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MIGUEL A. ALONSO-ZARAZAGA[1]

Three new taxa of Oriental Nanophyini (*Coleoptera, Apionidae*)

With 15 text figures

Among some Oriental Nanophyinae sent for identification by Dr. L. DIECKMANN (Institut für Pflanzenschutzforschung, Eberswalde-Finow, DDR), there were representatives of some species which have allowed the following descriptions. Terminology on the male tegmen follows ALONSO-ZARAZAGA (1983).

Meregallia n. gen.

Figures: 1, 5, 6, 7, 9, 12.

DESCRIPTION: Usually medium-sized species: 3.1–4.6 mm long (r.e.).

Vestiture of dark appressed hairs and white dense scales, these ones forming definite patches under eyes, on procoxae, meso- and metasternum and their pleurites, basal angles of pronotum, anterior part of 2nd interstria and two elytral fasciae (the first between the middle and the apical third, the second apico-marginal), these scales end in a narrow apical filament; scales on elytral striae white but finer than those of the patches; abdominal sternites with appressed white short scales and long erect, sparse, white hairlike scales. Specialized setae few, scattered on the head, pronotum and odd elytral intervals.

Rostrum almost straight, more or less sexually dimorphic in length, forming a strong angle with the head, metarostrum in dorsal view widening towards mesorostrum, 5-carinate, the intervals punctate; prorostrum parallelsided, with minute punctures in rows.

Head subconical, strongly convex. Eyes large, almost flat, dorsal, touching along midline, leaving just one line of scale-bearing punctures between.

Antennae inserted at basal 0.6–0.7 of rostrum (male) or at 0.5–0.6 (female). Scape slender, longer than funicle, this one 5-segmented, 4th funicular segment hardly asymmetrical, club slightly shorter than funicle, 3-segmented, the segments well separated, 3rd slightly longer than 1st and 2nd together.

Base of pronotum and elytra densely and minutely crenulate. Elytra 10-striate, stria 10 complete, striae fine and superficial, at apex joining 1 + 10, 2 + 9; interstriae very wide, flat, 8th interstria not crenulate.

Mesocoxae separated about 0.5 X their own diameter, about as much as the metacoxae are. Abdomen with the two first sternites very short, completely fused together, so that the suture I is absent; intermetacoxal process triangular, acute, the metacoxae almost touching medially. Suture IV complete in male. Lateral foveae of 4th and 5th sternites obsolete. Apex of 5th sternite triangularly emarginate in male, rounded in female. Male pygidium slightly longer than wide, with an apical marginal sulcus, disc with long suberect scales. Tergites strongly sclerotized.

[1] Miguel A. Alonso-Zarazaga, Carretera de Cádiz, 89, 1ºA (Edif. S. Joaquín), 29004 Málaga SPAIN.

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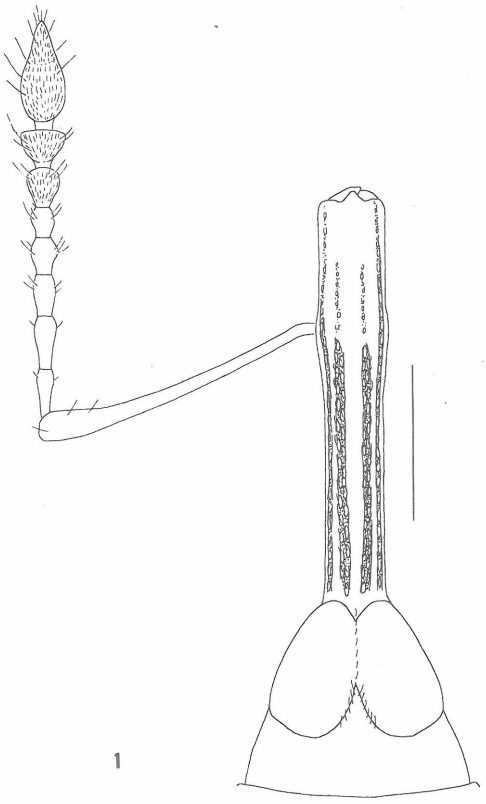

Fig. 1. *Meregallia ligata* (HUST.): head, rostrum and antenna of male, dorsal view. Scale: 0.5 mm.

