fifty eggs average 23.4×17.1 mm.: maxima 25.3×17.2 and 25.1×18.1 mm.; minima 22.0×16.6 and 23.0×16.3 .

Both sexes incubate, but probably the male only for an hour or two in the early mornings and evenings, as we never snared them on the nest at any other time. Both sexes also take an equal part in nest-building, both bringing and arranging the materials.

Artamus leucorhynchus.

THE WHITE-RUMPED SWALLOW-SHRIKE.

(764) **Artamus leucorhynchus humei** Stresemann.

THE ANDAMAN WHITE-RUMPED SWALLOW-SHRIKE.

Artamus leucorhynchus humei, Fauna B. I., Birds, 2nd ed. vol. ii, p. 350.

This Swallow-Shrike is confined to the Andamans and the Great and Little Cocos Islands.

The only account of this bird's nesting in Hume's 'Nests and Eggs' is the finding of an empty nest by Davison on the top of a rotten Mangrove-stump on the 2nd May:—"The nest was built entirely of grass, somewhat coarse on the exterior, finer on the inside; it was a shallow saucer-shaped structure placed in the hollow at the top of the stump."

In 1905 Osmaston found this bird breeding very freely, and thus records his observations (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 157, 1906):—"Common in open places and in clearings round Port Blair. They appear to be very affectionate, the male and female sitting for long periods side by side on the same perch. They are fearless of men and follow anyone about, snapping up the grasshoppers and other insects which are disturbed into flight. They breed in April and May, the nests being almost invariably placed on the broken-off stump of some stout branch of a tree from 10 to 20 feet from the ground. Jack-fruit trees are frequently selected as building sites. The nest is an untidy shallow saucer of twigs, little better than a dove's nest. It is usually quite exposed to view from above and more or less also from below. The parent birds are very bold and defend their property with much spirit. The full complement of eggs is three. They are white, spotted with light brown or fawn, chiefly in a zone, with numerous underlying grey markings."

In 1906 and 1907 Osmaston obtained a very fine series of eggs of this bird, which are now in my collection, but the only note I can add to his, given above, is the fact that he took one nest at a height of 25 feet from the ground. His series was taken between the 20th March and 5th May, but Wickham obtained a nest with one egg on the 4th June, probably a second laying.

Forty eggs average 23.8×17.2 mm.: maxima 27.0×18.9 and 25.6×19.0 mm.; minima 22.3×17.1 and 23.0×16.5 mm.

The maxima are from a clutch of three all abnormally large and, excepting these, the maxima are 24.7×18.0 mm.

Family DICRURIDÆ

(DRONGOS or DRONGO-SHRIKES).

(765) *Dicrurus annectens* Hodg.

THE CROW-BILLED DRONGO.

Dicrurus annectens, Fauna B. I., Birds, 2nd ed. vol. ii, p. 353.

This fine Drongo, or King-Crow, as birds of this genus are locally called in India, is found, though rarely, in Nepal and extends East to Eastern Assam, North and South of the Brahmapootra River, all through the hill regions of Burma and the Malay States, into Java, Sumatra and Borneo, whence individuals cannot, according to Kloss, be distinguished from the typical form. It also occurs in the Shan States and Siam.

This Drongo breeds in the plains where there is forest, or in heavily wooded open country, and in the foot-hills up to some

2,000 feet. In 1891 I found them very common and breeding in numbers round about Guilong, in the North Cachar Hills, between 3,000 and 4,000 feet. This irruption into the higher hills must, however, have been something quite abnormal, for I never again obtained them breeding at this elevation. In the plains of Lakhimpur and the foot-hills round Margherita Coltart and I found them to be very numerous, and they were, in fact, the most common of the breeding Drongos. Here we took nests between 1900 and 1907 in forest of the most dense, in thin forest, in bamboo- and scrub-jungle, and right out in the open in Tea land, and even occasionally by roadsides and in gardens. If breeding in dense forest the nests were never far in the interior, being generally placed on small trees about 10 to 50 yards from the edge. They also occurred at the base of the Khasia Hilla and in Sylhet, but not in such numbers as in Lakhimpur. Here most of the nests we found were in evergreen forest, but either by bridle-paths or in patches of cultivation.

The nest reminds one at once of those of the Cuckoo-Shrikes and Minivets, though not so well built or highly decorated as many of the latter. They are built, cradle-fashion, in between the forks of horizontal branches very high up on the outside of big trees and are among the most difficult of nests to get at, some being quite inaccessible. Many nests were at 30 or 40 feet from the ground, a few even higher than this, and very few below 25 feet. At the same time every now and then a pair of birds will place their nest in a ridiculously unsafe position low down. Such a nest was found by Coltart in the Makum Tea Estate, about 6 feet up in a small tree beside a path regularly used by the coolies on their way to and fro between the lines and their work, whilst another nest, which I could reach comfortably from the saddle of my pony, was seen by myself beside a bridle-path.

The nests are very small. Some are not more than 4 inches across, but they may average about 5, with an outer depth of about 2, the shallow egg-cavity being about $3\frac{1}{2}$ to $2\frac{1}{2}$ inches in diameter by about 1 deep. They are made of small, supple twigs, stout grass-stems, weed-stems and roots, all well interlaced and strengthened with many cobwebs, both inside and out. Here and there may be odd scraps of broken leaves, lichen, a tuft of dry moss, or other odd material incorporated with the nest, but not used as decorations. They look very fragile but stand a lot of pulling about, and are really very strong, well made and firmly affixed to the supporting branches, round which some of the materials and many cobwebs are invariably bound.

Owing to their position the getting of the eggs was always a matter of risk, especially as the shallowness of the nests allowed the eggs to roll out without much provocation. This, however, we used to turn to account by getting small boys to climb as near as possible

to the nest, and then jerking the eggs out, one by one, into a shallow, soft butterfly-net. The birds sat very close and would often allow the boys to get within a few feet of them before quitting the nest, and even then would swoop at and pretend to attack them.

The breeding season is April and May, but a few birds continue to lay up to the end of June.

The number of eggs in a full clutch is three or four, one number as often as the other, while in North Cachar I found several clutches of two being incubated. The eggs are extremely handsome and extremely varied both in colour and in character, but nine out of ten clutches can be recognized at a glance by the longitudinal character of the markings, a feature found in the eggs of no other member of the *Dicruridæ*.

Occasionally the ground is really pure white, but this is most exceptional and, normally, it ranges from a very pale cream to a warm salmon or salmon-buff, sometimes with a livid or lilac tinge.

The following are definite types taken either by Coltart or myself:—

(1) Pale to bright salmon, profusely marked with broad streaks of deep red-brown, with others underlying them of pale grey; the streaks, of both descriptions, more numerous at the larger end.

(2) The same, with purple-brown and pale grey streaks, less numerous than in (1).

(3) Bright salmon-buff, with very numerous *short* streaks of light to dark brick-red, with lilac secondary marks, thicker, and sometimes running into one another, at the bigger extremity.

(4) Very pale clear cream, with narrow longitudinal lines, small blotches and specks of deep purple and secondary similar markings of lilac and lavender.

I have also taken abnormal clutches coloured exactly like small eggs of *Chibia hottentotta*, with a yellowy cream ground covered with innumerable freckles of light brick-red and a few of deeper purple-red at the large end.

Another unusual clutch has the ground pale yellow-pink, with a few irregular blotches of light red, deep purple-brown and lavender scattered sparsely and irregularly over their surface.

The texture is rather coarse and not very close, but the surface is smooth, though glossless, and the shell stout. In shape the eggs are generally long ovals, often well pointed at the small end.

One hundred eggs average 26.3×19.4 mm.: maxima 29.5×20.0 and 26.5×20.2 mm.; minima 24.1×18.4 and 27.0×18.3 mm.

Both birds assist in building the nest, but I believe that only the hen incubates, though the cock is always within calling distance, and joins with her in the boldest manner in defence of eggs and young.

A nest, apparently, takes somewhere about five days to build, as one commenced on the 3rd May was finished on the 8th and received the first egg on the 9th. It must always, however, be

remembered that the time taken by birds in building their nests depends much on the conditions of the building furore in the birds themselves. In the early stages birds will often be very fitful in their building work, whilst others, which have delayed building until the furore of incubation is fast approaching, will work most indefatigably at their nests in order to finish them in time for the eggs.

Dicrurus macrocerus.

THE BLACK DRONGO.

(766) **Dicrurus macrocerus peninsularis** Ticehurst.

THE INDIAN BLACK DRONGO.

*Dicrurus macrocerus macrocerus**, Fauna B. I., Birds, 2nd ed. vol. ii, p. 350.

Dicrurus macrocerus peninsularis Ticehurst, Bull. B. O. C. vol. liii, p. 20, 1932.

After careful re-examination of the Drongo-Shrikes, my note on the distribution of this race appears to me to require no alteration. It is found over the whole of the Peninsula of India from Travancore and the Southern Madras Province to the Himalayas, excluding the foot-hills on the West and the foot-hills on the East plus the immediately adjoining plains in North Behar and North Bengal, where the birds, though, perhaps, rather intermediate, are nearer the Himalayan form. Birds from Southern Bengal, and certainly from Orissa (at one time part of Bengal), which I wrongly gave as the type-locality for *macrocerus*, are certainly of the Southern race, now to be known as *peninsularis*.

The Black King-Crow is certainly one of the best-known birds of India, living and breeding, as it does, in towns, villages and their surroundings, present in every park and garden, perching constantly on telegraph wires, roadside trees and even entering verandahs in pursuit of their insect prey.

The nest is quite typical of all the Drongos, a cradle built in a fork of some slender branch, generally placed at a considerable height from the ground and, nearly always, almost on the outside

* Ticehurst (Bull. B. O. C. vol. liii, p. 20, 1932) shows that this name cannot be used, as the plate on which it is founded (plate 174, vol. iv, Le Vaillant's Ois. d'Afr.) is the same as that on which Lichtenstein, in 1823, based his name of *Dicrurus bilobus*, for which Cabanis, in 1850, gave the type-locality as Java. In addition, Lord Walden, in Blyth's 'Birds of Burma' (1875, p. 129) again fixes Java as the type-locality for *Dicrurus bilobus*. Ticehurst, however, is not correct in stating that the Bengal breeding bird is the same as the Himalayan, and should, therefore, bear the name *albirictus*. I went very fully into this matter in 'Novitates Zoologicæ,' vol. xxv, p. 297, and see no reason to alter the conclusion there arrived at.

of the tree, so that, however visible it may be, it is hard to get at and even harder to bring down the eggs in safety. Some nests are, however, built lower down in vertical forks of lower branches and thus easy to reach. The majority of nests are probably built between 15 and 25 feet from the ground, but others have been found as high up as 40 feet, and others again between 7 and 10 feet.

It does not seem to mind much what kind of tree it builds in, but Hume says that the Mango-tree is probably the favourite; but they also nest in Acacias, Tamarinds and, indeed, any other tree which may strike their fancy. This may be one in a garden, park, roadside, orchard, or just a solitary tree standing in cultivated land.

The nests of the various races are all alike and Hume's excellent description will suffice for all or any. He writes:—"The nest of the King-Crow we took was of the ordinary type; in fact I have noticed scarcely any difference in the shape or the materials of all the numerous nests of this common bird that I have yet seen. They are all composed of tiny twigs and grass-stems, and the roots of the khus-khus grass, as a rule neatly and tightly woven together, and exteriorly bound round with a good deal of cobweb, in which a few feathers are sometimes entangled. The cavity is broad and shallow, and at times lined with horsehair or fine grass, but most commonly only with khus. The bottom of the nest is very thin, but the sides or rim rather firm and thick; in this case the cavity was 4 inches in diameter, and about $1\frac{1}{2}$ in depth."

As Hume says, the nests are remarkably constant in description, while even in size they vary very little. It should, however, be noted that Inglis, in Cachar, records that "this King-Crow is extremely common. It breeds all through the summer. It lays four or five pure white eggs on the top of a few grasses placed in the fork of a tree." As Inglis was a good observer, and knew his birds well, it must be presumed that he really did see one nest of this description.

Personally I can add little to Hume's description, but I have never seen nests with any feathers used in their construction, though I have seen leaves used occasionally, and also odd scraps of lichen, bark etc. in with the other materials. I have also seen nests with no pretensions to a lining.

The normal breeding season is after the rains break in the middle of June, but many birds make their nests in the end of May, while others do not lay until July.

Hume says that a few eggs may be found towards the close of April and again during the first week of August, but May, June and July are the principal months. Blewitt says that it breeds from the middle of May well into August; Adams, writing of the Sambhur Lake, says they breed in June and July; while Barnes considers May and June the usual months in Rajputana. Other observers over Southern and Central India give May, June and

July as the breeding months, and Bourdillon alone has found eggs in March—these in Travancore.

The normal clutch laid is four, but Hume says he has taken five, and, I believe, both Inglis and Coltart have seen clutches of the same number. Three eggs, however, are often incubated.

The range of variation in the eggs is great. Some are actually pure white, with no trace of any marking. They vary from this to a warm salmon-pink in ground-colour, with every shade of creamy pink between the two extremes. In the white eggs with markings, as in the very pale pink ones, these are most often small spots and blotches of blackish-brown or very deep red-brown, without any secondary blotches. In the eggs with the warmest salmon ground-colour the blotches, or big round spots, are larger and of a very rich chocolate-red, with a few underlying blotches of lilac-grey. In most eggs the markings are fairly numerous at the larger end, but never form rings or caps, while over the rest of the egg they are very scanty. A few eggs have one or two irregular blotches larger than the rest, and these generally look as if the edges had run. Intermediately marked eggs are, of course, more common than the extremes.

In shape the eggs are generally broad ovals, but long ovals are not uncommon; indeed, Hume calls these latter the normal shape. The texture is rather fine but there is no gloss, except in rare instances.

Hume gives the average of 152 eggs as $1.01 \times .75$ inch ($=25.65 \times 19.05$ mm.), but this, of course, includes all four races.

Two hundred eggs of the present race measured by myself average 25.5×19.0 mm. : maxima 29.3×20.0 and 25.1×20.1 mm. ; minima 23.0×18.5 and 25.2×17.1 mm.

(767) *Dicrurus macrocereus albirictus* Hodgs.

THE HIMALAYAN BLACK DRONGO.

Dicrurus macrocereus albirictus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 357.

This large form of Black Drongo is resident in the Himalayas from the foot-hills up to at least 5,000 feet, from the North-West Frontier to Eastern Assam, North of the Brahmapootra. Birds resident and breeding in the plains immediately adjacent to the hills in Behar and Northern Bengal are very large and must be included in this race, but the birds breeding in Behar Southwards and in all Bengal except the extreme North are of the preceding race. Even birds taken by me breeding as far North as Dacca and Mymensingh were too small for the present race. On the other hand, birds from East of the Bay of Bengal, the hills of South Assam, Manipur, North Chin Hills, North Kachin Hills and North Shan States all appear referable to the Northern hill race. The limit of its breeding in the Himalayas appears to be about 7,000 feet, at which elevation Dodsworth obtained it in the Simla States.

: There is nothing one can add as regards the breeding of this bird to what has been already written of the preceding race except that it is not quite so exclusively an open country, humanity-loving bird. The nest may occasionally be taken in thin forest or in open, well-wooded country at considerable distances from all human habitation or cultivation.

The breeding season is almost exclusively May and June, but I have seen a few nests in the Khasia Mills in April and Osmaston also took a nest in the United Provinces Terai on the 21st of this month.

I have only been able to measure sixty eggs indisputably those of *albirictus*. These average 27.1×19.8 mm. : maxima 29.4×21.1 mm. ; minima 23.6×18.0 mm.

(768) *Dicrurus macrocercus minor* Layard.

THE CEYLON BLACK DRONGO.

Dicrurus macrocercus minor, Fauna B. I., Birds, 2nd ed. vol. ii, p. 358.

This race is confined to Ceylon only, and with the present *breeding* material available for comparison it is impossible to say whether it extends into South Travancore, though this seems probable. Except that it is not such a common ubiquitous bird as our Indian races, there is nothing to be said about the breeding of this race.

Wait says that it is not uncommon in the Jaffna Peninsula and the coastal region of the Mannar district, and that it frequents open and cultivated lands as well as scattered thorny jungle.

In Ceylon the breeding season is from March to May, while in Travancore—if the bird there is *minor*—the season seems to be March and April.

In Ceylon it lays two or three eggs only, while the Travancore bird lays three, and once Bourdillon took a four.

Twenty-one Ceylon eggs average 24.2×18.1 mm. ; sixteen from Travancore average 24.5×18.4 mm., which would seem to show that the birds laying them are very much nearer in size to the Ceylon than to the Northern bird : maxima 27.0×19.0 and 26.1×19.2 mm. ; minima 22.8×18.9 and 24.4×17.2 mm.

I have seen no pure white ones among either the Ceylon or Travancore eggs.

(769) *Dicrurus macrocercus cathæcus* Swinh.

THE CHINESE BLACK DRONGO.

Dicrurus macrocercus cathæcus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 358.

This race of Black Drongo, which is the same as that from Western China, is found over the whole of Central Burma South

of the range of the preceding race, extending as far as Amherst and Mergui. It occurs throughout the Indo-Chinese countries into West China.

Hopwood found it breeding in considerable numbers in Maymyio in April and May, and both Osmaston and Mackenzie took eggs in the same place in the latter month. Hopwood also took eggs in the Lower Chindwin in April, whilst Cook took eggs both at Kindat and in Ataran in May.

In China Messrs. Jones and Vaughan found them breeding at Lak Tan, Tak Hing and Macao very abundantly from the end of May to July.

An interesting note on the nest-building given by Jones (Ibis, 1913, p. 32) is worth quoting:—"The nest is usually placed, like that of *Chibia*, at the extremity of a horizontal bough, but not always, and an upright fork is sometimes used. When building in a horizontal bough they begin by making the outside rim, joining the two prongs of the fork first, the one away from the trunk, that is to say. The nests are made of grass or of lichen and sometimes, as at Hongkong, of the aerial rootlets of the Banyan-tree."

Among the eggs taken by Vaughan and Jones there is one clutch of three taken at Macao which has the ground a *rosy* or carmine pink, very seldom seen among the eggs of the *macrocerus* group, but very common among those of the *leucophaeus* group.

(770) *Dicrurus macrocerus thai* Kloss.

THE MALAYAN BLACK DRONGO.

Dicrurus macrocerus longus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 359.
Dicrurus macrocerus thai, *ibid.* vol. viii, p. 638.

When reviewing this species I was quite unable to discriminate between the Javan race and that occurring in the extreme South of Tenasserim and the Malay States. Kloss has had, however, much better, as well as more ample, material for examination than I had and, moreover, has had data showing what are and what are not breeding birds. For the present I accept *D. m. thai* as the race which occurs in the extreme South of Tenasserim.

There is nothing on record, so far as I have been able to ascertain, on the nidification of this bird. A nest and two eggs sent me from Tenasserim, taken near the mouth of the Pakchan creek, are probably referable to this race. The nest is quite typical of the species and the two eggs, which are of the pale salmon type, blotched with red-brown, measure 23.4 × 17.9. They were said to have been taken from a small tree near a village in the plains.

Dicrurus leucophæus.

THE GREY DRONGO.

(771) **Dicrurus leucophæus disturbans** Stuart Baker.

THE SOUTH BURMESE GREY DRONGO.

Dicrurus leucophæus disturbans, Fauna B. I., Birds, 2nd ed. vol. ii, p. 360.

This Grey Drongo occurs within our limits over the whole of Tenasserim, extending thence nearly to the South of the Malay Peninsula. In Siam it is found over the whole of the peninsular part and as far North, about, as Bangkok.

This Drongo is resident in the plains and breeds up to 3,000 or, perhaps, 4,000 feet throughout all the hill country, and only differs from our well-known Indian bird in being less exclusively a breeder round the haunts of man.

The nidification of the various races of Grey Drongo is exactly the same and is described further on in these pages at great length under *Dicrurus l. hopwoodi*, and to give details under each race would merely be repetition of the same thing over and over again.

Nests and eggs have been taken by Mackenzie, Hopwood and Cook in Tenasserim and by Kellow in the Malay States in April and May, and the latter also took one clutch of two fresh eggs on the 10th June.

As a rule this race lays only two or three eggs but both Hopwood and Mackenzie once took five eggs from a nest.

The eggs are typical of the species and I have one or two clutches showing the rosy tint so common in the eggs of *hopwoodi*.

Thirty-four eggs average 23.4×18.0 mm.: maxima 26.5×18.3 and 25.2×19.0 mm.; minima 19.9×16.2 and 20.0×15.6 mm.

(772) **Dicrurus leucophæus nigrescens** Oates.

THE BURMESE GREY DRONGO.

Dicrurus leucophæus nigrescens, Fauna B. I., Birds, 2nd ed. vol. ii, p. 361.

This is the Grey Drongo of all Central Burma and Siam from about the latitude of Bangkok to the South Chin Hills on the West and the South Shan States on the East. The birds from Maymyio, in Mandalay, all appear to be of this race, and it may, therefore, possibly enter the Northern Shan States.

Oates found a nest of this bird in Pegu and records:—"I found one nest on the 27th April at Kyeikpadein, near the town of Pegu, on a small sapling near the summit. It contained four eggs."

Curiously little more is known of the breeding of this very common bird. A few nests have been taken by Wickham and Hopwood

in April and May at and round Maymyio, where they were said to build typical Drongos' nests, like shallow cradles, in the outer branches of tall trees at 30 and 40 feet from the ground. The number of eggs in a clutch was found to be two or three but, as these were quite fresh, they may have been incomplete. One nest sent to me was taken in thin forest, another in open but heavily wooded country. The eggs are just like those of *Dicrurus l. longicaudatus*, of the common pink type.

Five eggs average 23.9×18.3 mm.: maxima 25.0×18.0 and 24.5×18.6 mm.; minima 23.3×18.3 and 24.1×18.0 mm.

(773) *Dicrurus leucophæus hopwoodi* Stuart Baker.

THE ASSAM GREY DRONGO.

Dicrurus leucophæus hopwoodi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 361.

The Assam Grey Drongo is found in Assam South of the Brahmaputra, Eastern Bengal, East of the Bay of that name, Manipur, Lushai Hills, Chittagong Hill Tracts and the Northern parts of the Chin and Kachin Hills and Northern Shan States. Birds breeding at Bhamo are certainly of this race but, farther South, they all appear to be *nigrescens*.

In its breeding habits this Drongo is quite typical of the species and of the genus but is probably more of a forest bird than most of the races of *leucophæus*. Often during the breeding season it haunts forests of both Pine and evergreen, sometimes breeding well inside the interior of these, though generally selecting trees nearer the outskirts. It is, however, quite a familiar bird round villages and towns, and will nest even in gardens when these are well wooded and supply suitable trees.

There are no records of the breeding of this race in Hume's 'Nests and Eggs,' all the references there referring either to the Eastern or Western Himalayan forms.

In the Cachar Hills it was a common bird and in the Khasia Hills even more so. It bred in these hills from the level of the plains up to 6,000 feet and in the Naga Hills up to 7,000, but was undoubtedly more numerous between 3,500 and 5,000 feet than above and below these elevations.

In North Cachar, which is practically all forest or jungle of some kind, just interspersed here and there with small patches of grass-land and other patches of cultivation, cut out of and surrounded by virgin forest, it certainly selected trees in or near these patches in which to breed, but many nests were placed inside the evergreen forest, though never very far in.

In the North-East of this district, where vast expanses of park-like grass-land covered most of the country, these Drongos were rare or altogether absent. In the Khasia Hills, on the contrary,

the birds were to be found equally abundant in both types of country. They were particularly numerous round the town of Shillong in the open spaces between the Pine forests.

In the Chin Hills, also, where Mackenzie and Hopwood obtained a fine series of their nests and eggs, they breed both in the quite open grass-lands, in the well-wooded country round villages and, sometimes, though more rarely, in the forests.

The nests are typical Drongos' nests, that is to say, they are in shape shallow saucers, built, in two cases out of three, in horizontal forks of small branches on the outer parts of trees. Most nests are built at a great height and I have records up to 40 and 50 feet from the ground. On the other hand, in Margherita we often found them making their nests in quite small trees, Coltart and I both taking several nests at about 14 and 15 feet from the ground. In this district, also, we took several nests from quite stout vertical branches, well inside such trees as Jack and Mango; these, we noticed, were generally rather bigger, deeper nests than those built high up in horizontal branches, which were so shallow that often it seemed, as they swayed in the wind, that the eggs must fall to the ground.

The materials used in making the nests were chiefly small pliant twigs, roots, both coarse and fine, grass-stems and cobwebs, the latter being employed both in binding the other articles together and also in fastening them to their supports. At odd times leaves, leaf-stems, thin weed-stems, lichen, scraps of bark and other materials are made use of, but only in small quantities. Occasionally I have seen bark or lichen used as an adornment on the outer walls, but never as it is by Minivets; the nests really require little concealment, as they are built in such safe positions. When grass only is used, as is sometimes the case, this seems to be wound round and round and stuck together with cobwebs but, when roots and twigs are used, they are strongly intertwined, though, even then, the nests look fragile, more fragile than they really are, the free use of cobwebs greatly strengthening the structure.

Nests taken by myself and Coltart have varied in measurements as follows:—Outer diameter 4 to $4\frac{3}{4}$ inches, outer depth $1\frac{1}{2}$ to $2\frac{1}{2}$; egg-cavity $2\frac{3}{4}$ to $3\frac{1}{4}$ inches across and $\frac{3}{4}$ to $1\frac{1}{4}$ in depth.

The walls are thin, though the rim round their tops is often fairly stout and strong, and the base is still thinner, the eggs being occasionally visible through them.

Both birds take a share in the construction of the nest, the male, for the most part, merely carrying the materials, which the hen places in position. I think the hen only incubates, but the cock bird keeps close to the nest and is most valiant—like all Drongos—in driving off enemies, either imaginary or real. The nest apparently takes five to ten days to construct. One nest built in a small Mimosa in our garden at Shillong was completed in five

days and the first egg laid on the sixth day. The birds worked very hard on this nest and rested for very few periods, except in the middle of the day. Another nest, built in some scrub, took at least ten days to build. When we first noticed the birds they had already placed the tie across the outer part of the fork which, later, forms the outer rim, and this may have taken them a day to put in order. From then on they worked by fits and starts, sometimes putting in two or three feverish hours in a morning, after which they must have stopped altogether, as no further advance had been made in the work on our next visit. The eggs in this nest took thirteen days to hatch.

In Assam, both in the Surrma Valley and in Lakhimpur, we found that most birds bred in May and June, though we found nests with fresh eggs from the 14th April to the 28th July. In the Chin Hills Mackenzie and Hopwood took nearly all their eggs in April, very few birds continuing to lay up to the middle of May.

The normal clutch of eggs is four, occasionally three only and, very rarely, five.

The eggs are like those of the Black Drongo group but, as a whole, are more richly coloured, more handsomely blotched rather than spotted, while I have never seen a pure white, unspotted egg.

The ground varies from a pure white, which is rare, through pale cream, pale salmon and pale yellowish-cream, to a rich deep salmon, salmon-buff or rosy pink. Most eggs are rather handsomely but not very profusely blotched with dark reddish-brown, sometimes with a purple tinge, sometimes with chocolate. Other eggs are spotted only with the same variety of colours, whilst a few are only finely speckled. Secondary marks of lavender, lilac, or pinkish-grey are to be found in all eggs, these being of the same size and character as the primary markings. Both primary and secondary blotches, spots, or specks are invariably more numerous at the larger end, where they often run into one another, occasionally forming quite well-defined zones.

One or two clutches in my series have a nearly white ground boldly blotched with chestnut-brown and greyish-pink, some of the former markings being almost black. Another clutch has a truly white ground with a ring at the larger end of each egg of small specks of light red, deep red and blackish, mixed with similar specks of lavender and pinkish-grey, the specks of both kinds being scanty elsewhere.

Two curious clutches have pale clear pink grounds marked all over with light brick-red, while in one clutch there are also pale purple marblings and a few blots of inky purple. A clutch of two has a yellow-salmon ground, with just a few deep purple-red blotches at the larger end, each blotch with a nimbus, as if the colour had run. Intermediate forms between all the above are common but I have never seen an unspotted really white egg.

In shape the eggs are most often broad ovals; the texture is rather coarse but the surface is smooth, though glossless, except in rare instances.

Two hundred eggs average 24.6×18.5 mm.: maxima 27.5×19.3 and 25.3×20.0 mm.; minima 21.9×17.3 mm.

(774) *Dicurus leucophæus stevensi* Stuart Baker.

THE HIMALAYAN GREY DRONGO.

Dicurus leucophæus stevensi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 362.

This Grey Drongo is found in the Outer Himalayas from West Nepal to Eastern Assam, North and West of the Brahmapootra, but not east of that river in Lakhimpur. It extends into the foot-hills and adjacent plains along the whole of this area and breeds in the hills up to at least 5,000 feet and, exceptionally, up to 7,000 feet.

Mandelli found it common about Darjiling up to 4,000 feet, but Masson obtained nests for me at much greater elevations than this; Gammie, also, took a nest at 3,500 feet. In Nepal Hodgson found them in small numbers at Sheopuri, 7,500 feet, where they were breeding on the 20th May. This is the highest elevation I can find recorded.

Mandelli writes:—"They lay in April and May, and have but one brood in the year. The nest is generally either built against a tall bamboo, well up, supported on the branch of twigs at a node, or near the extremity of a branch of a tree, sometimes on quite slender branches of young trees, which get so tremendously wafted about by the winds that the retention of the eggs or young in the nest appears almost miraculous."

The nest is described as being like that of all other King-Crows, except he says that "the lining is a mixture of straw-coloured root-fibres and fine branchlets of the same coloured grass-panicles." Hume says that Mandelli's nests of this bird were "lined with very fine hair-like grass-stems."

The breeding season is from the latter end of April—at the lower levels—to the end of May and early June.

The normal clutch is four eggs, but sometimes three only are laid.

The eggs differ in no way from those of the other races, but the few I have seen all have a white or carmine-pink ground. One clutch in my small series is pure white.

Sixteen eggs, including Hume's, average 25.9×18.6 mm.: maxima 26.3×19.5 mm.; minima 23.1×18.0 mm.

I have no doubt that a larger series would have a smaller average, as two of my clutches are exceptionally big eggs.

(775) *Dicrurus leucophæus longicaudatus* Hay.

THE INDIAN GREY DRONGO.

Dicrurus leucophæus longicaudatus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 362.

This, the most widely distributed of the Indian Drongos, occurs over the whole of Western India from Travancore to the Himalayas as high as 8,000 feet, while Osmaston took one nest in Tehri-Garhwal at 8,500 feet. In the extreme South of Travancore its place *may* be taken by the small Ceylon form (*minor*), but more material is necessary to confirm this. Its distribution in South-East India is uncertain, though the Vernay collections may clear this up. Jerdon recorded it from Bastar. The Orissa birds would appear to be of this race, but here again I have only seen two specimens, and more material is wanted.

To what extent this bird breeds in the true plains is very doubtful, and the sole record of its breeding in Hume's 'Nests and Eggs' other than in the Himalayas is that of Jerdon, who says:—"I found its nest on one occasion, in April, in Lower Malabar," but this was probably in the hills. Barnes says that it is a permanent resident "on the Western Ghats and in the adjoining forests, also on the Sahyadri Range as far North as Khandalla." Major Butler notes "that it is common in Belgaum in the Cold Weather" ('Birds of Bombay,' p. 156).

Davidson also remarks that, though common in Kanara in the Cold Weather, "I have never seen any signs of its breeding and do not think it does so."

Aitkin's supposed nest of this bird, taken near Castle Rock, was undoubtedly that of *Chaptia* (Journ. Bomb. Nat. Hist. Soc. vol. ix, p. 661, 1898).

No description of this nest or site is really necessary, as it differs in no way from that of *hopwoodi*, which I have given already at length. An excellent note of Osmaston's gives, however, so many additional points that I quote it herewith. Writing of Garhwal he remarks (Journ. Bomb. Nat. Hist. Soc. vol. xxvii, p. 143, 1921):—"This is the common Drongo of these hills, and it breeds at all elevations up to 8,000', and possibly higher. They leave the hills in the cold weather, returning in April and May for the nesting season, the eggs being usually laid in May. I noticed birds as far north as Tapoban, beyond which they probably do not go. In the outer ranges they breed in the sâl-forest, but in the central hills they are most numerous in the forests of "banj" oak, whilst in the forests to the North they seem to prefer above all those mixed strips of deciduous forest in which horse-chestnut, elm, birch, and similar species abound.

"The nest is usually placed from 10 to 20 feet from the ground, wedged in a half-suspended position into the fork of a bough. The material of which the nest is constructed is invariably strengthened

and more or less covered on the exterior (but especially the rim) with cobwebs, which are also used to bind the nest to its support. The nest is a lightly-built deep saucer composed outside of herbaceous stems and grasses, and for this part of the work the birds exercise considerable skill in selecting material which has a natural stickiness and is of suitable shape to conform to the curves of the nest. Thus, where the tree *Phyllanthus emblica* is found, these birds, like many others, use the curved, leafless and discarded deciduous shoots, which easily attach themselves by means of the numerous slightly-raised leaf-bases on either side of the twig. Similarly, in the forests beyond the region of *Phyllanthus emblica*, these birds commonly use the dry fruiting-spikes of *Desmodium concinnum*, which not only possess a natural curvature suitable to the nests, but are also somewhat sticky, owing to their hairiness. The interior of the nest is lined with fine grass-stems or the heads of grasses or, occasionally, fine black rhizomorphs."

It will be noticed that Osmaston says the nest is placed 10 to 20 feet from the ground. Brooks also speaks of 15 to 20 feet being the usual height, and Cook says that in Dharnisala the height may be anything between 15 and 50 feet, whilst Marshall (C. N. T.), writing from Murree, says they choose "a thin fork at the outermost end of a bough about 50 or 60 feet from the ground, and always on trees which have no lower branches."

On the other hand, Dodsworth took nests as low as 5 feet from the ground in the Simla States, though he took others at 50 feet, and Jones, in the same States, at 35 feet.

Most observers also describe the nest as shallow rather than deep, and Osmaston's experience in this respect was certainly unusual.

Everywhere its breeding season seems to be May and June, a few birds laying in the end of April at the lower elevations.

The eggs number three or four in a full clutch, but two only are often incubated.

The range of variation in the eggs is really wonderful, and every variation noted as occurring in the eggs of the King-Crows already described may be matched by eggs of this bird. White, unspotted eggs are, however, very rare indeed. As a series they are much more richly coloured than the eggs of the Black Drongos, being more boldly marked with blotches rather than with spots, and having a much deeper ground-colour.

Some eggs are a very rich salmon or deep terra-cotta in ground-colour, and many eggs have a rosy tint, which is most exceptional in the eggs of the *macrocerus* group.

Two hundred eggs average 23.6×18.2 mm. : maxima 25.5×18.1 and 25.2×19.2 mm. ; minima 21.2×17.4 and 20.3×17.3 mm.

Jones records, in reference to a clutch given to me, that he saw the birds building on the 5th June, the third egg being laid on the 18th or 19th, so that in this case the nest took under ten days to complete. Both birds took part in the construction of the nest.

Dicurus cœrulescens.

THE WHITE-BELLIED DRONGO.

(777) **Dicurus cœrulescens cœrulescens** (Linn.).

THE WHITE-BELLIED DRONGO.

Dicurus cœrulescens cœrulescens Fauna B. I., Birds, 2nd ed. vol. ii, p. 365.

The White-bellied Drongo is resident and breeds in suitable localities over all India from the extreme South to Cutch on the West, and thence in a line East and North to Garhwal. Due East it is found as far as Western Bengal and Behar. In the Himalayas Thompson says it breeds between 2,500 and 6,000 feet and that it is common on the South-Eastern slopes of Naini Tal. Whymper also found it at Naini Tal at about 5,000 feet, but at Pachmarhi Osmaston obtained it breeding freely between 1,000 and 3,500 feet.

In Travancore Stewart took its nest at about 1,000 and 3,000 feet; Howard Campbell took nests at Ramondrug, in the Bellary district, and Horsley had a nest in the Cuddapore district and, later, also in the Nilgiri Hills, but does not give the elevations at which they were building. Davidson took many nests on the Kondabhari Ghat, Western Khandeish, and round Sirsi, in Kanara, of which he sent me several.

Its nidification is quite typical of the Drongos but, though it is only a small species, it makes a larger, more bulky nest than most. Thompson merely says of the nests seen by him that they looked just like those of *ater*, but Campbell says that "the nest is much more substantial than that of other Drongos, and is well lined with grass." Davidson also says that they are "largish nests," and Stewart says that the nests are "shallow cups of twigs, roots and grasses, and lined with the latter. Bigger than other Drongos' nests."

The nest is placed in the usual position in the outer branches of trees, at any height between 10 and 30 feet from the ground.

In Western Bombay Davidson took eggs from the 2nd April to the 3rd June, Stewart and Campbell obtained eggs in April and May, Thompson and Whymper about Naini Tal in May and June, and Osmaston about Pachmarhi in April.

The usual full clutch of eggs is two or three. I have one clutch of four taken by Osmaston below Naini Tal, while Campbell also says that this Drongo lays three or four eggs.

I do not think the eggs could be distinguished from those of *Dicurus leucophæus*, though the variation is not so great. There are no white eggs known, and I have seen no varieties of the marbled

type or of the type marked with very deep blackish-purple spots. The most common ground-colour is a warm salmon-pink.

Forty eggs average 23.6×17.8 mm.: maxima 25.5×18.5 and 24.0×19.1 mm.; minima 19.1×15.2 mm.

(778) *Dicurus cœrulescens leucopygialis* Blyth.

THE WHITE-VENTED DRONGO.

Dicurus cœrulescens leucopygialis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 366.

This race of *cœrulescens*, if it is a race, and not a distinct species, is confined to the island of Ceylon.

Wait says it "is common all over the island, up to about 4,500 feet, except in heavy forest, or in the Jaffna Peninsula and that part of the Mannar district where the Black Drongo occurs.

"A familiar bird in the cultivated parts of the country; it may even be seen in Colombo gardens. It occurs also in open woods, the outskirts of chenass in the jungle, round tanks, etc."

Its nidification is typical of the genus. The nest is a small edition of that of the Black Drongo, similar in shape, materials, and site. More often than not, however, it is placed fairly low down in smallish trees—rubber-trees are a great favourite—between 10 and 20 feet from the ground, though both Wait and Phillips have taken some at 30 and 40 feet up.

This Drongo has a remarkably constant breeding season and, with the exception of two clutches, every egg of which I have a record has been laid in March and April. Two clutches, both very hard set, were taken by Jenkins on the 4th and 16th May. Phillips, who has taken or seen an immense number of this bird's nests, as they bred freely round his Estate near Matugama, has records from the 7th March to the 20th April only.

The eggs number two or three in a full clutch, the one number as often as the other.

In colour the eggs go through all the variations which are found in the eggs of other Drongos, but I have never seen a pure white egg and, taking them as a series, they are decidedly richly marked, handsome eggs. Even the rare marbled type occurs in this species, as in some of the Grey Drongos.

Seventy-five eggs average 22.0×17.1 mm.: maxima 25.4×18.4 and 24.0×18.6 mm.; minima 18.9×15.1 mm.

This is one of a clutch of three of which the biggest is 20.9×15.9 mm., but in another clutch of three, two eggs of which are unusually big, being about 23.0×18.0 mm., there is a pigmy measuring only 18.1×15.0 mm.

Chaptia ænea.

THE BRONZED DRONGO.

(780) **Chaptia ænea ænea** (Vieill.).

THE NORTHERN BRONZED DRONGO.

Chaptia ænea ænea, Fauna B. I., Birds, 2nd ed. vol. ii, p. 368.

The dividing line between this and the next race is very hard to define; the extreme Northern birds are decidedly bigger and not so dark as the extreme Southern but, as they grade gradually into one another over an immense area, in which there is no space not inhabited by them, any line of demarcation can only be an arbitrary one. I retain, therefore, the distribution as given in the 'Fauna' for the present race, *i. e.*, the Himalayas, from Mussoorie in the West to Eastern Assam and North-East Bengal, Manipur, Chin and Kachin Hills, Yunnan to Hainan; ? Saigon.

This little Drongo breeds from the plains up to 4,000 feet and, occasionally, up to 5,000. It does not seem to mind much where the tree is in which it builds its nest, but it certainly has a preference for one which hangs over water or over some jungle-track. It frequents forests of all kinds, other than the deepest and wettest of evergreen. It will, on the other hand, sometimes select a small tree quite in the open or standing in low scrub-jungle. Often it breeds in bamboo-jungle, and will then place its nest either high up on a hanging spray from a waving bamboo or in among the masses of upright twigs which grow from the lower nodes between 5 and 15 feet.

In Nepal Hodgson says that they "breed in the plains near these hills, rarely quitting large woods." In Sikkim, Gammie writes, "I have found the Bronzed Drongo breeding from April to June in the low hot valleys at about 2,000 feet above the sea. It suspends its nest in a slender horizontal fork at 10 feet or more from the ground and appears, like its frequent neighbour *Dicrurus longicaudatus*, to prefer a bamboo clump to breed in." Cripps, in Furreedpore, found a nest "built on a slender twig on the outer side of a mango-tree which was standing near a ryot's house, and was about 15 feet from the ground."

In Assam Coltart and I occasionally took them from places as described above, but most often we found them breeding in rather small trees standing in thin forest or open scrub-jungle, and several nests were built on thin scraggy saplings standing at the edge of forest surrounding the various Tea estates.

The nests are very like those of the genus *Dicrurus*—shallow saucers, built in slender branches in small forks on the outskirts of the tree, and at any height from 5 to 25 feet, generally between 10 and 15 feet. In size the nests would probably average about 3 or 3½ inches in external diameter, with a cavity for the eggs about ½ inch less.

In depth they vary greatly, but most of those I have personally taken have only been about $1\frac{1}{2}$ inch, with very thin bases. One such, which was placed on the upper surface of a rotten branch, just like a Minivet's, had practically no bottom at all in the centre, the eggs resting on the lichen-covered branch. This nest was also rather exceptional in having the outside well covered with scraps of bark and lichen, though *Chaptia* certainly adorns its nest outside in this manner more often than does any *Dicrurus*.

Hume says that the depth in some nests is considerable and "nearly an inch thick at bottom." Like most nests of the *Dicruridæ*, even those which look fragile are really very strong, as they are well put together and strengthened inside and out with a plentiful coating of spiders' webs. The materials are just the same as in the nests of *Dicrurus*.

The breeding season throughout their area seems to be fairly regularly April and May, but some birds breed a little earlier and others a little later. Hodgson says that in Nepal they begin to lay in March, while he took eggs as late as the 6th May, and Cripps took one on the 1st of that month in Eastern Bengal.

In the Northern race the number of eggs laid is almost invariably four, three rarely, while I have once seen five young ones.

I cannot improve on Hume's description of the normal type of egg, which runs:—"The eggs very much recall the eggs of *Niltava* and others of the Flycatchers. They are moderately elongated ovals, in some cases slightly pyriform, in others somewhat pointed towards the small end. The shell is fine and compact, smooth and silky to the touch, but they have little gloss. The ground-colour varies from a pale pinkish-fawn to a pale salmon-pink, and they exhibit round the large end a feeble, more or less imperfect and irregular zone of darker-coloured cloudy spots, in some cases reddish, in some rather inclining to purple, which zone is more or less involved in a haze of the same colour, but slightly darker than the rest of the ground-colour of the egg."

Occasionally an egg of the above type has the blotching distributed more or less over the whole surface and forming no zone at the larger end, though they are more numerous there.

An unusual type of egg, but one which crops up everywhere (taken by myself in North Cachar, Jones in Kanchrapara and Mackenzie in the Chin Hills), has the ground white or nearly so, freely blotched and spotted with reddish primary and greysecondary marks, thick at the larger end and decreasing towards the smaller end. These eggs can be matched in colour with many of the Grey Drongo group. I have also one egg, an addled one, found with two young, with a pale pink ground dotted with deep red-brown, almost black, and lavender. This is like many eggs of the Black Drongo group.

One hundred eggs average 21.1×16.1 mm. : maxima 24.1×16.0 and 22.2×17.2 mm. ; minima 19.9×15.9 and 20.0×15.0 mm.

Both birds share in the task of incubation, for we have often caught the male on the nest. This seems to be contrary to the general custom of the Drongos. Both sexes also help in building the nest. Hume also refers to this fact and says that "both sexes participate in the work of incubation and in rearing the young."

Incubation, I think, takes only thirteen days.

It is impossible for any one who watches birds and has any idea of their movements and actions to miss a nest, for, no matter how invisible it may be, it is always given away by the anxiety of the parents, who dash wildly out and pursue any other bird which approaches their home.

(781) *Chaptia ænea malayensis* Hay.

THE SOUTHERN BRONZED DRONGO.

Chaptia ænea malayensis, Fauna B. I., Birds, 2nd ed. vol ii, p. 369.

The range occupied by this race of Bronzed Drongo may roughly be said to be the whole of Burma and India South of the range occupied by the Northern form. Outside our limits it extends down the Malay Peninsula and Siam to Sumatra and Borneo.

Possibly this form is rather more restricted to forest and very well-wooded country than is the Northern bird, more especially in Burma, where its favourite haunts are the ravines and broken ground at the foot of the ranges of hills which are thinly forested and debouch into the cultivated plains. It is not, however, confined to forest and may be found breeding in open country and round villages. Thus Oates found a nest "placed at the tip of an outer branch of a jack-tree" near a village.

Darling found nests in March round about Tavoy built on bamboos in bamboo-jungle, one about 12 feet from the ground, another 50 feet up on an overhanging bamboo in similar cover, while two others were taken from sites 30 and 40 feet up from boughs of trees.

Williamson, in Siam, found them breeding on small trees in the open, but well-wooded, country round Sriracha.

In the Myingyan District, which may be taken as almost the Northern limit of the Southern race, Macdonald found them common in the bamboo-jungle, making their nests at the tips of long bamboos waving outwards from the clump. He describes the bird as common in this dry-zone part of Burma.

The nest differs in no way from that of the preceding bird, though from the notes above it would seem to be addicted to more lofty sites for building purposes.

Like the nest, the eggs also cannot be distinguished from those of the Northern race, though the few I have been able to measure average, as we should expect, a little smaller.

Twenty-four eggs average 21.0×15.7 mm.; maxima 23.1×15.2 and 22.4×16.8 mm.; minima 20.0×15.8 and 22.5×15.0 mm.

It is curious that in my small series of eggs of this race all the varieties are to be found which are shown in my big series of the eggs of the Northern subspecies.

Chibia hottentotta.

THE HAIR-CRESTED DRONGO.

(782) **Chibia hottentotta hottentotta** * Linn.

THE INDIAN HAIR-CRESTED DRONGO.

Chibia hottentotta hottentotta, Fauna B. I., Birds, 2nd ed. vol. ii, p. 370.

As I fail to be able to discriminate between the birds of any special geographical area sufficiently to divide them into races, this bird has a very wide range. It is found over Travancore, Malabar and the Bombay Presidency; in the Central Provinces and Chota Nagpore; in the Himalayas from Muree to Eastern Assam; Burma South to Tenasserim but *not* the Malay States; North and South Shan States, Yunnan and North and Central Siam.

The Hair-crested Drongo is more essentially a forest bird than any of the Drongos already dealt with and seems, everywhere, to keep to fairly heavy forest, thick scrub and small tree-jungle or, less often, to dense bamboo forest. In these it is found from the broken ground, ravines and low hills at the foot of the higher hills up to some 3,000 feet, occasionally wandering about 1,000 feet higher. In Assam we noticed that of all forest it preferred dense evergreen in which stood here and there gigantic specimens of the Cotton-tree (*Bombax malabarica*). The flowers of these trees, with their thick, sweet nectar, attract myriads of insects, which in turn attract many birds, so forming happy hunting grounds for the collector. Several of the nests I took were within short distances of one of these great trees, situated well inside the forest and nearly always down near the bottom of deep valleys.

In Dibrugarh Coltart and I, and long ago Cripps also, took a good many nests from comparatively small trees standing in open forest or in mixed bamboo- and tree-jungle. Occasionally, also, they were to be found breeding in the jungle-covered ravines running through Tea land. The elevation in Dibrugarh was between

* Kloss has remarked (Journ. Fed. Malay States, vol. x, p. 222, 1922) that Sikkim cannot be used as the type-locality for *C. hottentotta* because Gould has named the Nepal bird *crishna* and that Sikkim birds cannot have been known to naturalists in Linnaeus's time. As a matter of fact, Darjiling was a place where natives did a big trade in skins. However, I cannot separate our Indian birds, and retain all under the name *hottentotta*.

700 and 1,000 feet, but in the Surrma Valley hills they bred more commonly between 2,000 and 2,500 feet. Here, also, most of the nests I saw were between 15 and 25 feet from the ground but, occasionally, they were built at very great heights and, as they are nearly always built at the end of small branches on the outside of the trees, they are very hard to get at.

Oates, writing from Pegu, says that "in the first week of May I took several nests of this bird, but in all cases the nests were situated in such dangerous places that most of the eggs got broken." Bingham also, writing from Tenasserim, remarks that he "saw a great number of nests round and about Meeawuddy in Tenasserim, but all inaccessible, as they were invariably built out at the very end of the thinnest branches of eng, teak, thingan (*Hepea odorata*) and other trees."

The nests vary considerably in size. Thus Thompson says that the nest is about 5 inches in diameter (Kuman and Garhwal); Hodgson says that in Nepal "it builds a large shallow nest, 8 or 9 inches in diameter externally, with the cavity almost half that diameter." Gammie gives the measurements as "6 inches broad by about $2\frac{1}{4}$ externally; internally 4 by $1\frac{3}{4}$." Cripps supplies the small extreme with measurements for his nests as " $3\frac{1}{2}$ inches diameter, internally $1\frac{1}{2}$ wide, with the sides about $\frac{1}{4}$ inch deep."

The great number of nests I have seen have agreed well with Gammie's measurements. I have never seen any so big as Hodgson's and none anything like so small as Cripps's. I should think the extremes of those I have taken have been between 5 and 7 inches diameter and between $1\frac{1}{2}$ and $2\frac{1}{2}$ deep.

They are quite typical King-Crows' nests, larger and more untidy than most, made of the same materials, and the same wide saucers in shape. Most nests are placed in horizontal forks of branches, but Hume writes:—"Sometimes placed between four or five upright shoots, at times resting on a horizontal bough against, and attached to, some more or less upright shoots."

The breeding season is everywhere from the last few days of March to the end of April. Bourdillon in Travancore says from the end of February to June, but the nests he took himself were from the 15th March to the 26th April. In Assam we took practically all our nests in April, very few in May, while I have one clutch taken on the 1st June. In the Western Himalayas they seem to breed later. Whymer took nests up to the 2nd June; Gammie and Thompson also both took nests in June. Cripps records taking nests in May and June in Furreedpore, but in adjoining districts of Eastern Bengal I found the birds breeding in early April.

A full clutch of eggs consists of three or four. I have once taken five, and have several times seen two well incubated.

The eggs vary as greatly as do those of the genus *Dicrurus* and in very much the same manner. I have one clutch of eggs practically

pure white and, even with a glass, it is hard to detect a few fine stippings at the larger end. At the other extreme I have deep rich salmon-buff-coloured eggs, freckled all over with reddish, which coalesce to form tiny caps at the larger extremity. Some eggs have a white ground sparsely freckled all over with deep purple, no mark exceeding a small pin's head in size. The marks are rather more numerous at the larger end. In other eggs the ground is pale cream and the specks, almost invisible, are of pale red. Many eggs have a warm salmon-pink ground, and are profusely marked all over with specks and small blotches of light red or, less often, purple-red. In one clutch the markings are larger, more elongate, and the eggs look marbled.

Between these varieties there is every intermediate stage represented. As a whole the eggs are handsome but the markings are small and insignificant, while secondary markings are absent, or not very pronounced.

The most common shape is a rather long, pointed oval, but many eggs are shorter and some are just stumpy ellipses. The texture is hard and close and, though generally there is no gloss, in some this is well developed.

The average of two hundred eggs is 29.2×21.2 mm.: maxima 34.5×22.0 and 31.0×22.8 mm.; minima 25.0×20.5 and 27.5×19.8 mm.

Both sexes incubate, but the male only rarely, while both seem to take an equal part in the construction of the nest.

Dissemuroides andamanensis.

THE ANDAMANESE DRONGO.

(783) *Dissemuroides andamanensis andamanensis* Tytler.

THE SMALL ANDAMANESE DRONGO.

Dissemuroides andamanensis andamanensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 371.

So far as is at present known, this Drongo is confined to Port Blair and the Macpherson Straits.

In 1905-7 Osmaston obtained a really wonderful series of this bird's nests and eggs and, later, others were obtained by Wickham and Anderson.

The following note by Osmaston (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 156, 1906) gives the only record of its breeding:—"Common, but restricted to well-wooded and forest areas. Has a variety of notes. Breeds from the middle of April to the middle of May. The nest consists of a shallow cup or cradle suspended from the forked twig of some usually dry or leafless tree, generally

at a considerable height from the ground. It is composed of fine twigs firmly interwoven together and attached to the support by cobwebs and is scantily lined with black hair-like rhizomorph. The eggs, two or three in number, differ strikingly in colour, at least half a dozen distinct types being found. The commonest variety is, perhaps, one in which the ground-colour is pale salmon-pink spotted all over with pale brownish markings and with some underlying spots of pale grey. In another type the ground is white and the markings consist of bold, darker spots and streaks of pinkish-brown. Others again are spotted and blotched with dark purplish-brown in a zone at the large end or, again, they may be finely speckled with black, in a cap at the large end."

One very beautiful pair has the ground white, boldly splashed at the larger end with deep purple-brown and underlying clouds of grey, the rest of the surface immaculate. Other eggs are of the beautiful red marble type already described. There are no pure white eggs.

Fifty eggs average 24.8×18.3 mm. : maxima 27.1×19.1 and 25.8×19.4 mm. ; minima 22.0×18.0 and 25.1×17.8 mm.

In notes on the data-slips sent me with his series of eggs Osmaston writes that the nests were taken from both very large forest trees and from small ones, but nearly always the former, standing in forest, open forest, or scrub-jungle. They were placed at heights varying from 15 to 30 feet.

The nests were all taken between the 2nd April and the 17th May, and both in 1905 and in 1907 the earliest and latest dates were the same.

(785) *Dissemurulus lophorhinus* Vieill.

THE CEYLON CRESTED BLACK DRONGO.

Dissemurulus lophorhinus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 373.

This fine Drongo is found only in Ceylon and Travancore, in which latter province it has been found breeding freely in great numbers by J. Stewart.

So far all that is on record about this Drongo's breeding is Legge's note in his 'Birds of Ceylon,' in which he says:—"This species breeds in the South of Ceylon in the beginning of April. I have seen the young just able to fly in the Opaté forests at the end of this month, but I have not succeeded in getting any information concerning its nests and eggs."

Wait says ('Birds of Ceylon,' p. 82):—"A forest bird, which is generally met with in pairs in the heart of the jungle.

"It has recently been discovered in Travancore, where it is not uncommon. In Ceylon it is restricted to the forests of the wet zone, from the Deduru-Oya in the North to the Walawe river in the South-West. It is rarely found East of the Peak range, which it ascends to about the height of 4,500 feet."

Jenkins was the first to take its nest and eggs in Ceylon, on the 16th April, 1908, at Ratnapura, at about 3,000 feet elevation. This clutch fell into the hands of J. Stewart, who at once recognized them as similar to eggs of a Drongo which he had taken in Travancore and, after further investigation, he found that the bird was common in many places in that country. He later gave me from time to time a grand series of the eggs, and from the notes sent with them the following summary is compiled :—

“*Dicrurus lophorhinus*.—I first obtained this bird's eggs from Jenkins, who worked for me in Ceylon, but later I found it common in parts of Travancore and took many nests and eggs. About Aneichardi and Kalthuritty it was really a common bird, but was heard far more often than seen, keeping to the depth of humid forests at all heights from 1,000 to 4,000 feet. It may have bred both higher and lower, but all my nests were taken between these levels. It occurred, so far as I know, in the area of evergreen forest and not in the dry zones, the birds keeping to high tree forest with ample undergrowth.

“The nest is built nearly always on high trees, though not always at great heights. The majority are placed somewhere about 20 to 25 feet from the ground, few, if any, below 15 feet, but some at heights over 30 and 40 feet. Most of them are difficult to get at, as the birds select branches which are too fragile for boys to climb on to, and too far on the outside of the tree to enable them to drag the branch in so as to get at the nest. The nest itself is a wide cup of grass, roots and miscellaneous vegetable fibres and leaves, rather roughly bound round and round so as to embrace in part the horizontal twigs of the fork to which they are attached. There is no lining in most nests, but in a few there are finer roots and the tendrils of plants used for the inner part. In some the outer wall is much deeper than the inner, where it is in the corner of the fork ; this, I suppose, because the pendent nest is lowest on the outside when weighted with the parent bird and young. The nests are very like those of the Racket-tailed Drongo but are, I think, more untidy and less well put together. In many nests also there are not so many cobwebs used to strengthen the materials and they are not so closely bound together.

“They breed only in March and April, and I have taken all my eggs between the 13th of the former month and the 30th of the latter.

“The number of eggs generally laid is three but I have taken a few fours, and have also seen two incubated.”

The eggs are very like those of the Larger Racket-tailed Drongo, and I do not think they could be distinguished from one another but, on the whole, I think they are more heavily marked. The ground varies from an almost pure white with the faintest tinge of livid pink to a livid salmon-pink. The markings consist of primary, rather large, ill-defined blotches of light pinkish-red and secondary

similar blotches of grey or pinkish-grey. Both kinds of blotches are usually more numerous at the larger end but well distributed over the whole surface. A few eggs have the markings rather darker and bolder and, occasionally, a few small spots of deep purple-red are mixed with the others; marbled eggs are not rare, and in one or two clutches the marks are longitudinal rather than round. Looking at a whole series of these eggs, I think they give the impression of being a *livid* pink. The only really abnormal clutch I have seen is a pure white clutch of four eggs, all spotted and blotched at the extreme larger end with deep purple.

In shape the eggs are broad ovals, rarely rather longer and pointed, usually quite obtuse. The texture is rather coarse and the shell fragile for the size of the egg, but the surface is smooth, yet entirely glossless, except in the one beautiful purple-marked clutch.

Fifty eggs average 27.8×20.1 mm.: maxima 30.3×21.8 and 29.1×22.0 mm.; minima 25.9×22.1 and 27.2×20.0 mm.

Bhringa remifer.

THE LESSER RACKET-TAILED DRONGO.

(786) *Bhringa remifer tectirostris* Hodgs.

THE INDIAN LESSER RACKET-TAILED DRONGO.

Bhringa remifer tectirostris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 375.

This Drongo is found throughout the Lower Himalayas from Kumaon (Thompson), Nepal, Sikkim, the hills North and South of Assam, to the Shan States and Yunnan in the East and to Tavoy, in Tenasserim, in the South.

This Drongo, also, is a bird of forest and jungle at all heights from the plains and foot-hills up to some 6,000 feet, though it is never, I believe, found breeding at any distance from the broken and forested ground next the mountain ranges. For breeding purposes we found that in Assam it was particularly fond of patches of cultivation in forest, open glades alongside rivers, or similar places when the trees spread out, letting in ample light and sunshine, with a corresponding increase in the winged insect life on which these birds feed. Some nests we took, or saw, in the densest and most humid of tropical evergreen woods, but the trees selected are nearly always those on the outskirts, close to some open place.

In Dibrugarh both Coltart and I found them nesting more in the open, nests being built in quite small trees in jungle-clad ravines surrounded by Tea and other cultivation. Some birds, also, we found breeding in bamboo- and scrub-jungle.

Hume's description of the nests sent by Gammie and Mandelli, taken in Sikkim up to 4,800 feet, would do equally well for most of those found by myself. He writes:—They "are all precisely

similar—broad saucers, suspended Oriole-like between the fork of a small branch. Exteriorly composed of moderately fine brown roots, more or less bound together, more especially those portions of them that are bound round the twigs of the fork with cobwebs, and lined interiorly with fine black horsehair-like roots. They seem to be always right up in the angle of the fork, whereas in *Chaptia* they are often some inches down the fork, and consequently the cavity is triangular on the one side and semicircular on the other. The cavities measure from 3 to nearly 4 inches in their greatest diameters, and vary from 1 to $1\frac{1}{2}$ inch in depth; though strong and firm, and fully $\frac{1}{4}$ inch thick at the bottom, the materials are so put together that, held up against the light, they look like a fine network."

I have several times found nests made of fine wiry tendrils, so stiff that the birds must have had hard work to wind them round. Occasionally stiff grass-stems and broken leaves are used in small quantities and I have seen bits of dry moss, lichen and mycelæ of fungus also incorporated in the nests. Many nests have no real lining at all.

The birds select the usual sort of situation chosen by Drongos but, I think, they very often place them under rather than over 20 feet from the ground, and both Coltart and I have found nests within reach of the hand.

In the Kuman Thompson says they breed in May and June, during which months Gammie and Mandelli took nests in Sikkim. In various parts of Assam I took eggs from the 4th April to the 5th July but most eggs were laid in May, whilst in Burma Mackenzie, Hopwood and others also found May to be the principal breeding month, though a few birds laid in April.

The eggs number three or four. I have once taken five and often two only showing signs of incubation.

In colour the eggs are the deepest in tint, as a series, of all the Drongos' eggs, even than *Chaptia*, though many are very like huge eggs of that bird. The ground varies from a very pale pink, which is exceptional, through warm salmon-pink, to a rich salmon-pink or terra-cotta. In many eggs the markings consist of blurred blotches and freckles of darker terra-cotta, fairly dense at the large end and scantily dispersed elsewhere. Other eggs are marked with darker reddish-brown blotches and a few with deep brownish-red, a purple tinge being given by the secondary grey marks showing up through the others. In the more darkly-marked eggs the blotches are generally more numerous over the whole surface.

Of unusual clutches I have one pair with a white ground, marbled at the larger end with purple-brown and lighter lilac grey. Another clutch of two is pale dull pink, with dense rings of red-brown, purple-brown and pale grey spots and specks, while a third clutch of four is dull yellowish-pink, freckled, veined and heavily blotched with light purplish-brown and pale brick-red.

The texture is normal, without any gloss. Most eggs are in shape fairly long ovals, slightly pointed, while others are rather broader.

One hundred eggs average 25.5×18.4 mm. : maxima 27.3×19.0 and 26.1×20.2 mm. ; minima 23.2×18.7 and 24.2×17.9 mm.

