

## New species of freshwater crabs from the Andes

(Crustacea: Decapoda: Pseudothelphusidae).

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With 9 figures and 1 map.

**Abstract:** Three new species of Pseudothelphusidae are described from the Andes. *Strengeriana tolimensis* n. sp. belongs, with four other species, to a primitive group of crabs of the Central Cordillera of Colombia. *Hypolobocera quevedensis* n. sp. is closely related to *H. rathbuni* PRETZMANN 1968, both from the western slopes of the Andes of Ecuador. *Hypolobocera brevipenis* n. sp. forms a natural series with four other species from the eastern slopes of Ecuador and Perú.

During a recent trip throughout the Andes, the junior author had the opportunity of collecting freshwater crabs at several localities in Colombia, Ecuador and Perú. Among this material are several interesting specimens, in particular a new species of the genus *Strengeriana*.

This genus groups the most primitive members of the Pseudothelphusidae still surviving in South America, according to an hypothesis recently formulated by RODRIGUEZ (in press). The addition of a fourth species to the genus not only completes the picture of its geographical distribution, but also offers new evidence of the intergeneric relationships of these crabs.

The material is deposited at the Museo de Biología, Universidad Central de Venezuela, Caracas (MBC) and the Naturmuseum und Forschungsinstitut Senckenberg, Frankfurt am Main (SMF).

### *Strengeriana* PRETZMANN 1971

Type species: *Epilobocera fuhrmanni* ZIMMER 1912.

1971 *Strengeriana* PRETZMANN, Sitz.-Ber. österr. Akad. Wiss. math.-naturw. Kl., (I) 179 (1/4): 18.

### *Strengeriana tolimensis*

Figs. 1, 4-5, Map 1.

Holotype: ♂ (SMF 9138), Colombia, Dept. Tolima, Cajamarca, Quebrada de Perales, 12. VI. 1976; H. DIAZ leg.

Paratypes: 2♂♂, 1♀ (SMF 9139), 14♂♂, 4♀♀ (MBC), together with holotype.

**Description:** The cervical groove is short, it ends away from the margin; it is deeper on the distal half, very wide and slightly curved. The anterolateral margin is slightly sinuous, its margin has a very slight depression behind the orbit, but for the rest it is completely devoid of teeth (in the holotype) or with faint indications of teeth (in some of the paratypes). The frontal lobes are absent, their place being indicated only by two rounded scars. The median groove is absent. The surface of the carapace behind the front is moderately inclined anteriorly and towards the mid-line. The front has no defined upper margin; it gradually slopes downwards; in dorsal view it is bilobed; the lower margin is thin, only slightly sinuous in frontal view. The carapace is smooth and shiny, with small pitae scattered all over its surface.

The palm of the larger chela is strongly inflated; this condition is especially evident in an upper view where the palm shows as almost globular; the fingers are moderately gapping towards the middle. The exopod of the 3rd maxilliped (Fig. 4) overreaches the lateral margin of the ischium. The orifice of the efferent branchial channel (Fig. 5) is almost closed by a spine of the jugal angle and by the production of the lateral lobe of the epistome.

