

DESCRIPTION OF A NEW GENUS AND SPECIES OF GEOPHILIDAE (MYRIAPODA, CHILOPODA) FROM MADRAS (INDIA).

By F. SILVESTRI.

Gen. **Mixophilus**, nov.

Body anteriorly and posteriorly slightly narrowed. Head small, not completely covering the lateral part of first segment of the maxillipedes, with the sides converging a little anteriorly. Antennae somewhat attenuate, sparse, setose. Labrum very small, provided with four teeth medially; mandibles with one pectinate lamella, the teeth of which are very short and similar; first maxillae with the entire coxosternum provided with a submedian triangular, tapering process, which has a seta at its base internally and inferiorly; maxillary palp biarticulated; its second article longer than the first, bearing a seta on its lower surface; second maxillae with an entire coxosternum and a 3-jointed palp provided with a distinct subconical claw.

Frontal lamina coalesced; prebasal lamina scarcely distinct, basal lamina broad, trapezoidal. Maxillipedes separated from the frontal margin of head by a long distance; first joint long and strong, second and third very short, all unarmed, claw long, somewhat curved, and at base armed with a small tooth, subcoxosternum with entire chitinous lines, anterior margin unarmed and medially very faintly sinuate.

Segments provided with short and trapezoidal pretergites; tergite transversely subrectangular; pleurae with prescutellum somewhat larger than the spiracular scutellum; sternites with presternum in the middle faintly and incompletely divided, sternum provided (last pediferous excepted) with glandular pores disposed in a posteriorly situated entire area on a number of segments in the anterior part of the body and in two posteriorly situated areas on the remaining segments.

Legs short, provided with an unguiform terminal joint, strong, bearing basally a seta a little shorter than the claw.

Last pediferous segment provided with an obtrapezoidal sternum and with numerous glandular pores, which open in a large common pit as shown in fig. 3, *a*; legs 7-jointed including the last claw, little longer than the preceding legs, and in female very little more attenuate than in male.

Anal pores present.

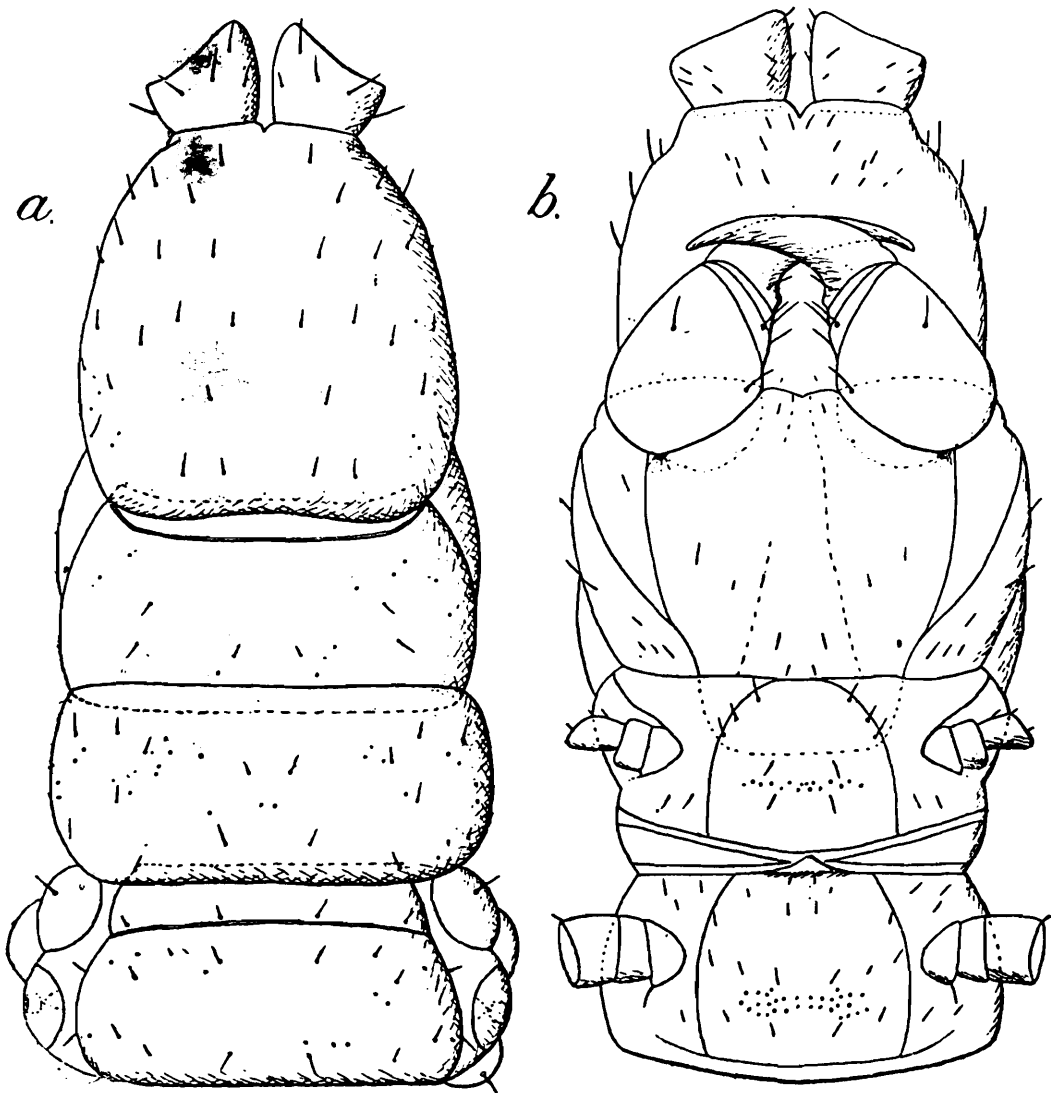
Genotype: *Mixophilus indicus*, sp. nov.

