

Charles McFarlane Inglis
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Estd. 1923

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Vol. V, No. 4	Vol. XIX, Nos. 1 and 2

Dedicated to
Charles McFarlane Inglis
(1870—1954)

VOL. XXVII

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APRIL, 1955

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JOURNAL
OF THE
BENGAL NATURAL HISTORY SOCIETY

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BIRDS OF THE DUARS

By

C. M. INGLIS, F.Z.S., C.M.B.O.U.

(Continued from p. 58, Vol. XXVII, No. 2, 1954)

FAMILY PYCNONOTIDAE

62. The Indian Yellow White-throated Bulbul

Griniger flaveolus flaveolus Gould

Fauna Brit. Ind., 2nd. Ed., No. 380

Description.— Length 9 inches. Sexes alike. Upper plumage olive-green, tinged with rufous; sides of face greyish, browner near the eye and on the ear-coverts; chin and throat, white; rest of lower plumage bright yellow.

Bill pale greyish-blue, paler at gape; iris deep red; legs greyish-horny.

The crest is long and pointed and there are numerous long hairs springing from the nape and hind-neck.

Distribution and Habits.— I have obtained this fine Bulbul at Rajabhatkhawa, Hasimara, Haldibari, and in the Moraghat and Tondu forests. It is a very gregarious bird, inhabiting tree-forest, scrub jungle and cane-brakes, and going about in parties of six to twelve individuals. It is a very noisy bird and attracts attention by its calls which are both melodious and discordant. It feeds largely on fruits but seeds and insects are also eaten.

It is sure to breed in the district but I have no information on this point. The breeding season is from May to July and the nest, which is cup-shaped, is composed of leaves, bamboo-spathes, etc., and bound together with roots and grass. It is, generally, placed low down in bushes, and cane-brakes, especially in those near small jungle streams but it does, sometimes, place it higher up in a small tree. The eggs are, generally, 2 in number but, sometimes, 3 and, rarely, 4 are laid. They are of beautiful deep salmon colour with hair-lines, blotches, and specks, of blood-red and maroon and, sometimes, underlying markings of grey are present. The measure about 1 by 0.7 inches.

63. The Himalayan Black Bulbul

Microscelis psaroides psaroides Vigors

Fauna Brit. Ind., 2nd Ed., No. 386

Description.— Length 10 inches. Sexes alike. Crown, nape, crest, a spot base of lower mandible, and a broad cheek-stripe, black ; upper plumage dark grey ; tail and wings, black ; sides of head and lower plumage ashy-grey ; the patch below the tail with white margins.

Bill, and legs, bright coral-red ; iris dark brown.

Easily recognized by its coral-red bill and legs, straggling crest and forked tail.

Distribution and Habits.— A very common Bulbul in the hills and large flocks are to be seen in the plains during the winter. It is a forest bird and keeps, largely, to the tops of trees but does descend, at times, to high bushes and scrub-jungle and has been found nesting there. It is a noisy bird and is one of those which frequent Simal (*Bombax malabaricum*) trees when in flower. Whistler likens its usual note to "a long-drawn nasal *weenk*, resembling the distant squeal of a pig" and a whistle "as *whew-whe* or *whee-whe*, something like the musical creaking of a rusty gate-hinge ; this is often preceded by a couple of notes *squeaky-squeaky*." Its food consists of fruits, berries and insects.

It breeds from April to the end of June. O'Donel took a nest in the foothills, which was placed at the end of a branch some 50 feet from the ground. He found another in the plains, on the 13th May, which was placed about 15 feet from the ground and contained 3 highly incubated eggs. The nest is cup-shaped and composed of thin, pliable twigs, coarse grass, roots, etc., well plastered with cobwebs where fixed to the branch. The eggs number 2 or 3 and are white, or pink, in colour and speckled, blotched and spotted with various shades of red, red-brown and neutral-tint. They measure about 1.05 by 0.75 inches.

64. The Himalayan Brown-eared Bulbul

Ixos (Microscelis) flavala flavala Hodgson

Fauna Brit. Ind., 2nd Ed., No. 391

Description.— Length $8\frac{1}{2}$ inches. Sexes alike. Upper plumage dark ashy ; sides of head silky-brown ; in front of the eye and a moustachial-streak, black ; wings brown, with a patch of olive-yellow across them ; throat white and rest of lower plumage light ashy to white.

Bill black ; iris reddish-brown or crimson ; legs dark plumbeous.

There is a short crest of pointed feathers.

Distribution and Habits.— Common along the base of the hills as high as Baksa Duar and extends well into the plains in the winter, but sparingly. I found it in the Moraghat forest as late as the 26th March but it may remain later. It haunts trees, scrub-jungle and bushes, going about in small parties, or large flocks, consisting of 30 or more individuals, according to Stuart Baker. It too is a noisy bird and has both pleasant and harsh notes. It feeds on both berries and insects.

65. The Himalayan Rufous-bellied Bulbul

Ixos (Microscelis) maccllellandi maccllellandi Horsfield

Fauna Brit. Ind., 2nd. Ed., No. 394

Description.— Length 10 inches. Sexes alike. Top of head with crest, vandyke brown with pale shafts to the feathers ;

upper plumage bright olive-green ; checks grey ; sides of head and neck, also breast rufous, the latter with pale, white streaks ; chin, and throat, grey, streaked with white ; abdomen white, suffused with rufous ; patch below tail ochraceous.

Bill upper mandible horny-black, lower one fleshy with tip dusky ; iris hazel or red-brown ; legs horny-brown.

This Bulbul has, as Whistler says, "the general build of a Black Bulbul".

Distribution and Habits.— I have only once seen, and secured, this Bulbul in the Duars. It was obtained, in the Moraghat forest, on the 11th February, 1932, and is the only record for the district. It is only known to descend to about 2000 feet or, perhaps, a very little lower and this specimen was obtained at 350 feet and many miles away from the hills. It is found, as a rule, in light forest and bushes and although Stuart Baker says it is a quiet bird with "a few musical notes and a loud mellow call, a whistle with three ascending notes". Stevens records it as being "One of the noisiest birds around our camp.....its loud notes attracted my attention." Stuart Baker says it is a most amiable bird and will let smaller birds drive it away from its food without any protest. Its food appears to be chiefly, if not wholly, fruits and berries. It is less gregarious than the last bird.

66. The Striated Green-Bulbul

Alcurus striatus Blyth

Fauna Brit. Ind., 2nd. Ed., No. 397

Description.— Length $8\frac{1}{2}$ inches. Sexes alike. Upper plumage olive-green with yellowish-white shaft-streaks ; sides of head brown, streaked with yellowish-white ; in front of eye, chin and throat yellow, the latter paler ; lower plumage dark, slaty-black, with broad yellow central streaks ; abdomen, and patch below the tail, yellow.

Bill dark brown ; iris reddish-brown ; legs dark plumbeous. Easily recognized by its colour and ample crest.*

Distribution and Habits.— This handsome Bulbul is found in the hills around Baksa Duar. O'Donel came across it at about 3000 feet and higher. It haunts both high and low trees and scrub-jungle and goes about in small parties moving from cover to cover and taking occasional flights ; it is faster on the wing than most Bulbuls. It is not a noisy bird but has a pleasant song which Jerdon described as "a loud, mellow whistle". Its food consists of fruits, seeds and insects.

67. The Bengal Red-Vented Bulbul

Molpastes cafer bengalensis Blyth

Fauna Brit. Ind., 2nd. Ed., No. 403

Description.— Length 9 inches. Sexes alike. Head and upper-back black merging, gradually, into the blackish-brown of the lower-back and lower-breast ; upper-back, wings, and breast, edged with white giving a scaly appearance ; tail tipped with white ; lower plumage, below the breast, ashy-brown ; patch under the tail crimson.