Both sexes take part in incubation and both assist in building the nest, the male placing the materials in position as well as bringing them.

Like all their family, they are extraordinarily bold little birds in defence of nest and young, and give away the site of their nest by their noisy demonstrations when it is approached.

Dissemurus paradiseus.

THE LARGE RACKET-TAILED DRONGO.

(787) **Dissemurus paradiseus paradiseus** Linn.

THE SIAM LARGE RACKET-TAILED DRONGO.

Dissemurus paradiseus paradiseus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 377.

The Racket-tailed Drongo has been split up into many races, of which the dividing lines cannot but be somewhat arbitrary. Typical birds from Siam are slightly smaller than those from the Burmese Peninsula, yet these are nearer the Siam form than to any other and must be placed under the same name. Individuals occur throughout Southern Siam which cannot be distinguished in any way from those found in Tavoy, Mergui and other places in Tenasserim.

Hopwood and Mackenzie found this fine Drongo breeding freely both near Tavoy and Mergui and took a series of its eggs which are now in my collection.

Hopwood gave me the following note with the first two clutches of eggs sent by him :—" I am sending by this mail 2 *Dissemurus paradiseus* with five eggs. Both clutches were taken on the 19th May, and both consisted of three eggs well incubated. One egg was smashed getting the nest down, as it was in a very difficult place. Mackenzie and I had previously found fresh eggs and empty nests from the middle of April onwards. The eggs are of two types, though taken within five miles of one another. The locality in each case was the same, a pyinkado (*Xylia dolabriformis*) tree standing in open bamboo-jungle on the edge of the road. In one case the nest was quite low down on a small epicormic branch, 10 feet from the ground ; the other was, as usual, on the outer end of one of the lower main branches and about 30 feet from the ground, a situation similar to all those previously found. One of these was on a Pyinsua tree (*Lagerst. flos. reginæ*) standing in open meadow-like country in the same sort of position, but only 20 feet from the ground."

In Siam Herbert says (Journ. Siam Nat. Hist. Soc. vol. vi, p. 96, 1923) :—"The favourite nesting site is a Mango-tree, either near to the house in fruit gardens or on the outskirts of a village and, although I have seen a dozen or more nests, I have never seen one in any other kind of tree. The position of the nest is on the very fringe of the tree and about 20 feet from the ground, so it is quite inaccessible from the tree itself. On two occasions there was a Betel Palm growing near by which could be drawn over with a rope so that a boy could reach the nest. There is usually some vantage point from which the nest can be inspected but, failing this, it is necessary to erect a stout bamboo, then steady it with one rope to the tree, and with another as a guy rope, so that a boy can climb it.

"The nest is cup-shaped but very shallow, and is built of tiny creepers, roots and stems of grasses, often so thinly put together that one can see from below whether there is anything in it. The materials are bound round the sides of a horizontal fork at the end of a branch so that the nest hangs in the fork like a cradle.

"The nesting season is May, with the eggs laid by the middle of the month, and this appears to be a short and very regular period, though I have extremes on either side of it. One clutch of fresh eggs dated 5.6.15 may have been late, due to the first nest having been disturbed, and is not extraordinary, but a note of two young birds being fed by their parents at Bansakai, 29.4.13, appears to be an exceptionally early record. I have obtained eggs from Meklong, Samkok and Ayuthia, and in Bangkok I have watched several nests in the fruit gardens on the west side of the river.

"Three is the full complement, and the average size for eleven eggs 28.8×20.2 mm."

Williamson also took eggs at the same period and in similar places.

The breeding season in Siam seems to be regularly May and, occasionally, early June, but in Tenasserim the birds commence breeding in March and continue throughout April up to the middle of May, the latest date being the 27th of that month, when Hopwood took three very much incubated eggs.

In colour the eggs of all the races of Large Racket-tailed Drongo agree, though in my series some varieties are represented in one race and not in another.

The most common type in the present race has a pale, rather livid pink ground, well blotched with large marks of rather dark reddish, to a dark reddish-brown, most numerous, as usual, at the larger end, but nowhere obscuring the ground. The secondary markings are large and small blotches of pale grey or pinkish-grey, which are more numerous than the primary markings and rather dominate the colour of the egg. A somewhat similar type has the ground darker and more definitely a dull pink, while the markings are very faded and washed out. A third type has the ground varying from very pale to pale pink, clearer than in the last and

rather more boldly marked and, finally, in a fourth type the ground is white, more or less boldly spotted or blotched with deep purple-brown and, subordinate to these, secondary blotches of very pale grey.

I have never seen in this race the deep creamy buff or terra-cotta tinted eggs not rare in the Northern Indian races.

The texture is coarse yet fragile, the surface smooth but glossless, while the shape varies from a broad to a rather long oval.

Forty eggs average 27.8×20.2 mm. : maxima 33.2×20.2 and 29.2×22.2 mm. ; minima 26.9×20.0 and 30.0×19.5 mm.

A very curious pair of pigmy eggs taken by Hopwood measure only 26.4×19.0 and 26.3×18.6 mm., while in colour they are also abnormal—a pure white ground, profusely marked all over with flecks and small blotches of dark reddish-brown.

(788) *Dissemurus paradiseus rangoonensis* (Gould).

THE BURMESE LARGE RACKET-TAILED DRONGO.

Dissemurus paradiseus rangoonensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 378.

This is the Central Burmese form, found North of the last race and occurring North as far as Pakokku, the Lower Chindwin and South Shan States. North again of this there is an intermediate area in which the birds merge gradually into *D. p. grandis* but, when one gets into the Northern Chin Hills, Kachin Hills, Bhamo, Northern Shan States and Yunnan, we can say quite definitely that the birds are all *grandis*.

Oates obtained the nests of this Drongo in Pegu, and it is one of the few of which he gives a description at all full. He writes :—
“ I have taken the eggs of this species on all dates from the 30th April to the 16th June.

“ The nest is placed in forks of outer branches of trees at all heights from 20 to 70 feet, and in all cases they are very difficult to take without breaking the eggs.

“ The nest is a cradle, and the whole of it lies below the fork to which it is attached. It is made entirely of small branches of weeds and creepers, finer as they approach the interior. The egg-cup is generally, but not always, lined with dry grass.

“ The outside dimensions are 6 inches in diameter and 3 deep. The interior measures 4 inches by 2. In one nest the sides are bound to the fork by cotton-thread, in addition to the usual weeds and creepers.

“ The eggs have very little or no gloss, and differ among themselves a good deal in colour. In one clutch the ground is white, spotted and blotched, not very thickly, with neutral tint and inky purple, chiefly at the larger end. Other eggs are pinkish-salmon, and the shell is more or less thickly or thinly covered with pale

greyish-purple or neutral tint and brownish-yellow, or orange-brown spots and dashes."

Cook obtained eggs, which he gave me, in the lower Chin Hills on the 25th April and Hopwood found several nests near Rangoon and the Lower Chindwin in April and May.

There is little to add to Oates's account. Nests and eggs differ in no way from those of *D. p. paradiseus*, and the few eggs I have seen are all of types already described under that form.

As regards the breeding season, Oates's period, 30th April to 16th June, must be extended back to 25th April, but otherwise embraces the dates of all the nests of which I have any record.

The number of eggs laid is three or four.

Eighteen eggs average 27.6×20.3 mm. : maxima 31.0×22.0 mm. ; minima 24.5×20.0 mm.

(789) *Dissemurus paradiseus grandis* (Gould).

THE ASSAM LARGE RACKET-TAILED DRONGO.

Dissemurus paradiseus grandis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 378.

I can add little or nothing to the distribution of this race as given in the 'Fauna':—"The Himalayas from Mussoorie to Eastern Assam; South to Sambalpur, Raipur and the Northern reaches of the Godavari River; North Chin and Kachin Hills; Northern Shan States and Yunnan." I have seen one specimen from Mount Victoria, in the lower Chin Hills, which is a typical *grandis*, whereas all others from the adjacent plains are equally typically *rangoonensis*. The altitude at which it was taken, over 5,000 feet, may have something to do with this.

Although so common a bird over much of the area it occupies, there is so little on record about this race, and that little being all in agreement with my own notes, that it may be better to give my own experiences in full and disregard the rest, beyond saying that Jerdon had nests brought to him in Darjiling and Inglis found it breeding freely in Cachar.

In Assam I took many nests in the hill ranges in the South and also in Lakhimpur and other places North of the Brahmapootra, where Coltart also took numerous nests. On the whole, in Assam it was more of a forest bird than of the open country. Often when passing through dense evergreen forests, in which the winding footpath was the only open space for many miles, we would hear this Drongo's melodious whistles and get glimpses of its beautiful undulating flight from the top of one tree to another. At the same time they were common enough in the open country everywhere so long as it was well wooded, while even round villages and towns a pair or two might nearly always be seen. In Tea Gardens they are very numerous, frequenting and breeding on the higher trees at the edge of the actual Tea cultivation. In these gardens the

burning of any new clearance would invariably attract, among all kinds of birds, several pairs of these Drongos, who feed on the escaping insects in perfect amity with the rest. So, too, a flight of termites would have similar results but, as a rule, they are very intolerant of other birds, and in the breeding season wage an endless war against any intruders into their special domain.

The nest and its site is just like those already described of the preceding races. I have found some nests made almost entirely of long tendrils, and others in the materials of which may be found scraps of leaves, fine twigs, rachides, often rhizomorph of fungi, and occasionally thin grey streamers of a fungoid substance which I could never identify. The nests are often very untidy, generally more or less like a transparent net, yet they stand quite a lot of handling and also knocking about by wind and weather. I think about 25 feet from the ground is the favourite building height, but I have taken nests 5 feet from the ground and others over 50.

They breed from the plains up to 5,000 feet, but undoubtedly below 2,500 far more often than above this height. I never noticed that they had any special predilection for any particular kind of tree, but have been told that in the Bengal districts they patronize Mango-trees more than others.

They breed from the last week in April to the first week in June and I have taken eggs from the 3rd April to the 27th June, both exceptionally early and unusually late.

The eggs, which generally number three, rarely four, are like others of the species but, as a series, are more of the deep terra-cotta pink type than the livid pink type, whilst the pale, almost white, ground types seems to be more speckled or freckled than blotched or spotted. The livid pink type is quite exceptional in this race.

I have one abnormal clutch which is pure white.

In shape and textures they are typical of the species.

Fifty eggs average 30.4×21.6 mm. : maxima 33.3×22.6 and 24.5×22.5 mm. ; minima 26.0×20.8 and 26.1×20.2 mm.

Both birds take a hand in nest-construction and both sexes assist in incubation.

(790) *Dissemurus paradiseus otiosus* Richmond.

THE ANDAMAN LARGE RACKET-TAILED DRONGO.

Dissemurus paradiseus otiosus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 380.

This race is found only in the Andamans. When Osmaston, Wickham and Anderson worked at the Oology of the Andamans this geographical race had not been recognized, though even then Osmaston commented on its difference to the Himalayan bird. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 157, 1906) :—
“ Common in high forest. Has a fine series of melodious calls. The Andaman variety of this species shows no signs of the conspicuous

frontal crest which forms so marked a feature in the sub-Himalayan race. It breeds in May, building its nest generally high up on the more or less inaccessible branches of big trees. The eggs are similar to those found in India."

Osmaston obtained a good series of these eggs, now in my own collection; with them are the following notes:—"One nest was taken low down in a horizontal branch of a big tree in scrub-jungle; two were taken in high trees, one a Padouk, in high dense forest, at 20 and 30 feet from the ground. Two others were taken in very open forest quite low down in small trees at only 7 and 8 feet from the ground. The nests are quite typical of the King-Crow type. Fresh eggs were obtained from the 11th of April to the 10th May."

Of the eggs, one clutch of three is of the livid pink type but is exceptionally handsomely and boldly marked with deep red-brown and inky grey; the others have white or pale pink grounds, blotched rather sparsely with red-brown and pale grey, the latter predominating.

In shape and texture they are quite normal.

The average of the only ten eggs I have seen is 29.1×21.5 mm. : maxima 30.0×22.7 mm. ; minima 28.0×20.7 mm.

(792) *Dissemurus paradiseus malabaricus* (Lath.).

THE MALABAR LARGE RACKET-TAILED DRONGO.

Dissemurus paradiseus malabaricus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 381.

The Malabar race of this Drongo is found over the whole of South-West India, South of the range of *D. p. grandis*.

The nesting of this Drongo is so exactly the same as that of other races that no special description is needed; nor is there much on record.

Macpherson says it is "common in the heavy forests of the Mysore district," where he himself saw one nest in the usual inaccessible position, and containing young birds on the 2nd May. Other nests were brought to him from the 10th April to the 9th May. Davidson took many nests at various places in Kanara and remarks, in his "Birds of North Kanara" (Journ. Bomb. Nat. Hist. Soc. vol. xi, p. 662, 1896):—"This is by far the commonest Drongo in this district, and found in abundance in all the forests except in the extreme North-East. It breeds from March to May, placing its nest, as a rule, at a moderate height from the ground, but generally suspended on a thin branch, so that, though nests are very easy to find, owing to the pugilistic behaviour of the old birds, they are not always easy to take down without breaking the eggs."

In Travancore both Bourdillon and Stewart took many nests in the forests from the foot-hills up to 3,000 feet and Stewart, in sending me some clutches, writes:—"This Drongo is fairly common

in the damp forests of Travancore from 500 feet up to 3,000 feet and, being a very noisy bird during the breeding season, the nest can easily be located, but the eggs are difficult to get, being at the extreme end of a branch at a height of 60 feet or more. The nest is always suspended between two twigs and built strongly of twigs and cobwebs. These four clutches were all taken in belts of forest on Aneichardi Tea Estate."

Davidson, in Kanara, took eggs from the 2nd April to the 10th July, nor do these appear to be two broken periods, for eggs were taken by him at regular intervening dates. In Travancore the earliest eggs were obtained by Stewart on the 18th of February and the latest by Bourdillon on the 10th of May.

The clutch seems to be almost invariably three, and I have only seen two clutches of four, both taken by Stewart, who must have seen dozens of clutches of this Drongo.

In colour they can be matched by eggs of all the other races, and in my big series there are no outstanding clutches other than one of three eggs which has a creamy white ground flecked with dark reddish-brown and spotted and clouded, especially in one egg, with pale grey.

Forty-eight eggs average 28.1×21.1 mm. : maxima 32.2×21.5 and 27.0×22.8 mm. ; minima 26.6×20.2 and 27.0×20.0 mm.

Texture and shape are quite normal.

(793) *Dissemurus paradiseus ceylonensis* Sharpe.

THE CEYLON LARGE RACKET-TAILED DRONGO.

Dissemurus paradiseus ceylonensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 381.

The present race is restricted to Ceylon. Wait says of this bird:—"It replaces the Ceylon Black-crested Drongo in the drier forest tracts, especially in the North and East of the Island, but it is nowhere very abundant. It does not appear to ascend the hills above 2,000 feet.

"The breeding season is from March to May. Three nests, of which I have data, were all found in roadside trees, where the road passed through heavy jungle. They were placed in slender forks at a considerable height from the ground, and resembled larger editions of the nest of *D. caeruleus leucopygialis*, but were more loosely woven and not so tightly jammed into the fork. There are usually three eggs. The ground-colour is pinkish-white, with a moderate amount of reddish-pink markings overlying more cloudy marks of greyish-purple. All the markings are inclined to be streaky and are most numerous round the cap. Average size 1.06" by .81" (=about 26.9×20.6 mm.)."

The only other clutches I have seen are two taken by Jenkins on the 4th and 9th April for Stewart, and then handed on to me by the latter.

Of these two clutches, one, consisting of four eggs, has the ground-colour very pale but clear pinkish-yellow, lightly spotted at the larger end with a few spots of reddish-brown and more numerous secondary spots of lilac-grey.

The second clutch, of three, has the ground nearly white, freely spotted with small blotches and specks of dark red-brown and with numerous clouds and blotches of pale lilac-brown. Both are common types among the eggs of other Racket-tailed Drongos.

These seven eggs, with nine of Wait's, average 26.6×20.7 mm. : maxima 27.8×20.6 and 26.3×22.0 mm. ; minima 24.6×20.2 and 24.8×19.7 mm.

Family SYLVIIDÆ

(WARBLERS).

Agrobates galactotes.

THE BROWN-BACKED WARBLER.

(794) *Agrobates galactotes familiaris* (Ménétr.).

THE GREY-BACKED WARBLER.

Agrobates galactodes familiaris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 386.

This Warbler breeds from Southern Caucasus to Persia, Mesopotamia, Transcaspia, Afghanistan, Baluchistan and North-West India.

How far South and East it breeds in India is doubtful. Ticehurst (Ibis, 1922, p. 547) says that in the North-West and in Sind it is only a passage-migrant, and for some reason doubts Currie's statement that it breeds in Multan. It, however, undoubtedly breeds at that place, whence Currie sent me a skin for identification and several nests and eggs. Again, Whitehead writes:—"It may interest you to hear that *Aedon familiaris* breeds freely in a certain patch of thorn scrub close to Kohat. I only found this out too late, May 19th, and so only got one clutch and one addled egg, though I found a number of nests with young. This is interesting, as Oates says this species is not likely to be found breeding within Indian limits. I shot the old bird which had the eggs for identification. The bird is one of familiar habits, rather like the Brown-backed Robin, but not such a ground-lover. It has a fine reddish tail, which it is very proud of constantly raising and spreading."

Currie records (Journ. Bomb. Nat. Hist. Soc. vol. xxiii, p. 365, 1914):—" *Aedon familiaris*.—It may be of interest to ornithologists to know that it is one of the commonest birds in Multan and Montgomery 'Burs' during the months of May and June.

"I first noticed this bird at Kamalia, near the border of Lyallpur and Multan districts, during May 1912 but could find no nests. Later on in the same month, in the same locality, I took two nests containing 3 and 4 eggs respectively. During 1913 and 1914 I found this bird common in almost every part of the jungles in Multan and took numerous nests. The jungle as found in Multan and Montgomery is not jungle as generally known: it is really bush scrub, the bushes being Jand, Van or Jal, and Karil or wild caper—I cannot at present recall their scientific names. The soil is in some places sandy, sometimes rising in regular ranges of sand-hills 60' or 70' high, but for the most part of it as flat as a billiard table. In other places it is what is known as 'put,' a rich loam on which excellent crops are grown in the parts brought under cultivation. The Jal and Jand occasionally grow into trees of considerable size but, as a rule, they only average some 15' or 20' in height. It is in jungle such as the above the Grey-backed Warbler is to be found, and I have taken its nest in all three of the above bushes.

"In the Jal, the branches of which generally drop towards the ground, the nest is usually to be found placed between two or three thick branches where they cross one another; in the Jand and Karil generally up against the trunk of the tree, resting on a thickish branch. I have never seen a nest over 3' from the ground.

"An interesting feature as regards the nidification is the different types of nests one meets with. In the Jand the nest is small and compact, in Jal and Karil large and loosely put together. From this I strongly suspect that advantage is often taken of a deserted nest of *Molpastes leucotis*, as this bird almost invariably builds in Jand trees in this locality and the nests are exactly alike. In Karil bushes the nests always resembles that of *Argya caudata*, which commonly builds in this bush, while in the Jal the nest is a large loose structure quite different from the other two, and this type of nest I take to be the work of *Aedon familiaris* himself, as no other bird, with the exception of Doves, breeds in these bushes. Of course it may be that the bird suits its type of nest to the bush it builds in, but I do not think so. On one occasion I found a nest in a Jal bush, containing one egg, placed on the top of another nest, also containing one egg, addled. Mr. Cumming, of the Quetta Museum, tells me he has found this bird in Persia breeding in small date palms and in holes in walls, but so far in Multan I have only found it in the above-mentioned trees; indeed, in the areas in which crops are grown it is entirely absent. Four eggs is the largest clutch I have found, three appearing to be the usual number, which are of the grey type, none of the red type having so far been found."

In Kohat Whitehead says it breeds in dry scrub-jungle and, "of five nests found, three were placed in thorn bushes close to the ground, the other bred on the ground under low shrubs."

In India this bird breeds in May, some eggs near Kohat being laid in the end of April, but in Mesopotamia Pitman, Tomlinson, Cox and Cheeseman all found them breeding in June, and Currie also found them breeding in this month in Persia.

In India three or four eggs seem to form a full clutch, but in Mesopotamia and Persia four or five.

The ground-colour of the eggs is a very pale grey, sometimes tinged with clear pale sea-green and at other times a brownish-grey. In the first type the whole surface is profusely covered with small specks, blotches and spots of greyish-brown, generally still more numerous at the larger end, though very seldom showing any signs of ring or cap. In the second type the markings are more brown but are disposed in the same way. In the first type one gets the impression of grey or greenish-grey eggs and in the second of brown eggs. There is a third type which has a pink ground with reddish freckles, but this erythristic type has not been taken in India.

In shape the eggs vary from broad, blunt ovals to long, pointed ones. The texture is only moderately fine and gloss is unusual, except in some of the greenish eggs.

Seventy eggs, measured by myself, average 20.9×15.4 mm. : maxima 23.5×16.3 mm. ; minima 18.9×15.0 and 19.2×14.0 mm.

Acrocephalus stentoreus.

THE GREAT REED-WARBLER.

(795) *Acrocephalus stentoreus brunnescens* (Jerdon).

THE INDIAN GREAT REED-WARBLER.

Acrocephalus stentoreus brunnescens, Fauna B. I., Birds, 2nd ed. vol. ii, p. 389.

This subspecies of the Great Reed-Warbler has a breeding range extending from Transcaspia, through Persia, to Kashmir, Garhwal and Sind.

I have seen no breeding birds from Sind but Ticehurst is quite definite that the birds which remain in Sind and the Mekran coast in Summer are of this race, though I had expected that they would prove to be *amyæ*.

The Ceylon breeding form, of which, thanks to Mr. W. E. Wait, I have been able to examine a series, seems to me intermediate between the two Indian forms—nearly as dark as *amyæ* but browner, and much darker than *brunnescens*.

This bird is extremely common in Kashmir, where very many collectors have obtained its nest. In Hume's time both Brooks and Cock took many nests and, since then, Ward, Rattray, Davidson and all our recent workers in that beautiful State have taken others,

and all agree in their descriptions of nests, sites and eggs, which I summarize as follows :—

In Kashmir this Reed-Warbler breeds between 5,000 and 8,000 feet, both on the larger lakes and, though less regularly, on the small ones, on which latter nests were taken by Whympfer, Betham and others. Nearly every lake in Kashmir has a fringe of tall reeds about 6 to 8 feet high. In some places the reeds spread out to a great depth, in others they form just a narrow fringe 2 or 3 yards deep. Yearly they are cut down in parts, while elsewhere they merely rot away, to be succeeded by a fresh growth in the Spring. Building operations of the Reed-Warblers commence when the reeds have attained a height of some 4 feet or so above the water, the birds generally selecting sites in the interior of the larger patches, though odd nests have been found in very narrow strips and small beds of reeds. The nests may be anything from 12 inches to 4 feet above the water, but they are more often under than over 2 feet, and are attached to three, four, or more stems of reeds. Ward sent me one beautiful nest attached to two stout reeds but photographs taken by Bates and Rattray show that in some cases half a dozen, or even more, reeds are made use of as supports. As a rule reeds are chosen as supports which are growing in water of some depth, a couple of feet or so, but occasionally in mud and slush hardly over one's ankles. In some of the lakes, such as the Dal and others between Gandarbal and Srinaggar, the birds are extraordinarily numerous and Davidson says that in the Dal Lake on the evening of the 27th June and the mornings of the 22nd and 24th he found "at least 50 nests." Ward, also, in one of his early letters to me, writes :—"One can get almost any number of these nests, the loud song of the male, if it can be called such, leading one to within a few yards of the nest, when it can easily be found, and in hunting for one others are generally come across. I have seen over a dozen in a morning in quite a small area. They have fancies for certain patches—I cannot say why—and half a dozen or more nests may be found in one reed-bed, whilst similar beds in similar depth of water are quite deserted."

The nest is made of shreds of leaves of the reeds and sometimes of strips of the reed-bark, the material being well wound round the supporting reeds, the lining being merely soft shreds of the same material as that from which the nest is built.

In shape it is usually a deep cup, with an external diameter across the top of about $3\frac{1}{4}$ to $3\frac{3}{4}$ inches, while the depth may be anything outwardly from 4 to 6 inches, with an egg-cavity of 3 inches or less in width by 3 to $4\frac{1}{2}$ inches in depth. A deep nest is certainly required, or the high winds which so often sway the reeds about would soon roll the eggs out of it.

The birds breed from the last week in May to the end of June, though a few birds lay as early as the middle of May or as late as the first week of July.

The normal full clutch of eggs is four, but five and three are both sometimes found, and Davidson once saw six young in a nest.

The eggs are like small dull specimens of the common Great Reed-Warbler. The ground-colour varies from a very pale sea-green to the same rather darker and brighter, or from a greyish-white to a distinctly pale brown. The markings are generally numerous over the whole egg and consist of specks and spots of blackish-brown, sometimes becoming small blotches, with secondary markings, similar in number and character, of lavender-grey. As a rule the smaller the primary markings the darker their colour. A few of the eggs with the brownish ground-colour are heavily blotched with dark brown all over, these brown eggs contrasting strongly with the brightest, least spotted, greenish eggs.

In shape the eggs are most often rather long, and sometimes pointed, ovals, but truly ovate eggs are not uncommon. The texture is coarse for the size of the egg and the surface nearly always glossless.

Sixty eggs average 22.7×15.9 mm.: maxima 24.3×16.1 and 22.4×16.7 mm.; minima 21.5×15.3 and 23.2×15.0 mm.

Before dismissing this bird's nidification, Doig's account of its breeding in Sind must be referred to, though it is by no means certain that the resident breeding bird and the migratory visitor are one and the same. He writes about its breeding in the Eastern Narra as follows:—"On the 4th August, while my man was poling along in a canoe in a large swamp on the look-out for eggs, he passed a small bunch of reeds, and in them spotted a nest with a bird in it. The nest contained three beautiful fresh eggs. A few days later I joined him and, on asking about these eggs, he described the bird, and said he had found several other nests of the same species, but all of them contained young ones newly fledged. I made him show me some of these nests, all of which were situated in clumps of reed, in the middle of the swamp, and in these same reeds I found and shot the young ones, which, though fledged, were not able to fly. These I sent, with one of the eggs, to Mr. Hume, who has identified them as belonging to this species."

(796) *Acrocephalus stentoreus amyæ* Stuart Baker.

THE ASSAM GREAT REED-WARBLER.

Acrocephalus stentoreus amyæ, Fauna B. I., Birds, 2nd ed. vol. ii. p. 390.

This race of the Great, or Clamorous, Reed-Warbler breeds probably all along the Himalayan sub-terai on the West from at least Bahraich as far as Eastern Assam. Birds sent me as breeding in the Inli Lake in the Shan States were, I believe, of yet another and bigger race, though the skins were not sufficiently perfect to enable me to decide with certainty.

The first specimen I received, through Wickham, I identified as of this race, but further specimens received direct from Mr. Livesey

made me very doubtful as to the correctness of this determination. Traces of streaks on the lower plumage of one specimen and an apparently more rounded wing show a very close approach to *Acrocephalus arundinaceus orientalis*, but perfect specimens are still wanted.

The first to record this bird's nest and eggs was Whympers, who writes (Journ. Bomb. Nat. Hist. Soc. vol. xviii, p. 495, 1908):—
“While on a large jhil in the Bahraich District on August 14th I was much surprised to hear the unmistakable harsh note of *Acrocephalus stentoreus* sounding from several directions and, on searching round, wherever the birds were calling, several nests with young and, at last, three nests with fresh eggs were discovered and the birds secured. The nests were all placed rather low down, within three feet of the water, in more or less detached clumps of reeds inside very dense reed-beds, and seemed to be somewhat smaller and made of finer (or less coarse) grasses than those I have seen in Kashmir. The birds, too, are somewhat smaller.”

Later Whympers took other nests of this bird, containing two and three eggs respectively, on the 10th and 14th August, which he sent to me.

The year previous (1906), however, Stevens, in Assam, had also taken the eggs of a Reed-Warbler which he described to me as small dark specimens of *A. s. brunnescens*. I asked him to send them to me and duly received three clutches of two, four and two eggs, taken in the last week of April and the 1st of May.

These at once showed me that the bird which laid them was not the Kashmir *brunnescens*, as the eggs were much too small and were darker, duller and browner in general tone. Specimens of the birds were then obtained which proved to be of this new race. The place where Stevens found these birds breeding was round Hessamara, in North Lakhimpur. They were numerous but were nesting in such huge swamps, covered with endless beds of elephant-grass, reeds and long grass, that it was impossible to obtain many nests. The nests, of which Stevens sent me three and kept others for himself, are like those made by the Kashmir bird but are decidedly smaller, about 3 inches or less in outward diameter and about 4 inches in depth, the egg-cavity being about half an inch less each way. They are also neater nests and made of finer stems and strips rather than the ragged blades which *brunnescens* usually makes use of. Again, they are far more neatly fixed to the reed-stems, the materials passing round the stems and then being neatly wound into the fabric of the walls, whereas *brunnescens* leaves many of the ends sticking out everywhere, while the stems are very loosely bound in as a rule with most of the materials.

A nest found by myself later in Dimaji in May, with four hard-set eggs, was exactly similar. The birds were breeding in elephant-grass, 8 to 10 feet high, and this was the only nest we saw, as the ground was impossible to work. We saw some young birds able to fly and, I think, most eggs had hatched.

In the years 1918 onwards F. Field was able to work over some of the swamps in Oudh and was successful three years running in obtaining nests with eggs, of which he was good enough to send me some, these agreeing exactly with those found by Whympers and Stevens. The birds again proved to be of the small dark sub-montane race.

In the United Provinces the breeding season seems to be after the rains break, in the middle of June, until August; that is to say, the birds do not breed during the season of great drought but wait until the swamps begin to fill. In Assam they breed in April and May, but here there are always ample swamp-lands, well flooded and with never-ending beds of reeds which stand, year in year out, a tangled mass of old and new growth.

The full complement of eggs is three or four and these, in appearance, are like those of *A. s. brunnescens* but are duller and browner and, as I have already said, much smaller.

Thirty eggs average 20.6×15.0 mm.: maxima 23.0×16.3 mm. (possibly a double-yolked egg, taken by Whympers); minima 18.3×15.3 and 19.2×14.1 mm.

(796 a) *Acrocephalus stentoreus meridionalis* Legge.

THE CEYLON GREAT REED-WARBLER.

Calamodyta meridionalis Legge, Str. Feath., vol. iii, p. 369: Ceylon, 1875.
Acrocephalus stentoreus margaritæ Wait, B. of Ceylon, 2nd ed. p. 87.

Wait was good enough to send me home for examination a series of six skins of this race and, on comparison with *amyæ* and *brunnescens*, it appeared to be almost exactly intermediate. I informed Wait that it appeared to me to be a good race, but I unfortunately omitted to remind him that it already had a name. It is, therefore, my fault that the synonym *margaritæ* has been created.

Wait sums up the various existing notes on this bird, plus his own experiences, as follows:—

“A resident among bulrush beds in swamps and tanks here and there in the dry zone in the low country. Its presence is generally detected by its harsh grating note, which is of great volume for the size of the bird. It is said to have a pleasing song in the breeding season. It is of very skulking habits, keeping mainly among the lower stems of the rushes and seldom showing itself. The food consists of flies and small insects. The breeding season is from June to August, and possibly also about March. The nest is a fairly deep cup of grass and strips of rush-blades, lined with finer materials and wedged in among bulrush stems, to which the outer wall of the nest is attached. The two or three eggs are of pale greenish-grey, at times almost white, rather thickly but irregularly marked with blotches and spots of black and yellowish-brown, with underlying markings of greyish-purple. Average size of eight Ceylon eggs $\cdot 81 \times \cdot 60$ inches” (=about 20.6×15.2 mm.).

Acrocephalus stentoreus ?

Mr. T. R. Livesey sent Wickham a specimen of a Reed-Warbler, with its eggs, which is undoubtedly a race of the species *stentoreus*. Later Livesey sent me further specimens and several clutches of eggs. This bird is very near *brunnescens* and seems to come between that bird and *orientalis*, and may, indeed, be the latter bird. It is, I think, too big for *brunnescens*, but further information is required to decide its status, and better specimens are absolutely necessary.

It must be remembered, also, that Forest obtained *orientalis* in Yunnan, and La Touche and Bangs also record birds thence obtained in April, May and August.

Mr. Livesey writes me that "this Reed-Warbler is very common on the Inli Lake, breeding all through May and June. The birds are very noisy, especially in the mornings and evenings, when the males mount up to the tops of the reeds, utter their raucous little song, and then disappear for a few moments before repeating it in the same position. They call sometimes quite close to my boat-house, and now that they seem to be used to its presence are not so wild and nervous. Inli Lake has one portion almost covered by huge beds of great reeds all along one shore, with but short intervals here and there of lotus-covered, more or less open water. The Reed-Warblers keep entirely to this cover and, except during the breeding season, when the males sing, are great skulkers, keeping hidden in the lower growth of the rushes, where they hunt constantly for their insect-food. I have found many nests which are just large editions of our English Reed-Warbler; nests about 4" in diameter by 4" to 6" deep, made of rush-blades and ekra-bark and fastened to two or more, generally more, stems of the reeds. Most nests are two or three feet above the water, in very dense beds, standing in shallow water—it may be of only a few inches or it may be even three feet deep. The number of eggs laid is three or four and, as you will see from those I send you, they are not like those of our English bird but more like those of the Great Reed-Warbler. Inli Lake is in the North Shan States and is at an elevation of about 4,000 feet."

A beautiful series of eggs sent me by Mr. Livesey at once strike one as very different both from those of *brunnescens* and those of *amyæ*. They are much brighter, more definitely green eggs, with blacker markings than in either of these races, and they are decidedly larger and much less brown than those of *amyæ*. They are quite typical *Acrocephalus stentoreus* eggs but with an unusually bright greenish ground and even more unusually black markings.

Nineteen eggs average 21.5×15.5 mm. : maxima 22.6×16.0 and 22.3×16.1 mm. ; minima 20.0×15.2 and 21.0×15.0 mm.

In shape and texture they agree with other eggs of the species.

(799) *Acrocephalus dumetorum* Blyth.

THE SMALL OLIVE REED-WARBLER.

Acrocephalus dumetorum, Fauna B. I., Birds, 2nd ed. vol. ii, p. 393.

So far as I know, this Warbler does not breed inside our limits, although both Brooks and Hutton have given graphic descriptions of its nesting. The eggs appear to be those of some kind of *Sylvia*. There were eggs in Nehr Korn's collection, taken in Baluchistan, and the species may breed near Quetta.

Acrocephalus agricola.

THE PADDY-FIELD WARBLER.

The status of the various races breeding within Indian limits is still very unsettled.

In 'The Ibis,' 1928, pp. 449-453, Whistler wrote a review on this species but adds really only one item to our knowledge in showing well that this bird, named from an Indian specimen obtained in Nellore, is not the same as the migratory bird which visits North-West and West India in the Cold Season.

This is not the place in which to discuss the question but I find it difficult to follow Whistler's reasoning. In the 'Fauna' I showed distinctly that there were two forms breeding in Western India—the one a swamp-bird breeding in the Kashmir lakes, the other a dry-land bird breeding in bushes etc. Whistler shows at great length in 'The Ibis' that they are one and the same bird but, more recently, has endorsed my opinion and given, quite rightly, the swamp-bird a new name.

As regards the distribution he is also rather contradictory. On p. 450 he says of Burma and Eastern India: "Such specimens as I have seen from these localities all appear to be *A. c. stevensi*," while on p. 458 he again says of Cachar and Sylhet: "These birds, however, in the British Museum appear to me to be *agricola*."

In my opinion we have five races in India:—

- (1) *A. agricola agricola*.—Status uncertain.
- (2) *A. agricola* subsp. ?—Winter migrant to N.W. India.
- (3) *A. agricola haringtoni*.—N.W. Frontier, breeding on dry land.
- (4) *A. agricola hokra*.—Kashmir, breeding in swamp.
- (5) *A. agricola stevensi*.—Breeding in North-Eastern Terai.

It is quite possible that *agricola* may be one of the last three but it is difficult to say if that is the case, so, for the present, I retain the three races which do undoubtedly breed in India under the names given for (3), (4) and (5).

The true *concinens* of China should be treated as a race of *A. agricola* if, as has been stated, the difference in the wing-formula does not hold good.

(800) *Acrocephalus agricola hokræ* Whistler.

THE KASHMIR PADDY-FIELD WARBLER.

Acrocephalus agricola, Fauna B. I., Birds, 2nd ed. vol. ii, p. 394 (part.).

This little Warbler apparently breeds only in the lakes of Kashmir, where it is exceedingly common.

Brooks first recorded the breeding of this Reed-Warbler in Kashmir, but it is doubtful to what race or species the note applies. The description applies well to *haringtoni* or *concinens* but not to *hokræ*. I have, however, two other records of a Reed-Warbler nesting in rose-bushes in Kashmir, and it is quite possible that there are two species or subspecies breeding in that country. Brooks's description is as follows:—"Near Shupyion (Cashmere) I found a finished nest of the truly aquatic Warbler in a rose-bush which was intergrown with rank nettles. This was in the roadside, where there was a shallow stream of beautifully clear water. On either side of the road were vast tracts of paddy swamp, in which the natives were busily engaged in planting the young rice-plants. The nest strongly resembled that of *Curruca garrula*. The male, with his throat puffed out, was singing on the bush a loud, vigorous, pretty song like a Lesser Whitethroat's, but more varied. I shot the strange songster, on which the female flew from the nest." Hume describes the nest which Brooks sent to him as "a deep, almost purse-like cup, very loosely and carelessly put together, of moderately fine grass, in amongst which a quantity of wool has been intermingled."

Since Hume's time many collectors have taken numerous nests of this Warbler but, with the exceptions noted, all have been quite typical Reed-Warblers' nests built in reeds in swamps. The little birds do not seem to mind whether the swamp is large or small and nests may be taken in practically any of the lakes near Srinagar, from the smallest to the largest, whilst occasionally they may be found in reed-beds in overgrown irrigation ditches and meadows.

Rattray writes as follows concerning several nests taken by him about Sambal:—

"These five nests, with others, were taken on the lakes between Sambal and Gandarbal. They are beautifully made deep cradles of fine grasses woven round two or more stems of a weed or rush, about 18" above the ground or water, lined with finer grasses. Sometimes the nests are attached to two reed-stems only, but more often four, five or six stems or reeds are brought into use, the materials being wound well round the supports and then incorporated in the nest again. The weeds to which the nests are attached grow on the large floating islands of decayed vegetation. These islands form very dangerous walking places, as they are not strong,

and often break up after a storm. The nests are seldom in thick growth of weeds, but on the outskirts, and they are never built in colonies. The birds are very noisy when one approaches the nest."

In another letter Rattray adds: "Nearly every nest had some moss and wool interwoven with the grass or rush-leaves which formed the principal material."

This mixing of moss and wool with the grass seems very general, as Osmaston notes that in almost every nest taken by him in Kashmir some moss was found and, just as invariably, some vegetable or animal wool and down was employed to assist in "compacting" the nest. Many nests were found by Osmaston in long rank grass, often very low down, a few inches off the ground only.

Nests taken by Davidson in some instances varied a little from the above descriptions. He writes (*Ibis*, 1898, p. 15):—"On the 22nd June they were evidently only beginning to build, as fully half the nests we found did not contain eggs. We, however, in three or four hours' wading, obtained seven nests with eggs; these were solid cups, built in various water-plants (in one case *equisetum*), and from one to three feet above the surface of the water; they were composed of rough grass, with outwardly some reed-fibre and catkins intermixed, and invariably lined with fine grass, and in two cases with one or two feathers."

Another of my correspondents remarks:—"I do not think these nests are hard to find, as the small Reed-Warbler, whichever it may be, seems to have a fondness for the tufts of reeds with many broad leaves, quite different to the mass of reeds growing all round. If one of the birds was seen about I found several nests by wading straight up to the clump of these broad-leafed reeds nearest to which he was singing, and there, sure enough, would be the nest."

The cock bird does not incubate, but keeps a sharp look-out for intruders, alternately singing his not very melodious little song from the highest reeds near his nest and then dropping to feed among their lower halves.

Their breeding season is June and, probably, nine out of every ten nests found with eggs will be in the latter half of that month. I have, however, had eggs sent me taken on the 28th May, whilst Osmaston, in 1924, took nests in August, the latest on the 16th of that month, in Sumbal.

The eggs number three or four and are typical of the Reed-Warbler group. The ground-colour varies from an almost pure white, which is rare, to a very pale green; the primary markings consist of blotches mixed with smaller spots and specks of light to very dark, almost blackish-brown; the secondary, or underlying, marks are of inky grey, sometimes rather numerous, sometimes almost obsolete. Both kinds of markings are most numerous at the larger end, where occasionally they form ill-defined rings or caps. No eggs are sufficiently marked to obscure the ground-colour. One

clutch of four eggs taken by Rattray are almost pure white, a few faint grey marks showing on one egg.

In shape the eggs are short, broad ovals, the texture much finer than in the eggs of the *stentoreus* group, but still without any gloss.

Sixty eggs average 16.9×13.0 mm. : maxima 39.0×12.7 and 17.0×14.1 mm. ; minima 14.4×12.2 and 17.0×12.1 mm.

Both birds assist in the construction of the nest, the male building as well as bringing materials to the nest.

(802) *Acrocephalus agricola haringtoni* Witherby.

THE KHAGAN VALLEY PADDY-FIELD WARBLER.

Acrocephalus concinens haringtoni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 396.

Up to now this little Reed-Warbler has been known to breed only on the extreme North-West Frontier, where nests were taken by Whitehead and Harington. Whether the nests built in bushes in Kashmir belonged to this bird or whether they were merely aberrant nests of the Kashmir race cannot be decided until birds are shot off similar nests and identified.

Whitehead found this bird breeding in the Khagan Valley in 1912 and sent specimens to Hartert, Ticehurst and myself, who, curiously enough, all independently identified the bird as *concinens*, the Chinese bird. Later, however, Witherby pointed out the differences and gave it the name of *haringtoni*, after Harington, who again found the bird breeding in almost the same area.

Whitehead writes (Journ. Bomb. Nat. Hist. Soc. vol. xxiii, p. 106, 1914):—"Many stay to nest in the Khagan. Unlike typical *agricola*, it nests in undergrowth (Kanúla) on the hill-side far from water. It starts nesting at the end of June ; 7 nests were found in all. Both nests and eggs resemble those of *A. stentoreus* but the nest is much neater and built within a few inches of the ground. It is usually woven round four stalks (in one case three) in true Reed-Warbler fashion, composed of stems and grass, neatly lined with roots, and in some cases with an edging of green grass woven round the top of the cup.

"The cock bird at this season throws off his skulking habits and may generally be seen in a conspicuous position singing his high-pitched squeaky song, accompanied by much craning of the neck and erecting of the feathers of his crown."

The three clutches of eggs taken by Whitehead, and now in my collection, were taken from nests of which two were "attached to four nettle stalks" and the third to "Janala stems."

Three seems to be the invariably full clutch.

All the eggs in my collection, both Harington's and Whitehead's, were taken between the 7th and 23rd July, but some of the latter's "7 nests" were taken in the end of June.

The eggs cannot be distinguished from those of the Kashmir lake-breeding bird.

Twelve eggs average 17.7×12.8 mm. : maxima 18.5×12.8 and 18.0×13.1 mm. ; minima 17.0×12.3 mm.

(803) *Acrocephalus agricola stevensi* Stuart Baker.

THE PLAINS PADDY-FIELD WARBLER.

Acrocephalus concinens stevensi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 397.

The range of this little Warbler is not yet known and may very probably extend far beyond the plains of Assam, in which only, so far, has it been found breeding.

The recognition of this Reed-Warbler as something new is of considerable interest to Oologists, as it might well have escaped discovery but for its eggs. These were, in 1905, brought in to Stevens, who forwarded them on to me, and it was at once evident that they were probably laid by a small Reed-Warbler different to anything then known. In 1906 Stevens succeeded in obtaining a few more nests and eggs and, with them, some of the parent birds, which proved to be, as we expected, new to science. To be of any use the birds had to be actually shot off their nests, as in April, and even in May, any other bird might quite well have been a migrant on its way to its breeding haunts either in, or beyond, the Himalayas.

Stevens found this Reed-Warbler breeding in great numbers, on the wide grass-covered swamps and inundated banks of rivers in North Lakhimpur ; possibly, also, in the larger grass-covered "churs" or sandbanks actually surrounded by two branches of the river.

Although the birds were so common, the nests were very hard to locate. The cocks, like all their tribe, were in the habit of singing near their nests on the top of tall reeds but, in these huge expanses of grass-land, anyone approaching the nest could be seen from very far off, and the birds retired among the lower reeds long before the nest was reached. Land-marks of any sort were conspicuous by their absence, and one extra tall tuft of reeds or grass duplicated by so many hundreds of other tall tufts that it was almost impossible to mark down the singing birds with any certainty. Again, even when marked down, the dead and withered grass of the previous year so matted the new growth that the nests took much finding, and far more were missed than found. As a rule they were built between 2 and 3 feet from the ground, fastened, like those of all Reed-Warblers, to three or four stems of the new grass. Some found by Stevens were very deep in proportion to their size, one of those first sent me measuring $2\frac{1}{2}$ inches in external diameter and nearly 6 inches in depth, with an egg-cavity

about 2 by 5 inches. They were made entirely of strips of grass and reed-bark, and none of those I saw had any wool or moss woven into the other material. Neither was there any real lining, though possibly the inner material was rather finer than the outer, and Stevens mentions that in some of his there was a neat lining of finer grass. The nests are neat, compact and well finished off, and very strongly attached to their supports.

The few nests we have seen with eggs were all found in the last week of April or first fortnight of May, except one pair taken on the 26th June.

The full clutch seems to be three. In appearance they are like tiny brown eggs of *A. stentoreus amyæ*, and it is curious to note how both the large and the small plains-breeding Reed-Warblers lay such brown eggs. The present bird lays eggs the ground-colour of which varies from a pale buffy brown to a quite definite sepia-brown. The markings are blotches, bolder and larger than in those of our other Indian races, running from dark brown to almost black. The secondary blotches are pale sepia-brown or grey, but all eggs give one the impression of being small brown eggs rather than small green eggs, as in *A. a. hokræ*.

In shape they are broad to fairly long ovals. The texture seems decidedly coarser than in *hokræ* and the surface is very dull and glossless.

Thirteen eggs average 15.9×12.1 mm. : maxima 16.9×12.2 and 16.0×12.3 mm. ; minima 14.9×12.2 and 15.8×11.8 mm.

(804) **Acrocephalus orinus** Oberholser.

THE LARGE-BILLED REED-WARBLER.

Acrocephalus orinus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 398.

There is really nothing known about the nidification of this bird, which has been obtained, a single specimen, in the Sutlej Valley.

Two eggs and a nest were sent to me by Captain Ellerton, taken on the 22nd May in the Sutlej Valley, which he believed to have been of this species, but the bird, after he thought he had identified it, was thrown away!

The nest, a typical Reed-Warbler's, like that of *brunnescens*, "was placed in among the reeds growing on a submerged bank of the Sutlej; in shape it was a very deep cup of soft strips of rushes and reed-leaves, strengthened and lined with fine grasses and grass-stems. It was attached to three or four of the reeds."

It contained two eggs of the brown *amyæ* type of egg of *stentoreus*, which measured 21.9×15.6 and 22.0×16.0 mm.

The eggs are undoubtedly Reed-Warblers' of some sort, but it is, of course, doubtful if they were properly identified as being the eggs of this extremely rare bird.

(808) *Tribura major* Brooks.

THE LARGE-BILLED BUSH-WARBLER.

Tribura major, Fauna B. I., Birds, 2nd ed. vol. ii. p. 403.

This Bush-Warbler breeds from Turkestan to Kashmir and Ladak at high elevations. It is not uncommon round about Sonamurg at 8,000 feet upwards, and nests and eggs have been taken there by Davidson, Buchanan, Rattray, Ward and others between 8,000 and 9,000 feet. In Tehri-Garhwal and the Suru Valley Osmaston took several nests at 10,000 to 11,000 feet, whilst Whitehead found it breeding in the Khagan Valley at 9,000 feet.

Davidson says that this Warbler haunts the fringes of forest. "It never seemed to enter these more than a short distance, nor did we find it any distance in the open from the verge of the forest. It was very abundant among the long grass and weeds fringing the forests" (Ibis, 1898, p. 15). Osmaston also describes its habitat as follows (Journ. Bomb. Nat. Hist. Soc. vol. xxxi, p. 989, 1927):—"This is a fairly common bird in suitable places between 8,000' and 12,000' both in Kashmir and in Ladakh. Irrigated grass-lands, cultivated fields and low thorny scrub (*Lonicera spinosa*), interspersed with grass, are its favourite haunts."

In the Khagan Valley Whitehead found them breeding in thorny scrub.

The nest is placed either on the ground or close to it in thick bushes or in dense clumps of weeds and grass. Few nests will be taken as much as 2 feet above the ground. The nests are hard to find, although the birds are persistently noisy, constantly calling their penetrating "tic-tic-tic," or, as Osmaston calls it, "chipi-chipi-chipi." The hen bird sits very close; Davidson found that they sat until almost trodden on and then flew for a few yards, after which they dropped into the cover. Often, however, as both Osmaston and Whitehead experienced, they slip quietly off the nests and run at great speed for a few yards through the grass and weeds before showing themselves.

The nest is a deep cup made entirely of grass, often with no real lining beyond having the softest and finest grass inside. The only nest I have seen measured 3 inches in diameter across the top and was nearly the same in depth; the walls were thick and the egg-cavity was not more than $2\frac{1}{4}$ inches in width by about $2\frac{1}{2}$ in depth. This was not a tidy-looking nest but was made of dead and withered grass-blades not too well put together.

The breeding season is June and July. The earliest nest with eggs I have recorded is one taken by Whitehead at Bulta-kundi on the 18th June, whilst the latest is one of Osmaston's found on the 23rd July.

The full clutch of eggs is three or four, generally the latter in Kashmir. The ground-colour is a very pale-pink, sometimes.

almost white, and they are densely speckled all over with tiny specks and freckles of pinkish-red. In a few eggs the specks are more brick-red and in others have a lilac tint. Some eggs are so densely freckled all over that at a little distance they appear uniform. In other eggs the specks, though dense at the larger end, are more sparse elsewhere. Faintly marked rings and caps are not uncommon, but these are seldom at all conspicuous.

The texture is fine but glossless and in shape the eggs vary greatly from short, broad ovals to rather long, narrow ones.

Thirty-five eggs average 18.3×14.2 mm. : maxima 19.3×14.0 and 18.5×15.0 mm. ; minima 17.3×13.1 mm.

Tribura thoracica.

THE SPOTTED BUSH-WARBLER.

(810) **Tribura thoracica thoracica** (Blyth).

THE NEPAL SPOTTED BUSH-WARBLER.

Tribura thoracica thoracica, Fauna B. I., Birds, 2nd ed. vol. ii, p. 405.

This race of Bush-Warbler breeds within our limits in Kashmir, Tehri-Garhwal, Nepal and Sikkim to Bhutan and, possibly, in the hills of Northern Assam at all heights from 8,000 to 12,000 feet and possibly higher. Occasionally they breed a little lower; Otto Müller took one at about 7,000 feet near Darjiling, while Macdonald took one on the Nepal-Sikkim boundary at about 7,500 feet. Gammie also took one at 5,000 feet. Hodgson's supposed nest and eggs of this bird were certainly wrongly identified.

In Sikkim and Nepal this species breeds in comparatively open land covered with grass, bracken and low bushes and never seems to enter the forest, although they keep close to them. Rather steeply sloping hill-sides with strips of open between two forests are very favourite places in Sikkim and I had several nests and eggs sent me, with the birds, taken in such positions. Whympers found them also in open country in Garhwal, but at much higher elevations, nearly all his nests being taken in valleys at about 12,000 feet, though Osmaston took one nest at 9,500.

Whympers' nests were found both on the ground in tufts of green grass, in low bushes, a few inches to two feet from the ground, or in tangles of grass, weeds and bush. In Sikkim they were found in quite similar positions but, generally, where there was bracken growing among the bushes and grass. Always they seem to be very well hidden and, though the birds sit close, they slip away very quietly and generally get on to the ground and race away for a few yards before taking to flight, or else hide almost at once in the nearest thick cover.

The nests are sometimes domed and sometimes deep cup-shaped. In Sikkim they seem to be equally often the one as the other but in Garhwal all the nests found by Whympere were domed, though that found by Osmaston was a deep cup. The nests were made throughout of grass, rather coarse and also roughly and loosely put together on the outside, though more compact inwardly. There was no true lining in any that I have seen; in a few the grass inside is a little finer than the rough stems and blades on the outer walls but in others there is no difference. A curious characteristic of this species is the use of one or, rarely, two feathers in the lining, probably merely as a decoration, for there is no possible other use for it. Whympere remarks on this curious idiosyncrasy of the bird, and the Sikkim one has just the same habit as has the Garhwal bird.

The breeding season is June and July, though I have had two clutches of eggs sent me from Sikkim which were taken on the 19th and 27th May.

The number of eggs laid is three or four.

Each individual egg or clutch can be matched by those of the preceding bird and by those of *Tribura luteoventris* but, as a series, they are much paler. Many clutches have a pure white ground, lightly freckled with pinky red or brick-red. There is also, perhaps a rather more definite tendency for the specks to form rings or caps.

Curiously enough, the eggs of Nepal and Sikkim birds are deeper coloured and more densely marked than those laid in Garhwal.

In texture they resemble the eggs of the other species but in shape they average rather longer ovals.

Fifty eggs average 18.4×13.9 mm.: maxima 19.1×14.9 and 18.8×15.1 mm.; minima 17.0×12.8 mm.

There is nothing on record as to which sex incubates or as to which builds the nest.

(811) *Tribura luteoventris* Hodgs.

THE BROWN BUSH-WARBLER.

Tribura luteoventris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 406.

This species of *Tribura* has a wider range than either of the preceding species, being found from Nepal and Sikkim, throughout the lower Outer Himalayas, to Eastern Assam, the Chin and Kachin Hills to Annam and, according to Stresemann, as far East as Szechuan. It is very common in suitable places in the hills South of Assam, being exceptionally numerous in the Khasia Hills between 4,000 and 6,000 feet. In Sikkim it should be noted that Stevens records it up to 9,000 feet.

This is much more of a forest bird than either of the two preceding birds and it is also one of the few which habitually haunts

Pine forests, so long as these are fairly open and have enough undergrowth to conceal it as it skulks about. In many of the Khasia Pine forests there is a very dense undergrowth of Daphne-bushes, and with these there is mixed a certain amount of bracken and grass—the more open the forest the more these last two flourish. In other Pine forests numerous ravines break up the ground, and in these but few Pine-trees grow, their place being taken by other deciduous trees and an undergrowth, sometimes quite thick, of bracken, brambles of all kinds and low and tall bushes. Both these types of undergrowth are favourite breeding resorts of the Brown Bush-Warbler, though many birds also breed on the open hill-sides between the forests, where there is much bracken, bush and grass growing between the quite open grass-lands and the edge of the forest.

Out of the hundreds of nests I have taken or examined I have seen only two or three built actually on the ground under the shelter of a tuft of coarse grass or at the roots of a Daphne-bush, among weeds. Most nests are built well inside Daphne-bushes or in tangles of bramble, weeds or coarse grass a few inches to a couple of feet from the ground. Higher than this is not so usual, though I have seen nests in both bushes and Raspberry-brambles as high as 4 feet from the ground.

The nests are of two kinds. The great majority are deep cups, the depth exceeding the breadth; probably an average-sized nest would be about 3 inches across the top and 4 to 5 inches in depth, while others exceed this by a full half inch either way; yet others are decidedly smaller. The top of the nest is usually not quite the widest part, the lips being drawn in a little.

The dome-shaped nests average about $3\frac{1}{4}$ inches in diameter by about 5 inches from top to bottom, the egg-cavity being roughly about $2\frac{1}{4}$ to $2\frac{1}{2}$ inches each way.

Both kinds of nests are made entirely of grass-blades and strips of grass, firmly but not very tidily wound together, the material used being generally old and often considerably torn and broken. Inside most nests, but by no means always, finer blades and grass-stems are used, though these can hardly be said to form a lining. I have seen feathers placed inside sometimes. Of these, one single feather may be stuck casually into the nest, near the top just as likely as near the bottom, or a few, half a dozen at the most, make an apology for a lining. Very rarely there is a real, though meagre, lining of grass-stems, rather finer than the rest of the materials.

May is undoubtedly the month in which most eggs are laid but, probably, many birds have two broods, as in July there seems to be another burst of egg-laying. I have taken eggs at all dates between the 19th of April and the end of July.

The eggs are like those of the two species already dealt with but, as a series, are decidedly darker, and are far more often well

capped or zoned. I have two or three clutches in which the markings all coalesce to form unicoloured caps in one or more eggs. In a few eggs, also, the markings are larger—blotches rather than specks or spots.

Two hundred eggs average 18.2×14.3 mm. : maxima 19.9×14.9 and 19.0×15.2 mm. ; minima 16.9×14.5 and 17.3×13.3 mm.

Both sexes incubate, but the female far more than the male, the birds trapped on the nest, being, in four cases out of five, females. The female performs most of the building operations also, though the male bird brings a certain amount of material to the nest.

Incubation takes twelve or thirteen days, probably the former, though I have never been able to fix it exactly.

(812) *Elaphrornis palliseri* (Blyth).

THE CEYLON ANT-WARBLER.

Elaphrornis palliseri, Fauna B. I., Birds, 2nd ed. vol. ii, p. 408.

This curious Warbler is confined to Ceylon.

The first person to take the nests and eggs of this bird was Mr. W. Jenkins but, as he never succeeded in shooting the bird off the nest, I put the eggs he sent me on one side until they could be determined satisfactorily. In 1911 Aldworth was able to collect birds, nests and eggs, proving Jenkins's find to have been quite correctly identified.

Aldworth remarks (Bull. B. O. C. vol. xxxiii, p. 91, 1914) about the eggs taken by him as follows :—"I found the nest of this bird on the 10th April, 1911, while it was being built in a small shrub of the Laurel family, at about 3 feet from the ground. The situation was an open patch in dense jungle on the banks of a mountain stream running from the Horton Plains to the Bogan-wantalawa Valley. The nest was completed about the 23rd, and the eggs were taken on the 28th. Though I visited the nest on several occasions, I failed to see any sign of the bird until she commenced to sit. The nest was composed of moss, twigs and coarse grass-stalks, lined with skeleton leaves and grass-fibre, deeply cupped and rather compact. The shy and skulking habits of this bird would seem to point to it being a Warbler and not a Thrush as, though fairly common in the jungles round the Horton Plains, it was seldom seen."

Jenkins also found it very shy and a determined skulker, and failed to catch it leaving the nest in time for a shot.

Phillips, writing from Matugama, records it as being less shy. He writes, *in epistola* :—"The Ceylon Warbler is very common in the jungles around here, above about the 3,300 feet contour mark. It usually goes about in the low undergrowth, in pairs or small family parties, seeking for insects of various descriptions. Its behaviour reminds me greatly of the common Wren in English

woods. It is easily approached and has a sharp distinctive note which it utters when alarmed.

"I have found three nests but none of them have contained eggs. They have all been placed some three or four feet from the ground in low undergrowth, beside a path through the jungle. In two cases they were relatively large collections of green moss with odd bits of dead roots and leaves, loosely put together, with a very deep neatly lined cup, in the centre, made of very fine grass-stems. The last nest examined was found on September 13th, and it contained two half-fledged young."

The two eggs found by Aldworth might be matched with some Bulbuls' eggs but are certainly also rather of the type of *Tribura* eggs. The ground is a pale pink, rather dull in tint, and this is covered all over with fine purple-brown specks, still deeper, and often coalescing, at the larger end. There are also numerous underlying freckles of grey. The whole egg gives the impression of pale dull vinous-purple. In shape they are ordinary blunt ovals; the texture is fine and close but glossless. They measure 22.0×16.1 and 22.0×16.0 mm.

Eggs taken by Jenkins are exactly similar, but one pair is rather more brick-red. They were laid in August and measured 21.1×16.0 , 21.1×16.3 and 22.2×16.4 mm.

Orthotomus sutorius.

THE TAILOR-BIRD.

Since Oates's volumes were written, this little Warbler, so familiar all over India, Burma etc., has been divided into many races but, wherever it may be found, its manner of nidification varies but little. The one description given of this, under the heading of *O. sutorius sutorius*, may be considered as applying to all the various races unless the contrary is stated, and under the heading of each of these races will be added merely such details as apply to them individually.

(813) -Orthotomus sutorius sutorius (Forst.).

THE INDIAN TAILOR-BIRD.

Orthotomus sutorius sutorius, Fauna B. I., Birds, 2nd ed. vol. ii, p. 410.

The typical form of Tailor-Bird, which was described from Ceylon, extends over most of the Southern Indian continent as far north on the West as the Himalayas; on the East it is found as far as Behar and the drier districts of Chota Nagpur in Western Bengal. Birds of Eastern Bengal, 24th Parganas and East of the Bay of Bengal, are of the darker Burmese race, *patia*.

The Tailor-Bird is probably, with the exception of the House-Crow and Common Myna, the best known of all Indian birds. There is no garden, big enough to hold a few bushes, which has not a pair of these birds as visitors from time to time, whilst those of any greater size nearly always entertain a few breeding birds. They nest freely in scrub round and in villages and in large-leaved crops or crops among which weeds offer leaves large enough to sew into homes. They are alike equally common all over the plains and on the Himalayas and Southern hills up to about 4,000 feet, whilst in Ceylon they are found practically to the tops of the highest hills. Tunnard took several nests at about 5,100 feet in the Ramboda Central Province in the Labookellie Estate.