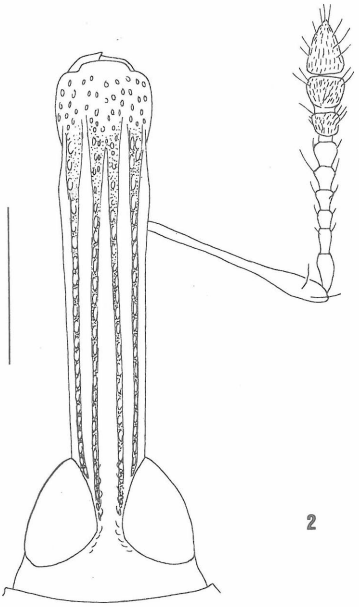

Fig. 2. *Shiva (Oxycorax) dieckmanni* n. sp.: head, rostrum and antenna of male holotypus, dorsal view. Scale: 0.5 mm.

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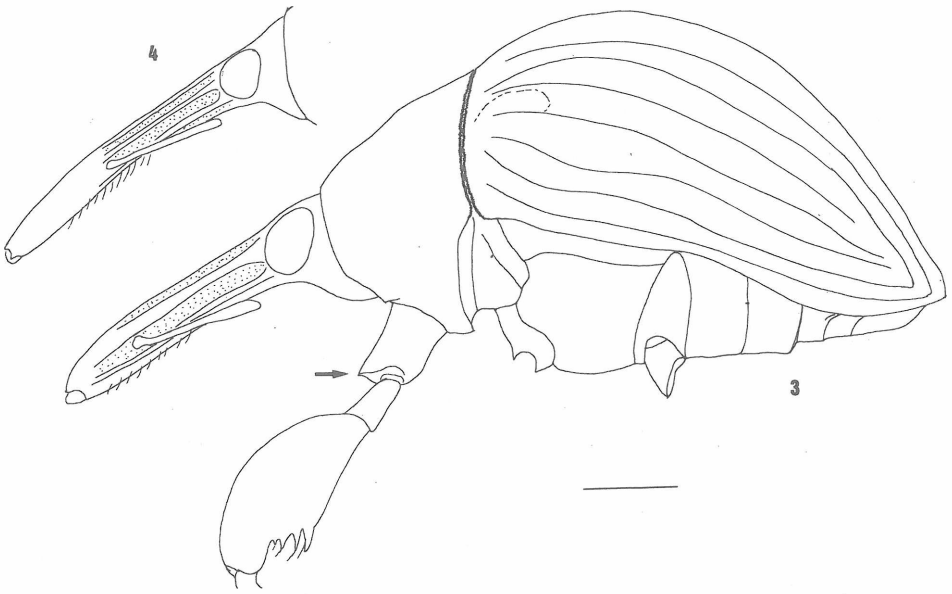

Figs. 3–4. *S. (O.) dieckmanni* n. sp.: Fig. 3. Male holotypus, lateral view, arrow showing acutely dentate procoxae. – Fig. 4 Female paratypus, head an rostrum, lateral view. Scale: 0.5 mm.

Legs elongate, femora strongly clavate, profemur about 2.9 X as long as wide, with one long proximal tooth and 3–4 smaller distal teeth on each femur. Tibiae slender, mucronate in male. Tarsi elongate, 1st tarsomere much longer than wide, 2nd tarsomere strongly incavate apically with distal angles acute, onychium about 5.1 X as long as wide. Claws equal, fused.

Male genitalia (based on *M. ligata* only): Tegmen with parameroid lobes short, hardly separated by a slight median notch, sclerotized apically, bearting 18–20 long, flexuose macrochaertae on each apex; fenestrae visible although rather undefined, fused medially; arched line undefined; plate-base apically tridentate, with two longitudinal sclerotizations, articulated with the free ring. Manubrium dilated towards apex.

Penis tube slightly depressed apically, asymmetrically distorted to the right, subspathulate, apical third ventrally with a reticulate excavation bearing a median carina, lateral margins and apex of excavation densely covered with short macrochaetae; in side view, apex strongly incurved; temones apparently articulated to the tube, strongly dilated towards apex. Internal sac apically with two complex frena, medially with some sparse denticles and basally with a short flagellum, whose base is inflated.

