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A new generic classification for Thaumatodryininae, Dryininae and Gonatopodinae, with descriptions of new species (Hymenoptera Dryinidae)

Abstract - A new generic classification is proposed for Thaumatodryininae, Dryininae and Gonatopodinae. In the subfamily Dryininae the following new names are proposed in the genus *Dryinus: hansonianus, harpax, arimensis, kovariki, parkerianus, ater, australiae, gibbosoides, pseudoafer* and *dayianus.* The following new species of Dryininae are described: *Dryinus madagascolus*, from Madagascar; *Dryinus lini* and *choui*, from Taiwan; *Megadryinus pulawskii*, from Peru; *Dryinus cruciatus*, from U.S. Virgin Islands; *Dryinus wasbaueri*, from Papua. In the subfamily Gonatopodinae the following new names are proposed in the genus *Gonatopus: aegypti, fortunatus, tussacensis, owaini, pilosoides, ceballosi, operosus, rufoniger, asiae, insulae, variabilis, americae, cobbenianus, flavoides, stephani, boucekianus.* In the same subfamily the following new combinations are proposed: *Gonatopus helleni* (Raatikainen) and *Gonatopus nearcticus* (Fenton). The following new species of Gonatopodinae is described: *Gonatopus sensitivus*, from Madagascar. In the subfamily Anteoninae the following new names are proposed in the genus *Anteon: hirashimai, paraflaccum, gauldense.* The male of *Anteon minimum* (Fenton), from the U.S.A., is described. In the subfamily Bocchinae the new species *Bocchus rossi*, from Western Australia, is described. In the subfamily Apodryininae the male of *Apodryinus masneri* Olmi, from Chile, is described and the genus *Bocchopsis* Olmi is considered senior synonym of *Australodryinus* Olmi. The new name *Bocchopsis australis* is proposed.

Riassunto - *Una nuova classificazione per i generi di Thaumatodryininae, Dryininae e Gonatopodinae, con descrizione di nuove specie (Hymenoptera Dryinidae).*

Viene proposta una nuova classificazione per i generi di Thaumatodryininae, Dryininae e Gonatopodinae. Nella sottofamiglia Dryininae sono proposti, nel genere *Dryinus*, i seguenti nuovi nomi: *hansonianus, harpax, arimensis, kovariki, parkerianus, ater, australiae, gibbosoides, pseudoafer* e *dayianus.* Sono inoltre descritte le seguenti nuove specie di Dryininae: *Dryi-*

nus madagascolus, del Madagascar; *Dryinus lini* e *choui*, di Taiwan; *Megadryinus pulawskii*, del Peru; *Dryinus cruciatus*, delle Isole Vergini statunitensi; *Dryinus wasbaueri*, di Papua. Nella sottofamiglia Gonatopodinae e nel genere *Gonatopus* sono proposti i seguenti nuovi nomi: *aegypti, fortunatus, tussacensis, owaini, pilosoides, ceballosi, operosus, rufoniger, asiae, insulae, variabilis, americae, cobbenianus, flavoides, stephani, boucekianus*. Nella stessa sottofamiglia sono proposte le seguenti nuove combinazioni: *Gonatopus helleni* (Raatikainen) e *Gonatopus nearcticus* (Fenton). Fra i Gonatopodinae è poi descritta la nuova specie *Gonatopus sensitivus*, del Madagascar. Nella sottofamiglia Anteoninae e nel genere *Anteon* sono proposti i seguenti nuovi nomi: *hirashimai, paraflaccum, gauldense*. Viene anche descritto il maschio di *Anteon minimum* (Fenton), degli U.S.A.. Nella sottofamiglia Bocchinae è descritta la nuova specie *Bocchus rossi*, dell'Australia Occidentale. Nella sottofamiglia Apodryininae viene descritto il maschio di *Apodryinus masneri* Olmi, del Cile, ed il genere *Australodryinus* Olmi viene posto in sinonimia di *Bocchopsis* Olmi. Viene proposto il nuovo nome *Bocchopsis australis*.

Key words: taxonomy, Dryinidae.

The main taxonomic problem of Dryininae and Gonatopodinae was the generic classification of the males. The taxonomy of these two subfamilies in fact was based on females. They showed apparently good generic characters, whereas the males showed only specific differences. In his revisions in fact Olmi (1984, 1989) proposed keys to the genera only for females. The males were treated only in specific keys. Among the Gonatopodinae only genera as *Neodryinus* Perkins, *Echthrodelphax* Perkins, *Haplogonatopus* Perkins and *Esagonatopus* Olmi were easily recognizable in the male sex too.

The above situation was unacceptable of course. It was not possible to admit that almost all the genera of two subfamilies were distinct only in the female sex. This classification was considered however provisionally valid, awaiting to know a bigger number of males. The number of known males in fact was so small that conclusions were impossible.

The number of known males was increased in the last years. It's possible so now to propose a different generic classification for Dryininae and Gonatopodinae, as follows.

MATERIAL AND METHODS

The examined material is kept in the following collections:
BM: Natural History Museum, London, England

CA: California Academy of Sciences, S. Francisco, California
LA: Natural History Museum of Los Angeles County, Los Angeles, California
OL: Department of Plant Protection, Viterbo, Italy
OT: Biosystematics Research Centre, Ottawa, Canada
TM: Taiwan Agriculture Research Institute, Wufeng, Taiwan
WA: National Museum of Natural History, Washington, D.C.

The terminology is that of Olmi (1984).

I have much indebted to the following persons who helped with the collections, either by sending dryinids on loan, or acting as host, when their institutions were visited: Liang-yih Chou (Taiwan), Michael Day (London), Tom Huddleston (London), Karl V. Krombein (Washington), Lubomir Masner (Ottawa), Wojciech J. Pulawski (San Francisco), Roy Snelling (Los Angeles).

Subfamily *Dryininae*

In the past the main taxonomic problem of the Dryininae was the generic classification of the males. Whereas in fact it was possible to propose a satisfactory distinction among the genera on the basis of females, the males seemed all alike, so that only specific classifications were proposable (Olmi, 1984, 1989).

On the basis of females the following genera were recognizable, according to the Olmi system:
Dryinus Latreille 1804
Mesodryinus Kieffer 1906
Perodryinus R.C.L. Perkins 1907
Tridryinus Kieffer 1913
Megadryinus Richards 1953
Alphadryinus Olmi 1984
Gonadryinus Olmi 1989
Cretodryinus N. Ponomarenko 1975 (fossil)

On the basis of studies of the last years now it's possible to add to the above list the following two genera:
Thaumatodryinus R.C.L. Perkins 1905
Pseudodryinus Olmi 1989

For the genus *Thaumatodryinus* in the past (Olmi, 1984) the subfamily Thaumatodryininae was proposed, whereas the genus *Pseudodryinus* was considered belonging to Gonatopodinae (Olmi, 1989). This last attribution however was caused by a mistake in the observation of the spurs of the mid tibiae. According to the original description in mid tibiae of females the spurs were absent (1,0,2 formula). Recently another study of the species of

Pseudodryinus permitted to see a mid tibial spur, not seen in the few previous observed specimens, mostly for the bad conditions of the legs. The formula so was 1, 1, 2, so that this genus could be considered belonging to Dryininae, and not to Gonatopodinae. These observations of course were based all on female specimens, because the males of *Pseudodryinus* were unknown.

The attribution of females of *Pseudodryinus* to Dryininae seemed solve numerous problems. In the meantime however males of *Pseudodryinus* were found in Taiwan (*Pseudodryinus sinensis* n. sp., see later on). They have quadridentate mandibles, whereas the males of Dryininae have tridentate mandibles. This character so leads to think that these males are belonging to Thaumatodryininae. It's obvious that males and females of the same genus cannot belong to different subfamilies. I think so that the subfamily status of Thaumatodryininae is not proposable. The genus *Thaumatodryinus* so (together with *Pseudodryinus*) must be considered belonging to Dryininae, as old Authors thought in the past.

During recent studies on the genera *Bocchoides* Benoit and *Chelothelius* Reinhard, both considered in the past (Olmi, 1984) belonging to Bocchinae, the few known specimens were again examined (one female specimen of *Bocchoides bekilyensis* Benoit; three female specimens of *Chelothelius gryps* Reinhard; one female specimen of *Chelothelius berlandi* Bernard). Recently in fact a new important morphologic character was identified (Olmi, 1992b) to distinguish the subfamilies Bocchinae and Dryininae: the presence or the absence of epicnemia. The lateral regions of the prothorax in fact in Bocchinae are continuous with the mesopleura, so that the epicnemium (or prepectus) is invisible (fig. 30 in Olmi, 1992b). In Dryininae on the contrary the lateral regions of the prothorax are not continuous with the mesopleura, so that the epicnemium is distinctly visible (fig. 31 in Olmi, 1992b). This character is visible both in females and in males. *Bocchoides* and *Chelothelius* have visible epicnemia, so that they are belonging to Dryininae and not to Bocchinae. In the past on the contrary the main difference between Bocchinae and Dryininae was based on the different number and shape of mandible teeth (Olmi, 1984).

After the attribution of *Bocchoides* and *Chelothelius* to Dryininae a comparation with *Mesodryinus* Kieffer and *Alphadryinus* Olmi was tried (Olmi, 1992b).

In the past *Mesodryinus* and *Alphadryinus* were considered different mostly on the basis of the presence or the absence of notaulices in the females (Olmi, 1984). The recent study however of a population of female specimens of *Mesodryinus solaris* Olmi, from the U.S.A., demonstrated that the notaulices can be visible or invisible in the same species. Some specimens of the above species in fact showed distinctly visible notaulices, whereas in other specimens

the notaulices were invisible. The synonymy of the two genera can be so proposed (*Mesodryinus* is senior synonym).

