

FLOWER-PECKERS

Family DICÆIDÆ

Vol. I., p. 308; Vol. II., p. 276.

CLOSELY related to the sunbirds, the flower-peckers agree in that the edges of the mandibles are finely serrated at the tips, but they differ in their shorter, more robust bills. In most species, at least, the tongue, which may be split at the tip, is only semi-tubular on account of its upturned edges. The feet are slightly stronger than in the sunbirds and the tarsus is relatively shorter.

The flower-peckers are all tiny birds, with a short tail of twelve feathers and a short rounded wing, usually with nine primaries, although some genera have a vestigial tenth primary.

Occasionally, both sexes are dull in plumage and the young birds resemble them, but more often the male is very bright in colour. There is, however, never the marked metallic iridescence in the plumage, common in the sunbirds, although some of the feathers may be highly glossy.

The flower-peckers inhabit the tropical parts of Asia and the islands of the Malay Archipelago to New Guinea and Australia. Roughly about a hundred species are known, of which ten occur in the Malay Peninsula. Of these, four species are represented by different subspecies in north and south, making in all fourteen Malayan forms. With the exception of the fire-breasted flower-pecker (*Dicæum sanguinolentum ignipectus*), which is purely a mountain bird, and possibly the scarlet-breasted flower-pecker (*Prionochilus thoracicus*), the latter a rare bird of which little is known in the Malay Peninsula, all the Malayan species can be seen in the lowlands. Some of them are common garden birds. Usually they are seen alone, tiny, fat, but very active little birds, darting across the path from one tall flowering bush to another with a sharp *chit-chit-chit*, a sound like two pebbles being tapped together, but often they congregate at the tops of very tall flowering trees and then, through binoculars, the busy birds can be seen flitting like a swarm of hymenoptera about the blossoms on the exposed surface of the forest's canopy. It can, I think, be fairly stated that the Malayan species are normally denizens of high trees, but that they are often attracted to lower growths by tempting food supplies. They eat small spiders, insects and small berries and are especially fond of the berries of plants allied to the mistletoe. There is a marked partiality for the glutinous fruit of *Loranthus*.

Epiphytic plants on tall trees seem to attract flower-peckers. The nectar of flowers is also taken as food.

The species of *Dicæum* have been accused of the harmful practice of spreading the seeds of *Loranthus*, a parasitic plant often found on fruit trees and kapok. According to Dr K. W. Dammerman "the roots of the parasitic plant enter the branch of the tree at intervals, or run entirely below the bark. By depriving the plant of its sap the *Loranthus* may become a serious pest, and kapok may be nearly killed by it; also the fruit-bearing of the trees may be reduced considerably. The way these birds spread the seeds is very remarkable; Bartels found in Java the glutinous seeds of these parasitic plants only in the intestinal tract of the bird, the large seeds being unable to enter the very small stomach, which is found always filled with minute spiders, the chief food of the birds. The birds do not rub the seeds off by their bill, as is generally believed, but, as van Heurn has observed, the sticky seeds, having passed through, are evidently removed with some difficulty, and therefore the birds by hopping along the branch strike them off against it when they leave the anus. The glutinous substance enveloping the seed fastens it to the branch. According to Heumann the seed seems to grow only where the bird has deposited it; he has never been able to cause transplanted seeds to germinate. On the other hand, these birds are partly beneficial, as they contribute greatly to the pollination of flowers, which they visit to feed on the small spiders living inside."

In the Malay Peninsula the birds are resident wherever they are found, but with a circumscribed local movement correlated with the flowering and fruiting of certain trees. The nests are exquisite little purse- or pear-shaped structures suspended from a twig.

The flower-peckers include the smallest of our local birds, and all the Malayan species are, in fact, midgets among birds. I have known cases in which natives employed for insect-catching in the Botanic Gardens, Singapore, have taken the tiny species of *Dicæum* in their butterfly-nets.