Spiculum gastrale with an asymmetrically curved manubrium and widely winged arms.

Etymology: It is a great pleasure to name this genus after my good friend, Dr. MASSIMO MEREGALLI (Torino, Italy), in recognition of his contribution to the knowledge of weevils and in proof of friendship. Gender feminine.

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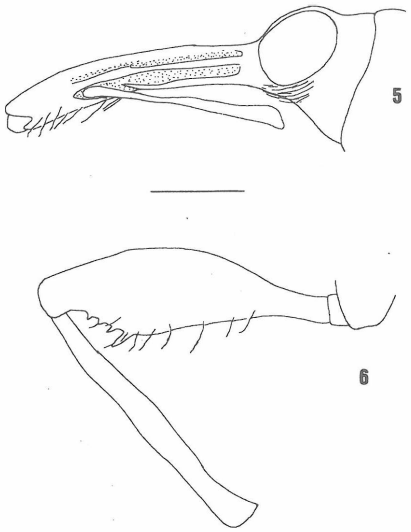

Fig. 5–6: *M. ligata* (HUST.): Fig. 5. Male head and rostrum, lateral view. – Fig. 6. Male profemur and protibia, anterior view. Scale: 0.5 mm.

Type Species: *Nanophyes ligatus* HUSTACHE, 1925.

Discussion: This genus must be reckoned among the most primitive ones in the Nanophyini because of the black integument, the presence of a complete 10th stria, the lack of crenulation on the 8th interstria, the strongly carinate rostrum and the strongly clavate and toothed femora, among other features. It is very close to *Psix* ALONSO-ZARAZAGA (in press), sharing with it most of the primitive characters and one apomorphy: the dorsal eyes which touch in the midline. However *Meregallia* differs from *Psix* in the following characters: the white elytral and pronotal patches and fasciae, the presence of several specialized setae on head, pronotum, tibiae and elytra, the straight rostrum, the closer eyes and the strongly sclerotiozed tergites. The male tegmen is very similar, but the peculiar penis is very distinctive.

At the present time, I recognize just two species in this genus: *Meregallia ligata* (HUSTACHE, 1925) and *M. dipterocarpi* (MARSHALL, 1932), comb. nov. They are easily separated by length [3.1–3.6 mm (r.e.) in *M. ligata* (HUST.), 4.2–4.6 in *M. dipterocarpi* (MARSHALL)] and number of distal spines in the femora (3 in the first species, 4 in the second), among other features.

Meregallia ligata (HUSTACHE, 1925), **comb. nov.**

= *Nanophyses ligatus* HUSTACHE, 1925 (Philipp. Journ. Sc. 27 [3]: 375).

The type locality is Singapore. I have studied one male in the Collection KRAATZ (Institut für Pflanzenschutzforschung, Eberswalde-Finow, German Democratic Republic), coming from Northeastern Sumatra: Tebing-tinggi (Dr. SCHULTHEISS). It also bears a label by HELLER saying *Nanophyes* sp.?.

This specimen measures 3.54 mm (r.e.) and its rostrum is 1.29 X as long as the pronotum, which is transverse (0.69 X as long as wide). The rostrum is about 5.9 X as long as wide

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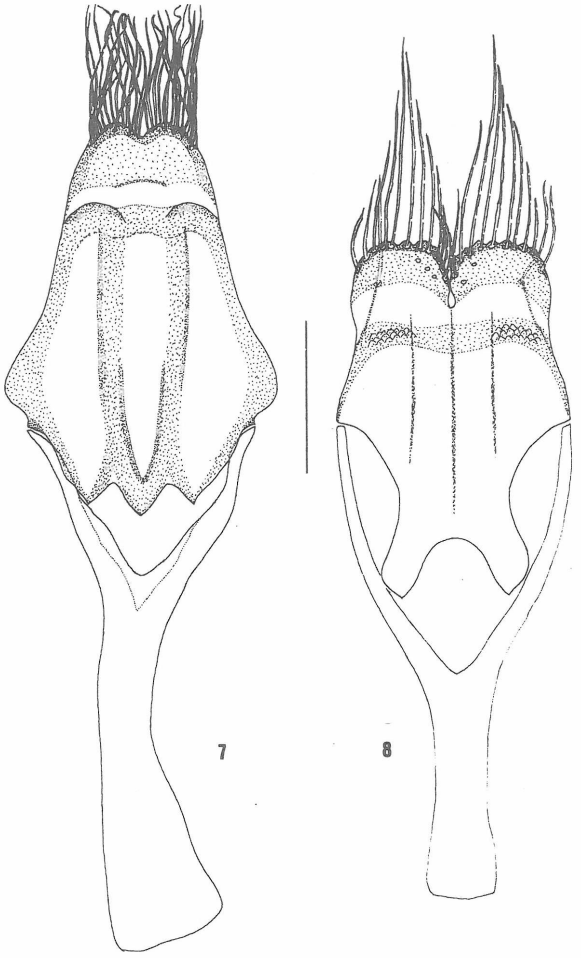

