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XX.—*A Contribution to the Study of Neotropical Scorpions.*

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[Plates V. & VI. A. figs. 13-15.]

THE following paper is based upon the Scorpions contained in the collection of the British Museum.

### PART I.

#### *Synopsis of the Genera of the Broteas Group.*

- a. The maxillary lobes of the second pair of walking-legs wider than the sternum; stigmata elongate; the soles of the feet furnished beneath with two series of setæ .. *Broteas*, C. Koch.  
Type *Herbstii*, Thor.
- b. The maxillary lobes of the second pair not wider than the sternum; stigmata circular or oval.
  - a<sup>1</sup>. The lower surface of the feet studded with setæ and not compressed and spined.
  - a<sup>2</sup>. The feet short, robust, and furnished beneath with two sometimes rather irregular series of setæ ..... *Broteochactas*, g. nov.\*  
Type *nitidus*, sp. n.

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\* The type of this new genus is a small, dark-coloured, shining, robust scorpion from Trinidad. It will be fully described and figured in my paper upon the West-Indian Scorpions shortly to be published in the Journ. Linn. Soc. I also refer to the genus *Broteochactas* the species Karsch has described as *Chactas delicatus*.



- b*<sup>2</sup>. The feet long and slender and thickly clothed beneath with irregularly arranged long hairs ..... *Hadrurochactas*, g. nov.  
Type *Selateri*, sp. n.
- b*<sup>1</sup>. The lower surface of the feet compressed and armed with a median series of short spines.
- a*<sup>3</sup>. The antecular portion of the carapace not mesially sulcate, the ocular tubercle elongate in front, *i. e.* the sulci which embrace it laterally do not unite in front of it; lateral eyes not prominent.
- a*<sup>4</sup>. The anterior border of the carapace not emarginate; the antecular portion sloped downwards and forwards ..... *Teuthraustes*, Simon.  
Type *atramentarius*, Sim.
- b*<sup>4</sup>. The anterior border of the carapace deeply emarginate; the antecular portion nearly horizontal. *Heterochactas*, g. nov.  
Type *Gervaisii*, sp. n.
- b*<sup>3</sup>. The antecular portion of the carapace horizontal and mesially sulcate; the anterior lateral eye usually very prominent. .... *Chactas*, Gervais.  
Type *lepturus*, Thor.

## Genus BROTEAS.

*Broteas Gervaisii*, sp. n. (Pl. V. fig. 1.)Allied to *B. Herbstii*, Thorell.

*Carapace* coarsely granular laterally, the area surrounding the tubercle and the antecular portion finely and closely punctured.

*Tergites* shining, smooth, but finely and closely punctured throughout, at most weakly and sparsely granular posteriorly; the last smooth, polished, and punctured in front, coarsely granular behind.

*Sternites* smooth, polished, densely and very finely punctulate.

*Tail* rather more than three and a half times as long as the carapace, like that of *B. Herbstii*, but with the inferior surface of the first segment smooth, polished, finely punctulate, with the median keels almost obsolete; the median lateral keel present on all the segments, but anteriorly abbreviated on the second to fourth and posteriorly on the fifth, the segments lower than in *Herbstii* and less strongly excavated above, with the superior intercarinal spaces more granular.

*Palpi* and legs smoother than in *Herbstii*, finely and closely punctured.



*Pectines* with 8 or 9 teeth.

*Measurements in millimetres*.—Total length 62, of carapace 9, of tail 37; width of first segment 5, length 3·5; width of fifth and of vesicle 3·5, length of fifth 8·8.

Two female specimens in the Museum collection ticketed “? China,” a locality which is without doubt erroneous.

This species has an interesting history. On p. 232 of the Act. Mus. vol. iv., Gervais, in connexion with his description of *Broteas maurus*, refers to a scorpion in the British Museum collection which is ticketed China and is very near to his *maurus*. This scorpion, there can be little doubt, is the one that I have here described and dedicated to the distinguished French zoologist. One of the specimens bears an old label upon which is written “*Scorpio subnitens*, Gervais, MS., ? China.” The scorpion figured by Prof. Lankester in the Trans. Zool. Soc. vol. xi. pl. lxxx., as *Broteas subnitens*, Gervais, is *Teuthraustes atramentarius* of Simon.

This new form *Gervaisii* may be at once recognized from the *Broteas* that I identify as *B. Herbstii* by having the lower surface of the first caudal segment smooth, polished, and with obsolete median keels. Of the last-named form the British Museum has upwards of a dozen specimens of varying age and sex from different parts of British Guiana. Upon the identity of *Herbstii* of Thorell, however, there seems to me to be some doubt. The name was applied by Thorell to the scorpion described as *maurus* of Linnæus by De Geer and later authors. But it seems to me to be very doubtful if all these authors have described the same species as *maurus*; for instance, Herbst’s figure of *maurus* seems to me to represent a totally different form.

C. Koch, however, in 1838 described as the type of *Broteas* a species he named *maurus*, which came from Cayenne (French Guiana). It is highly probable therefore that this species of Koch’s is identical with my examples from British Guiana, and for this reason I identify these as *B. Herbstii*, being unable to ascertain the characters of *B. maurus* of De Geer, *i. e.* the true *Herbstii*. Why Mons. Simon should assert that *B. Herbstii* comes principally from La Plata, seeing that both C. Koch and Gervais especially mention Cayenne and Guiana as localities, I am unable to surmise. According to Simon’s description (Ann. Soc. Ent. Fr. 1877, p. 240) his *Herbstii* has the anterior caudal segments smooth and punctured *above* between the keels, which are almost absent on the first. If, however, in this description for *dessus* we read *dessous*, it would apply well to my *B. Gervaisii*; but as the description stands it is not applicable either to my



*Herbstii* or my *Gervaisii*. But in the present unsatisfactory state of our knowledge of the names of the species of the genus I do not care to propose another new name on the chance of this species of Simon's proving distinct.

As for *B. granulatus* of Simon (*loc. cit.* p. 241), a name which, by the way, this author alters into *granulosus* in the *Ann. Soc. Ent. Fr.* 1880, p. 382, it appears to me to indicate a form which is very doubtfully specifically distinct from my *Herbstii*, for some of the British Guiana specimens are so densely and closely sculptured with anastomosing punctures, that the whole of the upper surface is rugose.

The remaining species of the genus, *paraensis*, is unknown to me.

HADRUROCHACTAS, gen. nov.  
(Pl. V. figs. 5, 5a.)

Allied to *Broteochactas*, Pocock (*cf. supra*), but differs principally in that the distal segment of the legs is elongate and thickly clothed beneath with long irregularly arranged hairs.

As additional characters I may mention that in both the species of *Broteochactas* known to me the hands are very wide and more or less compressed internally, whereas in *Hadrurochactas* they are rounded and not internally compressed.

*Hadrurochactas Sclateri*, sp. n.

*Colour* piceo-castaneous, with flavous or fusco-flavous legs and a pale line down the middle of the back.