Bill black ; iris dark brown ; legs brownish black.

The head is only slightly crested.

Distribution and Habits.— This, and the Red-whiskered Bulbul, are the two commonest Bulbuls in the district. It is, truly, a garden bird, no garden being without some of them. It, often, congregates in quite large numbers but they are not real flocks, as the pairs act, more or less, separately. It is arboreal but is often seen on the ground picking up something and is quite at home there. It does not haunt forest for preference, but loves scrub-jungle and waste land near habitations. It does a certain amount of damage to fruits, and peas, in gardens and also helps to spread *Lentana* to a certain extent. However, whatever harm it does is more than compensated by the good done in destroying noxious insects. It becomes very tame in captivity and makes a charming pet and is also, sometimes, kept

by natives for fighting purposes. Its notes are cheerful but it has no real song although it has been credited with one in Persian literature, the bird mentioned there is a Nightingale.

I have no local records of its nesting in the district though it most certainly does so. The breeding season is from May to July and it builds a cup-shaped nest, composed of dry grass-stems, thin pliant twigs, etc., and lines it with fine grass, roots or hair. The nests are situated in trees, or bushes, often in one's garden ; in Bihar a pair nested under the eaves of an out-house. The usual number of eggs is 3 but 4, and, even, 5 may be laid. They are pinkish or reddish-white, blotched, speckled and streaked with various shades of red, brownish-red and purplish-red. They measure about 0.95 by 0.7 inches.

68. The White-checked Bulbul

Molpastes leucogenys leucogenys Grey

Fauna Brit. Ind., 2nd. Ed., No. 405

Description.— Length 8 inches. Sexes alike. Forehead and crest hair-brown narrowly edged with greyish-white ; a patch in front of, and round the eye also chin and throat, black ; a conspicuous white patch on the side of the head with a black patch behind it ; upper plumage, and wings, olive-brown with hinder part, and sides of neck, barred with blackish ; tail brown on basal half and black on terminal half, all, except the two middle ones, tipped with white ; lower plumage pale earthy-brown, whitish on the lower abdomen, patch below the tail bright sulphur-yellow.

Bill and legs black ; iris brown.

In this Bulbul the crest curves forward. It can easily be recognised by its brown colour, white patch on the sides of the head and yellow patch below the tail.

Distribution and Habits.— There is no authentic record of this Bulbul in the district but I *believe* I saw it near Baksa Duar. It is a bird of open country haunting shrubs, or bushes, in

pairs or small parties. It does not shun the haunts of man but, nevertheless, may, sometimes, be seen haunting comparatively well-wooded ravines. It has cheery notes and its food consists of insects, fruit and berries and it takes toil of green peas from gardens.

69. The Bengal Red-whiskered Bulbul

Otocompsa jocosa emeria Linnaeus

Fauna Brit. Ind., 2nd. Ed., No. 410

Description.— Length 8 inches. Sexes alike. Top of the head, patch in front of the eye, and a line below the patch of white on the sides of the head, black; upper plumage ruddy-brown; tail, except central feathers, tipped with white; a tuft of shining, crimson feathers from below the eye and a patch, of the same colour, below the tail at its base; lower plumage white, with a blackish-brown, interrupted, band across the breast.

Bill and legs black; iris brown. The crest feathers spring from the centre of the crown.

Distribution and Habits.— A very common, and familiar bird, coming freely into gardens, also common in scrub-jungle near villages and, sometimes, seen in forest country. It becomes so tame that it even enters verandahs, and its sprightly appearance is an asset to any garden. It does, however, make itself disliked as it does a good deal of harm to green peas and fruit but this is compensated by the number of insects it destroys which include termites (white ants) taken on the wing. Another sub-species, which is common on the Nilgiris, was a terrible trial to our hostess at Kotagiri on account of the damage they did to her peas. They seemed to know when no one was about and would sally forth to enjoy their meal but departed, hurriedly, as soon as anyone went near with a weapon. The flight is jerky but quite strong and well sustained. Its notes are pleasanter than those of the Red-vented species.

The breeding season is from March to September and the nest is cup-shaped and composed of thin stalks, grass-bents and roots and lined with finer grass and roots. It is, usually, placed in bushes very frequently in those in one's garden. The eggs number 3 or 4 and are very similar to those of the Red-vented bird, but not as long, nor as variable. They are pinkish in colour and freckled, mottled, blotched and streaked with various shades of red and underlying markings of neutral-tint. They measure about 0.85 by 0.65 inches.

70. The Himalayan Black-crested Yellow Bulbul

Otocompsa flaviventris flaviventris Tickell

Fauna Brit. Ind., 2nd. Ed., No. 413

Description.— Length nearly 8 inches. Sexes alike. Whole head, chin and throat glossy black ; upper plumage olive-yellow ; lower plumage brighter yellow.

Bill dark brown ; iris bright pale yellow ; legs brown.

Distribution and Habits.— A very common bird both in forest and scrub-jungle. It often collects into parties, and small flocks, in the winter but unlike the last species it seldom, or never, seems to frequent gardens. It is not a noisy bird but has a pleasant, trilling note which Stuart Baker likens to *weet-tre-trippy-wit*. Its food consists both of insects and fruits. Stuart Baker has seen it feed on termites on the ground. It is a lively bird and its actions are very similar to those of the Red-whiskered Bulbul.

It, probably, breeds in the hills as Stuart Baker gives its favourite breeding range as "between 1,500 and 2,500 feet elevation." The breeding season is from the end of April to the end of June. The nest is very similar to that of the last species but the above-mentioned naturalist says it is "deeper and better built and nearly always made of tan-coloured materials amongst which dead leaves are always prominent." The nest is situated in bushes, creepers, small saplings, etc., and generally

low down between 2 and 4 feet from the ground, sometimes as high up as 8 feet. The eggs number 2 to 4 and are more profusely speckled all over with fine pinkish, purple-red, or red-brown markings than those of the Red-whiskered Bulbul. They measure about 0.85 by 0.61 inches.

FAMILY CERTHIIDAE

71. Blyth's Tree-Creeper

Certhia nipalensis Blyth

Fauna Brit. Ind., 2nd. Ed., No. 455

Description.—Length 6 inches. Sexes alike. Upper plumage black with rather broad, fulvous streaks ; rump ferruginous ; chin, and throat, white ; rest of lower plumage pale fulvous with the sides, and a patch below the tail, deep ferruginous.

Bill, upper mandible dark horny-brown, lower one pale horny ; iris brown ; legs fleshy-horny.

In this genus the bill is slightly curved downwards and the tail is composed of stiff, pointed feathers.

Distribution and Habits.— O'Donel obtained this species at Baksa Duar. Like other Tree-Creepers they creep about the trunks, and larger branches, of trees, probing the crevices in the bark for insects and spiders. It is a hill bird and never descends even to the foothills and is, generally, seen singly, or in pairs.

72. The Wall-Creeper

Tichodroma muraria Linnaeus

Fauna Brit. Ind., 2nd. Ed., No. 457

Description.— Length 7 inches. Sexes alike.

Winter.—Head brown ; upper and lower plumage ashy-grey ; chin, and throat, white ; wings brown with a large crimson patch on them ; flight-feathers black, with large, white spots on the four outer ones ; tail black, tipped with ashy gradually

changing to white, increasing in extent towards the outer feathers.

The winter plumage is the only one likely to be seen in the Duars.

Bill black ; iris dark brown ; legs black. The bill is very long and slender and the tail is composed of soft, slightly rounded feathers.

Distribution and Habits.—It is only a winter visitor coming down to the river beds where they debouch into the plains. There it may be seen haunting the perpendicular faces of cliffs or large boulders. It is insectivorous and it is a beautiful sight to see it fluttering in front of a cliff or rock, looking like a lovely butterfly.

