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## Concerning the evolution of the Oryidae, with description of a primitive new genus

(Chilopoda : Geophilomorpha : Oryidae)

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(with 5 figures)

In the Oryinae one is confronted with a suite of criteria chiefly notable for their conservative tendency not to depart much from a narrowly variable pattern. Oryine mouthparts, relative to those of other families, are but slightly variable: there is no genus that can be distinguished solely by them. The trunk exclusive of the final pedal segment displays little intrageneric variability. The ultimate pedal segment, but not its telopodite, is remarkably uniform throughout the subfamily. Nowhere in the Oryinae is there the number of character permutations or the character variation that one encounters so commonly in most geophilomorph families.

The family's only other subfamily, Trematoryinae, manifests certain classical features that seem incontrovertibly oryid, but through other characteristics departs startlingly from the internal sameness of the nominate taxon.

The Trematoryinae are called oryid (and not himantariid, a family which they resemble closely) because the trematoryine mandibular shaft is very long, straight, flat, and the corpus has pectinate but not dentate lamellae; the sternites are conspicuously wide and short, and their glandular pattern is of the peripheral, not of the central type; the labrum is oryid, or I should say, more oryid than anything else; paraclypeal sutures are absent. One might also regard the matter in another fashion: if the trematoryines had a mandibular dentate lamella, sternal glands of the central type, and paraclypeal sutures, there would be little difficulty assigning them to the nominate subfamily of Himantariidae.

Exclusive of their signal oryid characteristics, the Trematoryinae are abruptly and rather dramatically different from the Oryinae on the basis of many important traits which, furthermore, strongly indicate relationship with the Himantariidae. In some or all Trematoryinae, in some or all Himantariidae, but in no Oryinae: the labral fulturae are long and

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rather slender, not short and robust; the buccal margins are in part strongly sclerotized; the first maxillary coxosternum is medially shallow to nonexistent, not deep; the second maxillary isthmus is medially diastemate; sternital fungiform foveae are present; the ultimate pretergite has separate pleurites; the ultimate sternite is deeply sulcate and apodemate; the ultimate coxopleuron is greatly inflated and extends forward beyond its segment; the ultimate coxopleuron houses a massive glandular apparatus; the ultimate tarsus is biarticulate and has an unguiform pretarsus; anal pores are present.

The most striking of these, though not necessarily the most significant, is the inflated, porous coxopleuron, which is common to all Trematoryinae and Himantariidae (except Bothriogastrinae), but which is encountered in no known Oryinae. Indeed, the greatly reduced ultimate pedal segment with its small, aglandular coxopleura is in my view one of the chief hallmarks of the oryines. Considering the rear body of which the coxopleuron is the most notable part, it is difficult to imagine that such a complex member as the ultimate pedal segment could have developed independently and virtually identically in separate evolvent lines. Their complexity and close similarity seem only explicable on the basis of common descent. The same reasoning best explains the other similarities of the foregoing list.

This and other evidence (whose elaboration is beyond the scope of this paper) leads me to suspect that the Oryidae and Himantariidae arose from the same ancestral stock. I imagine that it incorporated in modified form some of the features observable in all three of the taxa that I have discussed, but resembled no one of them exactly. Of the three taxa the ancestral and now extinct stock may well have had more in common with recent Trematoryinae than with either of the others, so that possibly modern trematoryines are in many ways rather reminiscent of stem oryids, from which at some remote time himantariid and oryine lines were detached.

As a parenthesis to the foregoing I should add that at the present time I find in these arguments no convincing justification either for collapsing the Himantariidae and Oryidae into a single family or for elevating the Trematoryinae to family rank while regarding the others as coordinate families. At the moment I believe this evidence fortifies Attems' arrangement, wherein the Himantariidae and Oryidae are separate families with the trematoryines forming a subfamily of the latter. I have not attempted here to alter the categorical arrangement, only to indicate relationships within the complex.

