





CHALCOPARIA SINGALENSIS SINGALENSIS



DICÆUM CRUENTATUM SIAMENSIS.

NESTS AND EGGS OF BIRDS IN CENTRAL SIAM.

BY E. G. HERBERT, F. Z. S., M. B. O. U.

WITH PLATES 18 AND 19.

(continued from p. 222).

39. *Chalcoparia singalensis singalensis*.

THE RUBY CHEEK.

Vernacular "Nok ka-tate."

PLATE 18.

The Ruby Cheek is very similar in plumage to the Sunbirds, although it is rather smaller and even more beautiful, but it is not common either in the district or in Bangkok, and is therefore but little known. I found young birds which were able to fly being fed by the parents in Bangkok and at Samkok, and also at Pakret; but it was two years before I obtained any eggs.

The nest is generally built in a lime bush, at about 4 to 8 feet from the ground and, when hanging beneath the leaves at the end of a branch, is not easily recognized as a nest; in the photograph some of the leaves have been removed or turned back in order to show the nest more clearly. It is of quite a distinctive type, and the six nests that I have seen have all been exactly the same, so there is no mistaking the identity. The portico is a very prominent feature and is almost as large as the egg-chamber. It will be seen on the right hand side in the illustration, with a collection of coarse fibre hanging down between the two. The nesting material is fibre of varying degrees of coarseness, that of the interior being comparatively fine, whilst that of the outside presents quite a rugged appearance. Cobwebs are extensively used for keeping the numerous threads in their places, and show up as the white substance in the photograph. The breeding season is February to July so probably two broods are raised. I have found three lots of eggs in the months of February and March, young in April, eggs in June and several lots of young in July.

The eggs are much elongated and slightly pyriform ovals. The ground is cream colour, with a pinkish tinge in one case, and the greater part of the surface is mottled and clouded with pale

purplish grey. The markings are sparsely dotted about, in the form of specks and spots of purplish black. Some eggs are finely freckled in purplish grey, the freckling being confluent on the large end whilst another pair are heavily marked with purplish black spots and irregular blurred lines. But notwithstanding these differences, the eggs may be readily picked out from those of the Sunbirds breeding in this area, which are the nearest approaching them, and of course the nests are entirely different. The shell is fine and fragile, but devoid of gloss. The average measurements are 16.5×11.5 mm. Two eggs are laid.

40. *Dicaeum cruentatum siamensis*.

THE SIAM SCARLET-BACKED FLOWER-PECKER.

Vernacular "Nok a-chip-suan"

PLATE 19.

This is the smallest bird found in Bangkok and is very plentiful in suitable localities, but owing to its diminutive size and the fact that it mostly frequents the higher parts of the trees, it is more common than may be thought. It abounds in the fruit gardens, which are its favourite nesting place.

The nest is quite in keeping with the bird, being very neat and small, and altogether a most charming little structure. It is attached to a small twig near the end of a branch and is entirely screened by several leaves of a larger size than itself, so that it is almost impossible to be found except by watching the birds during building operations. The photograph shows a very good example of a nest, although many of the leaves have been removed to give a better view of it. The situation is usually at a height of 15 to 20 feet from the ground, although I have one recorded from Pakret on a lime bush at four feet only. The materials consist of fibre and cotton; the former is woven into a kind of network bag with the interior lined with cotton from the "kapok" tree. A small amount of woody refuse from the entrance holes of the wood-boring caterpillars is added to the outside of the nest. The entrance is near the top, and the fibre is cleverly bound to give a neat finish to the opening. The nesting season is January and February. During February 1920

I saw no less than ten nests in the Bansakai gardens, so there is no difficulty in finding them if boys are set to watch the birds.

The eggs are moderate ovals, fairly well pointed towards one end. They are pure white, with a frail shell and smooth surface without gloss. The yolk is a reddish orange colour, which is very noticeable when the eggs are being blown. Two eggs are usually laid and occasionally three. The measurements average 14.5×10.0 mm.

The Pittas

Vernacular for all species "Nok tao-rao".

The genus *Pitta* has no residents in Bangkok or in the district, though two or more species may sometimes be found breeding at Samkok, where they take up temporary residence as migrants for the nesting season. These two species, as well as two others, may also be found in other parts of Siam, and details of them are recorded under their specific headings.