Remarks: This genus is related to *Henia* C. L. Koch and to *Chaetochelyne* Mein., but it differs from both in the form of the labrum, in the distribution of sternal pores, and from the first in the legs of the last pediferous segment being provided with an unguiform joint (claw) and from the second in the basal laminae being very much longer.

**Mixophilus indicus**, sp. nov.

Body light leather-coloured, with head and maxillipedes, except for the black claw, of an ochre-amber colour.

Sterna sparsely and shortly setose and provided with a posterior entire area of glandular pores up to segment xvii, which in the xviii segment are about 70 in number; the glandular areas become medially interrupted from segment xviii onwards and the lateral groups become gradually less numerous; in the last ambulatorial segment each lateral group is composed of about 9 pores only.



TEXT-FIG. 1.—*Mixophilus indicus*: a, b. Dorsal and ventral aspect of anterior part of body.

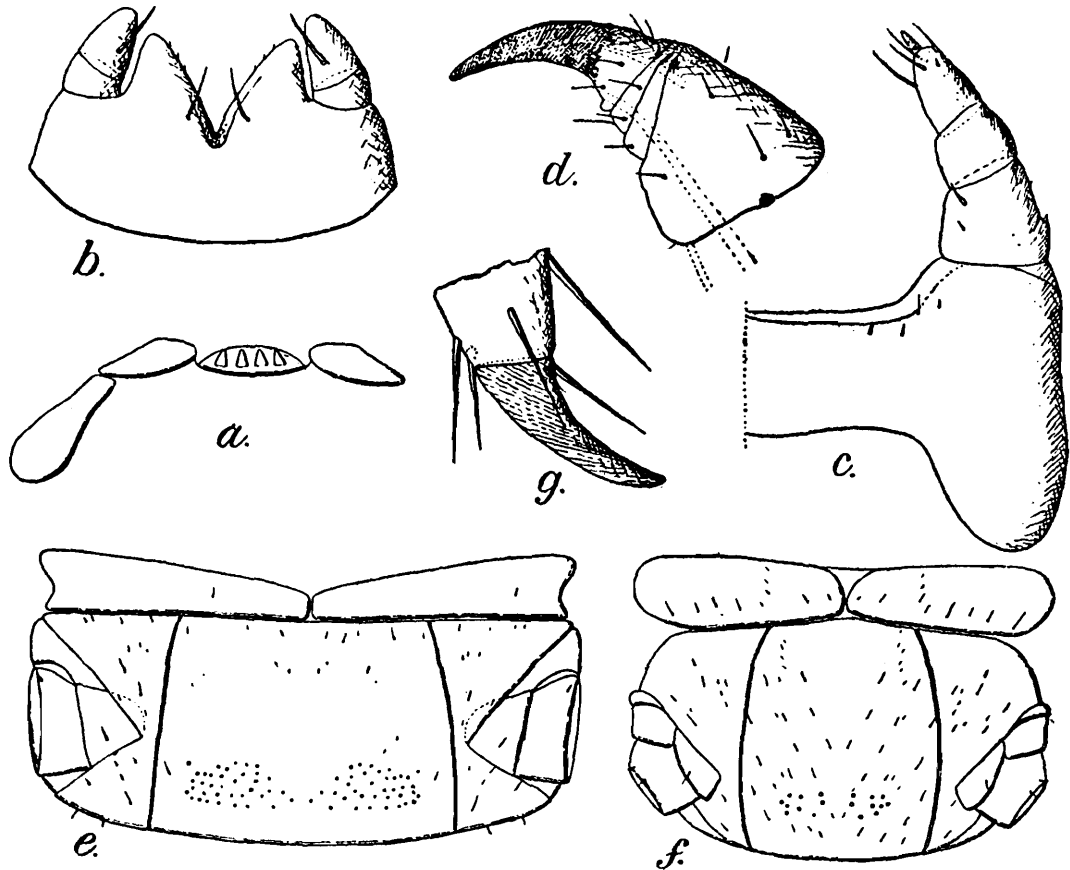
Pairs of legs in the female 57, in the males 55-57.

