

A new chelodesmid genus and species from the Peruvian Andes (Diplopoda, Polydesmida: Chelodesmidae)

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(With 8 figures)

Like the other parts of South America, the Andean region from Peru to Colombia is inhabited by a vast number of diverse chelodesmids whose classification has so far scarcely been commenced. Perhaps the majority of the known species are still standing under the old generic name *Leptodesmus*, which has been shown (HOFFMAN 1971) to include only a small number of taxa endemic in extreme southeastern Brasil. Most of the generic names which have been proposed for Andean chelodesmids were published by R.V. CHAMBERLIN in 1941 and 1955, regrettably without adequate documentation in most cases.

During the period 1954-1960 many Peruvian chelodesmids were described, and some of earlier authors redescribed, in a series of valuable papers by OTTO KRAUS. In most of these, the generic categories set up by CHAMBERLIN and a few other workers were ranked as subgenera of *Leptodesmus*. It is clear that a large number of genera remain to be either proposed as new or adequately redescribed within this interesting fauna, and since a complete revision of the family seems to be an accomplishment of the remote future, some progress can be made by the definition of distinctive genera whenever material is available. At the same time, revision of the larger existing genera should be conducted to the fullest extent possible with existing resources.

In 1986 it was my good fortune to examine a curious-looking chelodesmid specimen in the Zoologisch Museum, Hamburg, appearing at the time to represent an undescribed genus. Thanks to the kindness of Frau Dr. GISELA RACK, I was able to borrow this animal for later study and confirmation of my first impression. New names at both the generic and specific level are here proposed and diagnosed for the species, which in external body form seems a little disjunct within the context of related genera.

Family Chelodesmidae COOK, 1895

Although a number of new genera and tribes have been proposed within the Chelodesmidae during the past two decades, it is obvious that so far only a start has been made on developing an internal classification of this enormous polydesmoid family. The majority of its known genera have

not yet been assigned to a tribe, and most of the larger established genera are hopelessly heterogeneous. It is therefore regrettably impossible to organize the Peruvian fauna into logical generic groups although some lines of affinity are already obvious.

The presence of a prominent cingulum on the gonopod telopodite brings to mind a similar feature among species of the tribe Arthrosolenomeridini. In other characters, however, there seems to be little affinity of *Arthromachus* with the apparently much more generalized members of that tribe.

Present indications suggest that a comprehensive tribe that incorporates most Andean chelodesmids will include also the genera of the Greater Antilles.

Arthromachus gen. n.

Type species: *A. binghami* sp. n.

D i a g n o s i s: Gonopod coxae small, with rudimentary dorsal apophysis and two macrosetae; telopodite attached to coxa at about a 30° angle, prefemur elongate-ovoid, oriented in nearly the same direction as median axis of coxa, prefemoral process long and slender, basal 2=3ds nearly straight, distal 1/3d bent ventromesad, slightly expanded, apically simple; acropodite continuous with prefemur, forming about a 30° angle with it, the basal half slender and straight, distal half set off by a prominent cingulum on lateral side, beyond which tibiotarsal region bent laterad, apically acuminate, with large laminate process on ventral side; no trace of torsion evident, the prostatic groove visible along mesal side of telopodite for its entire length.

Gonapophysis of 2nd pair of legs shorter than wide, distally obliquely truncate, with a single macroseta on lateral side at base; gonopod aperture transversely oval, relatively small, confined to metazonum and not extended between coxae of 8th legs, marginal rim complete but low. Anterior legs and sterna unmodified, lacking processes, gland openings, prefemoral knobs, and tibial pads.

Paranota set high on sides, horizontal to distinctly elevated, the dorsum appearing concave; tergal texture finely granular with three rows of minute tubercles and usually a transverse sulcus; stricture sharply-defined, its anterior edge an overhanging edge; sides of midbody metazona with prominent oblique groove extending dorsally from posterior coxal condyle, otherwise smooth and unmodified. Paranota large, thin, both corners angulate, lateral edge with two or three large dentations; ozopores located in distinct peritremata set off from the edge on all but posteriormost segments.

N a m e: A neologism combining the Greek *arthro-* (in reference to the prominent cingulum of the telopodite) and *Machu*, part of the aboriginal name of the type locality of the type species.

Remarks: The presence of a cingulum on the lateral side of the telopodite in this genus invites comparison with another regional taxon so endowed, *Desmoleptus* (ATTEMS 1931). Originally proposed as a subgenus of *Leptodesmus*, this name was elevated to generic status by KRAUS (1957) who had already noted (1956) that *Yanadesmus* CHAMBERLIN, 1955, was obviously a junior subjective synonym.