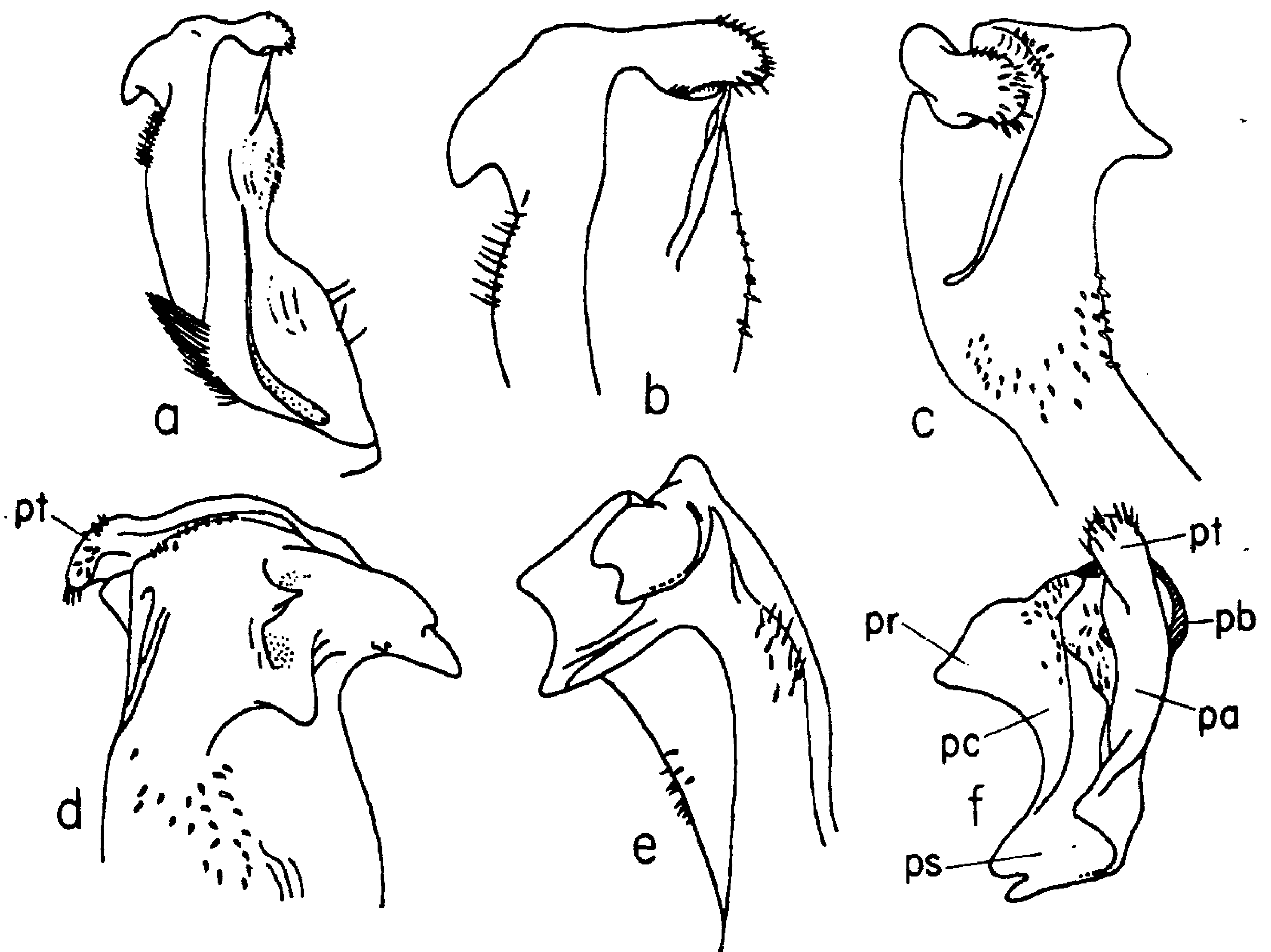


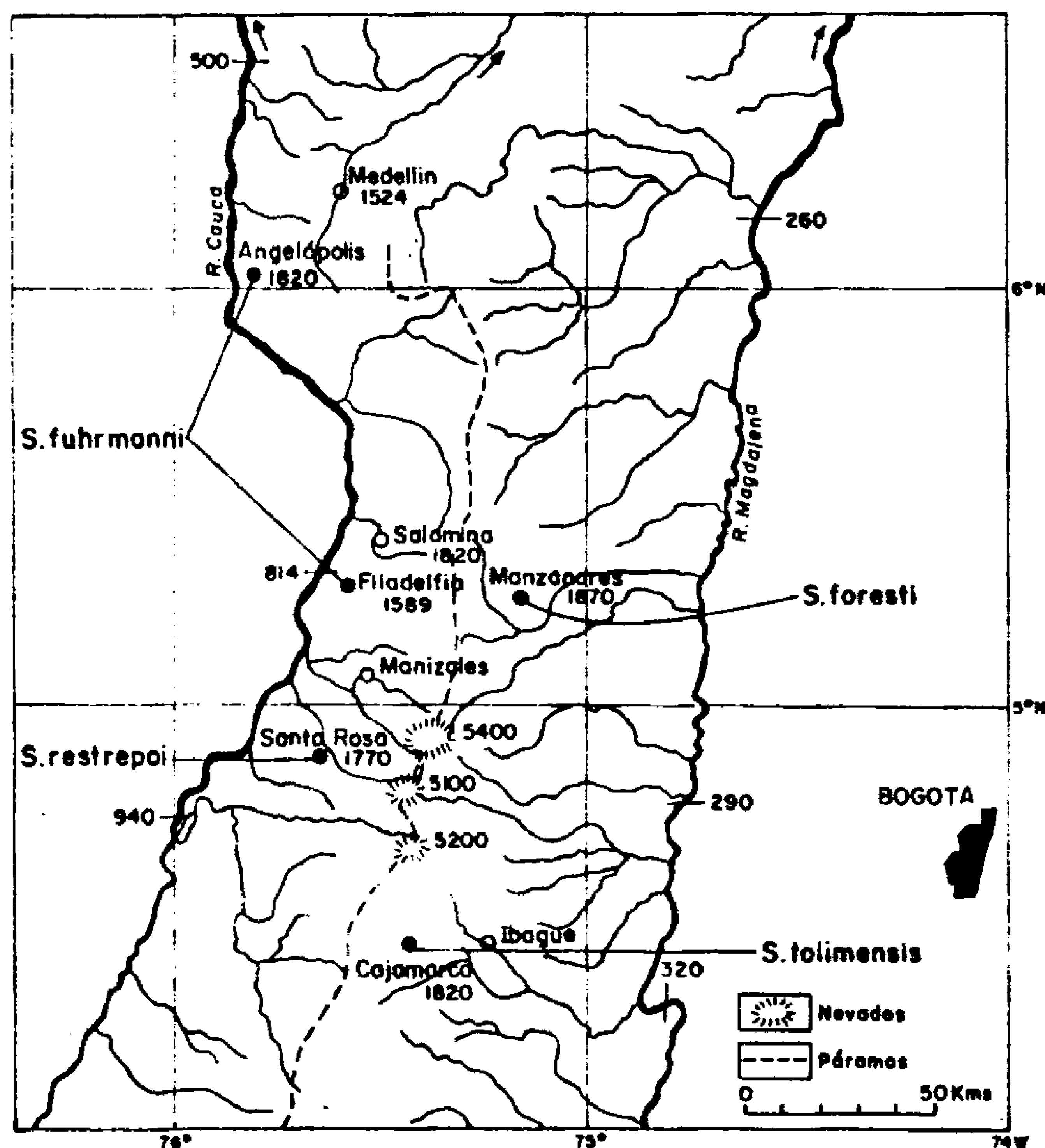
Fig. 1. *Strengeriana tolimensis* n. sp., ♂ holotype SMF 9138, left gonopod. — a) total view caudal; b) detail of apex, caudal; c) lateral; d) latero-cephalic; e) cephalic; f) apex in distal view. — pa = mesial plate, pb = marginal plate, pc = lateral plate, pr = caudal process, ps = cephalic projection, pt = mesial process.

**Size:** The species is one of the smallest among the Pseudothelphusidae, a character shared with the other three species of the genus. Largest ♂ (holotype) cb. 24.5 mm, cl. 15.5 mm. The two largest ♀ paratypes, with 17 and 15 juveniles, respectively, under the abdomen, cb. 24.2 mm and 24.6 mm, cl. 16.0 mm and 15.8 mm. The ratio cb/cl in 20 specimen measured is 1.54.

**Habitat:** The crabs were found in a shaded creek, where they were buried in a mound, located 10 meters from the water, in orificies 2-3 feet deep.

**Relationships:** *Strengeriana* was erected by PRETZMANN (1971) to receive *Epilobocera fuhrmanni* ZIMMER 1912. RODRIGUEZ (in press) added two more new species: *S. restrepoi* and *foresti*.

