RHYNCHOTA OF THE SIJU CAVE, GARO HILLS, ASSAM.

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with

DESCRIPTION OF A NEW SPECIES OF REDUVIID

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Only four species of Rhynchota were found in the cave and two of these, both of which are aquatic forms, cannot be regarded as part of the cave-fauna proper. They appear merely to have wandered up the stream which flows through the cave to the positions in which we found them. Both were very scarce and I think it improbable that either of them breeds in the cave.

The other two species are Reduviids with very long legs which inhabit the cavern between 400 and 500 ft. from the mouth. They live and breed freely in the total darkness of this cavern and form a small but very striking part of its fauna.

Family HYDROMETRIDAE.

Metrocoris nigrofasciatus Distant.

1903. *Metrocoris nigrofasciatus*, Distant, *Fascic. Malayenses, Zool.* I, p. 257, pl. xv, fig. 9.
1910. *Metrocoris nigrofasciatus*, Distant, *Faun. Brit. Ind., Rhynch.* V, p. 159, fig. 86.
1918. *Metrocoris nigrofasciatus*, Paiva, *Rec. Ind. Mus.* XIV, p. 25.

This species, which is abundant in the stream leading from the cave-mouth to the Someswari River, occasionally enters the cave itself and swims up-stream for a considerable distance. We obtained specimens at 300, 400 and 2,000 feet from the mouth.

In the cave the species is no doubt able to obtain a limited supply of food in the form of dead prawns and drowned insects and arachnids. It was, however, found only in very small numbers; I do not think it ever breeds in subterranean waters and am inclined to regard it as a mere straggler.

All the specimens in our collection are apterous and agree precisely with Distant's figure (1903) and with specimens determined by him. The species was originally described from Peninsular Siam and has since been recorded from Pahang in the Federated Malay States, from the Dawna Hills and the Southern Shan States in Burma and from Naini Tal in the United Provinces. Its occurrence in Assam, though no hitherto reported, is thus by no means unexpected.

Paiva's *Metrocoropsis femo ata*,[1] described from macropterous specimens from the Garo Hills, bears an exceedingly close resemblance to the

[1] Paiva, *Rec. Ind. Mus.* XVI, p. 365, pl. xxxiv, fig. 5 (1919).

macropterous form of *M. nigrofasciatus* and I believe that the two are specifically identical. *M. femorata* is said to differ from *M. nigrofasciatus* in the presence of teeth on the anterior femora, but this character, to which generic significance is attributed, is, as Paiva remarks, found only in males and in the collection of the Zoological Survey of India there are no macropterous males of *M. nigrofasciatus* for comparison. Judging from the apparent identity of macropterous females of the two forms, it seems evident that *Metrocoropsis femorata* is based merely on macropterous males of *Metrocoris nigrofasciatus*. Whether the species differs sufficiently from other members of the genus to justify generic separation is a point on which I do not feel competent to express an opinion : it is quite possible that Paiva's *Metrocoropsis* is valid.

Family NAUCORIDAE.

Heleocoris sp.

A single specimen of this genus, which I am not able to determine specifically, was found in the stream at a depth of 200 feet from the mouth of the cave in subdued daylight. It had no doubt recently wandered in from the outside and cannot be regarded as a member of the cave-fauna proper.

Family REDUVIIDAE.

Subfamily *EMESINAE*.

Bagauda cavernicola Paiva.

1919. *Bagauda cavernicola*, Paiva, *Rec. Ind. Mus.* XVI, p. 366, pl. xxxvi, fig. 3.

This species was described from specimens collected by Mr. R. Friel in he Siju Cave in 1917 It has not been found in any other locality but it may be expected that in due course it will be discovered in open daylight. *B. splendens*, a near ally of *B. cavernicola*, lives among dense vegetation at the edge of water.

At first sight both *B. cavernicola* and *Myiophanes kempi*, with their narrow bodies and enormously long and slender antennae and legs, present every appearance of adaptation to a cavernicolous existence. This appearance is, however, deceptive, for both belong to a subfamily, containing many out-door species, which is characterized by the great length of these appendages.

