

kinds of Thelyphonids are so difficult to obtain unless specially looked for during the rains (a season at which no zoological work was done in the Abor country), that it is by no means unlikely that species of *Hypoctonus* will yet be found to occur in all parts of Assam and the foot-hills of the E. Himalayas.

The Pedipalpi collected recently in the Dawna Hills all belong, as was to be expected, to the genus *Hypoctonus*. They are *Hypoctonus dawnae*, Gravely (*Rec. Ind. Mus.*, vii, pp. 101-3), and *Hypoctonus wood-masoni*, Oates (*J.A.S.B.*, lvii, 2). As they have no particular bearing on the zoogeography of the Abor country they need not be discussed further here.

Uroproctus assamensis, like other Oriental Thelyphonids, is rarely seen in dry weather, and Mr. Kemp informs me that specimens always died in a day or two when kept in a box without moist soil. One specimen which he placed in a wooden box was seen to eat a cricket, but died after twelve to fifteen hours captivity. Mr. Kemp also tells me that specimens when handled alive produced a strong and very disagreeable odour resembling that of fermented rice or beer that had gone bad.

C. SCORPIONES.

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The scorpions collected by Mr. Kemp in the Abor country, although fairly numerous in specimens, comprise but two species, both previously known. It seems probable that had the collection been made at a more favourable season of the year, others would have been discovered. The present report also deals with the scorpions obtained by Mr. F. H. Gravely in Tenasserim, between Moulmein and the Siamese frontier; they comprise five species, one of which is described as new.

The collection was worked out at the British Museum (Natural History Department) and my thanks are due in particular to Mr. S. Hirst, for the assistance which he kindly rendered during the progress of the work.

1. *Lychas mucronatus* (Fabr.).

Archisometrus mucronatus, Kraepelin, *Tierr. Scorp.*, p. 46 (1899). *L. mucronatus*, Pocock, *Fauna of India, Arachnida*, p. 36 (1900).

This species, which is common in Upper Burma, Lower Burma and Tenasserim, extends into Siam and China, and occurs in the Malay Archipelago as far east as Flores.

Habitat.—Thingannyinaung, east base of Dawna Hills, 900 ft., 24—27-xi-11 (*F. H. Gravely*). Eight specimens.

Thingannyinaung to Myawadi, *ca.* 900 ft., 24—26-xi-11 (*F. H. Gravely*). Three specimens of which one is very young.

Kawkareik to Third Camp, Amherst district, 21-xi—1-xii-11 (*F. H. Gravely*). Two specimens.

2. *Lychas scutilus* (C. Koch).

Archisometrus scutilus, Kraepelin, *Tierr. Scorp.*, p. 44 (1899).

L. scutilus, Pocock, *Fauna of India, Arachnida*, p. 37 (1900).

This species extends from Tenasserim through the Malay Peninsula to Sumatra and Java.

Habitat—Farm caves near Moulmein (*F. H. Gravely*).

An adult ♀

3. *Lychas gravelyi*, n. sp.

Habitat.—Moulmein, a single ♀ specimen (*F. H. Gravely*).

Colour in general black varied with yellow. Carapace and terga black, with ill-defined yellow mottlings; a yellow spot on either side of the frontal margin. Mandibles yellow, with a delicate black reticulation. Chelæ and legs yellow, with black mottlings; upper surface of humerus and brachium black, with a series of rounded yellow spots; hand yellow, fingers blackish. Tail black, with traces of yellow on the first three segments; vesicle black, with a yellowish tinge at the base of the aculeus and on the tooth. Legs yellow, with black mottlings on the anterior surface. Sterna with faint black mottlings on a yellow ground; first sternum with a median black line.

Carapace and *terga* evenly granular throughout; the latter with a single median keel.

Sterna membranous with the surface polished towards the centre. Last sternum granular throughout and with four granular ridges; fourth sternum also granular, but less so than the last, with four polished tubercles on the posterior margin; slight traces of granules occur on the first three sterna, chiefly towards the lateral margins and a few bristles occur on all the sterna.