The reason for writing this note is that I have found only two or three of the country people who know of the existence of these multi-coloured Ground-Thrushes, so it is difficult to trace them; but the probability is that in certain years they would be found nesting in many parts of the country. The local collector who told me of them gave me the follow information—that they do not migrate to Samkok every year, but when they come they arrive in considerable numbers, most of them passing on again almost immediately. They are only found on the Chiengrak side of the river, which is probably accounted for by more suitable cover on that side. He said that he knew of four kinds, but that year I only found *P. cyanea* and *P. cyanoptera* breeding there. These two birds are recorded from Northern Siam in Eisenhofer's collection (Vol. I, p. 172); they are also recorded, together with *P. cucullata*, from the Petchaburi-Ratburi district by Gairdner (Vol. I, p. 149). The latter bird has also been obtained by me from Sriracha.

The genus *Pitta* is described by Oates in the "Fauna of British India" as having many of the species locally migratory, whilst others are quite stationary throughout the year. There is no ques-

tion that the Samkok birds are migratory, but what the position is of those in Northern Siam, Petchaburi and Sriracha, I cannot say. The Tung Song bird (*P. gurneyi*) would appear to be resident there, as it was breeding in October.

41. *Pitta cyanea cyanea*

THE BLUE PITTA.

The first news that I had of this bird breeding in the district was in the early part of June 1914, when one of my collectors reported a nest at Chiengrak Noi. I was unable to visit the place at the time, so told him to trap the birds and bring them down with the complete nest and eggs. He was only successful in trapping the female, which he brought to me on the 14th together with the nest and five eggs; the latter were about one-third incubated. He also brought one fresh egg from another nest, which he had taken because some boys had seen him find the nest. The bird was in perfect condition, and was turned loose in the aviary.

The nest was situated in the ground at the foot of a bank and near to a clump of bamboos. It had a domed top with the entrance at the side, and was built on a platform which extended about four inches in front of the entrance. The nest was built of dry bamboo leaves, and the platform consisted of wet ones which were firmly matted together; the latter measured twelve inches in width, and three in thickness. By means of a little skilful manipulation, the lid of a wooden box was slipped beneath the platform, and the whole structure was brought down to me intact. Later in the month I was able to visit that part, and I then saw other similar nests.

The eggs are broad ovals, with one end a trifle smaller than the other. The ground colour is china white, with markings distributed fairly thickly and evenly over the whole surface. They are in the form of angular scratches, streaks, spots and small blotches of a dark brownish purple and pale purple. The single egg is slightly different from those of the clutch, in that the markings are almost entirely confined to the larger half of the egg. There is only a slight amount of gloss on these eggs. The clutch of five averages 24.8×20.8 mm.

42. *Pitta moluccensis*.*

THE LESSER BLUE-WINGED PITTA.

The collector who secured the Blue Pitta for me was instructed to watch for more, and on the 24th of June he brought me four eggs with the female of the Lesser Blue-winged Pitta. The eggs were three quarters incubated, and the nest was left in place for me to see. He also brought one fresh egg belonging to this species, which he had taken as the bird had deserted. The bird, which had been trapped at the nest, was turned loose in the aviary, but died four days later and was sent to Mr. Williamson for preservation of the skin. I visited Chiengrak Noi the following week-end and saw the two nests from which the eggs had been taken, as well as one other nest. I found all three to be practically the same as that of *P. cyanea* which had been brought to me a fortnight earlier.

The eggs are broad ovals without any appreciable difference in the size of the ends. The ground colour is a creamy white, with markings in a dark brownish purple and a pale shade of purple. These are distributed fairly evenly, though not very densely, in the form of streaks, angular scratches, spots and cloudy blotches. The texture is very fine, but the surface is almost without gloss. The measurements of the clutch of four eggs average 26.4×22.0 mm., which is somewhat larger than the previous species.

43. *Pitta cucullata cucullata*.

THE GREEN-BREASTED PITTA.

I have one clutch of four eggs belonging to this species, which was taken at Hup Bon, Sriracha, S. E. Siam, on the 27th July, 1915 by my Dyak collector, when he shot the female as she left the nest. The skin of this bird is in the British Museum.