KEY TO THE MALAYAN LOWLAND SPECIES OF FLOWER-PECKERS

- | | | |
|---|--|--|
| 1 | { Rump, or entire back, bright red | <i>Dicæum cruentatum</i> subspp., p. 404 |
| | { No red on the upper parts | 2 |
| 2 | { Back and belly, deep orange; other } <i>Dicæum trigonostigma</i> subspp. | |
| | { parts, bluish slate | (male), p. 407 |
| | { Plumage not as above | 3 |
| 3 | { Upper parts, slaty blue; a flame- } <i>Charitociris percussus ignicapillus</i> | |
| | { coloured coronal spot | (male), p. 411 |
| | { Upper parts, mainly yellow to olive. | 4 |
| 4 | { Large bright red spot on breast | <i>Prionochilus thoracicus</i> (male), |
| | | p. 413 |
| | { Under parts, whitish with bold black } <i>Dicæum chrysorrheum chrysor-</i> | |
| | { streaks; tail coverts, bright yellow } <i>rheum</i> , p. 409 | |
| | { Plumage not as above | 5 |

5	{	Upper parts, bright olive, distinctly green; belly yellow	6	
		General tone of plumage dull, brownish olive; under parts without yellow	9	
6	{	An orange spot on the crown, sometimes indistinct	7	
		No orange spot on the crown; rump, much brighter than back		<i>Dicæum trigonostigma</i> subsp. (female), p. 407
7	{	Sides of breast heavily streaked dark green		<i>Charitociris maculatus</i> subsp., p. 412
		No heavy streaks on under parts	8	
8	{	Breast tinged with orange; centre of abdomen yellow		<i>Prionochilus thoracicus</i> (female), p. 413
		Under parts, olive, yellower in the middle		<i>Charitociris percussus ignicapillus</i> (female), p. 411
9	{	Bill very slender		<i>Dicæum minullum olivaceum</i> , p. 415
		Bill thick, almost finch-like	10	
10	{	Breast distinctly streaked; outer tail feathers white-tipped		<i>Piprisoma modestum</i> subsp., p. 415
		Breast not distinctly streaked; no white tips to tail feathers		<i>Piprisoma agile sordidum</i> , p. 414

*Dicæum cruentatum ignitum***The Malayan Scarlet-backed Flower-pecker**

Vol. I., p. 308, pl. 23 (*upper figures*); Vol. II., p. 279.

Male: upper parts from bill to upper tail coverts, bright scarlet; wings and tail, deep black, glossed with blue; under parts, creamy white; sides of the head and neck, and the flanks, black.

Female: quite different. Upper parts, dull olive; rump, scarlet; tail, black; under parts, buffy white, washed with greyish brown on the sides. Very young birds are at first like the female, but lack the red rump. In this plumage they are very like adults of the plain-coloured flower-pecker (*Dicæum minullum olivaceum*), but they may be distinguished by the much duller and less green tone of the plumage and the thicker bill.

Total length, about 3.6 in.; wing, 1.85 in.

This species is common in the lowlands and on the coastal islands of the Peninsula, especially in the south. In some places it is a familiar garden bird, and in Singapore it is the commonest flower-pecker. It is not normally found in heavy forest, and has a predilection for the coasts.

Since the publication of the first volume of this work eggs of this bird have been found in January and March in Lower Perak by Mr A. T. Edgar. The greyish-white egg measures 0.59 by 0.41 in., and the local clutch is at

least two eggs. Mr Edgar describes the nest as follows: "The nest is a most delicate structure, and is rather difficult to find, being very small, and frequently placed at some height from the ground, at the end of a lateral branch, in the centre of and concealed by the terminal bunch of leaves. I took a nest on 10th March, twenty feet from the ground. It was an egg-shaped pouch, three inches in total depth, with a maximum girth of five and a half inches. The entrance hole, which was roughly circular, and about an inch in diameter, was placed in the top half of the outward side of the nest. The attachment of the nest to its supporting branch was firm and well made, very fine fibre being used; the entrance rim was a tightly woven rope of the same material, which was also used, but sparingly, to bind together the body of the nest. This was constructed and lined with the whitest of lalang [coarse grass] down; the walls were thin, but the egg-chamber was thickly lined and of an exquisite softness. To the outer wall of the nest, by way of decoration, were attached two or three slender strips of thin bark."

In Negri Sembilan, Mr V. W. Ryves has found eggs in March and July.

Dicaeum cruentatum siamensis

The Siamese Scarlet-backed Flower-pecker

Dicaeum cruentatum siamensis Kloss, *Ibis*, 1918, p. 216 (East Siam).

Dicaeum cruentatum, Sharpe, *Cat. Birds, Brit. Mus.*, x., 1885, p. 15 (part); Oates, *Faun. Brit. Ind., Birds*, ii., 1890, p. 376 (part); Oates, in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), ii., 1890, p. 270 (part); O.-Grant, *Cat. Birds Eggs, Brit. Mus.*, v., 1912, p. 7 (part).

