

11. On the Arachnida, Myriopoda, and Land-Crustacea of Christmas Island. By R. I. Pocock, Assistant Nat. Hist. Museum.

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Although not extensive in numbers either of species or individuals, Mr. Lister's collection of the above-mentioned groups of animals presents some features of no little interest. No Chilopod has ere this been recorded from the island, and amongst the specimens obtained are examples of two species of *Cryptops*, a genus which has never before been reported from any part of the Oriental Region. As might have been expected, one of these is new; while, curiously enough, the other is inseparable from the common *C. hortensis* (Leach), which is tolerably abundant in the neighbourhood of London.

Such wide-spread and well-known Chilopoda as *Scolopendra morsitans* (Linn.) and *S. subspinipes* (Leach) are conspicuous for their absence. The two species of Diplopoda taken are new; one, in addition, constituting a new genus; but this fact, considering the scantiness of our knowledge of the Diplopod fauna of the neighbouring lands, is not surprising. With the exception of one world-wide form the Arachnida belong to species that have been described only from Australia; and it may perhaps be worth while in this connection to call attention to the fact that Capt. Maclear brought back in 1887 one specimen of *Liocheles australasice* (Fabr.), a Scorpion that ranges from the Corea to the Fijis (see Proc. Zool. Soc. 1887, p. 520). One species of a land-crab was taken. This, in addition to its being a new species, is of interest inasmuch as it renders justifiable the view that the genus *Limnocarcinus* (De Man) should be regarded as a synonym of *Hylæocarcinus* (Wood-Mason).

CHILOPODA.

SCOLOPENDRIDÆ.

CRYPTOPS HORTENSIS (Leach).

For synonyms and an excellent description of this well-known European species and for references to the literature which treats of it, see Latzel, 'Die Myriopoden der Öster.-Ungar.-Monarchie,' i. p. 153 (Alfred Hölder, Vienna, 1880).

One specimen under a stone in Flying-Fish Cove. Although I have subjected this specimen to a most careful examination, I can find no reasonable grounds for separating it from the common European form.

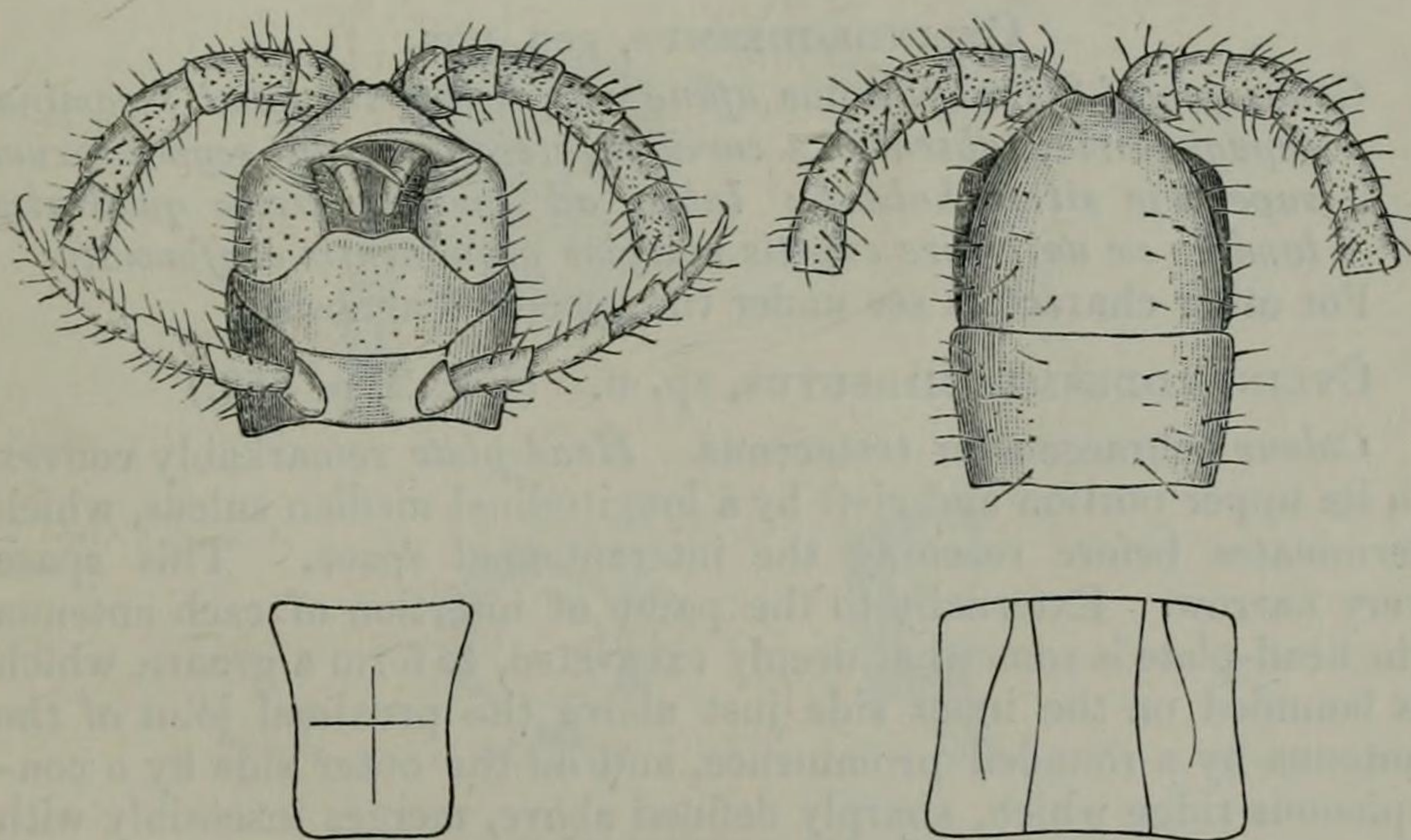
CRYPTOPS INERMIPES, sp. n.

