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BENGAL NATURAL HISTORY  
SOCIETY



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Edited by C. M. INGLIS, F.Z.S., B.E.M.B.O.U.

## BENGAL NATURAL HISTORY SOCIETY.

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The Society under the name Darjeeling Natural History Society was started about the end of 1923, the objects being to maintain the Museum in a proper condition ; to promote the study of Natural History and to get together, as complete as possible, collections of Natural History specimens from a limited area, including "the Civil Districts of Jalpaiguri and Darjeeling and the State of Sikkim", as well as what could be procured from the neighbouring countries of Tibet, Bhutan and Nepal.

The Government and Municipal grants not being sufficient for our purpose, it was proposed to enrol members so as to increase our funds, and a Quarterly Journal has been started. The Journal is no longer confined to articles on the Natural History of the above mentioned area, but includes those from anywhere. It is hoped that everybody will join the Society and co-operate to make the Museum and Journal a success.

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- Vol. I, Nos. 2, 3 and 4
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- Vol. III
- Vol. IV, Nos. 1, 2 and 3
- Vol. V, No. 4
- Vol. VI, No. 1

## CORRIGENDA.

VOL. XXI. No. 4.

PAGE	LINE	
101	4 (from bottom)	read "suffused" not "ruffused"
103	12 ( ,, top)	capital "F" to "feathers"
105	19 ( ,, top)	read "Machlolophus" and not "Machlophus"
105	19 ( ,, ,)	read "Vögel" and not "Vogel"
105	19 ( ,, ,)	read "Paläark" and not "Palaark"
105	16 ( ,, bottom)	capital "S" to "sylviparus"
119	18 ( ,, top)	delete "-" between "on-to"
120	17 ( ,, bottom)	read "grains" for "graing"
127	on photo	read "thamin. Thomas" and not Thamin.
132	10 (from top)	read "elevated" and not "elavated"
133	13 ( ,, ,)	read "Pariah" and not "Paria"
133	9 ( ,, bottom)	read "phaenicurus" and not "phoenicrus"



CORYLLIS VERNALIS VERNALIS (Sparrmann)

The Indian Lorikeet.

$\frac{1}{2}$  Nat. Size.

decidedly beneficent species to the farmer. It has a flute-like note. Large numbers congregate on trees in the evening and are most vociferous before they settle down for the night.

The breeding season is from May to August, most eggs being laid in June and July but eggs have been found as early as the end of March. In North Bihar we found Pied Mynas usually breeding in colonies but Stuart Baker says "as a rule they breed singly". Some birds have two or three broods in the year.

The usual sites for nests are trees in gardens, or near villages, these are, generally, built at no great height from the ground usually between 10 and 12 feet up but, sometimes, they are even 40 feet up in some big trees.

The nest is, often, made in a fork near the extremity of a branch, or in a clump of bamboos and, rarely, in a cavity in a tree trunk. It is a large untidy conglomeration of roots, twigs, grass, rags etc., sometimes a couple of feet in diameter. Both birds incubate the eggs.

The eggs, 4 to 6 in number, are moderately broad ovals pointed at the small end and exceedingly glossy. In colour they are spotless pale, or sky, blue, sometimes tinged with green and measure  $1.10 \times 0.12$  inches.

Jerdon says it is often taken young and caged, has a pleasant song and is a great imitator of other birds. Finn wrote he believed "when nest reared it can be taught to whistle very well." He also says in captivity it needs more animal food than other species. Further on he remarks, "The Pied Mynah in captivity is apt to turn more or less black on the light parts of its plumage. I once saw in a cage one of these birds which was pale drab all over the parts which should have been black" (*Garden and Aviary Birds of India p. 5.*). Pied Mynas bear captivity well.

The vernacular names for this Myna are *Ablak Maina* in Hindi and *Ablaka gosalik* and *Gina-leggra* in Bengali.

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On "A List of Birds of Darjeeling and Neighbourhood."  
(Continued from Vol. XXI p. 116).

309. *Lioparus chrysotis chrysotis* (Blyth). The only occasion when I have collected specimens, in Sikkim, of this trim, lively bird, giving pleasure to the enthusiast in its rich orange-yellow breast and silvery white cheeks and ear-coverts, was on 26 Feb. 1920 at 7,200 feet in the Lachung Valley.

We failed to come across it for some unaccountable reason either in the District of Darjeeling—where I was better acquainted with it, and where it is possibly more numerous—or in Sikkim, in 1930-1. Additional evidence of its distribution in Sikkim is desirable; for there it may be just as wide-spread. (Recorded from 6,500 ft (Nov.) to 9,000 ft (Sept.) for Bhutan (Ludlow). Meinerzhagen makes no reference to it; presumably he did not come across it in 1925.

The keen observer cannot fail to be impressed by its resemblance to some of the high-altitudinal members of the genus, *Suthora*, in shape, sleek and soft plumage, vivacious activity, and similar choice of habitat.

Several systematists merge *Lioparus* in *Fulvetta*. Delacour goes even further in uniting such genera as *Pseudominla*, *Fulvetta* and *Lioparus* into one genus, *Alcippe*. There is a danger in the lumping together of genera, as practised nowadays, which, if it is not curbed, bids fair to retard and even stultify, rather than simplify, classification.

(Of this compact genus, *Lioparus*, other races are as follows :

*L. C. forresti* (Rothschild). Type Loc. Shweli-Salween Divide.

*L. c. amoena* (Mayr) 1941. Type Loc. Northern Tonkin. The first specimens of this race were got by me at Ngai-Tio, (c. 5, 500 ft) Tonkin-Yunnan frontier, in May & June 1924.