Figs. 7–8. Tegmina, dorsal view, of: Fig. 7. *M. ligata* (HUST.). – Fig. 8 *S. (O.) dieckmanni* n. sp. Scale: 0.25 mm.

at apex. The male mucrones are strong, the metatibial ones are strongly bent, so that their ventral margin appears angulate or subdebtate. It fits closely the original description.

This species seems to be distributed in both shores of the Strait of Malacca.

Meregallia dipterocarpi (MARSHALL, 1932), **comb. nov.**

= *Nanophyes dipterocarpi* MARSHALL, 1932 (Stylops, 1 [10]: 211).

This species was described from Java: W. PREANGER, being ther only species of the genus for which biological information is available: the original series was reared from fruits of *Dipterocarpus trinervis,* a representative of the tropical Dipterocarpaceae, a member of the Order Theales. This species has been included in this genus exclusively from the information given in the excellent original description.

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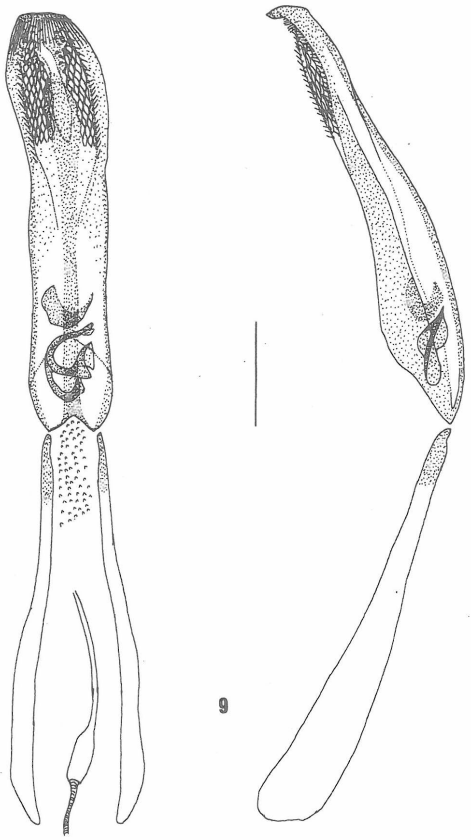

Fig. 9. *M. ligata* (HUST.): penis, dorsal and lateral views. Scale: 0.25 mm.

Shiva PAJNI & BHATEJA, 1982 (Oriental Insects, 16 [4]: 467)

Type species: *Shiva dimorphorostris* PAJNI & BHATEJA, 1982 (Nagaland, India).

***Oxycorax* nov. subgen.**

It differs from the nominotypical subgenus by the eyes being well separated in the frons, by the almost straight rostrum and mainly by the procoxae acutely projecting in both sexes (this character is not known to occur in any Nanophyinae), so that the insertion of trochanters is fully lateral. Tegmen with a deep median apical notch, each parameroid lobe bearing apically 11 – 12 long macrochaetae and one macrochaetae sprouting ventrally from the apical margin of the fenestrae, these moderately definite, fused medially. Internal sac with denticles becoming more and more complex from apex to base.

Etymology: From Greek "oxys", acute, and "corax", point or corner, alluding to the acute apex of procoxae. Gender masculine.

Type Species: *Shiva (Oxycorax) dieckmanni* n. sp.