Colour ochraceous, cephalic and anal segments darker. *Antennæ* long, slender, imperfect, being composed of but sixteen segments; segments cylindrical, the proximal short and thick, and sparsely

hirsute, the distal much more slender and densely pubescent. *Head-plate* cordate, hirsute, without sulci; basal plate not visible. *Maxillary sternite* wide, simple, with toothless but bristly anterior margin; maxillary feet bristly, inner margin not furnished with teeth; claw long and gently curved.

Tergites scantily hairy and sparsely punctured; first without sulci and slightly overlapping the head-plate in front; second with two shallow sulci; the rest, with the exception of the last, bearing four sulci, two median, parallel, complete, and on each side one which, starting anteriorly near the median sulcus of its side, curves outwards and terminates on the surface of the tergite in the anterior region of the body, but reaches, or nearly reaches, the hinder margin of the plate in the posterior region of the body; lateral margins not

Fig. 1.

*Cryptops inermipes.*

raised. *Sternites*: each, the first excepted, furnished with a median longitudinal sulcus, and most of them with a median transverse sulcus, which cutting the other at right angles makes the form of a cross. The distinctness of this latter sulcus is variable, and it almost disappears in the posterior region of the body. *Anal segment*: tergite with parallel lateral margins and angularly produced posterior margin; anterior portion of pleurite furnished with large, not close-set pores; posterior portion without pores; posterior margins slightly convex and bristly, obtuse below; sternite with a median anterior abbreviated sulcus, slightly curved lateral margins and convex posterior margin. *Legs* (all that remain) remarkably hirsute, but none of the segments spiny or denticulated.

Length about 27, of antennæ $5\frac{1}{2}$ millim.

One specimen beneath a stone in Flying-Fish Cove.

This species may be recognized *inter alia* by its cylindrical antennal segments, and by the absence of denticles upon the under surface of the tibial and proximal tarsal segments of the anal legs.

GEOPHILIDÆ.

MECISTOCEPHALUS CASTANEICEPS (Haase).

Mecistocephalus castaneiceps, Haase, Die Indisch-Australischen Myriopoden, pt. i. Chilopoden, p. 102, pl. vi. fig. 109.

Six specimens were taken under stones in Flying-Fish Cove.

This species has hitherto only been recorded from Pulo Edam, an island on the north coast of Java.

DIPLOPODA.

POLYDESMIDÆ.

CYLINDRODESMUS, gen. nov.

Genus generi Strongylosoma affine; eo discrepans quod foramina repugnatoria, absentibus carinis lateralibus, in segmentorum superficie situm habent; labro ad speciem ferme quadratæ laminæ ex anteriore capitis margine prominentis conformato.

For other characters see under the specific diagnosis.

CYLINDRODESMUS HIRSUTUS, sp. n. (Fig. 2, p. 559.)