*L. swinhoei* (Verreaux).—Type Loc. Mupin—is a well-defined species recognizable at a glance, which I did not meet with in Muping and adjoining Meipong in 1929 when (the late) J. Huston Edgar and myself slogged away on short commons through the former, ancient, semi-independent state of the Mantze - the fascinating collecting-ground remote, rugged and inhospitable of that eminent naturalist, Père Jean Armand David (1826-1900) - by an acute angle-alignment route, at the same time collecting a series (5) of the distinct Tit, *Parus davidi* (Berezowski & Bianchi); a Bullfinch, *Pyrrhula erythaca altera* Rippon; the Laughing-thrushes, *Garrulax lunulata* (Verreaux), and *Garrulax affinis blythii* (Verreaux); besides other interesting birds and small mammals in one of the few remaining but up to then hidden strongholds of so mysterious a survival as the long-lost *Beishung* or Giant Panda.)

310. *Heterophasia picaoides picaoides* (Hodgson)

Apart from Tarkhola in the Tista Valley, where 2 ♂ & 2 ♀ were got in January 1931, it was not seen elsewhere. (Ludlow records getting four at Diwangiri (c. 2, 100ft) in Bhutan, Feb. 1936; he also remarks, "Not obtained in 1933 or in 1934." Farther east, during January & February, I have recorded it from numerous localities at the base of the Himalaya in Upper Assam. Apparently in northern Burma, according to Stanford, it occurs at altitudes of 3,000 - 6,000 ft.) So far it has not been recorded for the Sikkim Himalaya at a higher altitude than that of 2,500 feet by G. E. Shaw.

311. *Leioptila capistrata nigriceps baileyi* Kinnear.

*L. c. baileyi* was described by Kinnear from east Bhutan in 1939, who states "Birds from Sikkim and the Chumbi Valley

have not such dark backs as the Bhutan specimens, but are nearer to *baileyi* than *nigriceps*, the Nepal bird." A ♂ & ♀ were got at Tarkhola and Sangsir in January at as low an altitude as 800 feet. Three ♂♂ & a ♀ were got above Rongli and above Lingtam. In the same year at Jeluk in April 1931, I have a note jotted down then referring to a pair seen at 9,500 feet. This wide range shows a considerable extension in its zonal distribution as compared with that recorded by me (Rashab, Tista Valley, 1,700 ft. & 1,850 ft. March; and that of Senchal, 8,300 ft by Shaw.) and published on 31 Dec. 1923 in the *J. Bombay N. H. Soc.*, when engaged on a lone enterprise and starting from scratch.

326. *Actinodura nipalensis nipalensis* (Hodgson). Ticehurst remarks (*The Ibis*, 1935, p 57) "I do not consider the relative length of the tail in this group of Bar-wings constitutes a generic character, and, therefore, I use *Actinodura* for all instead of *Sibia* in the *nipalensis* group." Kinnear previously had adopted a similar course (*Bull. B. O. C.* vol. liii, p. 79, 1932). 5 ♂♂ & 3 ♀♀ were collected at Jeluck (c. 9,200 ft) 3--21 April 1931. Evidently its altitudinal range in Sikkim corresponds closely to that for the District of Darjeeling. These records thus confirm earlier ones of mine.

Curiously enough, no specimens of *Actinodura egertoni egertoni* Gould, which species nested regularly at Gopaldhara, and of which Inglis collected specimens in May at Gangtok, are listed in the 1930-1 collection.

332. *Staphidia castanceiceps rufigenis* (Hume). Ticehurst (*J. Bombay N. H. Soc.* xxxvi, p. 923) gives reasons for this alteration, which is now generally adopted. [No mention of this bird is made by Ludlow in his several and thorough expeditions to Bhutan, though it commonly occurred in the Miri Hills at 4,000 feet and at almost plains-level during the cold weather in the gorges of the rivers on the North-east frontier in Upper Assam, where a number was collected by me. Mayr considers that these latter birds may have to be included in his new race, *conjuncta*.]

333. *Siva strigula strigula* Hodson. 8 ♂♂ & 4 ♀♀ were collected at Lingtam, camp 5,250 ft, 23rd January, 28th February, and at Jeluk, 9,100—9,300 ft., 3–21st April, 1931, which altitudes for these months correspond favourably to those of my previous records.

335. *Siva cyanouroptera cyanouroptera* Hodson. My experience coincides with that of Ludlow who, for Bhutan, remarks: 'Inhabits a lower zone than *strigula*.' However, two ♂♂ were collected at Lingtam and Jeluk (9,200 ft.) in April 1931, 7 ♂♂ & 7 ♀♀ having been collected at lower elevations earlier, which, as I had before surmised, is proof of its reaching higher altitudes in Sikkim in comparison with those of the outer District of Darjeeling. [Ludlow's records do not exceed 4,000 feet for Bhutan, being also for November.]

339. *Yuhina gularis gularis*. Hodgson. It was got only at Jeluk and Lachen, 7 ♂♂ & 3 ♀♀, however, being from altitudes of 9,100 feet & upwards and at 8,800 feet & upwards in April & May respectively, in 1931.

342. *Yuhina occipitalis occipitalis*. Hodgson. Three males and nine females were collected in 1931 and are from Jeluk (9,200 ft.) in April, Changtang (5,350 ft.) in May, Lachen (8,800 ft.) in May, Thangu (12,800 ft.) in May, and Lachung (8,800 ft.) in June.

343. *Yuhina nigrimentum nigrimentum*. (Hodgson) It was not got elsewhere than at Mongpu and Sangsir where five specimens were prepared for the Chicago N. H. Museum. A hill species restricted to moderate altitudes, and to an upper limit of 4,000 feet or thereabouts on the N. E. frontier.

