

## The identity of *Acrographinotus erectispina*, with a review of the generic diagnosis, and the description of a new species (Opiliones, Gonyleptidae, Pachylinae)

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### Summary

The diagnosis of the Andean genus *Acrographinotus* Holmgren is preliminarily revised, including both somatic and genital characters. The type species, *Acrographinotus erectispina* Roewer from the Bolivian “yungas” (montane rainforests), is redescribed and illustrated. All material previously cited as *A. erectispina* was examined, and it was determined that (except for the types) those specimens represent two still unnamed species. The genus *Ctatoroceros* Soares & Bauab is determined to be a junior synonym of *Acrographinotus*, and its only species is accordingly transferred: *Acrographinotus ceratopygus* (Soares & Bauab), comb. nov. *Acrographinotus niawpaq* sp. n. from Pelechuco (Bolivia) is described from previously misidentified material; it differs from *A. erectispina* in the armature of trochanter and femur IV of the male, as well as in the armature of the ventral anal plate. *Acrographinotus olivaceus* (Mello-Leitão) is excluded from *Acrographinotus*, and once again placed in the genus *Sokkupia* Mello-Leitão, here restored. Taxonomic decisions are supported through the study of the male genitalia; illustrations of penes are provided for all four species considered here.

### Introduction

The Neotropical harvestman genus *Acrographinotus* Holmgren, 1916 comprises large and conspicuous gonyleptids, which seemingly follow an Andean range pattern. Four nominal species are currently referred to this genus, either originally described in it (*Acrographinotus erectispina* Roewer, 1929; *A. curvispina* Roewer, 1929), or secondarily transferred to *Acrographinotus* (*Liographinotus ortizi* Roewer, 1957; *Sokkupia olivacea* Mello-Leitão, 1949 = *Acrographinotus luteipalpis* Roewer, 1957). In this paper, *S. olivacea* is restored to *Sokkupia* Mello-Leitão, 1949, so we are left with only three species correctly assigned to the genus.

Reported localities for *Acrographinotus* (those of *S. olivacea* excluded) are almost restricted to Perú, from Cajamarca to Puno, with most records from midwestern departamentos (Roewer, 1929, 1956, 1957, 1959, 1963; Soares & Bauab, 1972). There are very few records from southern Perú (just one locality in each of the departamentos Cusco, Apurímac and Puno: Roewer, 1956; Soares & Bauab, 1972), as well as a couple of records from two localities in NW Bolivia: Unduavi (Roewer, 1929) and Pelechuco (Holmgren, 1916; Roewer, 1938). Finally, an as yet unnamed *Acrographinotus* species was also reported by Acosta & Maury (1998) from NW Argentina, a record that expanded the known range of the genus 900 km southwards.

Considering material from Perú and Bolivia which I have been able to study, I am convinced that these three

named and one undescribed species represent just a poor sample of the actual diversity of the genus. In the central portion of the Peruvian departamento Cusco alone—from which only a female *A. curvispina* has hitherto been cited (Roewer, 1956)—I recognised no less than four different forms. Furthermore, in addition to the above-mentioned record from NW Argentina, an undescribed *Acrographinotus* also exists in the departamento Tarija, southern Bolivia (Acosta, unpubl.). The published citations of *A. erectispina* suggest a wide range for this species; however, as stated below, the material belongs to three different species: the true *A. erectispina* (the type material) and two undescribed species. The known range of *A. erectispina* is now restricted to the yungas area around La Paz, Bolivia. *Acrographinotus curvispina* has also been cited as having a similarly wide range, but since at least one citation proved to be a misidentification (Acosta, unpubl.), I mistrust all the remaining identifications. I believe that the high environmental heterogeneity of the Andean area (involving topography, altitude, greater or lesser exposure to humid air masses, etc.) may favour a high species diversity, and that there are probably few, if any, widespread species.

The status of the generic taxonomy appears to be unsatisfactory, a quite frequent situation among Neotropical harvestmen: both more intensive sampling and the revision of all described forms are urgently needed. This first contribution on *Acrographinotus* is intended to begin the review of one of the commonest gonyleptid genera in the Andean area. The paper has several aims. First, the current generic diagnosis is revised and emended, and the type species *A. erectispina* is adequately redescribed; some nomenclatural controversy concerning the genus authority is also clarified. As mentioned above, “*Acrographinotus*” *olivaceus* is transferred to *Sokkupia*. The monotypic genus *Ctatoroceros* Soares & Bauab 1972 is determined to be a junior synonym of *Acrographinotus*, and its sole species is therefore transferred to the latter. Finally, material used by Holmgren (1916) to establish the genus *Acrographinotus* (initially without subordinate species), proved to represent an unnamed species, here described as *A. niawpaq* sp. n. Descriptions of further new forms will be presented in future contributions.

Abbreviations: AMNH=American Museum of Natural History, New York; CBF=Colección Boliviana de Fauna, La Paz, Bolivia; HS=Collection Helia Soares, Botucatu, São Paulo (not studied); MNRJ=Museu Nacional, Rio de Janeiro; NRS=Naturhistoriska Riismuseet, Stockholm; SMF=Senckenberg Museum, Frankfurt (RII=Collection Roewer II).

### Genus *Acrographinotus* Holmgren, 1916

*Acrographinotus* Holmgren, 1916: 89; Roewer, 1929: 240; 1956: 439; 1957: 77 (in part); 1959: 74 (in part); 1963: 59; Mello-Leitão, 1932: 147; 1935: 98; 1940: 2; B. Soares & H. Soares, 1954: 235; Soares & Bauab, 1972: 322 (in part) [on page 341: *Sokkupia*=*Liographinotus*, but synonymy incorrect]; H. Soares & B. Soares, 1979: 393 [= *Sokkupia*, synonymy incorrect, but *Liographinotus* must remain as junior synonym of *Acrographinotus*]; Kury, 1995: 318. Type species: *Acrographinotus erectispina* Roewer, 1929, by subsequent designation of Roewer (1929).