FAMILY TROGLODYTIDAE

73. The Himalayan Brown, or Scaly-bellied, Wren

Pnoepyga pusilla pusilla Hodgson

Fauna Brit. Ind., 2nd. Ed., No. 472

Description.—Length $3\frac{1}{2}$ inches. Sexes alike. Upper plumage rich brown ; wing-coverts, and inner flight-feathers, with sub-apical buff spots ; lower plumage white, or rich buff, edged with black ; the feathers of the breast, and abdomen have, also, black centres.

It has, generally, been considered that the males have the lower plumage *white* and the *females* have those parts *buff* but Deignan found six *males*, in Northern Thailand, four of which had the lower plumage *buff*.

Bill, upper mandible black, lower one fleshy-horny at base ; iris brown ; legs fleshy-brown.

A typical Wren with very short tail, which is concealed by the rump feathers ; the lower plumage has a scaly appearance.

Distribution and Habits.—Apparently only a winter visitor found both in the hills and the plains, remaining in the latter at

any rate upto the end of March. It keeps to forest country and is rather restless, creeping about fallen tree-trunks and the ground in search of insects, ants and spiders. Stevens says "it resembles a small rodent as it searches the ground in quest of food, most fearless, as on occasions it may come upto one's feet". It has what Deignan calls "a loud ringing song delivered from the top of a rock or stump" Ludlow says it has an alarm note, a sharp *tsik*. It seldom uses its wings.

74. The Nepal Slaty-bellied Wren

Tesia cyaniventer Hodgson

Fauna Brit. Ind., 2nd. Ed., No. 475

The Golden-headed Slaty-bellied Wren

Tesia olivea McClalland

Fauna Brit. Ind., 2nd. Ed., No. 475 part

Description.— Length 4 inches. Sexes alike. Upper plumage olive-green; a yellowish eyebrow and a black streak from the base of the bill, through the eye to the nape; sides of head and whole of lower plumage slaty-grey.

Bill, upper mandible blackish-brown, lower one orange at base; iris brown; legs fleshy-brown.

This Wren has such a short tail that it is not visible; the wing is short and rounded and legs rather long.

The Golden-headed race differs in having the crown and nape strongly suffused with golden contrasting with the olive-green back whereas, in the Nepan species, crown and black are concolorous; also in the Golden-headed species the slaty-grey of the lower plumage is much darker (see "*Birds of Bhutan and Adjacent Territories*" by Ludlow and Kinnear *Ibis*, April 1937 pp: 256-261).

Distribution and Habits.— These two species may be cohabitant during the winter but, as a rule, the Nepal bird is found at higher elevations; breeding at an elevation between 6,000 and 8,000 feet, whereas the Golden-headed species is never found higher than 6,000 feet and is a bird of moderate elevations. It

is quite likely that *both* may be found in the Duars during the winter. So far as I have seen, the winter specimens I have collected appear to belong to *Cyaniventer*. I have no specimens of *Olivea* with which to compare them. The Slaty-bellied Wren is very common in the winter, both in the foothills and plains. I obtained a number in the Moraghat forest and others at Rajabhatkhawa and Hasimara. It is a great skulker keeping to the under-growth in forest but it uses its wings more often as a means of escape than does the Brown Wren. Stuart Baker says "if one can mark it into a dense isolated bush it can be easily caught with a butterfly net". It has, according to Deignan, a song which "is a pretty ripple of clear whistling notes" also an alarm one, "a sharp tsik".

75. The Chestnut-headed Wren

Chorotesia castaneocoronata Burton

Fauna Brit. Ind., 2nd. Ed., No. 476

Description.— Lengths 4 inches. Sexes alike. Crown to nape, and sides of head, bright chestnut with a small white patch behind the eye ; upper plumage rather bright olive-green ; cheeks and lower plumage bright yellow, the breast suffused with olivaceous as also are the sides of the breast, abdomen and patch below the tail.

Bill yellowish-horny, iris brown ; legs fleshy-yellow.

Distribution and Habits.— Found in both the hills and plains. It is a common winter visitor. I obtained it at Baksa Duar in March and at Hashimara Nangdala, the Moraghat forest ; several specimens in the Apalchand forest, near Katambari, in December, January and February. It is found in the same sort of country as the Slaty-bellied Wren and has the same habits as that bird. O'Donel says "it has a loud piercing note like *seek*, usually, repeated twice in succession" and B.B. Osmaston that "it has a shrill call of four notes." It is wholly insectivorous. It is, perhaps, not quite such a skulker as the Slaty-bellied Wren. In its breeding range it is one of the birds cuckolded by the Himalayan Small Cuckoo (*Cuculus p. poliocephalus*). Very many years ago I found an egg of this

Cuckoo in a nest of this bird ; it was impossible to shoot the bird in the dense undergrowth but I managed to capture the Wren, on the nest, with a butterfly net. This was in the Himalayas, at Tonglu (10,000 ft.) on the 6th July.

NATURE'S CONTROL OF LOCUSTS

By

ISWAR PRAKASH

and

RAMESH SRIVASTAVA

Department of Zoology, Jaswant College, Jodhpur

During the tour of the desert of Rajasthan we have observed that most of the common birds, found in the arid and semi-arid region in May-June, feed on locusts in large quantities : so much so that in the locust season the birds cease eating anything but locusts. Following is a short list of common birds which control locusts by eating them in large numbers :—

1. Babblers, *Argya caudata* Dumeril, and *Turdoides sommervillei* Sykes.
2. House sparrow, *Passer domesticus* Linn.
3. Rosy Pastor, *Pastor roseus* Linn.
4. Great Gray Shrike, *Lanius excubitor* Linn.
5. Crows, *Corvus splendens* Viellot, and *Dicrurus macrocercus* Viellot
6. Common Pariah Kite, *Milvus migrans* Boddaert

7. Vultures, *Pseudogyps bengalensis* Gmelin, and *Nephron percnopterus* Linn.

Rosy pastor, a small blackish buff bird, visits the desert region early in the summer which is also the locusts season. In the summer of 1953 large flocks of this birds, consisting of thousands, rather countless birds have been observed in Jaisalmer district. This large flock came along with a huge swarm of locusts. People in that area are of the view that these birds helped in controlling locusts to a very great extent. A legend is also prevalent that this bird kills 108 locusts and eats only one.

The 'Indian desert gerbille' *Meriones hurrianae* Jerdon, which are quite profusely distributed all over the desert area, take great number of locusts. The nocturnal gerbille, *Tatera indica indica* Hardwicke, which are found in patches in Barmer, Bikaner and Jodhpur, are voracious eaters of locusts. As a matter of fact, we have found locusts to be best bait for trapping them. They can devour locusts till the supply is exhausted. The Hedgehogs, *Hemiechinus auritus collaris* Gray and *Paraechinus micropus micropus* Blyth, being insectibores, take a large number of the locusts. Squirrels, *Funambulus pennanti* Wroughton also take a good toll of the locusts. *Varanus grasieus*, though are not too common in this area, also feed on the locusts.

TIGER HUNTING IN INDIA

By

MAHARAJA RAMANUJ SARAN SINGH DEO

Maharaja of Surguja

Among the multitude of many adventurous stories of tiger hunting there are many which are more than merely instructive, apart from being suggestive and informative. They are not only worth reading but their spirit is worth emulating also. Sometimes people fail to understand why a shikari having no self interest undergoes such a risk as to endanger his life. Whatever may be the advantages accruing to the society from such risky adventures, the shikari does not seek any higher privilege than the sensational ecstasy which the poets enjoy through their poems and the musicians through their music. But the hunter derives this pleasure making hunting as his hobby in which there is no selfish motive except on occasions when he is sometimes rewarded for bagging some miscreants which has recently turned to be a social nuisance.