The genus is very homogeneous regarding the following peculiarities of the carapace and the appendages: a) The exognath of the third maxilliped is strong and overreaches the ischium of the endognath, as in *Epilobocera* STIMPSON 1860; b) The openings of the efferent channels are almost closed on the ventral side; c) All species are small, the breadth of the carapace is usually less than 3 cm when fully mature.



Map 1. Cordillera Central, Colombia, between the Magdalena and Cauca Rivers. — The distribution of the four known species of *Strengeriana*. Numbers refer to altitudes in m above sea level.

The gonopod shows more variation in detail than is usual for other genera of Pseudothelphusidae, although the basic pattern is similar in the four species as follows: The gonopod (Fig. 1) is formed by the mesial plate (pa) and the lateral plate (pc), joined together by the marginal plate (pb). A spinous mesial process (pt) is present in *tolimensis* n. sp. and *restrepoi*, although in the later species it is more recurved. The caudal process (pr), which in *tolimensis* is formed by two denticles, is represented in *restrepoi* by a small spine strongly bent mesially, and in *foresti* by a fingerlike projection. The cephalic projection (ps) of *tolimensis* is also present in *foresti*, but is lacking in the other two species. *Strengeriana fuhrmanni* shows the basic 3-plate structure of the other species, but lacks all other processes.

The four species of *Strengeriana* are distributed symmetrically over an area that covers both slopes of the Colombian Cordillera Central (Map 1): two species towards the north, *fuhrmanni* and *foresti*, and two species towards the south, *restrepoi* and *tolimensis*. The 'páramos' and high mountains of the Cordillera presumably isolate the species on both slopes.

### ***Hypolobocera* ORTMANN 1897.**

Type species: *Potamia chilensis* H. MILNE-EDWARDS & LUCAS 1843.

1897 *Hypolobocera* ORTMANN, Zool. Jb. Syst., 10: 323.

### ***Hypolobocera quevedensis* n. sp.**

Figs. 2, 6-7.

Holotype: ♂ (MBC), W-Ecuador, Rio Quevedo, 36 km n. of Quevedo, 24. VI. 1976; H. DIAZ leg.; cb. 41.9 mm, cl. 26.8 mm.

Description: The cervical groove is moderately wide, deep, overall in the posterior half; it curves backwards forming a regular arch, and distally reaches the margin of the carapace. The anterolateral margin has a well defined notch behind the external orbital angle; behind the cervical groove the margin has approximately ten small acute teeth. The postfrontal lobes are small, oval shaped, low but clearly defined; in front of them the carapace is noticeably depressed; the median groove is deep and extends backwards forming a circular depression between the postfrontal lobes. The surface of the carapace between the postfrontal lobes and the front is inclined anteriorly and towards the midline. The upper margin of the front is convex or slightly bilobed in dorsal view, with a deep notch in the middle; it is well defined, although not projected, with some tubercles faintly indicated. The front is low, almost vertical, moderately depressed in the middle. The lower frontal margin is sinuous, strongly margined, it lies a little in front of the upper one. The whole surface of the carapace is covered by minute tubercles, not visible to the naked eye, which give to the surface a roughened appearance.

The exognath of the third maxilliped (Fig. 6) is 0.43 the length of the ischium of the endognath. Opening of branchial channel as in Fig. 7. The larger chela is robust, but not conspicuously inflated; it does not possess a large tubercle



at the base of the fingers, and only a small swelling is present at the articulation of the dactylus. The fingers do not gap. The outer and inner surfaces of the palm are smooth, although covered by numerous punctae; the fingers have small dark papillae, loosely arranged in rows.

**Relationships:** This species is related to *Hypolobocera rathbuni* PRETZMANN 1968, but can be easily distinguished from it by the shape of the lateral lobe of the gonopod (Fig. 2). In *rathbuni* this lobe is strongly depressed, while in the present species it is advanced and well developed.