The comparison among *Bocchoides, Chelothelius* and *Mesodryinus* in the new taxonomic status showed that it was impossible to propose generic differences. The three genera so are considered synonyms and *Chelothelius* is the valid oldest name, as follows:

Chelothelius Reinhard 1863
(= *Mesodryinus* Kieffer 1906, syn. proposed by Olmi 1992b)
(= *Bocchoides* Benoit 1953, syn. proposed by Olmi 1992b)
(= *Alphadryinus* Olmi 1984, syn. proposed by Olmi 1992b)

After the above reflections the following genera can be considered belonging to Dryininae:

Dryinus Latreille 1804
Chelothelius Reinhard 1863
Thaumatodryinus R.C.L. Perkins 1905
Perodryinus R.C.L. Perkins 1907
Tridryinus Kieffer 1913
Megadryinus Richards 1953
Cretodryinus N. Ponomarenko 1975 (fossil)
Gonadryinus Olmi 1989
Pseudodryinus Olmi 1989

The above nine genera however are recognizable mostly on the basis of female specimens. A recent study of almost all the known males demonstrated that the males of *Dryinus, Tridryinus, Perodryinus* and *Chelothelius* don't show generic differences, whereas the males of *Thaumatodryinus* and *Pseudodryinus* are well distinct. The males of *Gonadryinus, Cretodryinus* and *Megadryinus* are unknown.

If the males of *Dryinus, Tridryinus, Perodryinus* and *Chelothelius* don't show generic differences the four genera can be considered synonyms and *Dryinus* Latreille 1804 is the oldest valid name.

On the basis of the above considerations the following new list of genera of Dryininae can be proposed:

*Dryinus*Latreille 1804
(= *Chelothelius* Reinhard 1863, n. syn.)
(= *Mesodryinus* Kieffer 1906, n. syn.)
(= *Perodryinus* Perkins 1907, n. syn.)
(= *Tridryinus* Kieffer 1913, n. syn.)
(= *Bocchoides* Benoit 1953, n. syn.)
(= *Alphadryinus* Olmi 1984, n. syn.)
Thaumatodryinus R.C.L. Perkins 1905
Megadryinus Richards 1953

Cretodryinus N. Ponomarenko 1975 (fossil)
Gonadryinus Olmi 1989
Pseudodryinus Olmi 1989

The above genera *Megadryinus* and *Gonadryinus* are still considered valid only because their males are still unknown. It's possible however that in the future the discovery of males will permit to consider synonyms also these genera.

KEY TO THE GENERA OF DRYININAE
(excluding the fossil genus *Cretodryinus* N. Ponomarenko)

Females

1 Antennae with tufts of long hairs on segments 5-10 (10th segment with two tufts) (fig. 19 in Olmi, 1984) ..... 1. *Thaumatodryinus* R.C.L. Perkins
— Antennae without tufts of long hairs (fig. 529 in Olmi, 1984) 2
2 Palp formula 6/3 3
— Palp formula different 4
3 Enlarged claw much longer than fore tibia (fig. 660 in Olmi, 1984) ..... 3. *Megadryinus* Richards
— Enlarged claw as long as or shorter than fore tibia (fig. 529 in Olmi, 1984) ..... 2. *Dryinus* Latreille
4 Enlarged claw without subapical tooth (fig. 47 D in Olmi, 1989); occipital carina absent ..... 5. *Gonadryinus* Olmi
— Enlarged claw with a subapical tooth (fig. 70 E in Olmi, 1989); occipital carina incomplete ..... 6. *Pseudodryinus* Olmi

The above key doesn't include the fossil genus *Cretodryinus* N. Ponomarenko, because the only known specimen is in too bad conditions for distinguishing generic differences.

Males

1 Mandibles with 3 teeth ..... 2. *Dryinus* Latreille
— Mandibles with 4 teeth 2
2 Minimum distance between the notaulices much longer than the breadth of the ocelli ..... 1. *Thaumatodryinus* R.C.L. Perkins
— Minimum distance between the notaulices much shorter than the breadth of the ocelli ..... 6. *Pseudodryinus* Olmi

The males of *Megadryinus* Richards, *Gonadryinus* Olmi and *Cretodryinus* N. Ponomarenko are unknown.

NEW NAMES FOR DRYININAE

After the proposal of the above new synonymies the following new names can be proposed:

Dryinus hansonianus Olmi n. name
(*nec Tridryinus hansoni* Olmi 1989: 281)
(= *Dryinus hansoni* Olmi 1992b: 43; preoccupied)

Dryinus harpax Olmi n. name
(*nec Tridryinus hansoni* Olmi 1989: 281)
(= *Alphadryinus hansoni* Olmi 1989: 287; preoccupied)
(*nec Dryinus hansoni* Olmi 1992b: 43)

Dryinus arimensis Olmi n. name
(*nec Dryinus caraibicus* Olmi 1984: 849)
(= *Mesodryinus caraibicus* Olmi 1984: 1029; preoccupied)

Dryinus kovariki Olmi n. name
(*nec Dryinus mexicanus* Perkins 1907: 39)
(= *Mesodryinus mexicanus* Olmi 1989: 293; preoccupied)

Dryinus parkerianus Olmi n. name
(*nec Tridryinus parkeri* Olmi 1992b: 45)
(= *Chelothelius parkeri Olmi* 1992b: 47; preoccupied)

Dryinus ater Olmi n. name
(*nec Paradryinus aterrimus* Dodd 1916: 21)
(= *Mesodryinus aterrimus* Olmi 1984: 1031; preoccupied)

Dryinus australiae Olmi n. name
(*nec Dryinus australianus* Olmi 1984: 900)
(= *Mesodryinus australianus* Olmi 1986: 77; preoccupied)

Dryinus gibbosoides Olmi n. name
(*nec Tridryinus gibbosus* Olmi 1984: 969)
(= *Alphadryinus gibbosus* Olmi 1984: 985; preoccupied)

Dryinus pseudoafer Olmi n. name
(*nec Paradryinus afer* Olmi 1975: 221)
(*nec Dryinus afer* (Olmi 1984: 787))
(= *Tridryinus afer* Olmi 1989: 280; preoccupied)

Dryinus dayianus Olmi n. name
(*nec Dryinus dayi* Olmi 1984: 1003)
(= *Dryinus dayi* Olmi 1987c: 46; preoccupied)

NEW SPECIES OF DRYININAE

Ethiopian region

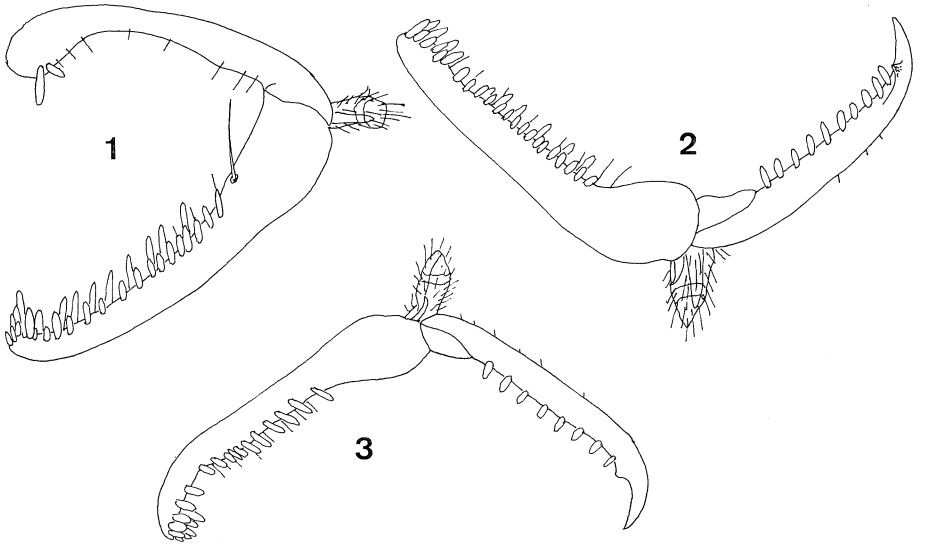
Dryinus madagascolus n. sp.

DESCRIPTION OF THE FEMALE: fully winged; length 4,18 mm; head black, with mandibles, part of clypeus and part of genae testaceous; antennae testaceous, with segments 6-10 darkened; thorax and propodeum black, with sides of pronotum and pronotal tubercles testaceous; abdomen brown; legs brown, with tarsi testaceous; antennae distally thickened, with rhinaria on segments 5-10 (one per segment, except for segment 10, which has two rhinaria); antennal segments in following proportions: 10:6:25:13:12:8:7:6:5:8; head dull, smooth, granulated; frontal line complete; occipital carina incomplete, only visible behind and on the sides of the ocelli, laterally reaching the eyes; temples absent; POL = 5; OL = 3; OOL = 6; OPL = 1; pronotum dull, crossed by a weak anterior transversal impression, granulated; disc little humped; pronotal tubercles not reaching tegulae; scutum dull, granulated; notaulices incomplete, reaching approximately 0,4 length of scutum; scutellum dull, granulated; metanotum dull, reticulate rugose; propodeum dull, reticulate rugose, with two complete longitudinal keels on the posterior surface; median area granulated, not rugose; lateral areas rugose; fore wing with two dark transversal bands on the basal cells and beneath the pterostigma; distal part of radial vein longer than proximal part (10:8); fore tarsal segments in following proportions: 17:3:7:17:30; enlarged claw (fig. 1) without teeth, with a row of 6 bristles; segment 5 of front tarsus (fig. 1) with two rows of 8 (longer) + 15 (shorter) lamellae; apex with a group of approximately 16 lamellae; tibial spurs 1, 1, 2.
MALE: unknown
LOCUS TYPICUS: Berenty (12 Km NW Amboasary, Tulear, Madagascar)
TYPICAL MATERIAL: holotype ♀ in BM
DISTRIBUTION: only known of the typical locality.
NOTES: the holotype was collected by J.S. Noyes and M.C. Day on May 5-15, 1983 (B.M. 1983-201).

According to the above new generic synonymies the following new key to the females of the Ethiopian species of *Dryinus* can be proposed:

Females

1 Enlarged claw without subapical tooth or with at least 2 subapical teeth; rarely with one only subapical tooth, but in this case with a very broad apical lamella .... 3. *Dryinus aberrans* Benoit group



Figs. 1-3 - Chelae of holotypes of *Dryinus madagascolus* n. sp. (fig. 1); *D. lini* n. sp. (fig. 2); *choui* n. sp. (fig. 3).