Dicaeum cruentatum siamensis, Herbert, *Journ. Nat. Hist. Soc. Siam*, vi., 1924, p. 294 (nidification); Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1924, p. 389; Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), iii., 1926, p. 424; Stuart Baker, *Nid. Birds Ind. Emp.*, iii., 1934, p. 238.

Dicaeum cruentatum ignitum (part), Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), iii., 1926, p. 423; *Nid. Birds Ind. Emp.*, iii., 1934, p. 238 (part).

Malay Names.—Sěpah pětěri; nok a-chip-suan (*Siamese*). Mr A. W. Hamilton has pointed out that the correct Malay name of this flower-pecker is *sěpah pětěri*, not *puteri*, as it is usually written. "*Sěpah Pětěri*:—The princess' betel quid. The story goes that Tuan Pětěri Bulan—the Moon Princess—once expectorated her quid of betel-nut and the crimson stream fell to earth and was turned into the Scarlet-backed Flower-pecker."

Description.—Differs from the southern race in that the males are much whiter below and only slightly tinged with buff. The difference is not absolutely constant as occasional birds from the south are also white below. A minor difference is that whereas in the southern race most males have the wing coverts tinged with purple, these parts are steely green in the present race.

Range in the Malay Peninsula.—From the northern limit as far south as Takuapa in Peninsular Siam. The boundary between this form and the

southern race (*D. c. ignitum*) is between lat. 8° and 9° N. Occurs also on the islands of Koh Pennan and Koh Samui off the north-east coast.

Extralimital Range.—Siam and French Indo-China north to Tonkin. Beyond this, in Yunnan and South China, the Chinese form (*coccineum*) is found. Where the present form meets the typical subspecies of Bengal and Assam I cannot yet say.

Nidification.—I know of no record from the Malayan area, but the breeding habits have been described in Vol. I., p. 309, under the heading of the southern race. In Bangkok, Mr E. G. Herbert found the beautiful little bag-shaped nest in fruit trees, usually attached to a small twig from fifteen to twenty feet from the ground. The eggs are white with a greyish tinge, and measure about 0.58 by 0.41 in. According to Mr Herbert, the nest, which is usually screened by leaves larger than itself, is a network of fibre and cotton, lined with cotton.

Habits.—A common lowland bird, especially on the cultivated coastal plains, which it prefers to heavy forest and hills. It is most numerous in gardens and in secondary growth.

Dicaeum trigonostigma trigonostigma

The Orange-bellied Flower-pecker (Southern race)

PLATE 25 (*lower figures*)

Vol. II., p. 278.

Certhia trigonostigmum Scopoli, *Del. Flor. et Faun. Insubr.*, ii., 1786, p. 91 (Malacca).

Dicaeum trigonostigma (part), Sharpe, *Cat. Birds, Brit. Mus.*, x., 1885, p. 39; Oates, *Faun. Brit. Ind., Birds*, ii., 1890, p. 377; O.-Grant, *Cat. Birds' Eggs, Brit. Mus.*, v., 1912, p. 8 (Bornean subspecies).

Dicaeum trigonostigma trigonostigma, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1924, p. 388.

Dicaeum trigonostigma rubropygium (part), Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), iii., 1926, p. 425; *Nid. Birds Ind. Emp.*, iii., 1934, p. 240.

Malay Name.—Unascertained. Sěpah pětěri (loosely).

Description.—The male has the back and abdomen orange; the throat and breast, pale grey; and the remainder of the plumage, dark blue-grey. Females are olive-green above, with the rump greenish yellow; breast, greyish olive; abdomen, greenish yellow.

Adult male.—Top and sides of the head, hind neck, scapulars, wings, upper part of the mantle, upper tail coverts and tail, dark grey-blue, the concealed parts of the wing and tail quills, almost black; inner edges of the wing quills and sometimes an almost imperceptible pale fringe to the outer tail feathers, smoky. Back, deep orange; lower back and rump, deep dark yellow tinged with olive on the lower back. Lores, blackish. Chin and throat, pale grey, sharply defined against the bright, deep orange breast and sides of the body. Centre of abdomen, orange-yellow, paling to yellow on the under tail coverts. Thighs, edge of wing, axillaries and under wing coverts, white, the latter flecked with brown. There is usually a narrow olive

line dividing the grey throat from the orange breast, and sometimes the flanks and abdomen are tinged with olive.