The nest was said to be similar to that of *P. cyanea* in my collection, and to be situated at the foot of a bamboo clump.

The eggs are broad ovals, slightly pointed towards one end. The ground colour is creamy white, speckled around the large end, rather in the form of an irregular zone, with inky purple specks and

* Hitherto almost universally known as *P. cyanoptera*, but see Stuart Baker, Journ. Bombay N. H. Society, xxviii, p. 92 [Eds].

small spots which vary in intensity from quite a pale shade to almost a black. There is an entire absence of the usual hieroglyphic lines and scratches, which are recorded as so characteristic of the eggs of this *Pitta*, but when drawing Mr. Stuart Baker's attention to this, I was interested to find that he could show me similar specimens belonging to this species. The shell is fine in texture, but has only a very faint gloss. The measurements average 25.1×19.6 mm.

44. *Pitta gurneyi*.

GURNEY'S PITTA.

Like the former species, I have only one clutch, but in this case it consists of four eggs from the nest and an oviduct egg. The female was shot by my Dyak collector as it flew from the nest at Klong Wang Hip, Tung Song, Peninsular Siam, on the 9th October 1915. The skin of this bird is in the British Museum. The oviduct egg has feeble markings, rather a frail shell, and not such a fine surface as the other eggs.

The nest was reported to be similar to the one in my collection, both as regards material and construction.

The eggs are spherical ovals, with both ends alike. The ground-colour is creamy white, spotted and speckled more or less evenly over the whole surface with inky purple, which varies in density from almost black to quite a pale shade. There are no angular writings or scratches. The texture is very fine, with a glossy surface. The measurements for the four eggs average 25.5×22.0 mm. and the oviduct egg is 26.5×22.1 mm.

45. *Picus vittatus vittatus*.

THE MALAY SCALY-BELLIED GREEN WOODPECKER.

Vernacular "Nok hua kwan."

My experience of the breeding of this Woodpecker is confined to three nests found in the Bansakai fruit gardens. I have met with the bird in other parts of Bangkok, and at Samkok; but it is everywhere sparingly distributed, and I was not so fortunate as to obtain nests from those parts.

On two occasions the nesting hole was situated in a "ton lang" tree, and on the third it was in a durian tree, the height in all cases being about twenty feet from the ground. The eggs were

all taken in the month of February, the first clutch of four, which were slightly incubated, being taken 9/2/16 and the other two 22/2/20 and 27/2/20. In the case of the first clutch, the male was caught on the nest at 10-0 a.m., and the skin was preserved and sent to the British Museum.

The eggs are moderate ovals, slightly compressed towards one end. They are pure china white and highly glossed. The shell is very fine in texture, and it is translucent, so if the egg is fresh it will have a delicate pink shade before it is blown. Four eggs are laid, and the average size is 27.0×20.5 mm.

46. *Xantholaema haemacephala indica*.

THE INDIAN CRIMSON-BREASTED BARBET.

Vernacular "Nok chang thong."

The "Coppersmith" is one of the best known birds of Bangkok on account of its call, which is said to rival the monotonous tapping noise of a coppersmith. It is, however, better known by sound than by sight, as it is very inconspicuous when sitting near the green foliage of a tree.

The nesting hole is very similar to that of a Woodpecker, but it is always in a dead tree. The favourite situation is a nearly perpendicular branch, of probably not more than four inches in diameter, on a dead "thong lang" tree in the fruit gardens. The entrance will be on the lower inclined side, and will therefore be free from the drip of driving rain. It is not unusual to find two or more holes within a few inches of one another, the others being only partially finished, although occasionally two pairs may be found nesting in the same branch. A dead betel palm is sometimes used, but in that case there will probably be only one hole.