*Liographinotus* Roewer, 1957: 78. Type species: *Liographinotus ortizi* Roewer, 1957, by original designation. The genus was incorrectly synonymised with *Sokkugia* Mello-Leitão, 1949 by Soares & Bauab (1972). Later, H. Soares & B. Soares (1979) synonymised *Sokkugia* with *Acrographinotus*, with the implication of *Liographinotus* also being a junior synonym. In this paper *Sokkugia* is revalidated but *Liographinotus* remains as a junior synonym of *Acrographinotus*. *Ctatoproceros* Soares & Bauab, 1972: 329. Type species: *Ctatoproceros ceratopygus* Soares & Bauab, 1972, by original designation. New synonymy.

**Nomenclatural note:** The generic name *Acrographinotus* was first proposed by Holmgren (1916), in a work devoted to the brain anatomy of several invertebrates. In the Arachnida section, this author used material of a Bolivian gonyleptid, captured by himself several years earlier. Since these specimens represented an undescribed genus, Holmgren (1916) proposed the name *Acrographinotus* and provided a brief generic diagnosis; however, no subordinated species was either indicated or described. Roewer (1929) attributed the authorship of the generic name to Holmgren (1916), describing then the first two species (subsequently) assigned to it: *A. erectispina* and *A. curvispina*.

Roewer (1929) believed that Holmgren's material was consumed during the histological study, and that it was probably no longer possible to know which species Holmgren (1916) had in hand. However, since Roewer's *A. erectispina* was also collected in Bolivia (*A. curvispina* is from Perú), he assumed that his and Holmgren's specimens were probably conspecific. Roewer (1929) considered that (irrespective of whether his suspicion was true or not) *erectispina* "may be regarded as the type". Despite Roewer's (1929) statements on the fate of Holmgren's material, at least some specimens were later found to be stored in NRS (Roewer, 1938), representing what we may call today "voucher specimens". Adding further confusion, Roewer (1938) identified them as *A. curvispina*, changing his 1929 opinions. However, both identifications proved to be erroneous: those specimens belong to neither *curvispina* nor *erectispina*, but they represent a hitherto unnamed species, here described as *A. niawpaq* sp. n.

Soares & Soares (1954) regarded *Acrographinotus* Holmgren as a *nomen nudum*, because it had no type species in 1916, and attributed the authorship of the genus and original type designation of *erectispina* to Roewer (1929). However, generic names published before 1931 without type fixation (even without subordinate species) are acceptable under the current edition of the International Code of Zoological Nomenclature (see Art. 67.2.2.), so that *Acrographinotus* was made available by Holmgren (1916). Roewer (1929) then added the first two subsequently included species, and designated *erectispina* as the type. This author employs a somewhat ambiguous statement of designation, but it is clear from the context that he fixed the mentioned species as the type (J. D. D. Smith, in litt.). In his various papers in the fifties, Roewer consistently cited "Holmberg" in place of Holmgren as the genus author; this is obviously a *lapsus calami*, but also indicates that Roewer did not accept the view of Soares & Soares (1954) regarding the genus authority. It should

be noted that *Acrographinotus* Holmgren is accepted in Neave's *Nomenclator Zoologicus*.

**Diagnosis:** In the original concept of Holmgren (1916) and Roewer (1929), *Acrographinotus* was defined by the unpaired armature of the ocular mound, the 3rd free tergite armed by a median apophysis (scutum, remaining free tergites and anal operculum unarmed), palpal femur without medial apical spine, and tarsal formula: 6:*n*:*n*:*n* (*n*=more than six). After *Liographinotus* was synonymised (first with *Sokkugia* by Soares & Bauab, 1972, then with *Acrographinotus* by Soares & Soares, 1979) the diagnosis changed concerning the ocular mound: it may be armed with one apophysis (*A. erectispina*, *A. curvispina*), or bear a pair of minute tubercles (*A. ortizi*); furthermore, the ocular mound is unarmed in some material that I studied. In some undescribed species with a very low ocular mound these three character states merely represent intraspecific variations (Acosta, unpubl.). Concerning the armature of the 3rd free tergite, an additional emendation of the diagnosis is needed: it may bear one (most species) or three (unnamed form) apophyses, or may combine one central apophysis and a row of granules or small apophyses on each side (*A. erectispina*, *A. ceratopygus*). The ventral anal plate has either a pair of horn-like apophyses or is unarmed; if it is armed, the apophyses may emerge individually from the plate (*A. erectispina*), or may be fused to form a shelf-like projection (*A. niawpaq* sp. n.). Both the armature of the 3rd free tergite and of the ventral anal plate show specific variations, as does that of the femur. This segment is usually straight, bears longitudinal rows of granules or tubercles, and may or may not be armed with differently shaped apophyses. Trochanter IV of the male is usually articulated diagonally outwards. The tarsal formula can be more precisely stated: 6:8-9:7:7. The shape of the chelicera is as usual in Pachylinae, but the spination on the palpal tibia and tarsus is weaker.

Soares & Soares (1979) provided for the first time illustrations of the penis in some species. Two different morphologies are thereby evident: one corresponding to "*Acrographinotus*" *olivaceus*, the other to *A. ortizi* and *A. ceratopygus* comb. nov. The second penis type is also present in *A. erectispina* and *A. niawpaq* sp. n., and is here assumed to be diagnostic for the genus. The most characteristic genital feature concerns the ventral process of the stylus, with distal end dilated and armed with a curved, downward-pointing projection; above the dilated portion and on the base of this projection there is a membranous cover, comb-shaped in lateral view, but of triangular section if viewed from above. As a whole, the general appearance of the ventral process of the stylus resembles a round-combed ibis head (cf. Figs. 12, 18, 22). The penis morphology of *A. olivaceus* (Figs. 14-16) reveals a quite different pattern, and strongly supports the removal of this species from *Acrographinotus* (formal restoration of genus *Sokkugia*, see below).

**Included species:** *Acrographinotus erectispina* Roewer, 1929, *A. curvispina* Roewer, 1929, *A. ortizi* (Roewer, 1957), *A. ceratopygus* (Soares & Bauab, 1972) comb. nov., and *A. niawpaq* sp. n.

*Excluded species:* *Acrographinotus olivaceus* (Mello-Leitão, 1949) [= *Acrographinotus luteipalpis* Roewer, 1957, after H. Soares & B. Soares, 1979]. The species is here restored to *Sokkugia* Mello-Leitão, 1949 (monotypic, here revalidated): *Sokkugia olivacea* Mello-Leitão, 1949. Taxonomically, this is however a provisional statement, awaiting further revision.