The Tailor-Bird has derived his name from his habit of sewing a leaf or leaves together in which to place his nest. I think most often the Tailor-Bird selects a single leaf just big enough, when the two edges are brought almost together, to hold a nest sufficiently roomy for him or her to sit in comfort. Sometimes the tip of the leaf is also turned up and sewn to the sides to form the bottom of the nest but this is quite exceptional. Very often two, or even three, leaves are sewn together and rarely four or more, while Anderson says that he has seen a nest composed of seven or eight leaves. The leaves selected, whether one or more, are always pendent and I know of no record of a nest made in an upright leaf. The sewing of the leaf, or leaves, is always completed before the actual nest is begun. The female alone, I believe, sews the leaves, and this she does with vegetable cotton, cobwebs, or the very finest of grass-stems, probably the last only when she has failed to get either of the other two. Having obtained the material she considers suitable for her work, she then punctures a small hole with her bill and draws the material through it, leaving a knotted portion outside, though how she makes the knots I have never discovered. Having done this, she makes another hole on the far edge of the leaf and passes the material through this also, using both bill and feet to draw the two edges together. When they are near enough to satisfy her, she again makes a knot on the far side and the leaf is prevented from getting out of position or springing back. Continuing the process, she makes more and more punctures, and through them passes more and more material until, eventually, she has the edges firmly fixed. The later punctures and sewing are done very quickly, but often the first bringing of the edges together is very laborious and not always successful, the birds giving up in despair after repeated failures. Once the sewing is completed, the little birds then start on the nest itself, which is made principally of soft vegetable down, a little grass and oddments of all kinds, such as horsehair, soft wool scraps etc.

For sewing, the birds sometimes use silk from cocoons and, when building alongside houses, will often steal and make use of waste bits of cotton, thread or silk.

If two or more leaves are used they are chosen from those which lie close together, so as to make the sewing of them an easy matter. At one time many people believed that the birds picked up one leaf and sewed it on to the outside of the nest to conceal it. Anderson, Hume and others explain this. Jerdon also writes :—"I have often seen nests made between many leaves, and I have seen plenty with a dead leaf stitched to a yet living one ; but in these points my experience entirely coincides with that of the late Mr. A. Anderson, whose note I proceed to quote :—

"The dry leaves that are sometimes met with attached to the nest of this species, and which gave rise to the erroneous idea that the bird picks up a dead leaf and, surprising to relate, sews it to the side of a living one, are easily accounted for.

"I took a nest of the Tailor-Bird a short time ago (11th July, 1871) from a brinjal plant (*Solanum esculentum*) which had all the appearance of having had dry leaves attached to it. The nest originally consisted of three leaves, but two of them had been pierced (in the act of passing the thread through them) to excess and had in consequence not only decayed, but *actually separated from the stem of the plant*. These decayed leaves were hanging from the side of the nest by a mere thread, and could have been removed with perfect safety."

Of whatever number of leaves the nest is composed, it is generally completely, or nearly completely, enclosed on three sides, one side, or the top alone, being left open as an entrance to the nest.

The nest itself is a rather deep little cup, often deeper than it is wide. An average-sized nest might be about 2 inches across, or less, by nearly 2 inches deep, but many nests are far deeper than this and a few are more shallow.

The site selected for the nest is normally low down and, possibly, three out of every four are within 2 to 4 feet from the ground. On the other hand, nests are now and then built at great heights. Anderson found one at "the very top of a high tree." They also sometimes build on Mango-trees, Guava-trees and suchlike at 6 to 14 feet from the ground.

Over most of India the Tailor-Bird breeds in June after the break of the rains, and probably most eggs are laid between the 20th June and the 20th August; many eggs are, however, laid both later and earlier and, possibly, there is no month in the year in which odd eggs could not be taken.

From Ceylon I have eggs taken at all dates from early March to the end of June, but Wait says ('Birds of Ceylon,' 2nd ed. p. 91, 1832) "they may be found breeding almost throughout the year, except during long periods of dry weather," *i. e.*, when insect food becomes scarce.

In Poona Betham took eggs from June to the end of August.

The number of eggs laid is three or four over most of its breeding area but, in Ceylon, four eggs are rare and two only not uncommon.

In colour they vary greatly. The ground ranges from a pure white to a cream or pale pink or from white with the faintest imaginable tinge of green or blue to a clear bright blue or a rather dull pale sea-green.

In the two types the markings vary from pale pinkish-red to deep red or red-brown, the white and pink eggs generally having redder marks, the blue having browner ones. In all the character and distribution are much the same—a few fairly large blotches, spots and specks at the larger end, where they may form an ill-defined ring, and smaller marks scattered scantily about elsewhere.

In shape the eggs are generally long ovals, occasionally rather pointed at the smaller end; the texture is fine and close and the surface smooth and often rather glossy.

One hundred eggs average 16.4×11.6 mm.; maxima 18.4×12.0 and 16.1×12.2 mm.; minima 15.1×10.8 and 15.2×10.6 mm.

I can find nothing on record as to which sex incubates or builds the nest, nor does there seem to be anything recorded as to the period of incubation. These points are, however, certain to be the same as they are in the Eastern form.

(814) *Orthotomus sutorius patia* Hodgs.

THE BURMESE TAILOR-BIRD.

Orthotomus sutorius patia, Fauna B. I., Birds, 2nd ed. vol. ii, p. 412.

This race, which was, of course, named from a Nepal bird, extends from that State through the Outer and Lower Himalayas to, but not including, the Shan States, the birds of which seem to be nearer *longicaudus*, the Chinese race. It is found throughout Burma to the South of Tenasserim, where it meets and merges into *maculicollis* of the Malay States and Siam. Kloss considers that some of the birds from western Central Siam are also referable to this race.

On the dividing line of these races it is often quite impossible to determine what name the bird should bear and I have, therefore, left these out of consideration here altogether.

All that is recorded in Hume's 'Nests and Eggs' about this bird are Oates's remarks that they are very common all over the plains but that he himself did not observe it in the hills. In the Khasia Hills it was common at 5,000 feet and occurred quite regularly up to 6,000 feet, but in the North Cachar Hills adjoining it was rare above 3,000 feet. In nearly all the Burmese hills it is common up to 4,000 feet where there are villages and cultivation.

There is but little that can be said about this race in addition to what has been already said about the Indian form. It is not quite so exclusively a bird of civilization, and in Assam and parts of Burma breeds in thin scrub and on the outskirts of forest.

The nest is exactly the same as that of the typical form and goes through the same variation. I have, however, twice seen nests

built in the upright leaves of the Ginger-plant, a position, I believe, never used by any of the other races of Tailor-Birds.

The breeding season extends through May, June and July, a few birds breeding in April and a good number in August, while odd nests may be taken any time between March and October.

The number of eggs laid is generally four, sometimes three only. On the other hand, fives and sixes are not very uncommon and I have seen at least a dozen clutches containing the latter number.

In appearance the eggs of all the Tailor-Birds are the same but I have one curious abnormal clutch of four eggs of this race which are just like large round eggs of *Cisticola cursitans*.

A curious instance about the nesting of this bird is, perhaps, worth recording. In 1914 I was sent a very unusual nest of this Tailor-Bird attached to six leaves of a creeper growing over the porch of a Khasia's house. The clutch contained five eggs with an exceptionally pink ground, with one pigmy egg with a white ground and one egg rather smaller than the other three. In 1931 I had a similar nest sent me containing five exactly similar eggs taken from the same creeper. The owner of the cottage said that the pair built there annually, but one can hardly imagine a Tailor-Bird living eighteen years.

Two hundred eggs average 15.9×11.3 mm. : maxima 17.5×12.4 and 15.0×13.0 mm. ; minima 13.3×11.0 and 14.3×10.0 mm. The pigmies referred to above are not included in these measurements.

Both sexes incubate, the male sitting as much as the female. The position adopted when sitting looks very curious; the tail is forced over the back until it points in the same direction and just over the bill, both protruding from the front of the top of the nest.

Both sexes also take part in the construction of the nest, the male not only bringing the materials but placing them in position.

Incubation takes eleven to twelve days, the eggs sometimes hatching on the thirteenth day, probably when the weather is cold. When hatching on the eleventh day, the actual time taken is eleven and a half days or more—that is to say, an egg found on the morning of the 1st was hatched on the evening of the 12th.

(815) *Orthotomus sutorius longicaudus* Gmelin.

THE CHINESE TAILOR-BIRD.

Orthotomus sutorius longicaudus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 412.

The Chinese Tailor-Bird only breeds within our limits in the Northern Shan States and, possibly, the Southern Shan States. It extends through most of the Northern Indo-Chinese countries into China.

Jones found it breeding in immense numbers round about Hongkong from the middle of April to the end of June, making nests and laying eggs exactly like those of the other subspecies.

With this race blue eggs are more common than white or pinkish-white, the latter only numbering about one in four. With the Indian and Burmese races the white or pinky white eggs number about two in three.

Harington found it breeding in the Shan States and took nests and eggs but I cannot find anything on record about them.

Forty-five eggs taken in Hongkong average 15.6×11.7 mm. : maxima 16.7×12.1 mm. ; minima 15.0×12.0 and 15.4×10.5 mm.

(816) *Orthotomus sutorius maculicollis* Moore.

THE SIAM TAILOR-BIRD.

Orthotomus sutorius maculicollis, Fauna B. I., Birds, 2nd ed. vol. ii. p. 413.

This Tailor-Bird occurs from Samkok and Bangkok, through peninsular Siam, to the Malay States and Southern Tenasserim. I can find no actual record of it breeding in Burma, though many collectors must have taken its nest, as it is a familiar and very common little bird in and around the villages and towns.

Herbert gives a very interesting account of its nesting in Siam which is worth quoting:—

“The Tailor-Bird is very common in Bangkok, and may be found nesting in any of the bigger compounds. It is not in any way shy, and in the early part of the rains it may be noticed flitting about from bush to bush and uttering its shrill cry, ‘too-whit,’ which is repeated several times.

“I have found it nesting in a variety of places, in young seedlings, not more than a foot from the ground and surrounded by long grass, in Brinjal plants in the vegetable gardens, also on the wild almond-trees at a height of from 15 to 20 feet off the ground, and occasionally on the very prickly palms which make such a formidable hedge round some of the fruit gardens, and which grow to 20 feet or so in height. In the compounds the nest will probably be found in some shrub with a large leaf, which, however, must be harsh enough (containing sufficient silicate) to hold the cotton when the leaf is pierced and the cotton is thrust through the little window. Sometimes a single leaf is used, and the edges are drawn together in the form of an inverted cone, but usually two are employed and occasionally three or more.

“The nest is built during the rainy season, and is generally placed beneath one or more of the other leaves in such a way that it is sheltered from the wet. The leaves are first drawn together by twining a few silk threads around them; probably obtained from some cocoon; the edges are then pierced by the long sharp

bill of the bird and raw cotton is thrust through the puncture. The cotton-fibre is held in the bird's beak in such a way that, when it is pushed through the leaf, it forms a loop on the opposite side, which in turn makes the tiny knot when pulled against the serrated edges of the hole in the leaf. When the cone has been securely stitched in this manner it is lined with cotton, and a few pieces of fibre or hair are sometimes used to keep the inner form of the nest, but this is not invariably the case. I have watched the bird at work on the stitching through field-glasses and it is wonderful how quickly this is carried out. Nesting is carried on from early May to late August, though June and early July is the most general time.

"The usual number of eggs is four and the average measurements are 16.5×11.5 mm."

I can add nothing to the above, but I make the average of fifty eggs given to me by Herbert and Williamson to be 15.5×11.4 mm. : maxima 16.7×12.2 mm. ; minima 13.4×10.7 and 14.0×10.6 mm. The 16.5 given by Herbert is almost certainly a misprint for 15.5 mm.

Orthotomus atrogularis.

THE BLACK-NECKED TAILOR-BIRD.

(817) *Orthotomus atrogularis atrogularis* Temm.

THE MAYALAN BLACK-NECKED TAILOR-BIRD.

Orthotomus atrigularis atrigularis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 414.

This Tailor-Bird only enters our area in the extreme South of Tenasserim. Its nests have been taken by Hopwood and Mackenzie at Victoria Point and Mergui, but they have not recorded anything about them. It also breeds in the Malay Peninsula, Borneo and the extreme South of Siam North as far as Bangkok, where both Herbert and Williamson took many nests. The former records that "this bird is little known in Bangkok, which, however, is not surprising, as its haunts are confined to the fruit-gardens, where it appears to prefer the quiet and shade of the thick undergrowth to parading itself in the compounds like the Malay Tailor-Bird. This natural shyness keeps it very much out of evidence, though its general similarity to the common Tailor-Bird would still prevent any but an enthusiast from recognizing it. Its note is a sweet-sounding trill, 'kr-r-r-i,' and is in contrast to the shrill 'too-whit' of its noisy cousin. When once this note has been recognized it may be regularly heard in the fruit-gardens, and I have often heard it on the Bangkok side, though it is more common on the Western side of the river, due, of course, to the much larger area of suitable surroundings.

“The nest is identical with that of the Malay Tailor-Bird but, so far as my experience goes, the eggs are slightly brighter in colour, with less of the washed-out appearance, than those of the previous species, only I have not seen sufficient numbers to say whether this is constant or not. The four nests which came under my close observation were in the Bansakai fruit-gardens and were found in June and July 1914; the parent birds were in all cases identified and watched by me through field-glasses. There is no variation in size or number of eggs laid by this bird from those of the previous species.”

A series of eggs given to me by Herbert and Williamson were all in clutches of three or four and were all taken between the 7th June and the 12th July. All the clutches are blue, rather bright in tint, except for one clutch of three white eggs spotted with pale rusty.

Twenty-one eggs average 15.6×11.6 mm.: maxima 16.8×12.1 and 16.0×12.3 mm.; minima 14.5×11.0 and 15.2×10.9 mm.

(818) *Orthotomus atrigularis nitidus* Hume.

THE BURMESE BLACK-NECKED TAILOR-BIRD.

Orthotomus atrigularis nitidus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 415.

The range of this subspecies is throughout the Lower Himalayas from Sikkim to Eastern Assam and thence throughout the hill-ranges of Burma to North and Central Tenasserim. In the Assam Hills South of the Brahmapootra I have taken its nest up to 6,000 feet elevation but it is more common below 4,000 feet, while in Lakhimpur we found the bird common in the plains and foot-hills.

Mandelli obtained one nest in Sikkim on the Great Ranjit River at about 3,000 to 4,000 feet, on the 18th July, containing three fresh eggs.

This is far more a forest bird than the common Tailor-Bird and in Shillong it never bred in gardens, however large and full of bushes and trees these might be. It was, in fact, the forest representative, whilst the other species was the town-bird. It was very common wherever there were evergreen forests, haunting the fringes of these and never wandering far from them or entering very far inside; most of all it seemed to like dense bracken and bush-cover where there were enough broad-leaved plants to furnish suitable leaves for its nests to be sewn into. The nests were like those of its village cousin but I have never seen a nest made with more than three leaves, and nine out of ten were sewn into a single leaf of some ground-plant or broad-leaved bush, a few inches to a couple of feet from the ground. I have never seen the nest in big trees or, indeed, in small trees, at any height from the ground, but I saw one nest in a stunted Oak-bush, built into a single leaf, two of the side-pieces being drawn together to include the nest,

and the bottom piece then drawn up to form the base. The principal article used for sewing purposes is the down of the Cotton-tree (*Bombax malabaricum*); which is often mixed with cobwebs. The inside of the nest has roots in it more invariably than has that of the common Tailor-Bird and, when these are extra coarse and stiff, there is a lining of fine grass or the feathery ends of seeding grass.

The breeding season is May and June but I have taken eggs from the 20th March, a most exceptional date, up to the 24th August. Possibly some birds have two broods.

The number of eggs laid varies from three to five, generally four, while I do not remember ever seeing a six. They are quite indistinguishable from those of *sutorius* and run through the same range of variations. In proportion I think eggs with a pure white ground are more common than among the eggs of that bird.

One hundred eggs average 15.4×11.4 mm. : maxima 16.2×11.2 and 16.0×12.5 mm. ; minima 14.6×11.6 and 15.6×10.8 mm.

I have snared both sexes on the nest, so both take part in incubation, but I can say nothing about the building of the nest. The birds are so shy and so secretive that they are most difficult to watch and, on the two occasions I tried to watch them, they deserted.

The common Tailor-Bird, though he flits about *inside* bushes and trees, has no objection to being watched at very close quarters, nor will he or she desert the nest unless it is actually handled, and not always even then. Again, the common Tailor-Bird is so proud of the fact that she has a nest and eggs that she proclaims it to the whole world, the loud "too-weet, too-weet" attracting attention even if her excited actions do not. The forest bird keeps very quietly hidden and her soft little trill passes unnoticed and, often I expect, unrecognized.

Orthotomus ruficeps.

THE RED-HEADED TAILOR-BIRD.

(819) *Orthotomus ruficeps ruficeps** (Lesson).

THE SUMATRAN RED-HEADED TAILOR-BIRD.

Orthotomus ruficeps, Fauna B. I., Birds, 2nd ed. vol. ii, p. 415.

The Red-headed Tailor-Bird is found throughout peninsular Burma and Siam, the Malay States to Borneo, Palawan and Sumatra.

Kellow obtained for me a good series of the nests and eggs of this Tailor-Bird in the Malay States and in his notes writes:—"This is a jungle-bird and does not haunt gardens and villages, though

* As new races of this bird have been named, our bird must now come under a trinomial.

it may rarely be found in scrub-jungle and bushes and secondary growth not far from the latter. The nests were taken in evergreen forest and in the bush and grass cover which grow near their edges. The nests, as you will see from those I send you, are just the same as those built by our common Tailor-Bird in Ceylon, but all those I have seen have been fixed into one or two leaves, not more. They are all close to the ground, sewn into pendent leaves of weeds and plants, generally in pretty thick or tangled cover. Most are between 2' and 3' from the ground but some are lower still. They breed from February to May, but chiefly in February and March, and three eggs is the normal clutch, though they lay up to five."

The nests sent me are like those of other Tailor-Birds but are made almost entirely of grass with the flowering heads attached, these forming both the lining to the nest and also being passed through the holes in the leaves. They are, I think, rather more substantial nests than those of other Tailor-Birds, but I have only seen three. Later, Kellow gave a small collection of Perak birds-eggs to another collector and, when these also came into my series, I found there were two more sets of this bird's eggs. In the eight clutches there are two of five eggs, three of four and three of three. Sir F. Williamson found it breeding in Siam, where the normal clutch was three, rarely four. Here they were breeding in April.

The eggs are like other Tailor-Birds' eggs, but blue eggs predominate, these being in the ratio of about three to one of white eggs.

Forty-one eggs average 15.8×11.6 mm. : maxima 18.0×13.4 mm. ; minima 14.1×10.9 mm.

Cisticola exilis.

THE FANTAIL-WARBLER.

(823) *Cisticola exilis tytleri* Jerdon.

THE YELLOW-HEADED FANTAIL-WARBLER.

Cisticola exilis tytleri, Fauna B. I., Birds, 2nd ed. vol. ii, p. 420.

This very pretty little Warbler is found, wherever there are wide grass plains, from the Bhutan Dooars to Eastern Assam, Bengal, Manipur, Lushai, Chin and Kachin Hills to Yunnan from the foot-hills and plains up to about 2,500 feet. The highest elevation at which I have taken nests myself is on the great Umiam Plateau at about 3,500 to 4,000 feet, where the bird is quite common.

Whether it breeds in the actual plains at any distance from the hills is not certain, as no one has discovered its nest anywhere except in Assam, where I took many nests in North Cachar and the Khasia

Hills, between 1,500 and 2,500 feet, and in Lakhimpur, where both Coltart and I obtained others in the foot-hills and adjoining plains. Stevens also found it breeding at Diyu and other places close to the hills.

It keeps entirely to grass-lands, generally to the immense stretches of sun-grass so common in Assam, in which the grass may be anything from 3 to 5 feet high. Sometimes, however, it haunts hollows and ravines and the borders of rivers where elephant-grass and "ekra" grow to a height of about 10 feet.

In North Cachar I found it only in the gently rolling hills of the North, where the sun-grass in April and May was about 3 feet high and not very dense. In spite of this the nests were very difficult to locate. When breeding, the male bird has a lovely little call commencing with a soft "chr-r-r," and then, after an interval, finishing with a fluty bell-like note which seems to have nothing to do with the previous note and to come quite from a different direction. I only found out that the two notes were uttered by the same bird when one, caught on the nest, performed for my benefit under the table where I was working. Even then I found it hard to believe that the two sounds were both uttered by it.

In looking for the nest one must locate the "chr-r-r" and disregard the ventiloquial bell; this takes one to where the cock is sitting and then occasionally one may locate the nest also when the hen bird takes flight.

The nest is of two, or really three, sorts. Sometimes it is a long purse-like affair of very fine grasses, lined with the feathery ends of the same. Such a nest may number one in twenty; another type is egg-shaped and made of the same materials, and these may number about one in five. The common type of nest is a fragile-looking little watch-pocket fixed to the side of an upright leaf of some broad-leaved plant growing in among the grass. The nest is not built *inside* a leaf of which the two edges have been sewn together, but is so arranged that the leaf forms the back only. The materials, very fine grass-stems, are forced through holes made by the beak in various parts of the leaf and then knotted with tufts of the flowering grass-ends on the outside. Attached to the sides of the nest are more stems of grass, the other ends of which are fastened to the upper part of the leaf, so preventing the nest dropping when weighted with the young birds. A very favourite leaf for nesting purposes is that of the wild Ginger-plant, the roots of which are used by the hill tribes to flavcur their food with. Several nests were brought to me by hill-men who had been collecting these roots.

The birds breed from April to July, according to the condition of the grass. Where this is burnt early in the year or is stunted and thin from poor soil, the nests are made in April and May but, where the grass is burnt late in March and April, there is no breeding until June and July. They do not, I think, have two broods.

unless the first is destroyed early by accident. I have taken a few eggs in August which might be second broods, but these have generally been in places where the grass has not been burnt until very late.

The normal clutch of eggs is four but I have twice taken six and several times five. Three seems to be quite exceptional.

The ground-colour is a bright blue, paler than in the eggs of the common Wren-Warbler, but decidedly darker than those of the Tailor-Birds. The markings consist of deep red-brown blotches, spots and specks. As a rule the blotches are rather large and bold but at other times small and speckly, and these eggs, especially when the blue is very pale, could hardly be distinguished from those of Tailor-Birds. The secondary markings, if any, are of washed-out sepia or pale reddish. In all eggs the markings are few and in nearly all practically confined to the larger end. They very rarely form rings and never caps.

One hundred and twenty eggs average 14.8×11.4 mm. : maxima 16.1×11.6 and 16.0×12.0 mm. ; minima 13.1×11.0 and 15.5×10.9 mm.

In shape the eggs are broad, blunt ovals. The texture is very fine and smooth, many eggs having a fine gloss. They are stout little eggs, much less fragile than the same-sized eggs of Tailor-Birds.

Both sexes incubate but the males much less than the females ; both, also, assist in the building of the nest, though the male only brings the materials to the female. Incubation takes eleven days.

The male bird generally perches on a high piece of grass near the nest and is most unpleasantly alert and wideawake, warning the female long before one gets close enough to make sure of finding the nest. As soon as the warning note is uttered the female sneaks out of the nest and worms her way among the grass-stems for some yards before rising and flying, like a tiny Quail, in a bee-line for a hundred yards or so before tumbling headlong into the grass again.

(824) *Cisticola exilis equicaudata* Stuart Baker.

THE SIAM GOLDEN-HEADED FANTAIL-WARBLER.

Cisticola exilis equicaudata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 422.

This race of Fantail-Warbler is found in South and Central Burma and South and Central Siam to the Malay Straits. It is a bird of the plains and foot-hills up to about 3,000 feet and, like others of its species, keeps much to wide expanses of grass-land.

The only records of its breeding I can find are those of Oates in Pegu and of Herbert in Siam. The former writes ('Birds of Burma,' vol. i, p. 118) :—"The Golden-headed Grass-Warbler occurs plentifully in the plain lying near the Pegu Canal and also along the embankment running from Myetkyo to the Tounghoo Road. It is not universally distributed over the plain, but occurs in a few places only.

"The breeding season commences in May."

In Hume's 'Nests and Eggs' Oates adds that "the nest is a small bag about 4 inches in height and 2 or 3 in diameter, with an opening about an inch in diameter near the top. It is composed entirely of the white feathery flowers of the thatch-grass. The walls of the nest are very thin but strong. The nest is placed about one foot from the ground in a bunch of grass, and, in the two instances where I found it, against a weed, with one or two leaves of which the materials of the nest were slightly bound."

Herbert, who found nests in the grass near the race-course at Samkok, describes them as just like those of *C. cursitans*.

Mackenzie found it breeding in Prome, and there, also, the nest is said to resemble the purse-shaped, or oval-shaped, nest of *C. juncidis cursitans*.

The eggs apparently number four or five, though in one clutch of five in my collection, taken in Perak, the eggs have obviously been laid by two birds.

Most of the eggs above referred to, and now in my series, are just like those of *C. e. tytlteri*, but two clutches from Herbert are very pale grey-blue in colour, only faintly flecked with pale reddish. Two others taken by Mackenzie have a glossy white ground, freely marked with small blotches of red-brown.

In shape, texture etc. the eggs agree with those of the preceding bird.

Thirty-seven eggs average 14.9×11.2 mm.: maxima 16.2×12.1 mm.; minima 13.2×11.0 and 14.0×10.8 mm.

Cisticola juncidis.

THE STREAKED FANTAIL-WARBLER.

(825) *Cisticola juncidis cursitans* (Frank.).

THE COMMON STREAKED FANTAIL-WARBLER.

Cisticola juncidis cursitans, Fauna B. I., Birds, 2nd ed. vol. ii, p. 422.

This little Fantail-Warbler has an immense range, being found over practically the whole of India, Burma, Siam and Yunnan from the plains up to at least 6,000 feet, at which height it was very common in the Khasia Hills. It is a bird of grass-lands and open cultivated country where there is plenty of grass to breed in. Even in Sind the bird is common wherever it can find suitable cover, and Ticehurst gives a curious instance of the way it finds out new ground. He writes (*Ibis*, 1922, p. 552):—"On the East side of Karachi there is a depression out in the desert, which after rain fills up and quickly becomes full of rushes and sedges; this spot in mid-August, 1919, was bare desert (and had been so nearly two years); it filled on 26th August, and, as soon as enough cover

grew up, several pairs of *Cisticolas* turned up and bred; now the nearest habitat of these birds was a good three miles away, and to reach their new ground must have crossed a considerable (for them) stretch of unsuitable country."

Wherever found, the birds seem to swarm in almost incredible numbers. In parts of Assam I could easily have found twenty or thirty nests any day I chose, at the height of the breeding season, and Herbert says that at this time in Siam he, too, has seen as many as thirty nests in a morning.

Their favourite haunts in Assam are the wide stretches of sun-grass between 1,500 and 6,000 feet, which sometimes run over the undulating hills for miles without a break. In other places pockets and ravines full of evergreen forest break them up into smaller areas. In many places stunted Oaks are scattered here and there among the grass, especially where it is shortest, not over 3 feet in height. Here the little birds build their nests in the grass-tufts or, less often, in among weeds of various species. The nests are of two kinds. Perhaps the most common is shaped like a tiny narrow bag or purse, not more than a couple of inches across by anything in depth from 3 to 5 inches. This is always attached to several stems of grass, these being incorporated in the materials along the sides for some distance as a rule but, in a few, only joined to the nest for an inch or so at the top. The materials consist only of fine grass-stems, often with the flowering ends still on, whilst the lining is of the soft flowering ends alone. The second type of nest is shaped like an egg, the small end uppermost, and with a large entrance near the top. These nests, which measure roughly $1\frac{1}{2}$ inch across by about 3 inches deep, are fastened sometimes to the stems, sometimes to the blades of grasses, in the latter case the blades often being worked in to form part of the nest-walls. In these oval nests the materials for the body and lining are the same as in the other type of nest. They are placed low down, seldom as much as 3 feet from the ground, and often within 6 inches of it. They look flimsy affairs but are much stronger than they look, the clever way in which the grass-stems are interlaced to the nest giving it quite strong support.

In all nests, I should note, a few cobwebs are used and, in some, a great many; these seem to be mixed with the soft seed-fluff from the grass-ends and worked with them into the nest. In some nests also I have found a silky material which I cannot identify, but which may be from the cocoon of one of the silk-moths. The lining is often so worked up that it appears almost like soft white felt.

This Warbler and the birds of the *Suya* group suffer more from Cuckoos than any other birds I know of. How the Cuckoo gets the egg into the nest is a mystery, and certainly it seems that by no other way than with its bill could the deed be accomplished. Certainly the Cuckoo could not get into the nest,

for the young Cuckoo, when half grown, looks as if enclosed in a grass net and, finally, this bursts and drops the young Cuckoo to the ground.

Outside Assam the egg-shaped nest seems rare, but Hume found such occasionally and says that Brooks obtained a similar one. In Assam about one in three is of this oval type.

The breeding season depends on the rains, and in most parts of India the great majority of birds do not breed until after the rains break. Round about Deesa Butler found them nesting during July and August, and Davidson and Wenden say that "it breeds in the rainy season." In Eastern Bengal few birds lay until after the middle of June, though Cripps got eggs in May in Faridpore. In Burma they breed when the rains break in June and continue to the end of August. In Assam, where there is so much rain over so long a period, I have known their eggs to be taken from March to September, and there many birds have two and some have three broods. In Siam Herbert says:—"If the rains are good the nesting season is from early May to the end of August"; but he also says "a spell of dry weather will check the nesting, only to be continued with renewed vigour as soon as the rains set in again.

As regards the number of eggs laid, Hume says that in most parts of India five is the usual complement and, at Deesa, Butler took several fives. In Assam four forms the normal clutch, five fairly often, and six only occasionally, but in Lower Burma Mackenzie took several clutches of this number.

The great majority of eggs have a china-white ground and are freely speckled and spotted all over with pale red, dark red-brown, or purple-brown, without any secondary spots, though a few may be paler than the others.

In some eggs the specks become blotches and, in about one clutch in twenty, or less, they become large blotches. Normally, though more numerous at the large than the small ends, they do not form rings or caps; every now and then, however, one comes across such, and I have one clutch of eggs with dense rings of tiny deep red-brown specks and another with well-defined broader zones of pinkish-red, enlarged to a cap in one egg. One clutch of three is a very glossy white with a few round spots of pale chestnut.

About one clutch in twenty has a very pale blue ground and, more rare still, is a type with a pale pink ground; these varieties may have any of the modifications in marking already noted. I have one clutch a pale unspotted blue.

In shape the eggs are usually broad, blunt ovals and in this they are very constant. The shell is close, fine and hard, generally with quite a pronounced gloss.

Four hundred eggs average 15.0×11.5 mm.: maxima 16.8×10.9 and 16.0×12.3 mm.; minima 13.3×11.2 and 13.4×10.2 mm.

Both sexes take part in the construction of the nest and both incubate but, here again, the female does more than the male.

The time taken to build the nest varies greatly. I have seen one completed in four days and an egg laid on the fifth; yet another nest took fourteen days to build, and the egg was not laid until the sixteenth day. I think most nests take about a week to build, the birds working hardest in the mornings and evenings.

Incubation takes only ten days, as I have twice ascertained, though this seems very short a period.

(826) *Cisticola juncidis omalura* Blyth.

THE CEYLON STREAKED FANTAIL-WARBLER.

Cisticola juncidis omalura, Fauna B. I., Birds, 2nd ed. vol. ii, p. 424.

This race of Fantail-Warbler is confined to Ceylon.

Legge, as quoted by Hume, gives a very excellent account of this bird's breeding:—"In the Western Province it breeds from May to September, and constructs its nest either in paddy-fields or in guinea-grass plots attached to bungalows.

"The nest is so beautiful and so neatly constructed that perhaps a short description of it will not be out of place. A framework of cotton or other fibrous material is formed round two or three upright stalks, about two feet from the ground, the material being sewn into the grass and passed from one stalk to the other until a complete net is made. This takes the bird from one to two days to construct. Several blades, belonging to the stalks round which the cotton is passed, are then bent down and interlaced across to form a bottom on which, and inside the cotton network, a neat little nest of fine strips of grass torn off from the blade is built; this is most beautifully lined with cotton or other downy substance, which appears to be plastered with the saliva of the bird, until it takes the appearance and texture of felt.

"The average dimensions of the interior of the cup are about 2 inches in depth by $1\frac{1}{2}$ in breadth. The whole structure is generally completed in about five days and the first egg laid on the fifth or sixth day from the commencement. The number of eggs varies from two to four, most nests containing three. The time of incubation is, as a rule, from nine to eleven days."

To the above exceptionally complete yet concise account there is little to add. Rarely the nest is an oval globe like that sometimes made by the preceding bird, both Phillips and Wait having taken examples of these.

Phillips has taken five eggs in a nest several times, and once seven, these, apparently, being the produce of two birds, or of two layings by the same bird, as four were hard set and three quite fresh.

They lay in every month of the year but seem to have two principal periods, November to February, and then again July to September.

The eggs are like the most common types of the preceding bird and, though I have now seen very big series, exceptionally coloured eggs are rare. The seven-clutch referred to above has the faintest tinge of blue in the ground but I have seen no others like it.

Fifty eggs average 15.7×11.9 mm.: maxima 16.4×12.0 and 15.3×12.3 mm.; minima 14.3×12.0 and 15.3×11.1 mm.

(827). *Franklinia gracilis* (Frank.).

THE ASHY-GREY WREN-WARBLER.

Franklinia gracilis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 425.

It is difficult to find a trivial name to suit this bird, as in winter it is much more rufous, but its unicoloured upper plumage suffices to distinguish it from other species of the genus.

It has an enormous range and extends from Ceylon, all over India, Burma to Tenasserim, Siam and Assam. It is not, however, found in some of the driest areas, such as Sind and desert Rajputana, while *Harington told me that he did not think it occurred in the driest zone in Central Burma.* It is to be found in almost any kind of country, other than desert, except in deep or evergreen forest. Where gardens are very large and contain plenty of bush-cover it is no rare visitor and breeds. I have found it nesting in scrub-jungle, secondary growth, cultivation and bushes in and round villages. Occasionally they will make their nests in weeds growing in fields of grass, but they are essentially birds of bush and bracken rather than grass. Very favourite spots in Margherita were the patches of weeds and grass growing on the banks of a tiny stream running beside the principal road and trolley line. Here two or three nests were built annually.

They breed throughout the plains and in the Assam Hills up to 6,000 feet, but not so freely over 4,000 feet as below this elevation.

The nests remind one at once of those of the Tailor-Birds, the most important difference being that they are not lined with felted grass-flowers. The lining, if it can be so called, consists merely of fine grass-stems wound round and round. Like the nests of Tailor-Birds, they are built inside leaves of plants, generally quite low down. The favourite plant, wherever it is to be found, is the "khydia," a broad-leafed humble weed which has a leaf admirably adapted to this Warbler's needs, an average-sized leaf being just large enough to hold the nest comfortably when the edges are sewn together. I have never seen the end of the leaf drawn up to form the bottom of the nest, as is sometimes done by *Orthotomus*, and it is exceptional for more than one leaf to be used to enclose the nest. The greatest number of leaves I have seen sewn to one nest is three,

and that very rarely. It is always placed in pendent leaves and never in upright ones, but I once found a nest built in the turned-down tip of a Ginger-leaf, a most cosy little nest, well roofed in from the worst weather.

The breeding season over the whole area seems to be the same, the birds commencing to breed after the middle of June and continuing until September. Over a great part of Northern and Eastern India the breeding season is governed by the breaking of the rains, which may be said, roughly, to start about the middle of June, but the birds also nest at this time in other parts of India, such as Pegu (Oates), Maymyio (Osmaston) etc. In Assam a good many birds lay after the early rains in the end of April and first part of May and, as might be expected with so common a bird, odd nests may be taken almost any time between March and September.

The eggs vary very greatly. Pure unspotted white and blue eggs are quite common, especially the latter. Other eggs are pale blue or white, very rarely pale pink, marked in various ways with very pale reddish to a deep reddish-brown. In most cases the marks consist of tiny specks and spots distributed fairly evenly over the whole surface; in some they are more numerous at the larger end, where they may form faint or well-defined zones. Occasionally they consist of rather larger but very washed-out-looking blotches, sometimes hardly visible. In my "Birds of North Cachar" I commented on the fact that unspotted eggs were much more common in the early part of the year than the latter, and I gave figures showing that out of 178 eggs laid in April-June, 60 were plain blue and 12 pure white. Of 266 eggs seen in July-September, only 9 were unspotted blue and 2 white.

In shape the eggs are most often broad ovals, but long ovals are not rare. For so small an egg the shell is very strong, the texture fine and close, generally with some gloss and often with a strong one.

Four hundred eggs average 14.7×11.7 mm. : maxima 16.6×11.3 and 15.6×12.0 mm. ; minima 13.1×11.0 and 14.1×10.2 mm.

Unspotted eggs, curiously, are bigger than those which are marked, and in the paper already referred to on Cachar birds I showed that the spotted eggs exceeded the marked ones by practically 1.5×0.6 mm., a great difference in such tiny eggs. In the great number I have since measured the difference is less but still appreciable, about 1.0×0.3 mm.

Both sexes take a share in the incubation and both assist in building the nest, which is an operation taking a comparatively short time. Nests built in my own garden, or just on the outskirts, took from four to eight days to build, eggs being deposited on the fifth to ninth day following their being commenced. Early nests are, I think, always better built and take longer to construct than late nests, when the birds have to build against time, in order to have them ready for the first egg.

Incubation takes ten to eleven days, generally the latter.

Franklinia rufescens Blyth.

THE RUFOUS WREN-WARBLER.

(828) **Franklinia rufescens rufescens** Blyth.

THE BURMESE RUFOUS WREN-WARBLER.

Franklinia rufescens rufescens, Fauna B. I., Birds, 2nd ed. vol. ii, p. 427.

This Warbler has a rather curious range, being found over the greater part of India South of the foot of the Himalayas and again over the greater part of Burma South of the Chin Hills, Kachin Hills, Shan States and Yunnan. It also occurs in Siam and Annam and South into the Malay States.

Although this must be a very common bird in many parts of the vast area over which it is known, no one has been able, or has troubled, to record anything about its nesting beyond Oates's single note in Hume's 'Nests and Eggs,' and that is merely to record the fact that he found a nest with three eggs, blue speckled with reddish-brown, on the 19th August.

Cook took a few nests in the Kachin Hills in June and July, his only notes being to the effect that the nidification is exactly like that of our Assam Hills bird. All his eggs are of the blue type and only one clutch of three is marked. This is a very pale blue set, with sparse, fine specks of brick-red.

A pair taken by Harington on the 7th July, also at Maymyio, is also pure unspotted blue.

Eleven eggs average 15.35×11.15 mm. : maxima 16.2×11.8 and 16.0×12.0 mm. ; minima 13.8×9.9 mm. A larger series would undoubtedly give bigger average measurements.

(829) **Franklinia rufescens austeni** Stuart Baker.

THE ASSAM RUFOUS WREN-WARBLER.

Franklinia rufescens austeni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 427.

This Warbler extends from Kuman to Eastern Assam, both North and South of the Brahmapootra. It is also the form which occurs in Manipur, while Mackenzie records it from the Chin Hills.

It is a resident bird from the foot-hills up to 6,000 feet but, in Assam at all events, most numerous between 1,500 and 4,000 feet. Mandelli obtained it in Sikkim at Yendong breeding on the 1st May. It must, however, be rare in Sikkim, as Stevens seems only once to have met with it, when he got two males out of a small party in the foot-hills of the Eastern Dooars, whilst he obtained no specimens in Sikkim itself.

The only thing I can say of its nidification which I have not already said of *Franklinia gracilis* is that it is more of a forest bird, for though it seldom breeds inside forest it is often found on its fringe and is especially fond of the edges of those which border the patches of rice-cultivation where weeds, bracken and brambles grow in rank profusion, while there is but little overhead tree-growth. I have also seen many nests in the secondary growth which springs up so quickly when once cultivation is abandoned.

The nests exactly resemble those of *Franklinia gracilis* and are not distinguishable from them, unless it be that they are a trifle bigger.

The breeding season is principally May and June, while a good many birds also breed in July; few breed in April and equally few after July, but I have taken eggs from the 4th April to the 23rd September.

Individually no description of the eggs can be given other than what has already been given for *F. gracilis* but, if series are compared, the eggs of the present bird appear to be in proportion more often blue than white, while the blue itself is deeper in colour. The markings, perhaps, are also a trifle larger in some specimens. The size, however, is at once noticeable, the eggs of *rufescens* being much bigger than those of *gracilis*. The very great majority of eggs are blue or have a blue ground, those with a white ground numbering about one in four.

The texture is much the same but the shape is, on the whole, a longer oval.

Two hundred eggs average 16.1×11.8 mm. : maxima 17.4×12.1 and 16.6×12.3 mm. ; minima 14.2×10.6 and 14.6×10.5 mm.

With the eggs of this species I can find no connection between unspotted eggs and early laying, nor does there seem to be any difference in the size between the two types.

The habits of the two birds, *gracilis* and *rufescens*, in regard to incubation, nest-building etc., appear to be identical.

(830) *Franklinia cinereocapilla* (Hodgs.).

THE ASHY-CROWNED WREN-WARBLER.

Franklinia cinereocapilla, Fauna B. I., Birds, 2nd ed. vol. ii, p. 428.

Very little is known about this little bird, but it probably occurs in the foot-hills of Nepal, Sikkim and the Bhutan Dooars.

Stevens records (Journ. Bomb. Nat. Hist. Soc. vol. xxix, p. 1018, 1924) :—"This Wren-Warbler occurs sparingly at the bottom of the Rungbong Valley and below Gopaldhara at an elevation of from 3,500 to 4,500 feet; a pair observed at 3,550 feet on the 4th July in a thicket of reeds."

In *epistola* Stevens informs me that the birds seemed just like *Franklinia gracilis* in their ways.

As regards the nidification, nothing is known beyond the fact that J. Shillingford, when out tiger-shooting in the Bhutan Dooars, took a nest, shooting the bird. The remnants of bird and nest he handed over to my father, who gave them to me.

The nest was like that of *Franklinia gracilis*, built in a single leaf, of fine grasses, the feathery ends of which were used with cobwebs to sew the edges of the leaf together. It was said to have been built in a weed in secondary growth in deserted cultivation, and it contained two spotless blue eggs, measuring 16.1×11.7 and 16.0×11.6 mm. It was taken on the 22nd June, 1884.

(831) *Franklinia buchanani* (Blyth).

THE RUFOUS-FRONTED WREN-WARBLER.

Franklinia buchanani, Fauna B. I., Birds, 2nd ed. vol. ii, p. 429.

The Rufous-fronted Wren-Warbler is resident and breeds in Sind, Rajputana, the Deccan, Central India and the Central Provinces. Its distribution East of Southern India is doubtful but, in the North, it is found as far as Western Bengal and Behar as far East as Ranchi and Hazaribagh. The result of the Vernay Expedition may clear up its status in Madras and confirm or refute Jerdon's statements in this connection.

All accounts of this bird's breeding-haunts refer to low bush and scrub-jungle as the usual situation, in some cases the bushes being mixed with and overgrown by long grass. It is a Warbler of dry and, to some extent, desert country, though never found in desert without a certain amount of bush and scrub-cover in which it can breed. Ticehurst, writing of the country it frequents in Sind, says (*Ibis*, 1922, p. 553):—"It is a bird essentially of desert scrub-jungle, where euphorbias, a few camel-thorns and acacia-bushes make up, with tussocks of desert-grass, a scanty vegetation. In thicker forest or jungle, or cultivation proper, I never saw it." Eates found it common "in the desert-scrub on the low hills bordering the Habb River, near Band Murad Khan," where it was breeding.

In the United Provinces Gill found it breeding near Ghazipur in grass-lands, placing its nest both in grass-tangles and in between the grass-stems. All other collectors describe the nest as being built in low bushes, often thorny ones.

Hume's ample description of the nest cannot be improved on:—"The nests, according to my experience, are always placed at heights from a foot to 4 feet from the ground, in low scrub-jungle or bushes. They vary greatly in size and shape, according to position. Some are oblate spheroids with the aperture near the top, some are purse-like and suspended, and some are regular cups. One of the former description measured externally 5 inches in diameter one way by $3\frac{1}{4}$ inches the other. One of the suspended was 7 inches long by 3 wide, and one of the cup-shaped nests was

nearly 4 inches in diameter and stood, perhaps, at most $2\frac{1}{2}$ inches high. The egg-cavity in the various nests varies from $1\frac{3}{4}$ to $2\frac{1}{4}$ inches in diameter, and from less than 2 to fully 3 inches in depth. Externally the nest is very loosely and, generally, raggedly constructed of very fine grass-stems and tow-like vegetable fibre, used in different proportions in different nests, those in which grass is chiefly used being most ragged and straggling, and those in which most vegetable fibre has been made use of being neatest and most compact. In all the nests that I have seen the egg-cavity has been lined with something very soft. In many nests the lining is composed of small felt-like pieces of dull salmon-coloured fungus, with which the whole interior is closely plastered; in others there is a dense lining of soft silky vegetable down and in others the down and fungus are mingled. They lay from four to five eggs, never more than this number according to my experience."

According to the records in Hume's 'Nests and Eggs,' it breeds almost invariably after the rains have commenced at the end of June, and then on through July and August into September, while Bingham found several nests near Delhi in the beginning of October.

The only exception to this breeding season given by Hume is in Sambhur, where Adam says "it breeds just before the rains." Davidson also found it breeding in May in Saugur, while Sparrow took several nests near Trimulgherry in April and May and Barnes took nests in the Central Provinces in the latter month. All the rest of my correspondents, Whistler, Betham, Eates and many others, give June to October as the breeding season.

The number of eggs laid is generally four or five, the one as often as the other, but Eates took a clutch of six in Sind and, as the eggs are all equally richly and unusually coloured, they are obviously the produce of the same bird.

Butler says:—"As a rule the eggs are almost exactly like the eggs of *C. cursitans*." This is true but they are, of course, much larger, and they are generally much more thickly speckled and with larger spots than are the eggs of that bird.

The ground-colour is white, faintly tinged with cream, pink or bluish, in all very faint indeed, though when placed against white eggs the tinge is quite apparent. They are almost always rather profusely speckled and finely spotted with reddish-brown, dull red, or deep chestnut or purple-red. In some the specks are so small as to make them look as if powdered on, in most they are distinct spots, and in a few larger and still more richly tinted. On the whole, however, the variation is not great.

In shape the eggs are broad ovals, in a few slightly compressed at the smaller end. The texture is fine, hard and close, with a distinct gloss.

One hundred eggs average 15.9×12.0 mm. : maxima 17.5×12.0 and 16.2×12.5 mm. ; minima 14.2×11.9 and 15.1×11.0 mm.

(832) *Laticilla burnesi* (Blyth).

THE LONG-TAILED GRASS-WARBLER.

Laticilla burnesi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 430.

This Grass-Warbler breeds in Sind, many parts of the Punjab, and parts of the United Provinces. It has also been obtained as far East as Monghyr in Bengal but may or may not breed there.

This is a bird of dense grass-lands, either grass alone or grass mixed with scrub, thorny bushes or Acacias and, generally, so thick and matted that observation is difficult and nest-finding still more so. In Sind Doig found it "in certain localities very numerous, but invariably confines itself to dense thickets of reeds and tamarisk."

The finding of the first nest is described by him as follows:—
 "On the 13th March, while closely searching some thick grass along the banks of a small canal, I heard a peculiar twittering which I did not recognize. After standing perfectly still for a short while, I at length caught sight of the bird, which I at once recognized as *L. burnesi*. My sudden appearance caused the bird to get very excited, and it kept on twittering, approaching me at one time until quite close and then going away a short distance. I at once began searching for its nest, and out of the first tussock of grass I touched, close to where I was standing, flew the female. On opening out the grass, I found the nest with three fresh eggs in it, placed right in the centre of the tuft and close to the ground.

"After this I found several nests, but they were one and all deserted, though in many instances I never touched the nest, often never saw it, as on seeing the birds fly in and out of the grass with building materials in their bills I left the place and returned in ten days' time, only to find the nest deserted. In one case where a single egg had been laid, I found that the bird before deserting the nest had broken the egg.

"The nests of this bird are composed of coarse grass, the inside being composed of the finer parts; they are 4 to 5 inches external diameter and $2\frac{1}{2}$ inches internal diameter, the cavity being about $1\frac{1}{2}$ inches deep. The months in which they breed, so far as I at present know, are March, June and September."

Bell, who took several nests, gave notes on their breeding to Ticehurst, who thus summarizes them (Ibis, 1922, p. 553):—"The nests are nearly all built into a grass clump almost on the ground and are well hidden; the birds always seem to select a clump which is on the edge of a small clearing in the forest. The nests are untidy outside but neat enough inside, and are composed of 'khan' grass-down with fine grasses admixed with a few tamarisk twigs and lined with down, fine grass, tamarisk seeds, and sometimes a feather or two of Partridge; the female does the building."

In 1908 Currie found them breeding freely in several localities near Lahore, taking one nest on the 28th May, which contained three fresh eggs. On the 12th August he found nearly full-fledged young and in June he noticed a pair about to breed.

The nest and situation he describes are exactly the same as those described by Doig.

Lindsay-Smith found many breeding on the Chenab, near Multan, in April and May and, finally, Betham describes them as common and breeding in some numbers round Ferozepore.

Every collector comments on the way these birds desert their nests when found, whether they are handled or even looked at. Both Currie and Betham remark that it is quite useless to leave a single egg in the hope that the bird will continue to lay, as they *never* do so. Both have done this only to find, as Doig did, that no more eggs were laid, and the one left had either disappeared or been destroyed.

The nesting season seems to be very indefinite, perhaps in some way connected with the rainfall and consequent food-supply. I have eggs taken by Bell in Sind in March and April, while Doig found eggs as late as July, and says that they breed again in September. In Lahore Currie found them breeding in May, June and July; in Multan Lindsay-Smith obtained eggs in the first of these three months. Finally, Betham found eggs in Ferozepore in October.

The number of eggs laid is presumably four, as no smaller clutches have been found incubated.

The ground-colour of all the eggs I have seen is white, perhaps with the faintest tinge of greenish-blue, and they are profusely speckled all over with dark brown, slightly more so at the large end than elsewhere, but nowhere forming caps or zones. One or two eggs have a big, irregular blotch at the larger end. There is very little variation, but some eggs are a little more boldly speckled and richly coloured than others.

The shape is a broad oval; the texture rather fine but the surface glossless, or nearly so. Some eggs might easily be mistaken for those of *Timalia*.

Twenty eggs average 17.9×14.2 mm. : maxima 19.1×14.6 mm. ; minima 16.2×13.8 and 17.1×13.3 mm.

There is nothing on record about incubation or nest-building beyond Doig's statement that the female alone is responsible for the latter.

(833) *Laticilla cinerascens* (Walden).

THE ASSAM LONG-TAILED GRASS-WARBLER.

Laticilla cinerascens, Fauna B. I., Birds, 2nd ed. vol. ii, p. 431.

This Grass-Warbler is confined to the great grass-lands of Assam, both North and South of the Brahmapootra River, where it

frequents the immense plains covered with "sun" or thatching-grass and the almost equally great expanses of "ekra," "nal" and elephant-grass, which are flooded during the whole of the rains.

The only ornithologist who has ever found its nest and eggs is Stevens, who took two nests in North Lakhimpur which he most generously handed over to me. With the nests he sent the following notes:—"I found these two nests, one in the last week of April and one in the first week of May, near Hessamara, North Lakhimpur, in one of the huge stretches of 'ekra' and 'cagri' growing on the sides of the Subansiri River and which are completely flooded all through the rains. In its actions the bird is just like a *Prinia* but is very secretive and, owing to the thickness of the matted reeds, it is very difficult to locate the nests, even when you have located the singing bird and know you are within a few yards of the nest.

"This is a deep, well-made cup composed of grass and lined with the flowering ends of grasses, placed low down in the small scrubby bushes which grow here and there, hidden in the vast sea of elephant-grass. The bird is common and I had hoped to find many more nests."

The nests sent are as described by Stevens, untidy but compact cups, measuring a little over 4 by $2\frac{1}{2}$ inches deep outwardly and about 3 inches by $1\frac{1}{2}$ inch inwardly. The lining is neatly matted down and quite soft.

The four and three eggs contained in the two nests are like those of the preceding bird but have the ground-colour a quite strong slaty green, with the speckling almost black. They agree in shape and colour with the eggs of *L. burnesi*.

The average of the seven eggs is 16.9×13.9 mm. : maxima 17.2×14.1 mm. ; minima 16.6×14.0 and 17.0×13.6 mm.

Graminicola bengalensis.

THE LARGE GRASS-WARBLER.

(834) *Graminicola bengalensis bengalensis* Jerdon.

THE GANGES LARGE GRASS-WARBLER.

Graminicola bengalensis bengalensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 433.

In the 'Fauna' I gave the type-locality as "Ganges," where Jerdon "first observed it but did not procure specimens." He then shot birds in Cachar, and evidently describes the birds from these. The type-locality is, therefore, Cachar.

This Large Grass-Warbler is found in the country covered with high grass in the Nepal Terai and extends East into Assam both North and South of the Brahmapootra. It is possibly also found in the sub-Himalayan plains of Behar and Bengal in similar country, and certainly occurs in extreme Eastern Bengal in Dacca, Mymensingh and Noakhali, in all of which districts I have seen the birds.

Tytler was the first to have the nest and eggs brought to him, which, though taken by a native, agree exactly with others obtained for me by my collector in Cachar, and are probably correct.

The nest is said to be (Hume's 'Nests and Eggs,' vol. i, p. 249) "a rather massive and deep cup, the lower portion prolonged downwards so as to form a short truncated cone. It is fixed between three reeds, is constructed of sedge and vegetable fibre firmly wound together and round the reeds, and is lined with fine grass-roots. It measures externally 5 inches in height and nearly 4 inches in diameter, measuring outside the reeds which are incorporated in the nest. The cavity is about $2\frac{1}{2}$ inches in diameter and nearly 2 inches deep. It contained four eggs, hard-set; only one could be preserved, and that was broken in bringing up-country; so I could not measure it, but the shell was a sort of pale greenish-grey or dull greenish-white, rather thickly but very faintly speckled and spotted with very dull purplish and reddish-brown, with some grey spots intermingled. The nest was obtained between the middle of July and middle of August."

I found this bird common in the elephant-grass growing in and around the huge swamps in Cachar and Sylhet. For several years I worked these swamps but, though I saw many pairs of birds, I found no nest. Ismail Mia, a collector, when a boy, of Hume's, worked these same swamps with me, and in 1912 I got a letter from the old man saying he had at last found nests and eggs, which he sent me, taken in July, when he said many birds were breeding, but that it was impossible to get many nests as they were building where the water was too deep to wade and the "ekra" too dense to push the boat through. The nests were replicas of that found by Tytler and reminded me at once of those of Great Reed-Warblers. Two nests were about 4 inches in outward diameter and about 5 inches in depth. In among the grass and reed-leaves used in their construction were strips of reed-bark.

The eggs, two now in my collection and two which I sent to Davidson, could be matched with small eggs of *Otocompsa*. The ground is white and they are fairly thickly covered, especially at the larger end, with specks and spots of purple-red and deep brown.

My two eggs measure 17.2×14.5 and 17.2×14.1 mm., and were taken on the 24th July.

The following year Ismail died, so could not fulfil his promise to get me a series.

(835) *Graminicola bengalensis striata* Styan.

THE SIAM LARGE GRASS-WARBLER.

Graminicola bengalensis striata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 434.

So far this Grass-Warbler has only been recorded from Hainan, Siam and Tenasserim, and Delacour in his many visits to the intervening Indo-Chinese countries has not met with it.

No European has taken its nest and eggs but Herbert had many brought to him in Siam, and I have no doubt that they are quite authentic, nor can I suggest any other bird to which they could possibly belong. Herbert writes:—"This is one of the instances where I failed to get authentic information of the nest. I had two eggs brought me in 1910 and two in 1914, but at that time I only knew the bird by the Siamese name. In 1915 I sent out instructions to find nests, which were to be reported to me so that I could visit them. Two at Samkok were reported at the end of June but, when I arrived there, both nests had been taken, for safety it was said, and they were handed to me with the eggs. I went to the site of the first nest, which was a high clump of grass; the nest was cup-shaped and deep, but had been badly pulled about; the materials were coarse grasses on the outside, with fine grass for the lining. The other nest was reported to have been built in a small bush which was overgrown with grass. The time for eggs is June and early July."

The eggs given me by Herbert with the whole of his beautiful collection are from seven nests taken between the 5th June and 20th July, but four of these are incomplete clutches; of the other three, one nest contained four eggs and the two other nests three eggs each.

Most of the eggs have a pale pink ground and are profusely speckled and spotted with reddish; in all the marks are more numerous at the larger end and in some they form rings or caps. One pair has a white ground, with bold rings of coalescing red-brown spots at the larger end, in one egg a fair number of specks being distributed over the rest of the egg but in the others very few. Another pair has a pink ground, densely covered with tiny pale purplish specks, thickest at the large end. These latter are very like my eggs of *G. b. bengalensis*.

The eggs are broad ovals in shape, the texture not very fine and the surface dull, only the two eggs with the white ground showing any gloss.

Seventeen eggs average 19.0×15.0 mm.: maxima 20.8×15.3 and 20.3×16.0 mm.; minima 18.0×14.8 and 18.3×14.1 mm.

Megalurus palustris.

THE STRIATED MARSH-WARBLER.

(836) **Megalurus palustris palustris*** Horsf.

THE JAVAN STRIATED MARSH-WARBLER.

Megalurus palustris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 435.

Now that Bangs has separated the Indo-Chinese birds from the Javan race, the latter has a curious distribution, being found from Java to Tenasserim and thence through Burma to the Chin and Kachin Hills into Bengal, Behar, Orissa, Central India and West to Hoshangabad.

Nunn was the first person to take the nest, with a single egg, of this species, on the 4th May, 1868, in Hoshangabad, in the Bhopal State. Later Oates found nests in Pegu during this month; Cripps found them breeding in April and May in Dibrugarh, where Coltart and I also took many nests in the same months and, again, Cockburn took a nest at Sadiya in the same district and month.

The birds breed in patches of grass, reeds or mixed grass, bushes and weeds but, so far as I know, do not nest in the unending areas of grass-land so common in Assam, Burma and certain other parts of India. We found that for nesting purposes they preferred scrub and grass round villages, beside roads or, sometimes, large, untidy gardens. Above all else they loved deserted gardens and groves in which Pine-apples grew, more or less hidden among a wild growth of grass, weeds and brambles; certainly more than half the nests Coltart and I found were in the last-mentioned kind of place. The first nest I ever found was when waiting for a train in one of the stations on the Dibru-Sadiya Railway. Strolling up and down the station, my attention was attracted by the loud, rather harsh song of a bird, in appearance much like a Babbler, which kept on rising from some bushes close to the railway-track, and uttering his song as he soared slowly down from a height of some 60 to 100 feet. Thinking there might be a nest, I went to investigate and, sure enough, on kicking a matted patch of grass, nettles and brambles round a Pine-apple clump, out went the female. Pulling the weeds apart, I found the nest almost on the ground, fixed in between the stalks of a number of Canna-plants and an outer leaf of a Pine-apple. The nest was inside a garden and alongside a path used by dozens of people every few minutes and within ten yards of the passing trains. Other nests I found wedged in between the leaves of Pine-apple clumps, especially where these were covered more or less by jungle débris.

* Bangs having separated the Indo-Chinese bird as *M. p. andrewsi* (Bull. Amer. Mus. xlv, p. 392, 1921), our bird must bear a trinomial.

Other nests are placed in dense clumps of grass, quite low down and always well concealed. They are, however, easy to find, as the cock bird makes himself so conspicuous by song and soaring that he cannot be overlooked and, as he always sings near the nest, one has only to go round and kick each likely tuft until the hen leaves and shows where the nest is.

She sits very close and commences to incubate directly the first egg is laid but, if found with an incomplete clutch, the eggs may be left with safety, as she will not desert unless the nest has been very carelessly handled.

The nest is always the same—a rough domed ball of coarse grasses, sometimes mixed with the blades of rushes and elephant-grass, or with a few bamboo-leaves. The lining was always of finer grasses, principally grass-stems. The nests are very untidy and loosely constructed, so that it is often impossible to pull them out whole, the more so in that the outer ends of the nesting materials were often entangled in the surrounding grass and reeds. These are never incorporated in the walls of the nest, the globe just resting in among them or in between the spiky leaves of the Pine-apple clumps.

The nest is rather big in proportion to the bird and averages nearly 8 inches vertically and 6 or 7 across. Sometimes, however, nests wedged into Pine-apple plants are not more than 6 inches either way. The egg-cavity measures, roughly, 4 inches high and the same broad.

In Assam all our nests with eggs were taken in April and May, though a few *second* nests were taken in June. In Burma, also, April seems the usual month for eggs, though Osmaston took one nest with four eggs in June.

In the Philippines this species breeds first in April and then again in July; in these islands it nests in grass by road-sides or in half-eaten trodden patches of grass round villages. It is also very fond of building in the grass on the banks dividing the rice-fields.

In India the normal clutch of eggs is four, rarely three only, but in the Philippines two or three only are laid.

In most eggs the ground-colour is a pale dull pink or lilac-pink. The markings consist of very numerous specks of blackish-brown and purple-brown, with equally numerous secondary freckles of lilac-grey. These markings are numerous everywhere but not sufficiently so to obscure the ground. Some eggs are more red or red-brown in tint, but a purply tinge is undoubtedly the prevailing impression of a series. I have one handsome clutch taken by Osmaston in Maymyio which has a white ground rather boldly, though sparsely, blotched and spotted with blackish-brown and inky grey, while another clutch taken in the same district by Hopwood is similar but has fewer and more smudgy markings, and also a few irregular lines and clouds.

It is interesting to note that the eggs of the race named by Bangs,

are much darker and more definitely purple-tinted than those of the typical form.

In shape the eggs vary from broad to long ovals, the smaller end being something slightly compressed and pointed. The texture is rather coarse and there is seldom any gloss on the surface.

Forty Indian and Burmese eggs average 22.7×16.7 mm., while forty-two Siamese eggs average only 22.4×16.5 mm.: maxima 24.6×17.5 mm.; minima 20.2×16.8 and 22.5×16.0 mm.

(837) *Schœnicola platyura* Jerdon.

THE BROAD-TAILED GRASS-WARBLER.

Schœnicola platyura, Fauna B. I., Birds, 2nd ed. vol. ii, p. 437.

This Grass-Warbler is found in the Nilgiris and Palnis, and on the West Coast from Travancore North to Belgaum and Kanara. It is possible that it should be divided into a large pale Northern race and a dark Southern race, but more material is required before this can be decided.

In the South of India this species seems to frequent much the same kind of cover as does the preceding bird in the North, such as small patches of thick grass, or grass and scrub, in cultivated areas and round villages. A favourite resort is the long thick grass which grows round rice-cultivation, or on the banks which divide the fields of the different owners.