Colour ochraceous or testaceous. *Head-plate* remarkably convex in its upper portion and cleft by a longitudinal median sulcus, which terminates before reaching the interantennal space. This space very narrow. Externally to the point of insertion of each antenna the head-plate is somewhat deeply excavated, to form a groove, which is bounded on the inner side just above the proximal joint of the antenna by a rounded prominence, and on the outer side by a conspicuous ridge which, sharply defined above, merges insensibly with the rest of the head-plate below, and is continuous with the external margin. Beneath the interantennal space the head-plate presents a shallow transverse constriction. The labrum is remarkably prominent and projects as a somewhat quadrate prolongation from the lower portion of the head-plate, its lateral margins cutting the lateral margins of the head-plate at about an angle of 135° . Its anterior margin is almost straight and feebly toothed in the middle, and its antero-lateral angles rounded. Head-plate thickly clothed with short hairs and closely but obscurely punctured.

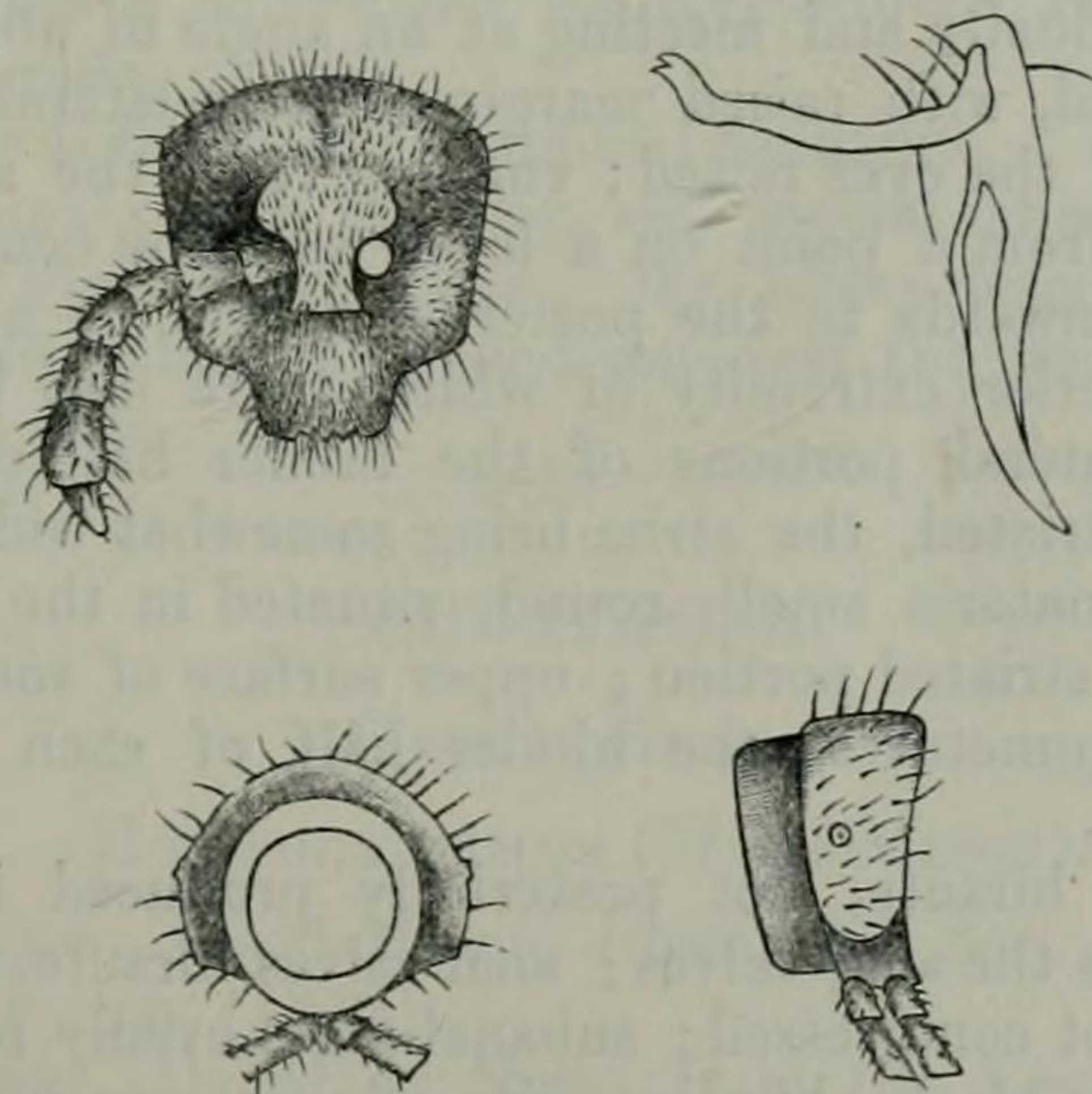
Antennæ short and hairy; segments 2, 3, 4, 5, proximally narrowed, about equal in length and somewhat cup-shaped; sixth segment much larger and more cylindrical than those that precede it; seventh segment cylindrical, small, but conspicuous.