India abounds in tigers especially in Assam, Madhya Pradesh, Rajasthan, U.P., Assam, Nepal, Mysore, Bihar, Orissa and the Nilgiris. This hobby does not cost the hunter much but on the contrary provides him with its final grace. None of these States can beat Nepal in this respect which does not only possess large number of tigers but of very good and fair size. Nepal provides the hunters with some of its peculiar charms of hunting. The 'ring shooting' is best suited to this land because it is much more grassy than teeming with trees. Though ring shooting does not require a high efficiency in hunting and a straight shot, but it presents a very thrilling scene of tigers 'being brought to bay'. Its a tremendous pageant in which the King of Forest is brought to utter confusion. Sitting over kills is also sometimes resorted to in special cases. Psychologically speaking tigers in Nepal seem to be less cunning than their counter-parts in India ; partly because, as it appears, they are less disturbed and because the area is Tarai.

A hunter without being punctual or equipped with presence of mind, quick decision, and unaccustomed to hard life is a failure and he cannot command the spirit of its being a good hobby nor can he enjoy its blessings both physically and mentally. But a good hobby always precludes the hunter from indiscriminate shooting. Some people think that hunting in terms of a hobby allows any kind of and any amount of shooting which is neither socially justifiable nor economically profitable to the Nation. It should be a persistent aim of the hunter to bag good trophies which necessarily excludes the indiscriminate shooting ; otherwise this great national asset might soon be on the point of extinction. And it is gratifying that the Government has taken steps for creation of sanctuaries and it is hoped that these may be run on systematic and proper lines. A good solid result can be achieved only if proper measures are taken.

Compelled by friends to give account of my bag, I am doing so with great hesitation and trust that it may prove interesting reading.

I have shot 1,111 tigers and over 2,000 Panthers. I have hunted in Surguja, Madhya Pradesh, Uttar Pradesh, Assam, Nepal, Rajasthan and Vindhya Pradesh.

I have shot tigers measuring biggest 10' 10" and tigress biggest 9' 6" over curves. The biggest tiger measured between pegs comes to 10' 4½" and tigress 9' or 9' 1". I have shot a white tiger also ; this is mentioned in Rolland and Wards record of big game.

I killed my first tiger when I was 8 years and 11 months old.

My highest bag of tigers is 5 in a beat in five shots and 11 Panthers in one night.

I have hunted in East Africa thrice, viz., in Rhodesia, Uganda, Kenya and Tanganika and have shot many kinds of animals including Rhino, Elephant, Hippo, Lions, etc.

I generally use 0.475 No. 2 H.B. rifle by Hollands for big games, and 0.275 Rigby and Super 0.30 by Hollands for smaller games. I recommend for big games 0.475 No. 2 or 0.470 and for smaller games Super 0.30.

In 1928 thirty-six tigers were shot in Surguja in 28 days. My total bag of Lions in three trips to Africa have been thirty and have shot one lion in Gir forest (formerly in the Junagarh Territory).

Unfortunately in December 1954, a devastating fire destroyed my residence and most of the trophies were destroyed.

ECONOMIC AND POISONOUS ORCHIDS

B. N. GHOSE

By

Orchids are generally cultivated for ornamental and decorative purposes. In many parts of the world they also play an important part in the economic life of man. Large quantities of these plants are collected in America, the Indies and elsewhere and form an important source of revenue to local horticulturists and collectors. Again, a large quantity of cut flowers especially of *Cymbidium*, *Vanda*, *Dendrobium*, etc., are exported to flower markets of the world, specially to California and London and are a source of income to amateurs cultivating these plants in Australia, America, Europe and other countries.

Orchid tubers and roots are supposed to be nutritive and are used in medicine and for domestic purposes. In ancient time the Britons ate pounded orchis tubers. The salep of commerce was largely used as a nutritive food and was chiefly derived from *Eulophia*, *Orchis*, *Satyrium* and *Habenaria*. In Parsia the orchid roots are washed and thrown into boiling water to remove the outer skin, dried in the sun or oven until free from moisture. They are then pounded and when required for drink it is dissolved in milk or broth or water, sixty parts of water to one of powder. It is also used as sago, tapioca and arrowroot and is an excellent diet for the convalescent.

The Australian aborigines use the pseudobulbs of *Cymbidium canaliculatum* as food and chew them raw and also take them as tapioca or sago.

In the East Indies the roots of *Habenaria* are used as food.

The *Vanilla planifolia* of Mexico bears a fleshy fruit of long capsule containing innumerable seeds which secrete a balsamic oil. If kept in a dry phial the capsule becomes covered with pointed and brilliant crystals of Benzoic acid and imparts its delicious perfume to various delicate dishes. It is used in the manufacture of chocolate and in flavouring soup, liquors, sharbets, etc.

In Madagascar the fragrant leaves of the orchid *Angraecum fragrans* are dried and sold under the name of Faham Tea. This tea is said to be very fragrant and are sold in France. This beverage differs from tea and may be drunk not only at the time of making but can be reserved for future occasions and could either be taken cold or made hot again. To develop its aroma milk or spirits are added. This tea resembles and tastes of bitter almond and smells like Tonquin Bean.

Upon opening the receptacle in which the Faham Tea is packed a very powerful perfume similar to Tonquin Bean is given off. This stimulates digestion and is given in pulmonary

tuberculosis. The leaves are also used for flavouring custards, ice cream, etc., in the same way as Vanilla. In Mauritius they are made into cigars and covered with tobacco leaf. Tonquin Bean is the product of a leguminous plant, *Dipterix*. These beans are used by perfumers and snuff makers.

The various bulbous orchids, *Eulophia*, *Habenaria*, etc., of India and other places in Asia produce the salep misri, which contains in a small volume abundance of nutritive starch associated with a peculiar gum. It is now used with chocolate and scented jelly.

Cyrtopodium and *Catestum* produce a kind of glue with which porcelain plates are mended. The Japanese employ *Bletia hyacinthina* as a gluish cement for making skeleton of ware jars. A glue-like substance is also produced from the hardy orchid, *Aplectrum*.

The roots of some epiphytic species are employed in arthritic pains, and *Spiranthes* is reputed to be aphrodisiac.

The roots of *Spiranthes* is a renowned medicine in Chile. The flowers of *Gymnadenia* is administered for fighting dysentery. The rhizomes of *Cypripedium pubescens* replace the valerian as an anti-spasmodic in the estimation of the Anglo-Americans. *Vanda Roxburghii* and *Dendrobium macraei* are used by the Aurvedic medicine men to manufacture various medicines for curing ailments of human beings. The Chinese employ various *Dendrobes* for extracting alkaloids.

It is interesting to note that a few species of orchids have been recorded which are poisonous to human beings, notable amongst these are several of the 'ladies slippers' of temperate regions, particularly *Cypripedium pubescens*, the pubescent stem of which may give a careless handler a case of dermetitis. This

peculiarity exists also in the genus *Vanilla*. The Cuban *Vanilla claviculata* contains a copious viscous juice which is capable of raising large tender blotches in the skin it chances to fall upon.

Mr. D. T. MacDoughall (in Minnesota Botanical Studies) stated that he met with several well grown plants of *Cypripedium spectables* with newly formed seed pods, and while breaking a robust specimen the leaves were brushed lightly across his bared left arm. A slight tinging sensation was felt at the time, and fourteen hours later the arm was greatly swollen from the shoulder to the finger tips and violently inflamed. Ten days of approved treatment were required to reduce it to its normal size, but the effects were perceptible even a month later. On examination it was found that two forms of hairs were present in great abundance. One being pointed and easily breaks off, the other one being tipped and both are infested with a fungus, though to which the poisonous effect is due is not precisely known. It is, however, suggested that these and other species of the genus are protected in a way that renders them unpleasant to grazing animals and it has been repeatedly noticed that large number of these plants growing in woodland pastures have been found intact, while the surrounding herbage would be very closely cropped. Several persons experienced unpleasant effects analogous to that produced by rhus poisoning. Many persons might handle them without danger but susceptible persons should proceed with care as they do in case of *Primula obconica*.