Despite some superficial similarity in overall gonopod structure, *Desmoleptus* differs from *Arthromachus* in several important features: the gonopod aperture is much larger and extends back between the 8th legs, the cingulum is located at about the midlength of the acropodite, and the latter region forms an acute angle (about 80°) with the prefemur. In the species of *Desmoleptus* the end of the prefemoral process is abruptly enlarged and often lobed variously, and the paranota are much smaller and not laterally dentate, they are moreover conspicuously marked with white or yellow dorsal spots.

So far four species are referable to *Desmoleptus*: *peruanus* (ATTEMS, 1931), *silvestrii* (ATTEMS, 1931), *celendinus* (CHAMBERLIN, 1955), and *chusgonus* (CHAMBERLIN, 1955). The locality "Panama" cited for *silvestrii* is manifestly incorrect, as the group is otherwise confined to central Peru.

Another possibly related Peruvian genus is *Chondrodesmoides* KRAUS, 1955, known so far from its type species *C. koepckei* KRAUS, 1955. This species requires a re-examination for several critical characters, but can still be separated from *Arthromachus* by the acute angle formed at the junction of gonopod prefemur and acropodite, the much smaller size, and strongly reduced paranota.

Finally, the similarity of this genus to several batodesmine taxa might be noted. My own initial impression of the type specimen of *A. binghami* was that it might represent *Alocodesmus* SILVESTRI, 1896 or closely related genus, both from the flattened to concave dorsum, lack of paranotal light spots, and general form of the gonopods as seen *in situ*. Closer examination soon showed the absence of the diagnostic features of the Batodesmini, but the apparent convergence in general appearance is noteworthy.

Arthromachus binghami sp. n.

Figures 1-8

Material: Male holotype (Zool.Mus.Hamburg) from Machu Picchu, ca. 80 km northwest of Cuzco, Peru; A. ELBERT leg. 5 March 1977.

Name: This interesting species is named in memory of HIRAM BINGHAM, who "rediscovered" the ruins of Machu Picchu in 1911.

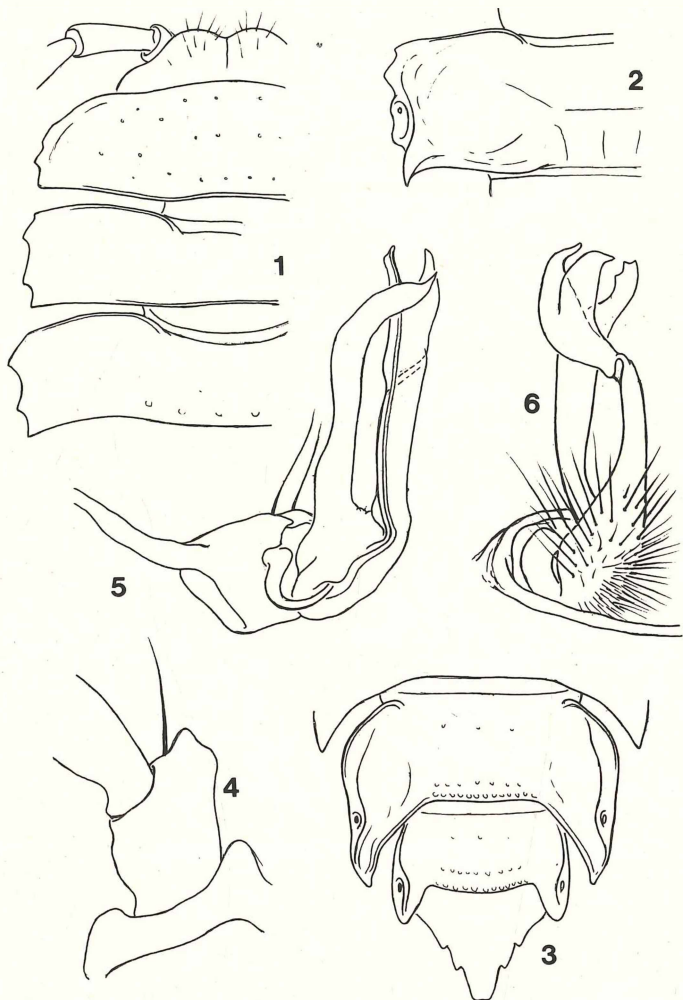
Diagnosis: With the characters of the genus.