*Carapace* smooth, only very minutely granular at the sides, the median sulcus deep behind the ocular tubercle and granular, shallow in front of it and smooth; the ocular tubercle deeply sulcate behind, the eyes on it separated by a space that about equals a diameter, the lateral eyes separated by a distance less than a diameter.

*Tergites* nearly smooth, sparsely granular behind and laterally; the last more coarsely granular and furnished with two tubercles on each side.

*Sterna* entirely smooth and polished.

*Tail* about four times the length of the carapace, very robust; segments 1-3 wider than long, the fourth as long as wide, the fifth about one fourth longer than wide, much narrowed behind; the segments also high, the height of the third being greater than its length; the superior and superolateral keels developed and denticulate, the former elevated



posteriorly and terminating in an enlarged denticle, the latter strong and complete, terminating in front with a rounded tubercle and behind with an acute tooth in the first three segments; these three segments granular and obsoletely carinate laterally; the inferior and infero-lateral keels entirely absent on segments 1-4, which are smooth and polished, the fourth being merely weakly granular beneath; the fifth segment deeply excavated above and widely so behind, with elevated granular lateral edges, the lateral surface weakly granular, the lower surface thickly and coarsely granular, convex and not carinate, the lateral keels merely represented by a series of few coarser granules behind; *vesicle* depressed, narrower than the fifth segment, carinate at the side, coarsely serially but not closely granular below; a median series of small spiniform granules beneath the aculeus, the posterior of these the largest; the aculeus lightly curved from the base.

*Palpi* moderately robust; the humerus with its upper surface smooth, the anterior and posterior keels weak and weakly granular, the anterior surface also very feebly granular and defined below by a weakly granular keel; *brachium* smooth and rounded above and behind, its anterior surface defined by a keel above and below; *manus* wider than the brachium, smooth, rounded, not carinate, with scarcely even a trace of keel to define the hand-back; the length of the hand-back greater than the width of the hand, but less than the length of the movable digit; digits slender, moderately elongate.

*Legs* slender, elongate, smooth, with two spurs at the base of the feet and the distal end of the posterior surface produced into a short acute process, just in front of which there is a long series of short minute spinules.

*Pectines* moderately long, furnished with 10-11 teeth.

*Measurements in millimetres*.—Total length 26.5, of carapace 4, of tail 16, width of first caudal segment 2.8, of fourth 2.6; length of segments 1+2 3; width of the vesicle 2, width of brachium 1.3, of hand 2; length of hand-back 2.5, of movable digit 3.5.

*Loc.* British Guiana (*W. L. Sclater*).

Two adult female specimens.

#### HETEROCHACTAS, gen. nov.

(Pl. V. fig. 6, 6 a.)

The anterior border of the carapace rather deeply and abruptly emarginate in the middle line, with its lateral portions rounded and the anterior lateral eye scarcely at all



prominent. The ocular tubercle prolonged in front almost as far as the anterior emargination; the anteocular area therefore is not mesially grooved.

This genus resembles *Chactas*, except that in *Chactas* the ocular tubercle is short and terminates in front in a point from which a deep groove runs forwards to the (usually) shallow emargination of the anterior border; the anterior lateral eyes too are generally very prominent. It also very closely resembles *Teuthraustes*, of which the British Museum has several examples, referred to *atramentarius*, from Ecuador; but in this last genus the anteocular region of the carapace is much more strongly sloped downwards and forwards and the anterior border is not or scarcely emarginate.

*Heterochactas Gervaisii*, sp. n.

*Colour* piceous, with ferruginous legs and vesicle and redder feet.

*Carapace* nearly as long as the first three caudal segments, nearly smooth above, somewhat thickly granular at the sides, the median sulcus not continued in front of the ocular tubercle; the anterior border somewhat deeply emarginate in the middle, rounded at the sides; the anterior lateral eye not prominent; median eyes small, separated by a distance about equal to three diameters.

*Tergites* nearly smooth, at most obsoletely granular, the last finely and closely granular, with two tubercles on each side.

*Sternites* smooth and polished.

*Tail* about three and a half times as long as the carapace; the anterior four segments smooth beneath and not keeled, marked with a few coarse punctures; the upper surface scarcely excavated and very feebly granular, the fourth and fifth segments entirely flat, the superior and supero-lateral keels present and finely granular, as also are the spaces between them; the tail narrowed posteriorly, the second segment a little wider than long, the third a little longer than wide, the fifth more than twice as wide as long, finely granular above, flat in its posterior two thirds, its edges squared and granular, its sides and lower surface also finely granular, with a posteriorly abbreviated weak median lateral keel and granular anteriorly weak inferior keels; *vesicle* large, higher and considerably wider than the fifth segment, granular below and at the sides, flat and sulcate above; *vesicle* short.

*Palpi* robust, not large; *humerus* granular above and in front and carinate; *brachium* not denticulate nor granular,



punctured both finely and coarsely; *manus* not carinate, convex above, its width a little greater than the length of the hand-back, sculptured above with large and very fine punctures which, towards the inner edge, pass into granules; the movable digit longer than the width of the hand; a tooth on the immovable as in *Ch. amazonicus*.

*Legs* with minutely granular femora.

*Pectines* short, with only six teeth.

*Measurements in millimetres*.—Total length 52, of carapace 8·5, of tail 27; width of first segment 4, of second 3·5; length of second 3·4, of fifth 8, width 3; width of vesicle 3·8, height 3; width of brachium 3, of hand 6+; length of hand-back 5·5, of movable digit 8.

Two ♀ examples from Cuença, in Ecuador (*Fraser Coll.*).

Of all the known species of *Chactas*, *Heterochactas Gervaisii* comes nearest to *Ch. Whymperi*, which has the anterior border of the carapace conspicuously notched in the middle.

### Genus CHACTAS.

The following is a synopsis of the species of this genus that are known to me. (To be used with caution.)

- a. All the segments of the tail, *including the first*, furnished with the normal number of well-developed granular keels; the upper surface of the trunk and the external surface of the legs coarsely granular. . . . . *æquinoctialis* (Karsch).
- b. The lower surface of at least the first caudal segment not furnished with granular keels.
  - a<sup>1</sup>. The upper surface of the palpi and carapace coarsely granular; vesicle large, impressed below; brachium without an upper internal basal tooth; the proximal tooth on the immovable digit enlarged . . . . . *Whymperi*, sp. n.
  - b<sup>1</sup>. The legs nearly or quite smooth externally, the vesicle less globular and not impressed below.
    - a<sup>2</sup>. The third and fourth caudal segments clearly carinate below, the second weakly carinate; the carapace more coarsely granular at the sides; the brachium with an enlarged tooth; the immovable digit not basally dentate.
    - a<sup>3</sup>. The upper surface of the abdomen finely and closely granular; the caudal keels stronger . . . . . *lævipes* (Karsch).
    - b<sup>3</sup>. The upper surface of the abdomen smooth and polished; the caudal keels weaker . . . . . *Simonii*, sp. n.
  - b<sup>2</sup>. The second and third caudal segments



smooth and not (or scarcely) carinate beneath; the fourth scarcely keeled, being at most weakly granular.