The recent observations, yet unpublished, made by Mr. J. R. Johnson of Takdah, Darjeeling, of bees collecting honey from *Cymbidium devonianum* flowers, becoming inert and insensible and falling off from the flowers is interesting indeed. It must be due to some poisonous effects of the flowers. I have observed exudation of sweet juice at the base of the column of *Cymbidium eburneum* flowers, and a large number of ants infesting the flowers and even cutting small tunnels through the sepals to approach to the sweetish part quickly instead of rounding the large segments. It should be investigated whether it is the

exuded honey or the pie-like matter in the stigma that is responsible for bringing about such effect on the bees. I have observed that insects do not always visit orchid flowers for honey alone but also for feeding upon the loose tissues of the stigma.

It would be interesting to hear of the observation and experience of readers or similar effects on bees visiting orchid flowers.

A CATALOGUE OF PLANTS OF SIKKIM HIMALAYA

By
B. N. GHOSE

(Continued from p. 82, Vol. XXVII, No. 2, 1954)

Note: Figures in columns 4 and 5 stand for the number of the months in the year.
In column 10, L. stands for Lepcha, Bg. for Bengali and P. for Parbatia names.

Order, Genus and Species	Habit of growth	Colour of Flower	Flowering Season	Fruiting Season	Locality	Elevation above sea level (in feet)	Himalaya Rainy or Dry	Distribution	Local name
1	2	3	4	5	6	7	8	9	10
MECONOPSIS Viguier	Perennial herb	...	...	...	...	...	...	...	Bg. Posto
<i>M. villosa</i> Hook F. (Syn. <i>Cathcartia villosa</i>)	"	Bright yellow flowers from upper stem	7-9	10-12	Karponang Major Dara Phalut	10,000 14,000	Damp	Nepal to Bhotan	
<i>M. superba</i> K. & Prain	Herb covered with soft hairs	White flowers from axils	9	11	Chumbi	13,500	Damp	Tibet & Bhotan	

<i>M. paniculata</i> D. Don.	Herb, dense basal leaves hoary	9	11	Tezong Talung (Sikkim)	10,000 14,500	Alpine meadows	Nepal to Assam & Tibet
<i>M. nepalensis</i> D. C.	Herb, leaves densely setose villous reddish brown	6	10	Singaila	9-17000	Damp open stony slopes	Nepal to Western China
var. <i>wallichii</i> (Syn. <i>M. nepalensis</i> D.C.)	Herb leaves	6	10	Tongloo	12,000	Damp open stony slopes	Nepal to Western China
var. <i>M. wallichii</i> var. <i>rubrofusca</i>	-do-	6	10	- do -	- do -	- do -	- do -
<i>M. simplicifolia</i> D. Don.	Herb, stem short and thick	7	9-10	Megu chumbi Zemu.	12,000 16,500	Damp Alpine slopes among boulders	Nepal to South Eastern Tibet
<i>M. grandis</i> Prain.	Stem rigid erect	6	7-8	Paigu Jongri	12,000 14,000	Damp Hill side amongst small bushes.	Eastern Nepal to Bhutan
<i>M. lyrata</i> Cummins & Prain	Stem weak, root like a radish	7	9	Karponang Sherabthang Dikchu Valley	14,000	Damp Stony Alpine meadows	Central Nepal to China

SIKKIM PLANTS

Order, Genus and Species.	Habit of growth.	Colour of Flower	Flowering Season	Fruiting Season	Locality	Elevation above sea level (in feet)	Himalaya Rainy or Dry	Distribution	Local name
1	2	3	4	5	6	7	8	9	10
<i>M. Primulina</i> Prain	Herb	Blue	9	9-10	Aloochang Sikkim	14,000	Damp stony Alpine meadows	E. Sikkim & Bhotan	
<i>M. horridula</i> H. f & T	Herb, persistent leaf bases	Light blue to claret sometimes white	7	10	Guichela Lohmak	14,000	Damp Alpine meadows	Nepal to Western China and Burma	
<i>M. horridula</i> var. <i>racemosa</i>	- do -	- do -	7	10	Ghuchela Nathula	14,000 14,500	- do -	- do -	
<i>M. sinuata</i> Prain	Herb tufted	Blue, purple or violet	7	10	Patang La Changu	12,000	Damp places amongst boulders	Central Nepal to Bhotan	
<i>M. bella</i> Prain	Dwarf Herb	Pale blue or purple	7	9	Megu Ningbil Jongri	13-14,000	Damp rock crevices	Nepal to Bhotan	
<i>M. discigera</i> Prain	Herb, basal leaves in dense rosettes.	Crimson red purple pale blue	7	10	Guichela	14,500	Along water courses in gravelly situation	Central Nepal to Bhotan & Tibet	

FUMARIACEÆ D. C.	Herbaceous plant with slender stems	...	...	...	...	...	...	Bg. Kansulfa
<i>Hypecoum tournesforti</i>	Low annual glaucous herb	...	...	...	...	...	...	...
<i>H. leptocarpum</i> H. f. & T. f.	...	5-7	9	Khambajong Lhonak	14,000 14,500	...	Sikkim Tibet.	...
DICENTRA Borkhaus	Perennial rooted slender climbing herbs.	...	...	...	...	...	...	...
<i>D. scandens</i> Walp Syn. <i>Macrocappos</i> (Hutch)	Herb	2-7	9	Kalipokhri also Dooars	10,000 Tropical	Damp.	Sikkim Gharwal	...
<i>Dactyliscappos</i> Hutch (Syn. Roylei H. f. & T.)	"	7	9	Tem. Himalaya also Tista Valley Tong	5-6000	"	Bhotan Simla	...
<i>D. Thalictrifolia</i> H. f. & T.	Like <i>D. scandens</i>	7-8	10	Tem. Himalaya Sinochal Darjeeling Manebhanjang	4-8000 8000	"	Nepal Bhotan	...

SIKKIM PLANTS

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1	2	3	4	5	6	7	8	9	10
CORYDALIS D. C.									
<i>C. ophiocarpa</i> H. f. & T.	Erect or prostrate herb with perennial tuberous roots.
<i>C. flaccida</i> H. f. & T.	Stem tall	Yellow	7	10	Zemu Valley Thangu	9,000 11,000	Moist	Sikkim	
<i>C. trifoliolata</i> Franch	Herb	Yellow	7	9-10	Alookthang Leghep	14,000 10-12,000	- do -	- do -	
<i>C. lathyroides</i> Prain	Root steck stout	...	7	9	Gnathong	12,000	Damp	- do -	
<i>C. graminea</i> Prain	Herb	Yellow petal with 2 red spots	7	9	Ningbil Tosa	13,000	- do -	- do -	
<i>C. leptocarpa</i> H. f. & T.	Diffuse Herb	...	7	9	Tosa	11-14,000	- do -	- do -	
		Dull purple	5	6	Eastern Himalaya	8,000	...	Sikkim & Bhotan	