Butler discovered it breeding in Belgaum in 1880, where he took nests, in September, built in tussocks of grass growing beside cultivation. The first nest he found he describes as "a good-sized ball of coarse blades of dry grass, with an entrance on one side, built in long grass, about a foot from the ground." Another nest, found on the 19th September "was precisely similar to the others, but with the entrance-hole perhaps nearer the top, though still on one side. The situation in the grass was the same."

Bell also took many nests in Belgaum in September. Two nests taken by him on the 11th and 22nd of that month, and given to me, were accompanied by a note which reads:—"The nests were balls of grass, mostly coarse blades and large strips, with a few finer stems inside. The openings, rather large and untidy, were on one side. They were built in thick tussocks of 'sarpat' grass about 12" or 18" from the ground and pretty well concealed."

The full clutch of eggs seems to be either three or four, and all Butler's series, which were in twos only, were probably incomplete clutches, for the nest is deserted directly it is found, whether handled or not.

The eggs are white, in some specimens *very* faintly tinged with cream. The surface is covered with tiny specks of reddish-brown, with equally numerous secondary specks of pale grey. They are

more thickly disposed at the larger end but are nowhere sufficiently numerous to hide the ground, though in the most densely marked eggs they form small caps at the larger extremity.

In shape the eggs are broad, blunt ovals; the texture is fine and close and many eggs are highly glossy.

The ten eggs I have been able to measure average 19.4×14.7 mm. : maxima 20.0×15.1 and 19.5×15.3 mm. ; minima 19.0×14.1 mm.

(838) *Chætornis striatus* (Jerdon).

THE BRISTLED GRASS-WARBLER.

Chætornis locustelloides, Fauna B. I., Birds, 2nd ed. vol. ii, p. 438.
Chætornis striatus, ibid. vol. viii, p. 640.

I can add nothing to the distribution of this bird as given in the 'Fauna': "Nellore, Mysore, Deccan, Rajputana, Central Provinces, Punjab, United Provinces, Bengal, Behar and Assam. Jerdon records it from the Nilgiris and there is a specimens in the Natural History Museum labelled 'Darjeeling.' It does not occur in the Khasia and Cachar Hills of Assam except at the foot of these hills in the plains, certainly never occurring as high up as Darjeeling and probably not in the Nilgiris. General Betham found it common in Guzerat, while Ticehurst thought he saw it near Karachi."

This curious Warbler probably moves about locally a great deal, as Currie found them breeding in a recently enclosed and watered grass 'rakh' belonging to the Forest Department at Lahore during July-September, yet when he visited, in the winter, this same place it was entirely deserted. Betham had previously seen this bird near Lahore during the breeding season but had failed to find the nest, and was possibly a little too early.

Butler found it breeding not uncommonly about Deesa in the rains and obtained a nest on the 18th August. He describes it thus:—"It consisted of a round ball of dry grass with a circular entrance on one side, near the top, was placed on the ground in the centre of a low scrubby bush in a grass 'Beerh,' and when the hen flew off I mistook her for *Argya caudata*. On looking, however, into the bush, I saw at once by the eggs it was a species new to me. I have invariably found it during the rains in grass 'Beerhs' overgrown with low thorny bushes (*Zizyphus jujuba* etc.)."

Cripps, writing from Fureedpore, says:—"Very common in long grass fields. Permanent resident. It utters its soft notes while on the wing, not only in the cold season but the year through; it is very noisy during the breeding time. Breeds in clumps of grass a few inches above as well as on the ground. I found five nests in the month of May from 23rd to 28th; one was on the ground in a field of indigo; the rest were in clumps of 'sone' grass and from the same field composed of this grass. One nest contained three half-fledged young, and the rest had four eggs slightly incubated

in each. Although they nest in 'sone' grass which is rarely over three feet high, it is very difficult to find the nest, as the grass overhangs and hides it. Only when the bird rises almost from your feet are you able to discover its whereabouts."

Betham says that the bird was fairly common round Baroda, where he took a nest with five fresh eggs on the 29th of August. The nest was "situated on the ground in grass about 2 feet high and was well concealed. It was slightly domed, composed on the outside of dried grass and lined with fine roots. It was a most flimsy structure and fell to pieces on my trying to remove it. I have seen this bird both in Belgaum and near Lahore."

Betham thus describes its nuptial flight:—"It makes itself very conspicuous in the breeding season by the curious flight indulged in by the male, which rises in the air very frequently, and flies round a sort of parallelogram uttering a song, presumably over the place where the hen is sitting, and then drops down into the grass."

Like Currie, he observes that it frequents grass 'bhirs' in which there is water standing about."

From the above it will be seen that except in Fureedpore, where Cripps obtained young and eggs in May, it breeds about August, after the rains are well advanced. Inglis and Coltart, however, found one nest with three eggs in Somastipore on the 12th July. A second nest was found in the same grass-field with no eggs.

The eggs, four or five in number, are like those of *Schaenicola platyura*, but the clutch of five taken by Betham are paler and brighter than any of this bird that I have seen, and are very lightly speckled.

Twenty-two eggs (including Hume's) average 20.4×15.2 mm.: maxima 22.0×15.9 mm.; minima 19.0×14.6 mm.

Apparently the female alone is responsible for the incubation, as the male may be seen and heard at all hours of the day, soaring and singing round his wife and home.

(840) **Hippolais rama** (Sykes).

THE QUETTA TREE-WARBLER*.

Hippolais rama, Fauna B. I., Birds, 2nd ed. vol. ii, p. 442.

Within our limits this little Warbler breeds in Sind, Multan, Ferozepore and in very great numbers round about Quetta. Outside our limits it breeds from Transcaspia to South Mongolia, South to Afghanistan and Baluchistan and East to Turkestan and Persia.

The only correct reference to this bird's breeding in Hume's 'Nests and Eggs' is that of Doig, who found them nesting on the

* It is difficult to suggest a distinctive trivial name for this little Warbler. I therefore give it a name which refers to one of its principal breeding haunts in India.

Eastern Narra in Sind, where, later, Bell also took many nests and eggs. Doig's and Bell's accounts of the nest supplement one another, and I therefore give both. The former writes ('Nests and Eggs,' p. 256) :—"Locally they are very numerous and I collected upwards of 90 to 100 eggs in one field about eight acres in size. They build in stunted Tamarisk bushes, or rather in bushes of this kind which were originally cut down to admit of cultivation being carried on, and which afterwards had again sprouted. These bushes are very dense and in their centre is situated the nest, composed of sedge with a lining of fine grass, mixed sometimes with a little soft grass-seed."

Bell's notes, as summarized by Ticehurst (Ibis, 1922, p. 556), are as follows :—"The nests are mostly situated in tamarisks, pollarded or not, 6 inches to 7 feet from the ground, though twice he found nests in grass clumps in a 'khan' grass-field. When in tamarisk, the nest is usually well hidden in the thick, or 'camouflaged,' if exposed, by a litter of twigs round it, and is made of tamarisk twigs and fibre, often woven in silky threads, lined with feathers or hair and fine grass and grass-down; one nest was entirely composed of grass-down, another of grass-fibre. The whole nest forms a slightly built, deep cup; the cup is 30-40 mm. deep, internal diameter about 50 mm., external about 80 mm."

Harington Bulkley sent both Barnes and myself eggs taken "near Karachi," but no exact details were given.

Round Quetta Betham found this bird breeding in extraordinary numbers and from time to time has sent me the following interesting account of its nesting :—"This bird is a very common breeding species in and round Quetta in Spring, nesting principally in the thick rose hedges which surround the Lucerne fields but, also, sometimes, in single thick bushes while, occasionally also, I have taken a nest in a thick tuft of grass by a hedge-side. They seem to like breeding in colonies. For instance, on the 14th May, 1905, I found 14 nests in a thick bushy rose-fence round one field and on the same date the following year 31 nests in the same field. I did not by any means take all the nests I saw and I cannot say how many there were but, at a guess, I should put the number at three or four times as many as those I took. In another field, on the 22nd May, I found between 20 and 30 in a small space of a few yards. In other fields surrounded by similar fences there might not be a single nest. The nests are deep, compact cups built of twigs, grass, roots and fibre, sometimes one material predominating, sometimes another. The materials are quite well put together but it is not a very tidy little nest. The lining is of wool and hair, occasionally of feathers, or with a few feathers mixed in with the wool. The lining is compactly welded and very soft. As a rule the nests are well inside the hedges and quite concealed until the branches are pulled apart, when the nest can usually be spotted, sometimes with the hen still on it, for she sits very close and is loth to leave her nest when

disturbed, especially if incubation has started. Most nests are placed between 2 and 4 feet from the ground, some even lower but very few higher. Some nests are lined with nothing but vegetable down, but this is not often the case, though down is frequently used to mix with other materials. The birds do not desert easily, and nests we examined and left were not deserted, even though we took the eggs out to examine them. The number of eggs laid is four or five and the range of variation in colour, and still more in character of marking, was so great that we had to examine each nest carefully for fear we should let slip some new type. I also obtained one nest of this bird with three fresh eggs at Ferozepur on the 9th April, 1917. The shikaris there did not know the bird."

Williams also took numerous nests round Quetta and his observations agree with those of Betham. They both found the birds laying all through May and June into early July, but the majority of eggs were laid in May.

In Multan Lindsay Smith found them breeding on the banks of the Chenab near Multan "in the clumps of grass of which the native pens are made. This grass is cut every year at a height of 2' 6" or so from the ground and the nests are situated in the middle of these, 18" or so from the ground. The nest is cup-shaped, with a rather long conical foundation, to give it stability, I suppose, amongst the grass-stems, as it does not appear to be attached to the grass in any way. The nests in Quetta, I noticed, were not nearly so elongated as the type built in grass in Multan" (*Journ. Bomb. Nat. Hist. Soc.* vol. xxiii, p. 367, 1914).

Although this Warbler seems to be so adaptable in its site for the nest—tamarisks in Sind, grass in Multan and Ferozepore, and roses in Quetta—the last-mentioned seems to be the favourite, for both A. J. Currie and F. Petherick found them breeding in "incredible numbers" in Persia in Rose-bushes, and here, more than once, two nests were found in one bush.

As already noted, May is the chief breeding month in India, running through June and tailing off in July. In Persia they breed from early April to the end of July.

The eggs vary in wonderful degree but more in character and style of marking than in colour. The ground varies from pure white, which is very rare, to a warm puce-grey, which is also exceptional. Most eggs are a very pale grey-white, some faintly tinged with dull pink, cream or buff. Of the markings it is easier, perhaps, to describe some of the types, remembering always that every intermediate link occurs between these types:—

(1) Ground pale grey, freely marked with small spots of black, with still most numerous underlying spots and sometimes twisted lines of pale grey. In most eggs of this type the markings are scanty, in a few only rather dense.

(2) Similar, but with a dark grey ground.

(3) Pale buffy grey, profusely marked at the larger end with innumerable minute specks of grey, coalescing to form caps at the end but sparse elsewhere. In this type there are sometimes a few odd specks of black.

(4) Like tiny Cirl-Buntings' eggs; white, with lines, scrawls and spots of black with secondary marks of pale lavender.

(5) Like tiny Corn-Buntings' eggs; the ground dull pink, creamy or pale buff, with lines, large blotches and scrolls of purple-black, black and pale lilac and pinkish-grey.

(6) Something like (5), but with the scrolls of red-brown and the underlying marks of reddish-grey.

(7) Any of the above ground-colours, clouded with purple or lilac-grey, over which are superimposed a few primary markings of black or deep red-brown.

In types (5) and (6) some eggs have the markings fairly numerous, always more so at the large end than elsewhere, and in the nature of rather large blotches intermixed with the scrolls but, in a few clutches, the marks consist only of long scrolls intertwined and confined to a ring round the larger end.

A few eggs might be mistaken for those of *Hippolais pallida pallida* or *H. p. elæica* but I have not seen any of the deep rose tint of *H. languida*. The prevailing impression of a series is that of tiny grey eggs, with many specimens just miniatures of Cirl-, Corn-, or Yellow Buntings.

Two hundred eggs average 15.8×12.3 mm. : maxima 18.0×13.2 and 15.6×13.3 mm. ; minima 14.4×12.1 and 15.0×12.0 mm.

In shape the eggs are nearly always broad, blunt ovals, a few are rather long ovals, and fewer still are somewhat pointed at the small end. The texture is very fine and close but the eggs have no gloss and they are fairly strong for their size.

I have no records as to incubation or in regard to the building of the nest.

(844) *Hippolais languida* (Hemp.).

THE LARGE, or UPCHER'S, TREE-WARBLER.

Hippolais languida, Fauna B. I., Birds, 2nd ed. vol. ii, p. 445.

The breeding range of this Tree-Warbler is from Syria and Palestine to Baluchistan (Quetta), Afghanistan and Turkestan.

Meinertzhagen recorded this Warbler as a breeding bird in Quetta (Journ. Bomb. Nat. Hist. Soc. vol. xxiii, p. 362, 1918) and later (*ibid.* vol. xxxiii, p. 600, 1929) Williams writes on the breeding of this bird as follows:—

“ Though very little has been recorded about this Warbler or its interesting habits, in Baluchistan I have found it very far from uncommon upon the stunted bush-covered stony hill-sides of the Quetta Valley. It is a rather silent bird and, in consequence, its

presence is often overlooked or, if seen, it is mistaken for the previous bird. It is a much later breeder than any of the other Warblers; the earliest date a nest was found was the 15th May and I was very unfortunate in being able to find only four nests which contained eggs. One of these contained an addled egg with two young ones, another egg was taken from a nest which was deserted after it was first found, no more eggs being laid, and the other two nests contained two and three eggs respectively.

"The birds are very shy and we found that they deserted their nests on the slightest provocation, whether the eggs were laid or not.

"The nest itself is a neat little cup, made principally of grass, the lining being of fine grass-stems, while the outside is well plastered and matted with cobweb. The nest is generally placed in small, close-growing branches of stunted thorny bushes.

"The eggs are moderately long ovals, slightly pointed at one end; the ground-colour is a pale pinkish, sparsely marked with fairly bold blotches and clots of black. The shell is fine, very fragile, and slightly glossy."

Williams found them breeding in May and June and sent me a few notes in addition to the above. One nest was in a conspicuous position, being in among the branches, 3 feet from the ground and 8 inches below the bushy green top. This nest had been begun on the 9th May and contained the first egg on the 16th, and, when visited again on the 27th, had two eggs in the nest and a third lying broken on the ground outside.

I think I should call the eggs a rosy grey; they are never the deep rosy red grey of *H. scita* while, on the other hand, they have more of the rosy grey tint than any of the other species which occur in our limits.

Three eggs given me by Major Williams measure 18.2×13.7 , 18.3×13.3 and 18.0×13.0 mm.

Twenty-eight eggs, excluding the above three, average 18.9×13.6 mm.: maxima 19.9×14.5 mm.; minima 17.6×13.1 mm.

Sylvia hortensis.

THE ORPHEAN WARBLER.

(846) *Sylvia hortensis jerdoni* Blyth.

THE INDIAN ORPHEAN WARBLER.

Sylvia hortensis crassirostris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 448.

Sylvia hortensis jerdoni, ibid. vol. viii, p. 641.

The distribution of the bird which breeds on our Baluchistan frontier has never been fully worked out but, so far as I have been able to examine specimens, the following may be taken roughly

as its breeding range :—Turkestan, Transcaspia to Mesopotamia, Baluchistan, Afghanistan and Persia.

The Indian Orphean Warbler breeds freely on our North-West Frontier and in Baluchistan.

This bird frequents, and breeds in, scrub- and bush-jungle on more or less open hill-sides round Quetta between 6,000 and 8,000 feet, but at Cherat, on the North-West Frontier, Jones found it breeding at 4,500 feet.

Betham was the first person, apparently, to take its nest near Quetta and he says (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 631, 1907) :—“ I found this bird very common round Quetta in the spring, more especially from 7,000 feet upwards. Unfortunately I made the discovery too late, otherwise I could have got many clutches. The first nest I came on was on the 13th May; to my great disappointment it contained three young just hatched and one egg hatching. However, my mourning was soon turned to joy, as I came on another nest, shortly after, containing four fresh eggs. In the same locality, on the 20th May, I found a nest with three young and one addled egg, and in another locality, much higher, I took four incubated eggs on the 18th June and four fresh eggs on the 27th idem, besides finding many nests with young. The nest is placed in a low bush and is not difficult to see. It consists of bents and twigs and is lined with hair and fine material, cobwebs being used outside. It is a compact neat cup, well made. This bird is a close sitter.”

Williams writes of the nests found by him (*ibid.* vol. xxxiii, p. 601, 1929) :—“ The bird appears to be confined to certain localities only in the hills (Quetta) where there is a fair amount of bush and not too far from water, though they are sometimes met with in very arid regions.

“ Generally speaking, in the better watered and bushed localities these birds are fairly common. When I first noticed them I was not certain to what species they belonged, so, to make certain, I shot one as it flew out of a bush, and on examination found that I had obtained a specimen of *Sylvia hortensis crassirostris*. I at once searched for its nest, which was found near the top of the bush from which the bird had flown. It contained three incubated eggs.

“ The earliest date on which a nest was found was the 9th May, after which many more nests were found, the last being taken on the 9th June. The nest is a neat cup of grass-bents and the dead leaves of bulbous plants, and is well lined with fine grass-stems.”

Jones describes the nest taken by him as rather different (*ibid.* vol. xxvii, p. 630, 1921) :—“ The materials used are grass-bents, (stem and blade), which were green when the nest was newly built, and very fine fibres, the whole being profusely decorated with white vegetable down.”

This nest contained four eggs on the 28th May and was built 5 feet from the ground in a scrubby bush.

Nests taken by Betham and Williams were generally 2 to 4 feet from the ground in "thorny bushes," "sage bushes," or "wild almond bushes," and were not very well concealed. The birds sat very close, not leaving the nest until the bush was touched.

As will be seen from the notes given, the breeding season lasts from the end of April to the end of June, most eggs being laid in early May.

The full clutch of eggs varies from three to five.

The ground-colour is an excessively pale greenish-white, very rarely quite white. The markings consist of specks or small blotches of blackish-brown and secondary ones of pale grey, fairly numerous at the larger end, but scanty elsewhere. One clutch taken by Betham has the markings more numerous, rather large and much paler, while in yet another they are mostly inky and very sparse, except in a thin ring round the larger end.

The texture is hard, close and fine, many eggs having a considerable gloss. The shape varies from a broad, rather pointed oval to a long oval.

Thirty-one eggs taken in India average 20.6×15.5 mm. : maxima 21.9×16.3 mm. ; minima 19.1×15.4 and 19.3×15.0 mm.

Sylvia nana.

THE DESERT WARBLER.

(847) *Sylvia nana nana* (Hemp. & Ehr.).

THE TURKESTAN DESERT WARBLER.

Sylvia nana nana, Fauna B. I., Birds, 2nd ed. vol. ii, p. 449.

The extent of this bird's breeding area is not really yet known. Hartert gives it as "West Transcaspia and the Steppes to Sir Darya, Turkestan, South and East Persia, Baluchistan, East Turkestan to Alaschan."

I have had three nests and eggs sent me from the mountains above Yazd, in Persia. With the first eggs, sent me as Goldfinches!, I got no skin, but with the next two I received one with a letter from the collector, Mr. Petherick, saying:—"These two are the same as the one clutch I sent you a short time ago but they are not Goldfinches, and I am sorry to say are only Whitethroats of sorts, as you will see from the skin. The nests were both in masses of brambles and roses." The skin sent is that of *nana* and the two nests were fragile, deep little cups of grass-bents and what Petherick calls "twigs," but which are merely very fine hard roots. They are both lined with down of some seed, making a regular thin felt. They were too much knocked about to measure. The first nest was

taken on the 17th June at 10,000 feet and contained four eggs, the other two, taken on the 24th and 25th of June, contained four and five eggs respectively.

I have also another nest, said to be of this bird, taken by a friend of Mr. J. Stewart on the Dicean Hills, Sind. Knowing them to be new, Stewart sent them on. Beyond the fact that they were taken at the place named, the only details I could get were given in a letter from Mr. Stewart :—“I believe the eggs were taken in the last week in April, and the nest was just the ordinary Whitethroat's nest in a low bush. At the same time I did not know that Whitethroats were found in barren, rocky mountains like these.”

Of the four clutches of eggs, three have the ground pure white, the fourth dull brownish-white. The primary markings consist of brown and pale sienna blotches, fairly numerous at the larger end and sparse elsewhere. The secondary markings are of paler grey and still paler sienna.

Sixteen eggs, including the three Baluchistan eggs, average 17.5×13.1 mm. : maxima 18.1×13.0 and 18.0×13.6 mm. ; minima 16.5×13.0 and 17.0×12.6 mm.

(848) *Sylvia althæa* Hume.

THE KASHMIR LESSER WHITETHROAT.

Sylvia althæa, Fauna B. I., Birds, 2nd ed. vol. ii, p. 450.

Hume's Lesser Whitethroat, as this bird has hitherto been called, is found from Transcaspia to Baluchistan, Afghanistan, Kashmir, Ladak and the Garhwal Hills. It breeds also in Turkestan and East Persia.

Its lowest limit of nesting is probably something over 5,000 feet, the lowest actual elevation from which I have received eggs being 5,500 feet, at which height Osmaston took a nest on the 29th May on Pari Mahal, near Srinagar. The highest record I have is 11,000 feet, at which the same ornithologist obtained a nest at Marsalong, in the Indus Valley.

This Whitethroat seems to prefer open hill-sides, covered with scattered scrub, grass and rocks, sometimes nesting in among small patches of bushes in very bare hills.

Davidson, under the name of *affinis*, which at the time he wrote was supposed to be the common breeding species of Kashmir, remarks (Ibis, 1898, p. 16) :—“This bird we found in great abundance on the bare hills round Srinugger in the end of April, and among the scrub-jungles along the Sind River, as far as Kulan (6,800 ft.), four or five miles further up than Gund. It was breeding from the end of April to the end of May in low scrub, generally along the nullahs. The nests were neat cups of grass and roots, lined with horsehair, and generally contained four eggs of the usual Whitethroat type.

“On our return to Srinugger at the end of June the hills had

got very much burnt up, and we were surprised to find the bird again breeding; but, instead of being among the scrub, the nests were on the outer branches of pine-trees, fifteen and twenty feet from the ground. We found four or five nests in this situation in the Tukht-i-Suliman, all with fresh eggs, and the birds at that time seemed to be restricted to the small scattered pine-woods."

Osmaston, who obtained a really marvellous series of this little Whitethroat's eggs in Kashmir, Garhwal, Ladak etc., found them always breeding in low bushes and, with the one exception of a nest taken "at 4½ feet from the ground, all were built in bushes under 3 feet from the ground and most at about 2 feet."

Williams also found it breeding freely near Quetta in Sage-bushes, wild Roses and brambles, all quite close to the ground. Here they were sometimes to be found in very barren country, scattered bushes sufficing as sites for a nest.

As a rule the nest is a flimsy but rather deep cup made of fine grasses and grass-blades and lined with finer grasses. This is rarely placed in a fork, but is suspended, or semi-suspended, between twigs or between sprays of brambles. About Quetta Williams found that the nests were nearly always made of the dry dead leaves of a bulbous plant, supplemented with grass and lined with fine grass or with coarse hair. Often spiders' webs and spiders' egg-bags are used to strengthen the structure outwardly.

The whole of the notes recorded in Hume's 'Nests and Eggs' under the name of *Sylvia affinis* should really apply to the present species, with the exception, perhaps, of those from Afghanistan recorded by Wardlaw-Ramsay. It has, however, been unnecessary to quote from this work, as the bird and its breeding are now so well known and so frequently described.

The breeding season in Kashmir and Garhwal is April, May and June, and about Quetta from the last few days of April to the first week in June. Some birds, as described by Davidson, have two broods, but such does not seem to be regularly the case, and even the nests found by Davidson in June may have been those of late breeding birds and not second nests.

Generally speaking the full clutch is four or five eggs and I have seen one of six, but in Quetta four is the maximum and three the normal full clutch.

Most eggs have a white ground but in a few it is a pale dull creamy. The primary markings consists of small spots and blotches of light brown and dark brown, with secondary blotches of lavender or pale washed-out sienna. In some eggs the marks are well defined, dark, and mostly contained in a ring at the larger end and scanty elsewhere. In other eggs the blotches are ill-defined and paler, the secondary and primary markings looking as if running into one another; in these eggs also the markings are often more numerous and scattered more freely over the whole surface, though they are never really heavily blotched. I have one set scantily marked

with pale sienna only; another, with a creamy ground, has quite bold blotching of dark brown with underlying blotches of dark grey.

The average of one hundred eggs is 17.6×13.2 mm.; maxima 22.1×12.8 and 20.0×14.1 mm.; minima 15.4×12.0 mm. (Quetta).

In shape the eggs are nearly all fairly broad ovals, distinctly compressed towards the small end; a few are rather long ovals and a few others very broad and pointed.

Sylvia curruca.

THE LESSER WHITETHROAT.

(849) *Sylvia curruca affinis* (Blyth).

THE INDIAN LESSER WHITETHROAT.

Sylvia curruca affinis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 451.

The Indian Lesser Whitethroat was supposed to breed in great numbers in Kashmir but, so far as I can ascertain, all the records made refer to the preceding species, *althæa*, and I can find none which certainly refer to the present species.

Outside our limits it breeds throughout Western Siberia, at least as far East as Transbaikalia and the Yenesei, while Smirnofff took many nests as far East as Uskinskoe. South it is found in Summer in the Tianschan and Altai and almost certainly as far as Baluchistan.

The only record of its breeding within our limits that seems worthy of quoting is that of Betham. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 831, 1907):—"Apparently a few of these little birds remain to breed. I found one nest on the 13th May, containing four incubated eggs, and another on the 31st, with four young. The nest was rather a flimsy structure of twigs, lined with bents and a little hair. They were both placed in low thorn bushes, but not difficult to see."

The eggs average 17.9×13.4 mm., very large for *affinis* and about normal for *althæa*, which is the only other egg they can be. They are, however, of the rather dull sienna-tinged colour common in *affinis* (Siberian) but exceptional in *althæa*. The bird, shot off the nest, is in the Bombay Museum and has been identified as *affinis*.

I have twice had eggs given me by Col. Ward as eggs of *affinis*—one clutch of four taken on 30th May, 1895, and one clutch of four taken on 31st May, 1898.

These are probably both *althæa*, though at the time I identified a skin sent me as *affinis*. The eggs are like those of *althæa* but dull and grey.

The average of twenty-four absolutely authenticated eggs is 17.4×13.0 mm.; maxima 19.0×13.7 and 18.3×14.0 mm.; minima 15.1×12.9 and 17.0×12.1 mm.

(852) *Phylloscopus affinis* (Tick.).

THE YELLOW-BELLIED, OR TICKELL'S, WILLOW-WARBLER.

Phylloscopus affinis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 454.

This Willow-Warbler is the most common of the many Willow-Warblers breeding within our limits. It is very numerous from the extreme West on the frontiers of Afghanistan and Baluchistan right away to the Eastern Himalayas North of Assam and to South-Eastern Tibet.

It breeds at all elevations from about 7,000 feet up to the highest elevations at which sufficiently thick cover of some sort is available for nesting purposes. In Kashmir they breed from 9,000 to 12,000 feet, rarely as low down as 8,000. Whitehead took them in the Kurram Valley at and above 12,000 feet. Crump obtained many nests at Chusal, in Ladak, at 14,000 feet; in Tibet it is extremely common between 12,000 and 14,000 feet. Whymper took nests in Kuman at about 8,000 to 9,000 feet, whilst in Garhwal he obtained others at 14,000 feet.

B. B. Osmaston (Journ. Bomb. Nat. Hist. Soc. vol. xxxi, p. 990, 1927) remarks:—"This little Warbler is exceedingly common at high elevations, above the tree limit both in Kashmir and Ladak. It is found breeding in the low scrub *Caragana* and *Berberis* in Ladakh; in juniper, dwarf rhododendron, dwarf willow and *Berberis* in Kashmir at from 10,500 to 16,000 feet. No other bird approaching this one in smallness is found at these high altitudes, at any rate in Ladakh, and it is, indeed, strange how such minute birds can survive the low temperature experienced regularly at night and occasionally also during blizzards, by day.

"Nests are of dry grass, domed and copiously lined with feathers, placed in the low thorny scrub from 1' to 2' from the ground."

A. E. Osmaston (*ibid.* vol. xxviii, p. 144, 1924) gives much the same description of ground and nest:—"Between the Cher-Hoti Pass and the border of Tibet there lies a valley of gently undulating slopes occupying an area about 6 miles long and 2 miles broad, much of which lies between 12,000' and 14,000' elevation. This valley forms the head-waters of the Girthi River. The climate is Tibetan and the dry, stony and sandy ground supports a scanty vegetation of dwarf *loniceras*, *caragana*, juniper and willow. It was in this valley that I found *P. affinis* breeding in considerable numbers, though I noticed no other members of the Warbler family here. In the first week of August nesting is almost completed and I could only find one nest with half-fledged young, two from which the young had already flown and one deserted nest with eggs. The nests were all placed from 6" to 1' above the ground in low dense willow bushes which were growing in a gregarious manner on a piece of level ground bordering the stream. They were almost round in shape and were constructed of rough grass and lined with feathers."

As Warblers in the field are not easy birds to identify, the peculiarities of each species' nidification should be borne in mind. This particular bird's characteristics may be summed up as follows :—

Breeds at high elevations, generally over 10,000 feet, in open treeless country, placing its nest *very* low down in bushes. Nest globular, rather untidy, made of coarse grass and well lined with feathers.

The lining is generally dense and copious, composed of soft feathers ; sometimes, but *not* usually, a little fur is mixed with the feathers and both the nests taken by Whitehead in the Kurram Valley had fur in the lining. Macdonald also sent me two nests which had goats' hair mixed with the feather lining. The nests are not well hidden and several of my correspondents, among them Whitehead, Ward, Crump and Macdonald, all say that the nests are easy to find because they are so often placed in quite conspicuous positions near the outside of the bush.

The breeding season is confined to June and the first half of July, very few birds breeding either earlier or later.

The eggs in a complete set may be four or five, the latter number being obtained in about one nest in four.

The eggs are pure china-white, many immaculate, many faintly and sparsely marked with tiny specks of red at the larger end, where they sometimes form rings, a few only being definitely spotted with rather dark red at the larger end, here and there a speck or two also showing elsewhere. As a rule in each clutch one egg is quite distinctly spotted, one or two faintly spotted, and the others pure white. I have several clutches all pure white but I have no clutch in which all the eggs are well spotted, though I have one four all of which are very faintly freckled at the big end.

In shape the eggs vary from broad to long, pointed ovals. The texture is very fine and close and the surface almost invariably has a fine gloss.

One hundred and forty eggs average 15.5×12.0 mm. : maxima 17.2×12.3 and 16.0×12.5 mm. ; minima 14.3×11.3 mm.

Whitehead, in his notes, says that he has caught the male sitting on the eggs, a very interesting fact, and possibly due to the elevation at which these birds breed being so cold that the cock has to incubate when the hen feeds, morning and evening. With most of the Willow-Warblers whose habits are known the cock bird does not sit, but is very careful to drive the hen bird back when he thinks she has stayed away long enough.

(853) *Phylloscopus tytleri* Brooks.

THE PALE-BELLIED, or TYTLER'S, WILLOW-WARBLER.

Phylloscopus tytleri, Fauna B. I., Birds, 2nd ed. vol. ii, p. 455.

This Willow-Warbler breeds in the Western Himalayas from the Afghan boundary as far as Garhwal East. It is common in

Kashmir from 8,000 feet up to the tree-limit, and its nest has been taken at about 9,000 feet in Apharwat, near Rupal, Astore, at 10,000, and in Kishtwar. Lower still, around Sonamurg, about 8,000 feet, Rattray took many nests in 1906. On the North-West Frontier Whitehead took one nest at about 11,500 feet at Poorbiat, in the Khagan Valley.

This is essentially a forest Warbler, breeding almost entirely in Pine forests or in those which are mixed with some kind of coniferous tree. Brooks, who discovered and described this Warbler, says:—“*P. tytleri* is exclusively a pine-forest *Phylloscopus*; our new species builds, 40 feet up a pine-tree, a compact half-domed nest on the side of a branch.”

Cock, who took nests and obtained the birds which he sent to Brooks, writes about one:—“One day in the forests at Sonamerg, Cashmere, I noticed a Warbler fly into a high pine with a feather in its bill. I watched with the glasses and saw that it was constructing a nest, so allowing a reasonable time to elapse (9 days or so), I went and took the nest. It was placed on the outer end of a bough, about 40 feet up a high pine, and I had to take the nest by means of a spar lashed at right angles to the tree, the outer end of which was supported by a rope fastened to the top of the pine. The nest was a very solid deep cup of grass, fibres and lichen externally and lined with hair and feathers. It contained four white eggs, measuring 0.58 by 0.48.”

The female off this nest, taken in early June, was identified by Brooks.

Rattray describes the positions of the nests of this species taken by him in Sonamurg as built in similar places between 20 and 40 feet from the ground. The nests, however, he says, are domed, though of the same materials—grass, lichen, moss, roots and fibre, all densely lined with feathers.

A. E. Osmaston also found domed nests. Of the birds and their nidification he writes (Journ. Bomb. Nat. Hist. Soc. vol. xxxi, p. 990, 1927):—“This species is found in the Silver-fir forest of Kashmir between about 8,000 and 10,000 feet, especially where there are small sunny openings in such forests with shrubby undergrowth of viburnum etc.

“Nidification commences early in June. Nests are small and globular, resembling those of *P. proregulus*, and are constructed of lichens, moss etc. and lined with feathers. They are well concealed in the leafy boughs of Silver-firs, generally at some considerable height above the ground, rarely within 20 ft. of it.”

Whitehead describes a very unusual nest taken in the Khagan Valley off which the male was shot:—“It was of the usual domed type but very frail, composed of grass and lined with feathers and hair.” This nest was taken at 9,800 feet, 30 feet up in a Blue Pine. The female is in the British Museum.

The characteristics of this Warbler's nidification are the moss-

and lichen-made domed nests, lined with feathers and placed high up in Pines. The eggs are white, or nearly so, and not in the least like those of *P. proregulus*, which makes a somewhat similar nest in similar positions.

The breeding season is from the last few days of May to the middle of July.

The number of eggs laid varies from three to five, the latter being quite exceptional.

They are pure unspotted white, an occasional egg being very faintly speckled with red, whilst I have one clutch taken by Whitehead in which all three eggs are lightly freckled with tiny pin-points of red.

In shape the eggs are generally normal ovals, but long, pointed ovals and short, broad ones occur.

The texture is less fine than in the eggs of *P. affinis* and, though the surface is smooth, there is rarely much or any gloss.

Thirty-six eggs average 16.0×12.2 mm. : maxima 17.2×12.2 and 17.0×13.0 mm. ; minima 14.3×12.1 and 15.3×11.5 mm.

Phylloscopus collybitus.

THE CHIFFCHAFF.

(855) *Phylloscopus collybitus sindianus** Brooks.

THE SIND CHIFFCHAFF.

Phylloscopus collybitus sindianus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 457.

Within our limits the Sind Chiffchaff breeds in great numbers in Ladakh, where Osmaston took a really wonderful series between the 20th May and 4th July at elevations from 10,500 to 14,200 feet. It also breeds in Western Tibet and almost certainly in Northern Kashmir. Outside Indian limits it breeds in South-Eastern Turkestan as far North as Aksu.

The breeding of this bird has been unknown until recent years, when fine series of the bird's nests and eggs have been taken by Osmaston (B. B.) and Ludlow.

Under the name of *Phylloscopus tristis* the former gives a very interesting account of its nidification (Ibis, 1925, p. 678), which I quote almost *in extenso* :—"This species is exceedingly common throughout Ladakh from 9,500 to 14,000 feet, wherever there are trees or large shrubs. They chiefly affect willow and poplar groves, but are also sometimes found in low scrub provided there are some

* Whistler considers our Himalayan breeding birds are *subsindianus*, a conclusion I cannot agree or disagree with in the absence of specimens to compare, though I am very doubtful if *subsindianus* can be separated from *sindianus*. For Mr. Whistler's remarks, see Ibis, 1931, p. 91.

trees or big shrubs in the neighbourhood. They arrive early, and are in full song by the middle of May.

“Breeding commences in the third week in May. Nests are usually placed in low thorny scrub a foot or so from the ground, and are then well concealed. Where low bushes are not available the bird has, of necessity, to find other building-sites. In Leh, for instance, a favourite place is among the cut thorns which are placed on the tops of village walls and on the roofs of houses.

“In the Puga Valley, where this species was extremely common, practically the only shrubby vegetation consists of large bushes of *Myricaria elegans* with no undergrowth. Here nests were found in these bushes at various heights from the ground, from 5 to 8 feet, and in these cases the nests were, of necessity, conspicuous objects. In one case a nest was found in a willow, out of reach.”

Between the 18th May and the 23rd July Osmaston records finding no less than about fifty nests, empty, with eggs or with young; twelve nests, of which seven had full clutches of four fresh eggs, were found on the 26th June. He adds:—“Nests were very similar to those of *P. affinis*, but could generally be distinguished by the presence of a layer of exceedingly fine vegetable down under the lining of feathers which was absent from the nest of *P. affinis*.”

“Four seems the full complement of eggs, only a single nest with five being seen.”

To the above little can or need be added.

The eggs, fortunately, are easily distinguished from those of *P. affinis*, although the nests are so much alike both in construction and position.

The ground-colour is always white but is not so glossy as it is in the eggs of *P. affinis* and they are always speckled or spotted with rich deep red or red-brown, these marks forming a zone, often very well defined round the larger end. A few eggs have the specks very small and a few others have a fair number of specks and spots on the smaller as well as on the larger half.

The feeblest marked egg in the combined Ludlow-Osmaston series is better marked than the best-marked *affinis* known to me.

The eggs differ distinctly from those of *P. c. tristis* in having the markings red instead of black, purple-black or blackish-red, while in shape they are not nearly such broad ovals.

The shape varies from broad to long oval; the texture is fine and close, with no gloss, though the surface is very smooth and clean-looking.

Fifty eggs average 15.5×12.0 mm. : maxima 17.0×12.6 mm. ; minima 14.1×11.4 and 15.3×11.1 mm.

Phylloscopus neglectus.

THE PLAIN WILLOW-WARBLER.

(856) **Phylloscopus neglectus neglectus** Hume.

THE PERSIAN PLAIN WILLOW-WARBLER.

Phylloscopus neglectus neglectus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 458.

This little Warbler is said to breed from Transcaspia to Persia. Whether it breeds within our limits or not is still doubtful.

I had a clutch of eggs, nest and skin sent me from Phari, in Tibet. The nest is exactly like that of *P. affinis* and the eggs are quite typical of that bird, but very small and less glossy. The skin was that of *neglectus*, with a wing of 48 mm., so small that it sufficed to confirm my identification, despite the tattered condition of the specimen. It was taken on the 2nd August at about 14,000 feet. As it may well be that *neglectus* migrates South through Phari at about this time, there is a possibility that another Warbler was shot in mistake for the real owner.

Ward has taken a good many nests in Kargil, Ladak, also at about 14,000 feet elevation, and one or two at Rupal, Astore, at 10,000 feet. I have seen no skins from the latter place but have seen two skins from the Ladak expedition run by Whympner and Ward, which had been correctly identified by Ward as *neglectus*.

All that is known about their breeding is what I can gather from Ward's notes, which describe the nest as made of grass, domed and lined thickly with feathers and placed within a few inches of the ground in scrub of some kind growing on very bleak, stony, waste land.

Ward's clutches run from three to five eggs in number, the dates on which they were taken being between the 25th May and the 8th July.

The eggs are not those of *P. c. sirdianus* or of *P. affinis*. One clutch of three is white, with very faint specks of reddish; a clutch of five is white handsomely speckled with red, the spots more numerous at the larger end but plentiful everywhere except at the extreme small end. Three other clutches are intermediate. One clutch only seems as if it might be that of *sirdianus*; the eggs are larger, more glossy and are marked in zones at the large ends, as the eggs of that bird so often are.

Twenty-seven eggs average 15.1 × 11.7 mm.: maxima 16.1 × 12.1 mm.; minima 13.1 × 10.4 mm.

Against this must be noted the fact that eggs taken by Witherby in Faristan were pure white, though the nest seems to have been exactly like that described by Ward and Crump, and to have been placed in a similar position. It may well be that this Warbler—like others—sometimes lays white and sometimes spotted eggs. If not the eggs of *neglectus* it is very difficult to say what breeding bird in Ladak could possibly have laid them.

(858) *Phylloscopus griseolus* Blyth.

THE OLIVACEOUS WILLOW-WARBLER.

Phylloscopus griseolus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 459.

The breeding range of this Willow-Warbler extends from the Afghan and Baluchistan frontiers to Ladak and Tibet on the East and North into Turkestan and Bokhara to the Altai.

The first person to take the nest and eggs of this bird was probably Col. Ward's and S. L. Whymper's collector, in 1906, who obtained two clutches in Ladak. Then Whitehead (*Ibis*, 1909, p. 123) records that it "nests freely in parts of the Safed Koh Range," and a clutch of these eggs taken by him was given to me by Mrs. Whitehead after his death. In both these cases the birds were shot off the nest.

Ticehurst says that they certainly breed in Baluchistan, and Delmé-Radcliffe also says that they breed about Ziarat near Quetta.

Finally, in 1921 and 1922 Whistler found several nests in Lahul during June and July (*Ibis*, 1925, p. 168) and again took others at the foot of the Pingdong-La, above 14,000 feet, in 1928.

With a set of eggs sent to me Whistler has given me copious and interesting notes, which may be summarized as follows:—

In 1921-2 he took several nests of this Warbler, between 11,500 and 13,500 feet elevation, in Lahul, between the 3rd June (1921) and the 24th July (1922), whilst in 1928 he took others in Ladak in the same months at even greater heights, one nest at Dobring, at the foot of the Pingdong-La, having been found above 14,000 feet. The birds frequent "bare hill-sides, where moraines of loose stones and boulders support luxuriant herbs or a few bushes in which the nest may be placed. One nest was placed 6 inches from the ground in a small *Lonicera*-bush, on a barren hill-side, the actual site of the nest being a detritus slope below a precipice."

Another nest, the first taken by Whistler, was about 2 feet from the ground in a mass of shoots growing from a Juniper-tree. Another nest was built close to the ground in a Juniper-bush, another in a cut-down Willow-stump, and yet another, only 6 inches from the ground, in a Tamarisk-like thicket.

The nest seems to be always very low down, generally only a few inches, and never more than 2 feet from the ground. As a rule it is not very well concealed and both Whistler and Crump (Ward's collector) speak of the nest as "ill concealed" or "rather conspicuous."

Whistler describes one nest as "a massive and somewhat squat domed structure of grass and similar materials lined with feathers; the entrance-hole was large and occupied much of one side." A second nest, taken on the 3rd July, is said to have been "a large oval structure about the size of a cocoa-nut, with a large entrance

near the top of one side ; built of coarse dry shreds of grass, bents, strips of Juniper-bark, fibre etc., the whole cavity thickly lined with feathers."

The eggs are very like well-marked specimens of the eggs of *Phylloscopus affinis* but are less glossy. The ground is a pure white, sparsely speckled at the larger end with pale red and with a few other marks scattered about elsewhere. The clutch taken by Whitehead is a little more freely marked than those given to me by Whistler, while that taken by Crump for Ward is still more profusely marked. In shape they are moderately long, rather pointed ovals, the texture fine and close but without gloss.

The average of nineteen eggs (including eight given me by Whistler) is 16.7×12.5 mm. : maxima 17.3×13.0 mm. ; minima 16.0×12.3 and 16.1×12.1 mm.

(859) *Phylloscopus fuliginiventer* (Hodgs.).

THE SMOKY WILLOW-WARBLER.

Phylloscopus fuliginiventer, Fauna B. I., Birds, 2nd ed. vol. ii, p. 460.

The Smoky Willow-Warbler probably breeds from Nepal and Tibet to the hills North of Assam.

All that is recorded about this bird's breeding is the fact that three eggs were sent me with a skin said to have been taken from a nest found near the Hramtso Lake in Tibet on the 4th August.

The eggs are like heavily marked eggs of *Phylloscopus affinis* but without any gloss and all four marked alike—white eggs freely marked with small reddish spots. They measure 15.0×12.0 , 14.6×12.2 and 15.0×12.1 mm.

They are *not* the eggs of *P. affinis*, but I do not think they can be taken as identified without doubt as those of *fuliginiventer*.

They were taken at an elevation approximately of 14,000 feet.

Phylloscopus fuscatus.

THE DUSKY WILLOW-WARBLER.

(860) *Phylloscopus fuscatus fuscatus* (Blyth).

THE INDIAN DUSKY WILLOW-WARBLER.

Phylloscopus fuscatus fuscatus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 461.

This Willow-Warbler breeds in Siberia from Lake Baikal to the Amur and Japan and almost certainly considerably South into Central Asia and Tibet. I have twice had nests, eggs and skins of this bird sent me from Tibet, in both instances the birds being trapped off the nest. Nests and eggs are so typical of the birds breeding in Siberia that I think in these instances there is no doubt

as to their being correct. Two years elapsed between the taking of the first and second nest, and the skins, though mere remnants, could only have been this bird or *armandii*, and the lower parts were too deep a buff to have been the latter bird. The nests which were taken on the 9th and 26th May each contained four eggs. They were balls made almost entirely of dry moss, lined first with grass-stems and then with wool and feathers mixed. Both were placed almost on the ground in low Willow-scrub by streams, at elevations of about 13,000 and 14,000 feet.

The eggs are pure white, in shape broad, pointed ovals and in texture unlike any *Phylloscopus* egg, but very like that of the egg of *Acanthopneuste nitidus viridanus*, fine, but not very close, with a dull surface and very fragile.

Seventeen eggs average 16.8×12.5 mm. : maxima 18.6×13.3 mm. ; minima 15.8×12.3 and 17.1×12.1 mm.

***Phylloscopus pulcher*.**

THE ORANGE-BARRED WILLOW-WARBLER.

(865) ***Phylloscopus pulcher kangræ*** Ticehurst.

THE NORTH-WEST ORANGE-BARRED WILLOW-WARBLER.

Phylloscopus pulcher kangræ, Fauna B. I., Birds, 2nd ed. vol. ii, p. 465.

This pale form of the species occurs in the North-West Himalayas from Afghanistan and Gilgit to the Simla States and Garhwal.

Whymer has taken several nests of this little bird in Garhwal, and Buchanan took another in Kashmir, but the former only has recorded the results of his finds. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 818, 1907) :—“ They were all taken in Tehri Garhwal this year (1906), mostly at an elevation of from 11,000 to 13,000 feet. Two nests only were found of this bird, with four and three fresh eggs, on June 23rd and 26th. They were very untidy round balls, made of old-man’s beard, moss and dry grass, and lined with feathers, some of which were left sticking out of the entrance-hole, and were placed about ten feet up in the fork of willows. The nests were so ragged that I was doubtful of their being new, and no birds were about when first found ; however, I went after some days from a long distance to look them up again and was well rewarded, as I do not think the nesting of *P. pulcher* has been recorded before. These were the only birds of the species positively identified, but I am inclined to think that they were only just beginning to breed and probably more nests would have been found later. The eggs are spotted and do not differ much from those of *P. proregulus*.”

In 1909 he took two other nests (*ibid.* vol. xix, p. 991, 1910) which he describes in a letter to me as similar to those of 1906. Of the eggs he writes :—“ Only two clutches were secured. In

one of these clutches three eggs were unspotted white and the fourth had one single blotch of pale brown only, so it would seem that *pulcher* occasionally lays white eggs. The birds were breeding in the Bhagirathi Valley."

All the above eggs are now in my own collection and I can add nothing to what Whymper has recorded. A. E. Osmaston, however, gives more information in a note in the Journ. Bomb. Nat. Hist. Soc. (vol. xxviii, p. 145, 1921). He says:—"This bird breeds in considerable numbers in the birch (*Betula utilis*) forests of the interior, at elevations between 11,000' and 12,000', situated in the Dhauli Valley. The only nest I succeeded in finding was placed against the trunk of a birch, where it had been securely wedged between the trunk itself and some loosely attached pieces of the bark. The tree was in the middle of fairly dense birch forest and the nest was placed about ten feet from the ground. It was domed and composed externally of a few strips of birch bark, a little moss and grass and lined with monal feathers."

The breeding season, so far as is known at present, seems to be from the middle of June to the middle of July, though this is sure to be extended when we have learned more of their habits.

The eggs, apparently three or four in a full clutch, vary from pure white to white quite densely speckled with red; in three clutches these form well-defined rings at the larger end, in the other clutch the rings are not defined and the spots are numerous everywhere.

The shape is a broad oval, rather pointed at the small end; the texture is fine but the surface glossless.

Sixteen eggs average 14.9×11.4 mm.: maxima 16.1×11.4 and 15.3×12.0 mm.; minima 14.2×11.1 and 16.0×10.9 mm.

Phylloscopus proregulus.

THE YELLOW-RUMPED CROWNED WARBLER.

(866) *Phylloscopus proregulus chloronotus* Gray.

THE SIKKIM YELLOW-RUMPED CROWNED WARBLER.

Phylloscopus proregulus newtoni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 466.
Phylloscopus proregulus chloronotus Gray, Cat. Mam. Birds, Nepal, p. 66 & App. p. 152, 1846 (see Kinnear, Ibis, 1931, p. 777).

This Crowned Warbler breeds from Nepal and Sikkim to Assam, North of the Brahmapootra, and probably as far as Manipur South of the river. It extends into the Burmese Western hills but it is not known whether it breeds anywhere in them.

The nidification is sure to be exactly like that of the far better-known Western form but the only nest and eggs known to me is one obtained by W. P. Masson on the 29th May at about 10,000 feet on the Singa-lila Ridge above Darjiling. The nest is a very neat

little domed affair of bark, moss and lichen, very neatly and compactly interwoven and reminding one, except for the dome, of our English Goldcrest's nest. It was almost filled with soft body-feathers of *Ithaginis*, *Trochalopteron lineatum* etc. It was built at the end of a small bough, almost at the top, of a small Birch-tree standing in mixed forest of Silver Fir and Birch, and was about 15 feet from the ground.

The three eggs it contained were quite fresh. They are chalky white with no pink tinge and on each egg there is a dense ring of deep chestnut-red specks, running into one another in the ring, but very sparsely scattered elsewhere.

In shape they are rather long ovals; the texture is fine and the eggs seem very fragile. They measure 14.2×10.4 , 13.9×10.3 and 13.9×10.4 mm.

The bird shot off the nest and sent to me with it was a female.

(868) *Phylloscopus proregulus simlaensis* Ticehurst.

THE SIMLA YELLOW-RUMPED CROWNED WARBLER.

Phylloscopus proregulus simlaensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 467.

Ticehurst's form of this Warbler is found from Afghanistan, Baluchistan and Gilgit throughout Kashmir, at suitable elevations, to Murree, Garhwal and Simla States.

This little Warbler is a bird of the forest, breeding at all heights from 7,000 up to 12,000 feet. The lowest elevation recorded is in Murree, where Rattray, Buchanan and others took its nest at about the former height. In Garhwal Whympers took nests between 9,000 and 12,000 feet and never saw it breeding below the former height. On the Safed Koh Whitehead noticed the birds in the breeding season at 8,500 feet but it was not common, while Harington obtained one nest in the Khagan Valley at 10,000 feet on the 11th June. In Kashmir Cock first and, later, Davidson and many others have taken the nests round about Sonamurg at 8,000 feet upwards, and a little higher than this it is very common.

It breeds in all sorts of forest so long as they contain Firs, Pines, Deodars or other trees upon which they are accustomed to nest. Their favourite forests seem to be mixed Birch and Silver Fir, dense or comparatively open, and Deodar, generally where it is fairly open and sunny.

The nests are almost invariably built on Firs of some kind or on Deodars and may be at any height from 10 feet or so up to 40 feet or even higher. Perhaps, however, more are placed between 10 and 20 feet than above the latter height, while Cock noted it as breeding occasionally as low down as 6 feet.

As a rule the nest is fixed either on the upper surface of the branches or of the foliage but, at other times, it is pendent or semi-pendent from and in among the foliage. Occasionally, as described

by Cock, the nest may be on a small bough of a Fir or Pine at its junction with the stem of the tree.

Most nests are small round balls, completely domed, but a few might be more correctly described as semi- or partially domed. They are very compact and well made, usually about 5 inches in diameter each way, with an egg-cavity of half or less than half that measurement. They are made of moss, moss and lichen mixed, and with scraps of bark, generally of Birch, added to the outside and inside; externally grass is very seldom used but Whympster notes that in nearly every nest he saw in Garhwal there was a layer of fine grass between the outer structure and the mass of soft feathers which form the lining.

A curious nest described by A. E. Osmaston was "composed of grass and blue pine-needles with a little hair, copiously lined with feathers." Other nests found by him were of the ordinary moss and grass with a few strips of Birch-bark.

Some nests are very carefully concealed and can only be discovered, especially when they are high up, by watching the birds on to them; others are easily spotted and can quickly be detected once the breeding tree is marked down, not a difficult thing if the actions of the birds are understood.

The characteristics one expects with this Warbler's nest are neatness and compactness, an exterior of lichen and moss, lining of feathers and domed in shape, about 5 inches across. Built more or less high in trees and never on the ground or low down in bushes.

The birds lay all through May and June, but at the higher elevations few birds lay before the latter month. I have no records of eggs being taken either in April or in July.

The normal number of eggs laid is four and the number is very consistent, but occasionally three only are laid and incubated, and still more rarely five. Cock mentions the latter number as being laid and records taking one such clutch. The only other person to take a five, so far as I know, is Ward, who obtained one five near Sonamurg.

Some of the eggs are, except in size, as Hume says, very like those of the Crested Tit. The ground is pure white and they are freely spotted and speckled with reddish-brown or brick-red. In a few eggs these markings are more or less scattered over the whole surface but in most they form very well defined zones at the larger end and are scanty elsewhere. In one clutch taken by Whympster the spots are massed in caps at the large end. In another clutch of four taken by Ward three eggs have rings of rich deep red blotches, while the fourth has just a faint ring of tiny specks. In some of my sets the markings are very tiny and dark, almost a purple-brown, disposed in the usual manner.

In shape the eggs vary a good deal but most are a broad oval distinctly compressed at the smaller end. The texture is fine and smooth but quite glossless, and the eggs are very fragile, even for such tiny ones as these.

One hundred eggs average 14.1×10.9 mm. : maxima 16.0×11.6 and 15.2×11.9 mm. ; minima 12.2×11.0 and 13.0×9.9 mm.

Apparently only the female bird incubates, the male, however, keeping always on the alert not far from the nest. I have not been able to ascertain anything about the sexes responsible for building the nest, which takes about six to eight days to construct.

(869) *Phylloscopus subviridis* (Brooks).

THE OCHRE-BREASTED WILLOW-WARBLER.

Phylloscopus subviridis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 468.

Very little is known as to the breeding range of this bird but it is found in Afghanistan and on our North-West Frontier in Summer and probably breeds North to Gilgit.

The only collector to obtain its nest and eggs is Whitehead, who thus records the taking of his prize (Ibis, 1909, p. 124):—
“Nests freely on the lower slopes of the Safed Koh from 7,000 to 9,000 feet. A nest found on the 13th July, 1906, was evidently an old structure re-lined, and was placed in the bank of a nullah under cover of a small bush. It was of the usual Willow-Warbler type and contained four fresh eggs (this was the full clutch, the female having no eggs in the oviduct). They were white thickly spotted with dark red and averaged .5 by 5.4 inch.

“In summer this Warbler frequently utters a mono-syllabic note, not unlike that of the next species [*P. humii*] but not so loud.”

Phylloscopus inornatus *.

THE PALE-BREASTED WILLOW-WARBLER.

(870) *Phylloscopus inornatus humii* Blyth.

THE INDIAN PALE-BREASTED WILLOW-WARBLER.

Phylloscopus humii humii, Fauna B. I., Birds, 2nd ed. vol. ii, p. 469.

Hume's Willow-Warbler, as this little bird has hitherto been called, breeds from Turkestan, Tianschan, Afghanistan and Baluchistan, throughout Kashmir to the Simla States, Garhwal Hills and Murree Hills.

It would be quite impossible to improve upon Brooks's account of the nidification of this Warbler and his beautiful description of

* Ticehurst has recently shown that, although Blyth himself repeatedly stated that his name "*inornatus*" did not apply to *Phylloscopus superciliosus*, but was a synonym of *modestus*, it can, in fact, be applied to no other form of Indian *Phylloscopus*. He shows that there are details in the description which make it inapplicable to any other species and so, by the process of elimination, reduces the number to the present species. The Nomenclatorial Committee of the B. O. U. has accepted *inornatus*.



PHYLLOSCOPUS INORNATUS HUMIL.
The Indian Pale-breasted Willow-Warbler.
(Sonamurg, Kashmir, 1931.)

Goolmurg, so often referred to in these volumes as the nesting haunt of many species of birds. In Hume's 'Nests and Eggs,' p. 264, he writes:—"Goolmurg is one of those mountain downs, or extensive pasture lands, which are numerous on the top of the range of hills immediately below the Pir-Panjaj Range, which is the first snowy range. It is a beautiful mountain common, about 3,000 feet above the level of Srinagger, which latter place has an elevation of 5,235 feet. This common is about 3 miles long and about a couple of miles wide, but of very irregular shape. On all sides the undulating grass-land is surrounded by pine-clad hills, and on one side the pine-slopes are surmounted by snowy mountains. The whole hill-side is intersected by small ravines, and each ravine has its stream of pure cold water,—water so different to the tepid fluid which we drink in the plains. In such places where there were water and old pines *P. humii* was very abundant: every few yards was the domain of a pair. The males were very noisy and continually uttering their song; this song is a loud double chirp or call, hardly worthy of being called by the name of song at all. While the female was sitting, the male continued vigorously to utter his double note as he fed from tree to tree. To this note I and my native assistants paid but little attention; but when the female, being off the nest, uttered her well known '*tiss-yip*,' we repaired rapidly to the spot and kept her in view. In every instance, before an hour had passed, she went into her nest, first making a few impatient dashes at the place where it was, as much as to say—'There it is, but I dont want you to see me go in.'

"The nest of *P. humii* is always, so far as my observation goes, placed on the ground on some sloping bank or ravine-side. The situation preferred is the lower slope near the edge of the wood, and at the root of some very small bush or tree; often, however, on quite open ground, where the newly growing herbage was so short that it only partially concealed it. In form it is a true Willow-Wren's nest—a rather large globular structure with the entrance at one side. Regarding the first nest taken, I have noted that it was placed on a sloping bank on the ground, among some low ferns and other plants, and close to the roots of a small broken fir tree, which, being somewhat inclined over the nest, prevented it from being trodden upon. It was composed of coarse dry grass and moss, and lined with finer grass and a few black hairs. The cavity was about 2 inches, and the entrance about 1½ inches in diameter. About 20 yards from the nest was a large, old, hollow fir tree, and in this I sat till the female returned to her nest. My attendant then quietly approached the spot, when she flew out of the nest and sat on a low bank two or three yards from it: then she uttered her '*tiss-yip*,' which I knew so well, and darted away among the pines.

"My second nest was placed on the side of a steep bank on the ground. The third was similarly placed, and composed of coarse

grass and moss and lined with black horse-hair. In each of their nests the number of eggs was five."

Many other nests are thus described, all placed in the same kind of situations and all made of coarse grass and lined with hair, one nest having a few feathers incorporated with the other materials *outside*. One nest was being built "among the branches of a shrub, right in the centre of the bush and on the ground, which was sloping as usual."

Blyth says that sometimes the nest is "artfully concealed, but at other times there it was—the round green ball with an opening on one side."

The lining seems to be nearly always of hair. Brooks and Cock generally found it to be horse hair in Kashmir, but in Garhwal Whymper says:—"This bird seems, wherever I have found it, to use musk-deer hair, which is very quill-like, in preference to any other."

In the Kurram Valley two nests out of three taken by Whitehead were lined with fine grass only, and such nests are referred to by others as also occurring rarely in Kashmir.

The specific characteristics of the nest are:—

Built of grass, or grass and moss, lined with hair and placed on ground.

Untidy and poorly finished off.

They breed throughout May and June and I have eggs taken from the 5th May to the 30th June.

The full complement of eggs is four or five, three eggs being very seldom incubated.

They are extremely like those of *P. proregulus*—indeed I do not think they can in any way be differentiated from them except that they have not, as a series, nearly so well-defined rings as the eggs of *proregulus* so often have.

In shape and texture, as in colour, they are just like those of *proregulus* but I do not think they are quite so fragile.

One hundred eggs average 14.6×11.4 mm.: maxima 16.5×12.3 mm.; minima 13.0×11.0 and 13.1×10.4 mm.

Acanthopneuste nitidus.

THE GREEN WILLOW-WARBLER.

(874) ***Acanthopneuste nitidus nitidus*** (Blyth).

THE GREEN WILLOW-WARBLER.

Acanthopneuste nitidus nitidus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 473.

Outside our limits this Warbler breeds from the Caucasus to Bokhara and apparently also Afghanistan and Baluchistan, Williams having obtained a nest containing three eggs at Quetta. With

the exception of a nest taken by Petherick in the high mountains above Yazd, this is the only record of its breeding.

Williams writes (Journ. Bomb. Nat. Hist. Soc. vol. xxxiii, p. 601, 1929):—"A couple of seasons ago a family party of these little Warblers were found in a small, fairly well-wooded valley in the 'Marachah Reserve' feeding young fledglings that could just fly. Though a thorough search was made no nest could be found. This season (1928), during the latter part of May, a nest was found with three fresh eggs in the same locality, the parent bird being flushed and identified.

"This nest was a large, loosely put together ball of grass and dry moss, lined with fine grass-stems and hair, and placed among the jumbled and bush overgrown roots of a Juniper.

"The three eggs were fresh and the yolks showed clearly through them imparting a beautiful pale pink colour to the eggs. When blown they were pure white, slightly glossy and of none too close a texture.

"The average measurements of the three eggs is 16.7×12.3 mm."

The bird, unfortunately, was not obtained but nest and eggs agree exactly with those taken by Petherick, except that the eggs the latter found had no gloss at all.

I know of no other Warbler which lays pure white eggs which could have been the owner of this nest.

(875) *Acanthopneuste nitidus viridanus* (Blyth).

THE GREENISH WILLOW-WARBLER.

Acanthopneuste nitidus viridanus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 474.

The Greenish Willow-Warbler breeds from North-East Russia, through Western Siberia, Turkestan, Tibet, Kashmir, Ladak and Garhwal, East to the Hills of Assam.