345. *Ixulus flavicollis flavicollis*. (Hodgson). Of the 9 ♂♂ & 8 ♀♀ collected in 1931, 2 ♂♂ & 2 ♀♀ are from Lingtam and Jeluk (9,200 ft.); the latter altitude slightly exceeds Blanford's record: Lachen (9,000 ft.) Mayr (*The Ibis*, Jan. 1941, p. 91) "agrees with Rothschild

and Delacour that it is impossible to maintain *Ixulus* as a separate genus." If so treated, this species would then appear as *Yuhina f. flavicollis* Hodson.

350. ***Herpornis xantholeuca xantholeuca***. Hodgson.

Unless an obvious error is to be perpetuated, it is surely advisable to ignore, *Erpornis* and replace it by the correctly spelt, *Herpornis* as the generic name, which, however, is against the Rules but in conformity with Oates's treatment in the Edn. 1, 'F. B. I.' *Birds*. All our 1930-1 specimens—4 ♂♂ & 5 ♀♀—were collected at Sivok, Mongpu and Sangsir.

[Stanford actually records it from northern Burma at 8,700 feet in oak forest in January. It occurred commonly in the tree tops of evergreen forest at plains-level in the cold weather in Upper Assam. In Bhutan, Ludlow got it twice, at 1,500 & at 3,000 feet, on both occasions in November.]

353. ***Cutia nipalensis nipalensis***. Hodgson. In

1931 it was got only at Lingtam (c 5,250 ft.) 23 Jan., 28th Feb., where nevertheless 4 ♂♂ & 3 ♀♀ were prepared. [Ludlow makes no mention of it for Bhutan, though Kinnear refers to a single specimen thence in the Pemberton collection. Stanford records it from northern Burma as "usually at heights of over 7,000 feet (once at 4,000 ft.", while Forrest is recorded as obtaining it on the Shweli-Salween Divide at 9,000 to 10,000 feet!] Inglis secured one at Gangtok in June.

354. ***Pteruthius erythropterus erythropterus***.

(Vigors). As other geographical races are recognized, the trinomial is required. Only a single female was got during 1931 in Sikkim, at Lingtam whereas 5 ♂♂ & 6 ♀♀ were got at Mongpu, and Sangsir (c. 800 ft.) in the Kalimpong sub-division of the District of Darjeeling. It evidently occurs during the cold season at a much lower altitude than that of 2,500 feet as recorded by Jerdon, and my previous limits of from 4,000 to 6,000 feet are in need of revision, for the

lower figures. [It is mentioned for Bhutan at from 5,000-8,000 ft. (*Ludlow*).] "Secured at Gangtok in September" (*Inglis*).

356. *Pteruthius melanotis melanotis*. Hodgson.

For this name, which is generally accepted, see Ticehurst (*The Ibis*, April 1938, p. 202). There is a single female from Mongpu, and two males and a single female from Lingtam (*Chicago N. H. Msm.*)

360. *Hilarocichla rufiventer rufiventer*. (Blyth).

The trinomial is required because of another race, *delacouri* Mayr. We failed to meet with it in 1930-1. [Ludlow makes no mention of it for Bhutan. Stanford records it at elevations of from 5,000 to 9,000 feet between 27 November and 12 March in northern Burma.] Mayr merges this genus, *Hilarocichla*, in *Pteruthius*. As this is a scarce bird of which little is known, notice of its occurrence on every occasion should be reported and recorded. [I obtained the following specimens ♂ Jorpokhri, 7300 feet, on the 25th March 1902; ♂ Tukdah 6000 ft. on 16th November 1931, ♂ Rambi 7000 ft. on 3rd December 1931 and ♂ Lepchajagat, 7300 ft. on the 11th October 1933. *Editor.*]

367. *Myzornis pyrrhoura*. Hodgson. We had no

luck with this choice rarity—a jewel for an ardent ornithologist—in 1930-1. Many years ago Dr. Hartert informed me that he had seen it in Darjeeling (c. 1887-1), but was unable to secure it, the use of a shot gun within the environs of the 'station' being out of the question. A thrill that can also be tempered with sadness! Perhaps others in a similar predicament may have been too venturesome. Apparently there are few records of its having been got since 1912, when more were seen than collected, though a series of eleven specimens prepared amply compensated and furthermore satisfied me, after enduring the exceptionally rigorous conditions throughout that winter. Inglis records obtaining it between Karponang and Changu in September. [I again obtained it between Kalapokhri and Sandakphu on the 11th and 17th October 1928. *Editor.*]

Undoubtedly extremely local in its distribution, but it is much more in evidence with the advent of warm weather in late March and in April along the Single la Ridge than in Sikkim. A fact pointing to an ascent or a descent according to season and food supply, as earlier recorded by me.

[Surely it would have been prudent to await "confirmation" before rushing into print on "Dr. Law records having had this bird taken by one of his collectors at Jessore." (*J. Bengal N. H. Soc.* July 1944, p. 14)

So vague a record from a District of which the capital is 74 miles N. E. of Calcutta puts too great a strain on one's credulity.]

368. *Chloropsis aurifrons aurifrons*. (Temminck). There are five specimens in the 1930-1 collection from Sivok and Tarkhola. It was not met with elsewhere, which was not surprising; for we were on higher ground afterwards.

376. *Mesia argenteauris argenteauris*. Hodgson. Specimens were prepared at Sangsir (c. 800 ft.) and Rungpo (1,200 ft). It was possibly overlooked or neglected later in 1931. These records for the Tista Valley denote a slightly lower altitude than that of an earlier record (1,500 ft.)