<i>C. cachemiriana</i> Royle	Bulb small scaly	Sky blue	7	10	Sikkim	9,000 12,000	Damp	Sikkim to Simla
<i>C. lathyroides</i> Prain	6" stem	...	7	9	Zemu Valley	12,000	Moist	Sikkim
<i>C. graminea</i> Prain	4" stem	...	8	9	Tosa Ladhak Pakyngla	14-15,000	- do -	- do -
<i>C. polygalina</i> H. f. & T.	Herb	Yellow with purple spot	8	9	Sikkim Lohnak	14-16,000	Damp	- do -
<i>C. juncea</i> Wall.	Stem erect slender	Yellow with purple tips	8	9	Sikkim Lohnak	12, 14,000	- do -	Nepal & Sikkim
<i>C. gortschakovii</i> Schrenk	Stem erect	Yellow tip purple	8	9	Karponang Sherab- thang	12,000	In bogs	Sikkim to Mongolia
<i>C. ramosa</i> Wall.	Stem 1'-2' glaucous	Yellow	7	8	Alpine Sikkim	12-15,000	...	Sikkim to Kashmir
<i>var. glauca</i>	leaves very glaucous							
<i>var. vaginans</i>	leaves membra- nous							
<i>var. nana</i>	dwarf							

SIKKIM PLANTS

1	2	3	4	5	6	7	8	9	10
Order, Genus and Species	Habit of growth	Colour of Flower	Flowering Season	Fruiting season	Locality	Elevation above sea level (in feet)	Himalaya Rainy or Dry	Distribution	Local name
<i>C. sibirica</i> Pers-Synops	Weak much branched herb	Dull Yellow	...	...	Jalap La Chua-Bhanjang	7-14,000	Dry	Gharwal to Assam, Seberic	
<i>C. casimiriana</i> Duthé & Prain	Herb	Yellow	7	9	Zemu Valley Changru, Jongru	12,000 14,000	Damp	...	
<i>C. laelia</i> Prain	Herb	Yellow	8	9	Changru	12,000	...	...
<i>C. chaerophylla</i> D. C.	Stem 2'-4' erect	Golden yellow	9	10	Tongloo Tankra La	6-10,000	Damp	Sikkim to Kumaon	
<i>var. geraniifolia</i> H. f. & T.	...	...	8-9	...	Phalut Karponang	9,000	Humid	- do -	
<i>C. latiflora</i> H. f. & T.	Stem Simple	Bright blue tips yellow	11	12	Tankra La Chola	15,000	"	Sikkim	

<i>C. meifolia</i> Wall.	Stem erect leafy	Yellow many flowered raceme	7-9	9-10	Ningbil Zemu	12-15,000	Damp	Sikkim-Kumaon
var. <i>sikkimensis</i> Prain	Stem 1 $\frac{3}{8}$ "	Yellow with black mark	8	9	Ningbil	14,000	- do -	- do -
<i>C. hookeri</i> Prain	Herb	...	8	9	Lonaka	16,000	- do -	Sikkim to Tibet
<i>C. stracheyi</i> Duthoi	Slender much branched herb	...	7	8	Yamphung Zemu	13-14,000	- do -	Sikkim
<i>C. erithimifoliae</i> Royle	Herb	Royal blue	8	9	Lonakh	16,000	- do -	- do -
<i>C. hendersoni</i> Hemsl	Stem 2'-3"		8		Naku La	17,000	- do -	- do -
<i>C. mironifera</i> Maxim	Similar to above	Yellow	8	9-10	Giagong Chumbi	16,000	Dry	Sikkim to Tibet
<i>C. flicina</i> Prain	Stem 6"	Yellow	7-8	9	Singaila	14,000	In streams	Sikkim

SIKKIM PLANTS

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1	2	3	4	5	6	7	8	9	10
<i>C. crispa</i> Prain	...	Yellow	7	9	Tibet	14,000	...	Tibet.	
Section X									
CRUCIFERÆ									
PARRYA Br.									
<i>platycarpa</i> Hk & f. T.	4", Herbs	...	6	8	Lonak	14,000	Moist, near snows	Tibet to Sikkim	
NASTURTIUM Br.									
	Terrestrial aquatic herbs	
<i>N. officinale</i> Br.	Stem much branched	...	5-6	7	Megu	10,000	In bogs	Bengal	
<i>N. palustre</i> D. C.	Stem weak	...	7	7	Lachen	10,000	"	Bengal	

<i>N. montanum</i> Wall	A rough hairy or glabrous annual	Yellow	4	8	Darjeeling	7,000	In bogs	Sikkim-Punjab
<i>N. indicum</i> L.	Herb small	Yellow	4	8	...	upto 4,000	"	Bengal
ARABIS Linn.	Annual or Perennial herb	...	...	...	...	...	...	...
<i>A. glabulosa</i> Kar & Kir.	Annual stem short	White	8	...	Giagong	14-16,000	Damp	Sikkim Tibet
BARBAREA Br.	Biennial herb	...	...	...	...	...	...	Sikkim
<i>elata</i> H. f. & T.	"	Bright yellow	7	...	Inner ranges Sikkim near Villages	13,500	"do"	"do"
<i>vulgaris</i> Br.	Stiff erect herb	Yellow	7	11	Thangu	13,500	Damp	Sikkim
CARDAMINE Linn.	Annual or perennial herb

Eg.
Bil Rai.

SIKKIM PLANTS

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1	2	3	4	5	6	7	8	9	10
<i>C. circaeroides</i> H. f. & T.	Annual stem 6'-12"	...	5-7	7	Interior of Sikkim	5-7,000	Moist wood	Sikkim	
<i>C. trifoliolata</i> H. f. & T.	Small succulent annual	Pale lilac	6	...	Tonglo	9,000	"	Sikkim & Phutan forests	
<i>C. hirsuta</i> Linn.	Annual suberect herb	White	4	6	Temperate regions everywhere	6,000	"	Bengal & Sikkim	
var. <i>sybotica</i> Linn.	Herb	"	3	5	Mongpoo Jhepi	3,000	"	"	
var. <i>ocycarpa</i>	Herb diffusely branched	...	3	5	Hilly streams	...	
<i>C. griffithii</i> H. k. & f. T.	Perennial herb	Pink	7	10	Singalila changu	11,000	Damp	Sikkim	
<i>C. impatiens</i> Linn.	Glabrous erect herb	White	4	6	Lachen	12,000	Damp	Sikkim	

<i>C. macrophylla</i> Willd.	Simple herbaceous root	White or deep violet	7	10	Talung Samdong Lachen	12,000	Very common, moist	Sikkim
var. <i>sikkimensis</i>	Tall Herb	Red	7	10	Yakla Singalila	13,000	- do -	- do -
var. <i>foliosa</i> Willd.	Very small herb	Red, white	7	10	Singalila	13,000	- do -	- do -
LOXOSTEMON H. f. & T.	A minute herb	...	...	...	...	...	...	...
<i>L. pulchellus</i> H. f. & T.	Stem slender	Purple, 3-6 flowered corymb	7-8	...	Megu Sikkim Changu Zemu	10-13,000 13,500 16,500	Moist grassy places	Sikkim
DRABA Linn.	Small tufted herb	...	...	...	...	...	...	...
<i>D. alpina</i> H. f. & T.	Perennial herb	Flowers rather large	7	9	Alpine Sherab-thang	12-17,000	Damp	Sikkim to Kashmir
<i>D. elata</i> H. f. & T.	Annual herb	Flowers sub-capitate	...	9	Nathu la Sub-Alpine	11-13,000	- do -	- do -
<i>D. incana</i> D. C.	Hoary herb	Small white	Alpine	10-12,000	- do -	Sikkim to Kashmir

SIKKIM PLANTS

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1	2	3	4	5	6	7	8	9	10
<i>D. lasiophylla</i> Royle	Like above but more hairy	Small white	Alpine	12-18,000	Damp	Sikkim to Tibet	
<i>D. tibetica</i> H. f. & T. <i>var. sikkimensis</i> H. f. & T.	Lovely tufted woolly herb Leaves closely tufted	Small white Short raceme	...	...	Inner ranges Sikkim ...	13-15,000 ...	- do - ...	Sikkim to West Tibet ...	
<i>D. cholaensis</i> W. W. Smith	Annual herb	Yellow	7	9	Tanka La	13,000	Damp	Sikkim	
<i>D. hummii</i> O. E. Schulz	Root stock, crowded herb	Yellow	7	9	Alpine Sikkim	12-17000	...	...
<i>D. oriades</i> O. E. Schulz <i>var. alpicola</i> <i>var. dasycarpa</i>	Herb	Yellow	...	...	Sikkim	11-13000	...	...
<i>D. polypphylla</i> O. E. Schulz	Herb	...	5	7	Zemu Valley Megu Laghep	13000 11000	... ... ...	... ... Alpine Sikkim	