(formerly *Alphadryinus, Mesodryinus, Chelothelius, Bocchoides*)

— Enlarged claw with one subapical tooth, never with a broad apical lamella 2

2 Notaulices at least partly visible .....
..... 1. *Dryinus bisulcatus* (Benoit) group (formerly *Dryinus, Richardsidryinus*)

— Notaulices invisible .....
..... 2. *Dryinus ugandanus* (Olmi) group (formerly *Tridryinus*)

The new species *Dryinus madagascolus* is belonging to the group 3, where it's near *Dryinus aberrans* Benoit, as follows:

1 Notaulices incomplete 2

— Notaulices absent 4

2 Scutum reticulate rugose ..... 2. *botswanensis* (Olmi)

— Scutum granulated, not reticulate rugose 3

3 Enlarged claw with a row of lamellae and with distal apex pointed and without lamellae ..... 1. *aberrans* Benoit

— Enlarged claw with a row of bristles and with distal apex rounded and with lamellae ..... 8. *madagascolus* n. sp.

4 Enlarged claw with lamellae 5

— Enlarged claw with bristles, without lamellae 6

5 Enlarged claw only with apical lamellae ..... 3. *aethiopicus* (Olmi)

— Enlarged claw with proximal and medial lamellae ..... 6. *ivoriensis* (Olmi)

6 Hind wing with apical extremity darkened; scutellum reticulate rugose; posterior surface of propodeum fully reticulate rugose ..... 4. *noyesi* (Olmi)

— Hind wing fully hyaline; scutellum granulated or without sculpture; posterior surface of propodeum with a central area sculptured by irregular and longitudinal keels or reticulate rugose 7
7 Occipital carina laterally reaching the eyes ..... 7. *bekilyensis* (Benoit)
— Occipital carina laterally not reaching the eyes ..... 5. *eardleyi* (Olmi)

Oriental region

Dryinus lini n. sp.

DESCRIPTION OF THE FEMALE: fully winged; length 5,62-6,25 mm; head black, with mandibles, clypeus and part of the genae ferruginous; antennae testaceous; thorax and propodeum black, with posterior collar and sides of pronotum partly reddish; abdomen brown-testaceous; legs testaceous, with hind coxae partly black; antennae distally thickened; antennal segments in following proportions: 13:7,5:30:17:13:11:9:8:7,5:10; head dull, flat, fully reticulate rugose; frontal line complete; occipital carina complete; POL = 5; OL = 2; OOL = 8; OPL = 2; TL = 5; pronotum shiny, crossed by two transversal impressions; the anterior impression is weak, whereas the posterior is strong; posterior collar short; disc humped; pronotum sculptured by striae around the disc; pronotal tubercles not reaching the tegulae; scutum dull, fully reticulate rugose; notaulices incomplete, reaching approximately 0,7 length of scutum; scutellum and metanotum reticulate rugose; mesopleura and metapleura dull, rugose; propodeum reticulate rugose, without transversal keels, with two incomplete longitudinal keels on the posterior surface; dorsal surface of propodeum longer than posterior surface (22:20; 30:20); proximal half of hind coxae reticulate rugose; fore wing with two dark transversal bands; distal part of radial vein longer than proximal part (16:8); fore tarsal segments in following proportions: 23:2,5:5:14:22; enlarged claw (fig. 2) with a subapical tooth and a row of 10 lamellae; segment 5 of front tarsus (fig. 2) with 3 rows of 7 (longer) + 33 lamellae, without interruption to the apex; apex with a group of 7 lamellae; tibial spurs 1, 1, 2.
MALE: unknown
LOCUS TYPICUS: Meifeng (m 2150, Nantou Hsien, Central Taiwan, Taiwan)
TYPICAL MATERIAL: holotype ♀ in TM; 1 paratype ♀ in OL.
DISTRIBUTION: only known of the typical locality.
NOTES: the species is named in honor of one of the collectors of the typical series, K.S. Lin; the holotype was collected by K.S. Lin and W.S. Tang on June 24-26, 1981; the paratype was collected by a Malaise trap by K.S. Lin and K.C. Chou in May, 1984.

Dryinus choui n. sp.

DESCRIPTION OF THE FEMALE: fully winged; length 3,87-4,37 mm; head black, with mandibles, clypeus and genae testaceous; antennae brown-testaceous, with distal half of segment 10 light; propleura black; pronotum testaceous, with sides broadly blackish; mesothorax, metathorax and propodeum black; abdomen brown; legs brown-testaceous, with hind coxae partly black; antennae distally thickened; antennal segments in following proportions: 8:5:22:13:11:8:7:7:5:10; head excavated, dull, granulated; frontal line complete; occipital carina complete; POL = 2; OL = 2; OOL = 7; TL = 2; posterior ocelli touching the occipital carina; breadth of the ocelli longer than TL (2,5:2); pronotum crossed by two transversal impressions; the anterior impression is weak, whereas the posterior is strong; disc humped; pronotum dull, sculptured by numerous longitudinal striae on the sides and around the disc; disc rugose; pronotal tubercles not reaching the tegulae; scutum dull, granulated and reticulate rugose; only the anterior region of the median area is not reticulate rugose; notaulices incomplete, reaching approximately 0,8 length of scutum; scutellum dull, granulated; metanotum dull, rugose; propodeum dull, reticulate rugose; posterior surface of propodeum with two complete longitudinal keels; dorsal surface of propodeum approximately as long as posterior surface; fore wing with two dark transversal bands; distal part of radial vein longer than proximal part (20:6); fore tarsal segments in following proportions: 17:3:5:15:24; enlarged claw (fig. 3) with a subapical tooth and a row of 8 lamellae; segment 5 of front tarsus (fig. 3) with two rows of 18 lamellae; apex with a group of approximately 14 lamellae; tibial spurs 1, 1, 2.

MALE: unknown

LOCUS TYPICUS: Tapinshan (m 1950, Ilan Hsien, North Taiwan, Taiwan)

TYPICAL MATERIAL: holotype ♀ in TM; 1 paratype ♀ in OL.

DISTRIBUTION: Oriental region: Taiwan: Tapinshan (m 1940, Ilan Hsien, North Taiwan), TM! Sungkang (m 2100, Nantou Hsien, Central Taiwan), OL!

NOTES: the species is named in honor of the collector of the holotype, Mr. L.Y. Chou; the holotype was collected on July 26-28, 1983; the paratype was collected by a Malaise trap by K.S. Lin in November, 1985.

According to the above new generic synonymies the following new key to the females of the Oriental *Dryinus* can be proposed:

1 Enlarged claw without subapical tooth or with at least 2 subapical teeth (Fig. 691 in Olmi, 1984); rarely with one subapical tooth, but in this case with a very broad apical lamella .... 2. *Dryinus asiaticus* (Olmi) group (formerly *Alphadryinus, Mesodryinus, Chelothelius, Bocchoides*)

— Enlarged claw with one subapical tooth, never with a broad apical lamella (fig. 535 in Olmi, 1984) ..... 1. *Dryinus irregularis* Olmi group (formerly *Dryinus, Richardsidryinus*)

The new species *Dryinus choui* is belonging to the group 1, where it's near *Dryinus krombeini* Ponomarenko. In the key to the females of the Oriental *Dryinus* proposed by Olmi (1987a) *D. choui* can be inserted at number 10, as follows:

10 Breadth of the ocelli longer than TL ..... 10′
— Breadth of the ocelli shorter than TL 11
10′ Head with longitudinal keels on the frons; pronotum fully or almost fully black, at most with posterior collar reddish ..... 6. *krombeini* N. Ponomarenko
— Head without longitudinal keels on the frons; pronotum broadly testaceous, with brown areas ..... 30. *choui* n. sp.

The new species *Dryinus lini* is belonging to the group 1, where it's near *Dryinus scaber* Olmi. In the key to the females of the Oriental *Dryinus* proposed by Olmi (1989) *D. lini* can be inserted at number 23, as follows:

22 Temples absent ..... 24. *bruneianus* Olmi
— Temples present ..... 22′
22′ Head fully reticulate rugose ..... 29. *lini* n. sp.
— Head differently sculptured 23
23 Head with POL more than twice as long as OL; occipital carina behind the ocelli forming a strong corner ..... 18. *scaber* Olmi
— Head with POL as long as or slightly longer than OL; occipital carina behind the ocelli regularly curved 24

Pseudodryinus sinensis n. sp.

DESCRIPTION OF THE FEMALE: fully winged; length 4,12-4,18 mm; head testaceous, with ocellar region darkened; antennae brown, with segments 1-2 testaceous and distal extremities of segments 5-10 light; thorax and propodeum testaceous, with posterior surface of propodeum and a median longitudinal streak on the dorsal surface of the propodeum brown; abdomen brown; legs testaceous; antennae very slender, not distally thickened, with rhinaria on segments 5-10 (segment 10 with 2 rhinaria); antennal segments in following proportions: 9:5:56:44:25:15:10:6:8:8,5; head flat, without sculpture, shiny; occiput excavated; frontal line complete; occipital carina complete; POL = 4; OL = 2; OOL = 7; OPL = 1; TL = 5; pronotum shiny, without sculpture, crossed by a strong transversal furrow, excavated; posterior tubercles reaching the tegulae; scutum, scutellum and metanotum shiny, smooth, without sculpture; notaulices complete, posteriorly separated; minimum distance between the notaulices shorter than the breadth of the ocelli (1,5:4); propodeum with a strong transversal keel between dorsal and posterior surface; dorsal

surface with two median longitudinal and subparallel keels; region between the two median keels rugose, dull, anteriorly sculptured by transversal keels; lateral regions shiny, smooth, without sculpture; posterior surface of propodeum with two complete longitudinal keels; median area sculptured by transversal keels; lateral areas with broad areolae; fore wing hyaline, without dark transversal bands; distal part of radial vein much longer than proximal part (41:16); fore tarsal segments in following proportions: 14:3:8:29:40; segments of fore legs in following proportions: 53 (coxa): 53 (trochanter): 50 (femur): 51 (tibia); enlarged claw (fig. 4) with a subapical tooth and a row of 11 lamellae; segment 5 of front tarsus (fig. 4) with two rows of 10 lamellae; apex with a group of approximately 14 lamellae; maxillary palpi with 5 segments; labial palpi with 3 segments; tibial spurs 1, 1, 2.