The birds are not in any way shy, and may be watched at their work as they vigorously cut out chips with their stout heavy bills. When one is working on the inside, the other will be at the entrance disposing of the chips as they are thrown up, and after about five minutes work the birds will change places. No lining of any sort is used inside the nesting hole, and the measurements are $1\frac{1}{2}$ inches diameter of the entrance hole, $2\frac{1}{2}$ inches diameter of the

nesting hole, with an over all depth of 5 to 6 inches. Occasionally, the nesting hole in a betel palm is taken possession of by a Magpie-Robin, but in that case it will be lined with the stems of the dead leaves from the betel vines. Another occupant that may be found in a betel palm nesting hole, is the Tree Shrew, which is very common in the fruit gardens. Before I knew the most suitable dates for finding eggs, I opened several nesting holes which had young birds in them, but after repairing the damage and binding up the place with fibre, I found that the parent birds returned again to feed the young. February is the best time for eggs, as then they are plentiful and there is little chance of finding young; furthermore the birds will continue to lay, so their breeding will not be interfered with. Nests may also be found in March and April.

The eggs vary considerably both in shape and size, and yet they may be easily recognized from the white eggs of other local birds, partly by their unshapeliness, as they are less symmetrical than any other eggs of their size, and also by their texture and surface. The most general form is that of an elongated oval, slightly compressed towards one end and with the ends rather obtuse. They are pure white in colour. The shell is fairly fine in texture, rather frail, slightly translucent, and usually without gloss. Two eggs are laid and sometimes three. The clutch of the largest eggs in my collection averages 28.1×18.8 mm., and that of the smallest is 23.8×17.1 mm., with 25.0×18.0 mm. as the average for a normal clutch.

47. *Coracias benghalensis affinis*.

THE BURMESE ROLLER.

Vernacular "Nok ta-khap."

A common resident, which is well known to most people by its bright coloured plumage, but takes its local name from the harsh call which it utters.

The nesting site is in the hollow branch of a tree, and in selecting this, a dry one will be chosen at a height of about twenty feet from the ground. The eggs are laid on the bare wood, a slight depression having been made by the bird, and the refuse cleared to

the sides. March is the general nesting season, which however extends into April.

The eggs are broad regular ovals, with very little difference between the two ends, and obtuse ends may be sometimes found. They are pure white with high gloss, and with the exception of the next genus they are easily distinguished by the very glossy opaque shell and by their shape. Four eggs, and sometimes five, are laid. The measurements average 33.6×26.6 mm.

48. *Eurystomus orientalis orientalis*.

THE INDIAN BROAD-BILLED ROLLER.

Vernacular "Nok ta-kharp pak deng."

I do not know of this Roller occurring very close to Bangkok, the nearest that I have met with it being Ayuthia on the north and Sriracha on the south, but that is only what one would expect, as it is a forest bird.

The first nest reported by my collector was at Ayuthia, and he said it was in a branch-hole of a very high tree at seven wah (45 feet) from the ground. This was on the 12th of April, and the nest contained three eggs. I sent him up a fortnight later and he secured two eggs from a similar position near by, so they were probably laid by the same pair of birds.

The eggs are very like those of the Burmese Roller, only larger. They are broad regular ovals, pure china white, with a high gloss. Three is given as the usual full complement of eggs by the "Fauna of British India." In size these five eggs average 35.7×28.7 mm., which is fully 2 mm. larger each way than those of the previous Roller.

49. *Caprimulgus monticolus*.

FRANKLIN'S NIGHTJAR.

I have only one pair of eggs of this bird, which were found alongside a clump of bamboos at the foot of Signal Hill, Paknampho, on the 2nd June. In the previous December I found this Nightjar very numerous at the same spot, and I shot a male which is now in the British Museum.

The eggs are cylindrical ovals in shape. The ground colour

is creamy pink, blotched and marbled with reddish brown and purplish brown. The shell is fine, with a high gloss. The measurements are :— 25.5×19.5 mm. and 25.5×19.0 mm.

50. *Caprimulgus asiaticus*.

THE COMMON INDIAN NIGHTJAR.

Vernacular "Nok ka-ba."

The common Nightjar is probably best known to most people by its somewhat monotonous call, which is uttered during the evening, and is said to resemble the noise made by throwing a stone on to a large sheet of ice.