Tergites not shining, dull, rugulose, thickly clothed with short hairs and sparsely with longer hairs: first with simple margins and rounded lateral angles; second widened inferiorly on each side; hinder half of each of the other somites above evenly arched from

side to side; the inferior surface less arched, with its plane meeting the plane of the lateral surface almost at right angles. On the under surface, near the point of junction of the two surfaces, there is a shallow constriction which gives each somite the appearance of being furnished below on each side with a rounded keel-like prominence. These prominences form a continuous series extending from the lateral margin of the first tergite to the posterior end of the body, a series which corresponds with the series of inferior keels found in some (? all) species of *Strongylosoma*.

Foramina repugnatoria small, circular, with slightly raised margins, situated in the middle of the sides of the same somites, as in *Strongylosoma*, but not supported upon even a trace of a keel; those in the anterior region of the body situated in the anterior portion of

Fig. 2.

*Cyliindrodesmus hirsutus*.

the posterior half of each somite, those in the posterior region of the body in the posterior portion of the posterior half of each somite. Anal tergite produced behind into a short rounded prominence which slightly overlaps the anal valves; margins of valves not raised; subanal plate somewhat quadrate, with slightly concave and converging lateral margins, and slightly concave posterior margin, at each end of which is a prominent tooth.

Legs hairy. Copulatory foot of the male consisting of two segments; proximal segment, half of which is inside the body, slender and cylindrical above, stout below, and membranous on the inner surface, where it comes into contact with its fellow on the opposite side; from its distal extremity on the inner surface springs, at right angles to it, the distal segment, which projects forwards parallel to the long axis of the body; this segment has the form of a slightly waving rod which is sharply upturned towards the distal

extremity, where it is bifid; proximally it is furnished with a few longer and shorter hairs.

Total length about 7 millim.

Five males and six females were taken under stones in Flying-Fish Cove.

JULIDÆ.

SPIROSTREPTUS (NODOPYGE) EXOCÆTI, sp. n.

Species belonging to the immucronate homomorphous group.

Number of somites 54 or 55. Total length about 22 millim.

Head-plate convex from above downwards and from side to side, marked above with a short median sulcus; eyes small, consisting of about sixteen or seventeen ocelli; front sparsely punctured and hirsute; labial margin slightly concave and furnished with five small teeth.

Somites. Anterior and posterior margins of the first tergite converging gradually and meeting at an angle of about 50° ; apex of angle rounded, with raised margin; antero-lateral margin as far as the region of the eyes raised; running from the anterior margin of the tergite, from a point on a level with the ocular area backwards and downwards to the posterior margin, is a single sulcus, above the posterior extremity of which there may be a few short sulci. Infero-lateral portions of the hinder half of each somite longitudinally striated, the striæ being somewhat widely separated; foramina repugnatoria small, round, situated in the middle of the plate above the striated portion; upper surface of somites bearing a few setiferous punctures, the hinder half of each divided by a complete sulcus.

Anal tergite hirsute, not posteriorly produced into a process which overhangs the anal valves; anal valves hirsute, not prominent, with margins not compressed; subanal plate evenly rounded.

Colour shining black; hind margins of segments and labial regions lighter; legs testaceous. One specimen, which has in all probability lately undergone a moult, is pale-coloured.

Five specimens (one ♂) taken under stones in Flying-Fish Cove.

ARACHNIDA.

EPEIRIDÆ.

NEPHILA NIGRITARSIS (L. Koch).

Nephila nigratarsis, L. Koch, Die Arachniden Australiens, &c., i. p. 152, pl. xii. fig. 4.

Seven adult female specimens from the lower slope above Flying-Fish Cove.

This Australian species was described by Dr. Koch from specimens obtained from Rockhampton and Port Mackay.

Received with the above were four immature specimens of *Nephila* which I cannot with certainty identify. Probably they are the

young of *N. nigritarsis*. A note by Mr. Lister refers to them as "spiders forming vertical geometrical webs close together in parallel planes with cross-lines between them."

ATTIDÆ.

HOMALATTUS AURATUS (L. Koch).