Tail somewhat stout, about four and a half times as long as the carapace. First and second segments with the median lateral keel complete, the intercarinal spaces granular; the keels well-developed and granular, the superior subspiniform apically. First segment much wider than long, the fourth not twice as long as wide.

Vesicle with a median granular line below, which is continued on to the tooth; two faint granular lines on either side. Inner edge of the tooth dentate.

Chelæ with the hand narrower than the brachium, smooth but for minute granules on the humerus and to a lesser extent on the brachium. Movable digit more than twice as long as the underhand, with eight rows of teeth. Fingers about the same length as the carapace.

Tibial spurs short. *Tarsi* with two rows of bristles.

Pectinal teeth 12/13.

Measurements.—Total length 34 mm., carapace 4 mm., tail 18 mm., movable finger 4 mm.

It is with some hesitation that I have ventured to describe this single specimen as the type of a new species, but I may state, that in deciding to do so I am materially supported by the opinion of Mr. Hirst of the British Museum staff, whose extensive experience of the group entitles his views to great respect. It is closely related to *L. rugosus*, Pocock, with the type specimen of which, and so far the only known specimen, from Raipur, in the Central Provinces

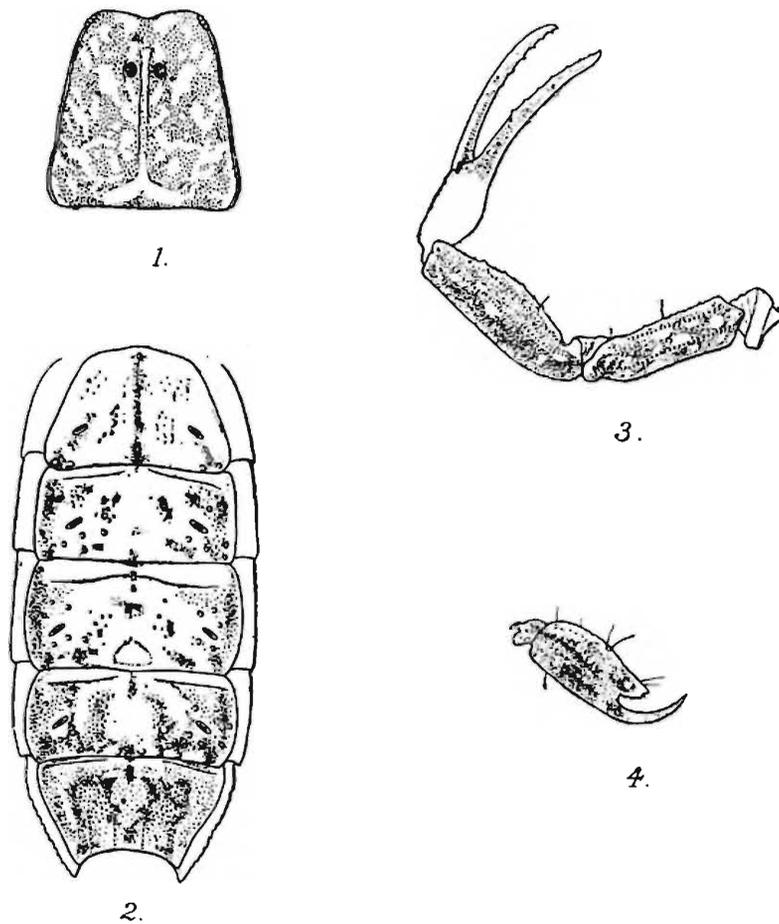


FIG. 1.—*Lychas gravelyi*, n. sp., 1. carapace; 2. sterna; 3. chela; 4. vesicle and aculeus; all $\times 5$.