Adult female.—Quite different. Rump, deep greenish golden; remainder of upper parts, including upper tail coverts, deep dull greenish olive; a faint yellowish bronze wash on the back. Wings and tail, nearly black, the feathers narrowly edged with olive. Sides of head, olive-green; chin, throat and breast, olive-grey. Remainder of under parts, dull olive, paling to yellowish green on the abdomen and under tail coverts. Centre of abdomen, more solidly yellow. Under wing coverts and axillaries, white. Birds in faded or worn plumage are much greyer than the above description indicates.

Immature.—Young birds are very like the adult female, but are duller and more uniform in colour; the males are washed with blue on the wings and tail. The pale bill at once separates young birds of both sexes from the blackish-billed adult female.

Soft Parts.—Iris, brown; bill, dark greenish slate, yellowish at the base of the lower mandible, or entirely black; feet, grey, or dark greenish slate. In young birds the bill is dark orange, with the culmen and tip horny brown.

Dimensions.—Total length, 3·4 to 3·6 in.; tail, 0·85 to 0·95 in.; wing, 1·8 to 1·96 in.; tarsus, 0·5 in.; bill from gape, 0·5 in.

Range in the Malay Peninsula.—From Trang and Bandon in Peninsular Siam south down both sides of the Peninsula to Singapore and the small islets near Singapore. The islands of Terutau and Penang off the west coast, and Tioman off the east coast.

Extralimital Range.—Sumatra, the Anamba Islands, the Rhio-Lingga Archipelago, Billiton, Banka and the Karimata Islands. Other subspecies are found in Borneo, the North Natuna Islands, Java with Bali, and several of the West Sumatran Islands have their own peculiar, slightly altered form.

Nidification.—Nests found by Mr A. T. Edgar in Lower Perak in March, each contained a single nestling. Mr Edgar writes: "Placed, like those of *D. c. ignitum*, at the end of branches, these nests were only eight feet from the ground, one attached to a young rubber-tree, the other to a bushy shrub, growing in the *belukar* not far away. The shape and construction of the nests is much the same as that of the last described [*D. cruentatum*], but they are rather more compact, a somewhat greater amount of fibre being used to bind the outer walls and egg-chamber, to the lining of which, besides lalang down, a little cotton down is added. The extra-mural decorations take the form of a little green moss and the dried excreta of caterpillars. The entrance hole, instead of being circular, is long and oval, one and a half inches from top to bottom, and hardly more than half an inch across at its widest."

Referring to nests found in Perak, Mr Stuart Baker records: "All were built on high trees, generally between 35 and 40 feet from the ground, with one exception, which was on a wild citron bush, close to a jungle-track."

In Negri Sembilan, Mr V. W. Ryves has found clutches of from two to three eggs in March, April and July.

Habits.—The commonest Malayan flower-pecker, and numerous almost everywhere where there are trees and flowering shrubs. This tiny bird enters

even the formal and much-frequented city gardens of Singapore, where, however, it is not well known because of its habit of preferring the higher trees to the lower vegetation. When trees are flowering it will assemble in swarms, and with binoculars the tiny birds can be seen at the tops of the tall trees, bustling about like bees. It does not often enter tall forest, but is most numerous in areas of secondary growth, orchards, and the settled districts generally. It has been found on a number of the hills up to an altitude of just over 3000 ft.

The birds figured in the plate are a male from Kedah Peak and a female from Penang Hill.

Dicaeum trigonostigma rubropygium

The Orange-bellied Flower-pecker (Northern race)

Dicaeum trigonostigma rubropygium Stuart Baker, *Bull. Brit. Orn. Club*, xli., 1921, p. 108 (Mergui).

Dicaeum trigonostigma (part), Sharpe, *Cat. Birds, Brit. Mus.*, x., 1885, p. 39; Oates, *Faun. Brit. Ind., Birds*, ii., 1890, p. 377.

Dicaeum trigonostigma rubropygium, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1924, p. 388; Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), iii., 1926, p. 425; Stuart Baker, *Nid. Birds Ind. Emp.*, iii., 1934, p. 240.

Malay Name.—Unascertained.

Description.—Like the typical race, *D. t. trigonostigma*, described above, but the male with the lower back and rump more deeply coloured and tinged with orange. Sometimes the rump is almost concolorous with the back.

Range in the Malay Peninsula.—The west coast of Peninsular Siam, including the coastal island of Koh Rah. The islands of Junk Zeylon and Pulau Panjang.