DESCRIPTION OF THE MALE: fully winged; length 1,87-2,81 mm; head brown, with mandibles and part of clypeus testaceous; antennae testaceous; thorax and propodeum brown; abdomen brown-testaceous; legs yellow, with tarsi darkened; antennae not distally thickened; antennal segments in following proportions: 4,5:5:10:9:8:8:7,5:7:7:10; head dull, irregularly rugose; frontal line complete; occipital carina complete; POL = 3,5; OL = 1,5; OOL = 5,5; OPL = 0,5; TL = 4; mandibles with 4 teeth progressing larger from anterior one to posterior; scutum dull, granulated and strongly punctate; notaulices complete, posteriorly separated; minimum distance between the notaulices shorter than the breadth of the ocelli (1:4); scutellum shiny, strongly punctate, without sculpture among the punctures; metanotum shiny, smooth, without sculpture; propodeum dull, with dorsal surface rugose; dorsal surface with two median longitudinal keels; area between these two keels sculptured by transversal keels; posterior surface granulated and rugose; fore wing hyaline, without dark transversal bands; radial cell open; distal part of radial vein longer than proximal part (23:10); genitalia in fig. 5; maxillary palpi with 6 segments; labial palpi with 3 segments; tibial spurs 1, 1, 2.

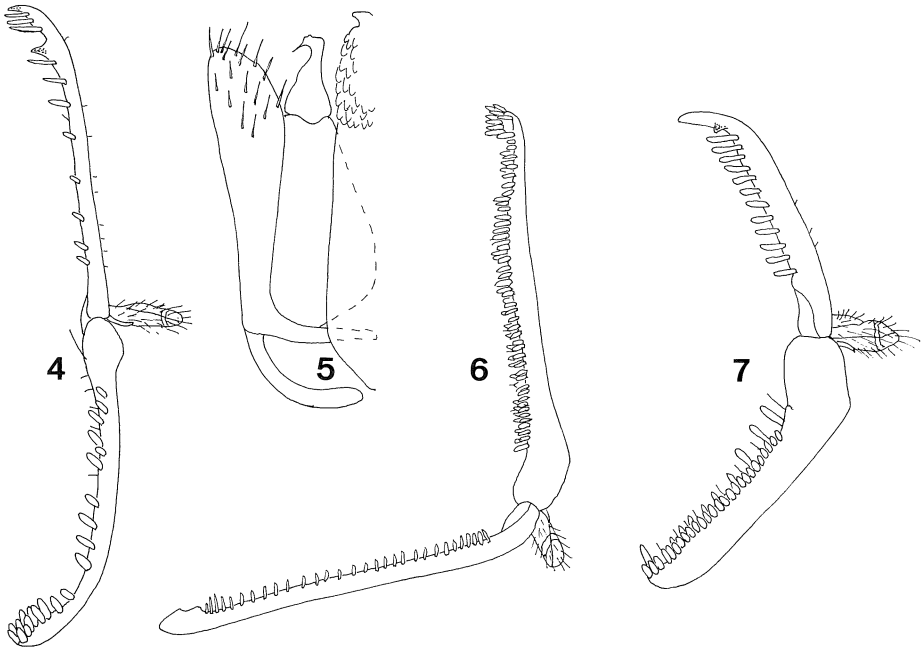
LOCUS TYPICUS: Tungpu (m 1200, Nantou Hsien, Central Taiwan, Taiwan)

TYPICAL MATERIAL: holotype ♀ and 3 paratypes ♂♂ in TM; 1 paratype ♀ and 2 paratypes ♂♂ in OL.

DISTRIBUTION: only known of the typical locality.

NOTES: the holotype, the paratype F and 3 paratypes MM were collected by K.C. Chou and C.Y. Wong on June 20-24, 1983; two paratypes MM were collected by a Malaise trap by K.S. Lin and K.C. Chou in July and August, 1984. *Pseudodryinus sinensis* is very similar to *Ps. townesi* (Olmi) from Africa. *Ps. sinensis* however has notaulices less separated and a different sculpture of the dorsal surface of the propodeum.

Ps. sinensis is the second species of *Pseudodryinus* of the Oriental region. The following key to the Oriental species can be proposed:



Figs. 4-7 - Chelae of holotypes of *Pseudodryinus sinensis* n. sp. (fig. 4); *Megadryinus pulawskii* n. sp. (fig. 6); *Dryinus cruciatus* n. sp. (fig. 7); genitalia of male paratype of *Pseudodryinus sinensis* n. sp. (fig. 5) (right half removed).

Females

1 Scutellum, metanotum and propodeum testaceous, with posterior surface and part of dorsal surface of propodeum brown; head testaceous, with ocellar region darkened ..... 2. *sinensis* n. sp.

— Scutellum, metanotum and propodeum black; head black, with mandibles, clypeus, genae, ventral side and anterior region of frons testaceous ..... 1. *beckeri* Olmi

Males

Only the male of *Ps. sinensis* is known.

Neotropic region

Megadryinus pulawskii n. sp.

DESCRIPTION OF THE FEMALE: fully winged; length 8,42 mm (9,18 mm, including the sting); head black, with mandibles, clypeus, malar space and a short frontal area near clypeus testaceous-ferruginous; antennae brown, with segments 1-2 testaceous; thorax, propodeum and abdomen black, except for sides of pronotum and sting testaceous; legs black, with articulations and part of the chela light; antennae distally thickened, with rhinaria on the segments 5-10 (10th segment with 2 rhinaria); antennal segments in following proportions: 26:8:77:24:21:14:11:10:8:12; head flat, shiny, reticulate rugose; frontal line complete; occipital carina complete; POL = 8; OL = 3; OOL = 11; OPL = 1; temples absent; occipital carina not touching laterally the eyes; pronotum shiny, hairy, crossed by a two transversal impressions; the anterior impression is weak, whereas the posterior is strong; anterior collar long, sculptured by numerous transversal striae; disc without sculpture, smooth, raised into a longitudinal carina; posterior collar very short, almost absent; pronotal tubercles not reaching the tegulae; scutum shiny, fully reticulate rugose; notaulices absent; scutellum and metanotum reticulate rugose; propodeum with a transversal keel between dorsal and posterior surface; dorsal surface short, almost fully sculptured by parallel longitudinal keels; posterior surface with two longitudinal keels; median area rugose; areolae smaller in median area than in lateral areas; fore wing with a dark transversal band beneath the pterostigma and with a small dark spot on the basal cells; distal part of radial vein longer than proximal part (25:17); fore tarsal segments in following proportions: 25:6:16:33:85; fore tarsal segments without hooks; enlarged claw (fig. 6) less than twice as long as fore tibia, with two subapical teeth and a row of approximately 28 lamellae; segment 5 of front tarsus (fig. 6) with two rows of approximately 51 lamellae; apex with a group of approximately 22 lamellae around the apex; maxillary palpi with 6 segments; labial palpi with 3 segments; tibial spurs 1, 1, 2.

MALE: unknown

LOCUS TYPICUS: Infierno (25 Km SSW Puerto Maldonado, Madre de Dios, Peru)

TYPICAL MATERIAL: holotype ♀ in CA

DISTRIBUTION: only known of the typical locality.

NOTES: the species is named in honor of the collector of the holotype, Mr. Wojciech J. Pulawski; the holotype was collected on May 5, 1984.

M. pulawskii is the second known species of Megadryinus. The following key can be proposed:

Females

1 Enlarged claw without subapical teeth (fig. 661 in Olmi, 1984), more than three times as long as fore tibia ..... 1. *magnificus* Richards
— Enlarged claw with two subapical teeth (fig. 6), much longer than fore tibia, but less than twice as long as fore tibia ..... 2. *pulawskii* n. sp.

The males of *Megadryinus* are unknown.

Dryinus cruciatus n. sp.

DESCRIPTION OF THE FEMALE: fully winged; length 3,5 mm; fully testaceous, with petiole black; antennae distally thickened; antennal segments in following proportions: 10:4:18:8:7:7:6:6:5:7,5; head dull, weakly humped, granulated; occipital carina complete; frontal line complete, but little visible; POL = 5,5; OL = 3,5; OOL = 6; OPL = 1,5; TL = 4; pronotum dull, granulated, crossed by two transversal impressions; the anterior impression is weak, whereas the posterior is strong; disc weakly humped; posterior collar short; pronotal tubercles not reaching the tegulae; scutum dull, granulated; notaulices almost invisible, reaching approximately 0,7 length of scutum; scutellum dull, granulated; metanotum rugose; propodeum dull, reticulate rugose, without transversal or longitudinal keels; fore wing with a dark transversal band beneath the pterostigma; radial cell open; distal part of radial vein longer than proximal part (16:6); fore tarsal segments in following proportions: 17:2:5:12:17; enlarged claw (fig. 7) with a subapical tooth and a row of 12 lamellae; segment 5 of front tarsus (fig. 7) with two rows of 11 (longer) + 22 lamellae; apex with a group of 6 lamellae; maxillary palpi with 6 segments; labial palpi with 3 segments; tibial spurs 1, 1, 2.

MALE: unknown

LOCUS TYPICUS: East Point (St. Croix I., U.S. Virgin Islands)

TYPICAL MATERIAL: holotype ♀ in OL

DISTRIBUTION: only known of the typical locality.

NOTES: the holotype was collected by the Author on February 20, 1989.

D. cruciatus is very like *D. citricolus* Olmi 1984. The only difference is in the chela; the enlarged claw in fact shows lamellae in *D. cruciatus* and bristles in *D. citricolus*.