The first nest ever taken of this bird, and the only one I have seen, was taken by me on the 24th July, 1891, on a lofty peak on the borders of the Naga Hills and North Cachar districts, at about 6,000 feet. Whilst on the march I saw a small bird fly out of a mass of stones forming the bank of a jungle-path running through lofty but open forest. On examining the bank we found the nest, a large loosely built globe of moss and dead leaves, the latter in the base only, with a dense matted lining of pure white goats' hair. It was of irregular shape, fitting into the hollow in which it was placed, being about 8 inches high by about 5.5 inches in breadth, the egg-cavity being about $2\frac{1}{2}$ inches or less each way. The three eggs were pure white and of a soft, rather fragile texture, with no gloss, and very different to the texture of other eggs of the *Phylloscopi*. The male bird was shot when it returned to the nest.

In the year 1902 Osmaston obtained a nest at 11,000 feet in Garhwal "domed, with rather a large opening, twice as broad as high,

near the top, and was placed on the ground on a fairly steep hill-side near a bush. It was composed of moss and dry grass externally and roofed internally with fine grass-stalks, the egg-cavity being densely lined with a thick felting of hair. The eggs were pure white, rather broad ovals, with little gloss.

"The parent bird was shot off the nest and identified."

Later Whympere took several nests in the Dunder and Nila Valleys in Garhwal between 11,000 and 13,000 feet and Osmaston found one above Darjiling at about 11,500 feet.

In all these nests the distinguishing feature was the thick, felted lining of hair, the nests being similar to those fully described above. All were placed on the ground, the favourite position being among the roots of a tree on a bank or sloping ground. Osmaston's nest was taken in forest of Birch and Silver Fir.

The breeding season seems to be very late. Osmaston took the nest in Darjiling on the 25th May but most eggs are laid at the end of June or in early July, the latest date being the 24th July, on which I took my nest. In Gyantse they apparently breed in July but must be very rare, as I have only had three nests sent me from that locality. They breed on the outskirts of the Gyantse plain between 12,000 and 14,000 feet.

The eggs number three or four and are pure white, without any marking and with a soft satiny texture that differentiates them from any other eggs of *Phylloscopus* and *Acanthopneuste* that I am acquainted with. They are very fragile for their size and quite glossless.

In shape they vary from very broad to rather broad ovals.

Thirty-six eggs average 15.3×11.9 mm.: maxima 16.8×12.0 and 16.0×12.6 mm.; minima 13.3×10.3 mm.

(878) *Acanthopneuste magnirostris* Blyth.

THE LARGE-BILLED WILLOW-WARBLER.

Acanthopneuste magnirostris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 476.

The Large-billed Willow-Warbler breeds practically all over Kashmir and Ladak in suitable localities between 8,000 and 12,000 feet and extends through Tibet to Kansu. Whitehead met with it in the Kurram and Khagan Valleys and says that it nests in small numbers between 7,000 and 8,000 feet on the lower slopes of Safed Koh.

In Kashmir its nest has been taken near Sonamurg at about 8,000; in many other places in South Kashmir from that elevation up to 12,000 feet. In Garhwal Whympere took nests up to 11,000 feet, and in the Murree Hills Rattray says that it breeds from 8,000 to 12,000 feet.

Although so common a bird over a very large area, its nest was not discovered until 1899, when Capt. Kenneth Buchanan took

one at Changla Gali, about 10 miles from Murree, on the 15th of July. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xii, p. 777, 1900) :—“The female was shot off the nest, which was a large, loosely-made domed structure of moss and maidenhair-fern stems, lined with fine grass. It was situated under an overhanging bank, on the side of a steep wooded hill, supported by the projecting root of a tree. The nest contained four fresh pure white eggs.”

Later Rattray took many nests round about Murree and sent me fine series of its eggs. I summarize his notes sent with them as follows :—“This Warbler is a late breeder ; it is possible a few birds may lay in the last week of May but I have seen none such and most birds do not lay until after the middle of June. They may be found nesting all through July and well into August, on the 10th of which month I have taken fresh eggs, while Wilson has taken them as late as the 7th September. Perhaps some birds have two broods. Their nest is domed and most often it is made of grass with just a few oddments, such as dry moss, roots, fern stems, fungoid rachides etc. mixed with it. Sometimes, however, it is made almost entirely of moss, which may be either dry and yellow or almost fresh and green. When thus made there seems to be always some grass on the inside of the dome to help to hold the moss together. The lining always consists of grass and hair in varying quantity, one of the two materials occasionally being wanting altogether. Feathers are *never* used as lining, though I have seen an odd one or two rarely incorporated in the body of the nest.

“The bird frequents woods and very well wooded open country and, when the woods are very dense and thick, it selects the more open spaces where there is some light and sun. I think best of all it likes thin mixed forest of Deodars and other trees where the ground is broken up and rugged with lots of stony banks, a certain amount of undergrowth and yet plenty of space and light. The nest is nearly always on the ground and is always well hidden ; the places in which I have found most of my nests have been in holes in among the roots of trees, and as the birds choose quite small holes it is often a business to examine the nest after it has been found, entailing much digging and cutting away of the roots. Sometimes the nest is in a natural hollow in a bank, under the overhanging crest or under a boulder and, rarely, in Murree, it is built in natural hollows in trees, dead or alive. The eggs, of course, are pure white and number four or five, occasionally only three.”

Whympers took one nest from a hole in a dead tree 8 feet from the ground. This was in Garhwal, and here, as in Kashmir, holes in trees appear often to be used as nesting sites, the birds building complete domed nests even when they are placed well inside these hollows.

The bird is said to be secretive, and Rattray says they want a good deal of watching before one can track them home to their nests and, though the male is always near about it singing, as

he imagines very beautifully, he does not give away the site by over anxiety and fussiness. He seems never to do any of the work of incubation.

The eggs, as stated by Rattray, are four or five in number and pure white, of the same rather fragile brittle texture common to the eggs of the genus. The surface is smooth and sometimes there is a distinct sheen but never the hard gloss one gets on *Phylloscopi* eggs.

Fifty eggs average 18.2×13.2 mm. : maxima 20.0×13.9 mm. ; minima 15.1×12.2 mm. The latter measurements are almost abnormally small and the next smallest are 16.0×13.0 and 17.0×12.7 mm.

(880) *Acanthopneuste trochiloides* Sundev.

THE DULL GREEN WILLOW-WARBLER.

Acanthopneuste lugubris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 478.
Acanthopneuste trochiloides, ibid. vol. viii, p. 642.

It is certainly most unfortunate for the older workers among us that Count Gyldenstolpe has discovered the type-specimen of *A. trochiloides* and that two names so long known to us all as *lugubris* for this dark green bird and *trochiloides* for Blyth's Crowned Willow-Warbler should in one case have to disappear and, in the other, to be changed. Let us hope the next generation will profit.

Very little is known about the breeding of this Warbler but it occurs in Summer from Garhwal to Eastern Tibet and still farther East in the Tsin-ling Mountains in Western China. I have had it reported from Kashmir but the report has never been confirmed.

Whymper found it breeding in the Birch forests at about 12,000 feet in Garhwal in the Nila Valley and later A. E. Osmaston took a nest in the Dhauli Valley in the same Hills. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xxviii, p. 143, 1921) :—" I found it not uncommon in the Dhauli Valley from 11,500 to 12,500 feet elevation. Two of the specimens I obtained were identified for me at the British Museum, so there can, therefore, be no doubt about the identification.

"During the breeding season the bird utters a loud Sparrow-like chirp repeated once or several times together. On the 26th June I found a nest with two fresh eggs. It was placed in a crevice in the side of an old Birch-tree about 6 feet from the ground, the tree being so situated that Birch-forests extended in one direction and open grassy slopes in the other. The nest was domed and was composed outside of moss with a little lichen. This was followed by a mixture of grass, lichen and moss, and there was a final lining of fine moss, mixed with just a few hairs and one or two small feathers. The eggs, which were pure white, average $.62 \times .47$ inches."

Rattray also records obtaining one nest at Murree on the 1st July, 1904, shooting the hen bird off the nest himself. "The nest was under the roots of a tree in a cutting; the earth had been washed away, leaving a tangle of roots. Nest, a mass of moss, forming a cup with a neat lining of fine grasses. Eggs four, slightly incubated and pure white." I have, unfortunately, not been able to trace these eggs.

A nest, with four eggs, taken by Capt. Kennedy near Gyantse on the 28th June, was completely domed, a ball about 6 inches across either way. The nest was exactly like that described above—outside moss and a little lichen, then a layer of grass and hair and, finally, a felted mass of tiny scraps of moss. It was placed on the ground at the foot of a tree on an almost open hill-side. The bird was, I understand, identified by Dresser, as well as by myself. The elevation was about 13,000 feet.

The four pure white eggs were of the typical texture and shape, and vary in size from 15.5×11.7 to 16.2×12.2 mm.

Acanthopneuste occipitalis.

THE LARGE CROWNED WILLOW-WARBLER.

(881) *Acanthopneuste occipitalis occipitalis* (Blyth).

THE HIMALAYAN LARGE CROWNED WILLOW-WARBLER.

Acanthopneuste occipitalis occipitalis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 479.

This is one of the most common of our breeding birds in Kashmir, the Simla States, Garhwal and all the Outer Himalayas right away as far West as the Kurram Valley, where Whitehead took its nest.

It is a bird of forest and woodland but in many places it enters and breeds in gardens and in the immediate vicinity of buildings and villages; indeed it sometimes breeds actually in buildings. Rattray says of the bird:—"Very common, especially round Murree, nests in almost any situation. I have found them in holes in trees, in banks, in stone walls, *under eaves in houses* and under a large stone in a deep ravine." He also comments on the number of times he has found Cuckoos' eggs in this bird's nests. "I have found five eggs of *Cuculus saturatus* and three of *Cuculus poliocephalus* in these birds' nests. On two occasions the nest was the full depth of my arm inside the tree." Davidson also got the egg of *C. poliocephalus* in the nest of this bird as well as in that of *P. humii*.

It breeds principally between 6,000 and 7,000 feet, and Crump took eggs at Kishtwar in Ladak at elevations a little over the latter height. It is not, however, a bird of great elevations and is not

apparently found in the Pine, Pine and Birch and Birch forests between 11,000 and 13,000 feet. On the whole it likes country of much the same nature as that frequented by the Large-billed Willow-Warbler but it is a much bolder little bird and much less shy of man. Round about Murree it nested generally in the more open ravines running through forest, and Davidson found it common in much the same country in the Sind Valley. Brooks says that "it is perhaps the most common bird in Cashmere, even more so than *Passer indicus*. It is found at almost all elevations above the valley where good woods occur."

Some of the various situations in which it places its nest are described by Brooks (Hume's 'Nests and Eggs,' vol. i, p. 267). He took one from "a hole under the roots of a large tree on some steep bank-side. I found one in a decayed stump of a large Fir-tree, inside the rotten wood. Another nest was also placed in a rotten stump, but under the roots."

Rarely their nests have been found in the deserted nest-holes of Woodpeckers, a Cuckoo's egg having been taken from one such nest into which the Cuckoo could not possibly have entered. Davidson also records (Ibis, 1898, p. 18) that he took nests from holes in trees as high as 20 feet "and even in the ground and under stones." As a rule the nest is very well hidden but, as Cook says, "the nests are easy to find, as the birds are very noisy and demonstrative when anyone is near their nest." Cook also says that a favourite place for a nest is "where the road has a stone embankment to support it, between the stones."

The nest is a very loosely, carelessly built globe, roughly anything between 5 and 7 inches in diameter but, when placed well inside holes, may be any shape, cup, shallow or deep, semidomed, carelessly roofed in with a little grass or as completely domed as when built in an unprotected hollow. It is usually built mainly of moss but, with this, is often mixed grass, bark, small dead leaves and various other articles, sometimes one or two bits only, sometimes quite a lot. A few nests built in holes are just moss cups, others have a lining of roots and grass, while yet others are mere pads fitting into the bottom of the holes. The lining is nearly always the same moss, more or less felted together with wool, vegetable cotton or, very rarely, hair.

A few birds breed in early May and I have eggs taken by A. E. Jones near Simla on the 4th of this month. Most birds, however, breed in June, while quite a number do not lay until the first ten days of July. One nest taken by Buchanan contained four fresh eggs on the 4th of February, quite an abnormal time for any passerine bird to be breeding in the Murree Hills.

The eggs in a full clutch nearly always number four, though only three are incubated occasionally. I have heard of five being laid but have never seen a clutch of this size, though Davidson records clutches of six.

The eggs are typical of the species, white with the usual texture, some of the eggs, like those of the preceding bird, being slightly glossy.

Fifty eggs average 16.4×12.7 mm. : maxima 18.0×13.0 and 17.3×13.2 mm. ; minima 15.0×12.0 and 15.1×11.9 mm.

Acanthopneuste reguloides.

THE HIMALAYAN CROWNED WILLOW-WARBLER.

(883) **Acanthopneuste reguloides reguloides** (Blyth).

THE HIMALAYAN CROWNED WILLOW-WARBLER.

Acanthopneuste trochiloides trochiloides, Fauna B. I., Birds, 2nd ed. vol. ii, p. 481.

Acanthopneuste reguloides reguloides, *ibid.* vol. viii, p. 643.

This Warbler breeds from the frontiers of Afghanistan and Baluchistan through Kashmir and the Outer Himalayas to Garhwal, Sikkim and Tibet, at all elevations from 6,000 to 10,000 feet and, in Garhwal, up to 12,000 feet.

I can find nothing on record about it breeding in India except Rattray's very brief note in the Journ. Bomb. Nat. Hist. Soc. vol. xvi, but his notes to me are fuller and to the following effect:—

“Blyth's Crowned Willow-Warbler is not uncommon in the Murree Hills, sometimes breeding as low as 6,000 feet elevation but, more often, between 7,500 and 9,000 feet. Possibly many nests are overlooked or at least unrecorded from their likeness to the nests and eggs of *occipitalis*, which is so common that collectors do not bother much about it. One can hardly say that they are forest birds but they are not found in open country and their favourite breeding sites seem to be between the stones and boulders of retaining walls of roads running through high forest. I have also seen their nests in buttresses and walls of bridges over ravines on these same roads, although both roads and bridges were in frequent use. Sometimes they breed in holes in trees, generally natural hollows in the stump of a tree, or in among the roots where they project from the bank. The nests are completely hidden; those between the stones are generally well inside the wall, which has often to be partially dismantled before the nest is exposed. In the same way when built in trees they are usually right inside the hole and not visible from the outside.

“The birds breed during May and June, most birds laying between the 15th May and 15th June.

“The number of eggs in a clutch is four or five.

“The nest is a flimsy affair, domed, or perhaps roofed is a better word, as it so often seems to be more or less separate from the cup and occasionally non-existent. It is made principally of moss and

grass, but may be mixed with leaves and roots, and is lined with moss and hair mixed, in one case with wool and hair. They stand no handling and fall to pieces when pulled out of the hole.

"The nests that I have seen have never been more than eight feet from the ground and most have been in low walls two or three feet up."

Whympner found them breeding in Garhwal at 12,000 feet and twice shot the birds off their nests for identification. He describes one of their nests as "rather slight, of moss and lined with a little hair, domed and placed inside a cavity in a tree about 30 feet from the ground."

These two nests were both taken on the 17th June.

The eggs are of the usual smooth but glossless white, broad to moderate ovals in shape and very fragile.

Thirty-six eggs average 15.6×12.1 mm.: maxima 17.1×12.2 and 14.4×12.4 mm.; minima 14.2×11.1 mm.

(884) *Acanthopneuste reguloides harterti* Stuart Baker.

THE KHASIA CROWNED WILLOW-WARBLER.

Acanthopneuste trochiloides harterti, Fauna B. I., Birds, 2nd ed. vol. ii, p. 481.

Acanthopneuste reguloides harterti, *ibid.* vol. viii, p. 642.

This race breeds in the hills South of the Brahmapootra in Assam and in Manipur. La Touche's "*disturbans*" from Yunnan, is very close to this bird and may be the same.

Its nest has so far only been taken in the Khasia Hills by myself.

This Warbler, which keeps entirely to forest, was not uncommon in the Khasia Hills, between 4,500 and 6,200 feet. We found it both in Pine-woods and in evergreen wet forest but, in the former, it only haunted those places where there was a mixture of other trees and the detritus on the ground was of moss, dead leaves etc. I never saw the bird among Pine-trees standing alone, with the ground bare and dry except for its dense covering of Pine-needles. Three nests out of every four were placed on banks covered with moss, weeds and small bracken, while the fourth was built in a hole of some kind in a tree, dead or alive, or in a rotten stump. Of the nests built on banks, some were placed in holes among the roots of trees, some in hollows in the bank, and one or two in among the thick beds of moss and fern, the nest itself just flush with the growing moss and looking exactly like it. One nest I found built in among the moss growing on the thick, but stunted, bole of an Oak-tree, the nest resting partly on the stump of a broken bough and completely hidden by the surrounding moss. Some nests were very carefully hidden while others were not in any way concealed by covering growth, yet simulated so exactly the surrounding vegetation that they were very difficult to detect.

Each pair of birds seemed to have a wide range of hunting area quite to themselves. Nearly every wood with a mossy undergrowth had one or two pairs but in no wood under a mile long have I found more than three nests. If the woods were partly dry and partly damp and mossy, and one wanted to find the nests, the latter places had to be found first and then every area watched until a bird, or pair of birds, had been seen. After this it was only a case of waiting until the hen could be roused from the nest or the cock spotted as he paid her a visit. Sometimes, if the cock was very agitated and excited, showing we were too close to the nest to please him, the hen might be flushed off it by an examination of each likely mossy bank. Often, however, much patience and self-restraint would have to be practised before the cock would give any indication as to the whereabouts of the nest. Often, also, the hen would sit so close that my foot almost kicked the nest before she left it.

The nest is a much better-built affair than that of the Himalayan bird, unless observers have much maligned the latter. All those I have personally seen, about twenty or so, have been well built little balls of dark green moss, measuring between 4 and 5 inches either way. It is always made of quite tiny fragments of moss, seldom over a couple of inches long, these being welded and woven into very compact walls and roof. In some nests nothing but moss is used but, in others, a few small leaves, scraps of dead lichen, bracken or other oddments may be incorporated, perhaps by accident rather than design. The lining, normally, is a felted mass of the soft, white, downy seeds of grass or Cotton-tree, worked into a regular mat. In one nest I have seen an inner lining of soft white feathers and in one or two others just three or four tiny feathers worked in with the down. The mat of down, it should be noted, was nearly always worked into the moss of the base of the nest. One nest was lined entirely with black and red feathers of a Minivet and looked quite startling when pulled in half.

The breeding season lasts from the end of April to the beginning of June and I have found fresh eggs myself on the 11th of the latter month.

The eggs in a full complement number four or five and I have seen one six and two or three threes.

They are typical *Acanthopneuste* eggs in every way, pure white and of the usual shape and texture.

Fifty eggs average 15.3×11.9 mm. : maxima 17.0×11.6 and 16.1×13.0 mm. ; minima 13.6×10.9 mm.

The cock bird incubates for a short time morning and evening and, perhaps, during the night, as I have found the cock bird snared on the nest when visiting the latter at dawn. He never, however, incubates during the day. Both birds assist in the building of the nest but the female, probably, does most of the work.

This Warbler is cuckolded both by *Cuculus saturatus* and by *Cuculus poliocephalus* and is, therefore, intensively worked for by

my trained Cuckoo men, and this may have made me consider the bird to be more common than it is. The Cuckoo's egg, whichever of the two species it may belong to, is placed in the nest without the latter being damaged in any way, though two seen by myself had the top rather pressed in, as if the Cuckoo had settled on it in putting the egg in.

(885) *Acanthopneuste reguloides davisoni* Oates.

THE TENASSERIM WHITE-TAILED WILLOW-WARBLER.

Acanthopneuste trochiloides davisoni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 482.

Acanthopneuste reguloides davisoni, *ibid.* vol. viii, p. 462.

This Willow-Warbler extends from the mountains of Tenasserim at least as far North as Karenni and, probably, throughout the hills of Northern Burma.

Harington, Grant and Hopwood all obtained nests in the Bhamo Hills which they attributed to this subspecies, while in the Chin Hills both Mackenzie and Hopwood took many nests supposed to belong to it. I have, however, seen no specimens of birds from Northern Burma, and they may prove to be *harterti* rather than *davisoni*. On the other hand, a specimen obtained by Forrest in Yunnan seems to be a quite typical *davisoni*.

Davison obtained the nest of this Warbler in Tenasserim and records (Hume's 'Nests and Eggs,' vol. i, p. 269) :—"In a deep ravine close below the summit of Mooleyit I found a nest of this Willow-Warbler. It was placed in a mass of creepers growing over the face of a rock about 7 feet from the ground. It was only partially screened, and I easily detected it on the bird leaving it. I was very much astonished at finding a nest of a Willow-Warbler in Burma, so I determined to make positively certain of the owner of the nest. I marked the place and, after a short time, returned very quietly. I got within a couple of feet of the nest; the bird sat still and I watched her for some time; the markings on the top of the head were very conspicuous. On my attempting to go closer the bird flew off. I moved back a short distance and shot her, using a very small charge.

"The nest was a globular structure, with the roof slightly projecting over the entrance. It was composed externally chiefly of moss, intermingled with dry leaves and fibres; the egg-cavity was thickly and warmly lined with a felt of pappus.

"The external diameter of the nest was about 4 inches; the egg-cavity 1 inch at the entrance and 2 inches deep.

"The nest contained three small pure white eggs."

A nest taken for me by Partridge in 1903 was exactly similar but had a lining felted of moss and white cotton-down.

Nests taken by Hopwood and Mackenzie in the Chin Hills between 4,000 and 7,000 feet were generally placed in natural hollows low

down in trees and are described as "a pad of pappus and moss or of grass lined with pappus and moss."

A nest taken by Cook in Ataran was a ball of moss, lined with pappus and placed "on the sloping bank of a mossy forest." Another, taken by Hopwood in Myitkyina, was an oval, "almost on the ground, of green moss with a few roots, hairs and fibres intermixed."

The breeding season is April and May in the North of Burma, one nest being taken on the 5th July with four fresh eggs. In Tenasserim Davison took his nest on the 2nd February, Cook his on the 14th April and Partridge his on the 30th May, at a place called Ko-hang.

The full clutch is three or four and the eggs cannot, of course, be distinguished from those of the other races, though my small series of eggs are rather broad and stumpy in shape.

Twenty-six eggs average 14.9×11.9 mm. : maxima 16.3×12.0 and 16.2×12.3 mm. ; minima 13.0×11.8 and 13.4×11.1 mm.

Muscitrea grisola.

THE GREY FLYCATCHER-WARBLER.

(887) *Muscitrea grisola grisola* (Blyth).

THE ANDAMAN GREY FLYCATCHER-WARBLER.

Muscitrea grisola grisola, Fauna B. I., Birds, 2nd ed. vol. ii, p. 484.

This curious bird, whose systematic position may even now be wrongly given, occurs in the Andamans, Arrakan, Pegu, Tenasserim, Annam, Siam, Malay Peninsula and islands, Java, Sumatra and Borneo.

It is probably resident and breeds wherever found but, up to now, its nest and eggs have only been taken in the Andamans, where Osmaston obtained a fine series and Wickham and Anderson also found nests and eggs.

The only account of its nidification is that of Osmaston, who writes (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 159, 1906) :— "This bird occurs throughout the islands but is not common, though fairly numerous in open jungle and clearings near Port Blair, especially between Haddo and Navy Bay. It has a fine, loud and clear whistle, repeated three or four times, or prolonged and drawn out, followed suddenly by a higher (or lower) note in a different key, reminding one somewhat of the call of *Aegithina tiphia*, and unlike that of any Flycatcher. It is a quiet, unobtrusive bird, usually seen alone or in pairs. It frequents mangroves and other small trees and catches insects sometimes on the wing and at other times on the branches or trunks of trees. I found five nests between May 17 and June 10. The nest is a rather thin,

flimsy, cup-shaped structure made of roots, which are attached by means of cobwebs to the twigs supporting it. The eggs could be seen from below the nest, which was unlined and something like that of a Bulbul. The nests were all in small trees 6 to 12 feet from the ground. The eggs are slightly glossy, dark cream or pale café-au-lait spotted with dark yellowish-brown and sepia. The spots are rather small and not numerous, and they tend to form a zone towards the big end. The eggs remind one a little of those of *Rhipidura albicollis*. They vary very little in size, the mean of eight eggs being $0.85" \times 0.62"$. I brought up a nestling of this species but it died just as it was about to fly. It never showed any vestige of spotted plumage at any stage. Even when in the nest the breast was pure spotless white and the back and wings a warm reddish-brown. This looks as if it had been wrongly placed in the *Muscicapidæ*, and I would suggest that it may have more affinity for the *Sylviidæ*."

Later Osmaston took many more nests and eggs, as did Wickham and Anderson, whose notes merely confirm Osmaston's, but considerably extend the breeding season. Osmaston himself took eggs in 1907 as early as the 17th April and as late as the 8th July in the same year.

The ground-colour of the eggs varies very little. I have one pair taken by Osmaston which has it nearly white, but all the rest are a pale creamy buff to a warm creamy buff or pale café-au-lait.

The primary markings are spots of brown, ranging from sepia to deep blackish-brown, with almost equally numerous secondary spots of lavender. Both markings are fairly numerous in zones round the larger end and sparse elsewhere. The texture is fine, with a fair gloss, and the shape rather long oval, seldom pointed.

Twenty-six eggs average 21.7×15.7 mm. : maxima 23.0×15.3 and 21.9×16.2 mm. ; minima 20.3×15.1 mm.

(888) *Seicercus affinis** (Hodgs.).

THE ALLIED FLYCATCHER-WARBLER.

Seicercus affinis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 486.

This little Warbler extends from Sikkim in the Himalayās to Eastern Assam, both North and South of the Brahmapootra, Chin, Kachin and Bhamo Hills, to Siam and Annam.

It is a bird of evergreen, wet and humid forests, from 4,000 feet certainly up to 7,000, and probably up to 8,000 feet, preferring such as have ample undergrowth of bush and brambles besides lofty trees.

I found this bird breeding in the Khasia Hills from 4,000 feet

* If *Seicercus ocularis* of Robinson and Kloss (Ibis, 1919, p. 448) be considered separable, then our bird would be *S. affinis affinis*.

upwards. As a rule the birds preferred the moist evergreen forests at 4,000 feet and the mixed Rhododendron, Oak and other forest, still more damp, though not so hot, at 5,000 to 6,200 feet. Sometimes, however, we did find them breeding in the Pine-woods, but never in the dry areas, where the Pines stood dark and solemn, with practically no undergrowth. The Khasia Hills is a great district for streams and waterfalls, often running along the deep gorges and ravines which intersect the Pine forests. The banks of these are clothed with all sorts of vegetation, bushes, brambles, ferns etc., some of which are always green and fresh, while wet green moss covers all the boulders and most of the trunks of the trees near the water. Here this Warbler loves, above all, to breed. Cover there is in plenty, suitable breeding holes everywhere, building material on all sides without searching and, finally, air and light and an abundance of insect food. In these ravines and gorges the nest is generally placed about half-way up the sides, tucked away in the dense moss on the steep bank or inside a hole from which a stone has fallen. Occasionally it is placed in holes among roots or stones and, still more rarely, in natural hollows in dead trees, standing or fallen. In the last-mentioned position the hole chosen is nearly always covered with orchids, ferns and mosses, which effectively conceal the nest.

When built in evergreen forest the nest is more often placed in thick moss on sloping banks.

Wherever it may be the nest is always the same, a very beautiful and extraordinarily well-made globe of green moss. Few birds can take more trouble over their nests than do some birds of the present genus.

This Warbler makes the outside of fine scraps of green moss, generally selecting pieces rather dark green in shade. These it not only wedges together, as so many other builders do, but it interlaces the little bits and, with the moss, incorporates a few leaves and a good many roots. Inside this outer framework it puts in a solid lining of roots over bottom, sides and top, and then again over this more thin moss, so interwoven and compacted that it looks almost like green felt. After all this comes the true lining, of the whitest of vegetable down or cotton-silk. When the eggs are first laid they are quite lost and hidden in this thick soft mass but, as incubation advances, the lining becomes matted down.

The breeding season is April and May but quite a number of birds breed on to the end of June.

The eggs number four or five, very rarely three only being incubated. They are typical white *Seicercus* eggs. That is to say, there is no tint of any kind in the ground, nor is there any marking of any sort whatsoever. The texture is fine, close and hard, with a high gloss on the surface, and the shells are stout for the size of the eggs. Typically they are short, broad ovals, sometimes almost elliptical in form.

Thirty eggs average 15.4×12.4 mm. : maxima 16.3×12.7 and 15.3×13.1 mm. ; minima 14.1×12.1 mm.

Both sexes incubate and both assist in the making of the nest.

The cocks of this genus and of *Abroscopus* have a very pretty nuptial display. The cock bird descends to the branch on which the female is sitting and, sidling along it until she is a few inches apart, he spreads his tail and wings, with a quick, quivering motion, fluffs out all his feathers, and then cowers down close to her for a few seconds, after which he suddenly stands erect and bursts into song, sings hard for a minute or two, and then again displays until he thinks he has really touched his lady's heart.

It is a bold little bird and pays little attention to onlookers, though it is cautious in approaching its nest.

Seicercus burkii.

THE BLACK-BROWED FLYCATCHER-WARBLER.

(889) **Seicercus burkii burkii** (Burton).

THE SIKKIM BLACK-BROWED FLYCATCHER-WARBLER.

Seicercus burkii burkii, Fauna B. I., Birds, 2nd ed. vol. ii, p. 487.

Although common nowhere, this species has a wide range, being found from the North-West Frontier to Assam, both East and South of the Brahmapootra. Manipur and the Chin Hills are the meeting ground, or intermediate ground, between this and the next race, *tephrocephalus*; but, whereas in Manipur most birds are nearer the present race, those from the Chin Hills are all placed with *tephrocephalus* by Harington, Mackenzie, Venning and other collectors and ornithologists.

Birds from the North-West Frontier to Nepal are now separated by Ticehurst under the name *Seicercus burkii whistleri*.

Its haunts differ in no way from those of the last species but it is sometimes found at far higher levels, Whympers obtaining its nest at 11,000 feet in Garhwal. In Sikkim Osmaston found it breeding at 6,500 feet but Stevens thinks it breeds up to fully 9,000.

In Assam it breeds from 3,500 feet in North Cachar up to 8,000 in the Naga Hills.

The sites of the nests are very much the same as those selected by the preceding bird and, as a rule, the nest is placed on low sloping banks more or less covered with long green moss, or on the banks of ravines running through forest. Occasionally the nests are placed on banks covered with weeds and grass, or with fern and bracken and, where this is the case, they are varied in construction to suit the surroundings.

In Margherita, or rather in the Patkoi Naga Ranges just above that place, Coltart took several nests, and these were either of moss or grass outside, according to whether the surroundings were one or the other. Even when the nests were all moss, the inner part was quite differently put together for, while the outer part was moss just interwoven, the inner portion was almost felted, so much work was put into it. This species seems never to use down in the lining.

The nests are generally little balls between 4 and 5 inches either way, but one of the first taken by me was a long upright oval, about 8 inches in height and $4\frac{1}{2}$ inches in width.

The breeding season is a long one and in Assam I have taken eggs from the 8th of April to the end of June, while Osmaston took a nest near Darjiling on the 6th July.

The eggs are quite typical of the genus—pure white and glossy, broad ovals, and stout-shelled for their size.

Forty eggs average 16.1×12.3 mm. : maxima 16.7×13.1 mm. ; minima 15.0×12.7 and 15.9×11.8 mm.

Both sexes share in the duties of incubation.

(890) *Seicercus burkii tephrocephalus* (Anderson).

THE BURMESE BLACK-BROWED FLYCATCHER-WARBLER.

Seicercus burkii tephrocephalus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 488.

This race is found practically throughout the hills of Burma, though how far South it extends is not yet known. It occurs also in Siam and Annam.

So far as I know the nests of this bird have only been taken by Venning and Harington.

The former gives the following account of the nidification (Journ. Bomb. Nat. Hist. Soc. vol. xxi, p. 629, 1912):—"Nest taken and bird netted on it by me on 21st May, 1910. Nest was found on the ground near the top of a small bank about eighteen inches high and was well concealed by an overhanging tuft of grass and some herbaceous leaves. It was a largish, oval-shaped, domed structure, composed outside of coarse grasses loosely laid together, the entrance being on one side and well overhung. Inside it was lined with very soft moss and thistle-down, the moss well separated before being made into a compact cushion. The dimensions were: outside height 6 inches, back to front $4\frac{1}{2}$ inches, side to side 4 inches. Diameter of entrance about 1 inch. Interior diameter about $1\frac{1}{2}$ inches. Depth of cup from edge of entrance 1 inch. Eggs four, pure white."

Harington had already taken nests of this bird at Sinlum. A clutch of five given to me by him was taken from a nest described as "globular, outside coarse grass and moss, then a pad of moss, and

inside this a lining of cotton-down. It was placed on the ground in among grass, weeds and bracken at about 5,000 feet."

The eggs are, of course, exactly like those of the last bird.

Eleven eggs, all I have been able to measure, average 15.3×12.3 mm. : maxima 15.9×12.0 and 15.1×13.1 mm. ; minima 15.1×12.1 mm.

Nests so far have been taken only between the 9th April and 19th May.

(890 a) *Seicercus burkii whistleri* Ticehurst.

THE SIMLA BLACK-BROWED FLYCATCHER-WARBLER.

Seicercus burkii burkii, Fauna B. I., Birds, 2nd ed. vol. ii, p. 487 (part.).
Seicercus burkii whistleri, ibid. vol. viii, p. 643.

This bright, pale race of *burkii* is found from the North-West Frontier to Garhwal and the Simla States.

The only person to take its nest, so far as has been recorded, is Whympfer, who sent me a clutch of eggs with the following note:—

"The nest was globular in shape and externally constructed of loosely put together grass, but inside it was beautifully made of small bits of moss, all smoothed and neatly rounded off. This was on a grass-covered bank in mixed forest at about 11,000 feet elevation in Garhwal."

The nest was taken on the 27th June and contained four white eggs, of the usual type and texture, which measured 15.4×13.0 , 15.4×12.6 , 15.6×13.0 and 16.0×12.3 mm.

Seicercus xanthoschistos.

THE GREY-HEADED FLYCATCHER-WARBLER.

(891) *Seicercus xanthoschistos xanthoschistos* (Hodgs.).

THE EASTERN GREY-HEADED FLYCATCHER-WARBLER.

Seicercus xanthoschistos xanthoschistos, Fauna B. I., Birds, 2nd ed. vol. ii, p. 489.

The Eastern form of this Flycatcher-Warbler extends from Nepal to the Chin Hills, where it has been obtained on the higher ranges about Mt. Victoria.

According to Hodgson it breeds both in Nepal and Sikkim between 6,000 and 7,000 feet. Stevens, however, limits its elevation to 5,000. In Assam we found it breeding between 3,000 and 6,000 feet, while in the Naga Hills it possibly breeds as high as 8,000, where there are suitable woods. In Lakhimpur we found a few birds breeding at 1,000 feet but, as I have noted elsewhere,

birds which normally breed at 3,000 feet are here found quite commonly.

In its nidification this bird differs but little from other members of the genus. It keeps entirely to woods during the breeding season but, like the others, does not mind whether these are Pines or evergreen so long as there are patches of bush and other trees in among the Pines.

Gammie took a nest at Rishap, 5,000 feet, in Sikkim, on the 20th May, of which he writes ('Nests and Eggs,' vol. i, p. 271) :—
 "The nest was in thin forest, near its outer edge, and placed on the ground beside a small stem. It was domed, and composed entirely of moss, with the exception of a few fibres in the dome or hood portion, and was lined with thistle-down. The extreme diameter was 3·3 inches, the height 3·2 : the cavity was 1·6 in diameter, and only an inch in depth below the lower margin of the entrance, which was the rim of the true cup, over which the hood was drawn. The nest contained four fresh eggs."

The nests are hardly ever cups as described by Hume, and I have only seen one such, and that surely abnormal. The cups sent him were probably only the inner felted portion of moss, which is easily detachable from the outer and more loosely constructed part.

I took and saw numerous nests of this Warbler in the hills South of the Brahmapootra, all of which agreed well with Gammie's description, with the one exception referred to. Most nests were lined with the soft down from the pods of the Cotton-tree (*Bombax malabarica*) and were rather larger than Gammie's, varying from 3·5 to 4 inches in diameter either way.

Most of those found by myself were placed on the ground in mossy banks, sometimes at the foot of a stump or trunk of a tree, sometimes between boulders on the banks of ravines, but nearly always well hidden in among the surrounding moss, weeds, grass or fallen débris.

The breeding season commences at the end of April and I have taken eggs in the last week of that month, but most eggs are laid in May, many in June, while Coltart took fresh eggs as late as the 6th August in Margherita.

The full clutch of eggs is four, though sometimes three only are laid. They are typical of the genus but, on the whole, they are the most fragile and least glossy of all the eggs laid by any member of it.

Fifty eggs average 15·7×11·9 mm. : maxima 17·1×12·4 mm. and 17·0×13·1 mm. ; these are both from the same clutch, one of almost abnormally large eggs ; the next largest are 16·2×12·0 and 15·2×12·2 mm. ; minima 14·1×10·5 mm.

Both sexes incubate and we have caught both in snares on the nest, but in about three times out of four it was the female which was sitting. Both also assist in building the nest but I have only seen the male bringing materials, and never actually engaged in

putting them in position. Incubation, I think, takes ten days. Eggs found on the 13th May were *three* in number, and on the 25th *four* young had hatched.

(892) *Seicercus xanthoschistos albosuperciliaris* (Jerdon).

THE KASHMIR GREY-HEADED FLYCATCHER-WARBLE.

Seicercus xanthoschistus albosuperciliaris, Fauna B. L., Birds 2nd ed. vol. ii. p. 490.

The North-Western form of Grey-headed Warbler is found from Garhwal and, possibly, Western Nepal to the North-West Frontier.

Although this bird is found both in Kashmir and the wooded portion of Ladak, it is far more common in the forested outer hills from Murree to Garhwal.

Dodsworth and Jones obtained their nests in the Simla States, principally between 6,000 and 7,500 feet, in some numbers. Marshall (G. F. L.) took one nest on the 22nd May at 7,000 feet and Whymper found them breeding freely round Naini Tal at about the same elevation, while Buchanan and Rattray took the nests in the Galis near Murree between 5,000 and 8,000 feet. The latter also took its nest at Mussoorie.

Hume writes of their nidification:—"I have received its nests and eggs from several sources, and have taken them in the Sutlej and Beas Valleys myself. They lay in the last week of March, and throughout April and May, constructing a large globular nest of moss, more or less mingled exteriorly with dry grass and lined thinly with goat's hair, and then inside this thickly with the softest wool or, in one nest that I found, with the inner downy fur of hares. The entrance to the nest is sometimes on one side, sometimes almost at the top, and is rather large for the size of the bird. The nest is almost without exception placed on a grassy bank, at the foot of some small bush, and usually contains four eggs."

The sites selected are much the same as those chosen by the Eastern race, but nests in holes in trees are quite exceptional. On the other hand, Whymper remarks that these birds seem to have a strong predilection for grassy banks of roads, both those running through forest and those more in the open.

The nests are as described by Hume, but it may be noticed that, like those of the typical race, they are formed in three definite parts—an outer covering of grass and moss, then a welded wall of moss only and, finally, a dense lining of wool, down, or fur, a lining I have never seen in the nest of the previous bird. Sometimes this lining of fur is mixed with a few feathers (Jones) and sometimes with wool and hair (Whymper and Hume). The fur chosen seems very often that of either hares or monkeys.

The breeding season is chiefly in May and June; April eggs are uncommon and I have seen none laid in March other than Hume's.

The normal full clutch is four only, but both Jones and Buchanan have taken five.

The eggs cannot be distinguished from those of the preceding bird.

Fifty eggs average 15.9×12.5 mm. : maxima 17.0×13.3 mm. ; minima 14.9×12.0 mm.

(893) *Seicercus poliogenys* (Blyth).

THE GREY-CHEEKED FLYCATCHER-WARBLER.

Seicercus poliogenys, Fauna B. I., Birds, 2nd ed. vol. ii, p. 491.

The Grey-cheeked Flycatcher-Warbler is found all along the Himalayas from Sikkim to Eastern Assam and Manipur and has also been recorded from Yunnan.

Gammie took a nest of this bird in Sikkim at 6,000 feet and I found it not uncommon in the forests of the hills South of the Brahmapootra between 4,000 feet and the tops of the hills, *i. e.*, about 6,200, but in the Naga Hills it possibly breeds up to 7,000 feet. Stevens observed it round about Gopaldhara, at 4,700 feet, "in moderate numbers," but also records it from the Singili-La Ridge in April and May at 10,000 feet on Kalo Pokhari.

It frequents exactly the same kind of country as the last species and, so far as my experience goes, the same sites for its nests. Gammie, however, records a very different one:—"A nest of the Grey-headed Flycatcher-Warbler, taken on the 8th May in large forest, at 6,000 feet, contained three hard-set eggs. It was suspended to a snag among the moss growing on the stem of a small tree at 5 feet up. The moss supported it more than did the snag. It is a solid cup-shaped structure, made of green moss and lined with fine roots. Externally it measures $3\frac{1}{2}$ inches across and $2\frac{1}{4}$ deep ; internally 2 inches wide and $1\frac{3}{4}$ deep."

I confess I doubt this nest, for I have seen at least a dozen, and none of these was anything like it. All those I have seen were balls of moss and grass, the latter material scanty and sometimes wanting, measuring 4 inches or more vertically and horizontally. In every case the lining was a felt-like pad of matted moss and moss-roots *without any extra lining of fur, down, or feathers*. Nearly all the nests were placed on the ground among moss, weeds, bracken etc., or between moss-covered stones and boulders. One nest only was in a hole in an old twisted stump of a Rhododendron, entirely concealed in a thick growth of moss and orchids.

The breeding season is May and June and I have seen no eggs laid very early or very late.

The eggs, usually four in number, are quite typical and very glossy.

Forty eggs average 15.8×12.5 mm. : maxima 18.0×12.3 and 16.3×13.0 mm. ; minima 15.0×11.2 mm.

Both sexes share in the incubation.

Seicercus castaneoceph.

THE CHESTNUT-HEADED FLYCATCHER-WARBLER.

(894) **Seicercus castaneoceph castaneoceph** (Gray).

THE NEPAL CHESTNUT-HEADED FLYCATCHER-WARBLER.

Seicercus castaneoceph castaneoceph, Fauna B. I., Birds, 2nd ed. vol. ii, p. 492.

This very beautiful little Warbler is found throughout the Outer Himalayas from Nepal to Eastern Assam, Manipur, Chin and Kachin Hills into the North and South Shan States.

In the South Assam Hills it is found between 3,000 and 6,000 feet, but I have taken its nest as low down as 2,500. In Sikkim Stevens records it as breeding at 6,000 and 6,500 feet but he also observed it at 4,500 feet in Summer, though he did not find its nest at this elevation.

Hodgson describes a nest as follows:—"A beautiful structure of mosses, lichen, moss- and fern-roots, and fine stems worked into the shape of a large egg, measuring 6 and 4 inches along the longer and shorter diameters; it is placed on the ground in the midst of a clump of ferns or thick grass, with the longer diameter perpendicular to the ground."

Stevens (Journ. Bomb. Nat. Hist. Soc. vol. xxix, p. 1026, 1924) says:—"Semana-Mirik Ridge, 6,000'-6,500', May, June 1923. I found six nests in all containing eggs, in one instance a single egg of *Chalcococcyx maculatus* along with the three eggs, one of which was broken, slightly incubated, and forsaken on the 22nd May, and in two other cases single juvenile Cuckoos of this species, females, the only occupants.

"It builds in the dark recess of an overhanging bank, constructing the usual compact cup-shaped nest of moss, like its congeners, with the entrance more often than not facing the bank."

Cup-shaped may be a slip for *ball-shaped*, otherwise the entrance could not face the bank.

Of the many nests I have seen of this bird all were oval balls, made of bright green moss very compactly and strongly wound together, with a dense lining of felted moss and tiny moss-roots. I have never seen "stems" employed in its construction as stated by Hodgson, nor have I seen any cup-shaped nests as described by Stevens, though there is no doubt as to the identification of his nests, for after he had written the paper in vol. xxix he found many more nests of this species.

All the nests taken by myself were on the ground; some in hollows at the foot of trees and bushes on banks or steep and broken hill-sides; others in sides of ravines, both overhanging and sloping. The nests were generally well concealed and often quite hidden by overhanging moss and creepers.

One nest found by me was placed among the fallen débris at the foot of a clump of bamboos. Both birds were caught on the nest and the identity certain, but I have seen no other nest in such a position.

The breeding season is May and June, most eggs being laid in May.

The full clutch is four or five and the eggs are quite typical. It is curious that these little eggs are stouter and more glossy than the larger eggs of *xanthoschistos*.

Fifty eggs average 14.6×11.6 mm.: maxima 16.0×12.0 and 15.4×12.2 mm.; minima 13.6×12.0 and 13.8×10.9 mm.

Both sexes assist in building the nest and Hodgson records that "both are said to assist in hatching and rearing the young," a fact I have been able to confirm myself.

(895) *Seicercus cantator* (Tickell).

THE YELLOW-BREASTED FLYCATCHER-WARBLER.

Seicercus cantator, Fauna B. I., Birds, 2nd ed. vol. ii, p. 492.

Tickell's Warbler, as this species has hitherto been called, has a very similar range to that of the preceding bird, *i. e.*, from Sikkim to Manipur, but is not found in the Northern Burmese Hills.

There is very little one can say of the nidification of this little Warbler that has not been said of the preceding bird. In Assam I obtained its nest in dense evergreen forest between 4,000 and 6,000 feet and in Sikkim Stevens met with it at 3,500 feet, but says that the bird is very rare.

The descriptions of its nest given in Hume's 'Nests and Eggs,' but not considered very reliable by Hume himself, must, I think, be ignored. I have seen some twenty nests, perhaps more, of this species and none has borne any resemblance to those described. All the nests seen by me were little balls of vivid green moss, measuring roughly about 6 by 4 inches, the longer axis vertical. These were invariably placed on the ground, generally at the foot of trees in evergreen forest. Some were half buried in fallen leaves and the usual accumulations on the ground in such forest; others were in hollows in banks, half or wholly hidden in moss, weeds, grass, or other cover. Once or twice I have seen them in a place rather unusual for Flycatcher-Warblers—in open Pine forest, nestling in among the moss and pine-needles on a bank.

The nest differs from that of the preceding bird in having a dense thick lining of some very soft vegetable-down. Where available the soft, silky down of the *Bombax* is used, sometimes thistle-down and at other times a sheeny white substance like the finest silk which I was unable to determine, but believe to be the inner coating of a kind of wild bean.

Cantator is a rather earlier breeder than *castaneocephus* and I have seen several nests completed and laid in before the end of April. May is, however, the chief laying month and a few birds continue into June. Like other Flycatcher-Warblers, they are not double brooded.

They lay three or four eggs only which are typical of the genus in every way—white, highly glossed and strong in texture.

The gloss in the eggs of this genus is not so permanent as it is in the eggs of some other genera, such as the Woodpecker's, and, after some twenty or thirty years in a collection, it is not so pronounced as in freshly taken eggs.

Fifty eggs average 14.5×11.9 mm.: maxima 15.5×12.3 and 14.9×12.7 mm.; minima 13.1×10.8 mm.

Both sexes incubate and both take part in the building of the nest.

I do not know how long incubation takes but it is probably ten days, as in the other Flycatcher-Warblers of the same size.

Genus **ABROSCOPUS.**

Just as *Phylloscopus* and *Acanthopneuste* have been bunched together by many systematists, though so different to one another in many ways, amongst others in their nidification, so *Abroscopus* (*Abrornis* auct.) and *Seicercus* have been both placed under the latter name. Yet the one has only ten and the other twelve tail-feathers, a structural difference accompanied by a wide difference in nidification and in the eggs laid by the two groups. *Seicercus*, as we have seen, *always* lays white unspotted eggs, *Abroscopus* equally invariably lays pink or pinkish eggs, densely spotted. The great difference in the nesting-habits will be seen in the following pages. The foregoing lines give my reasons for retaining *Abroscopus* as a separate genus.

Abroscopus superciliaris.

THE YELLOW-BELLIED FLYCATCHER-WARBLER.

(896) **Abroscopus superciliaris superciliaris** Tickell.

THE BURMESE YELLOW-BELLIED FLYCATCHER-WARBLER.

Abrornis superciliaris superciliaris, Fauna, B. I., Birds, 2nd ed. vol. ii, p. 494.

Abroscopus superciliaris superciliaris, *ibid.* vol. viii, p. 643.

This tiny butterfly of a bird is found from the hills of Assam, South of the Brahmapootra, through the whole of Burma, in suitable places, as far South as about 14° . Here the birds are intermediate but, in the extreme South, approach *schwaneri*, the Bornean form, and must, in my opinion, come under that name.

Unlike the species belonging to the genus *Seicercus*, this little bird frequents bamboo-jungle, it does not matter much of what

kind, mixed bamboo, and scrub-jungle, as well as secondary jungle on deserted cultivation, especially such as contains here and there clumps of the small or giant bamboo. Probably its favourite resort is in long strips of bamboo-jungle growing on the banks of streams and between the streams and evergreen forest. Bingham took its nest on Zammee (Zami) River * practically in the plains but, in North Cachar, I found it breeding between 3,000 and 6,000 feet. In Lakkimpur Coltart and I both found a nest in the plains, here something under 1,000 feet above sea-level.

In the Khasia Hills we found it up to nearly 6,000 feet, so long as water and bamboos were both present.

The greater number of its nests are made in the hollows of bamboos. Sometimes the entrance is through a hole which has rotted away and sometimes I have known it make use of the tiny entrance-hole to an old nest of the little Orange Woodpecker, *Sasia*. Very often, however, it makes use of a bamboo which has been cut down from the clump but still stands upright against it, and these it enters by the hole made by a chance cut of the woodman's "dao" (axe).

The first nest ever taken of this species was by Bingham in Tenasserim, who says :—"Khasat village—Khasat choung, Zammee river, 9th March, 1878.—My camp to-day was pitched in the midst of a dense bamboo-break, close to a path leading to a village.

"About 10 feet from my tent on this path, passers-by had cut one of the bamboos in a clump and had left it leaning up against the clump; between two knots of this a rough hack had broken an irregular hole into a joint.

"My attention was attracted by what I took to be a leaf flutter down close to the above-mentioned bamboo, and to my surprise disappear before it reached the ground. Wondering at this, I got up and approached the place, when from the hole in the bamboo out darted a little bird; and looking in I saw a neat little nest of fibres, placed on the lower knot, with three eggs."

Most of my nests in North Cachar were found in similar situations to the above. Little bridges across ravines and small streams were made by the hill-tribes by throwing two or three tree-trunks across, and then making a footway of interwoven split bamboos. These bamboos were cut from clumps close by, and many were left lying about against the original clumps from which they had been cut. In some cases mishits had made a hole in the node below the place aimed at, and these made convenient entrances for the birds. Sometimes the nest might be in a standing bamboo in which a mishit had made a suitable hole and, at other times, rain and weather had rotted a weak spot and so rendered a bamboo suitable for nesting purposes. The nest itself varied much. Often a basis

* In the 'Fauna' I quoted this account as referring to the nest of *schwaneri*, but the Zammee River, I now find, is a tributary of the Ataran River, South of Moulmein but North of the range of *schwaneri*. It is, therefore, applicable to the present bird.

was made with a few small bamboo-leaves curled round the bottom of the hollow ; on this was placed a pad of fibre, fine roots, or moss. In most of the few nests I have seen the top pad of moss was well matted together and formed a neat little saucer for the reception of the eggs.

I have twice seen Cuckoo's (*Cuculus canorus bakeri*) eggs in these nests, both in very small bamboos in which the young Cuckoo could never have lived more than a few days and from which it could never have escaped by the tiny entrance available.

They are early breeders, many birds laying in April, some in May and a few in June.

The eggs number three to five and I have taken three hard set more than once, and have seen three young in a nest.

They are of two types. The first has a white ground, more or less tinted with pink and covered with small blotches, freely distributed everywhere, of reddish-brown or red, with numerous underlying blotches of grey which give a purplish tinge to the eggs. Most eggs have indications of a ring at the larger end where the markings coalesce and, in others, form small caps. Occasionally the spots are more scanty.

The second type has the ground pale pink to a salmon-pink, covered so densely with the finest freckles of pink or red that the eggs look unicoloured pink, terra-cotta, or rich red. In these eggs, also, the eggs are often zoned or capped.

The first type are glossless, or nearly so, the second generally well glossed.

In shape the eggs are moderate, rather pointed ovals, the texture fine and close.

Thirty-six eggs average 15.2×11.6 mm. : maxima 16.3×11.5 and 16.0×12.2 mm. ; minima 14.1×11.0 and 15.4×10.5 mm.

Both birds incubate and both birds bring the material to the nest-hole, but whether both, or only the female, place the materials into position I cannot say.

They are bold, fearless little birds and flutter about like butterflies as one watches them, or will fly in and out of their nest when the watcher is within full view so long as he is still and silent.

I believe incubation only takes nine days but cannot be certain. Eggs laid, three, by the 19th April were all hatched, plus a fourth, on the 1st May, when the young looked about 24 hours old.

(897) ***Abroscopus superciliaris flaviventris*** (Jerdon).

THE TENASSERIM YELLOW-BELLIED FLYCATCHER-WARBLER.

Abornis superciliaris salwinensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 495.
Abroscopus superciliaris flaviventris, ibid. vol. viii, p. 645.

This little bird is to be found from Sikkim to Eastern Assam, North of the Brahmapootra. If it extends East it will probably

be through the Northern Kachin Hills, as the more Southern birds are all of the preceding race.

In its habits and haunts it does not differ from the Burmese form.

In Sikkim Stevens says it is confined to low elevations, and he did not observe it above 3,300 feet in the Teesta Valley, while Gammie took a nest at 1,800 feet on the 15th June. This is the only nest which has been taken, and Gammie describes it as follows :—

“It was inside a bamboo-stem near the banks of the Ryeng stream. Just under a node someone had cut a notch, which the birds made their entrance. The nest rested on the node below, and fitted the hollow of the bamboo. It was made of dry bamboo-leaves and lined with soft fibrous material. It measured 5 inches deep and 3 inches wide, with an egg-cavity of 2 inches in depth by $1\frac{3}{4}$ inch in width. The eggs, which were hard set, were but three in number.

“The eggs are rather long ovals, the shell fine but with very little gloss; the ground-colour is a dull white or pinky white, and it is thickly freckled and mottled about the large end and thinly elsewhere with red, in some cases slightly browner, in others purple. The markings have a tendency to form a cap or zone about the large end, and here, where the markings are densest, some little lilac or purplish-grey spots and clouds are intermingled.

“An egg measures $\cdot 61 \times \cdot 43$ in.” (= $16\cdot 0 \times 10\cdot 9$ mm.).

Abroscopus schisticeps.

THE BLACK-FACED FLYCATCHER-WARBLER.

(899) *Abroscopus schisticeps schisticeps* (Hodgs.).

THE NEPAL BLACK-FACED FLYCATCHER-WARBLER.

Abrornis schisticeps schisticeps, Fauna B. I., Birds, 2nd ed. vol. ii, p. 496.
Abroscopus schisticeps schisticeps, *ibid.* vol. viii, p. 644.

This little Warbler occurs in the Outer Himalayas from Nepal and Sikkim to the hills of Eastern Assam, North of the Brahmaputra. Stevens obtained it only between 5,000 and 5,800 feet in Sikkim, while Gammie took the only nest, so far obtained, of this bird at 5,500 feet.

It is a forest bird and, probably, will be later on found to breed in mixed jungle of tree-forest and bamboos.

Gammie describes the nest taken by him as follows :—

“The only nest I ever found of this Warbler was in a natural hole in a small tree in an open part of a large forest, at 5,500 feet above the sea. In a cleft, five feet from the ground, where a limb had been lopped off, there was a small hole, barely large enough at entrance to admit the bird, but gradually widening out for the 7 or 8 inches of its depth. In the bottom of this cavity was a loose

lining of bamboo-leaves, on which lay five eggs. They were well set, so five is probably the full complement. They were taken on the 29th May."

Hume describes the eggs as being just like the first-described type of egg of the preceding species. He says:—"The ground is a dull pinkish-white, and they are profusely mottled and streaked with red, which in some eggs is brownish, in some purplish. The markings are densest at the large end, where they have a tendency to form an irregular zone, which in some specimens is very conspicuous."

These eggs, which are in the British Museum, measure about 14.3×10.5 mm.

(901) *Abroscopus schisticeps flavimentalis* Stuart Baker.

THE CHIN HILLS BLACK-FACED FLYCATCHER-WARBLER.

Abornis schisticeps flavimentalis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 497.
Abroscopus schisticeps flavimentalis, ibid. vol. viii, p. 644.

This race of Flycatcher-Warbler seems to be confined to the hills South of the Brahmapootra, the Chin Hills and Manipur.

In North Cachar it was not a rare bird between 2,000 and 4,000 feet, but it was so quiet and unobtrusive that it appeared to be much more rare than it really was.

It frequented glades and banks of streams in deep forest, especially if these were interspersed with tracts of bamboos. For breeding purposes, I think, it preferred forest- and scrub-covered ravines, with patches of bamboo here and there, and thin forest, open country, or actual cultivation round about.

The only nest recorded, one taken by myself, was found in a ravine of this nature. A tiny stream, a few yards across, ran through a gorge, the sides of which were covered with a mixture of bamboo-clumps, scrub-jungle and small trees for a width of some hundred yards or less on either side, beyond which were patches of rice cultivation alternating with deep forest. A bamboo bridge connecting a village track over this stream had needed repair, so the villagers, for this purpose, had taken bamboos from the clumps nearest the bridge. About a month after it had been repaired, when I was crossing this bridge, I saw a small bird perched on one of the bamboos within 5 or 6 feet of my face, which I at once recognized to be this Warbler. The bamboo was a piece 3 or 4 feet long, half burnt through in one place and split downwards, and then thrown on one side, where it rested against a clump of live bamboos. In this bamboo the birds had made their nest, passing in and out by the hole burnt through below the node next to their nest. The bamboo was about $2\frac{1}{2}$ to 3 inches in diameter, and for some 6 inches this was filled up with fibres and the little aerial roots of the bamboo, above which rested a lovely little pad of moss and feathers,

lined with the softest down and containing four slightly incubated eggs.

These were white, thickly freckled with rather bright reddish-brown, forming caps at the larger end—in fact just like the first-described type of egg of *A. s. superciliaris*.

They measured from 15.1 × 11.1 to 15.4 × 11.3 mm. and were taken on the 1st of May at about 3,000 feet.

Abroscopus albogularis.

THE WHITE-THROATED FLYCATCHER-WARBLER.

(902) **Abroscopus albogularis albogularis** (Moore).

THE NEPAL WHITE-THROATED FLYCATCHER-WARBLER.

Abornis albogularis albogularis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 498.
Abroscopus albogularis albogularis, *ibid.* vol. viii, p. 644.

This Warbler has almost exactly the same range as the Yellow-bellied Flycatcher-Warbler, extending from Nepal on the West to Assam on the East, where it is found both North and South of the Brahmapootra. It also occurs in Manipur, Looshai and Chin Hills.

Mandelli's supposed nest of this bird, recorded in Hume's 'Nests and Eggs,' was certainly not the nest of any bird of the genera *Seicercus* or *Abroscopus*.

The only authentic nests I know of are those taken by myself in the Cachar and Khasia Hills and those taken by Dr. H. N. Coltart in the low hills above Margherita.

In Sikkim Stevens records this Warbler as a bird of low elevations, "probably 2,500' and under," but in the hills of the Surrma Valley it occurred at all elevations between 1,000 and 4,000 feet, being most common between 2,000 and 4,000 feet. It, however, breeds up to 6,000 feet, as I took one nest at this elevation near Hungrum.

Like most of its near relations, it keeps much to bamboo-jungle, mixed scrub- and bamboo-jungle or the secondary scrub in deserted cultivation. Wherever it is found in the breeding season one may be sure water is near by, and quite certain that there are bamboos of some kind for nesting purposes.

All the nests seen by me, perhaps a dozen all told, were built in bamboos, as were the three taken by Coltart. Generally the bamboo selected is a small one, but I found one pair nesting in a broken piece of bamboo belonging to a giant clump, the bases of the bamboos being as much as 10 inches across. This pair had built about 4 feet from the ground in one of these huge bamboos which, in a gale, had broken and fallen over and, while still attached to the base, left an aperture by which the birds could enter. This great hollow was filled for about a foot deep with scraps of grass,

and on this was placed the usual felted pad of moss, with a distinct cup in the centre for the three hard-set eggs it contained. The clump of bamboos was one of two or three just beside a comparatively wide bridle-path running through bush-jungle. The birds often, one might say almost invariably, select bamboos which have been cut down by human agency, and then left standing against, or in, the clump from which they were cut. One nest just below my garden was placed in a bamboo which had been cut from a clump growing in front of my house and thrown away, lodging in a crevice and sticking upright against a bank.

Most nests consist first of a layer of odds and ends and then the true nest, consisting of a felted pad of moss, fitting in diameter the bamboo in which it is placed, and measuring an inch to two inches in thickness. The sub-structure varies considerably; I have seen one nest with 8 inches of bamboo-fibre, roots and bamboo-leaves; another consisted of about 3 inches of strips of grass; another of only the aerial roots of bamboos; while in one the usual sub-layers of other materials had been dispensed with and the birds had used nothing but small scraps of green moss. About 6 inches of this was loosely put together and just the top inch felted and shaped to receive the eggs.

The earliest date for a nest with eggs was one taken by Coltart at Margherita on the 2nd April, and the latest, by myself, on the 19th June at Shillong. Late April and early May constitute the main breeding season and, normally, I do not think they are double-brooded.

The eggs number three to five and are in all respects like those of *A. s. superciliaris*, but the most common type is that which looks an almost uniform terra-cotta red.

Thirty-three eggs average 14.4×11.5 mm.: maxima 15.6×12.0 mm.; minima 13.3×10.9 and 13.7×10.8 mm.

Both sexes incubate and both assist in making the nest.

(904) *Tickellia hodgsoni* (Moore).

THE BROAD-BILLED FLYCATCHER-WARBLER.