Homalattus auratus, L. Koch, *op. cit.* ii. p. 1087, pl. xcv. figs. 4, 5.

Two specimens.

This species was recorded by Dr. Koch from the following localities in Australia—Rockhampton, Gayndah, Peak Downs, and Cape York.

SPARASSIDÆ.

HETEROPODA VENATORIA (Linn.).

For synonyms of this Spider see Keyserling, 'Die Spinnen Amerikas,' Laterigrada, p. 337.

This species is found in all tropical countries.

An adult female, with egg-bag, and several immature individuals were taken in Flying-Fish Cove. Mr. Lister describes the egg-bag as having been found suspended amongst the irregularly crossing threads of the web.

CRUSTACEA.

GEOCARCINIDÆ.

HYLÆOCARCINUS (Wood-Mason).

Hylæocarcinus, Wood-Mason, Journ. As. Soc. Beng. xlii. pt. 2, p. 258, pls. xv., xvi. (1873).

Limnocarcinus, De Man, Notes from the Leyden Museum, i. p. 65 (1879).

For my reasons for considering *Limnocarcinus* synonymous with *Hylæocarcinus* see below.

HYLÆOCARCINUS NATALIS, sp. n.

Carapace thickly and finely punctured above; posterior two thirds nearly flat, anterior third sloping convexly forwards; cardiac region with a low elevation on each side in front, wrinkled behind; branchio-cardiac grooves indistinctly defined; gastric region sharply marked off behind from the cardiac and branchial regions by a groove which curving forwards on each side passes into the hindermost of the three smooth pale spots, termed by Wood-Mason the "tell-tale marks of descent"; running obliquely forwards from each of these spots is the conspicuous cervical groove, which in the middle of its course dilates into the second pale spot and terminates in the third at the external margin of the orbit; epibranchial region separated from the mesobranchial by a groove, which anteriorly breaks up and falls short of the superior margin of the carapace;

protogastric and branchial regions in front marked with squamiform tubercles, which, running into definite series, are continued on to the inferior lateral surface of the carapace; these tubercles become finer as they approach the bases of the legs, and disappear entirely towards the facial region; there is no distinct line, either of tubercles or denticulations, separating the superior from the inflected regions of the carapace, although close to the external margin of the orbit there is a conspicuous tooth, and separated from this by the distance of one millim. another smaller tooth; these teeth together with the external suborbital lobe constitute the upper margin of an almost smooth area, which is bounded below by a finely serrate transverse ridge, running outwards from the margin of the *epistoma*. Anterior half of the gastric region marked with a conspicuous median longitudinal groove, which terminates in front between the slightly prominent epigastric lobes; front vertical, narrow, with raised margin and feebly convex anterior border; orbits a little wider than long, with superior border externally finely serrate, internally smooth; external suborbital lobe obsoletely dentate and separated from the internal suborbital lobe by a space which is about half as great as the space separating the internal lobe from the front.

Ext. maxillipedes. Inner margins scantily hairy; exopodite shorter than the second (ischial) segment and concealed behind it; ischial segment nearly as wide as it is long; the third (meral) segment depressed in the middle of its surface, thickly clothed with hair externally, and with its anterior margin excised; the small apical segments densely hairy and not concealed behind the meral segment.

Chelipedes externally beset with squamiform tubercles and scantily clothed with short black hairs; equal in size and identical in shape; *merus* triangular; anterior border slightly concave; posterior border convex, inferior border flat; antero-inferior angle denticulate, postero-inferior angle and superior angle spinous; *carpus* posteriorly (externally) convex, above anteriorly (internally) armed with three sharp teeth; *propodus* convex laterally, with superior and inferior borders slightly convex from before backwards; *dactylus* gently curved, when closed its teeth are almost in contact with those of the dactylar prolongation of the propodus.

Legs beset with squamiform tubercles and distally somewhat thickly clothed with black hairs disposed in longitudinal series; superior angle of the meral segments slightly spinous distally; propodal and dactylar segments furnished above and below with two series of coarse spines. Sternum and postabdomen closely punctured.

Measurements (in millimetres):—Carapace—width 19, length $15\frac{1}{4}$; width of front 4, of orbit $3\frac{1}{4}$, length of orbit $2\frac{1}{2}$; width of posterior margin of carapace 8; width of sternum $14\frac{1}{4}$, length 11 (measured from its anterior apex to the base of the abdomen); length of abdomen $9\frac{1}{4}$; length of chelipede—merus $6\frac{3}{4}$, carpus 5, propodus (above) $3\frac{3}{4}$, dactylus 6; second leg—length of merus $11\frac{1}{4}$, carpus 6; propodus $6\frac{1}{2}$, dactylus 8.