<i>D. stenobotrys</i> Linn	root stock perennial hoary herb	White	...	...	...	10-17000	Sikkim
var. <i>biocarpa</i> O. E. Schulz	"	Small white	...	...	Alpine Himalaya	12-18000	"
<i>D. ellipsoides</i> H. f. & T.	Weed Annual hairy	White	7	11	Sikkim Himalaya	15-16000	"
<i>D. gracillima</i> H. f. & T.	Hairy, weak ascending stem	Small yellow	7	9	Boktu Kbola Jongri Phari	13000	"
<i>D. variocarpa</i> O. E. Schulz	Herb 6 inches	...	7	11		14000	"
<i>D. altaica</i> C. A. Mey	Tuft of leaves near the base	...	7	9	Lonack	14000	"
COCHLEARIA Linn							
<i>C. himalaica</i> H. f. & T.	A dwarf prostrate annual with slender root	...	...	...	Sikkim Tosa	14600 14500	"
<i>C. serpens</i> W. W. Smith	Annual herb	Violet	7	10	Changu Nathula	12000	"

SIKKIM PLANTS

Order, Genus and Species	Habit of growth	Colour of Flower	Flowering Season	Fruiting Season	Locality	Elevation above sea level (in feet)	Himalaya Rainy or Dry	Distribution	Local name
1	2	3	4	5	6	7	8	9	10
<i>C. scarpiflora</i> H. f. & T.	Root stock very stout	Pale lilac	7/8	..	The La, Nathu La, Changu	16500 17500	Damp	Sikkim	
LEPIDOSTEMON H. f. & T.	Dwarf Simple annual	..	..	..	..	..	..	..
<i>L. pedunculatus</i> H. f. & T.	Dwarf leafy sub-umbrellifed herb	Yellow sub-corymbose	7	9	Rocky Hills of Tungu	14000	Damp	Sikkim	
ARABIDOPSIS (<i>Sisymbrium</i>)	An erect rigid biannual	..	..	..	..	..	..	..
<i>A. mollissimum</i> C. A. Mey	perennial herb	White or purple	7	9	Tem. Sikkim	8/10000 12-1400	Damp	Sikkim to Kashmir Altai	
<i>A. himalaicum</i> H. f. & T.	Stem erect small herb	Pink	7	9	Zemu Valley Sherab-tsang Guchela	10/12000 14000	- do -	Sikkim Kashmir	

<i>A. thalianum</i> Gay & Monn.	an erect slender branching annual	...	7	10	Tem Himalaya	5/10000	Wet	Sikkim to Abyssinia
<i>A. deltoideum</i> H. f. & T.	Tall erect herb	White	7	9	Momey Sandong Sherab-thang	13000	Wet	East Sikkim
<i>A. sophia</i> Linn.	Tall herb	Pale Yellow	...	9	Lhonak Himalaya	9-16000	- do -	America to India
<i>A. himite</i> Carney	4" branch-in herb	...	9	9	Gyantse	16000	- do -	Sikkim
<i>A. monachorum</i> W. W. Smith	Herb	...	...	...	...	...	...	...
EUTREMA Br.								
<i>primulaefolium</i> H. f. & T.	Stemless herb	White	7	11	Gnathong on rocks	12500	- do -	Sikkim & Tibet
<i>himalaicum</i> H. f. & T.	Erect simple herb	White	7	9/10	Lachung	10-13000	- do -	Sikkim
ERYSIMUM Linn								
<i>E. deflexum</i> H. f. & T.	dwarf shrub crowded root stock	Yellow	8	8	Giagong Kangra Lama	15-16000	- do -	- do -
<i>E. funiculosum</i> H. f. & T.	"	...	8	8	Nathula Kangra Lama	17000	- do -	- do -

SIKKIM PLANTS

Order, Genus and Species	Habit of growth	Colour of Flower	Flowering Season	Fruiting Season	Locality	Elevation above sea level (in feet)	Himalaya Rainy or Dry	Distribution	Local name
1	2	3	4	5	6	7	8	9	10
<i>E. longisiliquum</i> H. f. & T.	Tall herb	...	...	7/8	Ningbil Thango	13000	...	Sikkim	
<i>E. pachycarpum</i> H. f. & T.	Stem many angled	Orange Yellow	5/6	7/8	"	13000	...	Sikkim	
BRAYA St. & Hoppe									
<i>B. rosea</i> Bunge	Tufted herb	Corymbose rose	7 ...	7/8	Yumchola	15-16000	...	Sikkim, Kumaon, W. Tibet, Siberia	
<i>B. oycarpa</i> H. f. & T.	Tufted herb	...	7/8	7/8	Chorten Nima La	17000	"	Sikkim	
<i>B. tibetica</i> H. f. & T.	Rigid pur- plish herb	Red	7/8	8	Lhonak Chorten Nima La	17000	"	Sikkim to Tibet	
BRASSICA Linn.									
<i>B. rugosa</i> Prain.	Glabrous hispid herb	Yellow ...	3	4	...	...	...	Temp. old world	P. Rai Sag

<i>B. juncea</i> Hook & Bing	cultivated	...	3	4	...	...	...	Bg. Rai Sorsey
<i>B. campestris</i> Linn.	...	Yellow	2	4	...	...	...	Bg. Swet Sorsey
<i>B. trilobularis</i> H. f. & T.	Like Radish	"	2	4	...	...	...	Himalaya to Assam in Fields
CAPSELLA Moench <i>Bursa-pastoris</i> Moench	Pods short, a weed of cultiva- tion	White	5	7	Temp India	...	...	Throught- out India
<i>C. thomsoni</i> H. f. & T.	Stem 6"-16" Hoary herb Root long perennial fusiform	White	5	7	Nakuchu	15-1700	Damp	W. Tibet
RAPHANUS Linn. <i>R. Sativus</i> L	Root vari- able in size, fleshy	Large Yellow lilac white	3	5	Cultivated in tropics and temper- ate Zones	...	...	Europe & Asia
LAPIDIUM Linn.	Pods short, erect herb	...	...	...	...	...	...	...
<i>L. capitatum</i> H. f. & T.	Prostrate leafy herb	...	7	9	Giagong	Temp sub- alpine Him. 15-16000 Lonak	Damp	Sikkim Kumaon

SIKKIM PLANTS

Order, Genus and Species	Habit of growth	Colour of Flower	Flowering Season	Fruiting Season	Locality	Elevation above sea level (in feet)	Himalaya Rainy or Dry	Distribution	Local name
1	2	3	4	5	6	7	8	9	10
DILOPHIA Thoms	Dwarf glabrous fleshy herb perennial root.	...	...	...	...	...	...	...	...
<i>D. salsa</i> Thoms.	Root simple with spreading stems	...	7	...	Lhonak	14000	Lhonak Zemu	Salt marshes W. Tibet	...
THLASPI Linn.	Annual or perennial herb	...	...	...	...	...	...	...	...
<i>T. arvense</i> Linn.	Stem 6'-18" erect weed	...	...	...	Lachen	14000	...	Europe, Asia in cultivated places	...
<i>T. alpestre</i> Linn.	Stem 4'-12" perennial	White large	5	9	Lhonak	7-12000 17000	...	Both Hemispheres	...
<i>T. cochlearioides</i> . H. F. & T.	Small decumbent herb	White Small	5	(8)	Yumchoia	14-15000	...	Sikkim Himalaya	...