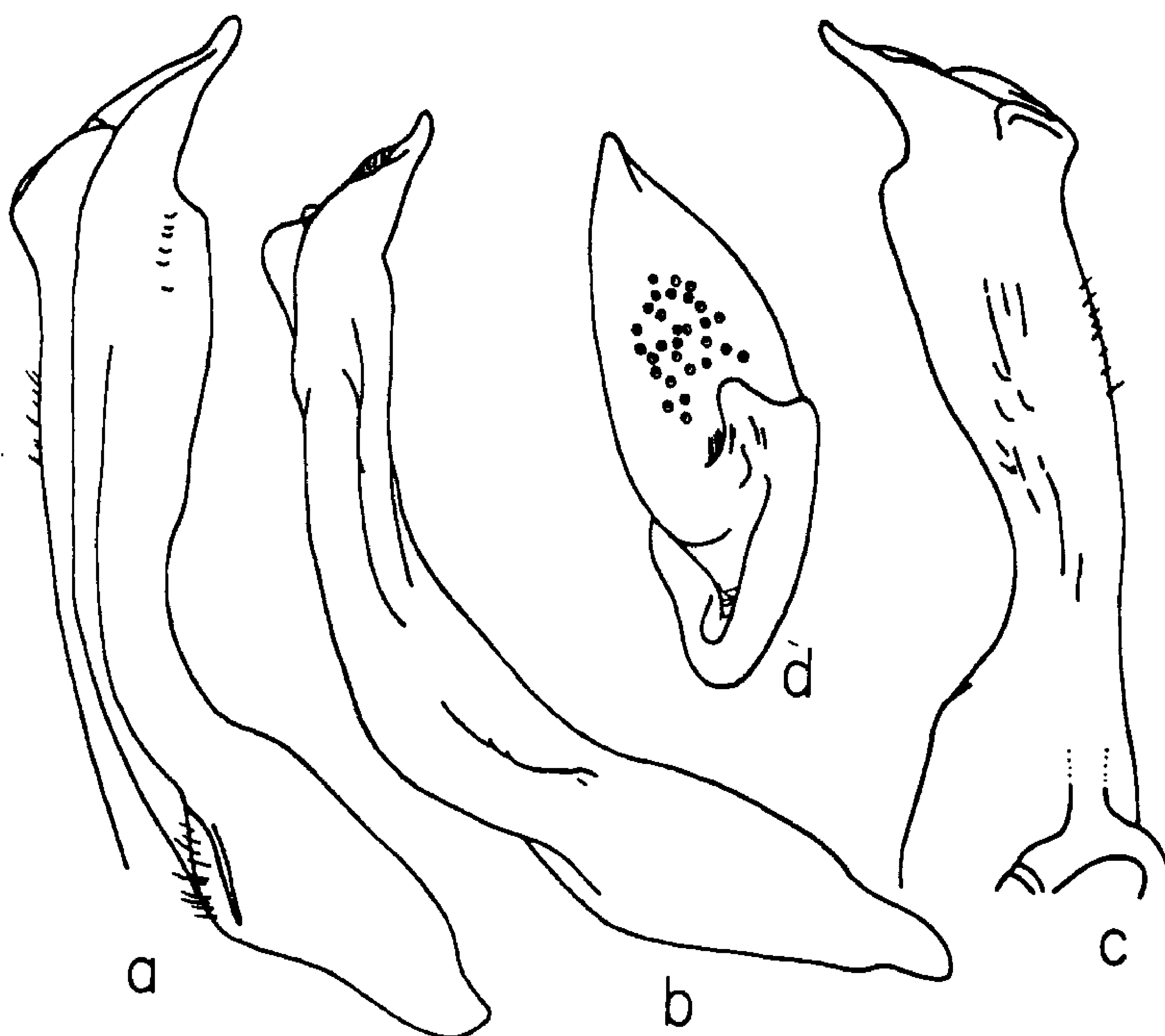


Fig. 2. *Hypolobocera quevedensis* n. sp., ♂ holotype MBC, left gonopod. — a) caudal; b) lateral; c) cephalic; d) detail of apex in distal view.

***Hypolobocera brevipenis* n. sp.**

Figs. 3, 8-9.