Tickellia hodgsoni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 500.

This tiny little Warbler has so far only been recorded from Sikkim, where Stevens observed it up to 6,000 feet, but says that it undoubtedly occurs higher than this.

The only account of this bird's nidification is that given by Osmaston (Journ. Bomb. Nat. Hist. Soc. vol. xv, p. 512, 1904):—
 "This small Warbler is found, but is not common, between 6,000' and 8,000' throughout the year. Its note is a single long-drawn, very shrill whistle, followed, after an interval of 10 seconds or so, by two notes, the second of which is the lower of the two.

"The nest of this bird has never, I believe, been described.

"I came across one on the 6th June in a thicket of saplings in a lofty forest at about 6,800 feet.

"The nest was placed in a fork at the top of a *symplocos* sapling, 7 feet from the ground. It is roughly egg-shaped, with a hole $1\frac{1}{2}$ " in diameter near the top, and measures 6" in height and 5" in width. It is composed entirely of dry leaves (chiefly bamboo), with a lining of black rhizomorph, and lastly, inside the latter, a second lining of bits of soft dry bamboo-leaf.

"The eggs, three in number, were nearly fresh. They have little or no gloss. The ground-colour is a pale claret and they are spotted, streaked and speckled, chiefly at the larger end, with darker claret markings.

"The mean of the measurement of 3 eggs gives $\cdot63" \times \cdot47"$ (=16.0 \times 11.9 mm.).

***Scotocerca inquieta*.**

THE STREAKED SCRUB-WARBLER.

(905) ***Scotocerca inquieta striata*** (Brooks).

THE PUNJAB STREAKED SCRUB-WARBLER.

Scotocerca inquieta striata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 501.

This little bird breeds outside our limits from Persia to Afghanistan and Baluchistan. From the frontiers of the last two it breeds as far South-East as the Indus in the N.W. Frontier Province.

It is confined to areas which are very barren, stony and desert-like, breeding at all heights from practically the plains up to 9,000 feet or higher. Ticehurst says (Journ. Bomb. Nat. Hist. Soc. vol. xxxi, p. 700, 1926):—"This Scrub-Warbler is not uncommon, though locally distributed throughout the length and breadth of Baluchistan, affecting more particularly low scrub-bushes on hill-sides. In summer it is found up to 9,000 feet and I have seen it at this height in October and it is probably quite resident. It occurs, but less commonly, perhaps, in the plains at moderate elevations, but not so low as the Sibi plain. Thus Barnes found it not uncommon at Chaman (4,500 feet). Throughout Kalat and the hills of Southern and Central Makran this Warbler is common, and it occurs, at all events in Winter, as low down as 600 feet."

Williams says that it is common "round Quetta, and affects the low thorny shrub that is to be found both in the valleys and on the hill-sides in Summer. Its call is like the squeaking of mice.

"Several nests found were deserted, or contained dead young. In one nest found on the 8th June there were 3 Warbler's and one Cuckoo's egg, and another, which was deserted, contained three of the fosters' eggs, one broken, and one broken Cuckoo's egg.

In a third, found on the 24th May, three fosters' and two Cuckoos', and in a fourth nest a young Cuckoo." The Cuckoo in each case was *Cuculus telephonus*.

Meinertzhagen also found several nests round Quetta from March to May.

Osmaston and Briggs (*ibid.* xxxii, p. 751, 1928) found this Warbler "resident and fairly numerous on the dry rocky hillsides of the spur which separates Kohat from Peshawar, also dry ground in the vicinity of Risalpur." Osmaston found a nest with six eggs in the former place on 12th March, 1926, and Briggs found a nest containing one young bird on the point of leaving the nest near Risalpur on April 15, 1925." Osmaston also took a set of six eggs, now in my possession, on the 21st March at Nowshera.

Cock, speaking of the last place, writes ('Nests and Eggs,' vol. i, p. 276) :—"It is very common, and towards the end of February a collector could take four or five nests in a day. It builds in a low thorny shrub, about $1\frac{1}{2}$ feet from the ground, makes a globular nest of thin dry grass-stems, with an opening in the side, thickly lined with seed-down and containing four or five eggs. Their nesting operations are over by the end of March."

Others give similar descriptions of the nest, but say that it is often built within a few inches of the ground, and that it is generally well concealed. Barnes also says that feathers are sometimes used in the lining.

The breeding season lasts from February well into June, but the normal laying season is probably from the end of February to the middle of April.

The full clutch of eggs is five or six, the latter more often than the former; clutches taken of four, and often of five, are probably incomplete.

The ground of the eggs is white, while the markings are minute specks of reddish-pink to reddish-brown, numerous at the larger end, where they form ill-defined caps or zones, and decreasing in numbers towards the small end.

The distribution of the spots varies somewhat, in a few eggs being equally numerous everywhere; in some eggs, also, they are larger than in others.

The shape is a moderate oval, sometimes a little pointed at the small end.

Forty eggs, including Hume's, average 15.8×11.9 mm. : maxima 17.2×12.4 and 16.8×12.9 mm. ; minima 15.1×11.2 mm.

I can find nothing on record about their incubation or nest-building.

Neornis flavolivaceus.

THE ABERRANT WARBLER.

(906) **Neornis flavolivaceus flavolivaceus** Blyth.

THE NEPAL ABERRANT WARBLER.

Neornis flavolivaceus flavolivaceus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 502.

This Aberrant Warbler is found from the Sutlej Valley to Nepal, and thence through the Outer Himalayas to Eastern Assam, North of the Brahmapootra.

Theobald found it breeding near Darjiling but does not give the elevation, while Gammie also found it breeding in Sikkim "from May to June at elevations from 3,500 up to 6,000 feet." In Kuman, however, Whymper obtained two nests at 10,000 feet.

Theobald gives a meagre description of the nest and merely says that it "lays in the second week in July. Eggs three in number, blunt ovals, pyriform. Colour deep dull claret-red, with a darker band at broad end. Nest a deep cup, outside of bamboo leaves, inside fine vegetable fibre, lined with feathers." The nest was probably brought to him with the top pulled off.

Gammie gives a fuller account of its nidification:—"It sticks closely to grass and low scrub and never by any chance perches on a tree, breeding from May to July at elevations from 3,500 to 6,000 feet. All the nests I have seen were of a globular shape, with an entrance near the top. Both in shape and position the nest much resembles that of *Suya atrogularis*, and is, I have no doubt, the one brought to Jerdon as belonging to that bird. It is placed in grassy bushes, in open country, within a foot or so of the ground, and is made of bamboo leaves, and, for the size of the bird, coarse grass-stems, with an inner layer of fine grass-panicles, from which the seeds have dropped, and lined with feathers. Externally it measures about 6 inches in depth by 4 in width. The egg-cavity, from lower edge of entrance, is $2\frac{1}{2}$ inches deep by $1\frac{3}{4}$ wide. The entrance is 2 inches across. The usual number of eggs is three."

Whymper and Osmaston describe the nest as domed, made of grass and placed almost on the ground in thick tufts of grass. One nest taken by Whymper was lined with leaves and feathers.

As noted, Gammie says that the breeding season lasts from May to July and Osmaston found his nests in June. Whymper, however, obtained his two nests with fresh eggs on the 26th August.

The number of eggs laid is two or three.

I certainly do not think Gammie's description of the eggs as "deep chocolate-purple" is at all applicable, though it exactly describes many eggs of the *Homochlamys* group.

Osmaston and Whymper took a small series which vary in colour from pale pink to deep terra-cotta red. Both sets taken by

Osmaston were of the pale type ; one of those taken by Whymper was of the darkest shade and another clutch dark terra-cotta, whilst a third was pale terra-cotta pink.

The eggs have a fair, but not strong, gloss, in shape being ordinary ovals, the texture fine and close.

Eleven eggs, all I have seen, average 17.2×12.6 mm. : maxima 18.5×13.1 mm. ; minima 16.1×12.3 and 17.0×12.0 mm.

(907) *Neornis flavolivaceus intricatus* Hartert.

THE SHAN ABERRANT WARBLER.

Neornis flavolivaceus intricatus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 503.

This race of *Neornis* is found, though very rarely, in the hills of Assam South of the Brahmapootra and thence to the Kachin Hills, where Harington found it breeding at about 5,000 to 6,000 feet. To the South it apparently extends to Thayetmyo, whence there is a single specimen in the British Museum collection.

Very little is known about the nidification or, indeed, the habits of this bird. It frequents scrub and bush cover at heights between 4,000 and 7,000 feet, while I thought I saw it more than once in dense Rhododendron and Oak forest at 6,000 feet in the Khasia Hills. The only birds we identified beyond doubt in that district were skulking about among Daphne-bushes in Pine forest, and it is such a confirmed skulker that one hears its curious shrill cry far more often than one sees the bird.

Harington had a nest and bird brought to him by a Kachin. The nest was made of coarse grass and bamboo-leaves, domed and lined thickly with feathers. Wickham also merely records that it breeds in the Kachin Hills in May and June.

Cook took one nest on the 26th May, of which he notes :—" Nest a round ball of grass, very thickly lined with feathers and wedged low down in a thick clump of coarse grass." Elsewhere he describes the country round Sinlum, where he took his nest, as " mostly open country, interspersed with spinneys, small woods, and patches of cultivation." Some of the hill-sides are covered with bracken, coarse grass, and low bushes, and it was among these last, apparently, he took the nest in question.

I took one nest of this bird myself which agreed exactly with those already described, measuring about 7 by 6 inches, made outwardly of bamboo-leaves and coarse grasses, loosely put together but still interlaced to some extent, and densely lined with soft feathers. The bird was trapped by a Khasia, but the eggs are all wrong, and I have no idea what they are, for I know of no Cuckoos which could have laid them. They are exactly like eggs of the Great Spider-Hunter but much smaller, in colour a dull olive-grey. The other eggs in my collection from Cook and Harington are just

like the dark type of those of the preceding bird. The clutch of four taken by Harington has distinct rings or caps of still deeper, almost purple terra-cotta. They vary in size from 18.0×12.0 and 16.6×13.0 to 16.1×11.8 mm.

All the eggs recorded so far have been taken in May and June.

Homochlamys acanthizoides.

THE RUFIOUS-BACKED BUSH-WARBLER.

(909) **Homochlamys acanthizoides brunnescens** Hume.

THE SIKKIM RUFIOUS-BACKED BUSH-WARBLER.

Horornis acanthizoides brunnescens, Fauna B. I., Birds, 2nd ed. vol. ii, p. 505.

Homochlamys acanthizoides brunnescens, *ibid.* vol. viii, p. 645.

This Warbler is found from Sikkim to the Assam Hills, both North and South of the Brahmapootra, to Manipur and the Looshai Hills. It is, however, doubtful if it breeds in the two latter districts, and possibly only breeds on the higher Naga ranges from Kohima to the Patkoi ranges.

In Sikkim Stevens records it up to 10,000 feet but never found its nest, though he obtained the bird in "prong" bamboo-jungle at that elevation.

All that we know about its nidification is the note recorded by Osmaston, which runs:—"This species is found in the Maling bamboo forests which clothe the hillsides on the Singalila Ridge from 9,000 to 11,000 feet. It replaces *H. fortipes* at these elevations, the latter species being common from 5,000 to 8,000 feet. The note of this bird is without exception the most striking and peculiar of any I have yet come across. It consists of a series of four long-drawn whistles, each lasting several seconds, and each being in turn considerably higher in the scale than the one preceding it. This is followed by a quickly repeated series of up and down notes, resembling the call of *Oreocorys sylvanus* (a bird not found in these hills). I did not find the nest of this bird, but three eggs were brought to me by an intelligent Lepcha in my employ, whom I had sent up to Mount Tonghe in search of nests of *Ianthocincla ocellata*. He brought me these eggs as being those of *H. fortipes*, which they evidently are not, firstly from the colour being quite different from that of the eggs of this bird, and secondly because *H. fortipes* is not found in the bamboo forests at 9,500 feet, where he obtained the eggs in question, whereas *H. brunnescens* is fairly common there."

The following year Osmaston took several nests himself, and confirmed the identity of the first three. Notes sent to me with a beautiful little series of the eggs describe the nests as domed

structures of grass and dead bamboo-leaves, densely lined with feathers, the entrance near the top. One nest had a few weeds incorporated with the grass and leaves. All were placed low down in bushes in the Maling forest between 9,500 and 10,500 feet, in most cases being between 18 and 24 feet from the ground.

All the nests found by Osmaston contained two eggs only, one clutch being well incubated, between the 20th May and 14th June.

Stevens also obtained nests and eggs which agree exactly with Osmaston's, but are described as deep cups. They also were obtained in May and June, and contained two or three eggs.

These, the eggs, are much the same colour as those of *Cettia*, but without any gloss. The whole surface is a deep rich terra-cotta red, varying very little in depth. Round the larger end there is nearly always a ring or cap of a deeper tint, probably formed by coalesced spots, though it is impossible to see these without a very strong magnifying glass.

Twenty eggs average 17.0×12.8 mm. : maxima 18.3×12.9 and 17.5×13.2 mm. ; minima 15.0×12.0 mm.

***Homochlamys fortipes*.**

THE STRONG-FOOTED BUSH-WARBLER.

(910) ***Homochlamys fortipes fortipes*** (Hodgs.).

THE SIKKIM STRONG-FOOTED BUSH-WARBLER.

Horornis fortipes fortipes, Fauna B. I., Birds, 2nd ed. vol. ii, p. 506.
Homochlamys fortipes fortipes, *ibid.* vol. viii, p. 645.

This quaint little Warbler is found from Garhwal and Western Nepal to Assam East of the Dibong, the Surrma Valley and throughout the hills of Northern Burma to Karenni. It occurs in the Shan States but has not been recorded further East. There are also specimens from "N.W. India" and "Kashmir" in the British Museum.

It is a bird of open country with ample scrub and patches of heavier forest over a great part of its range, but in Assam we found it, during the breeding season, frequenting Pine forests with an ample undergrowth of Daphne-bushes or with open glades of bracken and brambles. It was also often to be met with in thin mixed forest with a tangled undergrowth of bushes, grass, bracken and brambles. I never saw it in actually open country but, occasionally, it might be seen in the thick fringe of grass and bracken on the outskirts of Pine forest. On the other hand I never saw it in the dense wet forests of Oak and Rhododendron. In Sikkim Stevens records it as not wandering much beyond 5,500 feet and common at 3,500 in dense bamboo-jungle, but Osmaston took several nests at 6,500 feet,

while in the Khasia Hills it was common between 4,000 and 6,200 feet. The sites selected for the nest do not vary much, all being placed in thickly foliaged low bushes, or in tangles of brambles, at heights between one and two feet from the ground or rarely up to four feet.

In the Pine woods a dense *Daphne*-bush was undoubtedly the favourite position for the nest, which usually was placed well down among the lower twigs, though, now and then, I have seen one perched almost on the top of the bush, the roof of the nest and the highest leaves being flush with one another.

Mandelli and others sent nests to Hume, taken in Sikkim between 5,000 and 5,500 feet, which he describes as "small massive cups, composed exteriorly of dry blades of grass and leaves and lined internally with fine grass and a few feathers." Later he adds:—"Examining the nests carefully, it will be seen that they are composed of three layers—exteriorly everywhere coarse blades of grass and straw, put together carelessly, inside this a mass of extremely fine panicle-stems of flowering grasses, and then inside this the lining of moderately fine grass, mingled with feathers. The nests vary a good deal in size, but they seem to be generally 4 to 5 inches in diameter, and 2.5 in height."

Now except that the nests found by myself—dozens of them—and by Osmaston were domed or very deep cups, the above description of their make-up would do well for those we found except that the external walls were often quite compact, if not really neat. A feature, however, of the nests found by myself was the invariably very thick lining of feathers, so plentiful and soft that one had always to feel very carefully if the nest contained eggs or not.

Roughly, the nests taken by myself measured outwardly as follows:—The domed nests about 6 inches vertical by 5 horizontal, with an egg-cavity of about 3 inches deep by 2 or a little over across. The deep cup-shaped nests were about $4\frac{1}{2}$ to 5 inches deep and well under 4 in diameter externally, and about 3 inches deep and 2 wide internally.

The lining often projected from the top of the nest, or out of the entrance of the domed nest. The entrance was always rather large and untidy and in a few nests was placed at the extreme top, making a shape like an egg with a bit sliced off the small end.

They are rather late breeders; a few birds breed in the first week in May and then more and more all through June, lessening again in July, though I have taken eggs up to the 29th of that month.

The number of eggs laid varies from three to five, two clutches out of every three being of four eggs.

The eggs of this genus, *Homochlamys* (*Horornis* auct.), are very distinctive, being in colour a very deep chestnut-chocolate.

The eggs of the Strong-footed Warbler vary very little in colour, but in some the chestnut tint is rather higher than in others, and

in a very few the tint is paler and more purple. If examined very closely they will generally be seen to have a cloudy ring or, less often, a cap of a still deeper, almost purple black, colour at the larger end.

In shape the eggs are broad ovals, blunt and very little compressed at the smaller end, sometimes really broad ellipses. The texture is exceptionally fine and clear and the eggs have a fine gloss, but are intensely brittle.

Sixty eggs average 17.3×13.4 mm. : maxima 18.9×14.1 mm. ; minima 15.5×12.5 mm.

Both birds incubate, for we have trapped both sexes on the nest, but I have no information as to the building of the nest. It is also almost impossible to ascertain the period of incubation, as one cannot find out the number of eggs laid without feeling in the lining, and then the birds desert unless the eggs are on the point of hatching.

Homochlamys pallidus.

THE PALE BUSH-WARBLER.

(912) **Homochlamys pallidus pallidus** (Brooks).

THE CASHMERE PALE BUSH-WARBLER.

Horornis pallidus pallidus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 507.
Homochlamys pallidus pallidus, *ibid.* vol. viii, p. 645.

The Pale Bush-Warbler is confined to the North-West Himalayas, the Garhwal Hills being its limit on the East.

Brooks found it breeding in the Sind Valley and says that it occurs there and elsewhere between 5,000 and 8,000 feet. He says it was also abundant at Suki, in the Bhagirutti Valley, and that he "heard of one at Gangootee."

In Garhwal Whymper took one nest at 9,000 feet, but Osmaston took others in the Lidar Valley from 5,600 to 8,400 feet, and at the latter height they were quite common.

Davidson gives a good description of the country and nest (Ibis, 1898, p. 18) :—"This bird appears in Gund early in May, and we found it along the bare side of the river up to 7,000 feet among the scrub, and also a short distance up the wooded hills. It has a wonderfully clear cry of four or five notes, which, once heard, cannot be mistaken, and this we also heard occasionally in the Jhelum Valley down to 3,000 feet and also at Murree. It is rather a late breeder, as we did not get a nest with eggs until the 27th May. Between that date and the 31st we got several more. The nests were untidy and spherical, resembling those of a *Munia*, but with an entrance near the top and lined with feathers. They were

placed in thick bushes, generally about 2 feet from the ground. The eggs in every case were four in number, and were of a uniform purplish-red colour and extremely fragile."

In the Lidar Valley Osmaston took many nests in indigofera and other bushes on bare stone hill-sides or steep grassy slopes dotted with scrub, and the bushes themselves often mixed with the standing dead and dry grass.

Whympster took one nest low down in a small bush growing in a corn-field.

The birds commence breeding in the middle of May but few have eggs before the last week of that month, and they go on laying up to the end of June, while Osmaston took three nests with fresh eggs as late as the 19th July.

The eggs in a full clutch nearly always number four but, rarely, three eggs only are incubated. I do not think anyone could distinguish between the eggs of this and the preceding bird.

Fifty-four eggs average 17.4×13.1 mm. : maxima 18.9×13.4 and 17.1×13.7 mm. ; minima 16.4×13.0 and 17.0×12.4 mm.

Homochlamys pallidipes.

THE WHITE-FLANKED BUSH-WARBLER.

(913) **Homochlamys pallidipes pallidipes** (Blanford).

THE SIKKIM WHITE-FLANKED BUSH-WARBLER.

Horornis pallidipes pallidipes, Fauna B. I., Birds, 2nd ed. vol. ii, p. 508.
Homochlamys pallidipes pallidipes, ibid. vol. viii, p. 645.

This Bush-Warbler is common in Sikkim, where Stevens found it breeding at about 5,000 feet, and Mandelli took two nests at 4,000 feet. It occurs thence Eastwards at similar elevations in the breeding season to Eastern Assam, but there is nothing on record about its nidification. In the hills South of the Brahmapootra it is again comparatively common and I found several nests. It is also found, and probably breeds, in the hills of Burma as far South as Tounghoo, while there is also one specimen of the bird in the British Museum labelled "Macou, S. China."

The only occurrence West of Sikkim is that noted by Osmaston (Journ. Bomb. Nat. Hist. Soc. vol. xxvii, p. 427, 1922), who says:—"It also occurs in the Summer in Dehra Dun and breeds during the rains in the dense long grass and scrub-jungle bordering the Sâl Forests. The eggs of this species found by me in the Andamans and in Maymyio were a beautiful deep mahogany red."

I first obtained this bird's nest and eggs in the North Cachar Hills at Hungrum, about 5,500 feet elevation, in scrub-jungle on

the very steep side of a hill, surrounded by evergreen forest; later I found nests in secondary growth on deserted cultivation and, in the Khasia Hills, both in glades in evergreen forest and in bushes in Pine woods. In most cases the bushes were much overgrown with grass, and the birds probably chose these as hiding the nests best, the rather untidy grass balls being very inconspicuous among the dead scraps of grass.

Except that the nests were invariably domed and, on the whole, bigger and even worse finished off than those of *Homochlamys fortipes*, I do not think they could have been distinguished from them. They reminded me, as those of *pallidus* did Davidson, of *Munias*' nests, only the entrances were rounded off instead of having all the grass sticking straight out. The lining was always of feathers, but perhaps not quite so dense as in the nests of *fortipes*. Personally I could never tell one nest from another, but it was easy to trap the bird and then release it.

Nests taken by Stevens in Sikkim, and others collected for me by Masson in that country, differed in no way from those found by myself.

The breeding season is May and June, and I have no eggs taken in any other months.

The eggs cannot possibly be distinguished from those of the two preceding species of *Homochlamys* but, as a series, they may average less deep in colour.

Forty eggs, which embrace all I have seen, average 17.1×13.1 mm. : maxima 18.21×13.2 and 17.3×14.0 mm. ; minima 16.0×12.4 mm.

(914) *Homochlamys pallidipes osmastoni** (Hartert).

THE ANDAMAN WHITE-FLANKED BUSH-WARBLER.

Horornis pallidipes osmastoni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 509.
Homochlamys pallidipes osmastoni, *ibid.* vol. viii, p. 645.

So far as is known at present this Bush-Warbler is confined to the Andamans.

The only person who has taken its nest and eggs is its discoverer, B. B. Osmaston, who thus records the nidification (Journ. Bomb. Nat. Hist. Soc. vol. xxxv, p. 892, 1932) :—“ These birds are common in dense undergrowth of high or secondary forest and are never met with in the open. They are adept skulkers and, though often heard, are seldom seen.

“ On May 19th, 1907, while pushing through dense jungle near the top of Mt. Harriet (1,000'), I came on an *Horornis* calling. I began to search for a possible nest, when the parent bird began to give

* The type of this bird is now in America, so that I cannot examine it, but the eggs are so unlike those of any other *Homochlamys* that I feel sure it will prove not only to be a separate species but, possibly, a separate genus.

its alarm call *chick-chick*. This spurred me on to further endeavours, and shortly I was rewarded by finding the nest within a foot of the ground. It was a deep cup-shaped structure—not domed, but completely sheltered by a leaf of a ginger. The nest was supported among the stems and leaf-stalks of the ginger-like plant and was very difficult to locate, as nearly every ginger plant had a similar accumulation of dead leaves near the base, which resembled the nest.

“While examining the nest the parent bird came within 2 feet of me although, as a rule, it is almost impossible to get a sight of one in the jungle.

“The nest was composed of dry bamboo leaves, very loosely put together, and was lined with fine flowering grass-heads.

“The eggs, four in number, were quite fresh. They are moderately broad ovals, very glossy and of a bright chestnut colour, mottled all over, especially at the large end, with a deeper shade of chestnut.

“A second nest was brought to me on the 10th July, containing four fresh eggs of a similar colour. The second nest was lined with dark rhizomorph instead of grass.”

The average of the eight eggs is 17.0×13.6 mm. : maxima 17.8×14.0 mm. ; minima 16.2×13.4 mm.

The eggs are not a bit like those of *H. p. pallidipes*. The texture is intensely glossy, like *Tinamus* or *Hydrophasianus* eggs, and in colour they are brilliant brick-red or chestnut, the mottling only showing under a glass. Instead of being very brittle and fragile, like all other *Homochlamys* eggs, they are exceptionally stout and strong.

(915) *Homochlamys major* Moore.

THE LARGE BUSH-WARBLER.

Horornis major, Fauna B. I., Birds, 2nd ed. vol. ii, p. 510.

Homochlamys major, *ibid.* vol. viii, p. 645.

This Bush-Warbler is only found at great elevations in Nepal and Sikkim and, according to Stresemann, also in Setchuan. There is, so far, no record of its nidification, as that given by Hume is undoubtedly not that of a *Homochlamys*.

One nest sent me with one bird from Sikkim, said to have been taken on the Singalila Ridge at “over 16,000 feet,” I believe to be quite authentic. It was taken in scrub at the edge of dense forest on a steep hill-side and could not have been distinguished from one of *H. fortipes*. It was globular, loosely made outside with grass and bamboo-leaves and, inside, of fine grass-stems and roots. The lining was a mass of soft fluffy feathers. The eggs were also just like those of *fortipes*, but measured 18.3×13.9 mm., very large for those of that bird.

Horeites brunnifrons.

THE RUFIOUS-CAPPED BUSH-WARBLER.

(917) **Horeites brunnifrons brunnifrons** (Hodgs.).

THE NEPAL RUFIOUS-CAPPED BUSH-WARBLER.

Horeites brunnifrons brunnifrons, Fauna B. I., Birds, 2nd ed. vol. ii, p. 512.

This Bush-Warbler breeds in Sikkim and South Tibet at elevations of over 9,000 feet and, in Nepal, over 10,000 feet.

Macdonald sent me clutches of this bird's eggs—they can be nothing else—with nests, from the extreme North of the Chambi Valley, which he terms Tibet, but which was probably in Sikkim.

Osmaston gives the first account of this bird's breeding (Journ. Bomb. Nat. Hist. Soc. vol. xiv, p. 816, 1903):—"This bird is common at from 10,000 to 11,000 feet on the Singalila Ridge. It frequents the low scrub consisting of dwarf bamboo, grazed down, berberis etc., in the more open parts of the Silver Fir and Rhododendron forest. It is a busy, noisy little bird, with a strange unmistakable call which it constantly repeats and which consists of ordinary chirping notes, followed by a curious grating mouse-like sound, twice repeated, and of a ventriloquistic nature.

"I found four nests of this species containing 4, 3, 3, and 2 eggs respectively, all in the first week in June, built in low scrub, about a foot from the ground, at an elevation of about 10,000 feet.

"The nest is domed and rather oval in shape, 6 or 7 inches high and 4 inches thick, with a circular opening near the top about $1\frac{1}{2}$ inches in diameter. It is composed externally of moss, dry grass and dry bamboo leaves and lined rather scantily with fine grass and finally with feathers."

In Nepal Stevens took several nests below Kalo Pokhari in May, at an elevation of about 10,000 feet, on Singalila Ridge, just beyond the Sikkim boundary. Of these he writes that during April and May "males are much in evidence. During the first weeks in April it utters a loud, sweet, if short, song. Nests composed of grass and bents, with an interior lining of feathers; clutch usually four, on one occasion five eggs." In *epistola* he says these nests were all built in low scrub-jungle close to a few huts adjacent to a small "tarn" on the Singalila Ridge; they were all domed and placed low down in thick bushes about 1 or 2 feet from the ground.

I have also two nests from the North of the Chambi Valley, which are described as exactly like those taken by Stevens and Osmaston, except that a little dried moss was used with the outer grass and bamboo-leaves. In two cases Osmaston found nests built in grazed-down bamboo-scrub.

The breeding season is, as we have seen, from the beginning of May to the end of June, the earliest eggs recorded being on the 4th May and the latest on the 22nd June.

The full clutch is three or four, while Stevens once found a five.

In colour the eggs vary from a pale, but bright, terra-cotta pink to a very deep terra-cotta red. In the majority of eggs no distinct specks or markings are visible but nearly all have a well-defined cap of deeper colour at the larger end and, if examined with a magnifying glass, this is seen to consist of a coalesced mass of tiny freckles. In a few eggs the spots are more easily seen. In one very pale set in my collection all three eggs have small blotches and specks of a deeper terra-cotta pink at the large end, while another clutch has the three eggs freckled all over with deep terra-cotta red, in addition to the usual caps.

In shape the eggs vary between broad and rather long ovals; the texture is fine and most eggs have a distinct gloss.

Thirty eggs average 17.9×13.0 mm. : maxima 19.0×12.8 and 18.4×13.5 mm. ; minima 16.4×12.5 and 18.0×12.0 mm.

(919) *Horeites brunneifrons umbraticus* Stuart Baker.

THE YUNNAN RUFIOUS-CAPPED BUSH-WARBLER.

Horeites brunneifrons umbraticus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 513.

This race has only been recorded from Yunnan, but first Harington and then Major T. E. Tankard obtained nests of a *Horeites* in the Bhamo Hills and Shan States which will assuredly prove to be of this geographical race.

The only clutch of eggs, one of three, known to me was taken on the 19th April, and was purchased at the sale of the Tankard collection, but the diary contains no details. The eggs are obviously correct and in colour are intermediate between my two darkest clutches of *H. b. brunneifrons*, resembling them also exactly in texture and surface.

They measure 18.0×14.1 , 18.0×14.1 and 18.2×14.2 mm.

Phyllergates coronatus.

THE GOLDEN-HEADED WARBLER.

(922) *Phyllergates coronatus coronatus* Jerd. & Blyth.

THE INDIAN GOLDEN-HEADED WARBLER.

Phyllergates coronatus coronatus, Fauna B. I., Birds, 2nd ed. vol. ii, p. 516.

This curious little Warbler ranges from Sikkim to Assam and thence through the hill-ranges of Burma as far South as Tenasserim.

It is to be found both in scrub- and grass-jungle and in evergreen

forest, but during the breeding season I nearly always saw them in scrub-, grass- or bamboo-jungle, sometimes just the one, sometimes all three mixed. They were also often to be seen in secondary growth in deserted rice-fields.

Nothing, beyond doubt, is known of their nidification, but I have twice had nests and eggs brought to me by Nagas with birds said to have been trapped on the nest and, many years later, a Khasia boy brought me an exactly similar nest with a bird which he said he had killed on the nest with a *gulail* (pellet bow).

These nests were all taken in scrub, grass and bamboos mixed together in secondary growth, growing at an elevation in two cases of 2,500 feet or less and, in the third, at about 3,500, exceptionally high for this bird.

All the nests I have seen have been built in "kydia" leaves between one and three feet from the ground and all might have passed for nests of the common Tailor-Bird, as might the eggs. The nests have, however, some characteristics which are quite noticeable. The leaves of the kydia in each nest form only the back and half of the sides, not being sewn together in front, as leaves of similar size normally are by Tailor-Birds. Again, a good deal of dried moss is used in the nests, and there was in each a distinct lining of matted vegetable down. The sewing was carried out in exactly the same manner as in Tailor-Birds' nests, and the main materials used were grass-bents and the feathery ends of grasses.

The nests brought to me in North Cachar were all taken in May, that in the Khasia Hills in June.

The full complement of eggs appears to be three or four and they are exactly like washed-out eggs of the Tailor-Bird. The colour is white, white tinged with pink, or white tinged with blue, and the markings consist of a few freckles of pale dull pinky red, in one pair of eggs becoming small reddish-brown spots. In all those I have seen the markings are most numerous at the larger end but never form rings or caps.

In shape they are long, blunt ovals. The texture is fine but not close, and they are quite glossless and very fragile.

Twelve eggs average 15.5×11.3 mm. : maxima 16.9×11.7 and 16.0×12.0 mm. ; minima 14.7×11.8 and 15.3×10.9 mm.

Suya criniger.

THE BROWN HILL-WARBLER.

(923) *Suya criniger criniger* Hodgs.

THE NEPAL BROWN HILL-WARBLER.

Suya criniger criniger, Fauna B. I., Birds, 2nd ed. vol. ii, p. 518.

The Nepal Brown Hill-Warbler is found throughout the Outer Himalayas from the extreme North-West Frontier to Eastern

Assam, North of the Brahmapootra. It seems to be most common between 3,000 and 6,000 feet, but breeds as low as 2,000 feet and as high as 7,000 or more, as Osmaston obtained nests at Chakrata at 7,500 feet. It is common on the outer hills from Murree to Western Nepal, but in Sikkim seems to be a much rarer bird, though there is a fair series of skins thence in the British Museum. We obtained a single specimen in the Abor Hills which seems referable to this race rather than to the Assam form, but more material is required to decide this point.

They are birds of grass-lands, low scrub- and bush-jungle, or mixed grass, bush and bracken on the outskirts of forest. They have been occasionally obtained breeding in thin secondary jungle, but even this is exceptional.

Normally their nests are domed, egg-shaped affairs, with a proportionately large entrance at the upper end, but this is not always the case.

Hume gives good descriptions of two of the three types of nest which this Warbler builds. He writes :—“ A nest which I took at Dilloo, in the Kangra Valley, on the 26th May, was situated near the base of a low bush on the side of a steep hill ; it was placed in the fork of several twigs near the centre of the bush, almost 2 feet from the ground. It was an excessively flimsy deep cup, about 3 inches in diameter, and $2\frac{1}{2}$ inches in depth internally. It was composed of downy seeds of grass held together externally by a few very fine blades of grass and irregularly and loosely lined with excessively fine grass-stems.”

Of a second nest he says :—“ A nest which I found near Kotegurh is composed of fine grass very loosely and slightly put together, all the interspaces being carefully filled in with grass-down firmly felted together. The nest is nearly the shape of an egg, the entrance being on one side, and extending from about the middle to close to the top. The exterior dimensions of the nest are about $5\frac{1}{2}$ inches for the major axis, and 3 inches for the minor. The entrance-aperture is circular, and about 2 inches in diameter. The thickness of the nest is a little over $\frac{3}{8}$ inch ; but the lower portion, which is lined with very fine grass-stems, is somewhat thicker. The nest was in a thorny bush, partly suspended from above the entrance-apertures and partly resting against, though not attached to, some neighbouring twigs. It contained 7 eggs.”

The third type is described by Brooks :—“ One nest found was suspended in a low bush, and was a very neat purse-shaped one, with an opening near the top and rather on one side. It was composed of fine soft grass of a kind which had dried green and was intermixed with the down of plants and lined with finer grass.”

It will be noticed that all three of these nests were built in bushes, but very often they are built in between a few stalks of stout grass. Hutton and Rattray both found domed nests built in tufts of grass in grass-fields near Mussoorie, and Scully gives a description of a

similar nest in a similar position in Nepal. In Sikkim Gammie says "this *Suya* breeds from May to June in the warmest valleys up to 3,500 feet. It affects open grassy tracts and builds its nest in a bunch of grass, within a foot or two of the ground. The nest is an extremely neat egg-shaped structure, made of fine grass-stems, thickly felted over with the white seeds of a tall flowering grass, which gives it a very pretty appearance."

About Naini Tal Whymper took nests, in corn-fields, at about 5,000 and 5,600 feet, which he describes as deep purses made of vegetable down held together with fine grasses and, he adds, "I have never seen any variation in the nests of this bird."

Jones and Dodsworth, who both took many nests round Simla, where the bird is very common, describe them as domed, built in grass, often between outcrops of rocks in open country.

The above lengthy descriptions of nests and sites cover well all that can be said on these points and, as will be seen later on, they apply almost equally well to the nests of all the other species and subspecies of *Suya*, which can be dealt with far more briefly in consequence.

The principal breeding season is May and June, but birds continue to lay until October. Jesse found them still breeding freely at Solon, in Kuman, on the 14th September, while Jones and Dodsworth took nests in Simla up to the end of August.

The number of eggs laid is most often four, rarely five, and sometimes only three. A few birds lay still larger clutches, as Hume records finding seven in a nest, but in the series taken by Whistler, Jones, Dodsworth, Osmaston and many others five is the biggest clutch I have in my collection.

The eggs vary in ground-colour from pure china-white to very pale pink. The markings consist of tiny blotches, freckles and specks of colour ranging from light reddish to deep reddish, or even purplish-brown. Almost invariably there is a conspicuous zone of spots all running into one another at the larger end. In some eggs the blotches are almost confined to these rings but, in others, there are a fair number of freckles scattered over the rest of the surface, though never very thickly. In most eggs the rings are very near the extremity of the thick end and not round the broadest part of the egg as in so many other species of birds. On the whole, for a *Suya*, the eggs are remarkably constant.

The texture is fine and close and the surface has a distinct gloss, sometimes highly developed. In shape they vary between short, broad ovals to very long, narrow ovals, most eggs being moderately long, but blunt, ovals.

One hundred eggs average 17.6×12.65 mm. : maxima 19.8×12.4 and 18.5×13.4 mm. ; minima 15.2×12.9 and 16.6×11.8 mm.

(924) *Suya criniger striatula* Hume.

THE SIND BROWN HILL-WARBLER.

Suya criniger striatula, Fauna B. I., Birds, 2nd ed. vol. ii, p. 520.

The Sind race of Hill-Warbler extends along the North-West Frontier, though exactly how far has not yet been ascertained. It has also been obtained on the Salt Range in the Punjab. The only note on its breeding is that of H. W. Waite (Journ. Bomb. Nat. Hist. Soc. vol. xxxii, p. 797, 1928):—

“During the last week of July this year (1927) I found this bird common on the hill of Sarkesar, some 30 miles East of the Indus and at the extreme West of the Punjab Salt Range, of which it forms the highest point (4,992 ft.).

“Its favourite haunts appeared to be steep slopes covered with long grass and well supplied with bushes of various kinds. Nesting operations were in progress and several nests were found, mostly in course of construction.

“In one nest a bird was sitting on two eggs on July 24th and again on the 28th, when the eggs were taken and the male parent secured. The eggs, which were slightly incubated, have a ground-colour of very pale pink and are marked with pale reddish blotches scattered over the whole surface and most numerous at the broader end, where they form an ill-defined ring. The nest was situated, barely 12" from the ground, in a ‘Sanatha’ bush (*Didymaea viscosa*), through which some tufts of grass were growing. It was an oval domed structure, made of strips of grass, and the lower portion was matted with seed-down. The inner lining was of fine grass, and the entrance faced North.

“Another nest, similarly built and situated, contained three half-fledged young on July 28th.”

(925) *Suya criniger assamica* Stuart Baker.

THE ASSAM BROWN HILL-WARBLER.

Suya criniger assamica, Fauna B. I., Birds, 2nd ed. vol. ii, p. 520.

The dividing lines between *assamica*, *yunnanensis* and *cooki* have not been completely worked out, but this race is found throughout Assam South of the Brahmapootra and East of the Dibong. It is very common in the Chin Hills and Harington found it breeding freely in Myingyan in the Mandalay district.

In both the North Cachar and Khasia Hills it was an extremely common bird and, in some tracts, it would have been possible to have found a dozen or twenty nests in a morning without trouble. In North Cachar and the Naga Hills it was most common between 4,000 and 6,000 feet, frequenting spaces of comparatively open scrub- and bush-jungle mingled with coarse grass; lower down,

between 2,500 and 4,000 feet, it was more often found in grass-covered plateaus and rolling hills, in which were scattered bushes and odd trees. In the Khasia Hills it was equally plentiful in the immense grass-stretches found between 3,000 feet and the highest peaks. The nests need little description beyond that already given for *S. c. criniger*, but nearly all the nests I have seen—many hundreds—were built in grass, while nine out of ten, or more, were domed. In most nests the stems of the grass were incorporated in the materials of the nest, and in some nests the materials were nearly all strips of grass-blades and bents, while in others they consisted of the flowering ends, well bound with stalks of grass and, rarely, fine roots.

A very favourite position was in tufts of grass in bracken growing just outside Pine woods.

The majority of birds breed in April, May and June, but eggs may be taken in almost every month of the year, and many pairs must have three broods. They are very much cuckolded birds, *Cuculus canorus bakeri* and *Cacomantis* victimizing *Suyas* and *Cisticolas* more than any other fosterers. If the bigger Cuckoo's egg is hatched, the young Cuckoo takes so long to come to maturity that no more domestic duties can be carried out, but a young *Cacomantis* is often hatched and reared in time for the *Suyas* to still bring up a brood of their own.

The normal clutch of eggs is four but from three to seven eggs are laid, though the last number is very rare. The eggs vary to a wonderful extent. The great majority are like those of *S. c. criniger* already described, but this type in the present bird does not have the ring so invariably well defined and some eggs are speckled with red freely or lightly all over, with little or no trace of ring or cap.

In other eggs the ground-colour is skim-milk blue, bluish-green, or dull livid green, marked in the same way as the pink and the white types. Occasionally the pale blue clutches of eggs are very faintly marked and I have seen odd eggs quite unmarked. On the other hand, some of the darker greenish eggs are very richly and profusely marked.

Two hundred eggs average 16.7×12.8 mm. : maxima 18.3×13.3 and 18.0×14.1 mm. ; minima 15.6×11.9 mm.

Both birds incubate and we caught the male on the nest as often as the female. Both birds also help in building the nest, the male not only bringing the material but also placing it in position. It is, of course, impossible to distinguish the sexes through glasses, but one can often see both working together and both equally fussy and particular as to the adjustment of the various bits of grass.

Incubation takes ten days, judging from the following instances :—
(1) Fourth and last egg laid on 3rd May, all four young hatched on evening of 13th May. (2) First egg laid on 13th May, five eggs laid,

and all hatched on morning of 28th May. (3) First egg laid on 2nd June, four eggs laid, and all hatched on 16th, dry and looking as if some hours out of the egg.

Both birds feed the young, though the male will sometimes transfer food to the female when she is brooding them.

(926) *Suya criniger yunnanensis* Harington.

THE YUNNAN BROWN HILL-WARBLER.

Suya criniger yunnanensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 521.

So far as is known at present this bird is only found in Yunnan and the Northern Shan States, while, as regards its breeding, there is nothing beyond a note *in epistola* from Harington to the effect that he found it "breeding freely in the Northern Shan States." I have never seen nests or eggs of this bird.

(927) *Suya criniger cooki* Harington.

THE BURMESE BROWN HILL-WARBLER.

Suya criniger cooki, Fauna B. I., Birds, 2nd ed. vol. ii, p. 522.

This race of Brown Hill-Warbler ranges from the South of the Northern Shan States, South to Karenni, West to Thayetmyo and East to Annam and ? parts of Yunnan.

This is another common bird in many parts of Burma of whose nidification we have no records. Cook says that it is a very common bird in Kalaw, in the Southern Shan States, and that he took a nest with four eggs on the 24th April (Journ. Bomb. Nat. Hist. Soc. vol. xxii, p. 265, 1913), while I have two other clutches taken by him at the same place on the 25th May and 1st July, each containing four eggs.

The only other clutches of eggs I have seen are two taken by Osmaston on the 16th and 17th May, the first of three eggs, the second of four.

The eggs of three clutches have the ground-colour very pale dull pink to warm clear pink, the fourth clutch having a white ground with a faint tinge of greenish. In all the usual ring of massed specks of reddish is present round the larger end, the rest of the surface being also well speckled with light red except in the greenish clutch, in which the markings are very sparse.

The fifteen eggs average 17.5×12.6 mm.: maxima 19.1×13.0 and 18.2×13.2 mm.; minima 15.8×12.0 mm.

In texture and shape they agree exactly with the eggs of the typical form.

Suya atrogularis.

THE BLACK-THROATED HILL-WARBLER.

(928) *Suya atrogularis atrogularis* Moore.

THE SIKKIM BLACK-THROATED HILL-WARBLER.

Suya atrogularis atrogularis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 523.

This Hill-Warbler seems to be restricted to Sikkim and Western Nepal. Oates doubted it occurring in Nepal at all, but Stevens found it very common in Eastern Nepal in the Mai Valley, at elevations up to 7,000 feet, whilst in Sikkim he says "it is numerous as a resident breeding species in the Rungbong Valley at elevations of from 3,400'-6,500'." Inglis obtained it on Jore-Pokhari at 7,400 feet, while I have a very fine series of nests and eggs obtained by Masson on the Singalila Range between 6,000 and 8,000 feet.

Gammie took four nests in the Chinchona Reserves between 4,500 and 5,000 feet during May and June. He remarks:—"The nests were all in open grassy country, in grass by the sides of low banks, and not a foot above the ground. They were globular, with a lateral entrance, composed of grass, and with a little moss about the dome. One I measured was 5·5 high and 4·5 in diameter externally; internally the nest was 2·4 in diameter, and the cavity had a total height of 3·9, of which 2 inches was below the edge of the entrance."

The nests sent to me by Masson and others, taken by Stevens, were all found in more or less open country, generally grassy sides of hills, mixed with low scrub. Occasionally a nest was found just inside forest, but in these cases they were apparently built in grass and bush-covered ravines, just where these debouched from the higher forest.

The nests agreed well with Gammie's description, and the presence of a little half-dried moss built in with the grass seems to be a feature of the nest-building of this species. The rather massive nest made almost entirely of the flowering ends of grasses, compactly held together by grass-stems, though occurring, is not a common type of nest with this race.

The breeding season seems to be May and June, all the eggs I have had sent me having been taken during these two months. The full complement of eggs is either four or five, but more often the former.

The eggs vary even more than those of the *criniger* group and, whereas in that species the normal type of egg is the one with a pink ground, the common type in the *atrogularis* group is that with the pale greenish ground.

The following are among the types represented in my series :—

- (1) Pure white ground, freely speckled with bright reddish, the markings thickest in a ring round the larger end.
- (2) Faint pink ground, marked in same way, but more densely, with bright chestnut-red.
- (3) Almost white or dull cream, faintly blotched with pale reddish, with confluent rings of the same round the big end.
- (4) Pink or salmon-pink, blotched with deeper reddish all over and with the usual ring.
- (5) Bluish-white ground, speckled all over with reddish-brown ; no definite ring.
- (6) Pale blue, sparsely spotted with bright red. In this type some eggs are almost spotless.
- (7) Pale bright blue, boldly spotted and blotched deep red-brown ; ring very ill-defined.
- (8) Pale to comparatively dark dull greenish, profusely or thinly covered with tiny freckles of dull reddish ; the ring sometimes well defined, at others less marked.

Every shade of colour and marking between these definite types may be found, but the two main differences between the eggs of this group and those of the *criniger* group are (1) the less bold definition of the ring and (2) the great preponderance of the green type.

One hundred eggs 16.9×12.7 mm. : maxima 18.3×12.9 and 17.7×13.5 mm. ; minima 14.4×12.5 and 16.1×12.1 mm.

(929) *Suya atrogularis khasiana* Godw.-Aust.

THE ASSAM BLACK-THROATED HILL-WARBLER.

Suya atrogularis khasiana, Fauna B. I., Birds, 2nd ed. vol. ii, p. 524.

Assam, South of the Brahmapootra, Manipur and the Lushai and Chin Hills comprise the breeding area of this Warbler. Where it meets and grades into the previous subspecies is not known.

This bird is extraordinarily common in the Khasia Hills and North Cachar Hills between 4,000 and 6,200 feet, wherever there are fairly wide stretches of grass or patches of low scrub mixed with grass. This species sometimes frequents fringes of forest where there is thick cover of bracken, grass and Daphne-bushes, often mixed with brambles. At the same time I have never found it inside forest unless there is a definite open space without big trees.

It occurred in North Cachar at 3,000 feet in Summer but was not common at this elevation, and did not breed below 3,500 feet. In the Khasia Hills it was very common between 3,500 feet and the highest peaks at 6,300.

It builds its nest generally in grass tufts, fixing the sides to two or more stems of grass, the materials being loosely wrapped round these and then drawn into the body of the nest itself. They are almost

invariably domed and constructed like those of the preceding bird, and, like them, often have scraps of moss placed in the upper part of the dome. The three chief breeding months are April, May and June but I have taken eggs from March to October, and many birds must have three broods, for each of which they make a new nest within a short distance of the old one. I have more than once seen pairs of birds start building while they are still intermittently feeding their last brood.

Both sexes incubate and both take an equal share in building the nest and in feeding and looking after the young. Incubation takes ten days.

The eggs are exactly the same as those of the typical race and go through the same variations but, possibly, the green eggs do not outnumber the pink ones to quite the same extent. The commonest type in *criniger*, pink mottled all over with reddish and with a deep confluent zone of dark red, is very seldom to be seen in the eggs of *atrogularis*.

The normal clutch is three to five, one number as often as the others, while I have taken a good many sixes and a few sevens.

Two hundred eggs average 17.0×12.8 mm. : maxima 18.3×14.0 mm. ; minima 16.0×12.2 and 16.1×12.0 mm.

Suya superciliaris.

THE WHITE-BROWED HILL-WARBLER.

(930) *Suya superciliaris superciliaris* Anderson.

THE BURMESE WHITE-BROWED HILL-WARBLER.

Suya superciliaris superciliaris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 524.

The White-browed Hill-Warbler is found from the Chindwin, Kachin and Bhamo Hills, through the hill-ranges of Central Burma and Karenni, to Tenasserim. To the East it has been recorded from the Shan States, Yunnan and China to Fokhien. K. Macdonald also found it breeding on Mount Victoria in the Southern Chin Hills, where he notes it as "common and breeding in May 1906." Venning also found a nest, and J. P. Cook took many in Haka in the same province. Livesey found them to be very common in the Northern Shan States and Mackenzie took nests as far South as the Taok Plateau and Amherst.

They are essentially birds of open grass lands, and I can find no record of their breeding in or near forest.

The nests are placed, as usual, low down in tufts of grass or in small bushes, sometimes in forks or clusters of twigs and sometimes suspended or semi-suspended.

Harington gives two descriptions of these nests. First he writes (Journ. Bomb. Nat. Hist. Soc. vol. xviii, p. 687, 1908):—"This year at Thandoung I found four nests of this bird, one with 4 eggs,

one with 3 and one with young birds. The one with young birds and an empty one were in small shrubs about 4 feet from the ground. The nests were small untidy grass ovals with a side-entrance and very like an unfinished *Munia*'s nest and quite unlike *Suyas*' nests found by me in the Shan States, which were beautifully woven, cylindrical in shape, made from the flowering heads of grass."

Writing again of this bird in the Bhamo Hills he says (*ibid.* vol. xix, p. 124, 1909) :—" Found several nests. All were cylindrical in shape with a wide entrance near the top, made of woven grass with a little moss in the foundations ; very unlike the nests of the species which I found at Thandoung."

The breeding season is principally in April and May, the greater number of eggs being laid in the former month, while Harington took one nest in Bhamo as early as the 23rd March. On the other hand, Mackenzie found some nests with eggs in June, and Cook obtained one as late as the 18th August.

The eggs number only three or four in a clutch, though Mackenzie notes that Robinson once took five.

The eggs cannot be distinguished from those of *Suya atrogularis* and have just as wide a range of variation and, like those of that species, the predominating type is that with a greenish ground.

Eighty eggs average 17.0×12.65 mm. : maxima 18.6×12.5 and 18.4×13.6 mm. ; minima 15.5×12.2 and 18.0×11.9 mm.

Since I have been able to examine the fine series of eggs of this *Suya* collected by Mackenzie and Hopwood, I must withdraw my remark made in the ' Fauna ' that these eggs as a rule were duller than those of the other *Suyas*. Mackenzie had many strikingly beautiful clutches in his series.

Prinia gracilis Lichten.

THE STREAKED WREN-WARBLER.

(931) *Prinia gracilis lepida* Blyth.

THE INDIAN STREAKED WREN-WARBLER.

Prinia gracilis lepida, Fauna B. I., Birds, 2nd ed. vol. ii, p. 526.

This quaint little Warbler breeds in Baluchistan, Afghanistan, the North-West Frontier Provinces, Sind, Punjab, Rajputana and parts of the United Provinces, where Gill and others took numerous nests in the Jhow Scrub Jungle along the banks of the Gogra River.

This pretty little Warbler is extremely plentiful in many suitable places along our North-West Frontier, in Sind and in many places in the Punjab, notably Lahore ; it is also common in many parts of Rajputana. Indeed wherever it does turn up it seems to be resident in great numbers, but it is very local and does not occur in large stretches of country which would appear to be quite suitable.

It appears to like dry but not desert areas, and Betham says that he only found it breeding in Lahore after the rains broke and there was plenty of water about, but that it kept to wide stretches of grass, sometimes scattered with bushes, and seemed to greatly affect ravines and watercourses through which some water ran, or in which pools remained all the year round. Ticehurst also refers to the fact that it does not haunt deserts; he says:—"It particularly affects tamarisk-jungle, and is not uncommon in reeds and thick herbage round jheels, in 'khan' grass-jungle, and I have also seen it in cotton fields. Gonsalves found it breeding in long grass in ditches round the wheat fields in Sukkur, while elsewhere its favourite haunt seems to be grass jungle on the banks in the beds of rivers."

Anderson describes nests taken "on the tamarisk-covered islands and 'churs' of the Ganges" as follows:—"The nest is domed over, having an entrance at the side; and the cavity is comfortably lined, or rather felted with the down of the madar plant. It is fixed, somewhat after the fashion of that of the Reed-Warbler, in the centre of a dense clump of surpat grass, about 2 feet from the ground. On the whole the structure is rather large for so small a bird, and measures 6 inches in height by 4 inches in breadth."

Anderson took other similar nests in September and October, his previous nests having been found in February and March. Round Delhi Bingham took many nests in March which he describes as exactly like Anderson's, and adds:—"It is oval in shape, with a large side-entrance near the top; it is built of fine grass and seed-down, no cobweb being employed in the structure; it is loosely made and there are always a few feathers in the egg-cavity."

The feathers in the lining seem to have been quite abnormal. Butler found a nest lined with silky vegetable down. Betham found nothing but seed-down or feathery grass-ends in the many nests examined by him. Pitman on the North-West Frontier and Lindsay Smith round Multan describe the nests as being always lined with this latter.

As a rule the nest is attached to grass but, occasionally, it is built in twigs of low bushes. Most nests are placed between one and three feet from the ground and their position is often given away by the male, who sings constantly on some conspicuous twig or tall grass alongside it.

They probably have two regular breeding seasons: first in February and March before the country has become too dry and, secondly, after the rains have broken from July onwards; round Lahore and Ferozepore Betham only found nests in July and August. On the Frontier nests were to be found in February, March and April and again in July and August. In Sind Ticehurst says they breed from March to September, but my other correspondents refer to a break in the breeding season in Sind as from the end of April to July.

The normal clutch of eggs is four, but both three and five are not rare.

Hume likens the eggs to those of the Blackbird, and I should call this a very happy comparison. Except for their tiny size and rather broad shape, I think every egg in my series could be matched in colour with those of our English Blackbird. The ground-colour is most often pale greenish, rarely at all bright, or pale grey-green, and it is profusely covered with little blotches of light to dark reddish. In some eggs they are more numerous still at the larger end but I have none in which they form rings or caps. Many eggs have a stone ground-colour and red freckling, such as is so often found in the red type of Blackbird's egg. Rarely the marks are scanty and show boldly against the ground-colour, and sometimes they are exceptionally dense everywhere.

The texture for so tiny an egg is fine, close and stout and there is a fine gloss.

One hundred eggs average 13.8×10.7 mm. : maxima 15.1×11.4 and 14.1×11.8 mm. ; minima 11.9×9.9 mm.

The male does no incubation, nor does he assist in building the nest, though he is assiduous in feeding the young when they are hatched. They are very tame and do not resent being watched, even when breeding, but are not easy to obtain a sight of as, except when the males are singing, they keep low down in the grass and bushes.

(932) *Prinia gracilis stevensi* Hartert.

THE ASSAM STREAKED WREN-WARBLER.

Prinia gracilis stevensi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 527.

This bird is doubtless resident and breeds wherever it is to be found in Assam and Eastern Bengal but, so far, its nest has only been taken by Stevens at Hessamara in the plains of Upper Assam, North of the Brahmapootra.

Here these birds were nesting in the huge expanses of grass along the foot-hills which run for miles on end without any break but occasional rivers and numerous swamps. The three nests found by Stevens were all in grass on small islands in the river-beds, still unflooded in April, when the nests were found. Doubtless they were also breeding in the sea of grass on the banks of the same rivers, but these were unworkable. Stevens says the nests were just like those of *P. lepida*—neat little ovals of grass, lined with grass-flowers and attached to grass-stems.

The nests he found contained eggs numbering three, three, and one respectively, which are exactly like tiny, dark-coloured eggs of the preceding bird but rather dull in tint.

Seven eggs average 13.7×10.9 mm. : maxima 14.3×11.9 mm. ; minima 12.2×11.0 and 13.0×10.1 mm.

Prinia flaviventris.

THE YELLOW-BELLIED WREN-WARBLER.

(933) *Prinia flaviventris flaviventris* (Deless.).

THE BHUTAN YELLOW-BELLIED WREN-WARBLER.

Prinia flaviventris flaviventris, Fauna B. I., Birds, 2nd ed. vol. ii, p. 528.

The Yellow-bellied Wren-Warbler is resident and breeds from the Nepal Terai and all along the foot-hills of the Himalayas to Assam, both South and North of the Brahmapootra. Thence it extends throughout Burma and the Malay States to Singapore and Sumatra. It is also common in the low-lying lands in Eastern Bengal. They are birds of the plains and foot-hills but wander some distance up the hills. In the Barail Range in North Cachar I have found them breeding at 3,500 feet near Laisung, quite commonly at 2,500 feet around Gunjong and, in the Khasia Hills, up to 3,800 feet in the Umiam Valley.

They were, fifty years ago, very common all round Calcutta and bred in numbers in the "Salt Lake" area, where Parker took several nests and, later, I did the same. In the plains it keeps much to grass-land, not necessarily of any extent, bushes and scrub on the edge of cultivation, and waste land of any kind but, undoubtedly, it prefers sites near water. It will often select a patch of weeds, grass and bushes in road-side ditches or irrigation ditches in fields, while I have known them breed in the grass and weeds on the "bunds" around rice-fields. They do not breed in gardens and parks unless these are very extensive and much overgrown, and I have only known of one such nest.

In the hills they generally breed in grass-lands which are much mixed with bushes and odd trees, or else in the secondary growth of deserted "jhums" (clearings in jungles). They particularly affect those on which cotton has been grown and on which the growth reappears very slowly and for a year or two very thinly. Rarely I have taken the nest from beside jungle-paths or from the sides of streams running through forest.

Tickell speaks of a nest which was "pensile but quite open, being a hemisphere with one side prolonged." I have never seen such a nest, and all the many I have seen have been similar to that taken by Parker in the Salt Lake and described in Hume's 'Nests and Eggs' (vol. i, p. 289):—"This bird breeds in the Salt-Water Lake, or rather on the swampy banks of the principal canals that intersect it. The nest is nearly always placed in an ash-leaved, shrub-like plant growing on the banks of the canal and overhanging the water. One taken on the 26th July, 1873, containing four nearly fresh eggs, was almost touching the water at high tide.

The male has the habit, when the female is sitting, of hopping to the extreme point of a tall species of cane-like grass, which grows abundantly on these swamps, whence he gives forth a rather pleasing song, erecting his tail at the same time, after which he drops into the jungle and is seen again no more. It is almost impossible to make him show himself again."

Parker was quite right about *making* this bird show himself, but one has only to keep quiet and still and in a few minutes up he comes again and repeats his little song.

The nests may be built in grass, weeds or in bushes. About the Salt-Water Lake Parker found all his nests in a semi-creeper plant (*Derris scandens*) which covers the banks of the canals. I found my nests both in this and in tufts of grass. When placed in bushes or weeds the birds often select pendent twigs, but in grass they are fixed to the upright stems, two or three feet from the ground. It may be attached to several twigs or stems or only to two or three but, invariably, part of the material of which the nest is made is coiled round the supports very efficiently, if loosely.

The nest is always domed, often egg-shaped, but generally an oval equally broad at top and bottom. It does not vary much in size and nine nests out of ten are between $4\frac{1}{4}$ and $4\frac{3}{4}$ inches in height by about $2\frac{1}{4}$ to $2\frac{1}{2}$ in breadth; the walls are very thin and the egg-chamber measures, roughly, $3\frac{1}{2}$ inches high by about 2 in diameter. The entrance is close to the top and in some nests the materials project above it. The nests are made of grass, both stems and fine shreds of blades being used for the purpose. Sometimes the flowering ends, denuded of the soft white down, are also woven in, but the thick seeding ends *with* the down are never incorporated, as in the nests of the *Suyas*. There is no lining but the inner part is made almost wholly of fine stems, and the whole structure is strengthened by cobwebs and silk, which are also employed in attaching the nest to the supports.

The breeding season is from July to September over the greater part of its range. Oates found them breeding in Pegu from May to September and Coltart took nests in Margherita in April after the early rains. Few birds, however, breed until the true rains have broken in the middle of June. The earliest full clutch I have taken was on the 31st May, and I have found them with fresh eggs up to the 3rd October.

The full complement of eggs is four, rarely three. I have never seen a five, but took six from the first nest I ever found.

In colour the eggs are a brilliant mahogany-red, very highly glossed. In a few eggs there is a deeper flush at the larger end and I have two clutches which are paler than usual over two-thirds of the surface, but with deep mahogany caps at the bigger third.

In shape the eggs are broad, blunt ovals, the texture very fine, close and strong for such tiny eggs.

Sixty eggs average 15.2×11.7 mm. : maxima 16.4×11.9 and 14.5×12.5 mm. ; minima 14.2×11.6 and 16.1×11.0 mm.]

Both sexes take part in building the nest, but the male only incubates for short spells morning and evening.

(934) *Prinia flaviventris sindiana* Ticehurst.

THE SIND YELLOW-BELLIED WREN-WARBLER.

Prinia flaviventris sindiana, Fauna B. I., Birds, 2nd ed. vol. ii, p. 529.

This race of Yellow-bellied Wren-Warbler is restricted to Sind and the North-West Frontier Province.

