

New Opilionids (Laniatores) from Indian Caves.

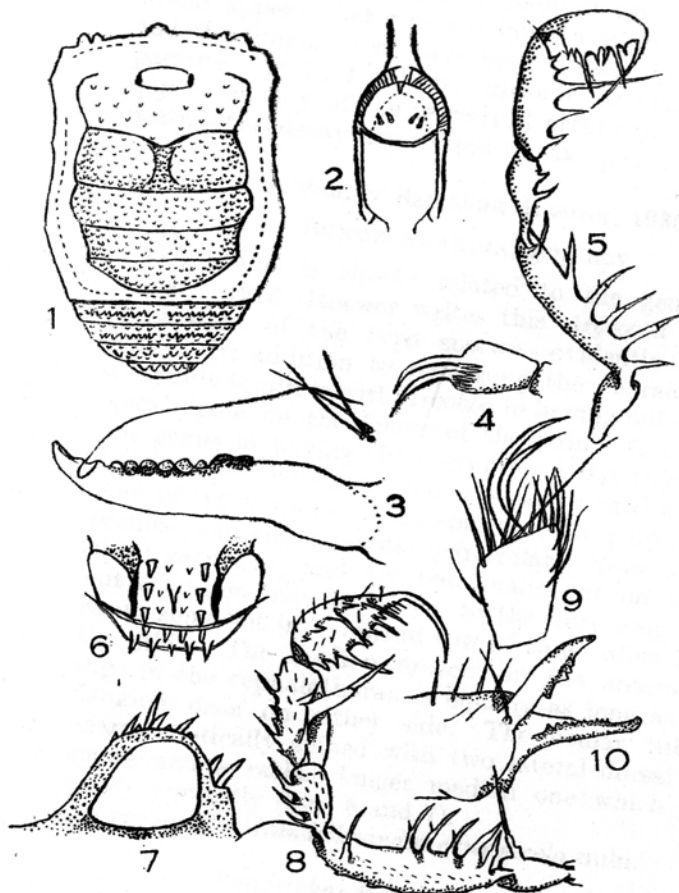
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EARLY in 1944 I received seven tubes of Opilionids from Brigadier E. A. Glennie, D.S.O., of the Indian Geodetic Survey, besides other Arachnids and Diplopods, all taken from Indian caves. The Diplopods I have dealt with in a former paper (Turk, 1945), and it is most interesting to find that the present collection of Opilionids supports very remarkably indeed the zoogeographical results of that paper.

It is very unfortunate that a great deal of the material on which the present studies are based reached me in a very poor state of preservation. It was not possible to make a specific or even generic diagnosis of several specimens, and practically all had suffered in some way or another. Certain general statements about the collection are, however, possible. Every specimen belonged to the suborder Laniatores, and this is significant in view of the fact that among a small collection of epigæan forms taken by my friend, Capt. H. J. Larwood, M.Sc., from the same district and sent to me at the same time, every specimen was referable to the suborder Palpatores, family Phalangiidæ, subfamily Gagrellinæ.

Amongst the specimens too damaged to identify with any certainty were examples referable to the subfamily

Figs. 1-10.



1. *Indosidama moila* Turk: body, dorsal aspect; 2. genital operculum of female; 3. chelæ of male; 4. claws of the third legs; 5. palpus.
 6. *Bundelkhandia cavernicola* Turk: ocular tubercle, dorsal aspect; 7. ocular tubercle, lateral aspect; 8. palpus; 9. claws of third leg; 10. chela.

Hypoxestinae of the Assamiidæ and one which was probably a species of Epidanidæ. With the possible

exception of this last it will be seen that all the forms found in the caves were members of the family Assamiidæ.

For help with the literature and the making of suitable permanent mounts of the specimens described below—a difficult matter having regard to their fragile nature and poor preservation—I am indebted to my former pupil, Miss S. M. Phillips, F.Z.S.

Subfamily *Sidaminæ* Roewer, 1935.

INDOSIDAMA, gen. nov.

Allied to *Sidama* Pavesi, 1895. The stigmata are hidden under very large teeth. Ocular tubercle smooth and totally unarmed. No median horn on the carapace. Tarsus of first leg with four segments with the end-piece ("Endabschnitt" of Roewer) two-ringed. End-piece of the second tarsus eight-ringed (three-ringed in *Sidama*). Claws of tarsi 3 and 4 simple and without pseudonchium. Segmentation of tarsi otherwise as in *Sidama*. The posterior part of the abdominal scutum with very small and the free tergites of the abdomen with quite large teeth arranged in rows. It may be distinguished most easily from the genus *Sidama* by the longitudinal furrow on "Area 1" of the abdominal scutum.

Type-species, *Indosidama moila* mihi.

Indosidama moila, sp. n.

Length 3.5 mm. Width at the broadest part of the abdominal scutum 1.75 mm. Colour light chestnut-brown, the legs lighter and the abdominal scutum changing to a light yellow in the middle. Ocular tubercle placed one-third the length of the cephalothorax from its anterior border. Femur of palp ventrally with a row of five spines and one median apical spine, as in *Sidama mæsti* Pavesi. The genital operculum of the female is armed with four fairly stout spines (fig. 2), but that of the male has no especial specific character. The chelæ of the male are rather stouter than those of the female and have a group of three characteristic long hairs on the fixed ramus, as figured in fig. 3. Eyes somewhat reduced in size.