#### *Metaxythus*, new genus

The new genus differs from *Trematorya* BROELEMANN, the only other occupant of the Trematoryinae, most notable in the following particulars. *Trematorya*: (1) Sulci present on all sternites except 26 through 31. (2) Apodemes present on all sternites except (26) through 31. (3) Fungiform foveae („pores en champignons“) present on sternites 26 through 31. (4) Tarsungular presentation dorsal. (5) Anal pores absent. *Metaxythus*: (1) Sulci absent on all sternites except on the last 7 or 8 where they are vague. (2) Apodemes absent on all sternites except last pedal. (3) Fungiform

foveae entirely absent. (4) Tarsungular presentation mesal. (5) Anal pores present, large, heterogeneous, multicanalicate.

**GENERAL.** Very long, polypodal; dorsoventrally flattened; anteriorly and posteriorly not appreciably attenuate. **ANTENNAE.** Short, robust, distally notably attenuate, dorsoventrally flattened. 14th article with two special setosensoria. **CEPHALIC PLATE.** Anteriorly rostrate; about as long as wide. Prebasal plate exposed. **CLYPEUS.** Much wider than long. Fenestra and clypeal sutures absent. **LABRUM.** Of modified tripartite type (sidepieces much shorter than broad, finely dentate midpiece). **Fulturae** long, transverse, not oblique. **MANDIBLE.** Shaft long, straight, flat; pectinate lamellae oblique. **FIRST MAXILLAE.** Coxosternum transversely rather narrow, shallow; medially undivided; lappets absent. **Telopodites:** biarticulate; with robust lappets. **SECOND MAXILLAE.** Medially very deep and broad; undivided but anteriorly with shallow diastema; with weak postmaxillary sclerites; telopodite basal condyles present, claw robust, not cochlear nor filamentous, basal bristles absent. **PREHENSORS.** Robust, short, unarmed. **PROSTERNUM.** Anterior denticles and pleurograms absent; pleuroprosternal sutures strongly oblique. **TERGITES.** Shallowly bisulcate; minutely regionally porous. **PLEURITES, PARATERGITES** present. Stigmopleurites discrete. **STERNITES.** Rectangular, all much wider than long. Midlongitudinal sulci present only on last 8 sternites; internal apodemes absent except on ultimate pedal sternite. Fungiform foveae absent. Subcoxal porefields present. Sternal porefields: on anterior body each sternite with a posterior and an anterior transverse band of pores plus scattered intercalaries; on posterior body formed fields absent, pores present but minute and irregularly disposed. **ULTIMATE PEDAL SEGMENT.** Pretergite laterally fissate, i. e. discrete from its small pleurites. Sternite deeply midlongitudinally sulcate with prominent internal apodeme; whole surface minutely, irregularly porous. Coxopleuron: inflated, long; ventrally with 2 elongate heterogeneous gland cavities exiting beneath sternite margin; dorsally not porous. **Telopodite:** longer than penult; with two tarsalia; pretarsus strongly unguiform. **POSTPEDAL SEGMENTS.** Female gonopods fused, uniarticulate. Anal pores large, heterogeneous, with numerous constituent canals.

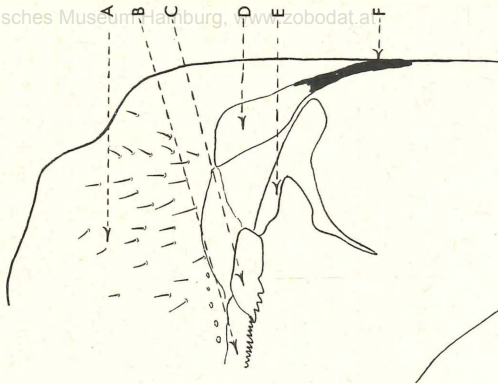
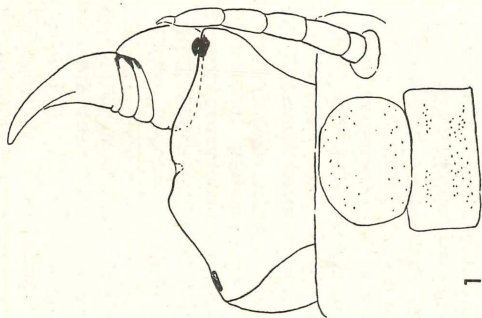
Type-species. *Metaxythus austrinus*, sp. n. (By original designation and monotypy).