All that is known as to its nidification is to be found in Ticehurst's summary (Ibis, 1922, p. 570). He writes :—"The Yellow-bellied Wren-Warbler is a very local bird in Sind ; it is essentially a bird of tamarisk and 'khan' grass-jungle, but apparently does not occur everywhere where these conditions obtain. Doig found it comparatively common along the E. Narra Canal, keeping to very thick jungle and not easily seen unless looked for. Here he found nests in the middle of May and at the same time well-grown young on the wing ; the normal clutch was four eggs. He gives the nesting season as March, June and September. Butler met with it in one strip of tamarisk and 'khan' grass-jungle near Sukkur in February. Almost in the same place—in the Ketishah forest—Mr. Bell came across it breeding in the end of April ; he says, in the notes he has given me, that it nests either in clumps of 'khan' grass or in the thicker boughs of tamarisk, three to five feet from the ground. The nest, shaped rather like that of the Sun-bird, but with the opening right at the top, is composed of thin grass, roots and vegetable down and lined with fine grasses ; it measures on the outside $6 \times 2\frac{3}{4}$ inches."

The eggs cannot, of course, be distinguished from those of the previous bird.

Eggs in the British Museum taken by Doig average about 14.5×11.7 mm.

Prinia socialis.

THE ASHY WREN-WARBLER

(935) *Prinia socialis socialis* Sykes.

THE SOUTHERN ASHY WREN-WARBLER.

Prinia socialis socialis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 530.

Over the extreme Northern limits of its area this Wren-Warbler merges into the next race, but an arbitrary line for its Northern

boundary may be given as running from Surat, Khandeish and Nagpore and thence South-East to the mouths of the Godaveri River. It is also resident in Ceylon.

The birds breed in grass-land, scrub- and bush-jungle, cultivated tracts in which there are patches of grass and scrub, in gardens and round villages, but not in forests. Often its nest may be found in sugar-cane fields, crops of millet and in unpruned hedges. In Ceylon T. E. Punnard also found them nesting low down in Tea-bushes.

In parts of the Deccan it is extremely numerous and every garden has its pair or more of these little Warblers breeding in it, and in this area, more especially round Hyderabad, they are frequently cuckolded by the little Cuckoo *Cacomantis*.

The nests vary more than do those of any other Indian bird known to me, and descriptions of all are to be found in Hume's 'Nests and Eggs' (vol. i, pp. 291-5). A very common type of nest is one sewn into leaves or a leaf, like that of a Tailor-Bird. One of these is described by Miss Cockburn in the following words:—"The Ashy Wren-Warbler builds a neat little hanging nest very much in the Tailor-bird style, for it draws the leaves of the branch, on which the nest is constructed, close together, and sews them so tightly as sometimes to make them nearly touch each other, while a small quantity of fine grass, wool, and the down of seed-pods is used as a lining and also placed between the leaves."

Next Davison describes one of the domed type:—"The nest is generally placed low down near the roots of a bush or a tuft of grass. It is made of grass, beautifully and closely woven, domed and with an entrance near the top."

Then Legge describes quite a different kind of nest seen by him in Ceylon:—"In May 1870 a pair resorted to a large guinea-grass field, attached to a bungalow at Colombo, for the purpose of breeding. I soon found the nest, which was the most peculiarly constructed one I have ever seen. It was, in fact, an almost shapeless ball of guinea-grass roots, thrown, as it were, between the upright stalks of a plant at about 2 feet from the ground: I say thrown, because it was scarcely attached to the supporting stalks at all. It was formed entirely of the roots of the plant, which, when it is old, crop out of the ground and are easily plucked up by the bird, the bottom or more solid parts being interwoven with cotton and such-like substances to impart additional strength. The entrance was at the side of the upper half, and was tolerably neatly made; it was about an inch in diameter, the whole structure measuring about 6" in depth and 5" in width. I found the nest in a partially completed state on the 10th May; by the 19th it was finished and the first of a clutch of three eggs laid. The nest and eggs were both taken on the evening of the 24th, and the following day another was commenced close at hand."

Then we have an occasional deep cup-shaped, or purse-shaped, one such as found by Wait in the Nilgiris, Sparrow at Trimulgherry, or Williams in Wellington.

They seem to breed at all elevations up to about 5,000 feet, and less often up to 7,000 feet, as well as throughout the plains, and the shape of the nest has little to do with the particular breeding area, though certain types of nest preponderate in certain localities, and these may be family characteristics, the parents handing down their special traits to their descendants.

It is curious, however, that Butler, who found numerous nests in Belgaum, took two types of nest from the same sugar-cane fields. He says "most of them were stitched up in leaves of various plants, after the fashion of Tailor-birds' nests, but in some instances they were of the other type, simply supported by the blades of the sugar-cane or corn they were built in."

The breeding season over the greater part of its habitat begins in May and lasts until September. In Wellington, however, Williams took a series of nests between the 28th February and the end of May, and over a great part of the Nilgiris many birds breed in April. In Ceylon they breed from March to August, and here, as doubtless elsewhere, most birds have two broods.

The number of eggs laid is three to five, the last very rarely.

In colour they cannot be separated from those of *Prinia flaviventris*, which they also resemble in shape and texture.

I have one remarkable clutch taken by Phillips which is light bright pink, with broad rings of deep chestnut-red at the larger extremity.

Sixty eggs average 16.2×12.0 mm. : maxima 17.1×12.4 mm. ; minima 15.1×12.0 and 15.2×11.3 mm.

(936) *Prinia socialis stewarti* Blyth.

THE NORTHERN ASHY WREN-WARBLER.

Prinia socialis stewarti, Fauna B. I., Birds, 2nd ed. vol. ii, p. 531.

The present subspecies of the Ashy Wren-Warbler is found over the whole of Northern India, East of the Chenab and North of the arbitrary line drawn as the limit of the preceding bird. It extends East as far as Eastern Assam and Manipur.

There is little that can be written of this race that has not already been written of the Southern form. It breeds in exactly the same kind of haunts, but is on the whole an even more familiar little bird, breeding freely in gardens. It is found all over the plains and ascends the mountains up to about 3,000 feet and, in Sikkim, has been recorded up to 4,000 feet.

It is just as erratic in its ideas about nest-building as its Southern cousin, and Hume enumerates all the types of nest built by that bird as having been found by himself. The descriptions are too

long to quote *in extenso*, and only repeat the descriptions of nests already given, but one is too unusual to be omitted :—

“Another nest of this *Prinia* was built in the usual situation in a low herbaceous plant, sewn to and suspended from two leaves, and two or three others worked into the sides. It was constructed almost entirely of grass-roots and fibres, with a few tiny tufts of cotton-wool, and the leaves, as usual, firmly tacked on with threads and cobweb-fibres. It would seem that after constructing the nest, but before laying, a large female spider took possession of the bottom of the nest, and shut herself in by constructing a diaphragm of web horizontally across the nest, thus occupying the whole of the cavity of the nest. The little bird accepted this change of circumstances, built the nest a little higher at the sides, and over the spider's web placed a false bottom of fine grass-roots, on which she laid her four eggs, and on these she was sitting when the nest was taken, the spider alive and apparently happy in the cell below, plainly visible through the interstices of the grass, with a huge sac of eggs which she was incubating.”

The breeding season lasts from the middle of June to the end of August, a few birds only laying in the end of May. They are double brooded and some pairs may have three broods in a season. Hume says :—“They rear usually two broods ; if their eggs are taken they will lay three or four sets ; sometimes they use the same nest twice ; sometimes, directly the first brood is at all able to shift for themselves, the parents leave them in the old nest, and commence building a new one at no great distance.”

The eggs cannot be distinguished from those of the preceding bird.

One hundred average 15.6×11.9 mm. : maxima 17.2×13.0 and 15.2×13.1 mm. ; minima 13.7×10.3 mm.

Both sexes take part in incubation but the male probably only sits in the early morning and late evening when the hen is feeding. Both sexes also help to build the nest, the male collecting the material and the female fashioning the nest.

Prinia sylvatica.

THE JUNGLE WREN-WARBLER.

(937) *Prinia sylvatica sylvatica* Jerdon.

THE NILGIRI JUNGLE WREN-WARBLER.

Prinia sylvatica sylvatica, Fauna B. I., Birds, 2nd ed. vol. ii, p. 532.

This Jungle Wren-Warbler is found over practically the whole of India, extending from the Simla Hills on the North-West, South to Travancore and East to Assam, Manipur and the Lushai Hills. It is, however, very rare anywhere East of Western Bengal.

This bird, as its name implies, is one of jungles rather than of cultivated fields, villages and gardens. At the same time it does not frequent true forest but breeds in low scrub, grass "bhirs" and patches of grass and bushes in waste lands or on the outskirts of cultivations away from villages.

Blewitt took many nests in the Raipoor District and MacArthur made a wonderful series of selected clutches in the Bilaspur and Bhandara Districts in the Central Provinces, in both of which this little Warbler is very numerous. It is a bird of the plains, seldom wandering up the hills above 2,000 feet, though Rattray took several nests round Dehra Dun at 2,500 to 3,000 feet.

The nest may be placed either in a low bush, preferably a thorny one, or in a clump of grass. Normally the nest is a round ball or oval of grasses, completely domed. Butler, who took many nests round Deesa between the 28th July and 3rd September, thus describes a nest taken by him:—"It was placed in the middle of a tussock of coarse grass on the side of a nullah on a bank overgrown with grass and bushes. The nest was dome-shaped, with an entrance upon one side, composed exteriorly of blades of rather coarse, dry grass (green, however, as a rule when the nest is first built) and, interiorly, of similar but finer material. It is an easy nest to find when once the locality in which the birds breed is discovered, as it is a conspicuous ball of grass, smeared over, often more or less, exteriorly with a silky white vegetable-down or cobweb, and many of the blades of the tussock in which it is placed are often drawn down and woven into the nests, which at once attracts attention. Then again the cock bird is always to be found on the top of some low tree near the nest, uttering his queer ventriloquistic note, *tissip, tissip, tissip* etc. All the above nests [twelve] were alike and in similar positions in deep nullahs running through a large grass 'beerh.'"

Blewitt describes a rather different nest taken by him. He says:—"On the 1st July this year I found a nest of this species in the centre of a low thorny bush, growing in rocky ground, about two miles North of Doongargurh in the Raipur District.

"The nest was about 4 feet from the ground, firmly attached to and supported by the branches. It was of a deep cup shape, 3.6 in diameter and 4.9 in height, composed of coarser and finer grasses interwoven."

Another nest is described as similar, but a little larger.

All my other correspondents describe the nest as similar to those taken by Butler—rough, rather loosely put together balls or ovals of coarse grasses, lined with finer grass and placed quite low down, 6 to 24 inches from the ground.

A curious nest was found by MacArthur near Khamtā, Central Provinces:—"Nest, two leaves of a Brinjal plant sewn together with cotton and lined inside with fine roots of grass and thin strips of dry bark."

MacArthur also says that the domed nests are often partly constructed of dry grass-roots, and the lining in those found in the Central Provinces was of the finest grass-roots more often than anything else.

In Wellington Williams took a nest with four eggs on the 26th March, and in Dehra Dun Rattray took two nests in June, but the real breeding season does not commence until July, when the rainy season is well advanced. Laying continues from then until early October.

In about two nests out of three, four eggs will be found, but three only are often incubated, while I have had a few fives and one six sent to me.

The variation in colour is very great. Most eggs have a pale, rather dull grey-green ground, faintly speckled with light reddish to deep reddish-brown. At the larger end, in the great majority of cases, the marks coalesce to form a definite ring. Other eggs have a more buffy ground, similarly marked, while a few others are truly erythristic, with pink or creamy ground-colour and reddish freckles and zones. Every intermediate form is to be found and rarely the obsolete frecklings become well-defined small blotches. Abnormal clutches are comparatively common and, in my series, there is one clutch of bright pale blue, completely unspotted, and two of white, one of which has a few very faint red specks.

The shape is a long but obtuse oval, the texture hard, close and fine, the surface nearly always showing a fine gloss.

One hundred eggs average 17.5×12.8 mm. : maxima 19.0×14.0 and 18.2×14.6 mm. ; minima 15.2×12.2 and 15.8×12.0 mm.

(938) *Prinia sylvatica valida* (Blyth).

THE CEYLON JUNGLE WREN-WARBLER.

Prinia sylvatica valida, Fauna B. I., Birds, 2nd ed. vol. ii, p. 533.

This Jungle Wren-Warbler is restricted to Ceylon, where it is found from the plains up to the highest hills, Tunnard having taken its nest on the Labookellie Estate, Bamboda District, at 5,500 feet.

Wait thus describes its habitat:—"A common species in low grassy jungles, in scrub by the sides of roads and paddy-fields, or in young chena growth, patanas, fern-lands etc." It seems also to be common in the more or less open lands of Tea plantations and openings in Rubber estates.

The nest, so far as is known at present, seems to be always of the domed variety, made of grass, strips of reeds and blades, like that of the Northern bird. It is placed in similar positions.

The breeding season is very irregular, as it is with so many other birds in Ceylon. Wait says that "the breeding season starts with

the earliest rains in October, or November, and lasts intermittently till June or even later." One clutch taken by Wait, now in my collection, is dated 15th July.

The eggs number three to four but I have seen very few, and all those are of the type with very pale pink ground faintly freckled with reddish and with deep uniform zones of rich brown at the larger ends. I have seen none of the blue, blue-green, or grey-green ground, but I have one clutch of pure white eggs, two of which have a few tiny specks of dark red-brown near the large end.

Twelve eggs average 17.9×12.9 mm. : maxima 19.1×13.1 and 17.3×13.4 mm. ; minima 16.2×12.1 mm.

Prinia inornata.

THE COMMON WREN-WARBLER.

(940) *Prinia inornata inornata* Sykes.

THE COMMON INDIAN WREN-WARBLER.

Prinia inornata inornata, Fauna B. I., Birds, 2nd ed. vol. ii, p. 534.

The Common Indian Wren-Warbler extends over practically the whole of India, North of the Nilgiris and Travancore.

Except that it does not breed in forest, it is resident and breeds in suitable places everywhere from Sind to Eastern Assam North, but not South, of the Brahmapoetra. Its range South on the Eastern side of India has not been determined, but the Vernay Expedition to the Eastern Ghats may have elucidated this question among others.

The birds breed in gardens and parks, cultivated land, open waste land and in scrub and low jungle and grass round villages. Sometimes they nest in grass plains where the thatching grass is mixed with bushes, but I have never heard of their nesting in beds of long reeds or in elephant-grass or "ekra." The nest itself may be placed in clumps of grass and weeds but, more often, is built in bushes, where it may be wedged in between twigs, either vertical or pendent, or attached to leaves.

The nest varies very much. Personally I have only seen two types. First the completely domed nests, which may differ much in construction. Generally they are small, regular ovals, well and fairly neatly constructed of thin strips of grass-blades, torn off the living grass and used when green and pliant. The shreds are beautifully interwoven, but not very tightly, leaving the whole strong but very pliable. There is no lining of any kind, and the walls may be anything from 5 to 10 mm. in thickness. The nest itself measures between 4 and $5\frac{1}{2}$ inches vertically by about $3\frac{1}{2}$ to 4 in breadth, while some nests are almost spherical, being

between $3\frac{1}{2}$ and 4 inches either way. In most nests the entrance is near the top, in some quite neatly finished off, in others very rough and unfinished, while in many the materials of the dome hang over the entrance, forming a hood over it.

The second type of nest is the long purse-shaped affair sometimes adopted by *Cisticolas* and others. This kind consists of a long narrow bag, with the circular top quite open and averaging something under 3 inches in internal diameter. It is made of the same materials and is similar in weaving and neatness or the reverse. The size varies greatly. In most nests the egg-cavity is about 3 inches or less across by about 2 to 4 inches in depth, but the nest itself often hangs far below this. I have seen nests 8 or 9 inches deep and Hume refers to nests of the same dimensions, while Ticehurst writes of nests seen by him in Sind, which were "rather more than 9 inches deep." As a rule, with these deep nests only the top 2 to 4 inches are fastened to their supports, the remainder hanging pendent between them.

A third kind of nest, somewhat of the Tailor-Bird type, seems common in some parts of India, though I have never seen it. Thus Hume says:—"In other cases they are hung to or between two or more leaves, to which the birds attach the nest, much as a Tailor-bird would do, using, however, fine grass instead of cobwebs or cotton-wool for ligaments."

Aitken (B.) also describes a similar type of nest:—"The nest was strongly attached to the stems and leaves of four herbaceous plants growing close together. In many cases the strips of grass had been passed through and pierced the leaves. The nest is deep and purse-shaped; the sides were prolonged upwards, except in front, where the entrance was, and joined above so as to form a canopy."

E. Aitken, Bingham, Adam, Cock, Blewitt and many modern collectors all describe nests similar to one or all three of the above descriptions.

In all nests grass-shreds, very narrow and soft, form the principal material, and in many the only one, but occasionally seed-down, flowering ends and grass-stems are also used, while cobwebs are employed fairly often both to attach the nest to the supports and to strengthen the outside of the nest itself.

Many observers have referred to a penchant of this species for building in or near water. Aitken (E. H.) says:—"Six or eight nests I have seen of this species were all over water." Betham refers to their preference to bushes close to or overhanging water, and both Field and Gill say that in some districts of Gonda in the United Provinces the birds build round lakes.

Nesting operations are in full swing by about the last week in June, when the rains have well started, and most eggs are laid in July and August; on the other hand, odd birds over the whole of their breeding range commence to lay in March, while others continue to the end of September. In Sind many birds must breed in March,

as Ticehurst saw young birds on the wing on the 27th April and young in the nest a fortnight earlier still. In the Nepal Terai also Whympster found breeding advanced in April and I have had eggs sent me from Ambala taken in March.

The eggs number four or five, three and six being sometimes incubated.

In appearance the eggs are among the most beautiful there are ; in addition to this they are certainly among the most interesting, for I know of no other species with parallel variations in the eggs of its various geographical forms.

The eggs of the present and typical race are normally a bright pale blue, a little less deep than Hedge-Sparrow-egg blue. The ground-colour varies but little in depth of blue or in tint but some are a trifle duller than others and, in a few, there is a very faint indication of green. The markings are exceptionally bold and handsome, consisting of large blotches and long twisted lines of deep reddish-brown, blackish-brown or purple, with others underlying of pinkish lavender, pale reddish or neutral tint. The blotches are nearly always large ; sometimes there may be a couple of dozen of these, at other times less than a dozen, while I have eggs in my series with huge blotches covering nearly a third of the egg. The hair-like lines are generally confined to the larger end, where they may be carelessly scattered about here and there but, more often, form a ring of intertwisted lines, many of great length, round the egg. In some eggs the lines are altogether wanting, in others they are but few, but in some they are comparatively numerous.

I have two types of egg which are really abnormal. In many hundreds of clutches I have seen only two or three examples. In one of these the ground-colour is a deep sage green with normal marking. In the others the ground is pale bluish, boldly freckled all over with deep reddish-brown, forming caps at the larger end. In character these latter eggs are more like those of a *Franklinia* than normal eggs of the present bird.

Another variation, abnormal in this race, but normal in another, has the ground white, or a beautiful creamy pink with characteristic bold blotches and lines of chestnut-red or purple-red. This last type seems to be confined almost entirely to Northern birds. I have one such clutch from each of the following places : Baroda, Somastipur, Rosehar and Ambala. On the other hand, this type is less rare generally in the United Provinces, whence I have three clutches from Lucknow etc., while in one small area, Wasirgunj, in the Gonda district, the egg with the white ground is apparently the common type, though all round this area the blue type of egg is found everywhere.

Messrs. Field and Gill have been kind enough to furnish me with a lovely series of these wonderful eggs, and the former gives a full account of them (Journ. Bomb. Nat. Hist. Soc. vol. xxvi, p. 1042, 1920). In this he describes how he obtained in Wasirgunj seventeen

nests of eggs with white ground (later he took many more), and it is interesting to note that he says :—"The general features of Wasir-gunj are in no way different from other parts of the district, except that there are some large pieces of water, lakes in fact." In a letter he tells me that his white eggs were taken from bushes and grass around or in these same lakes. Later on we shall see that the normal egg of the Siam bird is exactly like these eggs, or else have a pink ground but *never* a blue one.

In texture the eggs are hard, close and fine, with a strong gloss. The normal shape is a broad, blunt oval, and long pointed ovals are rare.

Two hundred eggs average 15.6×11.5 mm. : maxima 18.0×12.5 and 16.1×12.7 mm. ; minima 13.2×10.0 mm.

Both birds incubate and I have often caught the male on the nest. Both also help in building their home. Hume writes :—"Both parents work at the nest, clinging at first to the neighbouring stems of grass or twigs, and later to the nest itself, while they push the ends of the grass backwards and forwards in and out ; in fact they work very much like the Baya, and the nest, though much smaller, is in texture very like that of this species."

Incubation, I think, takes eleven days but I am not positive. and my observations want confirmation.

(941) *Prinia inornata jerdoni* (Blyth).

THE COMMON CEYLON WREN-WARBLER.

Prinia inornata jerdoni, Fauna B. I., Birds, 2nd ed. vol. ii, p. 535.

The present race is a resident breeding bird in Ceylon and in the South of India as far North as the Nilgiris and Travancore.

Wait ('Birds of Ceylon,' 2nd ed. p. 101) says :—"With us it is common round tanks and in paddy-fields and grass-lands in the low country, and on the hill patanas it occurs as high as 5,000 feet." Wait also notes that the most usual kind of nest in Ceylon is the purse-shaped one. The description of the nest and nesting of the typical form covers all that need be said of this one ; but one must not pass over Wait's remark that "the site generally chosen is a clump of reeds, or long grass growing in or near water."

The breeding season in Ceylon is probably chiefly from November to February and then there is a second burst of laying in June, July and August. I have, however, eggs in my series taken by Wait and others in every month of the year. In the Nilgiris Miss Cockburn gave the nesting season as April to July, and in Mysore Mr. C. J. W. Taylor took three eggs on the 15th July at Manzeerabad.

The number of eggs laid is more often three than four and I have only seen one five, while occasionally only two are incubated.

The eggs resemble the blue type of those of *P. i. inornata* and I have seen no other. Taken as a series they at once show as paler, brighter blue than those of the typical race and that they have rather fewer and smaller blotches, while lines are less often present. It will be seen that as one works from Ceylon Northwards the eggs get duller and darker and then, as one turns Southwards into Burma, they become tinged with pink, which increases in degree until one reaches Siam, when all the eggs are a wonderful white to deep salmon-pink with chestnut markings.

Two hundred eggs average 15.8×11.7 mm. : maxima 17.8×12.2 and 16.7×12.3 mm. ; minima 14.2×11.2 and 15.1×11.1 mm.

(942) *Prinia inornata burmanica* Harington.

THE COMMON BURMESE WREN-WARBLER.

Prinia inornata burmanica, Fauna B. I., Birds, 2nd ed. vol. ii, p. 536.

The Burmese form of the Common Wren-Warbler occurs in Assam, South of the Brahmapootra, though in some cases the birds in this province approach typical *inornata*. They extend thence throughout the whole of Upper Burma and the Shan States, South about as far as Thayetmyo, while East it extends again into Northern Siam.

Except that it is rather more of a jungle bird than either of the two preceding races, there is little to differentiate it in its habits from them. It ascends the hills up to 4,000 feet where there is suitable open country for it, and it may often be seen in, and breeds in, secondary growth and in mixed bamboo- and scrub-jungle.

The nests are similar to those of the other races and, like them, are attached to bushes, grass or reeds at all heights from a few inches to about 4 feet from the ground.

In North Cachar and the Khasia Hills I have taken eggs in every month from March to October, but the very great majority of eggs are laid between the 15th May and 15th July. In Burma, apparently, the breeding time is not so extended and May to the middle of July seems to be the regular breeding season.

The full complement of eggs is three to five. In appearance they are like those of the Indian race but duller in tint, and many eggs show a distinct but dull pink tinge. Even in a series of the eggs of this one race there may be seen a gradual change from North to South. Among Livesey's eggs taken in the Shan States and among Cook's in the Bhamo Hills there are a few quite as bright as any from Ceylon, but there are none such from Northern India.

Among the abnormal specimens in my series there are one or two pure unspotted blue and there is one clutch of the curious *Franklinia* type.

Two hundred eggs average 15.5×11.4 mm. : maxima 17.2×11.7 and 16.5×12.3 mm. ; minima 14.0×11.1 and 14.7×10.6 mm.

(943) *Prinia inornata blanfordi* Wald.

THE COMMON TENASSERIM WREN-WARBLER.

Prinia inornata blanfordi, Fauna B. I., Birds, 2nd ed. vol. ii, p. 537.

This subspecies of the Common Wren-Warbler is found in Burma from about the latitude of Thayetmyo to the extreme South*.

Oates's description of the haunts of this bird is so full and complete that I quote it *in extenso*:—"The Burmese [=Tenasserim] Wren-Warbler is perhaps the commonest bird in the Pegu Plains. From Myitkyo on the Sittang down to Rangoon it is to be found in all the low tracts covered with grass.

"Where it occurs it is a constant resident and breeds from May to August. I have found the nest in the middle of May, but it is not till July that the bulk of the birds lay.

"The nest is never more than 4 feet from the ground and is attached to two or three stalks of the elephant-grass or to the stem of a low weed, or to the blades of certain tender grasses which grow in thick tufts. There is little or no attempt at concealment. The materials forming the nest are entirely fine grasses, of equal coarseness or fineness throughout, gathered green, and so beautifully woven together that it is impossible to destroy a nest by tearing it asunder, although it may be looked through. In shape it is somewhat of a cylinder, with a tendency to swell out at the middle. Its length, or rather height (for its longer axis, being invariably parallel to the stalks to which it is attached, is generally upright), is from 6 to 8 inches, and its extreme width 4. The entrance is placed at the top of the nest, the sides of which are produced an inch or two above the lower edge of the entrance. The thickness of the wall is very small, seldom reaching half, and generally being only a quarter of an inch thick."

To the above notes Mackenzie, who has taken dozens, and seen hundreds, of nests, says that though the great majority of nests are oval and domed, some are egg-shaped and others are deep purses.

The breeding season is June, July and August, very few birds breeding in the last month.

* *Prinia inornata herberti* Stuart Baker, which is found over South-Central and South-Western Siam, may be found to be the form in the borders of Eastern Tenasserim. This most interesting race is very common in parts of Siam, and Herbert secured a wonderful series of its eggs, which he gave to me. They are extraordinarily interesting, as in them we obtain the other extreme of the long line of variation of the brilliant blue eggs laid by the Ceylon birds to the brilliant pink eggs laid by this subspecies. In the whole series given to me there are only two clutches which have a bluish ground, though these are nothing like the blue of the eggs of the Indian races. Some clutches have a white ground, but four out of five have a salmon ground. The markings are bold and very large, and vary from bright to deep purple-chestnut. The secondary blotches are pale reddish.

The eggs nearly always number four ; perhaps five to ten per cent. of birds lay only three, while about two or three per cent. lay five.

The eggs are marked like those of the other races of Common Wren-Warblers, but very few have a blue ground and none the bright deep blue of the eggs of the Indian and Ceylon birds. Many have a deep salmon ground, others a pale blue, more or less strongly tinged with cream or salmon, whilst a few are pale, almost skim-milk blue. Examining the eggs as a series it is noticeable that very large blotches predominate and that lines and hieroglyphics are not so numerous. The large number of eggs in which the blotches form caps at the larger end also strikes one. I have seen only a single egg with a white ground, one of a clutch of five, the other four being a pale pinky blue.

Two hundred eggs average 15.7×11.5 mm. : maxima 17.2×12.1 and 16.5×12.6 mm. ; minima 14.25×10.5 mm. (Mackenzie).

Family REGULIDÆ

(GOLDCRESTS).

Regulus regulus.

THE GOLDCREST.

(944) **Regulus regulus himalayensis** Jerdon.

THE SIMLA GOLDCREST.

Regulus regulus himalayensis, Fauna B. I., Birds, 2nd ed. vol. ii, p. 539.

As Meinertzhagen has separated the form found in Sikkim Eastwards from that found West of Nepal, the area of the present bird is accordingly restricted to the Himalayas from Afghanistan, through Kashmir, to Garhwal and Western Nepal.

Very little that is satisfactory is known about this bird's breeding. It keeps during the breeding season to forest, both open and fairly dense, and also to open but well-wooded country in which there are many clumps, small spinneys and numerous single trees, such as Deodars, Firs, Pines etc., and it probably nests between 8,000 and 12,000 feet.

The first authentic nest of this bird ever taken was that found by Sir E. C. Buck "at Rogee, in the Sutlej Valley, on the 8th June, on the end of a deodar branch 8 feet from the ground and partly suspended. It contained seven young birds fully fledged." The nest and parent birds were sent to Hume, who describes the nest as follows:—"The nest is a deep pouch suspended from several twigs, with the entrance at the top, and composed entirely of fine lichens, woven or interlaced into a thick, soft, flexible tissue of from

three-eighths to half an inch in thickness. Externally the nest was about $3\frac{1}{2}$ to 4 inches in depth and almost 3 inches in diameter."

Ward obtained three clutches of eggs on the Ladak border of Kashmir between 10,000 and 12,000 feet in June and July 1908.

Previous to this both Buchanan and Ward had taken nests and eggs in the Lidar Valley, on each occasion one or both of the parents being secured. The nests were quite typical, but the eggs were described as "white, spotted with red at the thick end, less so towards the thinner." When Ward's eggs came into my possession there were none of the red-spotted eggs among them and they had probably been given away, but there were three clutches and one single egg all of quite a different type.

Whitehead, however, took a nest in Bulta Kundi, Khagan Valley, containing three young and an addled egg. The nest was typical, a bag of moss, lichen and fine roots hanging to the end of a branch of a Paluda-tree at 10,800 feet elevation. Of this and the egg Whitehead records in his notebook and elsewhere:—"It contained three young and an addled egg. The latter was white, with large dark red spots, very different from the normal type, but Capt. Buchanan, who has seen many nests, tells me that the white, heavily spotted type was the one he usually met with out here."

I never saw the eggs taken by Buchanan, but Ward sent me one clutch of those taken by him, to look at, and these certainly were exactly like the one undoubted egg obtained by Whitehead.

All the nests taken have been of exactly the same description—beautiful pendent little bags of lichen, moss and tiny moss-roots, all felted into a soft mass, about 4 inches wide and the same deep, the walls between $\frac{1}{2}$ and 1 inch thick, with a tiny egg-cavity about 2 inches across and the same, or more, in depth. All were built attached to pendent twigs of some conifer at heights from 10 to 40 feet from the ground, so well hidden that they were only discovered on the birds leaving them.

Of the eggs I have seen most were of the white type already described, more like small Tits' eggs than those of a Goldcrest. The rest are like the eggs of the British Goldcrest or of the Firecrest, and vary from pale dull creamy buff, blurred—one cannot say blotched—at the larger end with dull grey, to a warm pink-buff exactly like the eggs of the Firecrest. I have also the broken remains of one egg, taken from the oviduct, which is exactly half-way between the normal and the Tit-like types. This egg is pale fawn, with a cap of deep red spots at the larger extremity.

There seems to be no doubt that in the Himalayas the Goldcrest lays sometimes one, sometimes another of the types described.

Thirteen eggs average 14.3×10.7 mm. : maxima 15.0×11.1 mm. ; minima 13.9×10.6 and 14.1×10.3 mm.

From Buchanan's, Ward's and Whitehead's observations it would seem that the breeding season is from the end of May to the middle of July.

Leptopœcile sophiæ.

THE TIT-WARBLER.

(948) **Leptopœcile sophiæ obscura** Przew.

THE TIBETAN TIT-WARBLER.

Leptopœcile sophiæ obscura, Fauna B. I., Birds, 2nd ed. vol. ii, p. 543.

Since the second volume of the 'Fauna' was written a good deal has been learned about the distribution of these quaint little birds. Ludlow found the typical form in Lakak and, doubtless, breeding there. The present race breeds throughout Southern Tibet and the North of Sikkim, extending thence into the North-East of Tibet and due East to the Yangtse-Kiang. In the North-West of Tibet it is replaced by the typical form.

All round the Gyantse plateau between 12,000 and 15,000 feet it is extremely common, breeding in the stunted, thorny bushes which cover the greater part of the plain. The nests are placed quite low down in the centre of the bushes, often within a few inches of the ground, seldom over two feet above it. The bushes are so thorny and the small branches so tough and wiry that even when the nests are located—a difficult matter in itself—they have to be practically cut out of the surrounding branches.

The nests may be round, oblong, or a long oval but, of whatever shape they may be, they are always domed. The round nests vary much in size; the smallest sent to me was under $4\frac{1}{2}$ inches in diameter, with a tiny egg-chamber about 2 inches across and deep. Another measured over 6 inches each way. The oval nests may be anything between $5\frac{1}{2}$ and 7 inches deep by about $4\frac{1}{2}$ to 5 in diameter. Finally the long-shaped nests may be as much as 9 or $9\frac{1}{2}$ inches in depth and between 4 and $5\frac{1}{2}$ inches in diameter. The chamber for the eggs is always about the same, the whole of the lower parts of all nests—round, oval or oblong—being a solid mass of material.

They are very beautiful nests, made principally of a dull brown vegetable down, sheep's wool, feathers of all kinds, tiny twigs and shreds of grass. All these articles are wonderfully interwoven and mixed up, the nest forming a sort of dense sponge with a tiny cavity at the middle or top, the whole outer surface decorated with spiders' egg-bags, while webs are employed everywhere to solidify the structure. The supporting twigs are embodied wholly or partially in the fabric and have to be torn or cut away when the nest is removed. As a rule there is no lining, the eggs resting on the soft yielding materials of which the nest is formed. In a few, however, there is a dense lining of soft feathers. In the body of the nest feathers of *Perdix hodgsoniæ*, *Tetraogallus*, Choughs, Finches etc., etc. are used, often forming quite an interesting accumulation.

They are early breeders and I have eggs taken by Steen as early as the 17th April, while most of the eggs sent me have been obtained in this month. On the other hand, its nest has been found with fresh eggs in the middle (18th) of July and, probably, some birds have two broods in the year.

The full clutch of eggs is four to six, but five seems to be the number most often laid according to Steen, Kennedy and others, while Ludlow found four to be the general full complement.

The ground is pure white and the average egg is freely speckled at the larger end with deep red- or purple-brown, the specks often forming rings. Sometimes the specks are very minute and scanty and sometimes larger, like small pins' heads, and a little more dense in numbers.

The texture is very fine but quite glossless. The shape varies from short, broad ovals to a fairly long oval.

Fifty eggs average 15.1×11.6 mm. : maxima 16.0×12.1 and 15.5×12.2 mm. ; minima 14.3×11.0 and 14.8×10.9 mm.

Cephalopyrus flammiceps.

THE FIRE-CAPPED TIT-WARBLER.

(949) **Cephalopyrus flammiceps flammiceps** (Barton).

THE WESTERN FIRE-CAPPED TIT-WARBLER.

Cephalopyrus flammiceps, Fauna B. I., Birds, 2nd ed. vol. ii, p. 545.

The Eastern form of this Tit-Warbler having been separated under the name of *C. f. saturatus* (Whistler, Bull. B. O. C. vol. xlv, p. 15, 1924), the range of the typical form is restricted to the North-West Himalayas from Afghanistan to Garhwal.

This little bird is not uncommon in some parts of Kashmir between 6,000 and 9,000 feet. It is quite common in the Galis above Murree at about the same elevations and is equally common in the Simla Hills and in the Garhwal Hills, in which State Whymper took a nest at 10,000 feet in the Nila Valley. It breeds both in forest and in well-wooded open country, making its nest in natural hollows in big trees, sometimes, also, making use of old nesting-holes of Woodpeckers and Barbets. As a rule the sites selected are at great heights, generally between 20 and 40 feet, while Rattray took one nest estimated to have been 50 feet from the ground. Occasionally the nest is placed lower down. Marshall (C. H. T.) obtained one near Murree in a hole in a rotten Sycamore-tree 15 feet from the ground, while Cock took one in the same place in a hole in a rotten stump only 13 feet from the ground. Occasionally the birds enlarge and clean out a hole in a rotten branch to suit their requirements but, more often, the hole is used just as it is. Being at such great heights, the nests are very difficult to locate, even

where the bird itself is common, and most of those taken have been found by watching the birds when building and carrying materials to the nest. This is a very slight affair of fine grasses lined with still finer grasses, sometimes mixed with soft feathers and, occasionally, wholly replaced by these.

The breeding season commences in April, as both Cock and Marshall found fully, or nearly fully, fledged young at the end of May. Jones took eggs at Simla as early as the 14th April, but about Murree many birds breed in May, and I have eggs taken as late as the 14th June. In the Nila Valley, also, Whympet took almost fresh eggs on the 5th June. The eggs number four in most clutches, rarely three or five.

In colour they are a soft blue-green, about the same as, or a little darker than, the eggs of the Hedge-Sparrow.

In shape they are broad ovals, the smaller end very little accentuated.

Forty eggs average 14.6×11.0 mm. : maxima 16.2×11.5 mm. ; minima 13.9×10.3 mm., both these eggs being in the same clutch, one of four taken by Rattray near Sonamurg.

The texture is fine but not very close, and there is no gloss.

Family IRENIDÆ

(FAIRY BLUE-BIRDS).

Irena puella.

THE FAIRY BLUE-BIRD.

(950) *Irena puella puella* (Lath.).

THE INDIAN FAIRY BLUE-BIRD.

Irena puella puella, Fauna B. I., Birds, 2nd ed. vol. iii, p. 1.

This most beautiful bird is a resident in South-West India from the extreme South of Travancore as far North as Kanara in the Bombay Presidency. So far it has not been found East of the Nilgiri Hills, but it is found in Ceylon. In the Himalayas it occurs from Sikkim East to Assam, both North and South of the Brahmapootra, and thence through the whole of Burma to Southern Tenasserim, where it is replaced by *I. p. malayensis* (*I. p. cyanea* auct.). It is also to be found over the greater part of Siam, Annam and Cochinchina.

The Fairy Blue-Bird is an inhabitant of the deepest evergreen forest from about 500 feet up to 3,000 feet, ranging sometimes as high as 5,000 feet, and, on the other hand, being sometimes found in the more rugged broken plains, adjacent to the hills.

Unlike most birds which breed in dense tree-forest, they do not select open glades or the comparatively open banks of streams, but breed in the heart of the thickest and most humid places. I found that they preferred very high tree-forest, so high and dark that there was not much undergrowth except a few straggling bushes, weeds, Balsams, Caladiums, and much parasitic growth on the trees themselves and on the rocks and boulders which were strewn everywhere between the trees. The birds did not have a great range of choice in the sites selected and all the nests taken by myself in the North or reported to me from other parts of the Empire were placed either in small saplings or in bushes. As a rule the bushes were tall, thinly foliated and straggling but, occasionally, low and bushy. Nests taken by myself were all between 5 feet and 20 feet from the ground, with the exception of one taken from a dense scrubby bush about three feet high.

Stewart took many nests of this bird in Travancore and I have series of the eggs taken by him and the brothers Bourdillon as well as others from Davidson (Kanara), Kinloch (Nelliampathy Hills) and from Hopwood (North Tenasserim).

All these collectors repeat the information already recorded by the Bourdillons in Hume's 'Nests and Eggs.' Their notes may be summarized as follows:—The birds breed commonly between 500 and 3,000 feet, ascending fairly often some 1,000 feet higher in Travancore. In Kanara they are not so common and keep below 2,500 feet, while in the Nelliampathy Hills the bird is comparatively rare. They build principally in saplings between 10 and 20 feet from the ground, sometimes in the leaves of palm-ferns and occasionally in low bushes three or four feet from the ground. Always they choose trees well in the interior of deep, damp forest, and nearly always that part of the forest with the tallest trees, which exclude the sun and light.

The nests are of two types. The most common—the only one found by myself in fact—is a very fragile looking shallow saucer of roots twigs, and a few bents much mixed with green moss, and with the whole of the outside covered with this material. The nest does not measure more than 5 inches across and is often even smaller. Bourdillon (F.) gives the measurements of one taken by him as only 4 inches. The depression for the eggs is very shallow, perhaps $\frac{1}{2}$ to 1 inch, and the nest is not 2 inches deep, outside measurement. Occasionally the nests are just saucers made of twigs, without any moss, badly interlaced and looking as if they must fall to pieces before the eggs have time to be hatched. One nest taken by Bourdillon (T. F.) was the usual moss saucer but was lined with plant-stems.

The breeding season on the South-West coast is principally March and April, nearly all the eggs taken by the Bourdillons and Stewart being found in these two months. Kinloch, however, took two eggs on the 26th February in the Nelliampathy Hills,

and Stewart took another clutch of two as late as the 1st of June near Aneichardi. He also informs me that he has taken eggs in every month from January to June.

In Burma they breed in April and May, but in Assam all the nests found by myself had fresh eggs in May.

The number of eggs laid is practically invariably two. Stewart once took three eggs in a clutch and both he and Bourdillon occasionally found a single egg incubated.

Stewart has on two or three occasions taken the egg of *Hierococcyx varius* from nests of the Fairy Blue-Bird.

The eggs are *sui generis* and I know of no others for which they could be mistaken. The ground-colour is generally a pale dull grey or olive-grey, sometimes with a faint tinge of reddish-buff or buff. The markings consists of irregular blotches, small and large, of dark brown or grey-brown, with underlying paler shades of the same. In most eggs they are numerous everywhere, often coalescing and forming caps at the larger ends. The extremes in variation are shown in two clutches. The first has a pale grey-green ground with streaky blotches of light brown scattered everywhere, but showing up the ground quite boldly and forming tiny caps at the larger end. The other clutch has a buffy grey ground, almost obliterated by dense blotching of rich dark brown, almost confluent over the whole of the bigger half.

In shape the eggs are blunt ovals, less often rather long, pointed ovals. The texture is coarse but close and some eggs have a moderate gloss.

Forty eggs average 28.2×20.2 mm. : maxima 30.7×20.5 and 30.5×21.3 mm. ; minima 25.3×19.3 and 28.2×18.9 mm.

Family ORIOLIDÆ

(ORIOLES).

Oriolus oriolus.

THE GOLDEN ORIOLE.

(953) *Oriolus oriolus kundoo* Sykes.

THE INDIAN GOLDEN ORIOLE.

Oriolus oriolus kundoo, Fauna B. I., Birds, 2nd. ed. vol. iii, p. 6.

This Oriole is found over the whole of India from the extreme South to the Himalayas up to some 5,000 feet commonly, and in some places up to 7,000 and 7,500 feet. Rattray took many nests in the Murree Galis at these elevations, while Jones and Dodsworth also found it numerous in the Simla States up to 7,000 feet. In Kashmir it does not appear to often breed above 5,000 feet, but

I have had one nest and eggs from Sonamurg, taken at about 8,000 feet, which is quite exceptional. Biddulph obtained a nest in Gilgit, but at what height is not recorded. East I obtained a specimen in Calcutta, but have heard of no other record of its occurrence in extreme Eastern Bengal, though it is common in Behar and Western Bengal. In Southern India it does not ascend the hills to any height, though found up to 3,000 feet.

There is, of course, an immense amount of information recorded about this common and striking bird, but nearly all of it is repetition of the same thing and not worth quoting.

It is a bird of open country, well-wooded but not actually forested, and it breeds freely in gardens, round villages, even in the trees forming avenues in big towns, and in orchards and in single trees in cultivated tracts. It is difficult to say if it has any special preference in its choice of trees as nesting-sites. Possibly more nests are built in Mango-trees in orchards than in any other. Tamarind-trees are often built in, the slender hanging boughs forming admirable supports for their nests. Other trees in which nests have been recorded are Neem, many *Fici*, Sissoo, any Acacia, Casuarina etc., whilst rarely it has been taken from tall bushes such as Bér, Custard-Apple, or small Guava trees. As a rule the nest is not placed at any great height from the ground. Many writers talk of the nest being well concealed in "the tops of high Mango-trees," but I have seen many within reach of the hand or but little higher. On the whole, some height between 10 and 20 feet is most common, and this is the position given by Blewitt, Inglis, Coltart, Betham, Dodsworth, Jones and others.

The nest is a cradle or hammock invariably built in a horizontal fork and never in an upright one, though occasionally it may be fixed between two twigs. The nest is usually composed of grass, shreds of bark, or other long fibrous material of a similar nature and, in most cases, is well and strongly put together, the materials being passed round either supporting twig and then round the base and sides of the nest itself, which hangs between the two. The nests I have found myself have always been strong and well put together, but some are said to be frail and so thinly woven that the eggs can be seen from below. The nests certainly vary greatly in size and Hume says:—"I have seen one with an internal cavity $3\frac{1}{2}$ inches in diameter and over $2\frac{1}{2}$ deep. I have seen others, scarcely over $2\frac{1}{2}$ inches and not 2 in depth, which you could have put bodily, twigs and all, inside the other."

Sometimes all sorts of odd materials are used for nesting purposes, such as strips of linen, paper, wool, shavings, shed snake-skins etc. One nest I saw was made entirely of strips of rag, except for the usual lining of fine grass-stems; another was in great part formed of bits of newspaper woven in with soft grass-blades, while a third was made of nothing but a soft tow-like fibre, probably the inner bark of some tree.

The breeding season is very regular, lasting all through May and June, while a few birds bred in late April and a few others in early July. Inglis has taken several nests in early April, one or two in the first week, and one nest, which was probably a second brood, in the end of July. They are not, however, usually double-brooded.

The eggs generally number three in a full clutch, sometimes only two, and very seldom four.

The eggs are, of course, exactly like those of the European Golden Oriole. The ground is a hard china-white, exceptionally tinged with pink, perhaps even less often than in the European bird. The markings consist of black spots, sometimes small, sometimes rather large and, occasionally, quite large; as a rule they are scanty and just a little more numerous at the larger end than elsewhere. A few eggs have them rather more freely scattered about but they are never numerous and sometimes very scanty. A few eggs are marked with deep maroon-red instead of black, and a few other eggs with large black blotches have the edges of these reddish and looking as if they had run.

The texture is hard, fine and highly glossy. In shape they are long ovals.

One hundred eggs average 29.0×21.1 mm. : maxima 32.5×21.5 and 27.0×22.3 mm. ; minima 25.0×19.0 mm.

Oriolus chinensis.

THE BLACK-NAPED ORIOLE.

(955) **Oriolus chinensis tenuirostris** Blyth.

THE BURMESE BLACK-NAPED ORIOLE.

Oriolus chinensis tenuirostris, Fauna B. I., Birds, 2nd ed. vol. iii, p. 9.

This Oriole breeds in the Lower Himalayas from Nepal to Eastern Assam between the foot-hills and 6,000 feet. It is found throughout all the hill-ranges of Northern Burma to the Shan States.

In Assam I found this beautiful bird breeding between 1,500 and 3,000 feet in some numbers, whilst odd birds bred practically in the plains and I took one nest at the quite exceptional height of 6,000 feet in the Khasia Hills.

In Burma Harington, Cook and Hopwood found nests between 3,000 and 4,000 feet in the Bhamo Hills.

It is a bird of well-wooded open country in Assam and occasionally breeds on the outskirts of true forest. In Burma it nests in similar country and is also very partial to trees in gardens. In North Cachar it was almost common in the park-like grass country in the North, where I obtained many nests. Here the rolling hills were covered with grass which, in Spring, was anything between a few inches and a couple of feet high, while everywhere were great

Oak-trees, for the most part growing singly but, sometimes, also, in clumps and sometimes more or less covered with creepers. It was in these last I found most nests, attached to pendent branches of the creepers, and generally more or less protected and concealed by foliage above it.

The nests were quite typical of those of the family—deep hammock nests, always built between the twigs of a horizontal branch of a tree, or hanging from creepers. Those I found were constructed entirely of grass-blades or soft tow-like fibre from the bark of trees looking just like jute. The lining was invariably of fine grass-stems. In some nests a few dead or skeleton leaves were built in among the grass at the base of the nests. They were fine substantial nests with thick sides and base, never flimsy and small, as is sometimes the case with the nests of *Oriolus oriolus*.

Roughly they measured from $5\frac{1}{2}$ to $6\frac{1}{2}$ inches in diameter by rather more than half that in depth, the cavity being about $3\frac{1}{2}$ inches across by 2 to $3\frac{1}{2}$ inches deep. Very often the lips of the nest were a little bent inwards, giving greater security to the contents in a wind-storm. They were built at any height from 10 to 40 feet from the ground, but usually under 25 feet. In Maymyo Harington found it exceedingly plentiful, building its nest in compounds at heights between 10 and 25 feet from the ground. He gives an interesting account of its breeding habits (Journ. Bomb. Nat. Hist. Soc. vol. xxi, p. 585, 1912):—"They are extremely partial to nesting under the protection of Drongos of either kind. I noticed this more particularly in compounds, where, if there happened to be a King-Crow's nest and any Orioles were heard in the vicinity, it was almost a certainty that their nest would be near that of the Drongos. Outside my gate I found both the Oriole and the Red-Turtle-Dove nesting in a tree next to that in which a pair of King-Crows had theirs. As a further illustration, a friend told me that he had a King-Crow's nest near his house and an Oriole calling in his garden. On going to a clump of Oaks out flew an Oriole and we soon spotted the nest, suspended a good bit below that of the King-Crow's."

The breeding season is late everywhere. The earliest date I have recorded is the 10th May at Maymyo by Hopwood, while the latest is the 27th June in Cachar by myself. I have, however, seen just-hatched young late in July. The eggs are typical Oriole's, but the ground is a beautiful pale pink and the markings are nearly all surrounded by a reddish halo as if they had run.

Two clutches taken by myself and, possibly, laid by the same bird, are a pale pink, with rather numerous light chestnut spots instead of black.

The full clutch consists of two or three eggs only, never four. In shape they are rather broad ovals, generally obtuse but, occasionally, pointed.

Thirty eggs average 27.9×20.7 mm.: maxima 31.4×21.7 and 30.0×22.0 mm.; minima 26.1×19.3 and 27.3×19.0 mm.

(957) *Oriolus chinensis andamanensis* Tytler.

THE ANDAMAN BLACK-NAPED ORIOLE.

Oriolus chinensis andamanensis, Fauna B. I., Birds, 2nd ed. vol. iii, p. 10.

This race of the Black-naped Oriole is restricted to the Andamans.

The only note I can find on its breeding is that of Osmaston (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 158, 1906). He writes:—
“Very common and conspicuous, being found both in forest and open country. They breed from April to June, laying 2 or 3 eggs only. The nest is the usual cradle suspended from the leafy branch of some tree, and is usually decorated outside with sprays of a small climbing Asclepiad with orbicular leaves. The eggs are fairly glossy. The ground is white more or less tinged with claret and with dark purplish brown spots which appear to have ‘run’ from the edges, and with a few underlying grey spots.”

A very fine series of the eggs of this bird taken by Osmaston, with a few others from Wickham and Anderson, are now in my collection. From the notes sent with these eggs the following additions may be made to Osmaston’s account of the nidification.

In places it was very common round Port Blair, and Wickham, on the 3rd of April, found three nests, each with two eggs, in the Garacherana jungle. They seem to have no special fancy for any particular tree, though breeding very often in Padouk-trees. The nests are never at any very great height from the ground, and those taken by the above collectors were all between 10 and 20 feet up, generally in quite small trees, occasionally in large ones.

The earliest date recorded for eggs is 3. iv. 09, on which date Wickham found three nests. The latest date for any eggs in my collection is 28. v. 07, taken by Osmaston, who, however, says (*vide supra*) that they lay occasionally in June. The majority of eggs are, however, laid in April.

The normal clutch is two eggs only, though once Osmaston took three eggs in a nest and once a single egg showing signs of incubation.

Thirty eggs average 29.7×21.6 mm. : maxima 33.2×23.1 and 30.2×23.2 mm. ; minima 25.6×19.9 mm.

Oriolus xanthornus.

THE BLACK-HEADED ORIOLE.

(958) *Oriolus xanthornus xanthornus* (Linn.).

THE INDIAN BLACK-HEADED ORIOLE.

Oriolus xanthornus xanthornus, Fauna B. I., Birds, 2nd ed. vol. iii, p. 11.

The Black-headed Oriole is found over practically the whole of India, omitting the extreme South of Travancore and the North-West corner of India West of a line drawn roughly from the Sulej

Valley to Khatiawar. It extends throughout Assam and Burma, South into the Malay States and East through the Shan States, Siam, Annam and Cochin-China.

This is a bird of well-wooded areas, not of forests, and is much less common in the more arid and dry parts of India. All along the wetter parts of the Bombay Presidency and Malabar and, again, in Eastern Bengal, Behar and Assam, it is extraordinarily common, breeding in gardens, in and round villages and, more than anywhere else, in orchards of Mango-trees. The nest is like that of other Orioles, and Hume gives a very good description of it:—
 “The nest of this species, though perhaps slightly deeper, is very much like that of *O. kundoo*; it is a deep cup, carefully suspended between two twigs, and is composed chiefly of tow-like fibres, then slips of bark and the like, and is internally lined with very fine tamarisk-twigs or fine grass, and is generally more or less covered over externally with odds and ends, bits of lichen, then flakes of bark, etc. The egg-cavity measures about 3 inches in diameter and nearly 2 inches in depth.”

To this I can merely add that most of the nests I have seen have been built almost entirely of the tow-like fibre, with a few leaves worked into the base. Both Coltart and I have taken nests built into an upright fork of a Mango-tree; such nests, however, do not average one in hundreds. Many nests have a good many cobwebs used both in the body of the nest and worked round the supporting twigs with the other material. Bamboo-leaves are said to be sometimes used, though I have only once seen such. The nests are generally placed between 6 and 20 feet from the ground but, sometimes, much higher. The favourite trees are undoubtedly Mango and Tamarind, but practically any kind of tree, big or small, may be nested in occasionally.

The principal breeding season is April, May and June, but Law found fully-fledged young on the 23rd March and I have taken fresh eggs in August. Bingham found half-fledged young in Tenasserim on the 5th March, but Hopwood took fresh eggs in April, May and June. In the Central Provinces Blewitt says they breed in June and July, and in the drier areas they seem to wait to breed until the rains break. Many birds have two or more broods.

The normal full clutch is three, two only being freely incubated, while four eggs are said to be laid occasionally.

The ground-colour is a warm salmon-pink, the spots being of chestnut-brown to deep red-brown, with others underlying of rather dark inky. I have seen a few clutches with a white ground but this is very exceptional in this species. The spots are distributed in the usual manner, nowhere numerous, but more so at the larger than the smaller end. In some eggs they form quite well-defined rings such as are very seldom seen in the eggs of other species of Oriole.

Sixty eggs average 28.0×19.4 mm. : maxima 31.6×21.3 mm. ; minima 24.0×19.4 and 26.5×18.0 mm.

(959) *Oriolus xanthornus ceylonensis* Blyth.

THE CEYLON BLACK-HEADED ORIOLE;

Oriolus xanthornus ceylonensis, Fauna B. I., Birds, 2nd ed. vol. iii, p. 12.

This race is confined to Ceylon, possibly extending into South Travancore, but where it merges into the preceding bird has not been defined.

It is very common in many of the low parts of Ceylon, but does not ascend the hills to any height. The nest is exactly like that of the Indian bird and is built in similar positions in similar country, but both Tunnard and Phillips describe the nest as generally containing many leaves among the other materials. In some, dead and skeleton leaves form the bulk of these; in others they are merely mixed in with the tow-like bark-fibre or with grass.

Rubber-trees seem to be very favourite nesting-sites, the nests being placed here, as in other trees, between 10 and 20 feet from the ground.

Wait says that the breeding season in the drier parts is "from October, when the weather is wet and favourable, but if the rains have not broken the nesting is delayed. They continue to breed to the end of May."

Round Anasigalla Phillips found many nests from February to the middle of April, while in the North-West Provinces Tunnard found them in November and December.

Two eggs only are laid, never three, but one egg is sometimes incubated.

The eggs are not like those of the Indian bird but have a pure white ground, and I have only seen two or three clutches with the faintest touch of pink. They are marked in the same manner but still more scantily.

Forty eggs average 27.0×19.4 mm. : maxima 29.4×21.0 and 29.3×21.2 mm. ; minima 23.5×18.9 mm.

Oriolus traillii.

THE MAROON ORIOLE.

(961) *Oriolus traillii traillii* (Vigors).

THE INDIAN MAROON ORIOLE.

Oriolus traillii, Fauna B. I., Birds, 2nd ed. vol. iii, p. 14.

Oriolus traillii traillii, ibid. vol. viii, p. 648.

This handsome Oriole occurs from the Sutlej Valley in the Himalayas to Eastern Assam, and thence throughout Burma to the South of Tenasserim. Eastwards it is found in Siam and Annam.

The Maroon Oriole breeds, I believe, between 2,000 and 6,000 feet throughout its range, either in forest or in densely wooded open grass country. I never found it in really open country, while Gammie, who took its nest at about 2,500 feet in Sikkim, also found it breeding "in a small patch of dense jungle."

Most often, I think, the nest is built high up in some tree just on the edge of tall tree forest where it is evergreen and very dense or in rather lighter deciduous forest. One nest taken in the Khasia Hills was fully 50 feet from the ground and I have seen others 30 or 40 feet up, while, on the other hand, I have taken some as low down as 15 feet in small saplings.

Mandelli found one nest built in an upright fork but, with this exception, all those I have seen or heard of have been quite typical cradles suspended in a horizontal branch of a tree or from creeper-stems on tree-trunks.

The nests are very massive for an Oriole's and very well built. The principal materials are grass and fibre, but these are mixed with other materials to a far greater extent than I have seen in other Orioles' nests. Bamboo-leaves are often used, other dead and skeleton leaves in some numbers, creeper-stems and tendrils, and sometimes stems of plants, whilst twice I have seen scraps of green and dry moss used on the exterior. The average measurements are about $6\frac{1}{2}$ inches wide and 4 inches deep externally and about $4\frac{1}{2}$ by 3 inches internally, the lips often turned a little inwards.

The breeding season lasts from early April to the end of May, but the latest date I have recorded is the 24th June.

The eggs are quite typical Oriole's, the ground sometimes pinkish-white, but generally a warm pink, while the markings are rather bold and handsome in most eggs. In a clutch of three the markings are of deep chocolate-red, in one egg being most dense in a ring round the larger end, which is suffused with deep rosy pink. The number laid is nearly always three.

Twenty-four eggs average 29.4×20.6 mm. : maxima 30.7×21.0 and 28.9×21.7 mm. ; minima 26.3×21.4 and 30.5×18.1 mm.

We twice snared the male on the nest, so it must take a share in incubation, but, so far as I know, it takes no part in building-operations.

Family GRACULIDÆ

(GRACKLES).

(962) *Gracula indica* (Cuvier).

THE SOUTHERN GRACKLE.

Eulabes religiosa, Fauna B. I., Birds, 2nd ed. vol. iii, p. 17.
Gracula indica, ibid. vol. viii, p. 649.

The Southern Grackle is found in Ceylon and in western Southern India as far North as Goomsoor and the Northern Circars in the East and as far North as Kanara in the West.

The brothers Bourdillon record this Grackle as very common in Travancore from the foot-hills up to 4,000 feet, where they took a series of eggs during March, April and May. In Hume's 'Nests and Eggs' F. Bourdillon describes a "nest" as made "of straw and feathers" and again another one as of "grass, feathers and odds and ends in a hole in a tree." Later, Stewart found it extremely common round about the Venture Estates in Travancore, obtaining for me a fine series of eggs, the notes sent therewith being to the following effect:—"This Myna is extraordinarily common in some parts of Travancore from the Plains up to at least 4,000 feet. They breed in forest but they prefer dead trees in cultivation or in Tea estates or on the fringes of forest bordering the latter, while occasionally they nest in dead trees standing all alone in the open. They nearly always select a hole in dead trees rather than holes in living ones, and almost invariably such as are in the trunk of the tree rather than in branches. These holes may be anything from 10 to 40 feet up, but even those low down are often hard to get, as the trees are too rotten to climb and, if hewn down, the eggs are broken. There is no real nest. Sometimes there is a lot of miscellaneous rubbish collected, such as grass, leaves, bamboo spathes, dead wood etc., upon which the eggs are laid, but at other times there is nothing but a little touch-wood. The breeding season is from February to April, the earliest date being the 6th February and the latest the 28th April, but Bourdillon took one nest on the 27th May. In July some birds seem to breed again, and fresh eggs were taken on the 28th of that month."

The full clutch of eggs is three but, sometimes, two only are laid.

In Ceylon Phillips took three very much incubated eggs from a hole in a dead tree in a clearing on the 25th May. Legge, however, says that in the Pasdun Korale they were breeding in August.

When first laid the eggs are a beautiful bright blue in ground-colour, but they fade very quickly as they become incubated, or if

they are taken and exposed to the light. They are marked with scattered spots of varying shades of red or red-brown, in some cases very pale and indistinct, in others quite a deep rich chocolate and, in a few, almost black. In character they range from specks and spots to bold blotches, in most eggs scanty everywhere, but less so at the larger end. I have one set of three eggs of which two are normally though well blotched, while the third has just a few very large blotches of deep chocolate and chocolate-brown, running into one another at the larger end. In most clutches two eggs are alike and the third strikingly different, being much more, or much less, marked than the other two. The secondary markings, only noticeable in the more richly-marked eggs, are of lavender and pinky grey.

In shape the eggs vary from ordinary to long ovals, usually blunt but, sometimes, slightly pointed. The texture is rather coarse, but the shells stout and, when fresh, showing a fair gloss.

Forty eggs average 31.6×23.0 mm.: maxima 35.5×23.4 and 32.9×24.8 mm.; minima 30.8×23.4 and 30.9×21.8 mm.

Gracula religiosa.

THE MALAY GRACKLE.

(963) *Gracula religiosa religiosa* Linn.

THE MALAY GRACKLE.

Eulabes javana javana, Fauna B. I., Birds, 2nd ed. vol. iii, p. 18.
Gracula religiosa religiosa, ibid. vol. viii, p. 649.

Linnæus's name *religiosa*, being founded on Osbeck's *javana*, must accordingly be applied to the Javan bird.

It is found from South Tenasserim, through the Malay States, to Sumatra, Java and Borneo. There is little on record about its breeding, but it apparently differs in no way from that of the preceding bird. Hopwood found it breeding in Tenasserim, obtaining a single egg on the 5th April from a hole in a dead tree standing in cultivation. Moulton took two eggs on the 24th July on Mt. Kina Balu, in Borneo. Of these he writes:—"The nest was in a hole in a tree, a little rubbish only." Bingham took several clutches of a Grackle in Tenasserim, all from holes in rotten trees. These may have been either the present bird or *intermedia*, though probably the former. The few authentic eggs I have seen vary between 33.0×23.6 and 36.1×25.5 mm.

In colour, shape and texture they agree with the eggs of the preceding bird.

(964) *Gracula religiosa intermedia* Hay.

THE INDIAN GRACKLE.

Eulabes javana intermedia, Fauna B. I., Birds, 2nd ed. vol. iii, p. 19.
Gracula religiosa intermedia, ibid. vol. viii, p. 649.