Extralimital Range.—In the west it ranges north to Pegu and the Karen Hills in South Burma. I am uncertain of the distribution in Siam but there is no record of the bird from the greater (northern) part of the country. Cochin-China. According to Mr Stuart Baker it also turns up again in Assam, but from the large intervening tract of country there seems to be no record of its occurrence.

Nidification.—There is no record from our area.

Habits.—This race is as common at the Isthmus of Kra as its southern representative is in Singapore. The habits of the two races also seem much alike, the present one being recorded as common in gardens and secondary jungle wherever there are flowers.

Dicaeum chrysorrheum chrysorrheum

The Yellow-vented Flower-pecker

PLATE 25 (*upper figure*)

Dicaeum chrysorrheum Temminck, *Pl. Col.*, 478, 1829 (Java).

Dicaeum chrysorrheum, Sharpe, *Cat. Birds, Brit. Mus.*, x., 1885, p. 44

(part); Oates, *Faun. Brit. Ind., Birds*, ii., 1890, p. 378 (part); Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam.*, v., 1924, p. 390.

Malay Name.—Unascertained.

Description.—Under tail coverts, orange; upper parts, olive; lower parts, white, heavily streaked blackish.

Adult male.—Entire upper parts from forehead to upper tail coverts, including wing coverts (except primary coverts) and inner secondaries, golden olive-green. Primary coverts, hidden portions of other wing coverts, the wing and tail quills, blackish; the wing and tail quills, except the outermost feathers, very narrowly fringed with olive. A whitish line between bill and eye; below this the lores are blackish. A broad malar streak, white; below this a broad blackish streak runs back from the lower mandible. Under tail coverts, orange; remaining under parts, white, often faintly creamy, broadly and heavily streaked with brownish black. Axillaries and under wing coverts, white mixed with a little black on the edge of the wing.

Adult female.—In the majority of cases the under tail coverts are paler, more yellow and less orange than in males.

Immature.—Very like the adult but the under tail coverts are pale yellow, the under side greyish and less pure white, and heavily but not distinctly streaked with greyish brown.

Soft Parts.—Iris, reddish brown to crimson; upper mandible, black; lower mandible and feet, slaty.

Dimensions.—Total length, 3.6 to 4 in.; wing, 2.15 to 2.35 in.; tail, 1.05 to 1.2 in.; tarsus, 0.55 to 0.6 in.; bill from gape, 0.5 in.; culmen about 0.4 in.

Range in the Malay Peninsula.—The whole length of the Peninsula on both sides. The islands of Junk Zeylon, Terutau and Singapore, including the islets in the Johore Straits.

Extralimital Range.—Sumatra, Borneo and West Java. The *species* ranges north through French Indo-China to Tonkin, Siam, Burma, Assam and west to the eastern part of Nepal. Some recent authors have restricted the range of the typical subspecies to south of the Isthmus of Kra, but I am not sure that this is correct as some birds from Siam seem like Malayan specimens, and if they are indeed inseparable, it is tolerably certain that the same subspecies will occur even farther north in Tenasserim. I have no material to decide the point.

Nidification.—Unrecorded. An early immature bird from near Kuala Lumpur is dated in September. The nest of an allied subspecies breeding in Assam is said by Mr Stuart Baker to be similar to that of other flower-peckers, and usually placed at a height of under twenty feet in a tree. The two or three white eggs of this northern subspecies measure about 0.61 by 0.44 in.

Habits.—I have seen very few skins of this flower-pecker from the Malay Peninsula and it appears to be uncommon everywhere, but judging from the evidence provided by the luck of collecting, slightly more numerous in the south than in the north. On Singapore and the neighbouring islet of Pulau

Ubin it has been collected from the tops of coconut-trees. In Tenasserim also Davison found it nowhere common. He writes: "It feeds much on the glutinous fruit of the *Loranthus*. It never goes far into dense forests, though I have shot it at their edges." In the Peninsula it seems to be entirely a lowland species. In Singapore it is likely to occur wherever there are tall trees, and on several occasions I have seen birds either singly, or with *Dicæum cruentatum*, at the tops of big trees in gardens in the Tanglin district. It is rather less active and has a more powerful note than the smaller species of flower-peckers. In Sumatra, where again it seems rare, Dr E. Jacobson obtained it in a wild fig-tree in fruit.

The bird figured in the plate is a male from the Waterfall, Taiping, Perak.

Dicæum minullum olivaceum

The Plain-coloured Flower-pecker

Vol. II., p. 278.