No attempt is made to build any nest and the eggs are laid on the ground at the foot of a tree, or more often a clump of bamboo. The ground is usually littered with dead leaves and this all adds to the difficulty of seeing the eggs, even when one is quite near them. The bird sits very close, and does not as a rule rise until one is almost on the top of it. On one occasion I flushed the bird from the foot of a small tree in a Bangkok compound, and found that she was sitting on two eggs. I left them and told the owner of the house where they were. The next day he visited the spot and found that the bird had moved the eggs round to the other side of the tree. A few days later he again looked for them, but no trace of anything could be found, so whether the bird had again moved them or what had happened to them I cannot say. The breeding season is a very long one, extending over six months, so there can be little doubt that more than one brood is raised. I have had several clutches in February, and others at various dates up to July, with the latest on the 4th August. Most of the eggs came from Samkok, others from the strip of jungle alongside the "Ditches," and some from Ayuthia.

The eggs are cylindrical ovals in shape, though they vary in degree. The ground-colour ranges from a creamy pink, through salmon colour to a shade of reddish brown. The markings are mottled spots and specks in reddish brown and pale purplish brown, sometimes rather faint and clouded. One clutch is peculiar in that the markings on one egg are very faint, and on the other they can only be seen by the aid of a glass, but both eggs have minute veins

standing out on the surface, whereas the texture of the shell is normally very fine. There is usually a fair amount of gloss. Two eggs are laid. The average measurements are 27.3×20.7 mm.

51. *Caprimulgus macrurus bimaculatus*.

THE BURMESE LONG-TAILED NIGHTJAR.

Vernacular "Nok ta fang."

This is a much larger bird than the previous one, and may easily be distinguished by this feature. It does not appear to be found in Bangkok,* although it may be seen a short distance away, and it is quite common at Samkok.

It is very similar in its habits to the Common Indian Nightjar, but in one respect I have a note of a difference. At Ban Khang (19/7/14) I saw four of the present species high up in a bamboo clump; they were sitting across light bamboo twigs with other twigs to balance them. It struck me as being most unusual, seeing that the ordinary habit of a Nightjar is to crouch lengthwise on a big bough. I shot one with a .410 collector's gun, but the others did not move. I have also seen them sitting in this manner on later occasions. On the other hand the Common Nightjar may be found sleeping in the shallow rafting hole on the upper side of a log in full sunlight, the log being afloat on the river. February is the best time for eggs, but like the previous species they may be found for six months, my latest date being 13th August. They are usually laid near the foot of a clump of bamboo.

The eggs are cylindrical in shape. The ground-colour is a rich creamy pink when the eggs are fresh, but some of the brightness of colour soon passes off. They are streaked or marbled with specks and spots of a delicate reddish brown, with smudges and spots of very pale purple as secondary markings. Occasionally there is a slight zone towards one end or around the centre, but usually the markings are evenly distributed. They have a fine surface with a fair amount of gloss. Two eggs are laid. The average measurements are 30.0×21.1 mm.

*Recorded by Williamson, vol. i, p. 46 of this Journal [Eds.].

52. *Eudinamis scolopaceus malayana*.

THE INDIAN KOEL.

Vernacular "Nok a wow."

The Koel or "Brain-fever-Bird" is too well known to need any introduction. It belongs to the cuckoo family, and selects the Crow as a constant foster parent to bring up its offspring. There is but little difficulty in obtaining the eggs, though not many are found in Bangkok. I have had them brought in from time to time with Crows' eggs from the fruit gardens, but outside of Bangkok; wherever there are any quantity of Crows' nests, there are sure to be plenty of Koels' eggs. One or two is the usual number of their eggs in a nest, though I have had as many as three and four. I have often seen the noisy male being chased by two crows, and it is said that his device is to draw the parent birds away from the nest, so that his mate will be unmolested whilst laying her egg.

The eggs are distinctly corvine in appearance, though they are considerably smaller than the Crow's eggs and they are also more reddish brown in colour. In shape they are rather long ovals, moderately compressed towards one end. The ground colour varies from a pale olive brown to a pale olive green. The markings are in the form of streaky spots and specks, distributed over the whole surface, but more numerous towards the large end. In colour they are generally olive brown and reddish brown with a few pale purple secondary markings, but in some cases the markings are olive-green and reddish brown, approaching more nearly to the colour of the Crow's eggs. The average size for eighteen eggs is 30.3×23.5 mm.

53. *Rhopodytes tristis longicaudatus*.

THE LARGE MALAYAN GREEN-BILLED MALKOHA.

Vernacular "Nok ban-rok."