According to the above new generic synonymies the following new key to the females of the Neotropic species of *Dryinus* can be proposed:

Females

1 Enlarged claw very reduced; approximately as long or slightly longer than arolium (fig. 709 in Olmi, 1984) ..... 4. *Dryinus autumnalis* (Olmi) group (formerly *Perodryinus*)
— Enlarged claw not reduced, much longer than arolium (fig. 567 in Olmi, 1984) ... 2
2 Enlarged claw without subapical tooth (fig. 669 in Olmi, 1984) or with at least 2 subapical teeth (fig. 702 in Olmi, 1984); rarely with one only subapical tooth, but in this case with a very broad apical lamella (fig. 41 E in Olmi, 1989) ..... 3. *Dryinus lamellatus* (Olmi) group (formerly *Alphadryinus, Mesodryinus, Chelothelius, Bocchoides*)
— Enlarged claw with one subapical tooth, never with a broad apical lamella (fig. 567 in Olmi, 1984) 3
3 Notaulices at least partly visible ..... 1. *Dryinus constans* Olmi group (formerly *Dryinus, Richardsidryinus*)
— Notaulices invisible .. 2. *Dryinus ruficauda* (Richards) group (formerly *Tridryinus*)

The new species *Dryinus cruciatus* is belonging to the group 1, where it's near *Dryinus citricolus* Olmi and *Dryinus flavoniger* Olmi. In the key to the females of the Neotropic *Dryinus* proposed by Olmi (1989) *D. cruciatus* can be inserted at number 3, as follows:

1 Occipital carina invisible ..... 1.*constans* Olmi
— Occipital carina complete or incomplete 2
2 Thorax and propodeum fully or almost fully testaceous 3
— Thorax and propodeum mostly or fully black 4
3 Enlarged claw without lamellae (fig. 563 in Olmi, 1984) ..... 2. *citricolus* Olmi
— Enlarged claw with a row of lamellae (fig. 7) ..... 3′
3′ Occipital carina incomplete; head with POL almost 0,5 as long as OL ..... 3. *flavoniger* Olmi
— Occipital carina complete; head with POL longer than OL ..... 24. *cruciatus* n. sp.

Thaumatodryinus snellingi n. sp.

DESCRIPTION OF THE FEMALE: fully winged; length 3,75 mm; testaceous, with scutellum brown and petiole black; antennae short, approximately as long as head + mesosoma, with tufts of long hairs on segments 5-10; antennal segments in following proportions: 12:5,5:13:12:13:14:11:9,5:8:9,5; antennal segment 5 less than ten times as long as broad (13:2); head swollen, granulated, dull; frontal line absent; occipital carina complete; POL = 5; OL = 2,5; OOL = 8,5; OPL = 2; TL = 3; breadth of the anterior ocellus slightly longer than OL (3:2,5); pronotum hairy, crossed by a strong transversal impression, dull, granulated, with tracks of numerous transversal striae; pronotal tubercles reaching the tegulae; scutum dull, granulated; notaulices little visible,

incomplete, reaching approximately 0,8-0,9 length of scutum; scutellum dull, granulated; metanotum shiny, smooth, without sculpture; propodeum dull, reticulate rugose, without transversal or longitudinal keels; fore wing with a dark spot beneath the pterostigma; distal part of radial vein longer than proximal part (32:12); radial cell almost closed; fore tarsal segments in following proportions: 17:4:6:14:22; enlarged claw (fig. 8) with two subapical teeth and a row of 25 lamellae; segment 5 of front tarsus (fig. 8) with 24 lamellae without interruption to the apex; apex with a group of 9 lamellae; tibial spurs 1, 1, 2.

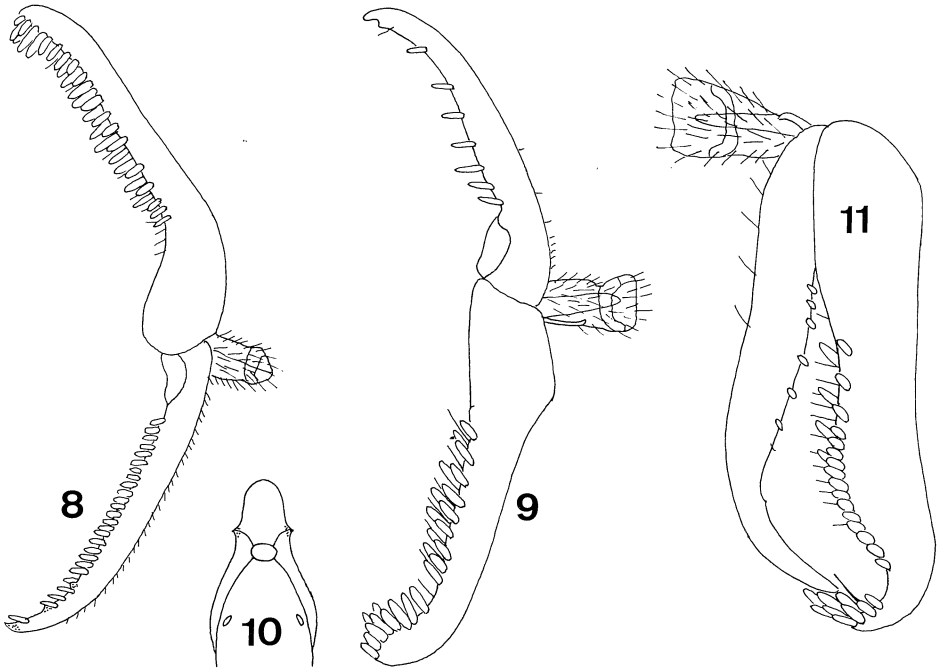
MALE: unknown

LOCUS TYPICUS: Long Man's Pt. trail (Guana I., British Virgin Islands)

TYPICAL MATERIAL: holotype ♀ in LA

DISTRIBUTION: only known of the typical locality.

NOTES: the species is named in honor of the collector of the holotype, Mr. Roy



Figs. 8-11 - Chelae of holotypes of *Thaumatodryinus snellingi* n. sp. (fig. 8); *Dryinus wasbaueri* n. sp. (fig. 9); *Gonatopus sensitivus* n. sp. (fig. 11); scutum and part of metathorax + propodeum of holotype of *Gonatopus sensitivus* n. sp. (fig. 10) (in dorsal view).

R. Snelling; the holotype was collected by a Malaise trap in a dry evergreen forest on October 21-24, 1992. For the very short antenna *Th. snellingi* is an anomalous species of *Thaumatodryinus*. Usually in fact in this genus the female antennae are much longer.

In the key to the females of Neotropic *Thaumatodryinus* proposed by Olmi (1984) *Th. snellingi* can be inserted at number 4, as follows:

4 Antennae very short and less slender, approximately as long as head + mesosoma ..... 7. *snellingi* n. sp.
— Antennae very long and slender, at least 1,5 times as long as head + mesosoma . 5
5 Segment 1 of front tarsus approximately as long as segment 4; head black or brown-black ..... 3. *macilentus* De Santis & Vidal Sarm.
— Segment 1 of front tarsus longer than segment 4; head fully reddish or reddish-testaceous or testaceous 6
6 Ocellar triangle very swollen; breadth of the anterior ocellus more than twice as long as OL ..... 5. *bruchi* De Santis & Vidal Sarm.
— Ocellar triangle slightly swollen; breadth of the anterior ocellus as long as, or shorter, or less than twice as long as OL ..... 4. *rufus* Richards

Australian region

Dryinus wasbaueri n. sp.

DESCRIPTION OF THE FEMALE: fully winged; length 4 mm; head black, with mandibles and clypeus testaceous; antennae testaceous, with segments 3-4 brown; thorax and propodeum black, with posterior transversal impression of pronotum weakly testaceous; abdomen brown; legs brown, with trochanters, tarsi and fore and mid coxae testaceous; antennae distally thickened; antennal segments in following proportions: 9:5:31,5:14:13:9,5:8:6,5:6:8; head dull, flat, reticulate rugose, with a few irregular longitudinal keels on the frons; frontal line complete; occipital carina complete; POL = 3,5; OL = 2,5; OOL = 5,5; OPL = 2; TL = 2,5; occiput weakly excavated; pronotum weakly humped, shiny, crossed by two transversal impressions; the anterior impression is weak, whereas the posterior is strong; posterior collar short; disc very hairy; pronotum smooth, without sculpture, except for numerous longitudinal striae on the sides; pronotal tubercles not reaching the tegulae, scutum dull, hairy, granulated; lateral areas of the scutum fully sculptured by numerous longitudinal keels; median area granulated and weakly rugose, sculptured by short longitudinal keels only near the posterior margin; notaulices incomplete, reaching approximately 0,5 length of the scutum; scutellum and metanotum dull, hairy, rugose; propodeum dull, reticulate rugose, without transversal or

longitudinal keels; dorsal surface of propodeum approximately as long as posterior surface; fore wing with three dark transversal bands; distal part of radial vein longer than proximal part (13:8); fore tarsal segments in following proportions: 19:3:5:10,5:18; fore tarsal segment 3 produced into a hook; enlarged claw (fig. 9) with a subapical tooth and a row of 7 lamellae + 1 bristle; segment 5 of front tarsus (fig. 9) with two rows of approximately 16 lamellae; apex with a group of approximately 22 lamellae; tibial spurs 1, 1, 2.

MALE: unknown

LOCUS TYPICUS: 5°10′S 145°45′E (Nobonob Hill, 7 Km NW Madang, Madang Prov., Papua, New Guinea)

TYPICAL MATERIAL: holotype ♀ in CA

DISTRIBUTION: only known of the typical locality.

NOTES: the species is named in honor of the collector of the holotype, Mr. Marius S. Wasbauer; the holotype was collected on November 16, 1987.