- a*<sup>4</sup>. The body, limbs, and tail densely and closely punctured; with a large tooth at the base of the immovable digit and no tooth on the brachium. *amazonicus*, Sim
- b*<sup>4</sup>. The trunk, limbs, and tail not densely punctured; with at most a small tooth on the immovable digit.
- a*<sup>5</sup>. The fourth caudal segment granular beneath; the brachium with a large anterior tooth.
- a*<sup>6</sup>. Vesicle smooth above and below; tail shorter ..... *chrysopus*, sp. n.
- b*<sup>6</sup>. Vesicle granular above and below; tail longer ..... *Karschii*, nom. nov.
- b*<sup>5</sup>. The anterior four caudal segments entirely smooth and polished beneath; the brachium with at most a small tooth.
- a*<sup>7</sup>. The upper caudal keels very distinct and granular; the spaces between them also granular; the last tergite laterally distinctly granular; hand not keeled ..... *Keyserlingii*, sp. n.
- b*<sup>7</sup>. The upper caudal keels weak, and at most weakly granular; the last tergite also smoother.
- a*<sup>8</sup>. The hand keeled; the superior caudal keels a little stronger and feebly granular ..... *lepturus*, Thor.
- b*<sup>8</sup>. The hand not keeled in ♀, scarcely so in the ♂; the superior edges of the anterior caudal segments smooth and rounded. .... *Van Benedenii*, Gerv.

### *Chactas Van Benedenii*, Gervais.

*Chactas Van Benedenii*, Gervais, Arch. Mus. iv. p. 232, pl. xii. figs. 40, 41.

The British Museum has two examples of this species, both of which were obtained in Colombia by Mons. Goudot; both are from Ibaque and both bear tickets, affixed either by Gervais or Goudot, upon which the specific names are written.

One example is a male and shows the extraordinary elongation of the palpi that Gervais has figured. The hand-back is longer than the movable digit and is more than twice as long as the width of the hand. In the female the palpi are much shorter and more robust. The carapace is minutely



granular at the sides, but the rest of the trunk is entirely smooth in both sexes. The anterior four segments of the tail are smooth beneath and the superior edges are rounded and at most minutely granular. The brachium is smooth above and behind, and the manus is also smooth and only indistinctly costate. The pectines are larger in the male than in the female, and are furnished with nine teeth in both sexes. The female measures about 52 millim. in length, the carapace being 7·8 and the tail 30.

Whether or not *Chactas Fuchsii* of Berthold is the same species as *Van Benedenii* I have not been able to satisfy myself. I may point out, however, that the relative measurements of the caudal segments in *Fuchsii* apply exactly to the female of my *Van Benedenii*, and that what Berthold says of these measurements in his *Van Benedenii* is not true of mine. Moreover the median eyes in the latter are not grey, but the colour of clear amber. If, however, Berthold has correctly determined the sexes of his species, the female of *Fuchsii* certainly differs from that of *Van Benedenii* in having the finger (by which presumably the movable finger is meant) much shorter than the hand ( $2\frac{1}{2} : 4\frac{1}{2}$ ), that is, shorter by nearly its own length; and in the male of *Fuchsii* the finger is only by a third of its own length shorter than the hand. Berthold asserts, moreover, that the carapace of his species is entirely smooth, which is not strictly the case in *Van Benedenii*.

Of the meagre description of *Ch. brevicaudatus* of Karsch very little can be made. Very possibly the species may be the young of *Van Benedenii* or *Fuchsii*.

### *Chactas lepturus*, Thorell.

*Chactas lepturus*, Thorell, Ac. Soc. Ital. Sci. Nat. xix. p. 266.

The specific name given to this species by Thorell was upset in favour of *Thorellii* by Karsch, who alleges that the *Scorpio lepturus* of Palisot de Beauvois is also a *Chactas*, although belonging to a different species from that which received the same name from Thorell.

Karsch bases his assertion as to the generic position of *lepturus*, Pal. Beauv., upon a specimen in the Berlin Museum, which he believes, for unstated reasons, to be Beauvois's type. It seems a pity, however, that a more favourable selection of the type was not made; for, seeing that Beauvois asserts that his species had eight eyes and his figure shows that the tail is only as long as the trunk and the carapace is as long as the anterior three segments, whereas Karsch's specimen



has six eyes, with the tail nearly one third longer than the trunk (30 : 21) and the carapace shorter than the anterior three caudal segments, it is hardly likely that Karsch's belief will meet with many supporters. If the type in question is in the Berlin Museum at all, it will probably, I think, be found amongst the specimens in that institution which were identified as *Opisthacanthus elatus* (Gerv.) by Peters.

But since *Scorpio lepturus* of Beauvois, with its eight eyes, is probably not a *Chactas* at all, Thorell's name *lepturus* can stand for the species to which it was applied, with *Thorellii*, Karsch, as a synonym; while for the species of *Chactas* which Karsch described as *lepturus* of Beauvois, I propose the name *Karschii*, in memory of this author's contributions to the elucidation of the species of this genus.

The British Museum has a single specimen of a scorpion from New Granada (Colombia) which I identify as *lepturus* of Thorell. It appears to be young, since it measures only 35 millim. in length, the tail being 15.5 and the carapace just under 5; the anterior three caudal segments taken together measure 5.5.

The carapace is mostly smooth, being finely granular only at the sides; the tergites are smooth and polished, the last being weakly granular laterally, with two tubercular crests on each side.

The superior keels of the tail are scarcely developed, being represented principally by a large posterior tubercle; the supero-lateral keels, too, are weak and only very feebly granular.

The hands of the palpi are considerably longer than wide, finely granularly rugulose and carinate above.

The pectinal teeth are 7 on each side.

#### *Chactas amazonicus*, Simon.

*Chactas amazonicus*, Simon, Ann. Soc. Ent. Fr. (5) x. p. 384 (1880).

Described from Pevás (Peru). The Museum has two examples (♂ ♀) from Moyabama, in the same country.

The male is considerably more granular than the female, and has a longer and stouter tail, this organ being more than three and a half times the length of the carapace, while in the female it is less than three and a half times the length.

Very characteristic of the species is the tooth at the base of the immovable digit and the notch on the movable to receive it—features which occur in both sexes. The palpi of the male do not appear to be longer than in the female.



*Chactas lævipes* (Karsch).

*Chactas lævipes*, Karsch, Mitth. Munch. ent. Ver. 1879, p. 131.

The species that Dr. Karsch described as *Broteas lævipes* is a *Chactas*. The British Museum has a single male example of it.

*Chactas æquinoctialis* (Karsch).

*Chactas æquinoctialis*, Karsch, t. c. p. 130.

This species, described as a *Broteas*, is also a *Chactas*. The Museum has a male example from Porto Cabello.

*Chactas Keyserlingii*, sp. n.

*Colour* pitch-black; legs, lower surface, and vesicle just tinted with ferruginous.