This bird is an inhabitant of secondary jungle, and is generally found near the villages in the paddy field districts. It seldom takes to flight in the open, and its favourite mode of progression is by a half running flight along the branches of low trees and bushes, more after the style of a squirrel, and its long tail adds to that impression.

The favourite nesting site is a small tree, in scrub jungle which is periodically cleared by the villagers for firewood. The nest is built at about eight feet from the ground, and consists of a small thin platform of twigs, which looks most inadequate for the size of the bird. Even when the bird is flushed from the tree, the small collection of twigs may quite well be overlooked. The nest is always lined with a few fresh green leaves and even when the eggs are incubated the leaves have a fresh appearance, so they must be replaced at intervals. May is the best time for eggs, but I have had them as early as 3rd April and as late as 13th August.

The eggs are typically cylindrical ovals with both ends alike, although occasionally broad ovals with obtuse ends may be found. They are pure white when laid and without gloss, but as time goes on they become stained, and particularly during the rains they also become more or less glazed with the staining. The shell, although smooth to the touch, looks somewhat chalky and is frequently rather pimply, but it has not the chalky surface of the Coucal type. Three eggs are laid, or sometimes only two. The measurements average 32.5×25.6 mm.

54. *Centropus sinensis intermedius*.

HUME'S CROW-PHEASANT.

Vernacular "Nok poot."

This Crow-Pheasant is very plentiful about the brushwood jungle in the paddy field districts, and it makes its presence known by its loud calls of "*hoop hoop hoop hoop*" uttered on a falling scale.

The nest is almost always built in the prickly Screw-palms ("ton toi") which are so abundant on the sides of the river and the smaller water-courses. These are very undesirable places to investigate owing to the soft mud in which the palms grow, and the saw-like edges of the prickly leaves. However, the nests are not always in inaccessible places, and there is no difficulty in obtaining eggs. The nest is a large globular construction measuring about 15 inches in height by 12 inches in width, with the entrance at the side. It is made of the ribbon-like leaves of the Screw-palm, which are wound round in a perpendicular or an oblique direction. The two sides of the nest are made fairly thick, leaving the back of it compa-

ratively thin, and in that way providing for a bolt-hole in the case of emergency. This is a very necessary provision as the bird sits with her head towards the back of the nest and her long tail hanging out of the entrance. The structure is rather loosely put together, with little or no attempt to line it with finer materials. The nesting season is May to August, but I have had a clutch of fresh eggs from the Tachin side as late as the 20th September.

The eggs are broad ovals in shape and typically very obtuse at both ends, though one end is usually rather smaller than the other. They are white when laid, but very soon become discoloured. The shell has a chalky outer layer with a smooth surface and a little gloss. This chalky surface becomes much scratched during incubation, through the bird turning the eggs with her feet. Four eggs are generally laid, but sometimes only three, and I have taken one clutch of five. The young when hatched are the most ugly little things imaginable, as they are coal black, with thick white hairs about $1\frac{1}{4}$ inches long, almost like bristles, and of course they are blind. The average size of the eggs is 34.4×28.8 mm.

55. *Centropus bengalensis javanensis*.

THE MALAY LESSER CROW-PHEASANT.

Vernacular "Nok kort."

The Lesser Crow-Pheasant is seldom seen and is far from common, though it is widely distributed. I have notes of two nests at Samkok, both of which I visited, and one other which was brought in from Tachin by my collector, but odd eggs have also been brought to me from time to time.

The first nest which I visited (19/7/14) was at Ban Khang; the bird was sitting, and the man caught it in the nest. The latter was situated in a small bush about $2\frac{1}{2}$ feet high which was growing in thick grass with a number of similar bushes alongside it. The nest was quite round, with the hole in the side, and it was built of coarse grass. There were six eggs, two of which were broken by the bird when struggling in the nest, and they were incubated in a varying degree up to about half set, with discolouration of the shell varying in like manner.

The second nest was also at Ban Khang (28/6/15) and was in a very similar position. The bird left the nest as we approached and there were five eggs, but unfortunately they were too much incubated to be blown. The eggs were practically the same as the previous clutch and I regarded both lots as normal eggs.