[The richest-coloured race is *Mesia argenteauris rubrogularis*, with brilliant orange-yellow collar, and the crimson-vermillion throat and upper breast, described by Kinnear (1924) from specimens obtained at Ngai-Tio, 4,800 ft. Tonkin Yunnan frontier ]

377. *Minla ignotincta ignotincta*. Hodgson. The trinomial is required, since there are other races. Ten specimens were prepared at Mongpu, and two others are from Lingtam and Lachen (Chicago N. H. Msm.) A pair was seen at Jeluk (9,100 ft.) on 9 April 1931, in company with several *Fulvetta vinipecta* and *Pseudominla castaneiceps*.

## Shikar Tales

By

C. I. SHOREY.

*(Continued from Vol XX. No. 4 Page 133)*

I am afraid my other episodes at shooting tigers were tame and uninteresting. On the whole I think I have been very lucky in getting so many tigers from machans as many of my friends have sat up scores of times and never seen anything, so gave it up. When building a machan make it fairly large and camouflage it well with the thin boughs and leaves from the tree in which it is made so that it looks just like its surroundings and one must keep quite ; I always sit alone, so that I have no one to talk to. I have only once had a tiger charge my machan, which I luckily dropped dead with the second shot. Most animals on receiving the shot either drop dead where they are, or bound straight into the nearest jungle. I have always, if there is enough light, followed up a wounded animal, after waiting about 15 minutes before carefully tracking it and, luckily, have, always, found it dead. The reason for this is that I have never shot at one of these animals carelessly, preferring to let it go without firing a shot if the angle was bad, and I could not see a vital spot. I also do not recommend the head shot, see my episode with the large tiger in the Tezpur district, which though I was only a few yards away I hit a fraction too high and never got it. That was the only time I ever fired without knowing exactly where my bullet would go, and I might have lost my life. Don't think I have always dropped my animals stone dead, because I haven't; half an inch off a vital place and these animals, because of their extraordinary vitality, can go half a mile or more but they never live more than 10 to 15 minutes. If you should be on foot see that your second shot is a stopper if the animal charges, or you are for it. As regards other game there is not much variety. There are Sambur and Barking deer, Wild Boar, Elephants and many

species of wild cat, but, except the common Civet cat, one sees very few of the others. I have shot a few Sambar, and got a couple of nice heads, but the heads are nothing to compare with the ones from the C. P. I think the reason for this is that the jungle here is so heavy and dense that the horns get constricted and cannot spread like the ones where the jungle is more open. I once saw a pitiful sight. My coolies reported a Sambar that appeared to be blind, for it kept wandering off the road, falling into the nullah and making no attempt to run away. I took my rifle and went to see what the cause was. I found a poor female Sambar with both its eyes torn out, but no other mark on it. It had, apparently, had a fawn with it, and from the signs, it seemed that Red dogs had killed and devoured the latter and blinded the mother, so that she would be still there when they had eaten the calf. I shot the poor brute and the coolies took the meat away. I never saw those dogs, and have only been able to shoot one during the whole time I have been in India, and it was too mangey to keep. I once had the luck to shoot a Rhinoceros. I had been out about two years when one day I saw some peculiar pug marks in the main stream which, at the time, was practically dry. I asked what they were, and was told a Rhino's. Rhino were unknown in the district, so that evening I mentioned the matter at the Club. The Deputy Commissioner was there and remarked that there was a fine of Rs. 1000/- for shooting Rhino. Our Colonel, Johnny Hickman, one of the best said, "rotten old sport, let the boy shoot it," and the D. C. never for a moment imagining there was a Rhino and still less that I would shoot it, said "Alright have a try". Hickman kindly lent me a '577 rifle and three cartridges, all he had. I seemed to have all the luck those days, and two days later I got my Rhino. He came out into some khet land and the coolies brought me word, so off I went, there stood the Rhino. I crawled up to within 50 yds and let him have one behind the shoulder, he came down, but was up in a second and charged me. Luckily their sight is very poor and, as he charged, I ran at right angles and he passed me about 20 yds away, I let him have another shot

and down he came rolling over and over like a rabbit. He was stone dead, my second shot getting him right through the heart. He was the small two horned Rhino, *lasiotis*, or Ear fringed Rhino. It stood 5 ft. at the shoulder and was covered with a kind of reddish bristles, and the ear had long hair round the edges. I had two of the feet mounted in silver, one as an Inkstand and the other with an eight day clock fixed into it, they made very handsome trophies. This Rhino is a very rare species and, as far as I know, no other has ever been seen in the district. I have also shot an Elephant. This animal was doing a lot of damage and frightening the coolies. After much trouble I got him proscribed. About a month after this I got word that the Elephant was in a piece of jungle about a mile from the Bungalow, so off I went. I left about 9 A.M. on a Sunday morning and followed that animal all day, he always just kept ahead of me and never gave me a chance of a shot. About 4 P. M. I decided to give it up, as I had had nothing to eat or drink all day and was about all in. While I sat resting under a tree, my shikarie boy, and one of the Garden Sirdars, went off to explore and returned in a few minutes with the news that a Tusker was standing out in the open at the head of the valley. I immediately started off and there he was, about 100 yds away, so I crawled slowly through the jungle towards him. I got up to within 30 yds of him, when he swung round and faced me; I fired and dropped him to his knees, but he got up and stood shaking his head. I put 5 more shots into his head, twice bringing him down but, owing to my ignorance of the position of the brain, all my shots went about 2" above it. I then put a couple of shots into his side to try and get the heart and again, through ignorance, I missed it. The result was the elephant got away but, due to the wounds in his side, he gradually got weaker and weaker and I found him in extremes about 10 days afterwards when one shot finished him off. I cannot see much fun in shooting these huge and harmless animals unless they are rogues and doing damage but, ofcourse, if they were not shot, or kept down, they would become a nuisance and cause a lot of damage,