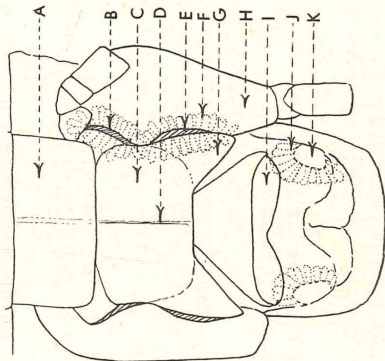
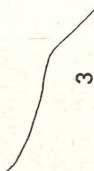
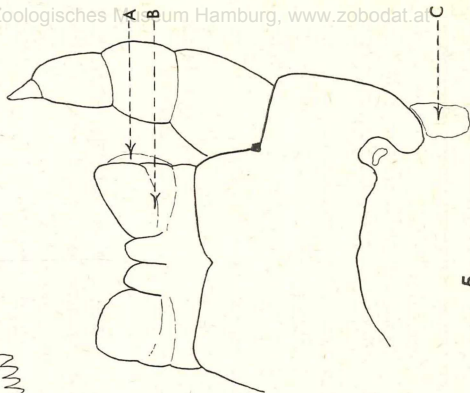
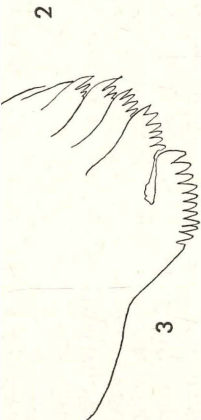
*Metaxythus austrinus*, new species

Holotype: female. Chile: Juan Fernandez; December 1932; Ch. Bock, leg. Deposited in the collection of the Zoologisches Staatsinstitut und Zoologisches Museum, Hamburg (Eing. Nr. 15: 1933).

**GENERAL.** Length, 112 mm. Leg pairs, 113. Body greatly flattened; first and last 15—20 segments slightly attenuate. Vestiture exceedingly sparse and short. Color uniformly light brown.

**ANTENNAE.** Distally attenuate, dorsoventrally flattened. Length to head length, 5:2, hence relatively short. Each article except the 14th wider than long. 14th article at 2/3 its length ectally and mesally with a small patch of short, broadly flattened special sensory setae, each in a slight depression (setosensoria, new term). **CEPHALIC PLATE.** Length approxi-





mately equal to greatest width. Cephalic suture not evident. Anterior and posterior margins essentially straight; sides slightly excurved. Prebasal plate narrowly visible. CLYPEUS. Greatest width far exceeding greatest length. Fenestra, plagulae absent. Paraclypeal sutures absent. Anteromesal border of buccae strongly sclerotized. Setae as in *Trematorya sternalis*, that is very short and robust, sparsely investing entire clypeus, more numerous laterally than centrally. LABRUM. As in *T. sternalis*, of the modified tripartite type, the sidepieces much shorter than broad mid-piece; all minutely dentate; straight, broadly transverse. Labral fulturae transverse, not oblique, very long, each in broad medial contact with its labral sidepiece. MANDIBLE. Shaft long, straight, flat as is typical of all Oryidae. Molar edge with 6—7 obliquely-oriented pectinate lamellae; dentate lamella absent. FIRST MAXILLAE. Transversely narrow; coxosternum anteroposteriorly relatively short; without midlongitudinal suture or division; coxosternal lappets absent. Medial lobes much shorter than telopodites. Telopodite: vaguely demarcated from coxosternum, vaguely bipartite; each with a short robust lappet. SECOND MAXILLAE. Medially anteroposteriorly very long, the isthmus without midlongitudinal division but anterocentrally with a very shallow diastema. With weak postmaxillary sclerites. Ventral condyles larger than evanescent dorsals. Insertion of telopodites anterolateral, oblique. Telopodite: short and very robust; articles 1 and 2 each wider than long; all articles clothed with numerous robust setae; terminal claw short and robust, not cochlear nor filamentous, not hispidate, without basal bristles. FORCIPULAR SEGMENT. Flexed prehensors not exceeding head margin; short, robust, all articles unarmed. Tarsungula: relatively short, only slightly curved, presentation is mesal, edges smooth, not serrulate. Poison calyx linear, not cordiform or spherical, extremely long and thin, terminus in article 1. Prosternum: without anterior denticles and pleurograms; pleuroprosternal sutures strongly oblique, complete to ventrolateral margin; deeply ingressing into trunk and terminating in segment 2.