The fact that increased length of leg and antenna is an adaptation of many truly cavernicolous animals suggests that these two bugs, by reason of their long appendages, found themselves at the time of their immigration well suited to existence in the cave. There is no evidence that they have been modified in response to their environment. Their eyes are well formed and their colouration is normal, *B. cavernicola* being in fact rather brightly pigmented.

Both species were common in the cavern at 400-500 feet from the mouth living in total darkness. They were found on the walls of the

cavern or on boulders, particularly on the underside of overhanging portions. When moving they walk slowly and sedately with the four posterior legs, holding the body horizontal to the surface and well elevated from it. When at rest they often sway their bodies up and down with a slow rhythmic movement—a feature frequently seen in Tipulids and other long-legged insects. When disturbed they walk briskly away, without any movement that could be called rapid, and though both species have well-formed wings we never saw a specimen fly. They appeared to be quite indifferent to light and would remain motionless, even for as long as five minutes, with a powerful lamp placed close beside them. In *B. cavernicola* the anterior femora are usually held straight out in front, in line with the body; in *M. kempi* they are generally flexed backwards over the head.

The food of the two species appears to consist mainly of the moths *Tinea antricola* and *Pyralis manihotalis* and of a small spider *Theridion rufipes*, particularly the two last named.

Bugs of the genus *Eugubinus*, also belonging to the subfamily Emesinae, are known to frequent spiders' nests and webs. Gravely,[1] who has studied the habits of a species found near Calcutta in webs of *Cyrtophora ciccatrosa*, suspects that it eats the contents of the spiders' cocoons and records an instance of the spider eating the bug. In the Siju Cave the bugs appear to have the upper hand, for though we found them eating the *Theridion* on more than one occasion, we never found a bug entangled in the ill-formed webs of the spider or being devoured by it.

The larval stages of both species were abundant and are freely eaten by the adults. Cannibalism is probably common among the members of the subfamily Emesinae: Distant[2] quotes an extreme instance described by Heineken in the genus *Ploearia*.

I am indebted to Mr. W. E. China for drawing my attention to MM. Alluaud and Jeannel's account of the discovery of Emesine bugs belonging to these same two genera, *Myiophanes* and *Bagauda*, in caves at Shimoni and Kulumuzi in tropical Africa. Their occurrence in this situation is extremely interesting, more particularly as neither of the genera had previously been found in Africa. The species are *Myiophanes speluncarum* Jeannel and *Bagauda tenebricola* Horvath. Alluaud and Jeannel remark[3] "*B. tenebricola* est extrêmement abondant surtout près de l'entrée de la grotte A (Kulumuzi). Il se tient sur les parois où il déambule lentement; ses longues pattes et sa coloration lui donnent tout à fait l'aspect des Lycoriides que l'on trouve à l'entrée des grottes pyrénéennes. Il chasse d'ailleurs les Lépidoptères ou les Nématocères qui essaient de s'abriter dans la grotte." Of *M. speluncarum* Jeannel says[4] "il se trouve plus profondement dans la grotte. Lorsqu'on l'effraie il s'enfuit et s'agite en même temps d'un extraordinaire mouvement de

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[1] Gravely, *Rec. Ind. Mus.* XI, p. 512 (1915).

[2] Distant, *Faun. Brit. Ind., Rynch.* II, p. 201 (1904).

[3] Alluaud and Jeannel, *Arch. Zool. Expér. Gén.* (5) LIII, p. 375 (1914).

[4] Jeannel, *Voyage de Ch. Alluaud et R. Jeannel en Afrique orientale, Rés. sci., Hemipt.*, p. 153 (1919).

va-et-vient très rapide, véritable tremblement de grande amplitude à cause de la longueur de ses pattes, qui le rend très difficile à saisir."

I have to thank Mr. W E. China for the following description of the Siju *Myiophanes.*

Genus **Myiophanes** Reuter.