*Curapace* smooth and polished above, distinctly granular at the sides, the anterior border evidently emarginate and the longitudinal furrow deep, as long as the first and second caudal segments and one third of the third; distance between the median eyes rather greater than a diameter, that between the lateral about equal to a diameter.

The *tergites* smooth and polished, the last smooth only in front and in the middle of its upper surface, the rest being distinctly granular.

*Sternites* entirely smooth and punctured.

*Tail* weak, about three and three quarter times as long as the carapace, narrowed posteriorly, the second segment as long as wide; the upper surface of the segments smooth and sulcate in the middle, conspicuously granular (subserially on the fourth) at the sides, the superior and supero-lateral keels present and distinctly granular, as is the interval between them; the lower surface of these segments smooth and polished, the fourth only obsoletely keeled at the sides; the fifth segment more than twice as long as wide; its upper surface sulcate in front, flat behind, and in front distinctly granular at the sides, the edges rounded, granular, the lateral and lower surfaces also granular, the median lateral keel present only in front; the infero-lateral and median keels distinct and granular; *vesicle* serially granular below and at the sides and very sparsely so above, flat and sulcate above, as wide as the fifth segment.

*Palpi* elongate; the humerus and brachium granular and carinate, the latter with one or two small denticles above and below at the base of its anterior surface; *manus* long and slender, not twice as wide as the brachium, its width a little



more than half the length of the hand-back, which itself equals the length of the movable digit; the manus convex above, not keeled, granular internally and minutely reticulato-granulate above; the digits not dentate.

*Legs* almost entirely smooth; the lower edge of the femora granular.

*Pectines* short, with 7 teeth.

*Measurements in millimetres*.—Total length 53, of carapace 7.5, of tail 27; width of first segment 3.4, of fifth 2.5; width of brachium 2.5, of hand 4; length of hand-back and of movable digit 7.

*Loc.* Colombia. Two female examples, one collected by M. Goudot, the other from the collection of the late Count Keyserling, in honour of whom I name the species.

This species is nearly related both to *Ch. Van Benedenii*, Gervais, and to *Ch. lepturus* of Thorell. From the former it may be recognized at once by having the superior caudal keels evident and denticulate, and by having the humerus, brachium, and manus and last tergite granular; moreover, in the female of *Van Benedenii* the tail is longer and the palpi are more robust, the width of the hand as compared with the length of the hand-back being as 5:7.3.

From the Museum example that I identify as *lepturus*, Thorell, *Keyserlingii* may be recognized by having the hand unkeeled, the palpi and last tergite more granular, the upper surface of the tail more deeply excavated and more granular, and the superior and supero-lateral keels better developed and more granular.

*Chactas Simonii*, sp. n.

*Colour* piceo-ferruginous, legs paler.

*Carapace* smooth on the summit of the prominences, granular over the rest of its surface, nearly as long as the anterior three caudal segments; the median eyes of average size, separated by a space that is rather greater than a diameter; the distance between the lateral eyes about equal to a diameter; the anterior lateral eye prominent.

*Tergites* smooth, the last finely granular, with two tubercles on each side.

*Sternites* smooth and polished.

*Tail* less than three and a half times the length of the carapace, narrowed posteriorly, the second segment as long as wide, the upper surface of the segments nearly flat and smooth, the superior and supero-lateral keels developed and granular, the former with enlarged terminal granule; the



inferior lateral keels present too on all the segments, and finely granular at least on the fourth; the inferior median keels entirely obsolete on the first, just appearing on the second, still stronger on the third, plainly visible and granular on the fourth, this segment consequently having eight distinct granular keels; the fifth segment flat above behind, granular at the sides, with squared granular edges; lateral surface also granular, with indistinct median lateral keel, the lower surface with three inferior granular keels, and the intervening spaces also serially granular; *vesicle* moderately large, wider than the fifth segment, and almost as wide as the second; its height is about equal to the width of the fifth; thickly granular beneath, smooth above; *aculeus* more than half the length of the *vesicle*.

*Palpi* elongate; the humerus granular above, the brachium granular above, smoother behind, with a conspicuous bifid denticle above at the base of the anterior surface; *manus* rather narrow, not twice the width of the brachium, indistinctly keeled above and marked with very short series of minute granules; the length of the hand-back much greater than the width of the hand, the digits long, the basal tooth on the immovable digit scarcely larger than the rest.

*Legs* nearly smooth, the femora of the last pair only very weakly granular.

*Pectines* short, with 6-7 teeth.

*Measurements in millimetres*.—Total length 53, length of carapace 8.5, of tail 27, of fifth segment 7.5, width 2.2; width of *vesicle* 2.8; width of brachium 2.7, of hand 4.5; length of hand-back 7, of movable digit 8.

Two female specimens from Venezuela.

*Chactas chrysopus*, sp. n.

*Colour* piceo-ferruginous; legs flavous.

*Carapace* as long as the anterior three caudal segments, very smooth, very minutely granular at the sides; the front border with a shallow emargination; the median eyes large, the distance between them about equal to a diameter; the anterior lateral eye large and very prominent; the posterior smaller and separated from it by a distance about equal to its own diameter.

*Tergites* entirely smooth, the last only very minutely granular at the sides, with two tubercles on each side.

*Sterna* entirely smooth and polished.

*Tail* about three and a half times the length of the carapace, the third segment as long as wide, the first and second



segments entirely smooth beneath, the third obsoletely carinate but not granular, the fourth furnished with the normal weak granular keels; the superior lateral keels present and finely granular on the anterior four segments, the superior keels present and finely granular on the third and fourth segments, but the superior edges of the first and second rounded and scarcely granular even on the second; the upper surface of the anterior three segments mesially excavated, of the fourth nearly flat, of the fifth flat behind, with rounded and only feebly granular edges, and granular on the lateral surface, where there is a trace in front of a median lateral keel, the lower surface with the normal granular keels; the *vesicle*, as wide as the fourth segment, smooth above and below, only minutely granular at the sides.

*Palpi* robust, the humerus, brachium, and manus finely granular above; *brachium* with a bifid tubercle on the upper edge of the inner surface at the base; the *manus* wider than the brachium, length of hand-back much greater than width of hand and nearly as great as the length of the movable digit; the *manus* convex above and almost entirely without keels; the proximal tooth on the immovable digit rather larger than the rest, but there is only a minute corresponding notch on the other digit.

*Legs* smooth.

*Pectines* with 6 teeth.

*Measurements in millimetres*.—Total length 43, of carapace 7, of tail 23; width of brachium 3, of manus 5; length of hand-back 7, of movable digit 7.5.

*Loc.* — ? A single female example.

In some respects, such as the carination and granulation of the tail and carapace and the structure of the palpi, this species seems to approach closely *Ch. Karschii*, Pocock (*cf. supra*); but it certainly differs in having the vesicle smooth above and below, also a very much shorter tail and a smaller number of pectinal teeth. These last two characters I might have looked upon as merely of sexual importance, were it not that the similarity in the relative measurements of the segments of the palpi points to the identity of sex between the type of *Karschii* and of *chrysopus*.