Length of body 20 millimetres, breadth 1 millimetre.

Described from one female and 5 males collected by Prof. Bonavis Bonnell at Madras.

[*Mixophilus indicus* here described by Prof. Silvestri was secured for the first time about the end of July, 1928 from a piece of land in the bed of the Cooum River at Madras, surrounded by water not less than  $2\frac{1}{2}$  feet deep, to a distance of about 10 to 12 feet on all sides. This bit of land, which is situated in the southern arm of the Cooum between the Gymkhana and Government House, is frequented by fishermen who collect Polychaete worms of the genera *Marphysa* and *Lycastis*. The forms were obtained when search was made for *Lycastis* and the extremely fine specimens lay coiled within loose soft mud just as these

Polychaetes do. These forms of a pale brownish yellow tint differed in colour from *Lycastis*, which is of a fleshy red colour, and were thought to be young forms of *Lycastis*. One fact, however, noticed at the time was the quickness with which they took cover, and on careful examination in the laboratory they were found to be centipedes belonging to the Geophilomorpha.

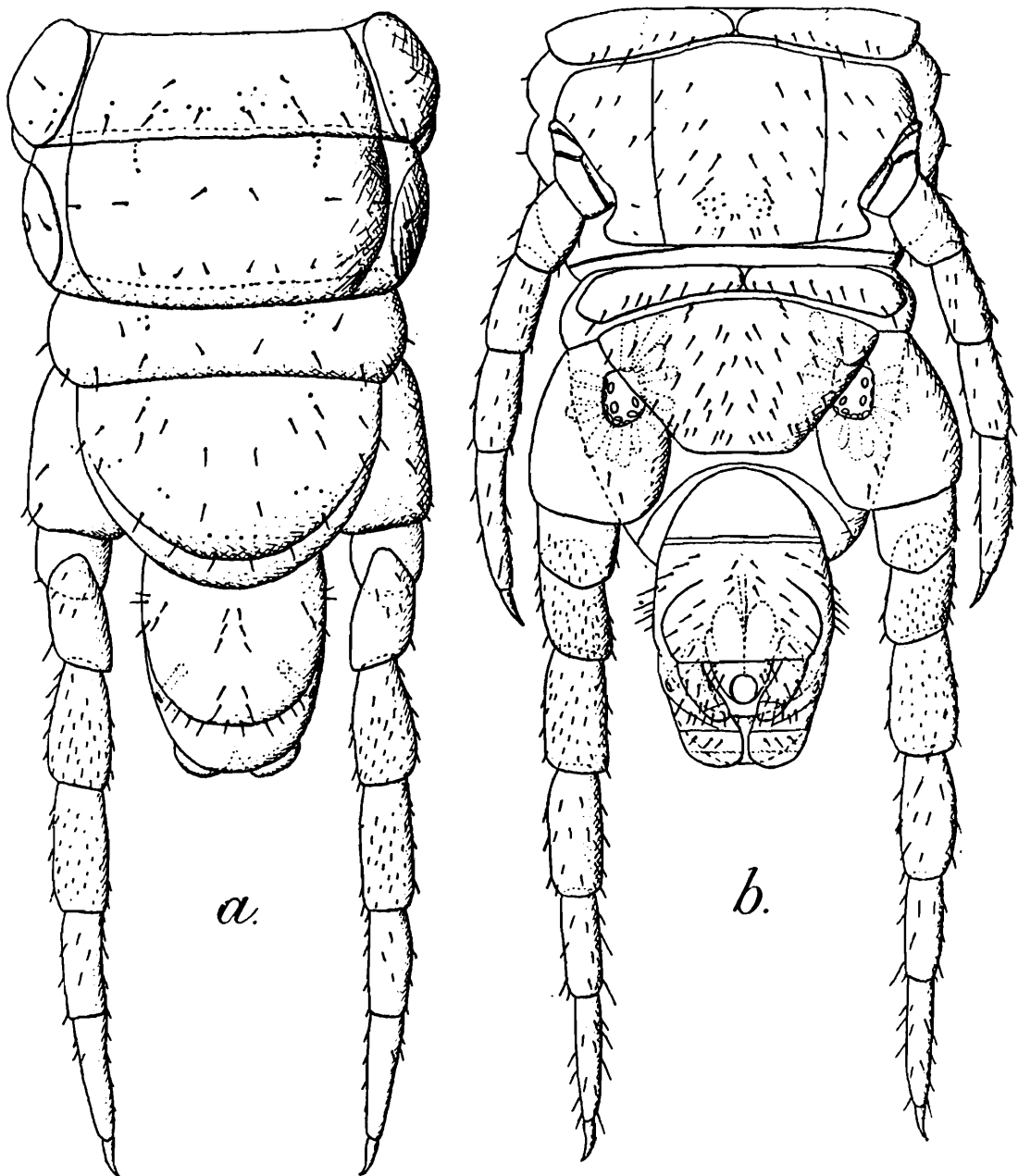


TEXT-FIG. 2.—*Mixophilus indicus*: a. Labrum, ventral view; b. First maxillae; c. Half part of second maxillae; d. One of the prehensile feet; e. Ventral aspect of xviii segment; f. Ventral aspect of last ambulatorial segment; g. Distal part of tarsus and pretarsus.

On subsequent occasions they were obtained from heaps of soil sticking out of the water from the bed of the Cooum at a point east of the Island ground and towards the Napier bridge. The heaps were piled up by fishermen while digging for *Marphysa*. That nearest to the shore was about three feet away and the others were separated by intervals of two to three feet. In the superficial layers of these heaps the centipedes were found coiled up and making practically no attempt to escape or leave the place. Along with these certain Forficulids, which were seen to run on the water and cross from one mound to another, were also obtained.

It had recently been decided by the Corporation of Madras to flood the Cooum periodically with water pumped in from the sea. The operation began for the first time in the end of July and since then the mounds and the piece of land in the bed of the Cooum have been submerged, becoming visible only occasionally for a few hours at a stretch. When the mounds are thus exposed to view no trace of these centipedes can