According to the above new generic synonymies the following new key to the females of the Australian species of *Dryinus* can be proposed:

Females

1 Enlarged claw without subapical tooth (fig. 43 C in Olmi, 1989) or with at least 2 subapical teeth (fig. 11 in Olmi, 1986); rarely with one subapical tooth, but in this case with a very broad apical lamella ..... 2. *Dryinus planus* (Olmi) group (formerly *Alphadryinus, Mesodryinus, Chelothelius, Bocchoides*)

— Enlarged claw with one subapical tooth, never with a broad apical lamella (fig. 587 in Olmi 1984) ..... 1. *Dryinus pallidus* (Perkins) group (formerly *Dryinus, Richardsidryinus*)

The new species *Dryinus wasbaueri* is belonging to the group 1, where it's near *Dryinus glaber* Olmi and *Dryinus australianus* Olmi. In the key to the females of the Australian *Dryinus* proposed by Olmi (1989) *D. wasbaueri* can be inserted at number 27, as follows:

27 Head dull, reticulate rugose, with a few longitudinal irregular keels ..... 34. *wasbaueri* n. sp.

— Head shiny, without sculpture or punctate and without sculpture among the punctures ..... 27′

27′ Head with OPL as long as POL; posterior collar of pronotum yellow ..... 20. *glaber* Olmi

— Head with OPL shorter than POL (posterior ocelli very near the occipital carina); posterior collar of pronotum black ..... 21. *australianus* Olmi

Subfamily *Gonatopodinae*

The main problem of the taxonomy of the Gonatopodinae was the difficulty to find in the males generic differences. For this reason in the past (Olmi, 1984) only four genera were distinct in the male taxonomy: *Neodryinus* Perkins, *Echthrodelphax* Perkins, *Haplogonatopus* Perkins, *Esagonatopus* Olmi. For the other genera only keys to the species were proposable.

A final comment on this situation was put off awaiting a better knowledge of the males. In the past in fact too few males were known to permit taxonomic generic conclusions.

Today a larger number of males is known and it's possible to draw some conclusions.

Mainly it's possible to confirm that the only male generic differences are visible in the above four genera. In the following genera I didn't observe male superspecific differences:
Acrodontochelys Currado 1976
Pseudogonatopus R.C.L. Perkins 1905
Donisthorpina Richards 1939
Agonatopoides R.C.L. Perkins 1907
Apterodryinus R.C.L. Perkins 1907
Dicondylus Haliday 1829-30
Tetrodontochelys Richards 1939
Gonatopus Ljungh 1810
Plectrogonatopoides N. Ponomarenko 1975

The males of the following genera are still unknown:
Adryinus Olmi 1984
Pentagonatopus Olmi 1984
Trichogonatopus Kieffer 1909
Epigonatopus R.C.L. Perkins 1905
Gynochelys Brues 1906
Paradicondylus Olmi 1986
Paraneodryinus Olmi 1989
Eucamptonyx R.C.L. Perkins 1907
Pareucamptonyx Olmi 1989

The genus *Pseudodryinus* Olmi 1989, in the past (Olmi, 1989) considered a Gonatopodine, was transferred after to Dryininae (see preceding pages).

According to the above situation it's not possible to admit further a separate taxonomy so that only the female genera are easily recognizable. I think so that it's better to consider one only genus, at least for the genera where the males are known. I'm proposing so the following synonymies:
Gonatopus Ljungh 1810

(= *Dicondylus* Haliday 1829-30)
(= *Pseudogonatopus* R.C.L. Perkins 1905)
(= *Agonatopoides* R.C.L. Perkins 1907)
(= *Apterodryinus* R.C.L. Perkins 1907)
(= *Donisthorpina* Richards 1939)
(= *Tetrodontochelys* Richards 1939)
(= *Plectrogonatopoides* N. Ponomarenko 1975)
(= *Acrodontochelys* Currado 1976)

The other above genera are considered temporarily valid, awaiting the male knowledge.

KEY TO THE GENERA OF GONATOPODINAE

Females

1 Species micropterous ..... 14. *Gynochelys* Brues
— Species apterous or fully winged 2
2 Species fully winged 3
— Species apterous 6
3 Tibial spurs 1, 0, 2 4
— Tibial spurs 1, 0, 1 5
4 Notaulices invisible ..... 1. *Neodryinus* R.C.L. Perkins
— Notaulices visible, complete or incomplete ..... 2. *Paraneodryinus* Olmi
5 Notaulices invisible ..... 3. *Adryinus* Olmi
— Notaulices visible and complete ..... 4. *Echthrodelphax* R.C.L. Perkins
6 Enlarged claw with a big subapical tooth (fig. 786 in Olmi, 1984); rarely without teeth, but in this case with a group of lamellae at the apex (fig. 31 in Olmi, 1986) 7
— Enlarged claw without a big subapical tooth, with (fig. 62 A in Olmi, 1989) or without (fig. 73 D in Olmi, 1989) a small tooth at the end of a longitudinal furrow (this furrow is visible only by scanning microscope); in this last case apex of the enlarged claw without groups of lamellae (fig. 73 D in Olmi, 1989) 11
7 Enlarged claw without subapical tooth, with a group of apical lamellae (fig. 31 in Olmi, 1986) ..... 5. *Paradicondylus* Olmi
— Enlarged claw with a big subapical tooth (fig. 56 B in Olmi, 1989) 8
8 Palp formula 2/1 ..... 6. *Haplogonatopus* R.C.L. Perkins
— Palp formula different 9
9 Pronotum crossed by a strong transverse impression ..... 7. *Gonatopus* Ljungh
— Pronotum not crossed by a strong transverse impression or weakly impressed ... 10
10 Palp formula 5/2 ..... 8. *Pentagonatopus* Olmi
— Palp formula different ..... 7. *Gonatopus* Ljungh
11 Enlarged claw with distal apex rounded (fig. 73 D in Olmi, 1989) 12
— Enlarged claw with distal apex pointed (fig. 1177 in Olmi, 1984) 13
12 Enlarged claw with lamellae (fig. 73 D in Olmi, 1989) .....
..... 9. *Eucamptonyx* R.C.L. Perkins

— Enlarged claw with bristles, without lamellae (fig. 76 in Olmi, 1989) ..... 10. *Pareucamptonyx* Olmi
13 Pronotum crossed by a strong transverse impression 14
— Pronotum not crossed by a strong transverse impression or weakly impressed ... 16
14 Palp formula 2/2 ..... 11. *Epigonatopus* R.C.L. Perkins
— Palp formula different 15
15 Palp formula 6/2 ..... 12. *Esagonatopus* Olmi
— Palp formula different ..... 7. *Gonatopus* Ljungh
16 Labial palpi with 3 segments ..... 13. *Trichogonatopus* Kieffer
— Labial palpi with 2 segments ..... 7. *Gonatopus* Ljungh

Males

1 Head with a distinct complete occipital carina ..... 4. *Echthrodelphax* R.C.L. Perkins
— Head without or with incomplete occipital carina 2
2 Temples absent ..... 1. *Neodryinus* R.C.L. Perkins
— Temples distinct 3
3 Palp formula 2/1 ..... 6. *Haplogonatopus* R.C.L. Perkins
— Palp formula different 4
4 Palp formula 6/2 ..... 12. *Esagonatopus* Olmi
— Palp formula different ..... 7. *Gonatopus* Ljungh

The males of the genera not included into the above key are unknown.

NEW NAMES AND NEW COMBINATIONS FOR GONATOPODINAE

After the proposal of the above new generic synonymies the following new names and new combinations can be proposed:

Gonatopus aegypti Olmi n. name
(*nec Tetrodontochelys aegyptiacus* Olmi 1984: 1446)
(= *Gonatopus aegyptiacus* Olmi 1984: 1533; preoccupied)

Gonatopus fortunatus Olmi n. name
(*nec Agonatopoides canariensis* Olmi 1984: 1318)
(= *Gonatopus canariensis* Olmi 1984: 1550; preoccupied)

Gonatopus helleni (Raatikainen) n. comb.
(*nec Pseudogonatopus dichromus* R.C.L. Perkins 1905: 37)
(= *Gonatopus dichromus* Kieffer 1906: 505; preoccupied)
(= *Dicondylus helleni* Raatikainen 1961: 126)
(= *Dicondylus dichromus* (Kieffer): Olmi 1984: 1376)

Gonatopus tussacensis Olmi n. name
(*nec Donisthorpina tussaci* Olmi 1989: 320)

(= *Acrodontochelys tussaci* Olmi 1990: 139; preoccupied)
Gonatopus owaini Olmi n. name
(*nec Plectrogonatopus richardsi* Moczar 1965: 396)
(= *Apterodryinus richardsi* Olmi 1984: 1346; preoccupied)
Gonatopus pilosoides Olmi n. name
(*nec Gonatopus pilosus* Thomson 1860: 180)
(= *Pseudogonatopus pilosus* Benoit 1953: 390; preoccupied)
Gonatopus ceballosi Olmi n. name
(*nec Trichogonatopus seyrigi* Ceballos 1936: 59)
(= *Agonatopoides seyrigi* Benoit 1953: 388; preoccupied)
Gonatopus operosus Olmi n. name
(*nec Pseudogonatopus opacus* R.C.L. Perkins 1905: 38)
(= *Gonatopus opacus* Olmi 1984: 1634; preoccupied)
Gonatopus rufoniger Olmi n. name
(*nec Dicondylus indianus* Olmi 1984: 1384)
(= *Gonatopus indianus* Olmi 1984: 1667; preoccupied)
Gonatopus asiae Olmi n. name
(*nec Donisthorpina asiatica* Olmi 1984: 1309)
(= *Apterodryinus asiaticus* Olmi 1984: 1350; preoccupied)
Gonatopus insulae Olmi n. name
(*nec Agonatopoides insularis* Olmi 1984: 1334)
(= *Apterodryinus insularis* Olmi 1984: 1374; preoccupied)
Gonatopus variabilis Olmi n. name
(*nec Pseudogonatopus freytagi* Olmi 1984: 1258)
(= *Gonatopus freytagi* Olmi 1984: 1685; preoccupied)
Gonatopus americae Olmi n. name
(*nec Pseudogonatopus americanus* R.C.L. Perkins 1905: 37)
(= *Haplogonatopus americanus* R.C.L. Perkins 1905: 40; preoccupied)
(*nec Epigonatopus americanus* Fenton 1921: 70)
Gonatopus nearcticus (Fenton) n. comb.
(*nec Pseudogonatopus americanus* R.C.L. Perkins 1905: 37)
(= *Epigonatopus americanus* Fenton 1921: 70; preoccupied)
(= *Pachygonatopus nearcticus* Fenton 1927: 6)
(= *Acrodontochelys americanus* (Fenton): Olmi 1984: 1182)
Gonatopus cobbenianus Olmi n. name
(*nec Pseudogonatopus cobbeni* Olmi 1987d: 111)
(= *Gonatopus cobbeni* Olmi 1987d: 114; preoccupied)
Gonatopus flavoides Olmi n. name
(*nec Gonatopus flavus* Hedicke 1926: 243)
(= *Pseudogonatopus flavus* Olmi 1984: 1277; preoccupied)
Gonatopus stephani Olmi n. name