This fine Grackle is found throughout the Lower Himalayas from Kuman and Nepal to Eastern Assam. It occurs in Burma as far South as Tenasserim, lat. 12° being a rough dividing line between the present bird and the preceding race. Eastwards it extends through Siam, Annam and Cochin-China. It is found in the foot-hills and adjacent plains, ascending the hills up to about 4,000 feet, and is common up to 2,500 feet.

The bird was very numerous in Assam, breeding in thin forest, open ground and in cultivation. Here I took many eggs, and my experiences cover all that can be said on the subject of their breeding. The favourite sites for nests were undoubtedly old, rotten trees standing in the jungle clearances, cut down and then burnt for rice cultivation, but they will breed in almost any kind of country if there are suitable trees available. I have found a nest in a rotten stump standing beside a track through the densest and dampest of evergreen forest, while I have also taken eggs from a hole in a solitary dead tree standing on a bank in a wide open area of plains rice-fields. In the North of Cachar they made their nests in holes of dead Oaks in park-land, and in Dibrugarh, as well as in the Surrma Valley, we often found their nest-holes in trees on the borders of Tea cultivation.

As is shown by those who corresponded with Hume, the finding of the nesting-tree by no means infers the getting of the eggs, for the trees selected are often so rotten that they are impossible to climb and equally impossible to cut down without smashing the eggs. If a convenient tree grows close to that occupied by the Mynas it is sometimes possible to fasten bamboos to it so that the nest-holes can be inspected, and it is by this means that most of my eggs were obtained. The birds breed year after year in the same tree, making fresh holes, as need arises, higher or lower up. In some trees one may see as many as a dozen large entrance-holes, and then each has to be examined for the nest, or nests, as sometimes two, or even three, pairs of Mynas will breed in the same tree. The nest-hole entrances are very large, neat and circular, from 4 to 6 inches in diameter, while the chamber varies. It does not seem to matter how big a natural hollow may be but, if too small, the birds enlarge it to suit their requirements, generally making it about 8 inches wide and up to a foot in depth. They prefer holes at a considerable height, very few will be seen as low as 15 feet, and I have seen others at 30 and 40 feet from the ground. There is really nothing one can call a nest; sometimes the birds collect a lot of

rubbish in the hollow such as dead leaves, grass, straw, twigs etc., upon which the eggs are laid but, at other times, they are merely deposited on the rotten wood lying at the bottom of the hole. In one nest I found nearly a bucketful of rubbish, including many feathers, had been collected, but this is quite exceptional.

When rubbish is collected, both birds work at the collection as well as in making the entrance-holes and enlarging the chamber. Both sexes have also been repeatedly caught inside the tree, but whether the male was incubating or not at the time it is impossible to say, for often both birds are inside at the same time and both parents and young all roost together in the hole.

They are early breeders. Cook took eggs in Kalaw on the 12th March; in Assam they breed principally in April, but I have seen young birds in that month. Some birds may breed twice, as Hopwood found fresh eggs in Arakan in June, and occasionally eggs may be taken in June and July in Assam.

The eggs number two or three only and I have never seen more, while Bingham also says that he only found two or three in a clutch in Tenasserim.

In colour, shape, etc. they are the same as those of *Gracula indica*, but are decidedly bigger.

Thirty eggs average 36.2×25.6 mm. : maxima 39.0×24.8 and 34.8×26.5 mm. ; minima 33.5×26.0 and 35.9×24.3 mm.

(965) *Gracula religiosa andamanensis* Tytler.

THE ANDAMAN GRACKLE.

Eulabes javana andamanensis, Fauna B. I., Birds, 2nd ed. vol. iii, p. 20.
Gracula religiosa andamanensis, *ibid.* vol. viii, p. 649.

This Grackle is confined to the Andamans and Nicobars, possibly excluding the South Andamans.

So far all that has been recorded on the breeding of this bird is Davison's note in 'Nests and Eggs,' in which he writes:—"In the Andamans they breed in April and May, building a nest of grass, dried leaves, etc., in holes in trees." He, however, failed to obtain eggs.

Osmaston found it very common round about Port Blair, where at one time there was a regular trade in these birds. He obtained one clutch of these eggs in a hole about 14 feet from the ground in Screw-Pine, and another in a hole in a dead tree at a height of 25 feet.

Anderson also obtained a single hard-set egg, with two young, in a similar place to the last.

The eggs are exactly like those of the other *Graculas*.

Seven average 35.4×25.4 mm. : maxima 36.9×25.3 and 34.3×26.0 mm. ; minima 34.3×26.0 and 35.1×24.3 mm.

(966) *Gracula ptilogenys* Blyth.

THE CEYLON GRACKLE.

Eulabes ptilogenys, Fauna B. I., Birds, 2nd ed. vol. iii, p. 21.
Gracula ptilogenys, *ibid.* vol. viii, p. 649.

This Grackle is confined to the well-wooded and forested mountains of Ceylon, where it occurs between 1,500 and 6,500 feet, descending to the plains West of Adam's Peak.

Jenkins obtained a very fine series of these birds' eggs for Stewart in March and April. The breeding-habits seem to be identically the same as those of the other species of Grackle, the birds breeding in holes in trees standing in forest. In most cases the holes seem to be natural, or half-made hollows with the entrances cut out by the birds themselves, and Stewart says that in some cases the branches and trunks of the trees are simply riddled by holes made year after year by the birds, who often seem to make a new entrance into the same hole.

Phillips found them breeding in April and again in August and one nest was taken from a "great natural hollow in a huge tree, very high up, growing in Cardamum jungle."

Legge found them breeding in June, July and August, and says that he found two eggs in a deserted nest-hole of a Barbet or Woodpecker, laid on the bare wood. This is the only instance I know in which deserted nest-holes of Barbets or Woodpeckers have been used, for, as a rule, the entrances are much too small.

Like other Grackles, sometimes the Ceylon birds make a nest of much rubbish of various kinds and sometimes lay the eggs on the bare wood. Lazarus told me that the birds were very fond of rotten Cocoanut-palms. The eggs are quite typical in every way.

Thirty-four eggs average 33.3×22.9 mm.; maxima 36.2×26.1 mm.; minima 30.9×23.6 and 32.3×21.6 mm.

Lamprocorax panayensis.

THE GLOSSY STARE.

(967) *Lamprocorax panayensis strigatus* (Horsf.).

THE JAVAN GLOSSY STARE.

Lamprocorax panayensis strigatus, Fauna B. I., Birds, 2nd ed. vol. iii, p. 22.

This race of Glossy Stare, which is possibly divisible into a Northern race (*L. p. irwini*) and a Southern one (*L. p. strigatus*), is found from Tenasserim, through the Malay States, to Java.

This Stare is a very familiar, confidential bird, breeding freely in buildings of all kinds, as well as in holes of trees, posts etc. round villages. Frequently they build in colonies, as noted by Darling in 'Nests and Eggs.' On the 22nd March he "noticed several pairs of *Calornis* [= *Lamprocorax*], with nests, in the big wooden bridge over the Kyouk-tyne Creek about $1\frac{1}{2}$ mile out of Tavoy, and also a great number of their nests in the old wooden posts of an old bridge further down the Creek."

Mackenzie and Hopwood found many colonies breeding round about Mergui. Some were breeding in the roof of the court-house in Mergui; another colony was breeding in the uprights of an old bridge, as well as in the angles of the buttresses; a third colony was breeding in a Toddy-palm, placing their nests in the junction of the leaves and the trunk, while Mackenzie found yet another colony of fifteen to twenty pairs on a Toddy-palm covered with ferns and parasites, the nests being placed between the roots of the ferns and the trunk of the tree. In Labuan, in North British Borneo, Jones (Commander K. H.) found a nest "in a hollow formed by the rotting of an upright in an old wooden pier, at least fifty yards from the shore."

Davison, in the Malay Peninsula, "found a few pairs frequenting some areca-palms at Laugat, and breeding in them, but only one nest contained eggs, three in number. The nest was a loose structure, almost globular, but open at the top, composed externally of very coarse dry grass (lallung or elephant-grass), and lined with green durian leaves cut into small bits. The nest was too lightly put together to preserve. This nest and several other empty ones were placed at the base of the leaves where they meet the trunk."

When breeding in holes in trees the birds always use ready-made holes and hollows and do not excavate these for themselves.

The breeding season is March, April, May and June, the greatest number of eggs being laid in April.

The full clutch of eggs is three or four and, in appearance, they are miniatures of those of the genus *Gracula*, perhaps with a rather paler ground-colour. This is a pale blue, with a few bold blotches and spots of deep red-brown, generally more numerous at the larger end and in two eggs, of one clutch of three, forming rough rings at the larger end. The secondary marks are of lavender and vary in size from pin-points to large smudges. One very handsome set has about half a dozen very large blotches of dark red-brown about the larger end with a few equally large ones of pinkish-lavender.

In shape the eggs are broad to rather long ovals, blunt at the larger end except in one pair.

Twenty eggs average 25.7×18.9 mm. : maxima 28.0×20.0 mm. ; minima 23.5×18.2 and 25.2×18.1 mm.

(968) *Lamprocorax panayensis tyleri* (Hume).

THE ANDAMAN GLOSSY STARE.

Lamprocorax panayensis tyleri, Fauna B. I., Birds, 2nd ed. vol. iii, p. 23.

Osmaston, Wickham and Anderson found this Stare extremely common round Port Blair, and it probably extends through most of the islands of the Andamans and Nicobars.

Davison first found them breeding in the latter islands, where they nested "in holes in trees and in the decayed stumps of old cocoanut-palms, apparently from December to March. In the Andamans it is much less common, and is only met with in pairs or small parties, frequenting the same situation as it does in the Nicobars."

Since Davison visited Port Blair they have evidently become much more numerous, and Osmaston took many nests in holes in Cocoanut-palms, padouk, and other trees, generally at a considerable height from the ground, whilst Wickham remarks that "they are often very high up."

The nests and the sites selected are similar to those of the preceding race, but they are never built in human habitations, bridges etc., always in trees, among which Cocoanut-palms seem to be the favourite.

The breeding season is from the middle of March to the third week of May, most birds laying in April.

The number of eggs laid is from two to four, the former probably being incomplete clutches.

The eggs contrast very strongly with those of the preceding bird. The ground varies from pure white to a skim-milk blue, in one clutch only the blue being at all strongly developed. The markings are specks and small blotches of reddish-brown, more numerous than in *L. p. strigatus* but never big blotches as in that bird's eggs, nor have I seen any which form rings or caps, though they are less sparse at the larger end than elsewhere.

In texture and shape they agree with those of the preceding bird.

Thirty eggs average 26.6×19.7 mm. : maxima 29.0×21.0 mm. ; minima 23.8×19.8 and 25.0×19.1 mm.

(969) *Lamprocorax panayensis affinis* (Blyth).

THE TIPPERAH GLOSSY STARE.

Lamprocorax panayensis affinis, Fauna B. I., Birds, 2nd ed. vol. iii, p. 24.

This Glossy Stare is found in Assam and the districts of Bengal North and East of the Bay of Bengal and thence East to the Shan Hills and Siam.

The only note on its breeding is that of Inglis as recorded in Hume's 'Nests and Eggs' (vol. i, p. 367):—"This Tree-Stare is rather rare. It breeds about April in holes of dead trees; when the young are able to fly it departs. It returns about the middle of February."

Saroglossa spiloptera.

THE SPOTTED-WINGED STARE.

(970) **Saroglossa spiloptera spiloptera** Vigors.

THE HIMALAYAN SPOTTED-WINGED STARE.

Saroglossa spiloptera spiloptera, Fauna B. I., Birds, 2nd ed. vol. iii, p. 25.

This Stare occurs from Dharmsala to Garhwal and, probably, Western Nepal.

Hutton found this bird breeding in the hills (? below Mussoorie etc.) up to some 6,000 feet and says that it was abundant at 5,200 feet. He very rightly points out its close resemblance to Starlings in habits, and writes:—"Like the two species of *Acridotheres*, it nidificates by itself in holes in trees, lining the cavity with bits of grass."

In 1898 Osmaston (B. B.) found a single nest in the Tons Valley, Garhwal, at about 4,000 feet, on the 12th May. This was just a nest of leaves and rubbish in a natural hole in a tree about 20 feet up.

Whymper took numerous nests below Naini Tal between 4,500 and 5,500 feet, while Jones took one in the Bhagat State, Simla Hills, at about 3,500 feet.

The birds select trees standing in cultivation, open wooded country or on the edge of forest. Most of Whymper's eggs were taken from natural hollows in Cotton-trees (*Bombax malabarica*) at heights between 20 and 30 feet from the ground, but Jones took eggs from a Woodpecker's nest-hole in a "Kyphul" tree at about 18 feet up. The nests seem to be always the same, just a handful of leaves, roots, etc. placed in a careless and shapeless pad at the bottom of the tree. Whymper, however, says that this Stare almost always continues to take green leaves into the hole after the eggs have been laid, just dropping them in over the eggs. On one occasion an examination of a nest failed to reveal the eggs but, on a second search being made, they were found buried deep below the leaves.

They seem to be difficult birds to locate when breeding and very little is known about their nesting-habits beyond what Whymper has told me. All the nests taken by him were between the 9th and 22nd May, and the only other date I have recorded is that of the one taken by Jones, which was found on the 24th May.

Philip Mackinnon, who took many nests and eggs of this species, which I cannot now trace, told me that he found them "breeding below Mussoorie freely from the end of April to the first week in June." This was at an elevation of 4,000 to 5,000 feet.

The birds lay three or four eggs, generally the latter. They vary in ground-colour from a very pale stone, which is rare, or very

pale blue to a fairly warm greenish-blue. The markings consist of small blotches, spots and specks of pale to rather deep reddish-brown, fairly numerous everywhere, but still more so at the larger end. There are also a fair number of inconspicuous secondary blotches of pale pinkish-brown and lavender.

In shape the eggs are long, rather pointed ovals, the texture fine but fragile and the surface glossless.

Thirty eggs average 25.4×18.0 mm. : maxima 28.5×19.7 mm. ; minima 23.7×17.7 and 25.3×16.2 mm.

(971) *Saroglossa spiloptera assamensis* Stuart Baker.

THE ASSAM SPOTTED-WINGED STARE.

Saroglossa spiloptera assamensis, Fauna B. I., Birds, 2nd ed. vol. iii, p. 26.

I found this richly-coloured Stare not rare in the Assam Hills between 1,500 and 3,000 feet, and it extends West to Nepal and East, through Northern Burma, to the Indo-Chinese countries.

It haunts thin deciduous forest, open, well-wooded country, or cultivation between dense forests. The only nests known are, apparently, those seen by myself, but the trees selected were so often absolutely unclimbable, both from the dangerous positions in which they grew and their very rotten condition, that I only once succeeded in getting a single egg. This nest was in a completely rotten branch of a Cotton-tree fully 50 feet from the ground. Fortunately, a strong branch crossed it close by and about two feet above the nest-hole, so that, on a small boy climbing up on to it, it bent down and enabled him to get his hand into the hole and take the only egg it contained. This was on the 23rd April, but young were hatched and being fed by their parents on that date, while other young were flying about before the end of May. Every other nest we have been able to examine was empty or contained young, these latter numbering three or four.

The single egg obtained is a rather bright specimen, but otherwise exactly like those of the preceding race. It measures 28.0×19.0 mm.

Family STURNIDÆ

(STARLINGS).

Sturnus vulgaris.

THE COMMON STARLING.

(973) *Sturnus vulgaris humii* Brooks.

THE HIMALAYAN STARLING.

Sturnus vulgaris humii, Fauna B. I., Birds, 2nd ed, vol. iii, p. 31.

The breeding area of the Himalayan race of the Common Starling extends from the Afghan and Baluchistan frontiers, throughout Kashmir, to the Simla States.

In Kashmir, where these birds are extremely numerous, its nests and eggs have been taken by every collector who has visited that State at all elevations between 5,000 and 8,000 feet, breeding in holes of trees and banks. It seems to have no choice as regards trees and very little as regards height of hole from the ground or description of hole. Rattray, Davidson and others told me that in every suitable tree, *i. e.*, one with hollows in it, in and around the villages, the Starlings occupied almost every available hole, whether natural or made by Woodpeckers or other birds. Holes high up in the larger branches and holes quite low down were all alike seized upon by the birds and, in addition to these, many bred in the burrows of Kingfishers, Bee-eaters etc. in the river-banks. In the latter cases, as well as sometimes when Woodpeckers' nesting-holes were used, the rightful owners were often evicted, though as a rule the Starlings were early on the scene and the holes they occupied were those of previous seasons.

The nest is nothing but an accumulation of all sorts of rubbish, straw, feathers, leaves, rags, grass etc., sometimes of considerable bulk, sometimes just a handful or so, upon which the eggs are deposited. Occasionally no nest at all is made and the eggs lie on the bare wood.

A very curious site is sometimes selected by this Starling for its nest. All round many of the lakes in Kashmir there is among the new and growing reeds a dense bed of dead reed-stems and leaves, often many inches deep; in this bed the birds either make burrows or usurp those made by other birds or animals, making a chamber therein at the end and laying their eggs on the bed of reed-chips. Betham seems to have been the first to notice this. He writes:—
“My shikari told me that these Starlings nested in holes in the

reed-beds and, on going round these in a boat, I certainly took eggs out of the passages made in the dense reeds and saw the birds coming out. Regular holes had been made at the ends of tunnels and in these they bred." Later other collectors confirmed Betham's observations and proved that he had not been gulled by his "shikari" placing eggs in the tunnels and then showing them to him.

In Kashmir the birds breed from the end of April to the middle of June, most birds laying in the latter half of May; in Peshawar Hume says that they breed in the end of April and in Kandahar even earlier still.

The eggs, which number four to seven, are like all other *Sturnus* eggs, a pale skim-milk blue, varying very little in depth of colour when fresh, but getting paler as incubation advances. I have one pure white clutch taken by Betham.

The texture is fine and close and the surface very glossy; in shape they are long ovals, often decidedly pointed at the smaller end.

The variation in size is very great and occurs even among eggs in the same clutch, but it is possible that the birds sometimes drop odd eggs in other birds' nests, especially when, as is often the case, two or three pairs are breeding in the same tree.

One hundred eggs average 29.7×20.5 mm.: maxima 35.0×21.4 mm.; minima 27.0×20.3 and 28.0×19.2 mm.

(975) *Sturnus vulgaris minor* Hume.

THE SMALL INDIAN STARLING.

Sturnus vulgaris minor, Fauna B. I., Birds, 2nd ed. vol. iii, p. 33.

So far as is known at present, this little Starling breeds only in Sind, where it is a resident bird.

There is still nothing more recorded about its breeding than the notes by Scrope Doig, some of the eggs taken by him being now in my collection. He writes:—"I first noticed this bird breeding on the 11th March; on the 10th, while marching, I saw some on the side of the road and shot one, and on opening it found it was breeding. Accordingly on the 11th, on searching, I found their breeding ground, which was in the middle of a Dhund thickly studded over with kundy trees, in the holes of which they had their nests. The nest lay at the bottom of the hole, which was generally some 18 inches deep, and consists of a few pieces of coarse sedge-grass and feathers of *T. leucocephalus* and *P. leucorodia* (which were breeding close by). Five was the maximum number of eggs, but four was the normal number in each nest.

"I afterwards found these birds breeding in great numbers all along the Eastern Narra wherever there were suitable trees (kundy trees). At the place I first found them in, the young are now many

of them fledged and flying about, while in other places they are just beginning to lay.

“The total length of their breeding ground in any district must be close on 200 miles, but entirely confined to the banks of the river. If you looked four miles from the river, one side or the other, you would not see one.”

Ticehurst adds (Ibis, 1922, p. 621):—“Other places where it has been met with are near Rohri, Manchar Lake, and the Bhorti forest by Mr. Bell, who also saw many in April in Tamarisk forest in the Jerruck Division, and says it is not uncommon in places along the banks of the Indus. It certainly occurs as far north as Toji near Kashmore.”

Eates, though he has come on the birds, has always failed to find eggs, being too early or too late at their breeding haunts, taking I understand, only one set.

The eggs are just miniatures of those of the Kashmir bird, perhaps rather paler as a series.

Twelve eggs average 26.1×19.6 mm.: maxima 27.9×20.3 mm.; minima 25.0×19.0 and 26.1×17.9 mm.

Sturnia malabarica.

THE GREY-HEADED MYNA.

(982) *Sturnia malabarica malabarica* (Gmelin).

THE INDIAN GREY-HEADED MYNA.

Sturnia malabarica malabarica, Fauna B. I., Birds, 2nd ed. vol. iii, p. 39.

This Myna is resident, and breeds, over a very wide area, practically the whole of India except North-West of a line drawn roughly from Mt. Abu to Dehra Dun. It has not been recorded as breeding South of Belgaum, though there is one specimen in the British Museum from as far South as Travancore, where the breeding race is *blythi*. East it extends as far as the Shan States, Yunnan and Cochin-China.

It breeds all over the plains and up to 7,000 feet in the hills, though it is rare above 4,000 feet. It occurs alike in open well-wooded country and in jungle and forest of almost any description, but very seldom in dense humid tree forest. In Assam its favourite haunts were clearings made for rice cultivation in forest, where it laid its eggs in holes in the trees, ringed and left standing until they rotted and fell. It was in such places that J. P. Mills obtained many nests in the Naga Hills and that I found most of those taken by me in the Cachar Hills.

It makes its nest, if such it can be called, in natural hollows in branches and trunks of trees, very rarely using the deserted nest-holes of Woodpeckers or Barbets. Generally they select

natural hollows with a small entrance already suitable to their needs, but at other times they will enlarge an entrance and even, according to Cripps, sometimes hollow out a hole for themselves in a branch or trunk which has become sufficiently rotten for them to peck away bits with ease.

Cripps also relates how a pair of these Mynas "widened out" an old nest-hole of the Coppersmith. He says that "during all May and June I watched these birds pecking away at the rotten wood and throwing the bits out. They generally used to engage in this work during the heat of the day."

They build at all heights from 5 to 30 feet from the ground but, more often, under than over 12 feet. Personally I have never seen anything worthy of the name of a nest, but Gammie describes one as "a shallow pad of fine twigs, with long strips of bark intermingled in the base of the structure and thinly lined with very fine grass-stems. The nest was about 4 inches in diameter and less than 1½ inches in height exteriorly, and interiorly the depression was perhaps half an inch deep."

In the many cases in which I have seen young or eggs in the hole there has been nothing more than a pad or bed of leaves, grass and miscellaneous articles, just thrown in anyhow into the bottom of the nest, with no attempt to form them into any shape or to give a lining softer than the rest of the pad, except for a few small green leaves which are often placed on the top of the other materials and are sometimes renewed when they dry up.

Wherever found this Myna breeds in May, June and July and no one has found eggs in other months. At the same time they must occasionally lay in April quite early, as I have seen fully-fledged young in the latter half of May.

Full clutches of eggs number four to five and I have never seen three incubated.

In colour they are a pale blue-green, or sea-green as Hume calls it, decidedly deeper than in the eggs of the true Starlings (*Sturnus*), but not so deep as in the eggs of the Laughing-Thrushes.

In shape they vary from short, broad ovals to rather long, pointed ovals; the texture is very fine and close, hard with a distinct gloss. Like all eggs of the *Sturnidæ*, they fade rather quickly if exposed.

Fifty eggs average 23·8×18·2 mm.: maxima 26·2×19·1 mm.; minima 21·1×18·0 and 22·3×17·0 mm.

(983) *Sturnia malabarica blythii* Jerdon.

THE SOUTHERN INDIAN GREY-HEADED MYNA.

Sturnia malabarica blythii, Fauna B. I., Birds, 2nd ed. vol. iii, p. 40.

As given in the 'Fauna,' the distribution of this race of the Grey-headed Myna is from the central districts of the Bombay

Presidency South to Travancore ; the Nilgiri, Palni and Wynaad Hills and East to Manjarabad in Mysore. Birds in Belgaum are intermediate between the Northern and Southern races.

Macpherson first obtained the eggs of this Myna in Mysore, and since then numerous nests have been taken in Kanara by Davidson and Bell, and others in Travancore by T. F. Bourdillon and Stewart. They breed from the level of the plains up to, apparently, some 2,500 feet but there is very little on record about its nidification.

Stewart and Bourdillon, from whom I have received eggs, describe its haunts and its nesting habits as identical with those of the preceding race but the breeding months seem to be March and April and, according to Macpherson, also May in Mysore.

Three eggs constitute the full clutch and I have not heard of a four. They are, of course, indistinguishable from those of the Northern race.

Fifteen eggs, all I have seen, average 23.8×17.9 mm. : maxima 24.9×18.0 and 23.5×18.2 mm. ; minima 22.8×18.2 and 24.0×17.5 mm.

(984) *Sturnia malabarica andamanensis* Tytler.

THE ANDAMAN WHITE-HEADED MYNA.

Sturnia malabarica andamanensis, Fauna B. I., Birds, 2nd ed. vol. iii, p. 41.

This race is confined to the Andamans.

Nests, eggs and young have been found by Osmaston, Anderson and Wickham in the Andamans round Port Blair, but the only note I can find is by the first-named. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xvii, p. 158, 1906) :—“ Very common both in forest and in the open. Gregarious. They breed towards the end of April and in May. The nest is placed in a hole in a tree at any height from 6 to 30 feet or more. The nest is composed of small pliant twigs with an occasional stiff feather, and is lined with small green leaves. The eggs, four in number, are of a uniform blue, about the same shade as, or slightly darker than, those of *Acridotheres tristis*.”

I have eggs in my series taken by the above three collectors dated from the 27th March (Wickham) to the 31st May (Osmaston). Four seems to be the almost invariable number laid.

In appearance they are exactly like the eggs of the other races of this species.

Forty eggs average 25.8×18.9 mm. : maxima 28.3×19.2 and 26.1×20.3 mm. ; minima 24.0×18.0 and 25.1×17.9 mm.

Both birds take part in preparing the nest and incubating the eggs, a character common to all the subspecies of *malabarica*.

(985) *Sturnia malabarica erythropygia* Blyth.

THE NICOBAR WHITE-HEADED MYNA.

Sturnia malabarica erythropygia, Fauna B. I., Birds, 2nd ed. vol. iii, p. 41.

This Myna is found only in Car Nicobar, where it breeds during April, laying four eggs, quite typical of the species.

The only ornithologist to take its eggs is Osmaston, who took three nests containing four, three and one egg respectively, all built in holes in Screw-Pines (*Pandanus* sp.), at heights between 9 and 12 feet from the ground. The nests are, apparently, exactly like those of the Andaman bird, and the Screw-Pines in which they were built were on the fringe of the forest along the beach.

Eight eggs average 26.2×18.7 mm.: maxima 32.3×18.8 and 27.0×19.7 mm.; minima 25.0×18.0 mm.

(987) *Sturnia malabarica nemoricola* Jerdon.

THE WHITE-WINGED MYNA.

Sturnia malabarica nemoricola, Fauna B. I., Birds, 2nd ed. vol. iii, p. 42.

This race of the Grey-headed Myna is found in the Kachin and Bhamo Hills, Shan States and through Central Burma and Siam about as far South as Muleyit in Tenasserim.

The breeding habits of this little Myna are quite typical of the species and it nests in both open country and in thin miscellaneous forest, in the plains and up to about 3,500 feet in the hills.

Oates records of this Myna, under the name of *S. malabarica*, that it "lays in Pegu in holes of trees at all heights from the ground above 20 feet. It selects a hole which is difficult of access, and I have only been able to take one nest. This was on the 13th May. The nest, a small pad of grass and leaves, contained three eggs which were slightly incubated."

Bingham took a single egg in Tenasserim on the 18th April from a nest made of grass and roots in a hole in a Zimbun-tree (*Dillenia pentagyna*).

Since then Macdonald Harington and Osmaston have taken a fair number of nests in Myingyan and the Bhamo Hills, containing from three to six eggs, in holes in trees standing both in thin forest and in cultivated country. Osmaston took one nest from a hole in a small tree at about 5 feet from the ground, but the others were all at greater heights. The nests are the usual pads of grass, straw, leaves and other materials and, like the other races, they often make use of green leaves as a sort of lining.

The breeding season, so far as is known at present, is April and May.

The eggs, three to six in number, cannot be distinguished from those of other races. Fourteen average 25.6×19.0 mm. : maxima 28.0×20.0 mm. ; minima 24.0×18.0 and 24.3×17.4 mm.

(989) *Ampeliceps coronatus* Blyth.

THE GOLD-CRESTED MYNA.

Ampeliceps coronatus, Fauna B. I., Birds, 2nd ed. vol. iii, p. 44.

This, the most handsome of all the Mynas, occurs from Assam and Eastern Bengal and the Indo-Chinese countries South to Trang in the Malay Peninsula. It probably occurs in the lower hills and broken country in the plains throughout Burma.

Very little is known about the breeding of this bird. Davison found one nest, which is recorded in Hume's 'Nests and Eggs,' as follows :—"On the 13th April, 1874, two miles from the town of Tavoy, on a low range of hills about 200 feet above sea-level, I found a nest of the Gold-crest Grackle. The nest was about 20 feet from the ground in a hole in a branch of a large tree. It was composed entirely of coarse dry grass, mixed with dried leaves, twigs and bits of bark, but contained no feathers, rags, or such substances as are usually found in the nests of other Mynas. The nest contained three young ones a day or two old."

In North Cachar it was a rare bird, but occurred between the level of the plains and some 3,000 feet, though seldom above 1,500. The only nest I ever found contained two young and an added egg, so fragile that, though I kept it for many years, it has now crumbled away. The nest consisted only of grass and a few supple twigs and had no green leaves for a lining ; it was placed in a hole in a tree-trunk about 15 feet from the ground, standing in thin forest. The nest was found on the 27th April.

A nest taken by Hopwood at Maungmagan, on the sea-coast of Tavoy, was in a hole in a Casuarina-tree about 40 feet from the ground and consisted merely of a few fine Casuarina-twigs. On the 30th April it contained three eggs, a rather paler blue than the eggs of *Sturnia malabarica*, with a more glossy shell.

They measure 28.8×20.0 , 26.0×21.0 and 24.8×20.0 mm. ; in shape they are broad, blunt ovals.

(991) *Temenuchus pagodarum* (Gmel.).

THE BLACK-HEADED MYNA.

Temenuchus pagodarum, Fauna B. I., Birds, 2nd ed. vol. iii, p. 47.

There is nothing to add to the distribution of this handsome little Myna as given in the 'Fauna' :—"The whole of India from

Ceylon to the Himalayas up to 4,000 or 5,000 feet and up to 8,000 feet in Afghanistan and Gilgit. To the East it is a straggler into Eastern Bengal and Assam and I have seen it both in Dacca and Gowhati." To the West it is not very rare in Sind, where Ticehurst saw a good many birds breeding in old nest-holes of the Sind Pied Woodpecker.

This little Myna is found everywhere except in the wettest forests and the most arid plains. It haunts towns, buildings and villages, open and cultivated country and, less often, thin forest.

Usually it makes its nest, such as it is, in holes in trees, which may be natural hollows or the old nesting-holes of Woodpeckers and Barbets. These may be at any height from the ground between 5 and 25 feet and even up to 40 feet, though such nests are exceptional. In different areas it seems to choose different trees. In Hansie Mr. W. Blewitt says that it selects "shishum, peepul, neem and siriss trees on the banks of the Hissar Canal. The holes were from 12 to 15 feet from the ground." From Delhi, however, Mr. F. R. Blewitt writes to say that they choose holes "in mango, tamarind and high-growing jamún trees."

In Behar, where the birds are very common, they seem to breed in any kind of tree and sometimes also resort to old factory walls and buildings, building in holes caused by bricks or stones falling out. Elsewhere, also, they have been recorded as making their nests in buildings.

Jerdon says that in Madras they normally breed in "large buildings, pagodas, houses etc." Butler found them breeding in the roofs of houses, under the tiles, at Belgaum, on one occasion three pairs of birds all breeding in the roof of the same house. Aitken found two pairs breeding in holes in the wall of the Medical College, Madras.

The nest is much the same as that of the Mynas of the genus *Sturnia*, but feathers often form part of the scanty materials at the bottom of the hole, and green leaves are never used as a lining.

The breeding season is from early May to the end of August but most eggs are undoubtedly laid between the 15th June and 15th July, after the first break of the rains, though many birds have two and a few have three broods in the season.

The eggs number three to five, generally four. They are pale blue in colour, paler than the eggs of *Sturnia*, but otherwise very like them in shape, texture, gloss etc.

One hundred eggs average 24.6×19.0 mm. : maxima 29.2 length and 20.3 mm. breadth (Hume) ; minima 21.3 length and 16.8 mm. breadth (Hume). I have seen no eggs nearly as big as Hume's maxima, but I have an egg measuring only 20.6×17.3 mm. and another 24.0×16.6 mm.

Both parents assist in making the nest and both incubate. Incubation is said to take fourteen days, but I have never been able to confirm this.

(992) *Gracupica nigricollis* (Payk.).

THE BLACK-NECKED MYNA.

Gracupica nigricollis, Fauna B. I., Birds, 2nd ed. vol. iii, p. 49.

Within Indian limits this Myna breeds in the Bhamo and Kachin Hills, Shan States, South to Tenasserim and outside the Indian Empire East to Southern China.

It breeds in open country from the plains up to about 5,000 feet and frequents the outskirts of villages and trees in open and cultivated country. Harington, Grant and others took their nests in the Bhamo Hills and Shan States, Williamson and Herbert found it very common in Siam, and Vaughan and Jones say that it is even more common in Southern China.

For breeding purposes the birds select large trees, sometimes one of a clump, sometimes a large single tree standing in cultivation and often on the outskirts of villages. The nests are placed on boughs at any height from 20 to 40 feet or more up, but nearly always at the ends of the larger boughs, where they cannot be easily got at. They are huge globular affairs. Herbert says "the nest is a very conspicuous object, composed chiefly of straw and grasses, and is generally built in a fork of a tree which has not very dense foliage, though a Palmyra-palm is sometimes chosen. The nesting season extends over several months from the commencement of the rains."

Williamson, *in epistola*, informs me that "these birds make huge untidy nests of grass, leaves, bamboo-leaves etc., which they construct on boughs, generally fairly high up and often near the end of the branch, so that they are hard to get at. Sometimes several pairs build in quite close proximity to one another, often several on the same tree. It is a common bird and the huge nests cannot be passed over."

Harington gives a similar description of the nest and adds "feathers and all sorts of rubbish" to the materials noted as having been used. He once found seven nests on the same tree; while on other occasions he found two or more built together.

A most interesting account of the breeding in holes in river-banks of this and the Collared Myna is given by Harington, and will be found on p. 533, dealing with the nidification of this latter bird.

In Burma the breeding season is April, May and occasionally June, while Grant took one nest with eggs on the 1st August.

In Siam Williamson and Herbert took eggs on all dates between the 22nd March and the end of June, while in China the birds seem to lay from March to August.

The number of eggs laid in a clutch varies from three to five.

In colour they are a deep turquoise-blue, rarely with a faint shade of green. The texture varies considerably; some eggs are

excessively smooth and glossy, other eggs have many tiny corrugations, but in all there is some gloss and the shell is hard and close.

In shape the eggs are usually rather long ovals, sometimes distinctly pointed.

I have one clutch of eggs taken by Vaughan and Jones which has one egg quite freely marked at the larger end with blackish and lavender blotches, two of the other three having a few black spots. A single egg taken by the same collectors is pure white.

Seventy-five eggs average 32.4×22.8 mm. : maxima 37.4×24.5 and 33.0×25.0 mm. ; minima 29.4×21.7 and 30.6×21.5 mm.

(993) *Gracupica burmanica* (Jerdon).

THE BURMESE RED-BILLED MYNA.

Gracupica burmanica, Fauna B. I., Birds, 2nd ed. vol. iii, p. 50.

This Red-billed Myna is found over practically the whole of Burma from Mt. Victoria in the Chin Hills, the Bhamo, Kachin Hills and Shan States to Tenasserim.

In Hume's time the breeding of this very common Myna seems to have been unknown but, since then, Harington, Grant, Mackenzie and many others have taken their nests. Harington, when sending me a series of eggs from Maymyo, wrote :—" *G. burmanica* is the common Myna of Upper Burma in the jungles. It breeds both in holes in trees, in *zyats* and houses. I found a pair breeding in the verandah of the Kalawa Dak-bungalow in May, and outside the nest was the remains of the former tenant, suspended by the leg by a piece of string which had been used in the construction of the original nest. It breeds probably from April to June."

Mackenzie took a fine series of its eggs in Maymyo, the Upper Chindwin and in the Lower Chindwin around Pakokku.

The nests are generally built in holes in trees but many birds build in the temples and pagodas, while others habitually breed in houses, both deserted and occupied. Any hole seems to suffice, a brick dislodged from a wall—a snug corner under the eaves or between the rafters—while in trees natural hollows and the nest-holes of Barbets and Woodpeckers are used, the latter being generally enlarged to suit the Myna's bigger body. In some trees two or more birds may take up their abode and they apparently breed year after year in the same tree or building. The nest is merely an assemblage of all kinds of rubbish—grass, roots, leaves, rags and odd scraps pilfered from their human landlords. These are placed anyhow in the holes and there seems to be no attempt to form a definite lining of softer material, though there may be some feathers lying on the top of the others.

The breeding season is April and May and, less often, June.

The full clutch of eggs laid is four to five, while Mackenzie once obtained six.

In colour they are a bright turquoise-blue and vary very little in depth of colour. The texture is fine, hard and close and the eggs show none of the corrugations common on the surface of some Mynas' eggs. In shape they are generally short, blunt ovals, rarely rather longer and more pointed.

Seventy eggs average 27.1×20.6 mm. : maxima 29.5×21.6 and 29.1×23.0 mm. ; minima 23.6×19.9 and 26.8×18.9 mm.

Gracupica leucocephala.

THE SIAM RED-BILLED MYNA.

(994) **Gracupica leucocephala leucocephala** (Gigl. & Salv.).

THE SIAM RED-BILLED MYNA.

Gracupica leucocephala leucocephala, Fauna B. I., Birds, 2nd ed. vol. iii, p. 51.

This Myna is only found within our limits in Tenasserim, extending thence into Cochin-China, Siam and Northern Malay Peninsula.

The only nests and eggs I have seen of this bird were two clutches of two eggs each and one nest sent with a parent bird from "near Perak."

The nest, when it arrived, was a shapeless mass of grass, feathers, leaves and rubbish, but was said to have been "ball-shaped and placed in a natural hollow in a tree," while the birds were said to have been breeding "in company." The bird was undoubtedly of this species and the eggs equally undoubtedly Mynas' eggs, and there can be no suspicion as to their being genuine.

They are blue eggs, the same in all respects as those of the preceding bird, and the four eggs range in measurements between 25.0×19.5 and 26.9×21.0 mm.

They were taken on the 25th April and 19th May.

Acridotheres tristis.

THE COMMON MYNA.

(996) **Acridotheres tristis tristis** (Linn.).

THE COMMON INDIAN MYNA.

Acridotheres tristis tristis, Fauna B. I., Birds, 2nd ed. vol. iii, p. 53.

As recorded in the 'Fauna,' the breeding range of this Myna is the whole of the Indian Empire from the extreme South up to about 8,000 feet in the Himalayas ; all Burma South to Tavoy

and East to Siam, where of recent years it has become much more numerous. It occurs in Baluchistan and Afghanistan. Birds from extreme South Travancore are dark and approach the Ceylon form, *melanosternus*.

This Myna, which shares with the Sparrow and the House-Crow, the doubtful honour of being the most familiar of Indian birds, breeds in almost every building, new or old, in cities, towns and villages. Any hole, any corner in among the rafters, or in between the ceilings and the roof is good enough for the Myna to exercise her ingenuity in making the greatest possible mess in the shortest possible time. Originally this Myna was not a bird of high elevations and, probably, seldom bred much over 2,000 feet, but now he has followed mankind into all the hill-stations and is as ubiquitous there as in the plains. Buildings, however, are not essential for him and often the nest is built in holes in trees, and I have even found nests in holes in banks made by other birds or animals, while nests in the walls of wells are quite common. Finally, if there are no holes immediately available the Myna sometimes builds a nest in the branches of trees.

When placed in a hole, wherever this may be, the nest is merely an accumulation of grass, feathers, leaves, rags and any kind of rubbish which may be handy, though scraps of cast snake-skin seem to have a special attraction. The nests are very bulky, often consisting of several handfuls of rubbish, generally with a sort of lining of feathers and other soft materials. The birds stick very closely to their breeding places and nest year after year in the same position, often building two and, sometimes, even three nests and rearing three broods in the same year, Mr. Benjamin Aitken mentions a pair of Mynas which made their nest in a hole in some verandah-matting of his house, rearing six broods in three years and, when their nesting-site was examined, seven nests were found to have been built, one on top of the other, forming a pile of rubbish nearly two feet deep.

When they make their nests on branches of trees they are rather better built. All those I have seen myself were domed, great balls of grass, leaves and miscellaneous scraps, with dense linings of feathers. Other writers, however, speak of cup-shaped nests. Tickell and Hume both saw such nests; Adams "saw a pair of this species building a large cup-shaped nest in a babool-tree"; while Marshall (G. F. L.) says that this Myna "frequently lays in cup-shaped nests of sticks placed in trees, like small Crows' nests."

Again, the last writer on one occasion found five of these cup-shaped nests in a compound densely planted with *sheeshum* trees, the nests being about 20 feet from the ground, at the tops of the trees.

Bingham also once found a nest built in a dense creeper.

Where the rains are regular in starting and stopping this Myna breeds almost entirely in the earlier rainy months of June, July and August, though even in these provinces nests may be found both earlier and later. In Assam, where there are earlier rains,

I have found eggs from March to September, while in the Andamans Wimberly says they breed all the year round.

Both birds assist in building the nest, which takes anything from five to fifteen days to collect, and both birds share in the duties of incubation, though many of Hume's correspondents consider the birds are very careless in the matter of sitting on their eggs, leaving them to be incubated—it must be admitted quite successfully—by the heat of the sun.

The courting display of this bird, like that of all Mynas, is very primitive. The male bird merely walks up and down, the wings slightly depressed and quivering, a few bobs made every now and then, accompanied by a very raucous song made with puffed-out throat, while very often a straw or feather is held in the bill most of the time.

Mynas are excellent parents and very plucky in defence of their young.

The eggs number three to six, most often four or five, in a full clutch. I have often seen three incubated and, on the other hand, six eggs have been taken from the same nest by Aitken (Akola), Betham (Peshawar) and myself (Silchar).

In colour the eggs are a beautiful turquoise-blue, rather paler than in the eggs of the genus *Gracupica*, and with a very smooth, fairly glossy surface, rarely showing any corrugations. An unusual clutch of three eggs taken by Dodsworth in Simla is a beautiful pea-green. In shape the eggs are generally rather long ovals.

One hundred eggs average 30.8×21.9 mm. : maxima 35.0×22.3 and 33.0×23.2 mm. ; minima 27.6×19.2 mm.

(997) *Acridotheres tristis melanosternus* Legge.

THE COMMON CEYLON MYNA.

Acridotheres tristis melanosternus, Fauna B. I., Birds, 2nd ed. vol. iii, p. 55.

This race of the Common Myna is confined to Ceylon where, though not so ubiquitous everywhere as the Indian bird, it is still very common at all heights up to 4,000 feet or more and throughout the plains.

Except that it never makes a nest, either domed or cup-shaped, in trees, it agrees entirely with the preceding bird in all its breeding habits. Its favourite site for its nest is a deserted nesting-hole of a Woodpecker or Barbet in a Cocoanut-palm.

According to Wait the breeding season extends from March to August, but he has himself taken eggs up to November and, probably, odd nests with eggs may be taken any month of the year.

This Myna only lays three or four eggs, though Wait has once taken five and two only are sometimes incubated.

They are exactly like those of the Indian bird, fifty eggs averaging 29.7×21.5 mm. : maxima 32.9×21.7 and 32.2×22.6 mm. ; minima 28.0×20.9 mm.

(998) *Acridotheres ginginianus* (Lath.).¹

THE BANK MYNA.

Acridotheres ginginianus, Fauna B. I., Birds, 2nd ed. vol. iii, p. 55.

The Bank Myna occurs all across Northern India from Sind and Mussoorie in the Himalayas to Eastern Bengal and Assam. On the West of India it breeds as far South as Rajputana (Barnes), practically throughout Oudh, and commonly in Bengal and Behar, South to Orissa.

This is an extraordinarily common bird, building in colonies, in some cases of great size, in the banks of rivers, earthen cliffs, borrow pits beside roads and in the walls of wells. Hume's description of one of their breeding places would do equally well for most. He writes :—“ We found that a colony of Bank Mynas had taken possession of some fresh excavations on the banks of a small stream. The excavation was about 10 feet deep, and in its face, in a band of softer and sandier earth than the rest of the bank, about a foot below the surface of the ground, these Mynas had bored innumerable holes. On digging into the bank we found the holes all connected with each other, in one place or another, so that apparently every Myna could get into or out from its nest by any one of the hundred odd holes in the face of the excavation. The holes averaged about 3 inches in diameter, and twisted and turned up and down, left and right, in a wonderful manner; each hole terminated in a well-marked bulb, or egg-chamber, situated from 4 to 7 feet from the face of the bank. The egg-chamber was floored with a loose nest of grass, a few feathers and, in many instances, scraps of snake-skins.

“ I noticed the tops of all the mud pillars (which had been left standing to measure the work by), had been drilled through and through by the Mynas, obviously not for nesting purposes, but either for amusement or to afford pleasant sitting-places for the birds not engaged in incubation. Whilst we were robbing the nests, the whole colony kept screaming and flying in and out of their holes in the various pillar-tops in a very remarkable manner, and it may be that they thought to lead us away from their eggs and induce a belief that their real homes were in the pillar-tops.”

A colony very similar to the above bred in some deep borrow pits not far from my bungalow in Nadia, which I was able to frequently visit and watch. I then noticed that the holes in the pillar-tops were nearly all made by the male birds after the hens had begun to incubate, though twice I took nests from these holes, visible from the entrance on either side. The depth of the nest-holes varies according to the soil in which they are made. In very soft soil they may run to as much as 7 feet, but in the sandy banks of the Brahmapoetra, where I found a mixed colony of Sand-Martins and Mynas breeding together, the nests were only 3 or 4 feet deep and easily reached by hand. The nest-chambers were about

a foot long by 8 or 9 inches wide and the same high. I have found them breeding in rather hard soil in borrow pits, making tunnels, two feet or under in depth, which were never joined together, each pair of birds having their own exit, as, indeed, had the colony on the Brahma-putra.

The nest is always the usual pile of rubbish and very often contains cast snake-skins.

The breeding season may be said to be from April to July but the great majority of birds breed in May and June. Where, however, they nest in banks likely to be flooded in the first rains they lay in early April and the young are fledged and away before the rivers rise in the end of June.

In Sind Bell found them breeding in March and April.

This Myna lays three to five eggs or, in Sind, four to six, which only differ from those of the Common Myna in being smaller and, perhaps, on an average, a little darker and slightly more glossy.

Sixty eggs average 27.5×20.3 mm. : maxima 29.9×20.0 and 27.4×22.0 mm. ; minima 24.5×19.8 and 29.3×19.6 mm.

Æthiopsar fuscus.

THE JUNGLE MYNA.

(999) *Æthiopsar fuscus fuscus* (Wagl.).

THE INDIAN JUNGLE MYNA.

Æthiopsar fuscus fuscus, Fauna B. I., Birds, 2nd ed. vol. iii, p. 57.

The Jungle Myna is found over practically the whole of India and Burma. It is not found in Sind, Rajputana, or the drier portions of the North-West Province and it does not occur in Ceylon. In Burma it is a resident bird at least as far South as the North of Tenasserim.

Although this Myna may be found round about villages and towns, even breeding sometimes in ruins, stables and deserted buildings, it is far more a forest and jungle bird than is the Common Myna.

In Assam we found it nesting far from any human habitations and quite common in deserted cultivation clearings, bamboo- and scrub-jungle and thin forest. On the rare occasions we found it in really deep evergreen forest it was on the outskirts and never far inside. It breeds throughout the plains and in the Himalayas up to some 5,000 feet, whilst in the Nilgiris and hills of Southern India it ascends higher still.

As a rule it makes its nest in natural hollows in the branches and trunks of trees, less often occupying deserted nest-holes of Woodpeckers and Barbets. The tree may be of any kind and, except that Hutton says in Mussoorie they prefer large Oaks, no one has detected any preference shown by this Myna for any special

tree. So, too, they breed at any height from the ground. Marshall took their eggs from holes in rotten trees between 2 and 8 feet and, perhaps, as a rule, they select sites under 20 feet from the ground. I have, however, taken a nest at over 40 feet up in a Cotton-tree.

In the Nilgiris Miss Cockburn found them breeding in holes in trees and in old thatched houses, while one pair bred in her Pigeon-cote, and Wait obtained nests in the same hills from "chimneys, hollow trees, holes in stone walls etc."

Marshall, Rattray and Buchanan only found them breeding in trees about Murree, but at Mussoorie Rattray says that they were breeding in the thatched roofs of the huts. Scully (Nepal), Vidal and Davidson (Bombay Pres.), Taylor and Bourdillon (Mysore and Travancore), and Cripps (Furreedpore) all mention trees, and trees only, as the nesting-sites occupied by the Jungle Myna.

The nest is a handful, or it may be two or three handfuls, of all kinds of materials, just like that of the Common Myna, but moss is often used in some quantities and, as a rule, there is a more definite lining of fairly soft feathers.

Hume says that they breed from March to July, but I think the great majority of birds lay in May and June and I do not think many pairs have more than one brood in the year.

The full clutch of eggs varies from four to six, occasionally three only being laid.

In shape, colour and texture they cannot be distinguished from the eggs of the *tristis* group, nor can I see—as Hume believed to be the case—that they seem shorter and broader. I have one clutch of three taken by Dodsworth at Jutogh which has two eggs coloured pea-green, an abnormal variation found occasionally in the eggs of most species which are normally blue.

One hundred eggs average 28.9×20.9 mm. : maxima 32.8×21.3 and 30.0×23.0 mm. ; minima 26.0×19.8 and 26.8×19.6 mm.

(1000) *Æthiopsar fuscus torquatus* Davison.

THE MALAY JUNGLE MYNA.

Æthiopsar fuscus torquatus, Fauna B. I., Birds, 2nd ed. vol. iii, p. 58.

In the 'Fauna' I restricted the breeding range of this race of Jungle Myna to South of the latitude of Rangoon. This was, of course, quite an arbitrary line, and with fresh breeding material for examination the range may have to be extended North.

In its breeding habits it differs in no way from the preceding subspecies, but the only eggs I have, referable beyond doubt to the present one, are two clutches taken by J. C. Hopwood from nests in hollow trees in Tavoy, South Tenasserim. The two clutches are of five and four eggs, and these nine average 28.5×20.7 mm. : maxima 32.0×21.0 mm. ; minima 26.1×20.4 mm.

They were taken on the 19th and 30th April.

Æthiopsar grandis.

THE YELLOW-BILLED JUNGLE MYNA.

(1001) *Æthiopsar grandis grandis* (Moore).

THE SIAMESE YELLOW-BILLED JUNGLE MYNA.

Æthiopsar grandis grandis, Fauna B. I., Birds, 2nd ed. vol. iii, p. 59.

This Jungle Myna occurs in South-West Burma, Eastern Burma as far North as Karenni and the South of the Southern Shan States and South to Mergui; East of Burma it is found in Siam and Cochin-China and has been recorded from Yunnan, where we would have expected the next race, *infuscatus*.

Although this bird is common in Siam, Herbert's notes upon its breeding are, as he himself says, unfortunately brief. All he records is the following (Journ. Siam Nat. Hist. Soc. vol. vi, p. 112, 1923):—"This Myna is found in fair numbers in the paddy fields, but is not nearly so common as *G. nigricollis* or *S. superciliaris*. The five clutches in my collection come from Ayuthia, Samkok, Hua Thakae and the Tachin side, and were laid in June and July. The bird is said to lay only in the branch-holes of trees but I found one pair at Sapatoom with a nest in a Palmyra Palm."

Later Herbert took another clutch on the 12th May.

Beyond the above I can find no notes on the breeding of this bird. The nests found by Herbert contained three or four eggs, generally the former, and these in appearance are just like other Mynas' eggs, but vary in depth of colour more than most. Two clutches are quite pale, the others being a rather deep blue; the texture is very smooth, fairly glossed and with no corrugations; in shape they vary from short, broad ovals to a long, pointed oval.

Twenty eggs average 29.4×20.9 mm.: maxima 31.1×21.4 and 30.7×21.9 mm.; minima 26.8×21.0 and 29.8×19.8 mm.

(1002) *Æthiopsar grandis infuscatus* Stuart Baker.

THE ASSAM YELLOW-BILLED JUNGLE MYNA.

Æthiopsar grandis infuscatus, Fauna B. I., Birds, 2nd ed. vol. iii, p. 59.

This Northern race of *grandis* is found over the whole of Northern Burma, Shan States, Manipur, Eastern Assam and Assam South of the Brahmapootra.

An excellent account by Harington of the breeding of this Myna and of the Collared Myna gives all the information available. He writes (Journ. Bomb. Nat. Hist. Soc. vol. xvi, p. 166, 1905):—"The distribution of these two Mynas in Burma seems to be very well defined, both being common in the Shan States, again appearing in the Bhamo District, and from there across into the Myitkyina

and Upper Chindwin Districts. They are essentially birds of a damp climate, preferring fairly open country with large expanses of 'Kine' or Elephant grass. In the Upper Chindwin *Æ. grandis* appears as low down as Mingin and gets commoner the higher one goes up the river; whilst *Æ. albicinctus* does not appear until about 40 miles above Kindat; from there it is quite as plentiful as *Æ. grandis*.

"Both seem to prefer nesting in colonies of their own species or along with other mynas of different kinds; and any old tree, especially if it be a *Ficus* of sorts, will have all the available holes filled with nests of these two mynas. The peculiarity of birds nesting together was very marked in a tree at Kindat, in which the following birds were found nesting in the month of May: the Siamese myna, common house-myna, white-winged myna, common pied myna, red turtle-dove, Burmese red-vented bulbul and king-crow; and a month before from the same tree a friend of mine took eggs of the 'Blue-Jay' and *Palæornis rosa*. Another tree at Tamante was inhabited by the Siamese, collared and grey-headed mynas and one nest of the lineated barbet. The holes taken up by the first three seemed all to have been made by barbets or woodpeckers; one huge decayed branch, which was unsafe to climb, was full of mynas' nests, the birds going in and out like pigeons from a dove-cote.

"The strangest nesting site of *Æ. grandis* and *Æ. albicinctus* was finding these nests in holes along the banks of the river. The Chindwin above Kindat flows through fairly level country and has steep sandy banks forming ideal nesting places for sand-martins and the blue-tailed bee-eater, which were nesting in thousands. While going up the river by launch we were surprised to see mynas in numbers flying in and out of holes in one bank. On getting out our glasses we found them to be of the above two kinds. This was in the latter half of May and was rather late, as the majority had hatched out or had hard-set eggs. A fortnight or so earlier one could have got eggs by the hat-full, as they were nesting in colonies after the manner of bee-eaters. Whether the holes were originally made by other birds and then enlarged by the mynas or dug out entirely by them would be hard to say, as in many cases the mynas were nesting in the same colony as the bee-eaters, but others I think must have been made solely by the mynas, as they ran from only one foot to two or three feet in depth. Both kinds of mynas were found nesting together, but generally managed to keep apart. All the nests were of the usual myna type—made of grass, rags, feathers etc. The extraordinary thing about the nests was, however, that every nest we pulled out had pieces of snake-skin; we must have examined some dozen nests or more and found it the rule without exception, so that it was not the weird fancy of a few birds, but the fashion or protective instinct of all.

“The eggs are of the regular myna-blue colour, the Siamese mynas as a rule laying rather long pointed eggs, and the collared mynas slightly smaller and rounder ones; *Æ. grandis* laying in clutches of three to four, rarely two, and *Æ. albicinctus* generally four, and very rarely five.

“We also found *Æ. grandis* nesting in the roofs of houses and in Hpongi-choungs.”

Mackenzie and Hopwood also obtained many nests on the Chindwin as far South as Pakokku on the 13th May, most eggs being then hard set. Most birds apparently lay in April and keep on during the whole of May in gradually lessening numbers. Mackenzie obtained several clutches of five eggs.

The eggs are quite typical Mynas' eggs but, curiously enough, as a series are decidedly paler than those of the typical race. They vary very greatly in size.

Thirty eggs average 29.2×20.7 mm.: maxima 32.0×20.1 and 30.0×23.0 mm.; minima 25.4×19.0 mm.

(1003) *Æthiopsar albocinctus* Godw.-Aust. & Wald.

THE COLLARED MYNA.

Æthiopsar albocinctus, Fauna B. I., Birds, 2nd ed. vol. iii, p. 60.

The Collared Myna is found over the whole of Northern Burma as far South as the Southern Shan States. West it extends to Manipur, and I obtained a single specimen in North Cachar.

It breeds up to an elevation of some 5,000 feet.

In the description of the breeding of *Æ. g. infuscatius* Harington's account of the nidification of the present Myna is also given and should be referred to.

The habits of the two birds seem to be identical; both nest either in holes in the sandy banks of rivers or in holes in trees; both breed in large colonies and, in a letter to me, Harington mentions “thousands of birds” in some of the river colonies. Both make use of the nesting-holes of Bee-eaters as an alternative — ²⁴holes dug in the banks by themselves. Both make the same ²⁴ - alby nests of rubbish and, finally, both have the same curious ²⁴ - Leas for cast snake-skins as an addition to their nests.

In the article referred to Harington says that he obtained this bird some 60 miles higher up the river than where he saw the first *grandis*. Later, however, he took the eggs as far South as Monywa in the Lower Chindwin. They breed from the middle of April, when Venning found eggs near Fort Stedman, to the end of June, the great majority of eggs being laid in May.

The normal clutch is four, sometimes three, while Harington found a few fives also.

The eggs are like those of the *grandis* group, perhaps, on an average, not quite so deep in colour. A few eggs are spotted sparsely with

light brown. Harington had a clutch of four, all so spotted, in his collection, but in most instances only one or two in a clutch are marked. Spotted eggs may occur about once in every thirty or forty eggs.

Thirty eggs average 27.4×20.9 mm. : maxima 29.6×21.0 and 28.5×22.0 mm. ; minima 26.1×20.0 mm.

Sturnopastor contra.

THE PIED MYNA.

(1004) **Sturnopastor contra contra** (Linn.).

THE ASSAM PIED MYNA.

Sturnopastor capensis capensis, Fauna B. I., Birds, 2nd ed. vol. iii, p. 62.
Sturnopastor contra contra, *ibid.* vol. viii, p. 650.

The Assam Pied Myna is resident, and breeds, in the Bhutan Duars, Assam, Eastern Bengal, Chittagong Hill-Tracts, Chin Hills and Northern Arakan. It is essentially a plains bird, wandering into the hills up to about 2,000 or 2,500 feet.

It nests in trees in gardens, villages and in and all round towns, as well as in single trees standing in cultivated land. I have seen a small colony of half a dozen nests in a group of trees standing on a mound in the middle of rice cultivation, and I noticed them often breeding in the Sunderbunds close to the scattered huts of the fishermen on small patches of higher land among a vast waste of swamp and lake. I have never seen the nests very far from human habitations but, occasionally, they are said to build in thin forest on the outskirts of cultivation, though I have never seen such nests.

As a rule they breed singly but, at times, a number breed in company. As already noted, I saw half a dozen nests in one tree in Cachar but, in Dibrugarh, at least twenty pairs nested in some bamboo-clumps near the Tinsukia railway Station, sharing their nesting-site with several species of *Myiophobus* and with some Cormorants.

Inglis also writes that "about 100 nests may often be seen together in Cachar, where it prefers nesting on trees in the open fields."

The nest is a very large, very untidy ball of grass, roots, twigs, leaves and miscellaneous bits of all kinds, but often well lined with a mass of feathers. The nests built in the colony at Tinsukia were made principally of bamboo-leaves, held in place by long roots and reed-stems and densely lined with pure white feathers from the Egrets sharing their bamboo-clumps. The nests vary a good deal in size but few are under a foot in both height and width, while

(1006) *Sturnopastor contra superciliaris* Blyth.

THE BURMESE PIED MYNA.

Sturnopastor capensis superciliaris, Fauna B. I., Birds, 2nd ed. vol. iii, p. 64.

Sturnopastor contra superciliaris, ibid. vol. viii, p. 651.

The Burmese Pied Myna is found over the whole of Burma except in the Chin Hills and the North of Arakan. In the extreme East of Tenasserim the birds I have seen appear to be of the next race, *floweri*.

In a letter to me Harington says he has never found this Myna breeding in forests of any kind but, with that exception, its nesting habits are exactly the same as those of the Indian bird.

It is an earlier breeder, however, than either of the Indian races. Mackenzie and Hopwood, who obtained nests in the Upper and Lower Chindwin and South in Pegu and Tenasserim, found the great majority of eggs laid in April, a few being laid in the end of March. Unlike most Burmese birds, they lay quite as big clutches as their Indian relations. Five is the number most often laid but sixes are not uncommon, though four only also sometimes forms a complete clutch.

Forty eggs average 26.8×19.8 mm. : maxima 29.0×21.3 mm. ; minima 24.3×20.0 and 25.9×19.1 mm.

(1007) *Sturnopastor contra floweri* Sharpe.

THE SIAMESE PIED MYNA.

Sturnopastor capensis floweri, Fauna B. I., Birds, 2nd ed. vol. iii, p. 64.

Sturnopastor contra floweri, ibid. vol. viii, p. 651.

This Pied Myna is found over the whole of Southern and Central Siam and in the extreme East of Tenasserim. I have no records of its breeding in Burma, though it must do so, as it is resident wherever found.

Williamson and Herbert found *floweri* breeding freely as far North as Samkok, but in the extreme North of Siam Gyldenstolpe says that the breeding bird is *superciliaris*.

Like our Indian bird, it breeds sometimes in colonies, and Herbert found it breeding in the company of *Gracupica nigricollis*. The nesting season, according to him, is from April to July, but I have eggs in my collection taken by him in after years as early as the 23rd February, and he seems to have taken many nests with eggs in February and March.

They are, of course, indistinguishable from those of the other races.

Twenty eggs average 27.1×20.2 mm. : maxima 29.5×19.8 and 28.0×21.0 mm. ; minima 25.8×20.6 and 28.2×19.2 mm.

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