be found. On the assumption that they had migrated to the shore excavations were made between the maximum and minimum water levels. At first this search appeared unsuccessful, but later it was discovered that they lived in the very loose sand of crab-burrows along with Amphipods and Isopods. The burrows were a few days old. It is probable that these Geophilids move about during the night in search of food and occupy the heaps at the mouth of crab-burrows expecting to find food from the remains of the food of the crabs and also shelter. Pocock mentions that *Linotenia maritima* was found with hosts of scuttling woodlice and hopping sand-shrimps (*Zoologist* (Ser. 4) IV, p. 484, 1900) similar to what was observed in the present case.



TEXT-FIG. 3.—*Mixophilus indicus*: a, b. Dorsal and ventral aspect of posterior part of body.

The questions that arise now are whether these Geophilids were obtained from the first and second locality by mere accident or whether they represent their natural habitat. If the latter, whether there are

any peculiarities in structure which enable them to cross water and to withstand submergence for short periods. The accident theory does not seem to be tenable, for it fails to account for their occurrence in large numbers in these places, or to explain why out of several forms found on land this particular form alone should be unfortunate enough to be stranded.

The new species *Mixophilus indicus* here described is also interesting in that it has succeeded in the struggle for existence by adapting itself to a new kind of diet, namely the flesh of the polychaetes. *Mecistocephalus*, a common Geophilid, though distributed in almost every garden in Madras and even in the Island ground itself has not yet been found in places where *M. indicus* was collected.

The Polychaete *Lycastis* is regarded as an aquatic form tending towards life on land through the reduction of the parapodia and the simpler nature of the dorsal cirri which act as gills. In *Mixophilus indicus* we probably have a Geophilid in the process of changing its habitat in the reverse direction and it appears as if the two animals are adapting themselves in opposite directions. *B. Bonnell.*]