(*nec Donisthorpina neotropica* Olmi 1986: 83)
(= *Tetrodontochelys neotropicus* Olmi 1986: 89; preoccupied)
Gonatopus boucekianus Olmi n. name
(*nec Acrodontochelys bouceki* Currado 1976: 14)
(= *Tetrodontochelys bouceki* Olmi 1987b: 236; preoccupied)

NEW SPECIES OF GONATOPODINAE

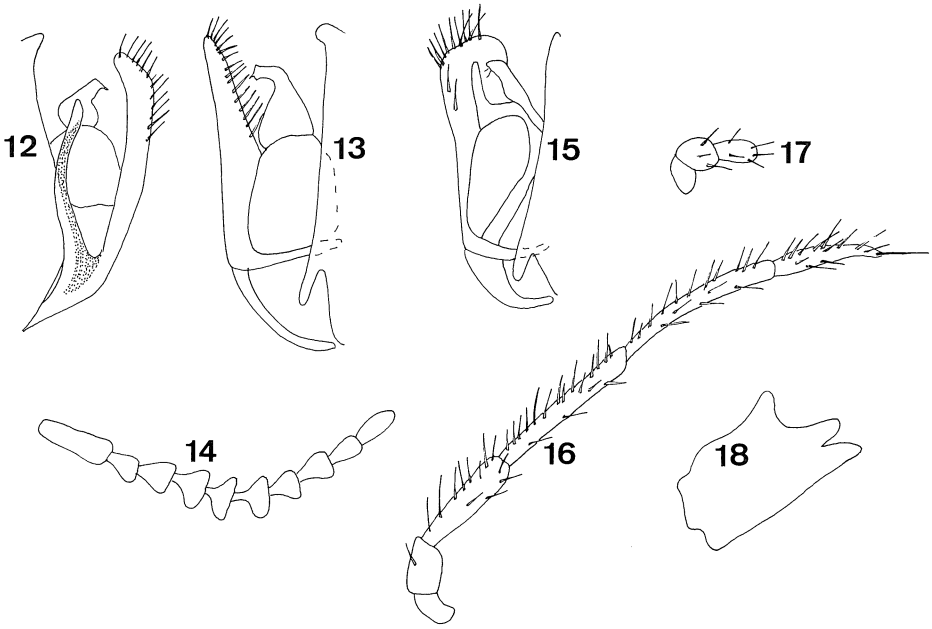
Ethiopian region

Gonatopus sensitivus n. sp.

DESCRIPTION OF THE FEMALE: apterous; length 3,25 mm; head black, with mandibles, clypeus and front part of vertex testaceous; antennae brown, with segments 5-6 light and segments 9-10 testaceous-whitish; thorax and propodeum black; abdomen brown; legs brown; antennae distally thickened, with rhinaria on segments 9 and 10 (segment 10 with 2 rhinaria); antennal segments in following proportions: 10:6:19:9:8:8:7:7:6:10,5; head excavated, dull, granulated, with tracks of irregular striae; frontal line complete; occipital carina absent; occiput dull, sculptured by numerous transversal striae; POL = 2; OL = 2; OOL = 8; pronotum crossed by a strong transversal impression, shiny, smooth, without sculpture; scutum dull, sculptured by longitudinal striae, approximately twice as long as broad, with two lateral points (fig. 10); scutellum shiny, smooth, without sculpture; meso-metapleural suture distinct and complete; metathorax + propodeum dull, with disc and anterior surface sculptured by numerous longitudinal striae; posterior surface of metathorax + propodeum with posterior half transversely striate and with anterior half sculptured by numerous longitudinal striae; mesopleura smooth, shiny, without sculpture; metapleura dull, transversely striate; disc of metathorax + propodeum with a track of a median furrow; fore tarsal segments in following proportions: 15:3:5:17,5:25; enlarged claw (fig. 11) without a subapical tooth, with a small tooth at the end of a longitudinal furrow (the furrow is visible only by scanning microscope), with a row of 7 lamellae + 1 bristle; segment 5 of front tarsus (fig. 11) with two rows of approximately 20 lamellae; distal apex with a group of 10 lamellae; maxillary palpi with 6 segments; labial palpi with 3 segments; tibial spurs 1, 0, 1.
MALE: unknown
LOCUS TYPICUS: 7 Km SW Ranomafana (m 1200, Fianarantsoa Prov., Madagascar)
TYPICAL MATERIAL: holotype ♀ in WA

DISTRIBUTION: only known of the typical locality.
NOTES: the holotype was collected on October 23, 1988 by M. Steiner, C. Kremen and R. van Epps in a montane rainforest by a Pyrethrin fogging of dead leaves and sticks in bamboo vine tangle.

According to the above new generic synonymies the following new key to the females of the Ethiopian *Gonatopus* can be proposed:



Figs. 12-18 - Male genitalia of *Acrodontochelys bouceki* Currado (fig. 12) (from Torremolinos, Spain); *Anteon minimum* (Fenton) (fig. 13) (from Columbia, Montana); *Apodryinus masneri* Olmi (fig. 15) (from Ahoni Alto, Chile) (right or left halfs removed); antenna of holotype of *Bocchus rossi* n. sp. (fig. 14); mandible (fig. 18), maxillary (fig. 16) and labial (fig. 17) palp of male of *Apodryinus masneri* Olmi (from Ahoni Alto, Chile).

Females

1 Enlarged claw without subapical tooth, with or without a small tooth at the end of a longitudinal furrow (this furrow is visible only by scanning microscope); in this last case apex of the enlarged claw without groups of lamellae 2
— Enlarged claw with a subapical tooth 3

2 Pronotum not crossed by a transverse impression or weakly impressed ..... 6. *Gonatopus ochreus* (Olmi) group (formerly *Tetrodontochelys*)
— Pronotum crossed by a strong transverse impression ..... 7. *Gonatopus incognitus* Olmi group (formerly *Gonatopus*)
3 Pronotum not crossed by a transverse impression or weakly impressed ..... 5. *Gonatopus pallidior* (Olmi) group (formerly *Dicondylus*)
— Pronotum crossed by a strong transverse impression 4
4 Enlarged claw without lamellae, with or aithout bristles or peg-like hairs ..... 1. *Gonatopus nearcticus* (Fenton) group (formerly *Acrodontochelys*)
— Enlarged claw with lamellae 5
5 Labial palpi with 2 segments ..... 2. *Gonatopus pilosoides* Olmi group (formerly *Pseudogonatopus*)
— Labial palpi with 3 segments 6
6 Maxillary palpi with 6 segments ..... 4. *Gonatopus somerseti* (Olmi) group (formerly *Apterodryinus*)
— Maxillary palpi with 5 segments ..... 3. *Gonatopus fuscus* (Olmi) group (formerly *Agonatopoides*)

The new species *Gonatopus sensitivus* is belonging to the group 7, where it's near *Gonatopus benoiti* Olmi. In the key to the females of the Ethiopian *Gonatopus* proposed by Olmi (1984) *G. sensitivus* can be inserted at number 26, as follows:

26 Metanotum not hollow behind the scutellum (fig. 1126 D in Olmi, 1984) ..... 26'
— Metanotum hollow behind the scutellum (fig. 1126 A in Olmi, 1984) 27
26' Disc and anterior surface of metathorax + propodeum smooth, without sculpture ..... 25. *benoiti* Olmi
— Disc and anterior surface of metathorax + propodeum sculptured by numerous longitudinal striae ..... 36. *sensitivus* n. sp.

Gonatopus nearcticus (Fenton) n. comb.

According to the new interpretation of the genus *Acrodontochelys* Currado (see preceding pages) this genus is junior synonym of *Gonatopus* Ljungh and the new combination *Gonatopus nearcticus* (Fenton) was proposed to solve the problem of two different species named *Gonatopus americanus* (see preceding pages).

During the last years I studied a number of male specimens of *Acrodontochelys ugandanus* (Benoit), *bouceki* Currado, *americanus* (Fenton) and *vitiensis* (Perkins). These four species were considered separated species in my revision of world Dryinidae (Olmi, 1984). The external morphology of these males is very uniform: all the males are like. The dorsal process of the gonoforceps doesn't show differences: the sclerotized rod is short and broad (fig. 787 in Olmi, 1984). A male specimen from Torremolinos (Spain) however

showed a dorsal process of gonoforceps little different, with a sclerotized rod longer and narrow (fig. 12). Is this difference only a case of variability? or is this specimen belonging to another species? and in this last case which species, since the external morphology of this male is like the external morphology of other males of *A. bouceki*? the male nearer *A. bouceki* is *Gonatopus horvathi* Kieffer: its dorsal process of gonoforceps is however shorter. *A. vitiensis* has a sclerotized rod very similar to that of the male specimen of Torremolinos. Is this difference important ? the only known male of *Acrodontochelys cubensis* Richards has not well visible dorsal process of gonoforceps and so it's very difficult to see the shape of the sclerotized rod. The male of *Acrodontochelys sinensis* Olmi is unknown.

I'm sure that *A. bouceki, ugandanus* and *americanus* are synonyms. If the male specimen of Torremolinos is an anomalous specimen of *A. bouceki*, as I think, the variability of the dorsal process of the gonoforceps is demonstrated. In this case also the male of *A. vitiensis* can be considered like the other males. Probably so all the species of *Acrodontochelys* are synonyms and the only valid species is *A. vitiensis*, widespread in the whole world.

To solve the last doubts it's necessary to see other male specimens of *A. vitiensis, cubensis* and *sinensis*.