*Distribution and habitat:* Perú, Bolivia, northwestern Argentina. Records range from 6°10'S (Departamento Cajamarca, Perú: Roewer, 1956) to c. 23°40'S (Parque Nacional Calilegua, Provincia de Jujuy, Argentina: Acosta, unpubl.). Between Unduavi and Tarija (Bolivia) there remains a large area with no records, but there is no reason to suppose an interruption of the general Andean pattern. The genus is most probably associated with high altitude biotopes. Localities mentioned in the literature correspond either to open montane forests or to stony grasslands (Roewer, 1956, 1957, 1959). This also applies to material from southern Bolivia (unnamed form) captured in high altitude grasslands, with dense vegetation (queñoa trees) in ravines (P. Goloboff, in litt.). All specimens collected in the Peruvian departamento Cusco were found in the altitudinal belts known as "higher queshwa" (=subpuna) and "lower queshwa" (=mesoandean district) (J. A. Ochoa, in litt.), characterised by a temperate climate, rough topography and shrub vegetation (Ceballos Bendezú, 1970). Several samples of *A. ortizi* were caught above 4,000 m (J. A. Ochoa, in litt.), representing the highest altitudinal record for the genus. Only two species are hitherto known or suspected to be related to the "yungas", i.e. the montane rainforests covering the east-facing slopes: the type locality of *A. erectispina* probably corresponds to this biogeographic unit, and more precisely to the vegetation belt named "bosque de ceja" (Hueck, 1966); the Argentinian *Acrographinotus* were collected at 1,650 m (so far the lowest record), in cloud forests not far from the timberline.

#### *Acrographinotus erectispina* Roewer, 1929 (Figs. 1–13)

*Acrographinotus erectispina* Roewer, 1929: 241, figs. 25, 26 a, b; B. Soares & H. Soares, 1954: 235; H. Soares & B. Soares, 1979: 393; Acosta, 1996: 212 [types]. *Nec* Roewer, 1957: 77 [SMF.RII 11412, misidentified]; 1963: 59 [SMF.RII 13956, 13857, misidentified].

*Type series:* Two syntypes (examined): 1♂ 1♀, from "Bolivien: Unduavi" (SMF.RII 993); the male is here designated and labelled as lectotype, the female as paralectotype.

*Type locality:* Bolivia, Departamento La Paz: Unduavi (16°19'S, 67°54'W), c. 3,400 m.

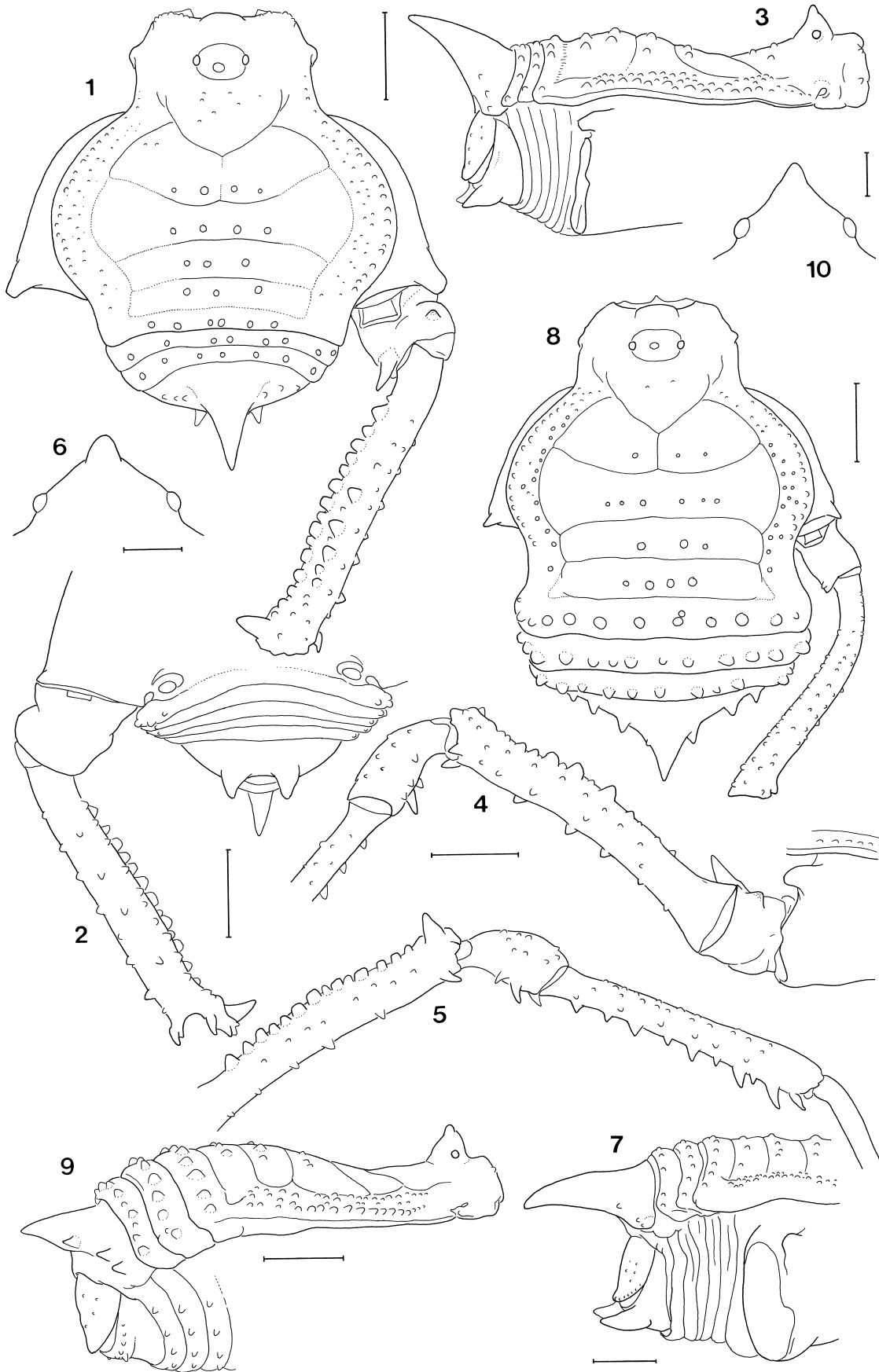
*Additional material:* BOLIVIA: *Departamento La Paz:* Unduavi (3,500 m), "yungas de La Paz", 1 January 1975 (L.E. Peña), 1♂ (AMNH); Pongo (3,700 m), "nor-yungas", 3 September 1989 (L. Rea), 1♂ (CBF).