***Shiva (Oxycorax) dieckmanni* n. sp.**

Type locality: Tebing-tinggi, Northeastern Sumatra, Indonesia.

Measurements of the holotype: Length (r.e.): 3.54 mm. Width: 2.04 mm. Length of: rostrum, 1.25 mm; metarostrum, 0.73 mm; pronotum, 1.14 mm; elytra, 2.42 mm; scape:

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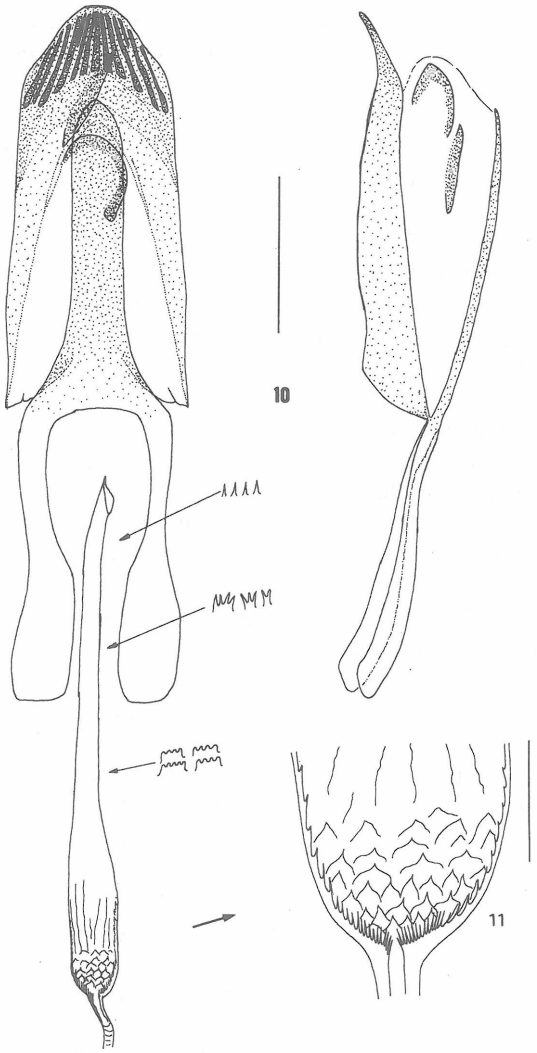

Fig. 10–11. *S. (O.) dieckmanni* n. sp.: Fig. 10. Penis, dorsal and lateral views, arrows showing location of different kind of denticles along the internal sac. Scale: 0.25 mm (denticles enlarged). – Fig. 11. Internal detail of base of flagellum showing internal apiculate scales. Scale: 50 µm.

0.62 mm; funicle: 0.49 mm; club, 0.40 mm. Width of: prorostrum at apex, 0.30 mm; mesorostrum, 0.28 mm; metarostrum at base, 0.24 mm; frons, 0.07 mm; pronotum at apex, 0.89 mm; pronotum at base, 1.67 mm; elytra at humeri, 2.00 mm.

Figures: 2, 3, 4, 8, 10, 11, 13, 14, 15.

Description: The whole body strongly convex in side view, pronotum and elytra forming together one curve whose highest point is over the metacoxae.

Colour dark brownish red, some areas (mainly the lateral keels of rostrum, antennal club, frons and vertex, two nebulose paramedian elongate spots on pronotum, the basal keels of pronotum and elytra and one humeral nebulose spot on each elytron) dark piceous brown to black, sternites and tarsi light brown to yellowish, only the apices of these

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darkened. Vestiture of whitish to blond hairs, uniform, not patterned, slightly condensed on the procoxae and the sides of sterna and sternites in male. Short specialized setae present on head, pronotum, tibiae and odd elytral interstriae.

Male rostrum 1.09 X the pronotum, 4.2 X as long as wide at apex, straight, level with frons, strongly keeled from base up to the middle of prorostrum, keels glabrous and shining, median keel widest, intervals between two keels finely punctate and pubescent, prorostrum and sides moderately pubescent.

Female rostrum 1.69 X the pronotum, 6.2 X as long as wide at apex, similar to that of male, but keels weaker, surpassing middle of prorostrum; vestiture less dense.