The third nest (15/8/19) came from Ban Yang (Tachin) and contained three fresh eggs. The nest was similar to the other two and the bird, which was well known to my collector, was seen to leave the nest, but the eggs were very much larger than the Samkok eggs, though not larger than the largest Indian eggs. They are considerably smaller than those of Hume's Crow-Pheasant and of quite a different texture, so there is no reason to doubt their being the eggs of the present species.

The average size for the first clutch of eggs is 27.0×22.4 mm., and that of the last is 31.7×25.1 mm. The former is smaller than the minimum for Indian or Burmese eggs by 2 mm. in length and 1 mm. in breadth. It will therefore be interesting if someone will follow this up, to see whether the Samkok eggs are consistently smaller than Indian eggs, and if so, whether there is any difference in the bird.

In shape the eggs are blunt ovals, with little or no difference between the two ends. They are white when laid, fine in texture, with a fair amount of gloss.

56. *Ceryle rudis leucomelanura*.

THE INDIAN PIED KINGFISHER.

Vernacular "Nok kra-teng pak lak."

Most of these birds move up the river towards the end of the year to parts above the tidal region, where there are precipitous banks in which they can bore their nesting holes without the risk of being flooded. From the commencement of the rains onwards these birds are very abundant on most parts of the river, and on open stretches of water round about Bangkok. I have seen as many as thirty old and young birds, all perched together on a bamboo pole over some water at Sapatoom.

The site of the nest is typical of that of the Common Kingfisher, a sheer cliff-like bank in which the birds bore a hole of three to four feet in length, with an egg chamber at the end. I have found one nest on Koh Yai, another higher up the river at Si Koke and two more south of Ayuthia, but these are solitary nests, and the regular nesting places are much higher up the river; at Paknampho they are plentiful. The earliest clutch I have had was 28th December, and January seems to be the best month for eggs, though they may be found as late as March.

The eggs are generally elongated ovals, often more or less pointed at both ends, but at other times one end, or even both, are rounded. They are pure china white in colour, the shell being translucent and showing the contents of a fresh egg very clearly. They are fine in texture, with a high gloss. The average size of 18 eggs is 30.1×23.7 mm. Five eggs are laid.

57. *Alcedo ispida bengalensis*.

THE EASTERN COMMON KINGFISHER.

Vernacular "Nok kra-teng lek".

This Kingfisher may be found in Bangkok most of the year, and I have watched a "pair" up to the end of February, when they left for breeding further north where there are suitable banks. I have never taken any of their eggs in Siam.

58. *Rhamphalcyon capensis burmanica*.

THE BURMESE STORK-BILLED KINGFISHER.

Vernacular "Nok kin pu pak deng."

This large Kingfisher prefers the well wooded and secluded parts of the country with small streams to the open part of the river, and this I also found to be the case in Burma. In Bangkok it is resident in the fruit gardens, where it feeds on molluscs and land-crabs as well as on small fish from the irrigation canals.

The nest consists of a hole in a tree within easy reach of the ground and, as there is not much on record for the nesting of this bird, I will give a short account of the four nests that I have seen. The first was on 26/5/13 when I flushed the bird from a rotten mango stump, which was only three feet high and was situated alongside an irrigation canal in the Samray fruit gardens. There

was one egg, which was visible from the pathway and I therefore took it. The second occasion was on 12/5/19, when a collector caught the bird in the nesting hole, sitting on one fresh egg. He brought both to me, and after measuring the bird I released it. The nest was in a branch hole of a Durian tree at Banlampoo and about four feet from the ground. The third occasion was on 28/7/19 when a collector missed the bird as it left its nest, which contained four slightly incubated eggs. The hole was in a dead patch on the side of a growing Tamarind tree at Bansakai, and was about six feet from the ground. In none of these cases was there any nesting material, and the dead wood was dry and clean. The fourth occasion was on 31/8/19 when I looked into a branch hole of a "ton lang" tree at Koh Yai, and found the bird inside. It left instantly, and there were about half a dozen green leaves arranged in the form of a nest. I sent a collector up about ten days later, but he failed to locate the tree.

The eggs are very broad ovals, with round ends, almost spherical. They are pure china white with a very glossy surface. The measurements of these eggs are given below and it will be noticed that the first one is very much smaller than the others.

26/5/13 :— 32.0×26.5 mm. 12/5/19 :— 36.3×30.3 mm.