of India, I have carefully compared it. This specimen, preserved in the British Museum collection, which measures only 22 mm. in total length, is probably immature, and I was unable to determine its sex. In *L. rugosus* the carapace and terga are much more coarsely granular, while on the other hand in *L. gravelyi* the sterna are more granular, granules being present on all, whereas they are confined to the last three sterna in *L. rugosus*. In the latter species all the sterna are coriaceous and present a mat surface, while in *L. gravelyi* they are membranous and polished centrally. In *L. gravelyi* the fingers are proportionately longer and the tail thicker, the general appearance being that of a small scorpion with very slender chelæ, but possessing a moderately stout

tail. The black mottling on the sterna of the new species is characteristic. Other differences, as for example in the characters of the vesicle, exist between the two species.

4. *Chærilus tricostatus*, Pocock.

C. tricostatus, Pocock, Journ. Bomb. N. H. Soc., vol. xii, p. 266 (1899); Fauna of India, Arachnida, p. 59 (1900).

Habitat.—Four specimens (all ♀) from the Abor country:—

(1) Rotung, 1300 ft., under stones, 21-xii-11 (*S. W. Kemp*).

(2) Rotung, 1300 ft., 24-xii-11 (*F. H. Stewart*).

(3) Rotung, 1300 ft., 29-xii-11 (*M. de Courcy*).

(4) Upper Rotung, 2000 ft., 22-i-12 (*S. W. Kemp*).

This species was described from two dried specimens (both ♂) in the collection of the British Museum, from Sadiya, Assam, a locality close to the border of the Abor country. A comparison of the two sets of specimens reveals no difference of any importance, except in the proportions of the joints of the chelæ and these are no doubt sexual characters. The Abor specimens have a more strongly granulated carapace than those from Sadiya and it may be



FIG. 2.—Hand of *Chærilus tricostatus*, Pocock, ♀, nat. size.

that they belong to a local race of *C. tricostatus*, but this question may be deferred till more material is forthcoming. As the female was formerly unknown I take this opportunity of describing it.

Colour.—Upper surface black; ventral surface also black, with the exception of the cephalothorax which is mottled with brown and yellow. Pectinal teeth yellow. Tarsi yellowish. Mandibles pale brown. Vesicle reddish brown.

Carapace somewhat uniformly granulated, the granules best developed on the more elevated parts. Carapace longer than the first and second caudal segments, about equal to the third and fourth, longer than the fifth segment.

Terga granular throughout, with a series of larger granules on the posterior border, two of which form well-marked black pearly tubercles. The latter are best developed on the third, fourth, fifth and sixth terga, and on the last three of these have one or two enlarged granules in front, arranged in short antero-posterior lines with the tubercles.

Sterna smooth, the last with four ill-defined crests formed by granules. An oval yellow patch occurs near the posterior margin of the third sternum.

Tail about three times as long as the carapace, the upper surface faintly granular in the middle. Width of the first segment about equal to the length of the fourth; second segment about as wide as long. All the keels normal and denticulated. Lateral and inferior surfaces more distinctly granulated than the upper surface.

Vesicle with a few minute granules on the under surface near the proximal end, with a slight lateral groove on either side of the dorsal surface and a faint median ventral ridge.

Chelæ with humerus, brachium and underhand all shorter than the carapace. Humerus with its width more than half its length, slightly granular above and with coarse granules along the keels; posterior surface with a median row of granules in front, lower surface finely granular. Brachium about the same length as the underhand; the keels granulated and a few subspiniform granules arranged in a row near the lower margin of the anterior surface. Hand wide, with the inner margin strongly convex, the greatest width being more than two-thirds of the length; upper surface finely granular, but with large granules on the ridges. Movable finger about the same length as the carapace, furnished with ten rows of teeth. Immobile finger with five setal pores.

Pectinal teeth 5.

Measurements.—Total length 53 mm., carapace 8 mm., tail 31 mm., brachium 7 mm., underhand 7 mm., movable finger 9 mm., width of hand 6.5 mm.