Antennae inserted at basal 0.58 of rostrum (male), at basal 0.49 (female). Scape elongate but shorter than the metarostrum, apically clavate and setose, longer than the funicle (1.26 X in male, 1.52 X in female). Funicle 6-segmented, pedicel about 2.2 X as long as wide, 1.5 X as long as 2nd, this one about 1.8 X as long as wide, 1.4 X as long as 3rd, this one hardly longer than wide, the rest rather isodiametrical, 5th slightly asymmetrical. Club shorter than the funicle (0.81 – 0.84 X), not sexually dimorphic, 3rd segment as long or slightly longer than 1st and 2nd together. Funicle and club hispid.

Head subconical, eyes large, lateral, moderately convex. Frons flat, narrow ($^1/_4$ of the mesorostral width), smooth, with one row of punctures bearing scales on each side near the inner margin of eyes.

Pronotum trapeziform, 0.68 – 0.72 X as long as wide, fore margin 0.47 – 0.54 X as wide as base, sides slightly bisinuate, densely and superficially punctulate.

Elytra nearly triangular, widest at a point a little behind humeri, 1.18 – 1.29 X as long as wide, 2.11 – 2.24 X as long as the pronotum, humeri 1.19 – 1.21 X as wide as pronotal base. Striae superficial, very fine, about $^1/_5 - ^1/_6$ of the width of an interstria, weakly punctate, glabrous, shining, standing out of the punctate and microreticulate interstriae as shining lines. Stria 10 complete, joining stria 1 and apex, stria 2 joining 9. Interstria 8 apparently not crenulate (a short crenulate keel is present between the basal keel and the humeral callus). Macropterous.

Mesocoxae separated $^2/_3$ of their own diameter. Metasternum in male depressed medially, convex behind each mesocoxa, in female rather uniformly convex, punctured as the pronotum. First and 2nd sternites with punctures similar to metasternum, intermetacoxal apophysis wide, trapeziform, metacoxae separated at least as much as the mesocoxae. Suture I obsolete, only visible on each side in the male. Third sternite medially strongly keel-shaped. Suture IV present in male, absent in female. Apical margin of 5th sternite uniformly concave in male, strongly rounded in female. Lateral foveae on sides of 4th and 5th sternites well developed in both sexes.

Male pygidium depressed along midline, densely pubescent, apical region of depression slightly foveiform, glabrous and shining.

Legs robust, profemur 2.17 – 2.20 X as long as wide, strongly incrassate, bearing one long proximal tooth 2.0 – 2.5 X as long as wide, 0.24 X as long as femoral width (male) or only 0.19 X (female) and 3 smaller distal denticles, meso- and metafemora similarly armed. Tibiae short, slightly S-shaped in male, almost straight in female, internally dilated before middle. Male mucrones present on all tibiae, short, straight, acute. Tarsi moderately robust, 1st protarsomere 1.1 – 1.3 X as long as wide, triangular, as long as 2nd, this one transverse, 0.7 – 0.9 X as long as wide, bisinuate apically, 3rd strongly bilobed, 0.5 – 0.6 X as long as wide, onychium 2.75 – 3.00 X as long as wide. Two equal, fused claws.