*Chactas Whymperei*, sp. n.

(Pl. V. figs. 7–7 b.)

*Colour* black; legs ferrugino-piceous; feet and vesicle ferrugino-flavous.

*Carapace* nearly as long as the anterior three caudal segments, the frontal border very distinctly emarginate in the



middle, the grooves behind, in front of and at the sides of the ocular tubercle, rather deep; the whole of the upper surface studded with rounded tubercles, the median eyes small, the distance between them greater than a diameter; the distance between the two principal lateral eyes about equal to a diameter, a minute third eye situated above and behind the posterior large eye.

*Tergites* polished, obsoletely granular or tubercular behind, the last more distinctly granular, with two posterior tubercles on each side.

*Sterna* entirely smooth, punctured.

*Tail* rather robust, narrowed posteriorly, the segments with nearly straight parallel sides, the second a little wider than it is long, the fourth segment nearly flat above, those in front of it shallowly sulcate; the superior and supero-lateral keels strongly developed, granular, with a prominent posterior tooth; the upper surface of these segments granular at the sides, the first segment also granular in the middle; the first and second segments neither keeled nor granular below, smooth and punctured, the third also almost entirely smooth below, only very obsoletely keeled and lightly rugulose; the fourth more distinctly keeled and irregularly tubercular, with a distinct inferior lateral keel; the fifth segment flat and weakly granular above, with squared granular edges, a distinct granular median lateral keel in the anterior half of the segment, the three inferior keels distinct and subdentate, the spaces between them granular, the segment more than twice as long as wide; the *vesicle* large, wider than the fifth segment, smooth and mesially grooved above, somewhat coarsely punctured below and at the sides, impressed at the base of the vesicle, which is long, nearly straight, and curved in its distal half.

*Palpi* robust, thickly and coarsely granular above, with the normal keels developed; the *brachium* without the superior tooth on its anterior surface; *manus* robust, carinate above and below, the carinae studded closely with granules, which extend on to the intercarinal spaces; the upper surface convex, the width of the hand almost equal to the length of the hand-back and rather greater than the height of the hand, the length of the movable digit considerably greater than that of the hand-back.

*Femora* of the legs finely and closely granular, the rest of the segments nearly smooth.

*Pectines* furnished with 5-6 teeth.

*Measurements in millimetres*.—Total length about 54, of carapace 8.5, of tail about 29; width of first segment 3.9, of



fifth 3; width of brachium 3, of manus 5.6; length of hand-back 6, of movable digit 8.

Two female examples from Milligalli (Ecuador), collected by Mr. Edward Whymper.

## PART II.

### CARABOCTONUS, gen. nov.

(Pl. V. fig. 8.)

Allied to *Hadrurus*, and presenting all the characters of this genus, except that the lower surface of each foot is furnished with a single distally bifurcating series of close-set tufts of fine hair, each like the tip of a camel's hair paint-brush. Moreover the presence of this "scopula" is accompanied by a decrease in the size and sharpness of the inferior claw. In *Hadrurus* the inferior claw is long and sharp and the lower surface of each foot is furnished with a single series of short close-set spines.

Type *C. Keyserlingii*.

I also refer to this genus *H. charcasus* of Karsch, of which the Museum has an example from Bolivia, and a second species from Callao, which is probably synonymous with either *H. maculatus* of Thorell or *H. robustus* of Boeris. Whether or not *H. Paaschi* and *parvulus* of Karsch belong to this genus I am unable to say.

### *Caraboctonus Keyserlingii*, sp. n.

*Colour* a uniform piceous, olivaceo- or brunneo-piceous tint, the legs, palpi, and caudal vesicle redder.

The *carapace* with its interocular region smooth, polished, and sparsely punctured, the rest of it thickly granular, the anteocular portion not mesially sulcate, the margin lightly convex, the posterior region deeply sulcate mesially and at the sides. The tubercle undivided, a little in advance of the middle, the distance between the eyes greater than a diameter. The three lateral eyes about equidistant from each other, the posterior much smaller than the other two, the distances between the eyes about equal to the diameter of the little one.

*Tergites* without keels, finely granular, the granules coarser posteriorly and along the hind margin, the last coarsely granular and indistinctly quadricostate.

The anterior sterna smooth and highly polished; the last granular, with four granular keels.

*Tail* robust and moderately long, a little more than four and a half times the length of the carapace, the segments



with nearly straight parallel sides; the first segment about twice as wide as long, the third a little wider than long, the fourth longer than wide, the fifth less than twice as long as wide; the upper surface of the tail smooth, moderately excavated, the superior keels marked by a series of rounded tubercles, the superior lateral keel granular on the first segment, and represented on the second, third, and fourth in front by a small shelf-like process and behind by a single tubercle; the first segment coarsely granular at the sides and below, the granules on the lower surface arranged in four longitudinal posteriorly converging rows or keels; the second segment nearly smooth and polished at the sides, granular and keeled beneath like the first; the third and fourth segments smooth and polished laterally and below, sparsely punctured, without trace of keels; the fifth segment with its upper surface widely excavated behind, the sides granular in front, smooth and punctured behind, the lateral surface smooth and punctured, smooth in front, thickly punctured behind; the median keel just visible, the lateral keels absent in front, granular behind. *Vesicle* large, much wider than high, nearly as wide as the fifth segment, with a very conspicuous process on each side at the base, smooth and nearly flat above, thickly and finely granular beneath, the aculeus very short and slightly curved.

*Palpi* robust, of median length; *humerus* coarsely granular in front and above at the base; *brachium* above, behind, and below smooth, polished, not carinate, the anterior surface very finely granular and bounded above and below by a series of larger granules, one of which in the upper series has the form of a sharp tubercle; *manus* much wider than the brachium, rounded, entirely smooth and polished, punctured but not granular; digits short, the movable a little shorter than the carapace and a little longer than the hand-back.

*Legs* finely granular in front.

*Pectines* short, with from 10–12 teeth, with the lamellæ of the intermediate series broken up into only a few rounded sclerites.

*Stigmata* small and slit-like.

*Measurements in millimetres of largest specimen*.—Total length 55, of carapace 7, of tail 34; width of first segment 5, length 3; length of fifth 7.5, width 4.5; width of brachium 2.2, of manus 4; length of hand-back 4.8, of movable digit 6.

*Loc.* Coquimbo, Chili, and Brazil.

The Museum has four examples in alcohol from Coquimbo collected by Dr. Cunningham, one, ticketed Chili, in the



collection of the late Count Keyserling, to whose memory I dedicate the species, and one small dry one in the Museum collection, ticketed, though I doubt with accuracy, Brazil.

One of the examples from Coquimbo has larger pectines than the others and appears to be a male; the tail of this is unfortunately gone, but the palpi show no differences from those of the adult female described.

Two others from Coquimbo and the one from Brazil are young, and it is interesting to note that in them the palpi are much yellower and the hands much thinner than in the adults.

Characteristic of this species are the granular keels upon the last sternite and upon the first and second caudal segments.