5. *Scorpiops longimanus*, Pocock.

S. longimanus, Pocock, Ann. Mag. Nat. Hist., (6) vol. xii, p. 326, pl. xiv, fig. 12 (1893); Fauna of India, Arachnida, p. 72 (1900); Kraepelin, Tierr. Scorp., p. 180 (1899).

This species, which has been recorded from several localities in Assam (Sylhet, Dhubri, North Cachar Hills, Sadiya, Nāga Hills), is apparently common in the Abor country. The following specimens were collected:—

Kobo, 400 ft., in rotten wood and in earth, 30-xi—8-xii-11. Seventeen specimens, several of which are very young.

Janakmukh, 600 ft., 17-xii-11. One specimen under bark.

Renging, 2150 ft., 19-xii-11. One adult found in rotten wood and a young specimen under bark.

Rotung, 1300 ft., 23—30-xii-11. Ten specimens, some of which are young, found under bark, in rotten wood and under stones.

Upper Rotung, alt. ca. 2000 ft., 31-xii-11 (*M. de Courcy*). One immature specimen.

Yembung, 1100 ft., 13—17-i-12 and 9-ii-12. Three specimens, one of which is young.

Near Parong, 3300 ft., 27-i-12. Three very young specimens found under stones.

Below Damda, 1300 ft., 30-i-12. Five specimens, one of which is young.

In young specimens of this species the brachial teeth are blunt and the ventral surface of the cephalothorax is paler than in adults. The setal pores on the brachium and underhand show the adult number and arrangement. One young specimen from Renging has nine pectinal teeth on each side, instead of the normal six to eight.

6. *Scorpiops binghamii*, Pocock.

S. binghamii, Pocock, Ann. Mag. Nat. Hist., (6) vol. xii, p. 327, pl. xiv, fig. 13 (1893); Fauna of India, Arachnida, p. 74 (1900); Kraepelin, Tierr. Scorp., p. 180 (1899).

This species has been previously recorded only from the Pegu Hills and Central Tenasserim.

Habitat.—Misty Hollow, west side of Dawna Hills, 2200 ft., 22-30-xi-11 (*F. H. Gravely*). Two adults and seven very young specimens.

Young examples are paler in colour, both dorsally and ventrally, than the corresponding stage of *S. longimanus*. The present specimens possess twelve to thirteen brachial pores, in place of fourteen to fifteen in those described by Pocock, while *S. longimanus* has nine to eleven. I doubt if *S. binghamii* is more than a variety of *S. longimanus*. Kraepelin regards the latter as doubtfully distinct from the Himalayan *S. montanus*, Karsch, and places *S. binghamii*, with some doubt, also as a synonym of *S. montanus*.

7. *Hormurus australasiæ* (Fabr.).

H. australasiæ, Kraepelin, Tierr. Scorp., p. 154 (1899); Pocock, Fauna of India, Arachnida, p. 79 (1900).

A widely distributed species, extending from Burma and China, through the Malay Peninsula and Archipelago to Northern Australia and the Pacific islands.

Habitat.—Third Camp, west base of Dawna Hills, 400 ft. (*F. H. Gravely*). An adult ♂ and four other specimens, three of which are very young.

Third Camp to Misty Hollow, Dawna Hills, 400-2400 ft. (*F. H. Gravely*). Two specimens, one of which is very young.

Misty Hollow to Sukli, Dawna Hills, 2100—2500 ft. (*F. H. Gravely*). One specimen.

Sukli, east side of Dawna Hills, 2100 ft. (*F. H. Gravely*). Eleven specimens, four of which are very young.

Thingannyinaung to Sukli, Dawna Hills, 900 ft. (*F. H. Gravely*). One specimen.

There is considerable variation in the colour of *H. australasiæ*. Some specimens are uniformly black above, while others are in varying shades of brown. Young specimens are pale brown, with the vesicle pale yellow and in some cases with the legs yellowish.