for they eat an enormous amount of food and are generally fearless of human beings. After making such a mess of my first elephant I carefully studied the anatomy of the animal's head. The brain is comparatively small and lies well back, a frontal shot, placed right in the centre of the bump at the base of the trunk will reach the brain, and for a side shot, one through the ear hole will prove fatal; remember the brain lies about 3" above the eyes and directly between the two ear holes. The heart lies low down and well forward and though a shot there may not bring him down there and then, he won't go very far, a few hundred yards at the most. A shot in any other part of the body is useless, the animal may die but will go many miles, and it is very doubtful if you ever get him. Sometimes if the animal is standing in heavy jungle and you cannot see either his head or body, then I recommend the leg shot provided you can see the leg. A bullet placed in the joint of the hock, or knee will so lame the elephant that he will be unable to move as he is unable to go on three legs, you can then walk up to him and give him the *coup de grace*. When going after Elephant I recommend a .500 express with solid nickel bullets; the latter must have weight and penetrating powers. A .405 Winchester firing solid bullets is, in my opinion, quite powerful enough. Two of my friends dropped their Elephants stone dead with this rifle. The main thing to remember is to put your bullet in a vital spot. A .303 express, with nickel bullet, will kill an elephant if you place your bullet in his brain, should you miss the brain, he hardly feels the light bullet, whereas a heavier bullet will stun him, and give you a chance to get in another better placed shot.

The Snakes of Northern Bengal & Sikkim.

By

G. E. SHAW, E. O. SHEBBEARE & P. E. BARKER.

PART XIV.

(Continued from Vol. XXI Page 65)

**THE VIPERS** (Family *Viperidae*).

Any member of this family can be distinguished from all other snakes in our area (except the blind-snakes described on pp. 12-14 above, which are little worm-like creatures not likely to be mistaken for vipers) by observing the following points. *Every Viper in our area has either a scaly head or a loreal pit or both* (see Plate III, figs. H. & G.). There are two sub-families, the True Vipers (*Viperinae*) and the Pit-vipers (*Crotalinae*). The table below will make this clearer :—

Family **VIPERIDAE** (includes all viperine snakes) :—

Sub-family **VIPERINAE** or True Vipers...scaly head,  
no pit. (only one in our area, *Viperus russelli*,  
Russell's viper)

Sub-family **CROTALINAE** or Pit-vipers :—

Genus *Ancistrodon*.....no scaly head, a  
pit. (one in our area, *A. himalayanus*,  
Himalayan Pit-viper)



3	}	19 or 21 rows ; hemipenis spiny ;	
		temporals smooth or feebly	
		keeled ; uniform green	... <i>T. stejnegeri</i>
3	}	21 rows ; hemipenis long & slender	
		without spines ; temporals	
		keeled ; uniform green	... <i>T. popeorum</i>
3	}	23 or 25 (rarely 21 or 27) rows ;	
		hemipenis spiny at root ; varie-	
		gated pattern in browns	... <i>T. monticola</i>

*Note:* The hemipenis or male organ (see p. 9, 2nd. last paragraph) is the only sure means of distinguishing *stejnegeri* from *popeorum*. If your specimen should be a female with 21 rows at mid-body, the temporal shields, at best, serve only as an indication. The four species *stejnegeri*, *popeorum*, *albolabris* and *erythrurus* are externally very much alike, like the species described as *T. gramineus* in our earlier series.

To examine the hemipenis properly it is necessary to make a slit along the under side of the tail beginning just behind the vent ; the method of extruding the organ by pressing behind the vent. as described on p. 9. exhibits only the tips of the hemipenis.

#### *Some general remarks on the Vipers.*

Of all snakes the vipers are regarded as the most highly evolved group. Their poison fangs are not only proportionately larger than those of other venomous snakes but of a more efficient pattern, being in fact the prototype of the hypodermic needle. The rest of the poisonous snakes the Elapidæ (cobras, kraits and coral-snakes) and the Hydrophidæ (sea-snakes), also deliver their venom through a canal within the body of the fang but it is not the perfected tube of dentine and enamel that it is in the vipers and clearly shows its evolution from the simple grooved teeth of some harmless snakes. It is in fact a very deep groove, horse-shoe-shaped in section, with the gap representing the "frog" filled with calcareous matter.

When not in use the fangs of vipers are folded back against the roof of the mouth and brought into the upright biting position by a muscular movement which rotates the very short maxillary bone—a more advanced design though, to be sure, the simple fixed fangs of the cobras and kraits seem to serve their purpose. Fangs are replaceable as they become worn or broken, a series of spares in various stages of development lying behind the one in use in readiness to take its place below the poison-duct when it is moulted. There may be as many as three or four, or even six, of these spares in vipers against one or two in Elapine snakes.

The poison of vipers is entirely different to that of Elapine and Hydrophine snakes in composition and effect, Wall summarises the differences as follows :

“Colubrine poisons act chiefly on the central nervous system (cord and brain) and cause death by paralysing the respiratory centre in the brain. Their effects on the blood are slight compared with the Viperine class, so that hæmorrhages are not usual, and when present are not severe.

“Viperine poisons have no paralysing effect upon the nervous system, except on the vasomotor centre, but a very marked effect on the heart and blood, death being usually brought about by paralysis of the vasomotor centre, exhaustion from profuse and “persistent bleeding, or from septicæmia (blood poisoning due to germs).”

The Russell's Viper, the only True viper in our area, is, of course, an extremely poisonous snake; none of the Pit-vipers in the area, nor, we believe, in India, are capable of causing death to a normal, adult human being in reasonable health though, as Wall says, “there are no doubt subjects to whom the poison of our least “venomous snake may prove fatal.” This statement cannot be extended to all parts of the world for the Pit-vipers include such deadly members as the Rattle snake, Puff-adder and Fer-de-lance. The English adder, a True Viper, is mildly poisonous.