### PART III.

#### Fam. Bothriuridæ.

##### *Bothriurus bonariensis* (C. Koch).

*Broteas bonariensis*, C. Koch, Die Arachniden, x. p. 12, fig. 762, ♂.

*Broteas erythrodactylus*, id. tom. cit. p. 16, fig. 764, ♀.

*Chactas Haversii*, Butler, Cist. Ent. i. p. 323 (1874).

*Chactas literarius*, id. ibid.

*Telegonus vittatus*, Gervais, Arch. Mus. iv. p. 227 &c. pl. xi. fig. 30.

*Bothriurus vittatus*, Thorell, Act. Soc. Ital. xix. pp. 168 &c.; but in all probability not synonymous with *Scorpio vittatus* of Guérin, Voyage de la 'Coquille,' Arachnides, p. 50.

This species is extremely abundant in Uruguay and Rio Grande do Sul, whence the British Museum has received upwards of fifty examples. We also have a specimen from Corrientes, and two ticketed Moyabama (Peru). This last locality, however, may be doubtful.

The colour of the adult is mostly piceous or rufo-piceous, but in the young there is a fine flavous median dorsal band and a wide longitudinal stripe on the under surface of the tail; moreover the interocular area and the legs may be fulvous.

I have never seen either an adult or a young of either sex approaching the colouring that is ascribed to *Scorpio vittatus* of Guérin. Dr. Thorell has made the same observation. This fact renders it probable to my mind that Gervais fell into error in his identification of *vittatus*.

In *vittatus* the anterior and posterior borders of the carapace and the posterior borders of the tergites are said to be black, and a similar coloration is presented by *Scorpio Gervaisii* of Guérin (Icon. Règne Animal, Arachnides, p. 10), and by



*Broteas nigrocinctus* of C. Koch (Die Arachn. x. p. 14, fig. 763); so that until evidence is forthcoming that these transversely banded forms, which, if conspecific, must be called *vittatus*, are the same as what C. Koch described as *Broteas bonariensis*, I think it is wiser to adopt the latter name for the species that Thorell described as *vittatus*.

The form *rugosus* described by Thorell as a variety of this species is, I think, probably a distinct species.

*Bothriurus coriaceus*, sp. n.  
(Pl. V. fig. 12.)

♂. *Colour*: carapace blackish, clouded or variegated with ferruginous; tergites black, with a red stripe along the hinder border; tail ferruginous above, the lower surface of the segments nigro-lineate, the black lines expanding and fusing behind into a transverse vitta; palpi ferruginous; legs and ventral surface flavous.

Allied to *B. bonariensis*.

Upper surface of the trunk finely and closely granular throughout; *the sterna also closely and finely granular throughout, the anterior ones smoother; the stigmata elongately ovate.*

*Tail* smooth above and below, the lower surface of the first segment obsoletely keeled beneath; the superior and supero-lateral keels and the space between them granular on the first segment; the supero-lateral keels obsolete on the third, being merely represented in front and behind by a tubercle; the superior edges of the fifth smooth or granular only in front. The inferior lateral keels on the fifth are present and denticulate on the posterior two thirds of the segment, and the median keel is almost as long and also denticulate; between them on each side there is an oblique series of denticles which defines in front the posterior area; the vesicle is narrow pyriform, not depressed below, but lightly depressed above.

*Palpi* as in *B. bonariensis*, but with the manus a little less robust.

*Pectines* with from 15–18 teeth.

The first pair of feet with a single pair of spurs at the apex, the second with two pairs, the third and fourth with a median pair also.

Total length up to 48 millim.; length of carapace 6, of tail 28.

*Loc.* Chili.

The Museum has four examples of this species (3 ♂ and 1 ♀), two being ticketed merely Chili, the others (1 ♂ and 1 ♀) Coquimbo.



This species differs from *B. bonariensis* in very many characters, *e. g.* in having finely granular sterna, smaller and more oval stigmata, the fifth caudal segment with inferior lateral denticulate keels, at least in the posterior two thirds of the segment, &c.

It further undoubtedly differs from Thorell's *B. d'Orbigny* (Guér.) in the keeling of the fifth caudal segment and in having finely granular sterna. I am not confident that Guérin's *d'Orbigny* is the same as Thorell's. Guérin, however, describes his species as being *lisse et luisant* and as having twenty-six pectinal teeth. In these two particulars this form from Chili appears to differ from it.

*Bothriurus Keyserlingii*, sp. n.  
(Pl. V. figs. 9, 9 a.)

Allied to *B. bonariensis*.

*Carapace* smooth above, very finely granular at the sides.

*Tergites* very finely granular, the last more coarsely so.

*Tail* like that of *B. bonariensis* for the most part, but slightly less robust, with the *first segment furnished beneath with four smooth and rather irregularly shaped keels*, and the posterior segment coarsely granular in its posterior half, with the area which is so clearly defined in *B. bonariensis* developed only as in *B. coriaceus*.

The *palpi* as in the female of *B. bonariensis*.

*The fifth sternite of the abdomen furnished with four smooth keels.*

Length about 40 millim.

A single dried (probably ♀) example in the late Count Keyserling's collection, ticketed Chili or Peru.

Most nearly related to *B. coriaceus*, which it resembles in the structure of the fifth caudal segment, but easily to be recognized by presence of four keels on the last abdominal sternite and upon the first caudal segment.

*Bothriurus asper*, sp. n.  
(Pl. V. fig. 10.)

*Young male.* Colour fuscous, with a distinct median fulvous dorsal band on the tergites; the legs, palpi, and lower surface of the tail irregularly variegated with flavous spots and bands.

*Carapace* finely and closely granular throughout, except on the summit of the ocular tubercle, which is smooth and polished; this tubercle obscurely sulcate above; the eyes large, the distance between them being about equal to a diameter.



The whole of the exposed portion of the tergites thickly granular like the carapace, the last with two sets of larger granules on each side. The *sterna* finely and closely granular, the last without trace of keels.

*Tail* moderately robust, rather more than four times the length of the carapace, parallel-sided, the third segment about as long as wide; minutely and closely granular throughout; a few larger granules in the region of the superior and supero-lateral keels on the anterior three segments, these keels being marked posteriorly by small tubercles; the supero-lateral keel absent on the fourth segment; the sides and lower surface of the segments without keels; the fifth segment mesially sulcate, widely excavated behind; the lower surface with an obsolete median keel, the posterior semioval area not very clearly defined, the two inwardly curved oblique series of granules not coalescing in the middle line as in *B. bonariensis*, the middle of this area tubercular. *Vesicle* flat above, scarcely granular, subserially granular below.

*Palpi*: humerus coarsely granular above and in front; *brachium* weakly granular above, its upper inner edge carinate; *manus* longer than wide, very finely and closely granular above and below.

*Legs* very finely granular externally, the penultimate segment armed with acute spines; the foot furnished beneath with a single series of long white hairs, the first not spined beneath, the rest armed with from two to three pairs of spines.

*Pectines* large, furnished with 20 teeth; the genital operculum acutely produced behind.