**Holotype:** ♂ (SMF 9140), Ecuador; MANUEL OLALLA leg.; cb. 27.7 mm, cl. 15.9 mm.

**Paratype:** ♂ (MBC), together with holotype; cb. 20.3 mm, cl. 12.0 mm.

**Description:** The cervical groove is shallow and straight, it does not reach the margin of the carapace. The anterolateral margin has a notch behind the external orbital angle, followed by a few tiny papillae; behind the cervical groove there are about ten very small but well defined teeth. The postfrontal lobes are almost obsolete, its place being indicated by two small, oval shaped scars. The median groove is very thin, straight and shallow; it does not extend

back between the place of the postfrontal lobes. The surface of the carapace between the postfrontal lobes and the front is inclined anteriorly, but very slightly inclined towards the mid-line. The upper margin of the front is bilobed in dorsal view; it is rounded, devoid of conspicuous tubercles; the lower margin is strongly margined, it forms a quadrangular frame for each antenna. The front is very low, the upper and lower margins are almost in contact. The exognath of the third maxilliped (Fig. 8) is 0.67 the length of the ischium of the endognath. Opening of branchial channel as in Fig. 9. The larger chela is elongated, inflated over the antero-posterior axis; the palm is smooth; there is no conspicuous tubercle at the base of the fingers; the fingers do not gap; they are covered by scattered dark points. The gonopod (Fig. 3) is very short and stout. The marginal process is long and sinuous. The place of the lateral lobe is taken by two distinct processes: a) An auriculariform lobe, regularly rounded and densely covered by tiny spinules; b) A winged expansion, triangular in shape and also covered by tiny spinules directed cephalad. The apex, in distal view, is expanded laterad.

Relationships: *Hypolobocera brevipenis* n. sp. forms a natural group together with the following species from the eastern slopes of the Andes in Ecuador and Perú:

1. *H. gracilignatha* PRETZMANN 1972,
2. *H. orientalis* PRETZMANN 1968,
3. *H. latipenis* PRETZMANN 1968,
4. *H. puyensis* PRETZMANN 1978,
5. *H. hauserae* PRETZMANN 1977.

The simplest gonopod within this group is found in *gracilignatha*: the lateral lobe is reminiscent of the type found in the group of *chilensis* (H. MILNE-EDWARDS & LUCAS 1843), but already its shape is more irregular and its