The vipers, as a group, seem to prefer warm-blooded prey, chiefly mice and rats, occasionally birds, though they will sometimes eat frogs, lizards or other snakes, especially during their youth.

The pit of Pit-vipers is interesting, if only because its function is at present unknown. Lynn has shown that it bears very striking resemblances to the chordotonal organ of insects, which is known to have an auditory function. He points out, however, that there is no evidence yet available to show that it *does* act in that way.

Although the name "viper" (Latin: *vivus* and *pareo*) signifies viviparous, that is bringing forth young alive, at least one of our species, the Large-spotted Pit-viper, normally lays eggs. At first sight one might suppose these alternative breeding methods to be fundamentally opposed; actually it is not much more than a question of whether the skin of the egg breaks before or after it is laid; Russell's viper normally viviparous, has been known, in captivity at any rate, to lay eggs containing well advanced hatchlings. To the two terms "oviparous" and "viviparous" some writers add a third "oviviparous" which is applied to "forms which produce an egg with definite shell, which yet "hatches out internally" (see p. 76 above).

72. **Vipera Russelli** (Shaw) Russell's Viper,  
Daboia, Tic-Polonga or Chain-viper. Poisonous.

*Synonyms*:—*Coluber russelli*, *C. trinoculus*, *C. triseriatus*, *Daboia russelli*, *D. pulcyella*, *Vipera elegans*.

*Costals*:—25-29, 27-33, 21-23 very strongly keeled, giving the snake a rough appearance; *Ventrals*:—153-180; Subcaudals 41-64; the head is covered with small, over-lapping scales which are heavily keeled.

*Shape*:—this is probably the thickest snake for its length in our area, with a blunt snout and rather short tail. Though the neck is well defined and the flattish head tapers

forward from a broad base with ridges above the eyes converging towards the snout, it has not such a markedly ace-of-spades-head as have some of our pit-vipers. The nostrils are large and the pupil vertically oval.

*Colour*.—Light brown with three longitudinal series of round or oval rings, one along the back and one on either flank. The rings are black or dark brown with light centres and sometimes they are edged with white or cream colour. There are sometimes black spots between the series of rings. There is a pair of dark patches on the broadest part of the head and a dark streak behind each eye ending at the gape. Between these dark markings and running from just above the gape to a point over each eye is a conspicuous light line. Below each eye is a smaller dark line running to the lips which are whitish. Yellowish-white beneath, with or without some scattered, irregular black spots. When freshly moulted it can be a very handsome snake.

*Size*.—It ordinarily grows to 5 ft. and 5 ft. 6 ins. has been recorded.

*Habitat*.—Though plentiful in certain widely separated localities in India and Burma it is not at all common in our area; the very few that we have seen there have been in grass-jungle in the plains and though there is an old record from Kurseong (at 4,500 ft.) we have never found it in the hills. Further west Wall says it is common from 2 to 4,000 ft. in the Himalayas and has been found up to 7,000.

*Habits*.—It is sluggish and does not strike readily but, when roused, does so with great vigour and determination, generally preceding the stroke with a very deep hiss. It is mainly nocturnal. Its food consists mainly of rats and mice, occasionally frogs, lizards and other snakes; young ones sometimes eat one another. Dawson records one which swallowed one of its litter-mates and kept it down for a quarter of an hour before disgorging it; neither appeared any the worse.

The female produces from 20 to 63 young at a birth, usually between May and July. The gestation period is said to be six months and the young, at birth, vary in length from  $8\frac{1}{2}$  to 11 inches. As noted above this snake, though normally viviparous, has on more than one occasion, be known in captivity to lay eggs, containing well advanced young snakes.

*Effects of the bite*:—The general effects of viperine venom have been described under remarks on the family above. If the snake succeeds in injecting a full dose the victim's blood may be coagulated solid; it is very unlikely that a dose large enough to produce this effect on a man could be injected. Lesser doses produce the opposite effect, that is to say external or internal bleeding. Other symptoms are a weak and rapid pulse, rapid and irregular breathing, dilated pupils, general muscular weakness, partial or complete unconsciousness, surface temperature reduced often with cold sweat. There is no paralysis as with Elapine venom. At this stage death may follow from cardiac or respiratory failure or the symptoms may decline. Later there may either be a repetition of the same symptoms or recovery may pass on to the next stage. The next stage appears to be connected with sloughing of the wounds and the enfeebled state of the system which is unable to resist the invasion of germs and various forms of bloodpoisoning, including tetanus. The patient may ultimately die from these causes or of exhaustion from haemorrhages. This state of affairs, however, need not necessarily prove fatal. The earliest death after the bite of a Russell's viper appears to be about twenty-four hours.

**73. ANCISTRODON HIMALAYANUS (Gunther)**  
The Himalayan Pit-viper. Poisonous but not deadly.

*Note*:—Beauvois in 1799 spelt this name AGKISTRODON and this spelling was recently revived by some writers as being a more correct transliteration of the Greek; in his new F. B. I. Volume Dr. Malcolm Smith has, however, continued to use Boulenger's spelling, ANCISTRODON, which we have therefore adopted here although we used the other spelling in the keys following page 10.

*Synonym* :—*Halys himalayanus*.

*Costals* :—21, 21, 17 strongly keeled; *Ventrals* : 143-175; *Anal* : entire; *Sub-caudals* : 42-52 in males. 36-48 in females. This is our only viper with a shielded head and this, in conjunction with the presence of a loreal pit (Plate III, fig. H) serves to distinguish it from all other snakes in our area.

*Shape* :—Wall describes it as rather stout and heavy with a well-marked neck. It has not the pointed, upturned snout nor "hump-nose" characteristic of some other members of the genus. The head, as well as the general colouration, resembles that of the Mock-viper (*psammodynastes pulverulentus*, No. 57 in our list). The eye is rather large with a vertical pupil.