TERGITES. All much wider than long, anteroposteriorly extremely short. Shallowly bisulcate; centrally and laterally with amorphous aggregates of minute pores. PLEURITES. Paratergites present. Stigmopleurites discrete. LEGS. Glabrous, short, robust. First legs as long as the second. Pretarsi: claws robust, short; parungues absent. STERNITES. Rectangular, all much wider than long. Midlongitudinal sulci entirely absent except on last 8 sternites; where sulci extremely shallow and vague, an internal

*Metaxythus austrinus*, new species, holotype.

1. Prehensors and prosternum. Ventral aspect; setae deleted — 2. Right side of clypeus and labrum. Ventral aspect; setae shown. a = clypeus. b = labral middle portion. c = labral lateral portion. d = sclerotized buccal margin. e = transverse member of fultura. f = rear extension of buccal margin. — 3. Mandible. — 4. Rear segments. Ventral aspect; setae deleted. a = penult sternite showing evanescent sulcus. b = left anterior gland opening. c = ultimate sternite. d = prominent sulcus. e = left posterior gland opening. f = subsurface glandular canals. g = rear extension of ultimate sternite. h = coxopleuron. i = gonopod. j = subsurface glandular canals of anal pore. k = anal pore. — 5. First and second maxillae. Ventral aspect; setae deleted. a = telopodite lappet. b = telopodite. c = postmaxillary sclerite.

apodeme present only on ultimate pedal sternite. Carpophagus-structures and fungiform foveae („pores en champignons“) absent on all sternites. Subcoxal porefields present throughout. Sternal porefields: on anterior half of body forming a band across rear third of each sternite, with two poorly defined anterolateral groups and scattered intercalary pores laterally; on posterior body each sternite with exceedingly minute, generally dispersed pores forming no circumscribed fields.

**ULTIMATE PEDAL SEGMENT.** Pretergite: partly concealed beneath preceeding tergite; intimately applied to its tergite; laterally fissate, the discrete pleurites relatively small. Tergite: greatest width to length, 15:10. Presternite medially separated. Sternite: pentagonal, anterior margin straight, sides slightly indented, posteriorly deeply embayed and there forming two long extensions; midlongitudinally sulcate internally forming a prominent apodeme, whole surface irregularly pierced by numerous extremely minute pores. Coxopleuron: inflated; long, encroaching upon penult segment; ventrally with 2 elongate heterogeneous gland cavities exiting along sternite; dorsally non-porous. Telopodite: not inflated; not longer than penult; glabrous; with 2 tarsalia and a strong unguiform pretarsus.

**POSTPEDAL SEGMENTS.** Female gonopods medially fused, the vestigial intermedial suture still evident (though only by phase contrast microscopy), each strictly unipartite. Anal pores very large, heterogeneous, the inclusive gland canals numerous.

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Zeitschrift/Journal: [Entomologische Mitteilungen aus dem Zoologischen Museum Hamburg](#)

Jahr/Year: 1965

Band/Volume: [3](#)

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