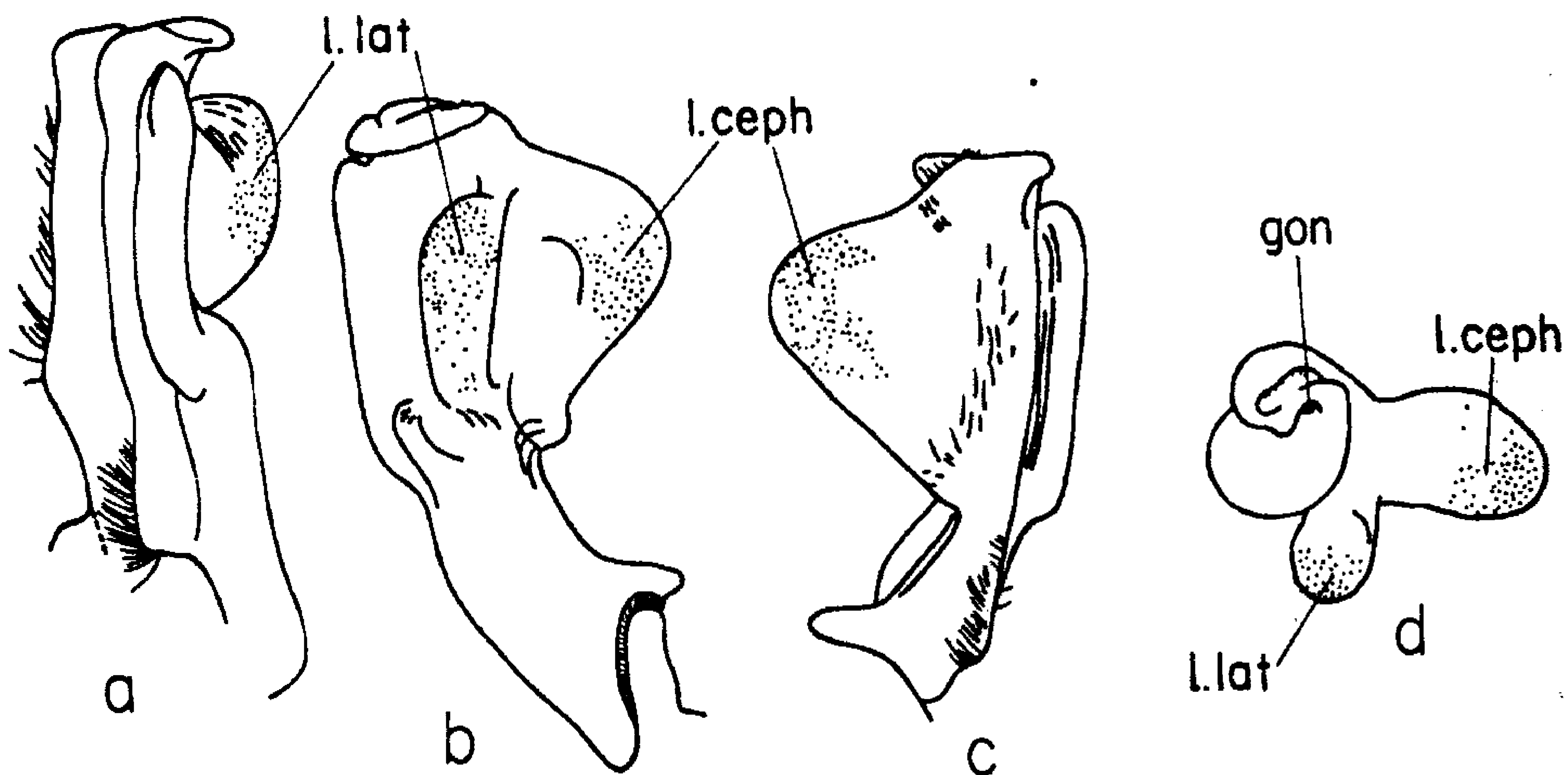
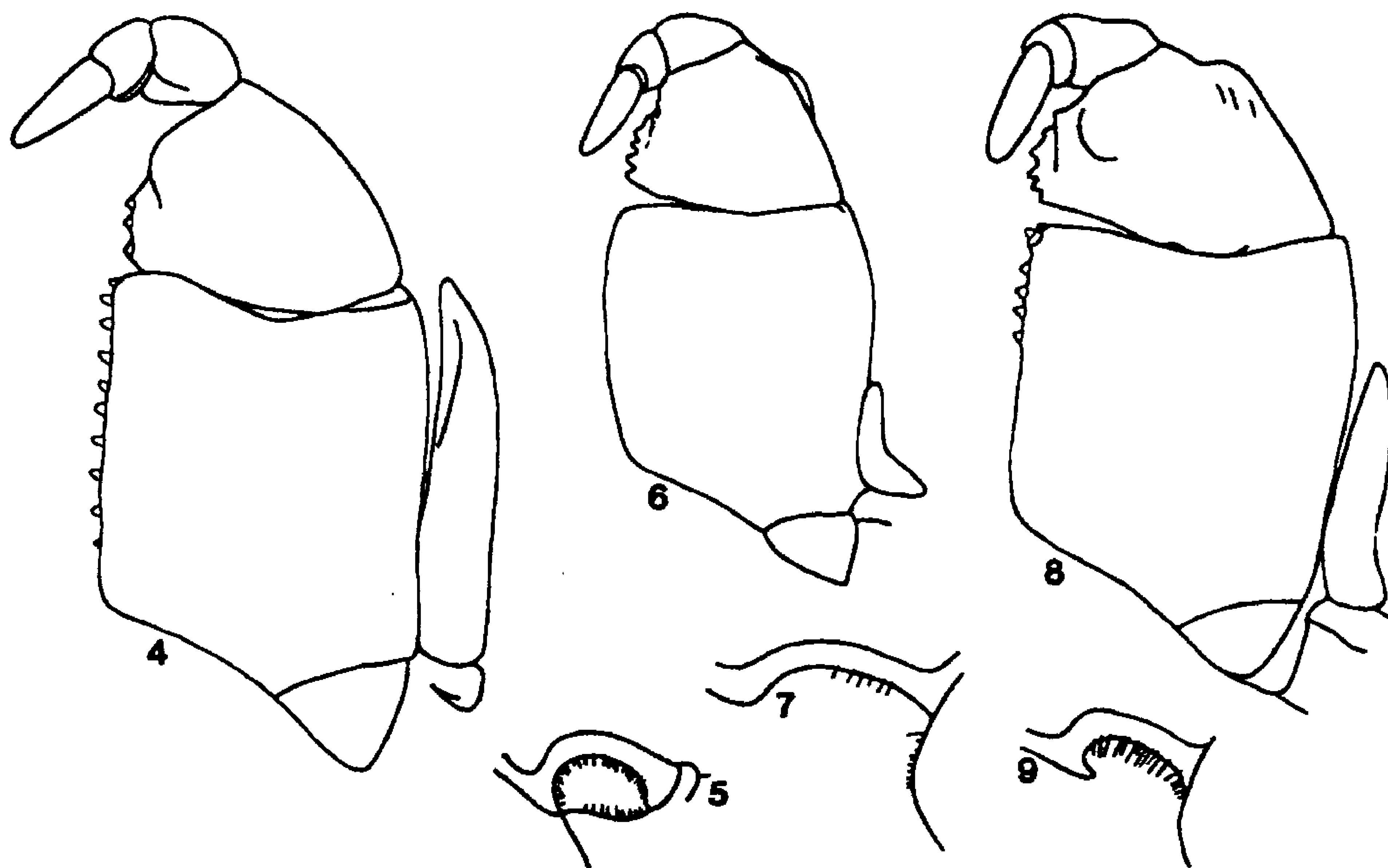