*Distribution:* Only known from two localities in the "nor-yungas" of Departamento La Paz: Unduavi (3,400–3,500 m) and Pongo (3,700 m, 16°20'S, 67°56'W). Roewer (1957, 1963) cited material from three Peruvian localities (Campañillaya, near Palca, SMF RII 11412; Cueva de San Andrés, 30 km from Cutervo, SMF RII

13956, and Tintín, Río Cañete, SMF RII 13957, all examined), but none belongs to *erectispina* (they represent two undescribed members of the genus).

*Description:* Measurements of lectotype male and paralectotype female: see Table 1. Scutum length in males: 7.07–9.22 mm (mean=8.37,  $n=3$ ); total body length (including apophysis) 10.04–15.99 mm (mean=13.32 mm). General colour of types uniform pale hazel (bad preservation suspected), other specimens dark hazel. Prosoma with few, inconspicuous granules on anterior border and behind eye mound, otherwise smooth. Eye mound with one median, blunt apophysis or tubercle, slightly inclined backwards (Figs. 3, 6, 9, 10). Tarsal formula 6:7–9:7:7 (lectotype 6:8/9:7:7, paralectotype 6:lost/8:7:lost/7).

*Male:* Scutal areas I–IV each with a row of pearl-like granules (almost small tubercles in lectotype), larger in or restricted to median third of scutum (rest of these areas smooth). Area V and free tergites I–II with a row of pearl-shaped granules, somewhat separated. Lateral areas bordered by an outer row of pearl-like granules, remaining surface covered by 2–3 irregularly arranged rows of minute granules (Fig. 1). Free tergite III: one strong, acute apophysis, whose base expands the tergite; to each side, a row of few granules; in lectotype (lateral view) this apophysis is oblique, inclined upwards (Fig. 3), but horizontal (Fig. 7) in other two males (condition in lectotype possibly an artefact of contracted opisthosoma). Anal operculum dorsal almost smooth, ventral with two horn-like apophyses (arising individually from plate). All sternites with two or three granules on each lateral margin, rest smooth (Fig. 2). Legs I–III unarmed. Leg IV: coxa smooth, with short, diagonal apophysis, its tip simple and rounded. Trochanter articulated diagonally outwards; on prodorsal border a conical, blunt tubercle, opposed to coxal apophysis; on retroapical edge, a large, acute apophysis points towards femur (Figs. 1, 4). Femur almost straight, with longitudinal rows of granules and small tubercles, retrodorsal and dorsal rows most conspicuous. Retrodorsal row of 13–19 uniformly sized tubercles, basal 5–6 conical, rest typically truncated; row does not reach proximal end, distally tubercles become smaller, ending in remarkable femoral subapical apophysis (Fig. 1). Dorsal row of 9–13 conical tubercles (with blunt tips), sizes unequal (large and small tubercles alternate); row does not cover proximal third or distal end. Remaining rows consist of smaller, more separated tubercles or granules: pro-lateral, proventral (ends in small apical apophysis: Fig. 4), retrolateral, and retroventral (tall granules, a retroventral apical apophysis, acute and small: Fig. 5). Patella with 3 acute ventral apophyses. Tibia: rows of granules, pro- and retroventral ones tall, acute granules, becoming small apophyses distally (especially retroventral: Fig. 5). Penis (Figs. 11–13): subterminal portion of truncus somewhat dilated; ventral plate with each side three lateroapical curved spines, single acute tubercle in middle, and basal group of five strong spines; dilated basal part of glans characterised by thickened dorsal wall (rest has hyaline appearance in lateral view, because of very thin cuticle); stylus slightly curved only at



Figs. 1–10: *Acrographinotus erectispina* Roewer. **1–6** Lectotype male. **1** Dorsal scutum, free tergites, coxae IV, right trochanter and femur IV, dorsal view; **2** Coxae IV, sternites, ventral anal plate, right trochanter and femur IV, ventral view; **3** Lateral view of dorsal scutum, free tergites, sternites and anal operculum; **4** Right coxa, trochanter, femur and patella IV, lateral view; **5** Right femur, patella and tibia IV, mesal view; **6** Ocular mound, posterior view. **7** Male from Pongo (CBF), lateral view of free tergites, sternites and anal operculum. **8–10** Female paralectotype. **8** Dorsal scutum, free tergites, coxae IV, right trochanter and femur IV, dorsal view; **9** Lateral view of dorsal scutum, free tergites, sternites and anal operculum; **10** Ocular mound, posterior view. Scale lines=2 mm (1–5, 7–9), 0.5 mm (6, 10).

tip; most characteristic feature is (genus diagnostic) “ibis-head-like” ventral process of stylus (Fig. 12).

*Female*: Body shape rounded in lateral view, in contrast to more depressed body of male (Fig. 9 cf. Fig. 3). Granulation in general more conspicuous (larger granules), but pattern similar. Unlike male, size of scutum granules increases from areas I to V, becoming pearl-like only on area III, taller on area V and free tergites I–II (Fig. 8). Free tergite III with one median apophysis, horizontal and large (larger than ocular mound), and three small apophyses on each side (Fig. 9). All legs unarmed, only coxa IV bears a short, acute apophysis as usual in the family.