*Stigmata* small, ovately elongate.

*Measurements in millimetres*.—Total length 24, length of carapace 3, of tail 14.

A single example from Iguarassu, collected by G. A. Ramage.

Somewhat resembling *B. coriaceus* in the development of the area on the lower surface of the fifth caudal segment; but the whole animal, and especially the lower surface of the tail, is more noticeably granular, and the hairs upon the bottom of the feet are much longer.

*Bothriurus signatus*, sp. n. (Pl. V. fig. 11.)

♀. *Colour* brunneo-fuscous, with a pale median dorsal band; variegated with black patches, the lower surface of the trunk pale-coloured, the lower surface of the tail and of the last abdominal segment with an irregular transverse black band; the palpi reddish, concolorous or nigro-variegated.



*Carapace* smooth and highly polished, only very feebly granular laterally, its anterior border lightly emarginate, the ocular tubercle just in front of its middle.

*Tergites* polished, very finely and closely granular postero-laterally and mesially, the last furnished with four abbreviated tubercular keels.

*Sternites* smooth, the last with four smooth abbreviated keels.

*Tail* about five times the length of the carapace, parallel-sided from the second segment, the third segment a trifle wider than long, the fourth a trifle longer than wide; the upper surface of the tail smooth, the superior and supero-lateral keels present on the anterior three segments, but smooth on the second and third; the lower surface of the first furnished with four smooth keels, the internal of which are furnished with a single large setiferous pore; the second segment similarly but less strongly keeled below, the third and fourth not keeled below; the upper edges of the fifth squared granular in front, but the lower surface of the fifth with a weak median posteriorly granular keel, the lateral obliquely curved series of granules not completely circumscribing the normal area, which is granular in the middle. *Vesicle* thickly granular beneath, smooth and flat above, not quite as wide as the fifth segment.

*Palpi* very smooth and polished, scarcely granular, and not carinate; *manus* moderately robust, its width about two thirds the length of the movable digit, about twice the width of the brachium; the hand-back a little shorter than the movable digit.

*Legs* smooth and polished, the penultimate segment furnished with a few spines, the feet adorned below with a single row of stoutish curved stiff setæ, those of the first pair not spined beneath, those of the second pair having a single pair of spines, while the third and fourth have three pairs of spines.

*Pectines* moderately long, furnished with 12-14 teeth.

*Stigmata* small and oval.

*Measurements in millimetres*.—Total length 45, of carapace 5, of tail 25; width of second segment of tail 3; width of brachium  $1\frac{1}{2}$ , of manus 3+; length of hand-back 3.8, of movable digit 4.8.

♂. Distinguished by very well-marked sexual characters.

The upper side of the body and palpi are not smooth and highly polished, but finely and closely granular. The tail is a little more robust and is narrowed posteriorly; the vesicle is much narrower and much smoother beneath than in the



female, and its upper surface is marked by an oval depressed yellow spot. The lower surface of the last abdominal sternite and of the first and second segments of the tail is not keeled. In the palpi the humerus is more granular, the manus is much wider, its width as compared with the brachium being as  $1\frac{1}{2}$  is to  $3\frac{4}{5}$ ; and there is a strong spicular tooth on the inner side of it at the base of the movable digit.

*Pectines* much larger, furnished with 13–16 very long teeth.

*Loc.* Theresopolis (Brazil). Several specimens of both sexes.

PHONIOCERCUS, gen. nov.

(Pl. VI. A. figs. 13, 13 a.)

Allied to *Cercophonius*.

The anterior border of the carapace conspicuously emarginate in the median line; the tubercle in front of the middle of the carapace and sulcate.

The median teeth on the digits of the chelæ arranged in a single series and of tolerably large size.

The lower surface of the feet not furnished with a median series of whitish hairs, as in *Cercophonius* and *Urophonius*, but naked along the middle line, and armed on each side of it with a few long setiform spines.

*Phoniocercus pictus*, sp. n.

*Colour* ferruginous, much variegated with black.

*Carapace* mostly blackish, variegated behind and at the sides; *tergites* with a lateral flavous patch, a >-shaped flavous mark on each side, and three flavous spots in the middle; *sterna* flavous, irregularly clouded with black; *tail*, including the vesicle, variegated above and below; *chelicerae* black apically; *palpi* blackish, hands reddish, variegated with black lines; *legs* deeply variegated with black.

The *carapace* nearly smooth, extremely closely and finely granular in the depression below the median eyes; the longitudinal sulcus which traverses the carapace and crosses the tubercle finely granular and distinctly transversely striate; the anterior border of the carapace somewhat deeply emarginate in the middle; the ocular tubercle in advance of the middle.

The *tergites* almost entirely smooth and polished, the sixth finely granular mesially and posteriorly, the seventh very finely granular throughout, with two nearly obsolete more coarsely granular crests.



*Sterna* smooth, polished, punctured.

*Tail* less than five times the length of the carapace, moderately robust; the second and third segments wider than long, the fourth slightly longer than wide, the fifth as wide as the second; the vesicle as wide as the fifth; the upper surface mesially narrowly sulcate, finely granular on the first and second; the superior and supero-lateral keels irregularly granular; the sides of the segments also irregularly granular; the lower surface of the first smooth (with four punctures), of the second, third, and fourth rather obscurely keeled, the keels stronger on the fourth than on the third, and on the third than on the second, all of them irregularly granular or subtubercular; the fifth segment with its upper surface flat behind, the edges squared and irregularly roughened, with traces anteriorly of a superior lateral keel; the inferior lateral keels, as stated above, entirely obsolete, unless they are represented by a series of granules on each side of and close to the median granular keel; the lateral part of this segment coarsely granular; the vesicle and aculeus longer than the fifth segment and as wide, the aculeus not half as long as the vesicle, which is granular beneath.

*Palpi* smooth, not keeled nor granular, studded with large piliferous tubercles; *manus* wider than the brachium, rounded, subcostate, the length of the hand-back less than that of the movable digit, but considerably more than the width of the hand; the median teeth of the digits forming a single series, which is slightly curved on a level with the teeth of the external row.

*Legs* quite smooth; the lower surface of the feet furnished with from three to four pairs of spines, which terminate distally in longer slender hair-like points.

*Pectines* rather short, furnished with ten teeth; the intermediate series of lamellæ about 6 or 7 in number.

*Stigmata* small and slit-like.

*Measurements in millimetres*.—Total length 33, of tail 18, of carapace 4; width of first caudal segment 2·6, of fifth 2·2.

*Loc.* —?

A single example, ticketed “? W. coast of Africa,” and named *Cercophonius chilensis*, Molina, belonging to the collection of the late Count Keyserling. There can be very little doubt that this is also a Neotropical form.

UROPHONIUS, gen. nov.

(Pl. VI. A. figs. 14, 14 a.)

Closely allied to *Cercophonius*.

The median series of teeth on the digits of the chelæ of larger size and set in two irregular rows.



The ocular tubercle situated in the middle of the carapace.