Holotype: Adult male, ca. 43 mm long (fragmented), body nearly parallelsided over much of length, segment 2, 5.3 mm, segment 4, 6.0 mm, segments 10-14, 6.1 mm, segment 16, 5.8 mm. W/L ratio $\pm 14\%$. Color of preserved specimen (8 years in alcohol) uniformly dark reddish-brown, legs and antennae yellowish-brown, the distal podomeres and antenno-meres darker brown, the latter with a reddish cast.

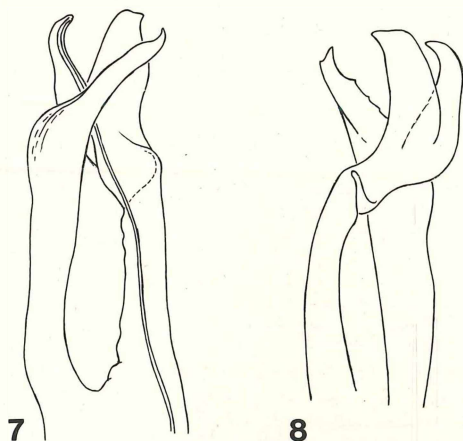
Head smooth except for granulovermiculose epicranium. Genae about as wide as mandibles, dorsal half convex, ventro-

lateral half nearly flat. Interantennal space about 24 % of head width. Epicranial region slightly but distinctly bi-convex, swollen above each antennal socket. Two pairs of epicranial setae forming a transverse row, subtended by sparse shorter hairs in the supra- and interantennal region. Facial setae irregular, randomly distributed; marginal genal setae extend out nearly to apex. Antennae long (7.6 mm) and slender, substantially longer than body width, articles in order of decreasing length: 2-3-5-6-4-1, none notably clavate. Collum (fig. 1) nearly horizontal, lateral ends not depressed, anterolaterad edge evenly curved, with about 4-5 shallow crenulations; anterior edge very narrowly margined; caudal corner acute; surface texture finely granular, with a shallow but distinct middorsal depression. Anterior median surface slightly elevated and smooth just behind head. Three irregular transverse rows of minute rounded granules. Metaterga similar to collum in texture, but with granules larger and in more regular rows; many segments with poorly-defined transverse metatergal sulcus. Paranota (figs 1, 2) large, thin, transverse, set high on body, nearly horizontal on anterior segments but becoming increasingly elevated posteriorly, those of segments 18 and 19 about 30° above horizontal, the dorsum thus appearing concave for much of its length. Anterior corners obtusely dentate on all segments, posterior acutely dentate to subspiniform the lateral edge with two or three prominent dentations between the corners on poreless segments; peritremata slender and elongate, with shallow notch at midlength, abruptly set off from lateral edge except on last four or five segments. Stricture deep and well-defined around segments, the anterior edge forming a sharp overhang. Paranota of segment 19 reduced, only about a third as large as those of 18 (fig. 3). Epiproct conical in outline (fig. 3). Paraprocts smooth, flat to slightly concave; hypoproct large, nearly an equilateral triangle, paramedian tubercles small and set close to the apex. Podosterna prominently elevated and smooth, with sparse setation mostly confined to the anterior slope, most with a shallow transverse groove, width at midbody slightly less than length of attached femora. Legs long and slender, the tarsi nearly as long as femora, and much longer than the postfemora and tibiae combined. Sides of metazona smooth except for random scattered granules beneath the paranota and, on segments 7-15, a very distinct fine ridge running from the posterior coxal condyle obliquely dorsad to caudal edge at about level of paranotal base.

Anterior sterna narrow and distinctly divided into four quadrants by a cruciform depression, none with a trace of sternal processes; anterior legs shorter than those at midbody, without any modifications. Gonapophyses relatively short, obliquely truncate (fig. 4). Gonopod aperture small, transversely oval (twice as wide as long), not extended caudad between legs of 8th pair, and only very slightly into prozonum, marginal rim low but complete around entire periphery. Gonopods as described under the generic heading, and illustrated in figs 5-8.



Figs 1-6: *Arthromachus binghami* sp. n. Fig. 1: dorsal aspect of head and first three body segments, left side. - Fig. 2: left paranotum of segment 10. - Fig. 3: segments 18-20, dorsal aspect. - Fig. 4: sternum and right coxa of 2nd pair of legs, anterior aspect. - Fig. 5: left gonopod, mesal aspect. - Fig. 6: right gonopod, in situ, ventral aspect.



Figs 7-8: *Arthromachus binghami* sp. n. Fig. 7: telopodite of left gonopod, oblique mesal aspect. - Fig. 8: the same telopodite, ventral aspect.

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