*Diagnosis*: The general habitus of *A. erectispina* corresponds closely to most *Acrographinotus* species I have examined: *A. curvispina*, *A. ortizi*, *A. ceratopygus* comb. nov., *A. niawpaq* sp. n., as well as several unnamed forms. The following features are diagnostic for the species: (1) trochanter IV of the male bears a single strong, retroapical apophysis; this structure is either not present (or much reduced) in *A. ceratopygus*, or bifid or accompanied by a second, equal-sized apophysis (*A. ortizi*, *A. niawpaq* sp. n.); (2) femur IV of the male is rather simple, with rows of uniformly sized tubercles or granules, only the retroapical apophysis is much larger (few species resemble this simple pattern, most have some kind of armature in addition to the retroapical apophysis); (3) granules on the scutum are much larger

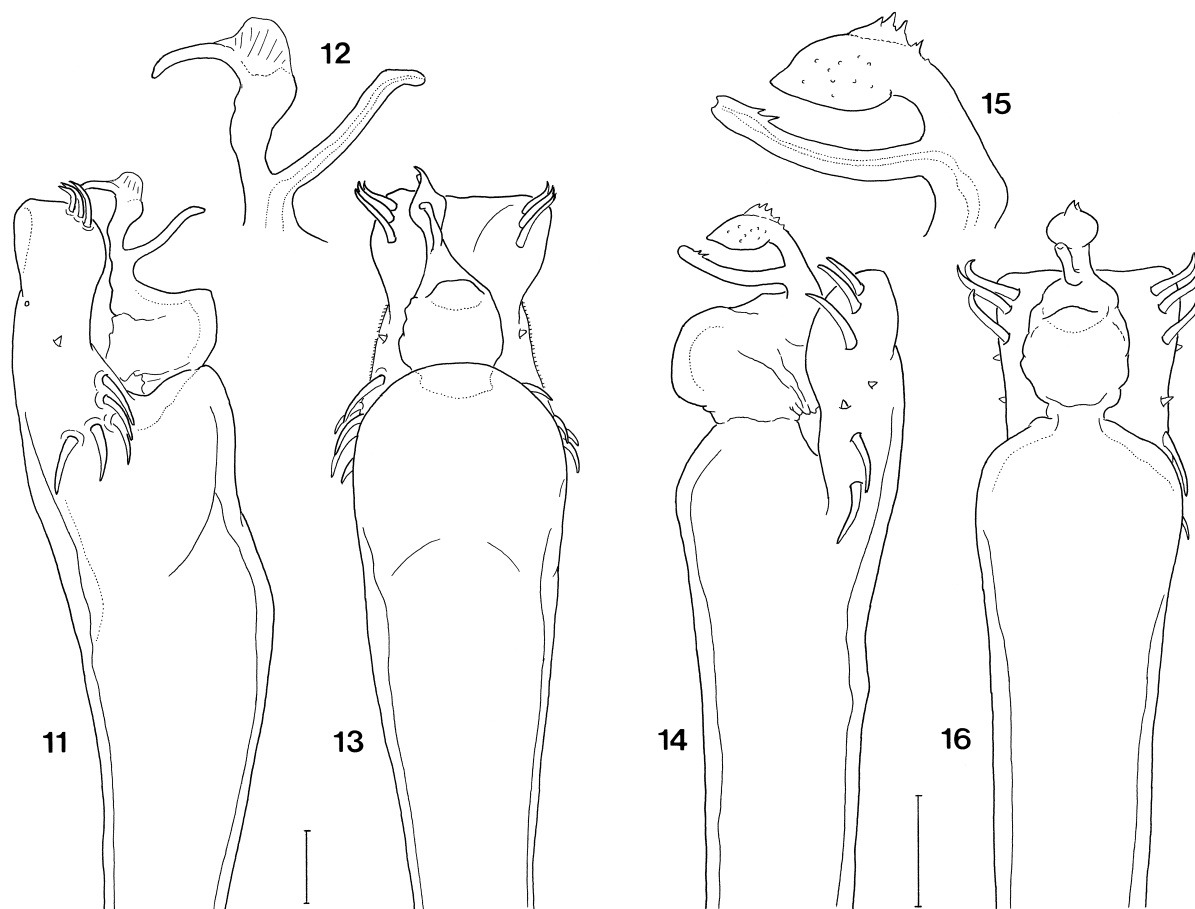
in *A. erectispina* (most *Acrographinotus* species with scutal areas almost smooth).

According to its original description and illustrations, *A. curvispina* is quite distinct in shape. Roewer (1929) emphasised a single difference between *erectispina* and *curvispina* (the curvature of the apophysis on free tergite III), but as mentioned above, the supposedly erect apophysis of the former is possibly an artefact of the lectotype. In any case, the character was misused by Roewer. Most of the specimens which he misidentified as *A. erectispina* (two unnamed species, cited above) show any kind of “erect” apophysis, but the rest of the morphology is so different that I wonder whether Roewer only judged that character alone. The apophysis on free tergite III of the female of *erectispina* is not erect, as the figures in Roewer (1929) pretend; these figures and the description also overlook the row of smaller apophyses accompanying the central one.

***Acrographinotus ceratopygus* (Soares & Bauab, 1972), comb. nov.** (Figs. 17–19)

*Ctatoproceros ceratopygus* Soares & Bauab, 1972: 331, figs. 10–15 (description and figures); H. Soares & B. Soares, 1979: 393, figs. 7–8 (male genitalia of a paratype).

*Type material*: Holotype ♂ (MNRJ 05.712 examined), 2♂ 3♀ paratypes (MNRJ 05.276 examined; 1♀ is stored



Figs. 11–16: Distal end of penes. 11–13 *Acrographinotus erectispina* Roewer (lectotype male). 11 Lateral view; 12 Detail of stylus and ventral process; 13 Dorsal view. 14–16 *Sökkupia olivacea* Mello-Leitão (male from Huacapo, 10 km NE La Oroya, Perú). 14 Lateral view; 15 Detail of stylus and ventral process; 16 Dorsal view. Scale lines=0.2 mm.

in a separate vial and labelled as “allotypus”, but in the publication all 3♀ are mistakenly designated as “halótipos”!), 1♂ 1♀ paratypes (HS 316, 321 not examined), Perú: Puna near Abancay, 4,000 m (W. Weyrauch leg., December 1947).

*Type locality*: Perú, Departamento Apurímac, near Abancay (4,000 m). Coordinates of Abancay are 13°38'S, 72°53'W, but this locality lies below 3,500 m; the collecting site might be situated at *c.* 13°35'S, 72°50'W.