**ANNUAL REPORT OF THE BENGAL NATURAL HISTORY
SOCIETY AND NATURAL HISTORY MUSEUM,
DARJEELING, FOR THE YEAR ENDING
MARCH 31, 1955**

During the year under review, the activities of the Society and Museum were maintained satisfactorily. The Museum continued to be popular with the visiting public. For the convenience of visitors, the Museum galleries are being kept open on Sundays while kept closed on Mondays instead.

The publication of the Journal was continued regularly. Several new members, including two Life Members, were enrolled.

New additions were made to the exhibition galleries and collections of the Museum.

The post of the whole-time Curator of the Museum remained vacant, and Mr. E. D. Avari acted as Honorary Curator for the period from 1st to 20th April, 1954 and December 13, 1954 to March, 31, 1955, and Dr. J. C. Saha performed the duties as Honorary Curator for the period from April 21 to December 12, 1954.

New Exhibits Displayed

The following exhibits were added to the display galleries:—

1. One head of a Barking Deer with unusual horns, nicely set-up by Van Ingen & Van Ingen of Mysore, was kindly presented to the Museum by Mr. B. N. Crees. The specimen was shot at Lopchu Tea Estate (Elevation 2800 ft.), Darjeeling.
2. One skin of a Royal Bengal Tiger, properly mounted on a frame, was kindly presented by Mr. E. D. Avari. The animal was shot by Mr. Avari at Darjeeling Terai.
3. One head and skull of Serow (or Thar) was kindly presented by Mr. K. S. Tirwa of Kalimpong.

4. One skin of Civet Cat was kindly presented by Mr. R. Banerjee, I.A.S.
5. One skin of a Python was kindly presented to the Museum by Mr. R. A. Padmanathan, Manager, Long-View Tea Estate, Darjeeling.

Item Numbers 3, 4 and 5 were received through the kind courtesies of Mr. S. Dutt-Mazumdar, I.A.S., former Deputy Commissioner, Darjeeling, and Chairman of the Museum.

New Additions to Collections

The following specimens were added to the collections of the Museum during the year under report :—

1. One skin of a Hodgson's Flying Squirrel
2. One skin of the Golden-Throated Barbet
3. One skin of the Great Himalayan Barbet
4. Two skins of the Himalayan Tree-Pie
5. One skin of the Sikkim Red-Headed Laughing Thrush.

A few specimens of moths, butterflies, beetles and other insects were also collected.

Publication of the Journal

During the year three issues of the Journal, namely, Vol. XXVI, No. 4 (April, 1954), Vol. XXVII, No. 1 (August, 1954) Vol. XXVII, No. 2 (December, 1954) were published.

The issue No. 3 of Vol. XXVII is in press and is expected to come out soon.

Exchange of Journals

New exchanges of our Journal were entered into with (1) *Tulane Studies in Zoology*, beginning with Vol. 1, No. 1, 1953 (Tulane University, New Orleans, Louisiana, U.S.A.) ; (2) *Castanea*, beginning with Vol. 1, No. 1, 1936 (Southern Appalachian Botanical Club, W. Va. University, Morgantown,

U.S.A.) ; and (3) *Paikistan Journal of Science*, beginning with Vol. 1, No. 1, 1949 (Pakistan Association for the Advancement of Science, Lahore, Pakistan).

New Journals Subscribed

Museum, beginning with Vol. VII, No. 1, 1954, a quarterly review of museums of the world published by UNESCO, Paris, France.

Books added to the Museum Library

1. The Birds of Burmah. By Bertram E. Smythies (2nd Edition, 1953).
2. The Snakes of India and Pakistan. By Lt. Col. K. G. Gharpurey (4th Edition, 1954).

Life Membership

For the first time in the history of the Society, two members, namely, Mr. D. G. Sevastopulo, F.R.E.S., and Mr. H. E. Tyndale, enrolled themselves as Life Members of the Society.

Ordinary Membership

The following persons and institutions were enrolled as Ordinary Members of the Society during the year under report :

1. Dr. S. D. Basu, Regional Assistant Director of Health Services, Government of West Bengal, Jalpaiguri.
2. Father G. Carlson, St. Joseph's College, Darjeeling.
3. Mr. H. J. D'Aguiar, Clifton Hall School, Darjeeling.
4. Mr. S. Dutt-Mazumdar, I.A.S., District Magistrate, Nadia, Krishnagar.
5. Mr. Syed Golam Hossain, Ranichera Tea Estate, P.O. Sailihat, Jalpaiguri.
6. Mr. P. M. Mathew, Biology Department, St. Joseph's College, Darjeeling.
7. Mr. S. Mitra, M.Sc., Curator, Lloyd Botanic Garden, Darjeeling.

8. Mr. T. Mitra, Divisional Forest Officer, Darjeeling.
9. Mr. J. P. Shaw, Dim Dim Tea Estate, Dim Dim, Jalpaiguri.
10. Mr. D. M. Sinha, A.I.F.C., Divisional Forest Officer, P.O. Chaibasha, Behar.
11. Raj Kumar Shyamanand Sinha, Benaili Raj, Champanagore, P.O. Benaili, Behar.
12. Kumar Taranand Sinha, Benaili Raj, Soni Kothi, Bhagalpur, Behar.
13. Mr. E. C. G. Williams, P.O. Purnea, Behar.
14. Mr. C. J. T. Wrenicke, Poste Restante, Victoria, Scyhelles.
15. Headmistress, Government Girls' High School, Krishnagar.
16. Principal, Mount Herman School, Darjeeling.
17. Principal, Scottish Universities' Mission Institution, Kalimpong.
18. Science Society, Dr. Graham's Homes, Kalimpong.
19. St. Paul's School, Darjeeling.

Acknowledgment

Our grateful thanks are due to the numerous donors of specimens, books and journals to the Museum, to the contributors to our Journal, and to all our Members and well-wishers who have helped in various ways towards proper functioning of the Museum and make our Journal a success during the year under review.

J. C. SAHA

Secretary

Bengal Natural History Society &
Hon. Curator

Natural History Museum

Darjeeling

13-7-1955.

STATEMENT SHOWING RECEIPTS AND EXPENDITURE OF
THE NATURAL HISTORY MUSEUM, DARJEELING, FOR
THE YEAR ENDING MARCH 31, 1955

(127)

<i>Receipts</i>	<i>Expenditure</i>
1. West Bengal Government Grant to the Museum ...	1. Pay of Superior Staff including fixed T.A. of Curator Rs. 1,624/ 3/-
Rs. 4,500/ 0/-	2. Pay of Inferior Staff ...
2. Darjeeling Improvement Fund Grant ...	Rs. 1,368/12/-
Rs. 3,000/ 0/-	3. Printing charges of the Journal (for two issues only)
3. Darjeeling Municipality Grant	Rs. 970/14/6
Rs. 1,524/ 0/-	4. Office and Miscellaneous expenses ...
4. Subscription from Members	Rs. 899/ 5/3
Rs. 1,690/ 0/-	5. Subscriptions to other Societies
5. Donations ...	Rs. 31/11/-
Rs. 233/ 9/-	6. Provident Fund Contribution
6. Miscellaneous Sale Proceeds	Rs. 49/ 8/-
Rs. 155/ 4/-	Total ...
Total ...	Rs. 4,944/ 5/9
Rs. 11,102/13/-	Closing Balance ...
Opening Balance ...	Rs. 11,523/15/9
Rs. 5,365/ 8/6	Grand Total ...
Grand Total ...	Rs. 16,468/ 5/6
Rs. 16,468/ 5/6	

J. C. SAHA
Honorary Curator
Natural History Museum
Darjeeling
13-7-1955.

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