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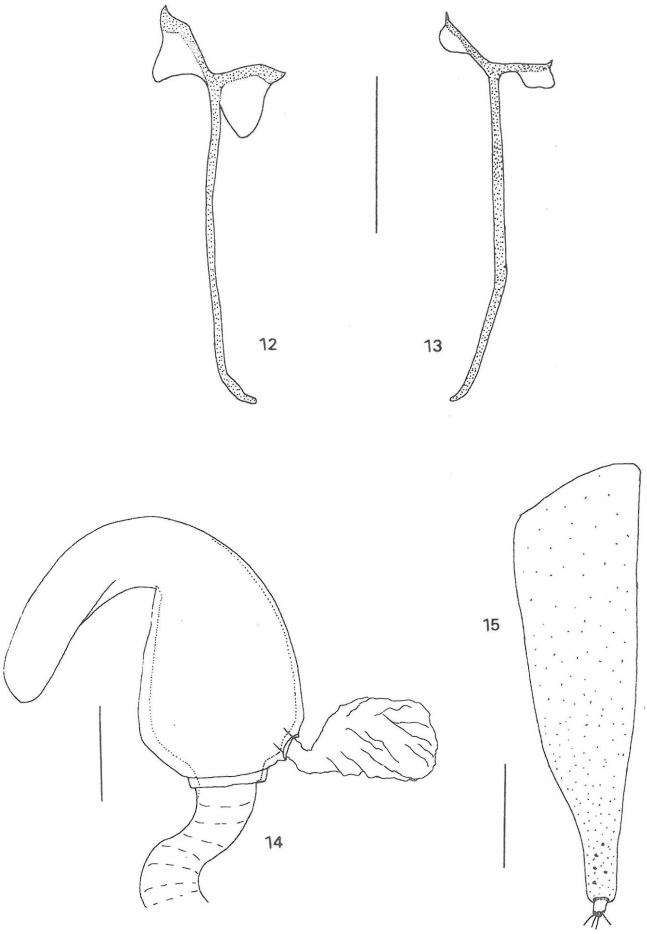

Figs. 12—15. *M. ligata* (HUST.): — Fig. 12. Spiculum gastrale. *S. (O.) dieckmanni* n. sp. — Fig. 13. Spiculum gastrale. — Fig. 14. Spermatheca. — Fig. 15. Coxite and stylus, lateral view. Scales: 12—13: 0.5 mm; 14: 50 µm; 15: 0.25 mm.

Male genitalia: Tegmen with parameroid lobes very short, separated medially by a deep notch reaching apical margin of fenestrae, bearing on each one 10—12 long apical macrochaetae on the sclerotized apical plate and one long ventral macrochaeta sprouting from the apical margin of the fenestrae, these rather undefined, fused medially. Dorsal portion of ring with scale-like microsculpture. Plate-base apically with one bifid projection reminding of a fish tail, articulated to the free ring. Manubrium short, slightly dilated.

Penis tube flat, in dorsal view sides slightly converging up to ostium, rounded-triangular at apex, in side view apex straight but deflexed. Temones wide at apex, shorter than tube. Internal sac apically with 2 simple frena, basally with denticles (simple near middle but becoming acutely multifid first and bluntly multifid later) and an almost straight flagellum longer than the tube or the temones. Base of flagellum slightly inflated, internally covered with imbricated, acute scales near gonopore.

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Spiculum gastrale with long manubrium and winged arms.

Female genitalia: Ovipositor with long, robust, glabrous coxites bearing apically some sensilla and a small subcylindrical stylus with some 4 macrochaetae about as long as the stylus. Spermatheca of the simple type in Nanophyinae, still-shaped, with a large corpus and a narrow, curved cornu, not visibly annulated. Spiculum ventrale a simple bar, slightly dialted proximally, with a few macrochaetae.

Material Examined: Holotypus: 1 male, mounted on an arrow card, together with sternites and pygidium, lacking the right mesotarsomere, labelled: (printed) N. O. Sumatra, Tebing-tinggi, Dr. SCHULTHEISS/(printed) Coll. KRAATZ/(printed) Coll. DEI, Eberswalde/organe: HOLOTYPUS ♂ *Shiva dieckmanni* m. ALONSO-Z. des. 1987. Paratypus: 1 female, carrying the same labels except for word PARATYPUS and female symbol, and small label: NO-1 (which refers to microscopic slide so identified in my collection).

Holotype in the Collection of the Institut für Pflanzenschutzforschung, Eberswalde-Finow, German Democratic Republic. Paratype kindly donated for my collection.

Etymology: It is a great pleasure to name this beautiful species after my good colleague and friend, Dr. LOTHAR DIECKMANN, to whom I am so much indebted for his help for many years, in proof of friendship and gratitude.

Variability: The only known female shows the essential features of the species, being, however, smaller than the male (length [r.e.] 2.71 mm, width 1.46 mm). It is darker than the male in most of its parts. Two specimens are a material too scarce to know the range of size.