*Comments and diagnosis*: The transfer of *ceratopygus* to *Acrographinotus* (and therefore the generic synonymy) is supported by the general habitus of this species, the tarsal formula, and the penis morphology. Soares & Bauab (1972) compared the genus *Ctato-proceros* with *Pirunipygus* Roewer, 1936, because both have armature on the ventral and anal operculum. However, this is the only similarity. These genera are very different concerning, among other features, the body armature (*Pirunipygus* has strong apophyses on the scutum and free tergites II–III, the latter very large and bifid) and the tarsal formula (*Pirunipygus* with 5:9–11:6:6). Soares & Bauab (1972) overlooked that at least the type species of *Acrographinotus*, *A. erectispina*, was already described as having horn-like apophyses on the ventral anal plate (cf. Roewer, 1929), which could have prevented them creating a superfluous generic name. Soares & Soares (1979: 394) show drawings of male genitalia of “*Ctato-proceros*” *ceratopygus*, where the congenericity at least with *Acrographinotus ortizi* (also depicted there) is clear. Despite this published evidence, no author has even suggested the generic synonymy.

Males of *A. ceratopygus* comb. nov. are characterised by a very large, curved apophysis on free tergite III, which expands the tergite itself into a conical shape; each lateral side of the tergite bears also a row of short apophyses (Soares & Bauab, 1972: fig. 10), much larger than the granules of *A. erectispina*. The ventral anal plate bears a pair of non-fused horn-like apophyses, that point sideways (not posteriorly as in the type species).

Trochanter and femur IV are relatively simple, the latter resembling that of *erectispina*, but more curved. The ocular mound of *A. ceratopygus* is higher than in *A. erectispina* and *A. niawpaq* sp. n. Tarsal formula (not given by Soares & Bauab, 1972): 6:8/9:7:7). Measurements of the holotype and one female paratype: see Table 1.

#### *Acrographinotus niawpaq* sp. n. (Figs. 20–32)

“Gonyleptida gen. sp.” and *Acrographinotus* (no species name) Holmgren, 1916: 89, figs. 11–12, pl. XI (figs. 1–6).  
*Acrographinotus curvispina*: Roewer, 1938: 2, 6 (misidentification).

*Etymology*: The specific name is an indeclinable adjective derived from the Quechua word *ñawpaq*, meaning “previous” or “before”; it is a direct reference to the history of the type specimens, which were the first *Acrographinotus* ever studied (they served Holmgren to erect the genus, although he then provided no species name).

*Type series*: Holotype ♂, 3♀ paratypes (NRS): Pelechuco (Bolivia), 25 March 1904, N. Holmgren leg. [*Acrographinotus curvispina*, Roewer det. 1935, No. 10481]; 2♀ paratypes, in a separate vial with same data and identification [No. 10482].

*Type locality*: Bolivia, Departamento La Paz: Pelechuco (14°48'S, 69°05'W), 3,500 m.

*Distribution*: Known only from the type locality.

*Description*: Measurements of male holotype and one female paratype: see Table 1. Scutum length: male 8.46 mm (*n*=1), females 6.71–7.53 mm (mean=7.16, *n*=5). Tarsal formula: 6:8/9:7:7 (6:8:7:7 in holotype). General colour orange-hazel, chelicerae, pedipalps and legs I–III lighter; in male, apophysis on free tergite III, and leg IV from coxal apophysis to tibia darker (more reddish). Ocular mound low, unpaired (a median rounded tubercle), but accompanied by other granules that render the *tuber oculorum* quite irregular (cf. Figs. 29, 31, 32). Scutum unarmed, tegument matt (finely

	<i>A. erectispina</i>		<i>A. ceratopygus</i>		<i>A. niawpaq</i>	
	Lectotype (male)	Paralecto. (female)	Holotype (male)	Paratype (female)	Holotype (male)	Paratype (female)
Total body length (incl. apophysis)	10.04	11.68	13.58	10.45	12.76	10.35
Scutum length/maximal width	7.07/7.58	8.30/7.53	8.51/8.81	8.66/7.48	8.46/8.20	7.53/6.05
Prosoma length/width	3.07/4.00	3.07/4.00	3.07/3.79	3.18/3.48	3.18/3.79	2.56/3.13
Leg I, total length/femur	16.15/4.08	15.54/4.02	13.86/3.53	12.19/3.09	13.40/3.40	10.65/2.66
Leg II, total length/femur	24.08/6.10	23.21/6.07	21.26/5.57	18.14/4.70	20.05/5.01	15.04/3.65
Leg III, total length/femur	20.92/5.45	20.18/5.26	18.97/5.07	16.53/4.42	18.07/4.77	13.74/3.47
Leg IV, total length	30.22	27.52	28.91	22.10	27.99	18.65
trochanter	2.09	1.55	2.97	1.42	3.13	1.30
femur	7.48	6.81	7.43	5.45	6.71	4.24
patella	2.87	2.51	2.66	2.35	2.77	2.04
tibia	6.35	5.63	6.00	4.77	5.64	3.93
metatarsus	8.25	7.74	7.37	5.82	7.28	5.04
tarsus	3.18	3.28	2.48	2.29	2.46	2.10
Pedipalp, total length/femur	10.27/2.57	10.31/2.54	8.26/2.13	7.63/1.98	8.25/2.07	7.54/1.91
Chelicera, total length	4.19	4.26	3.58	3.14	3.36	3.17
Ocular mound, width/height	1.25/0.67	1.37/0.84	1.18/0.84	1.08/0.85	1.33/0.49	1.14/0.35

Table 1: Measurements (mm) of the types of *Acrographinotus erectispina* Roewer, and the holotype male and one female paratype of *Acrographinotus ceratopygus* (Soares & Bauab) comb. n. and *Acrographinotus niawpaq* sp. n.