Myiophanes Reuter, *Act. Soc. Sc. Fenn.* XII, p. 337 (1883); *Revue d'Ent.* 1887, p. 166; Distant, *Faun. Brit. Ind. Rhynch.*, II, p. 204 (1904); Jeannel, *Voyage de Alluaud et Jeannel en Afrique Orientale, Hemipt.* 3, p. 153 (1919)

Type: *M. tipulina* Reut., Japan, China.

Myiophanes kempi, sp. nov., China.

Male:—Head as long as the anterior lobe of the pronotum, brown with two longitudinal fascia on each side of the anterior lobe and the anterior margin of the posterior lobe, dirty white. Eyes black and prominent. Rostrum brown, third joint subequal to, second a little shorter than, the first which is distinctly incrassated. Antennæ long and slender, brown, the first joint clothed with long hairs, the remainder with shorter hairs. First joint 10 mm. with the extreme apex dirty white, second slightly longer with the extreme base whitish, third 1·3 mm., fourth 2 mm., pale. Pronotum brown; posterior lobe with two dirty white fascia converging anteriorly, almost meeting at the pronotal constriction and then continuing on the anterior lobe as two narrower shortly parallel fascia which diverge to the lateral margins about half way to the head; anterior lateral margins of the posterior lobe dirty white. Hemelytra semitransparent uniformly very pale fuscous with the nervures brown, extending slightly beyond the apex of the abdomen. Anterior coxa equal in length to the pronotum, pale brown with the apex and a medial annulation obscurely paler; anterior femur 7 mm., pale brown with the apex and two more or less obscure medial annulations whitish; anterior tibia 5·5 mm., pale brown with the base whitish. Intermediate femur 12 mm., pale brown, the apical quarter whitish within which is a medial dark brown annulation; intermediate tibia 19·5 mm., pale brown with the base whitish bordered narrowly with dark brown. Posterior legs similar in colouring to the intermediate ones but more longly pilose with the femur 15 mm. and the tibia 26·5 mm. Posterior tarsus less than 1 mm. Abdomen below and connexivum creamy white irregularly speckled and splashed with black, abdomen above black. Genital segment with 3 pale yellow styles strongly curved and almost contiguous at their apices.

The insect is more or less uniformly covered with long silky pale brown hairs especially marked on the posterior femora and tibiae, where the hairs are very long at the apex and base respectively and gradually shorten towards the other extremities. The white annulations on these legs give rise to whitish hairs. The posterior tibiae are slightly curved. Length from base of rostrum to genital styles 18 mm. Pronotum 4 mm., hemelytra 13·5 mm.

Female:—Similar to male but distinctly larger. Length from base of rostrum to apex of abdomen 21 mm. Pronotum 4·5 mm., hemelytra 15·5 mm., post. femur 20 mm., post. tibia 31 mm.

Habitat, Siju Cave, Garo Hills, Assam,[1] 450 to 500 feet from the entrance.

Of the six specimens sent me for determination by Mr. Kemp only one was a male.

This species is very near *M. tipulina* Reut. from China and Japan, but may be distinguished by its greater size and the differently coloured abdomen. It may be distinguished from *M. karenia* Dist. by its much greater size, the white anterior lateral margins of the posterior lobe of the pronotum, by the second joint of the antennæ being slightly longer instead of shorter than the first, greater pilosity, etc. *M. greeni* Dist. may be distinguished at once by the black and white annulated abdomen and the whitish bases of the hemelytra.

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[1] The specimen from Tura in the Garo Hills, recorded by the late Mr. C. A. Paiva as *Myiophanes greeni* Dist. (*Rec. Ind. Mus.* XVI, p. 366, 1919) clearly belongs to this species. I have compared it with Siju specimens and can find no difference. The additional record does not add much to the geographical range of the species, but indicates that the form is occasionally found in the open. That it is rare outside the cave is suggested by the fact that only a single specimen was obtained in the course of two and a half months' intensive collecting in the neighbourhood of Tura. There are no caves near Tura. [*S.K.*]