Type-material: 1 male from Moila Swallet, India, May 1943; 1 female from cave at Bodhyar, India (no other data given).

It is perhaps worth noting that the female mentioned above had much of the left ventral and lateral surfaces of the cephalothorax covered with a dense incrustation of a black mould (*Cladosporium* ? sp.), and the palp of the same side considerably reduced and deformed. It would appear that this specimen was alive when taken and the fungus must have been present in the role of a parasite. It is, I believe, unusual for black moulds to appear on any of the terrestrial arthropods except after death when decay has started to take place.

Subfamily **Hasadiinæ** Roewer, 1935.

BUNDELKHANDIA, gen. nov.

This genus is closely related to the genus *Argobba* Roewer, 1935 (Roewer writes this *Argobba* (*sic*) in his designation of the type species—evidently a printer's error). In addition to possessing the characters of the subfamily it agrees with *Argobba* in having but one median apical spine on the femur of the palp. It differs from this genus in having the scutum and the tergites of the first to third abdominal segments each armed with several rows of small spines. The spines of the palp (fig. 8) are peculiar and characteristic, particularly those on the two distal segments, and are best made out on the figure, but attention may be drawn to the very long and very stout spine set in a ventral row of three other spines on the tibia. The median process on the anterior dorsal edge of the cephalothorax is equally as long as the two flanking ones on either side. The ocular tubercle is characteristically spined with two lateral dorsal rows of spines and a rather longer median one which projects nearly vertically (figs. 6 and 7).

Type-species *Bundelkhandia cavernicola* mihi.

Bundelkhandia cavernicola, sp. n.

Length 4.5 mm. in both male and female. Colour light chestnut-brown. Ocular tubercle placed in the middle of the cephalothorax and of characteristic shape and armature. Basal portion of the femur of the fourth legs bears three outstanding warts, and that of the male is only very little more thickened than the female. The fourth coxa of the male with a fairly large backwardly-

directed blunt process. The chelæ are also characteristic with three prominent teeth on the movable ramus, which bears a single long hair at its base. Eyes in both sexes very large (fig. 7).

Type-material: 1 female, Toad-hole cave, Moila Swallet, June 1943, and 1 male, Moila Swallet, Sept. 1943.

Subfamily *Trionyxellinæ* Roewer, 1912.

Calloristus cavernarum, sp. n.

This genus is a monotypic genus erected by Roewer in 1935 for *C. granipes* Roew., from Madura, in the South Deccan, India. The present species may be easily distinguished from *C. granipes* by the fact that all the spines on the tarsus of the palp are as long as or longer than the terminal one, whereas in *C. granipes* they are all shorter. There are no teeth at all to be seen on the femur of the palp. The form is remarkable for the extremely large chelæ, the fixed ramus of which bears a large outstanding tooth midway between the terminal one and a proximal row of six teeth. Ocular tubercle untoothed. Cephalothorax smooth and unarmed. Warts on the scutum and free tergites much reduced but bearing longish hairs each about two-thirds the antero-posterior width of the tergite.

Type-material: 1 male and 1 female from Moila Swallet, June 1943.

All the above type-material is, temporarily, in my collection.

The most interesting result of the diagnosis of the above forms is that the species here recorded of the subfamilies Harsadiinæ and Sidaminæ are the first representatives of those subfamilies to be found in India; all the other forms hitherto known are confined to Africa, mostly East Africa and Abyssinia. The *Trionyxellinæ*, too, are confined to South Africa, South Deccan, India, Ceylon and Borneo, and the present species of *Calloristus* marks the furthest extension northwards of the subfamily so far known.

It is remarkable, too, that the African and Indian forms should be so nearly related, considering the immense

period of time which must have elapsed since their dispersal from a common place of origin, but this is really in keeping with the known facts of the great similarity between many of the Laniatores of the New and Old Worlds.

The geographical distribution and relationships of the forms discussed in this present paper make it seem probable that the colonisation of the Indian peninsula was from the south rather than the north, and it is no new thing to find that the representatives at the limits of the territorial range of a genus or larger group are cave-dwelling forms. Thus, there is further evidence to be found here in this group, as in the cave Diplopods of India (Turk, *loc. cit.*), for a former land connection between India and Africa, or, at least, that both have had a connection with a common locus of origin for these forms. This whole matter, however, I propose to deal with in more detail in a subsequent paper.

There is little evidence here of any special adaptations to a cave-dwelling life, although the colour of all these specimens is lighter than that of their near relatives and may be attributed, perhaps, to this cause. It is significant that whilst *Indosidama moila* has the eyes somewhat reduced, yet in *Bundelkhandia cavernicola* the eyes are larger than is usual, and in *Calloristus cavernarum* they are similar to the only other known species of the genus, an epigæan form. Reviewing the characters of these cave-inhabiting forms as a whole the only structural characteristic which they have in common—and that possibly a non-adaptive one—is the tendency either to larger or a greater prolixity of spines on the palp, especially on the tarsus. This increased spiny armature is to be found elsewhere amongst cavernicolous Laniatores.

References.

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