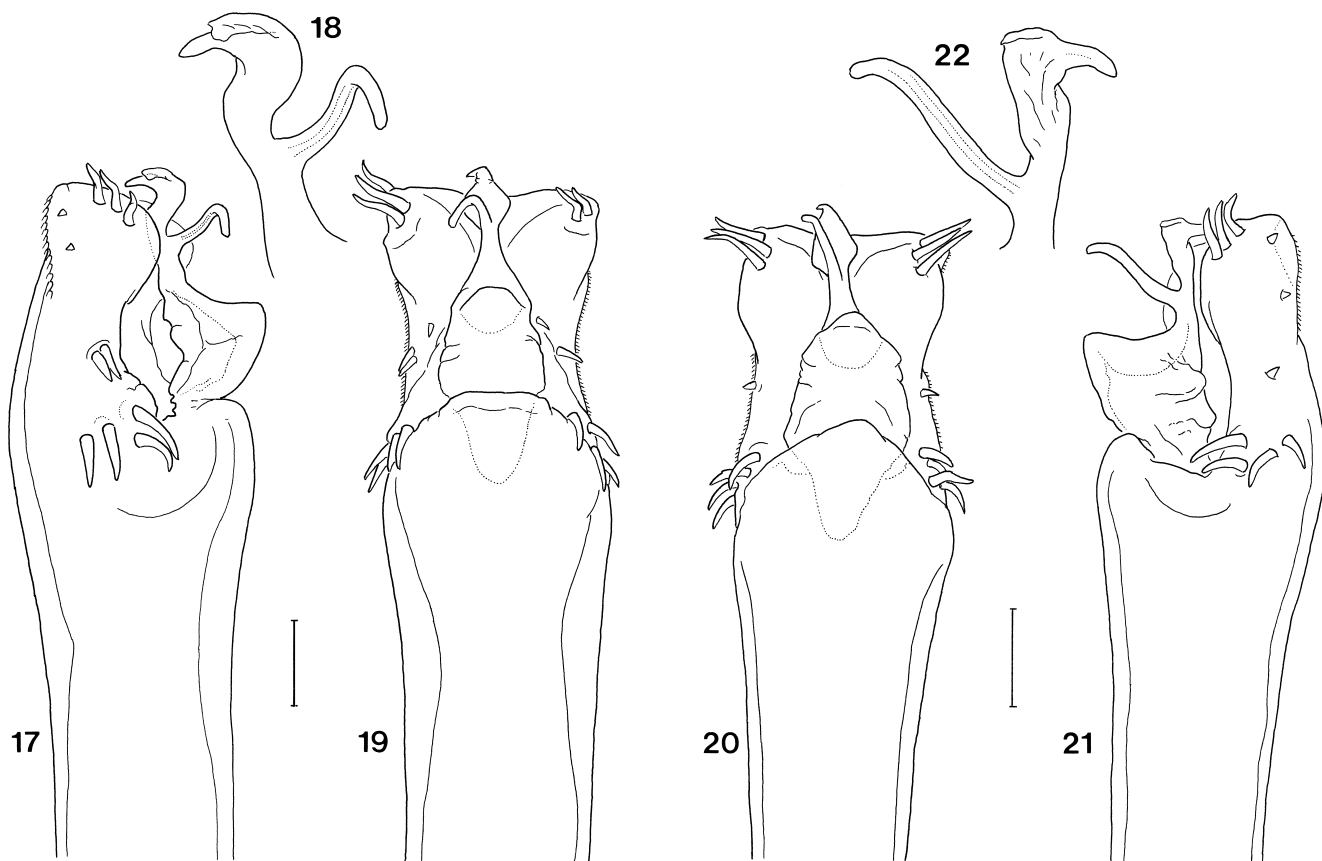
granular under high magnification). Areas I–V and free tergites I–II with one row of small granules; lateral areas with a marginal, ectal row of low granules, and sparse granulation on mesal parts (Figs. 23, 30).

**Male:** Free tergite III with a strong, acute apophysis, curved downwards, with a slight S-shaped appearance when viewed laterally; a few inconspicuous granules form a row on tergite each side of large apophysis (Fig. 26). Dorsal anal plate granulous. Ventral anal plate with apparently paired armature; the original two apophyses coalesce medially to form a large and well defined subhorizontal plate, as a kind of “hanging shelf”; its posterolateral free angles are less acute, and point diagonally (Fig. 25). Legs I–III unarmed. Leg IV: coxa with prolateral apophysis comparatively short and blunt. Trochanter: opposed to coxal apophysis a large tubercle (Fig. 24), with bilobate or bifid tip (more evident in proventral view); a strong, acute retroapical apophysis, pointing over joint membrane, has additional apophysis giving whole a bifid appearance (Fig. 23); further acute granules or small apophyses retroventrally, two apical and one basal. Femur slightly curved, shorter than other congeners, dilated in second and third quarters, then suddenly narrows just before large subapical, retrodorsal apophysis; femur with well defined rows of tubercles and/or granules; a dorsal row of 5–6 tall tubercles and some smaller granules continuing at both ends (Fig. 27); a retrodorsal, dense row of blunt tubercles (subquadrangular if viewed from side)