Discussion: No Oriental species of Nanophyini seems to have been described with the features recorded in *Shiva (Oxycorax) dieckmanni*. Species with a 6-segmented funicle known to me are *N. miwai* KÔNO, 1930, from Formosa, and *N. neuter* HELLER, 1915, from Luzon, but they are smaller (1.6–2.5 mm, from descriptions). However, the number of funicular segments is a character unrecorded in 33 out of 51 species described from the Oriental Region (about 65%). No species has a length between 2.70 and 3.55 mm, a straight rostrum and strongly spined femora, together with an unpatterned vestiture and dark colour.

From the keys in PAJNI & BHATEJA (1982) this species belongs to the genus *Shiva* PAJNI & BHATEJA, 1982, showing many of the features given in the original description of the genus. However, it seems that the Indian species have closely approximated eyes, leaving just one row of hairs on midline; PAJNI & BAHTEJA (l.c.) also indicate that the 8th interstria is not crenulate in its basal third, seemingly they could have overlooked the small crenulate keel between the basal keel and the callus. Were this not right, the subgenus *Oxycorax* should be reranked as a good genus.

In their treatment of the genus *Shiva,* they mention the presence of lateral scrobes extending up to the eyes. In fact they are false scrobes, the true ones are very short and oblique, easily visible in a freshly dead insect by the presence of the scape inside.

An attempt to identify this new species with the key to the Indian representatives given by these authors fails in the first couplet, since *Shiva dieckmanni* n. sp. has all femora with 1 + 3 teeth on each femora, but the tegmen has two well separated parameroid lobes ("parameres" in PAJNI & BHATEJA, 1982). From this text and the figures, three groups of species seem to be present in the Indian *Shiva*, attending mainly to the male genitalia:

the *dimorphorostris* group, which presents the tegmen apically produced at middle, the internal sac with complex frena and a small flagellum shorter than the tube or the temones;

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the *variabilis* group, with a tegmen deeply notched apically and the fenestrae separated, and the internal sac with simple frena and a flagellum as long as or longer than the tube or the temones; and

the *assamensis* group, perhaps the least consistently uniform of the three in male genitalic characters, having a tegmen apically convex or concave, but never notched, fused fenestrae, and plate-base not visibly produced in a fishtail-like projection, the simple frena of the internal sac are accompanied by a moderately elongate flagellum, slightly shorter to slightly longer than the tube or the temones.

Shiva (Oxycorax) dieckmanni cannot be a member of any of these groups, sharing with the first the number of femoral teeth, with the second the uniform vestiture, the long flagellum, simple frena and the apical notch of the tegmen, but not the shape of the parameroid lobes and the separated fenestrae, and with the third the simple frena and the fused fenestrae. From these lines it is easy to realize that the closest group seems to be that of *variabilis*. However the characters exposed in the description of the new subgenus are enough to make sure the identity of a fourth group. Not being well acquainted with the Indian species, I prefer not to give a subgeneric status to these groups.

Acknowledgements

I wish to thank here my good friend, Dr. L. DIECKMANN, for all his kindness and help, and the Department of Zoology, University of Malaga, Spain, for facilities in using technical means.

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Summary

Meregallia n. gen. (type species: *Nanophyes ligatus* HUSTACHE, 1925) and *Oxycorax* n. subgen. (type species: *Shiva dieckmanni* n. sp., from Sumatra) are described. Some comments are made on their relationships and on those of the species included in the genus *Shiva* PAJNI & BHATEJA, 1982.

Zusammenfassung

Meregallia n. gen. (Typusart: *Nanophyses ligatus* HUSTACHE, 1925) und *Oxycorax* n. subgen. (Typusart: *Shiva dieckmanni* n. sp. aus Sumatra) werden beschrieben. Einige Bemerkungen in bezug auf ihre Verwandtschaftsverhältnisse und auf die zur Gattung *Shiva* PAJNI & BHATEJA, 1982 gehörenden Arten werden hinzugefügt.

Резюме

Название работы: Три новых таксона восточных *Nanophyini* (Coleoptera, Apionidae)

Описаны *Meregallia* n. gen./типичный вид: *Nanophyes ligatus* HUSTACHE, 1925) и *Oxycorax* n. subgen./ типичный вид: *Shiva dieckmanni* n. sp. из Суматры/. Кроме того приведены данные о видах, отяосящухся к роду *Shiva* PAJNI & BHATEJA, 1982/и ух родстве.

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