*Colour* :—The colour is very variable but always some shade of brown usually conspicuously marked with coarse mottling or blotching in a darker shade irregularly distributed. There are sometimes more or less obvious short cross-bars and frequently a light vertebral line bordered by dark zig-zag or sinuous stripes. The head is often darker than the back with darker marking on the enlarged shields. A conspicuous oblique dark streak, bordered with white, runs from eye to gape. The lips chin and throat are enamel-white or pale pink with some dark lines following the labial sutures. The belly is very finely powdered with various tones of brown, sepia, rufous, plumbeous or dirty white. The tail is usually reddish towards the tip. The iris is shot with gold. Size up to two feet in length, the largest recorded 2 ft. 10 ins.

*Habits* :—It is said to be timid, slow and lethargic, slow to anger but will bite on provocation. We have no record of its food. It is viviparous producing five to seven young at a time.

*Habitat* :—Recorded from Sikkim though there is no specimen in the Darjeeling Museum and we have never seen

it. It is common in some parts of its western range which extends to Chitral where Wall says it favours elevations of 7-10,000 ft. and he has taken one at 12,000 in Kashmir.

*Effects of the bite* :—Wall records several cases, one by his brother. None of them were serious but involved considerable pain and swelling in the affected limb lasting for about two days.

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### The Lepidoptera of a Trip To Phalut, Oct-Nov.1927. I

By

D. G. SEVASTOPULO, F.R.E.S.

The following list is based on specimens in my collection, taken in the course of a trek to Phalut made in late October and early November 1927. They are, unfortunately, very far from complete ; no notes were made at the time and bad collecting technique resulted in many specimens being so badly rubbed at the end of the day's march that they were not worth keeping, other specimens were discarded at the time of setting. Consequently existing specimens are not a complete record of what was caught on the trip.

The route taken was the usual one, starting from Ghoom to Jorepokri, Tonglu, Sandakphu, Phalut and then back to Darjeeling via Dentam, Pamionchi, Rinchenpong and Badamtam. Below is a list of the localities where specimens were taken, their heights and the dates on which they were visited.

Ghoom	...	7300	feet	26.	x.	27
Manibanjam	...	6500	„	27.	x.	27
Tonglu	...	10075	„	29.	x.	27
Dentam	...	4500	„	1.	xi.	27
Pamionchi	...	6920	„	2.	xi.	27
Rinchenpong	...	5600	„	3.	xi.	27
Singla Bazar	...	900	„	4.	xi.	27

A field of flowering buckwheat at Singla Bazar was the most productive spot found during the trip, butterflies were flying in hundreds but a large proportion of those caught, in particular the Lycaenidae, were so badly rubbed by the evening that they were not worth keeping. Intensive collecting could not, of course, be done, the day's march had to be completed, but fair numbers of butterflies and a few moths were obtained at the side of the roads and paths followed.

I have followed Evans' *Identification of Indian Butterflies* (2nd edit.) brought upto date with Talbot's *Fauna of British India*, Butterflies (2nd edit.) i, and Hampson's *Fauna of British India*, Moths, i.—iv, modernised with Seitz' *Indo-Australian Lepidoptera*, x—xii, for names. The numbers before the names correspond with Evans' and Hampson's numbers.

## RHOPALOCERA.

### Papilionidæ

- A 4—2 *Papilio memnon* L., *agenor* L., f. *aleanor* Cr.—  
Singla Bazar.
- A 4—9 *Papilio polyctor* Bsd., *ganesa* Moore—Singla  
Bazar.
- A 8—1 *Meandrusa gya* Westw., *gya*—Tonglu.

### Pieridæ.

- B 4—10 *Pieris canidia* Sparr., *indica* Evans—Mani-  
banjam.
- B 6—13 *Delias thysbe* Cr., *pyramus* Wall.—Singla  
Bazar.
- B 15—4 *Eurema (Terias) blanda* Bsd., *silhetana* Wall.  
—Manibanjam, Tonglu.
- B 16—14 *Colias electo* L. (*croceus* L.), *fieldi* Men.—Mani-  
banjam.
- B 17—2 *Ixias pyrene* L., *familiaris* Btlr. (*pirenassa*  
Wall.)—Pamionchi, Riuchenpong.

## Danaiidae.

- C 2-1 *Danaus aglea* Cr., *melanoides* Moore—Pamionchi, Singla Bazar.
- C 2-4 *Danaus melaneus* Cr., *plataniston* Fruhs.—Pamionchi.
- C 2-10 *Danaus melissa* Cr., *septentrionis* Btlr.—Manibanjam.
- C 3-1 *Euploea mulciber* Cr., *mulciber*—Singla Bazar.

## Satyridæ.

- D 2-10 *Mycalasis mineus* L., *mineus*, f. *otrea* Cr.—Pamionchi.
- D 2-12 *Mycalasis visala* Moore, *visala*—Rinchenpong. Dry form.
- D 3-2 *Lethe sidonis* Hew., *sidonis*—Manibanjam, Dentam.
- D 3-24 *Lethe nicetella* Den.—Ghoom, Manibanjam.
- D 3-25 *Lethe confusa* Auriv., *confusa*—Rinchenpong.
- D 3-28 *Lethe mekara* Moore, *mekara*—Singla Bazar.
- D 3-30 *Lethe chandica* Moore, *chandica*—Pamionchi.
- D 3-44 *Lethe verma* Koll., *sintica* Fruhs.—Dentam, Pamionchi, Rinchenpong.
- D 11-2 *Aulocera padma* Koll., *padma*—Dentam.
- D 14-21 *Ypthima sakra* Moore, *sakra*—Ghoom.
- D 25-8 *Elymnias malelas* Hew., *malelas*—Pamionchi.