Sexes alike and entirely dull-coloured. Upper parts dark, dull olive-green, very slightly brighter on the rump; wings and tail, blackish. Under parts, greyish olive becoming almost cream-coloured on the centre of the abdomen. On each side of the breast a patch of concealed, silky white feathers.

Total length, about 3.25 in.; wing, 1.8 in.

This most inconspicuously coloured flower-pecker has hitherto been regarded as uncommon in most parts of the Peninsula, whence it is only recorded from the Malay States and Penang, but it has, almost certainly, been largely overlooked. It is now known to occur in Singapore and on the tiny island of Pulau Pisang in the Straits of Malacca off the coast of Johore. Little is known of its habits in Malaya and the species needs specially directed observation. The nest has not been found in the Malay Peninsula.

Charitociris percussus ignicapillus

The Crimson-breasted Flower-pecker

Vol. I., p. 310; Vol. II., p. 281.

Male: upper parts, pale bluish grey with a large flame-coloured spot in the centre of the crown. Under parts, bright yellow with a flame-coloured patch on the breast. *Female*: quite different. General plumage olive-green, turning to dull yellow on the centre of the abdomen. Throat, greyish. The coronal spot is dull orange.

Total length, about 4.2 in.; wing, 2.3 in.

This flower-pecker is fairly common and well distributed in old forest throughout the lowlands of the Peninsula. There is no reliable record from Singapore. The nests and eggs are unknown.

*Charitociris maculatus maculatus***The Yellow-throated Flower-pecker (Southern race)**

Vol. II., p. 281.

Pardalotus maculatus Temminck, *Pl. Col.*, 600, 1836 (Borneo).

Prionochilus maculatus, Sharpe, *Cat. Birds, Brit. Mus.*, x., 1885, p. 69 (pt.), Oates, *Faun. Brit. Ind., Birds*, ii., 1890, p. 385 (pt.), Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), iii., 1926, p. 438 (pt.).

Prionochilus maculatus maculatus, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1924, p. 392.

Malay Name.—Unascertained.

Description.—Upper parts, olive-green; lower parts, yellowish, heavily streaked with dark green. A flame-coloured patch on the crown.

Adult male.—Upper parts and cheeks, dark olive-green, wings and tail, blackish, the exposed edges of the feathers, olive-green. A large, isolated, fiery orange patch on the crown. Loes, white; a broad malar stripe, white faintly tinged with yellow; remainder of under parts, pale yellow, almost whitish on the throat and becoming deeper, brighter yellow on the centre of the breast and abdomen. A broad, dusky green stripe running back from the base of the lower mandible, bifurcates on the sides of the breast and breaks up into a number of rather narrower stripes on the sides of the body. Lower flanks washed with green. Axillaries and under wing coverts, white; edge of the wing tinged with yellow.

Adult female.—In many females the patch on the crown is smaller and less deeply coloured than in males, but there seems to be no constant difference between the sexes.

Immature.—In the juvenile plumage young birds are entirely olive-green without the orange patch on the crown; the lower breast and abdomen are yellower than the breast and upper parts. In a later stage the under parts combine the pale yellow feathers of the adult with the olive feathers of the juvenile dress.

Soft Parts.—Iris, dark red; edge of lids, slaty; bill, black or slate, base of the lower mandible paler. Feet, bluish slate. *Immature*: iris, pale brown; bill, yellow, blackish on culmen and at the tip. Feet, bluish slate.

Dimensions.—Total length, about 3.75 in.; wing, 2 to 2.2 in.; tail, 1 to 1.1 in.; tarsus, 0.55 to 0.6 in.; bill from gape, 0.47 in.; culmen about 0.35 in.

Range in the Malay Peninsula.—From the northern Malay States of Perlis and Kedah south down both sides of the Peninsula to Singapore island. Also recorded from Penang.

Extralimital Range.—Sumatra, Borneo and Billiton. Other subspecies have been described from the North Natuna Islands in the South China Sea, and Nias Island off the west coast of Sumatra.

Nidification.—Unknown.

Habits.—Although far from rare this bird has not yet been found really numerous in any one locality in the Peninsula. Primarily a forest species, it is apt to occur wherever there are high trees in blossom. Normally, it appears

to be a bird of the lowlands but it has also been taken at low elevations, not above about 2300 ft. on all the hill systems. Whenever I have met with the species it has been in an old forest of tall trees.

Charitociris maculatus septentrionalis

The Yellow-throated Flower-pecker (Northern race)

Prionochilus maculatus septentrionalis Robinson and Kloss, *Journ. Fed. Malay States Mus.*, x., 1921, p. 206 (Chumporn, Peninsular Siam); Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1924, p. 392.