Now however it's already possible to consider *A. bouceki, americanus* and *ugandanus* synonyms, as follows:

Gonatopus nearcticus (Fenton)
(*nec Pseudogonatopus americanus* R.C.L. Perkins 1905: 37)
(= *Epigonatopus americanus* Fenton 1921: 70; preoccupied)
(= *Pachygonatopus nearcticus* Fenton 1927: 6)
(= *Platygonatopus ugandanus* Benoit 1951: 300; n. syn.)
(= *Acrodontochelys bouceki* Currado 1976: 14; n. syn.)
(= *Acrodontochelys bouceki* Currado: Olmi 1984: 1174)
(= *Acrodontochelys ugandanus* (Benoit): Olmi 1984: 1177)
(= *Acrodontochelys americanus* (Fenton): Olmi 1984: 1182)

Subfamily *Anteoninae*

The following synonymies and new names are proposed for preoccupied names of species:

Anteon hirashimai Olmi n. name
(*nec Anteon tarsalis* Kieffer 1906: 520)
(= *Anteon tarsale* N. Ponomarenko 1988: 189; preoccupied)
(*Anteon tarsale* N. Ponomarenko: Olmi 1989: 162)

Anteon paraflaccum Olmi n. name

(*nec Anteon flaccum* Olmi 1987a: 391)
(= *Anteon flaccum* Olmi 1992a: 187; preoccupied)
Anteon gauldense Olmi n. name
(*nec Anteon gauldi* Olmi 1987c: 36)
(= *Anteon gauldi* Olmi 1989: 199; preoccupied)

Nearctic region

Anteon minimum (Fenton)

Anteon minimum (Fenton 1927) was known only on the basis of female specimens (Olmi, 1984). Recently I observed some male specimens from Columbia (Montana, U.S.A.). The following description can be proposed:
DESCRIPTION OF THE MALE: fully winged; length 2,5 mm; head black, with mandibles testaceous; antennae testaceous, with dorsal sides of antennal segments 2-6 brown; thorax and propodeum black; abdomen brown; legs testaceous, with hind coxae basally black; antennae not distally thickened; antennal segments in following proportions: 9:6:8:8:8:9:7.8:8:11; head shiny, punctate, without sculpture among the punctures; vertex weakly rugose; frontal line incomplete, only shortly visible in front of the anterior ocellus; occipital carina complete; POL = 6; OL = 3; OOL = 5; OPL = 3,5; TL = 3,5; scutum shiny, finely punctate, without sculpture among the punctures; notaulices incomplete, reaching approximately 0,5 length of scutum; scutellum and metanotum finely punctate, without sculpture among the punctures; propodeum reticulate rugose, with a strong transversal keel between dorsal and posterior surface; posterior surface with two longitudinal keels; median area shiny, smooth, without sculpture; lateral areas rugose, dull; fore wing hyaline, without dark transversal bands; distal part of radial vein shorter than proximal part (4:9); gonoforceps (fig. 13) without distal inner process; tibial spurs 1, 1, 2.

In the partial key to the males of the Nearctic *Anteon* proposed by Olmi (1989) the male of *Anteon minimum* can be inserted near *A. ciudadi* Olmi at number 5, as follows:

5 Head weakly punctate, smooth, shiny, without sculpture among the punctures . 5′
— Head reticulate rugose or strongly sculptured by longitudinal keels or granulated ..... 5′′
5' Posterior surface of propodeum with median area as rugose as lateral areas ..... 14. *ciudadi* Olmi
— Posterior surface of propodeum with median area shiny, smooth; lateral areas rugose ..... 7. *minimum* (Fenton)

5'' Head reticulate rugose and granulated ..... 9. *rugosiceps* Kieffer
— Head strongly sculptured by numerous longitudinal keels ..... 18. *hansoni* Olmi

Subfamily *Bocchinae*

Australian region

Bocchus rossi n. sp.

FEMALE: unknown
DESCRIPTION OF THE MALE: fully winged; length 4,06 mm; black; mandibles, antennae and legs testaceous; antennae with segments 2-9 laterally expanded (fig. 14); antennal segments in following proportions: 18:7:8:8.8.8:8:8:8:9; head dull, fully reticulate rugose; frontal line complete; occipital carina complete; POL = 12; OL = 5,5; OOL = 9; OPL = 9; TL = 11; scutum shiny, punctate, without sculpture among the punctures, only with anterior third rugose; notaulices complete, posteriorly separated; minimum distance between the notaulices longer than the breadth of the ocelli (7:4; the distance between the notaulices is inner; the notaulices in fact are very broad); scutellum and metanotum shiny, smooth, punctate, without sculpture among the punctures; propodeum dull, reticulate rugose, with a strong transversal keel between dorsal and posterior surface; posterior surface with two complete longitudinal keels; median area as rugose as lateral areas; fore wing hyaline, without dark transversal bands; distal part of radial vein longer than proximal part (11:8); tibial spurs 1, 1, 2.
LOCUS TYPICUS: De Grey (m 10, E Port Hedland, Western Australia)
TYPICAL MATERIAL: holotype ♂ in CA
DISTRIBUTION: only known of the typical locality.
NOTES: the species is named in honor of one of the collectors of the holotype, Mr. E.S. Ross; the holotype was collected on October 11, 1962 by E.S. Ross and D.Q. Cavagnaro.

After the description of the above new species the following new key to the males of the Australian *Bocchus* can be proposed:

1 Antennae with segments 2-9 laterally expanded (fig. 14) 2
— Antennae filiform or distally thickened; antennal segments 2-9 laterally not expanded 3
2 Scutum, scutellum and metanotum fully reticulate rugose; head with POL shorter than OOL ..... 10. *alamellatus* Olmi
— Scutum, scutellum and metanotum punctate, without sculpture among the punctures; only the anterior third of the scutum is rugose; head with POL longer than OOL ..... 14. *rossi* n. sp.
3 Petiole very long, approximately 0,5 as long as abdomen; antennae not distally thickened 4

— Petiole very short, less than 0,5 as long as abdomen; antennae distally thickened 5
4 Head fully granulated ..... 2. *guineensis* Olmi
— Head granulated and reticulate rugose ..... 7. *inanis* Olmi
5 Head with POL much shorter than OPL and TL ..... 9. *cardaleae* Olmi
— Head with POL longer than OPL and TL 6
6 Head with POL slightly longer than OPL and TL ..... 13. *cookensis* Olmi
— Head with POL at least twice as long as OPL and TL 7
7 Head fully granulated ..... 6. *gressitti* Olmi
— Head granulated and rugose 8
8 Scutum granulated, not rugose ..... 3. *minimus* Olmi
— Scutum granulated and rugose ..... 1. *australiae* Olmi

Subfamily *Apodryininae*

Neotropic region

Apodryinus masneri Olmi

This species was known only on the basis of female specimens. Recently I examined in OT some male specimens from Ahoni Alto (Chiloe Island, Chile). They are described as follows:

DESCRIPTION OF THE MALE: fully winged; length 2,37-2,50 mm; head, thorax and propodeum brown; abdomen testaceous-brown; antennae testaceous-brown; legs yellow, with coxae brown; antennae not distally thickened; antennal segments in following proportions: 8:5:15:16:16:16:15:14:12:15; head shiny, rugose, convex; frontal line complete; occipital carina complete; POL = 6; OL = 2; OOL = 3; OPL = 1; TL = 7; temples very long, slightly shorter than eyes (7:8); scutum dull, reticulate rugose; notaulices absent; scutellum and metanotum shiny, punctate, without sculpture among the punctures; propodeum dull, reticulate rugose, with areolae very broad; fore wing hyaline, without dark transversal bands; radial cell open; distal part of radial vein longer than proximal part (18:13); genitalia in fig. 15; maxillary palpi with 6 segments (fig. 16); labial palpi with 3 segments (fig. 17); mandibles with three irregular teeth (fig. 18); tibial spurs 1, 1, 2.

Australian region

Genus *BOCCHOPSIS* Olmi

(*Bocchopsis* Olmi 1989: 254)
(= *Australodryinus* Olmi 1989: 388; n. syn.)

The genus *Bocchopsis* Olmi was described on the basis of male specimens from Australia; the female was unknown.

According to the old taxonomy (Olmi, 1989) this genus was included into the subfamily Bocchinae, because of its mandibles showing 4 teeth, among which a rudimentary tooth between the two posterior teeth. No males of Apodryininae was known in the past (Olmi, 1984, 1989).

In recent years the male of *Apodryinus masneri* Olmi, from Chile, was found. It was described above. This male is very similar to the males of *Bocchopsis*. The only difference is the absence of notaulices in *Apodryinus*, whereas the notaulices are complete in *Bocchopsis*. This resemblance led me to believe that also *Bocchopsis* is belonging to Apodryininae. The males of *Apodryinus* and *Bocchopsis* are in fact very different from all the other males of Dryinidae.

I think so that *Bocchopsis* is the opposite sex of *Australodryinus*; the two genera are so synonyms and *Bocchopsis* is senior synonym.

In Australia three species of *Australodryinus* (*monteithi* Olmi; *naumanni* Olmi; *pappi* Olmi) and one species of *Bocchopsis* (*naumanni* Olmi) are known. The synonymy of these two genera is obliging to solve the problem of two species of the same genus with same specific name (*naumanni*), as follows:

Bocchopsis australis Olmi n. name

(*nec Bocchopsis naumanni* Olmi 1989: 254)

(= *Australodryinus naumanni* Olmi 1989: 388; preoccupied)

I don't know however if *Bocchopsis naumanni* Olmi 1989 is the opposite sex of *B. monteithi* Olmi or *B. pappi* Olmi or *B. australis* Olmi.

After the above descriptions and synonymies the following key to the genera of Apodryininae can be proposed:

Females

1 Suture between pronotum and mesothorax incomplete, only visible on the sides, not visible dorsally ..... 1. *Apodryinus* Olmi (Chile)

— Suture between pronotum and mesothorax complete, laterally and dorsally visible ..... 2. *Bocchopsis* Olmi (Australia)

Males

1 Notaulices complete ..... 2. *Bocchopsis* Olmi (Australia)

— Notaulices absent ..... 1. *Apodryinus* Olmi (Chile)

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