Fig. 3. *Hypolobocera brevipenis* n. sp., ♂ holotype SMF 9140, left gonopod. — a) caudal; b) lateral; c) cephalic; d) detail of apex in distal view. — l. lat = lateral lobe, l. ceph = cephalic lobe, gon = gonopod.



Figs. 4-9. Third maxilliped and left opening of branchial channels. — 4-5) *Strengeriana tolimensis* n. sp., ♂ holotype, SMF 9138; 6-7) *Hypolobocera quevedensis* n. sp., ♂ holotype, MBC; 8-9) *Hypolobocera brevipenis* n. sp., ♂ holotype SMF 9140.

surface is covered by small papillae. This condition is more pronounced in *orientalis*, where the lobe has already acquired the typical wrinkled and papillated aspect which is fully developed in *latipenis* and in the present new species. *H. latipenis*, *hauserae*, *puyensis* and *brevipenis*, display the same basic structure in the gonopod, although important differences are present, as follow: in *latipenis* the lateral lobe forms a rounded prominence on the lateral side, and this is continued on the upper-cephalad side by a globular projection. In *hauserae* (fide PRETZMANN 1977: fig. 10), the apical part of the gonopod is depressed, and consequently the outline of the apex is oval in distal view. In *puyensis* (fide PRETZMANN 1978: fig. 7), the lateral lobe is regularly rounded in cephalic view.

The present new species can be clearly distinguished from the rest of the group by the following characters of the gonopod: 1) The gonopod is very short and its general appearance is stocky; 2) The lateral lobe is divided longitudinally into two distinct valves, a lateral one semicircular in outline, and a cephalic one, larger and subtriangular in outline.

#### Zusammenfassung.

Drei neue Arten Süßwasserkrabben der Familie Pseudothelphusidae werden aus den Anden beschrieben. *Strengeriana tolimensis* n. sp. gehört, zusammen mit vier anderen Arten, zu einer ursprünglichen Gattung der Zentral-Kordillere Kolumbiens. *Hypolo-*

*bocera quevedensis* n. sp. hat eine enge Beziehung mit *Hypolobocera rathbuni* PRETZMANN 1968, beide sind vom westlichen Abhang der Anden von Ecuador bekannt. *Hypolobocera brevipenis* n. sp. bildet eine natürliche Gruppe zusammen mit vier anderen Arten der Gattung *Hypolobocera*, die auch vom östlichen Abhang der Anden in Ecuador und Peru bekannt sind.

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