Malay Name.—Unascertained.

Description.—Like the last-mentioned subspecies, but rather more brightly yellow on the breast and abdomen.

Range in the Malay Peninsula.—Peninsular Siam from the Isthmus of Kra south to Trang. No birds have been examined from Patani but this state is probably within the range of the southern race.

Extralimital Range.—North to the south of Tenasserim on the western side of the Peninsula. On the eastern side of the Peninsula apparently not north of the Isthmus of Kra.

Nidification.—Unknown.

Habits.—The habits are not specifically recorded as differing from the southern race. Davison said: “. . . in their habits both the present species and *P. modestum* resemble precisely the different species of *Dicaeum*, as they do also in the localities they frequent. There is really nothing further to be said about them.” Robinson and Kloss, however, quite rightly recorded that the species of this genus are not nearly as common as those of *Dicaeum*, and noted that they are harder to get, as they frequent loftier trees, which entirely agrees with my experience.

Prionochilus thoracicus

The Scarlet-breasted Flower-pecker

Vol. II., p. 280, pl. 24 (*lower figures*).

Male: head and neck, black, except for a large scarlet spot on the crown; back, olive-yellow; rump, yellow; wings and tail, black; breast, scarlet, black-edged; belly, yellow.

Female: quite different. Olive-green above, yellowish below; throat washed with grey; breast washed with orange. Crown with a faint yellowish patch.

Total length, about 4 in.; wing, 2.2 in.

This handsome species is not common in the Peninsula and very little is known of its habits. Personally I have only collected it in tall trees near the bungalow on Gunong Angsi in Negri Sembilan, and most of the Malayan specimens have been taken at submontane stations. Davison, however, collected it in Johore, and a watch should be kept for the species in old forest in the lowlands of the southern part of the Peninsula, especially in the vicinity of hills. The nest and eggs are unknown.

*Piprisoma agile sordidum***The Thick-billed Flower-pecker**

Piprisoma sordidum Robinson and Kloss, *Journ. Fed. Malay States Mus.*, vii., 1918, p. 239 (Selangor, Malay States).

Piprisoma squalidum sordidum, Chasen and Kloss, *Journ. Mal. Br. Roy. Asiat. Soc.*, iii., pt. i., 1925, p. 102.

Malay Name.—Unascertained.

Description.—Almost concolorous; above, brownish olive; below, paler and greyish. Bill comparatively short and thick; upper mandible wide at the base; lower mandible swollen, its outline much curved.

Adult.—Sexes alike. Entire upper plumage from forehead to tail, brownish olive; crown almost without olive tinge, but rump and upper tail coverts greener than the other upper parts. Wing and tail quills, darker brown, the former conspicuously and the latter less markedly edged with olive. Cheeks, greyish brown; remaining under parts, pale ashy grey, the throat and abdomen whitish in the centre. Throat very faintly streaked with brown; a pectoral band of grey is barely indicated, and some obsolete long dusky streaks are just discernible on the remaining under parts. Axillaries, white; under wing coverts, white mixed with grey-brown, especially on the edge of the wing.

Note.—In worn plumage the upper parts are less tinged with olive.

Soft Parts.—Iris, pale yellow; upper mandible, horn-grey; lower mandible, pale blue-slate; feet, black (*C. J. Wilson*). A native collector has noted the irides of two birds from the Rhio Archipelago as "white."

Dimensions.—Total length, 4.1 in.; wing, 2.3 to 2.4 in.; tail, 1.25 to 1.3 in.; tarsus, 0.5 to 0.55 in.; bill from gape, 0.39 to 0.45 in.; culmen, 0.3 in.

Range in the Malay Peninsula.—Selangor.

Extralimital Range.—The present subspecies also occurs on Bintang Island in the Rhio Archipelago. The typical form is Indian, but it does not spread to Tenasserim or Siam. There is thus a large gap in the range of the species. In Malaysia, other subspecies inhabit Borneo and the North Natuna Islands.

Nidification.—Unknown. Oates summarizes the nesting habits of the typical subspecies as follows: "Constructs a small purse-like bag suspended from a horizontal twig on a tree . . . the materials are fibres and the down of flower-buds felted together into a pliable fabric which will bear crushing in the hand and then recover its shape. The eggs, two or three in number, are white or pinkish, marked in various ways with brownish pink or claret-colour, they measure about 0.63 by 0.45 in."