28/7/19 :— 37.6×31.3 ; 37.6×3.10 ; 36.6×31.3 ; 35.5×30.0 mm.

59. *Halcyon pileata*.

THE BLACK-CAPPED KINGFISHER.

I have only one egg of this Kingfisher, taken at a spot about ten miles below Paknampho on my way down to Bangkok by river in the middle of July. The nest was in the branch hole of a tree at about six feet from the ground, and the bird left the tree as the launch was passing.

The egg is a moderately broad oval, slightly compressed towards one end, with the ends blunt. The shell is china white and very glossy. The measurements are 29.6×24.2 mm.

60. *Sauropatis chloris chloris*.

THE WHITE-COLLARED KINGFISHER.

Vernacular "Nok poh piu".

The Bangkok district seems to be a popular nesting place for this Kingfisher, as it is present in greater numbers at that season than at any other time of the year. It may be seen during the latter part of December, increasing slowly in numbers up to the commencement of the rains, and it appears to leave towards latter part of the rains. It is a very noisy bird and the harsh screeching call of "*krerk krerk krerk krerk*" is well known anywhere near its haunts. When it is excited the call is punctuated in twos, but otherwise it is uttered as above in a continuous four.

The nest is nearly always made in a black ants' nest, which is situated in a hollow tree at a height of about twenty feet from the ground. The ants will often block a big hole of a foot or more in diameter in a growing tree, though at times the hole will not measure more than a few inches. The birds bore a neat circular hole in the "live" ants' nest, and excavate a cavity just inside for the egg chamber. Occasionally the nest may be found in a dead stump of a tree, where the wood is comparatively soft and can be easily worked. I have seen two instances of this, one at a height of twelve feet, and the other within a foot of the ground. Another situation was in a white-ants' hill, which was about three feet high, and it may be of interest to give an account of this.

The white-ants' hill was close to a native house in a fruit garden near Paklat, and the first time I visited the place was on 16/5/13. On this occasion the young had left the nest and were sitting on a tree close by. The owner of the house offered to show me the nest, and chipped a line around the side of the ant hill at the level of the entrance hole, so that the top could be lifted off complete. This he did, exposing to view the nest and entrance tunnel. He said that he had taken the top off in this way on several occasions and that the birds had not deserted. He also stated that the birds nested there every year at about the same time. The following year I again visited the spot, and the man opened the nest in the same way,

showing me on this occasion three half fledged birds. The parents were exceedingly noisy and kept very close whilst this was going on, but shortly after we had finished one of them entered the nest, so there was no fear of them deserting. The ants' nest was "alive," and the ants set to work at once to join up the top with the main block. The base of this ant hill, below the entrance to the nest, was littered with pieces of the shells and claws of the small land-crabs, showing that this is the principal food of these birds. It is from the eating of these crabs that this Kingfisher derives its local name. The fruit-gardens appear to be the favourite nesting place for this bird, although nests may also be found in other places. May is the best months for eggs, as that is the time when most of the nests are made, but I have found eggs as early as the 10th March, and young birds in the nest as late as 22nd August.

The eggs are moderately broad ovals, generally slightly compressed towards one end, the end being obtuse, but rather long ovals with a tendency to a point at each end may be found. They are china white in colour, with a shell that is fine in texture, moderately glossy and, like that of all the Kingfishers, is translucent. Four eggs are laid, and the size averages 29.6×24.3 mm.

61. *Carcinutes pulchellus amabilis*.

THE PEGU BANDED KINGFISHER.

I have one clutch of three eggs, which were brought in from Meklong by my head collector (26/5/14). He just missed the bird when it flew from the nesting hole, and as it did not return he took the eggs. The bird was well known to him, both in the field and also as a specimen. The "Fauna of British India" gives the nidification as unknown, and I do not know of any record by which I can compare these eggs. But they are clearly the eggs of a Kingfisher, and in shape and measurement they are unlike any of the others, so I have no reason to doubt their being authentic. The nesting hole was in a dead tree at about six feet from the ground.

The eggs are broad, almost spherical, ovals, with very round ends, pure white in colour, fine in texture, with very little gloss. The measurements are :— 27.3×23.6 ; 27.1×23.0 ; 26.6×22.6 (av. 27.2×23.0 mm.).