## Nymphalidæ.

- F 12— *Hestina nama* Dbl.—Dentam, Singla Bazar.
- F 17— *Stibochiona nicea* Gray, *nicea*—Dentam, Pamionchi, Rinchenpong, Singla Bazar.
- F 18-6 *Euthalia julii* Boug., *appiades* Men.—Pamionchi.
- F 21— *Lebadea martha* F., *martha*—Singla Bazar.

- F 24—4 *Limenitis darava* Dbl. & Hew.—Rinchenpong.  
 F 25—3 *Pantoporia cama* Moore, f. *camida* Fruhs.—  
 Pamionchi, Singla Bazar.  
 F 26—6 *Neptis hylas* L., *astola* Moore—Manibanjam,  
 Dentam, Pamionchi, Rinchenpong, Dentam.  
 F 26—13 *Neptis cartica* Moore, *cartica*—Pamionchi.  
 F 26—23 *Neptis narayana* Moore, *nana* Den.—Tonglu.  
 F 27—4 *Cyrestis thyodamas* Bsd., *thyodamas*—Mani-  
 banjam.  
 F 29— *Pseudergolis wedah* Koll.—Dentam, Rinchen-  
 pong.  
 F 36—3 *Vanessa indica* Herbast., *indica*—Tonglu,  
 Singla Bazar.  
 F 39—1 *Argynnis hyperbius* L., *hyperbius*—Rinchen-  
 pong, Dentam.  
 F 39—8 *Argynnis lathonia* L., *issæa* Dbl.—Dentam.  
 F 45—2 *Cirrochroa aoris* Dbl., *aoris*—Rinchenpong,  
 Singla Bazar.  
 F 47—1 *Cethodia biblis* Drury, *tisamena* Fruhs.—Rin-  
 chenpong.

#### Erycinidae.

- G 2— *Zemeros flegyas* Cr., *indicus* Fruhs.—Dentam,  
 Pamionchi, Rinchenpong.  
 G 3—2 *Dodona dipoea* Hew., *dipoea*—Ghoom.  
 G 2—6 *Dodona adonira* Hew., *adonira*—Dentam,  
 G 4—1 *Abisara fylla* Dbl.—Pamionchi, Rinchenpong.

#### Lycaenidae.

- H 9— *Taraka hamada* Druce, *mendesia* Fruhs.—  
 Singla Bazar.  
 H 11—1 *Castalius rosimon* F., *rosimon*—Singla Bazar.  
 H 21—2 *Lycaenopsis puspa* Horsf., *gisca* Fruhs.—  
 Ghoom.  
 H 29—5 *Jamides celeno* Cr., *celeno*—Singla Bazar.

- H 35—6 *Heliphorus brahma* Moore, *brahma*—Dentam.  
H 60—1 *Tajuria jangala* Horsf., *ravata* Moore—Singla Bazar.  
H 80- -3 *Hypolycaena erylus* Godt., *himavantus* Fruhs.—Singla Bazar.  
H 81— *Zeltus etolus* F.—Singla Bazar.  
H 83—1 *Deudoryx epijarbas* Moore, *amatius* Fruhs.—Manibanjam.

**Hesperiidæ.**

- I 11-16 *Celaenorhinus leucocera* Koll., *leucocera*—Rinchenpong.  
I 14—2 *Tagiades gana* Moore, *gana*—Singla Bazar.

**HETEROCERA.**

**Zygaenidae.**

- 602: *Agalope hyalina* Koll.—Dentam.

**Callidulidae.**

- 694 *Pterodecta anchora* Moore—Ghoom.

**Arctiidae.**

- 1266 *Nyctemera plagifera* Wlk.—Pamionchi.

**Noctuidæ.**

- 2604 *Ischyja manlia* Cr.—Pamionchi.

**Geometridæ.**

- 3090 *Thinopteryx crocoptera* Koll.—Singla Bazar.  
3251 *Macaria emersaria* Wlk.—Singla Bazar.

# BENGAL NATURAL HISTORY SOCIETY.

*Accounts for period 1st April 1946 to 31st March 1947.*

RECEIPTS.	Rs.	As.	P.	EXPENDITURE.	Rs.	As.	P.
April 1946 Opening Balance	...	...	...	Superior Establishment with T. A.	7,963	12	0
D. I. Fund Grant	...	...	...	Inferior Establishment	963	0	0
Municipal Grant	...	...	...	Mounting Charges	115	13	6
Subscriptions	...	...	...	Journal	428	15	0
Donations	...	...	...	Christmas Cards	407	11	0
Donations and coloured plates	...	...	...	Office and Miscellaneous (including	479	9	6
Sale of Christmas Cards	...	...	...	Purchase of Specimens	32	15	0
Interest on Victory Bonds	...	...	...	Subscription to other Societies	...	...	...
Miscellaneous	...	...	...	Closing Balance	3,609	7	6
<b>GRAND TOTAL</b> ...	<b>14,001</b>	<b>3</b>	<b>6</b>	<b>GRAND TOTAL</b> ...	<b>14,001</b>	<b>3</b>	<b>6</b>

## CAPITAL ASSETS.

	Rs.	As.	P.
3% 1937 Victory Bonds	...	...	...
Coloured Plates (Member's Rates)	...	...	...
Old Journals (Member's Rates)	...	...	...
<b>GRAND TOTAL</b>	<b>7,797</b>	<b>0</b>	<b>0</b>

The Capital Assets do not include the value of the Society's collection and furnishings.

DARJEELING,  
10th June, 1947.

CHAS. M. INGLIS,  
*Curator.*  
Natural History Museum.

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