Habits.—The first-known specimen was obtained at Rawang, Central Selangor, on 14th June 1913. It remained unique until 25th November 1924, when a second male turned up at Sungai Buloh, only a few miles away from the locality whence came the first. Since then my collectors have obtained a pair on the Dutch island of Bintang, just in sight of and to the south of Singapore Island, and only a few miles outside the area covered by this book. These specimens were shot out of tall trees. No details of the habits are known.

*Piprisoma modestum modestum***Hume's Flower-pecker (Northern race)**

Prionochilus modestus Hume, *Stray Feathers*, iii., 1875, p. 298 (South Tenasserim); Sharpe, *Cat. Birds, Brit. Mus.*, x., 1885, p. 74.

Piprisoma modestum, Oates, *Faun. Brit. Ind., Birds*, ii., 1890, p. 383.

Piprisoma modestum modestum, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1924, p. 392.

Piprisoma squalidum modestum, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), iii., 1926, p. 436.

Piprisoma agile modestum, Stuart Baker, *Nid. Birds Ind. Emp.*, iii., 1934, p. 248.

Malay Name.—Unascertained.

Description.—Very like the last-mentioned species, but the bill not so thick, the under parts whiter and more distinctly striped and the outer tail feathers with narrow white tips.

Adult.—Sexes alike. Upper parts, brownish olive; wings and tail, darker brown, the feathers edged with olive; three outer pairs of tail quills very narrowly tipped with white on the inner web. A whitish spot on the lores; cheeks, grey; under parts, whitish, becoming grey on the sides of the neck, breast and flanks. Throat and breast with broad, but ill-defined dusky streaks. Axillaries, white; under wing coverts, white mixed with grey; edge of wing, white.

Immature.—The streaking on the under parts is obsolete, and the middle of the abdomen and the under tail coverts are faintly tinged with yellow.

Soft Parts.—Iris, ochreous, orange or reddish; upper mandible, black; lower mandible, slaty; feet, slaty or greenish black (*Robinson and Kloss*).

Dimensions.—Total length, 3.85 to 4.05 in.; tail, 1.15 to 1.2 in.; wing, 2.3 to 2.45 in.; tarsus, 0.45 in.; bill from gape, 0.43 in.

Range in the Malay Peninsula.—Peninsular Siam from the Pakchan estuary south to Trang.

Extralimital Range.—North through Tenasserim and Burma proper to Assam; through Siam to the Shan States. French Indo-China from Cochin-China to South Annam.

Nidification.—Not recorded from the Peninsula. In Cachar, Mr Stuart Baker found the little bag-like nest in trees up to thirty feet from the ground, but usually ten feet or less. The eggs are described as pink with red-brown blotches. They measure about 0.62 by 0.44 in.

Habits.—In the Peninsula this flower-pecker of inconspicuous appearance is either very rare or much overlooked. A few specimens have been obtained at Tapli and Tasan at the Isthmus of Kra; the Takuapa estuary; and Chong, in Trang. I know nothing of the habits.

*Piprisoma modestum finschii***Hume's Flower-pecker (Southern race)**

Dicaeum Finschii Bartels, *Orn. Monatsbr.*, xxii., 1914, p. 125 (Java).

Piprisoma modestum remotum, Robinson and Kloss, *Journ. Fed. Malay States Mus.*, vi., 1915, p. 29 (Negri Sembilan, Malay States).

Malay Name.—Unascertained.

Description.—So like the northern race described above that a separate, detailed description is unnecessary. The southern bird is merely less tinged with olive-green on the upper parts, which are of a darker, duller grey. There also appears to be slightly less white in the tail.

Dimensions.—Wing, 2.3 to 2.4 in. ; tail, 1.13 to 1.15 in. ; tarsus, 0.45 in. ; bill from gape, 0.4 to 0.45 in. ; culmen, 0.3 in.

Range in the Malay Peninsula.—Known only from the southern states of Johore and Negri Sembilan.

Extralimital Range.—West Java.

Nidification.—Unknown.

Habits.—This flower-pecker seems to have been obtained on three occasions in the Malay States. An old mounted specimen in the Raffles Museum was collected at Kota Tinggi, in Johore, in 1892. In January 1913, at Bukit Tangga, in Negri Sembilan, at an altitude of about 1500 ft., the museum collectors secured four specimens in old forest. Davison obtained one skin from a dealer in Malacca. The distance between Bukit Tangga and Chong, Trang, which is the southernmost locality known for the northern race, is nearly 400 miles.