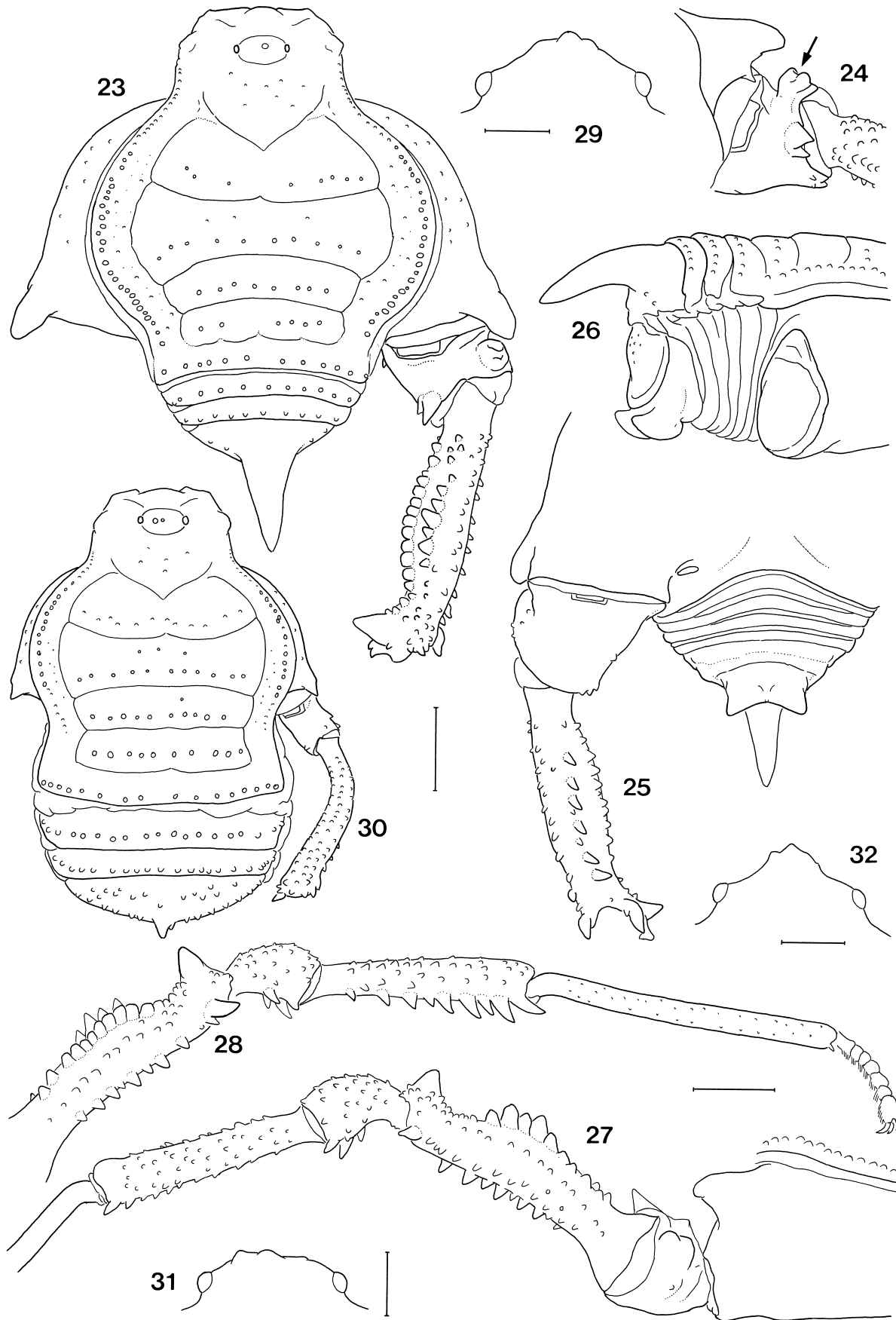
continues as smaller rounded tubercles along narrow portion of femur, reaching base of large retrodorsal apophysis (Fig. 23); a retrolateral row of conical, blunt tubercles on left femur ends in a large conical apophysis (completely lacking on right femur); a prolateral row of granules; a proventral row of tubercles which increase in size posteriorly and end in a larger apophysis (Fig. 27); a retroventral row of acute tubercles, also larger posteriorly and ending in a leaf-shaped apophysis which has an additional apophysis on its base (Fig. 28). Patella granulous, granules acute ventrally and with 4–5 spiniform apophyses. Tibia with rows of granules, ventrally and medially becoming small apophyses, retroventral row with strong, acuminate apophyses of increasing size towards metatarsus (Fig. 28). Penis: Figs. 20–22.

**Female:** Free tergite III with short median apophysis, normally pointing diagonally upwards, often somewhat irregular because of accessory granules; each side of apophysis, a row of conspicuous granules, and sparse granulation on rest (Fig. 30). Ventral anal plate unarmed, granulous. Leg IV unarmed, except for a few, small acute apophyses: prolateral on coxa, several apical on femur (proventral, bifid; retroventral; retrodorsal pointing backwards), and one retroventral apical on tibia; rest of femur, patella and tibia covered by rows of granules.

**Diagnosis:** *Acrographinotus niawpaq* sp. n. resembles most closely the type species, *A. erectispina*. The morphology of the trochanter and femur IV of the male



Figs. 17–22: Distal end of penes. **17–19** *Acrographinotus ceratopygus* (Soares & Bauab), comb. n. (male holotype). **17** Lateral view; **18** Detail of stylus and ventral process; **19** Dorsal view. **20–22** *Acrographinotus niawpaq* sp. n. (male holotype). **20** Dorsal view; **21** Lateral view; **22** Detail of stylus and ventral process. Scale lines=0.2 mm.



Figs. 23–32: *Acrographinotus niawpaq* sp. n. **23–29** Male holotype. **23** Dorsal scutum, free tergites, coxae IV, right trochanter and femur IV, dorsal view; **24** Dorsomedial view of right trochanter IV, showing bifid prodorsal tubercle (arrow); **25** Coxa IV, sternites, ventral anal plate, right trochanter and femur IV, ventral view; **26** Lateral view of free tergites, sternites and anal operculum; **27** Right coxa, trochanter, femur, patella and tibia IV, lateral view; **28** Right femur, patella, tibia, metatarsus and tarsus IV, mesal view; **29** Ocular mound, posterior view. **30–31** Female paratype. **30** Dorsal scutum, free tergites, coxae IV, right trochanter and femur IV, dorsal view; **31** Ocular mound, posterior view. **32** Ocular mound of another female paratype, posterior view. Scale lines = 2 mm (23–28, 30), 0.5 mm (29, 31, 32).



follow an evident common pattern, as do the apophyses on free tergite III and the ventral anal plate; however, the same features show easily recognisable differences, as follows: (1) the retrodorsal apophysis of trochanter IV is larger and simple in *erectispina*, shorter and bifid in *niawpaq*; (2) again on trochanter IV, the prodorsal tubercle is simple and lower in *erectispina*, while in *niawpaq* it is bilobate and much more developed; (3) femur IV is longer, straighter and armed with lower apophyses in *erectispina*, and not nearly as dilated as in *niawpaq*; indeed, all legs are longer in *A. erectispina*; (4) the type species has separate apophyses on the ventral anal plate, instead of the coalesced ones of *A. niawpaq* which form a “platform” below the anus; (5) the scutal granulation of the new species is much less conspicuous than in *A. erectispina*. *Acrographinotus niawpaq* sp. n. was confused with *A. curvispina* by Roewer (1938), but the latter is very different (coxal apophyses pointing sideways, complex morphology of trochanter, ocular mound armed with a high median apophysis, among other features; Roewer, 1929).

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