In *Cercophonius*, of which *squama*, Gervais, is the type, and, so far as I know, the sole representative—a species which occurs both upon the west coast of South America and in South-east Australia—the teeth of the median series are represented by a host of close-set granules, arranged apparently without order in from three to five rows; and the ocular tubercle is placed in front of the middle of the carapace.

I select as the type of this genus the species described below as *Jheringii*; but I also refer to it a specimen in the British Museum from Coquimbo which I identify as *Cercophonius brachycentrus* of Thorell.

These two species further differ from *C. squama* in having the lower surface of the tail coarsely granular beneath in front, the lower surface of the feet furnished with long white hairs, and from five to six pairs of spurs upon the lower surface of the feet of the two posterior pairs. In *C. squama* the last sternite of the abdomen and the anterior segments of the tail are not granular, and the lower surfaces of the feet in question are clothed below with short hairs and armed with only two pairs of spines.

*Urophonius Jheringii*, sp. n.

*Colour* flavous, nigro-maculate; the carapace with its antocular portion black in the middle, flavous at the sides; the tergites fuscous at the sides, with a fuscous spot on each side of the middle line; four clearer flavous spots along the hinder border; segments of the tail irregularly fuscous above and at the sides, especially posteriorly; vesicle flavous; upper surface of the legs, chelicerae, and palpi banded or spotted with black; digits ferruginous.

*Carapace* exceedingly finely granular above at the sides; the anterior border almost straight, but the posterior border with a distinct median notch; the ocular tubercle in the middle, grooved, like the area behind and in front of it.

*Tergites* almost entirely smooth, minutely granular laterally and posteriorly, not mesially depressed, the last with two abbreviated coarsely granular keels on each side.

*Sternites* smooth and polished, minutely punctulate, the last tubercular.

*Tail* slender, about five times the length of the carapace; the second segment as long as wide and wider than the fifth, the segments with lightly convex lateral outlines; the superior and superior lateral keels smooth and rounded on all but the first segment, where they are feebly granular or tubercular; the lower surface of the anterior three segments irregularly



tubercular, the first more coarsely so than the second and the second than the third, the inferior lateral keels visible but smooth or nearly so; the fifth segment with smooth and rounded upper edges and a posteriorly flat upper surface, the three inferior keels weak anteriorly, irregularly granular in the posterior half of the segment; the *vesicle* slender, very finely granular beneath, smooth and flat above; the *aculeus* very lightly curved.

*Palpi* moderately slender, without keels and granules, marked with large ocelliform setiferous pores; *manus* wider than the brachium, the movable digit considerably longer than the hand-back, which is itself much longer than the width of the hand; the six larger teeth of the internal series separated from the smaller teeth of the median series, which are arranged in two irregular rows; the large teeth of the external series, about five in number, contiguous with those of the median series.

*Legs* smooth, the penultimate segment hairy beneath, spined; the last segment furnished beneath with long white hairs, this segment not spined beneath in the feet of the first and second pairs, but armed with five or six pairs of spines in the legs of the third and fourth pairs.

*Pectines* armed with 13-14 teeth, with the intermediate laminae composed of about nine or ten pieces.

*Stigmata* small, slit-like.

*Measurements in millimetres*.—Total length 30, of carapace 3.4, of tail 17; width of the first segment 2.2, of the fifth 1.8.

A single female specimen from Rio Grande do Sul (*Dr. H. von Jhering*).

This species resembles *C. brachycentrus* of Thorell in having the lower surface of the anterior caudal segments thickly granular. It may be recognized by its smoothness and by the absence of granules and keels on the palpi, &c.

#### EXPLANATION OF THE PLATES.

##### PLATE V.

*Fig. 1. Broteas Gervaisii*, sp. n. Foot of posterior limb.

*Fig. 2. Broteochactas delicatus* (Karsch). Foot of posterior limb.

*Fig. 3. Broteochactas nitidus*, sp. n. Foot of posterior limb.

*Fig. 4. Teuthraustes atramentarius*, Simon. Foot of posterior limb.

*Fig. 4 a.* Ditto. Carapace from above.

*Fig. 4 b.* Ditto. Carapace from the side.

*Fig. 5. Hadrurochactas Sclateri*, gen. et sp. n. Foot of posterior limb.

*Fig. 5 a.* Ditto. Carapace from above.

*Fig. 6. Heterochactas Gervaisii*, gen. et sp. n. Carapace from above.

*Fig. 6 a.* Ditto. Carapace from the side.



Fig. 7. *Chactas Whymperi*, sp. n. Foot of posterior limb.

Fig. 7 a. Ditto. Carapace from above.

Fig. 7 b. Ditto. Immovable digit.

Fig. 8. *Caraboctonus Keyserlingii*, gen. et sp. n. Foot of posterior limb.

Fig. 9. *Bothriurus Keyserlingii*, sp. n. Last abdominal somite and first caudal segment from below.

Fig. 9 a. Ditto. Fifth caudal segment from below.

Fig. 10. *Bothriurus asper*, sp. n. Fifth caudal segment from below.

Fig. 11. *Bothriurus signatus*, sp. n. Fifth caudal segment from below.

Fig. 12. *Bothriurus coriaceus*, sp. n. Fifth caudal segment from below.

#### PLATE VI. A.

Fig. 13. *Phoniocercus pictus*, gen. et sp. n. Dentition of digit.

Fig. 13 a. Ditto. Foot of posterior limb.

Fig. 14. *Urophonius Jheringii*, gen. et sp. n. Dentition of digit.

Fig. 14 a. Ditto. Foot of posterior limb.

Fig. 15. *Cercophonius squama* (Gerv.). Dentition of digit.

Fig. 15 a. Ditto. Foot of posterior limb.

### XXI.—*Descriptions of Twenty new Species of Terrestrial and Fluvial Mollusca from South Africa.* By JAMES COSMO MELVILL, M.A., F.L.S., and JOHN HENRY PONSONBY, F.Z.S.

#### [Plate III.]

IN the following paper, the seventh of a series of contributions towards the elucidation of the South-African Molluscan land-fauna, we deal more particularly with new forms of the genus *Ennea*, which are, critically speaking, more than usually attractive, presenting as they do so increasingly numerous an assemblage of nearly allied though apparently distinct species.

#### 1. *Helix (Macrocyclis) Quekettiana*, sp. n. (Pl. III. fig. 1.)

*H. testa ampla, profunde umbilicata, depresso-conoidali, olivaceo-cornea, subpellucida; anfractibus quatuor, longitudinaliter arcte obliqui-liratis, liris sericatis, anfractu ultimo rapide et effuse accrescente, ad basin lævi, viridescente nitidissimo; apertura effuso-lunari, labro simplici, ad marginem columellarem paullum reflexo.*

Long. 18, lat. 30 mill.

*Hab.* Pietermaritzburg (*J. F. Quekett, Esq.*).





Pocock, R. I. 1893. "XX.—A contribution to the study of neotropical Scorpions." *The Annals and magazine of natural history; zoology, botany, and geology* 12, 77–103. <https://doi.org/10.1080/00222939308677589>.

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