Two male (probably young) specimens taken under a log in the higher part of the island, about two hundred feet from the summit.

In 1873 Prof. James Wood-Mason described a species of Land-Crab which he raised to the rank of a new genus, *Hylæocarcinus*, on the strength of the separation of the front from the internal sub-orbital lobe, two skeletal pieces which in *Geocarcinus* and *Pelocarcinus* are confluent. An additional differential character is the partial concealment of the apical segments of the external maxillipede behind the inner angle of the merus of that appendage, these apical segments being concealed in *Geocarcinus*, visible in *Pelocarcinus*.

Six years later Dr. De Man established a fresh genus, *Limnocarcinus*, upon a specimen of a Land-Crab which differs mainly from *Hylæocarcinus* in the entire visibility of the apical segments of the external maxillipede and in the smaller space between the front and the internal suborbital lobe. These, at all events, are the characters upon which the genus was founded.

Now there is a two-fold reason for regarding *Hylæocarcinus humii* and *Limnocarcinus intermedius* as referable to one genus. Firstly, the degree of concealment of the distal segments of the external maxillipede is a character which, in the allied genus *Geocarcinus*, is subject to a considerable amount of variation, and therefore by analogy is of no great value in the case of the species under discussion. Secondly, *Hylæocarcinus humii* is in one particular intermediate between *Limnocarcinus intermedius* and the species described above; a species which, on account of the freedom of the apical segments of the external maxillipede, is undoubtedly referable to the genus *Limnocarcinus* as defined by De Man. The above-mentioned particular is found in the relations *inter se* of the front and the two suborbital lobes. For in *L. intermedius* the distance between the front and the inner lobe is said to be equal to half the distance between the inner lobe and the outer lobe; in *H. humii* the two distances are about equal; in *H. natalis* the distance between the front and the inner lobe is about twice as great as the distance between the inner lobe and the outer lobe.

Now these facial features present in *Geocarcinus* an arrangement which is at least as constant as the degree of concealment of the apical segments of the external maxillipede. It is clear, therefore, that the one character is of not less value as a sign of affinity than the other.

It is certainly true that, so far as the external maxillipede is concerned, the relationship between *L. intermedius* and *H. natalis* is greater than the relationship between *L. intermedius* and *H. humii* or between *H. natalis* and *H. humii*. But the fact that in the other character mentioned *H. humii* is intermediate between *H. natalis* and *L. intermedius* appears to me to make it desirable either to consider the three forms to be referable to but one genus, or to keep the names *Hylæocarcinus* and *Limnocarcinus* for their respective species, *humii* and *intermedius*, and to constitute yet a third genus for *H. natalis*. But of the two courses it is assuredly more expedient to adopt the

former; and if this be done the genus must, in accordance with the laws of priority, be named *Hylæocarcinus*.

The three species of this genus may be separated as follows :—

- a.* Terminal segments of ext. maxillipedes partially visible; distance between front and inner suborbital lobe equal to the distance between the inner and outer lobes.

H. humii (Wood-Mason), Nicobar Islands.

- b.* Terminal segments of ext. maxillipedes almost wholly visible.

- c'.* Distance between front and inner suborbital lobe twice as great as distance between inner and outer lobes.

H. natalis, sp. n., Christmas Island.

- b'.* Distance between front and inner lobe half as great as distance between inner and outer lobes.

H. intermedius (De Man), Celebes.

December 18, 1888.

Prof. Flower, C.B., LL.D., F.R.S., President, in the Chair.

The Secretary read the following report on the additions to the Society's Menagerie during the month of November 1888 :—

The registered additions to the Society's Menagerie during the month of November 1888 were 53 in number. Of these, 34 were acquired by presentation, 9 by purchase, and 10 on deposit. The total number of departures during the same period, by death and removals, was 95.

The most noticeable additions during the month were :—

1. A specimen of the Small-clawed Otter (*Lutra leptonyx*) of India, presented by W. L. Sclater, Esq., F.Z.S., Deputy Superintendent, Indian Museum, Calcutta, new to the Society's Collection.

2. A Monkey of the genus *Cercopithecus*, from South Africa, apparently referable to the Samango Monkey (*Cercopithecus samango*), new to the Society's Collection.

The following papers were read :—