

CERAMBYLAELAPS NADCHATRAMI, N. GEN., N. SP.,
AN UNUSUAL MESOSTIGMATIC MITE (ACARI)
ASSOCIATED WITH A CERAMBYCID BEETLE IN MALAYSIA

BY

Michael COSTA *

ABSTRACT

The male and the deutonymph of *Cerambylaelaps nadchatrami*, n. gen., n. sp., are described and figured. The new genus could not be assigned to any known family of Mesostigmata and its position is discussed.

RÉSUMÉ

Le mâle et la deutonymphe de *Cerambylaelaps nadchatrami*, n. gen., n. sp., sont décrits et figurés. Ce nouveau genre ne peut être rapporté à aucune famille connue de Mesostigmates et sa position systématique est discutée.

The mites on which the following description is based were sent to me by Dr. R. DOMRIOW (Queensland Institute of Medical Research) on behalf of Dr. D. STILLER (then Acting Head, Division of Acarology, I.M.R., Kuala Lumpur, Malaysia). The material consisted of eight slides : 6 ♂ and 2 deutonymphs, with the following data : Cerambycid beetle, 12th mile Gombac (HOOPER study site), Selangor, Malaysia, 5th June, 1972. On my request additional, alcoholic material with identical data, was sent to me by Mr. M. NADCHATRAM of the I.M.R., Kuala Lumpur. This material consisted also of males and deutonymphs only (3 ♂, 2 DN) and a single female of *Macrocheles* sp. All the figures were prepared from the cleared alcoholic material.

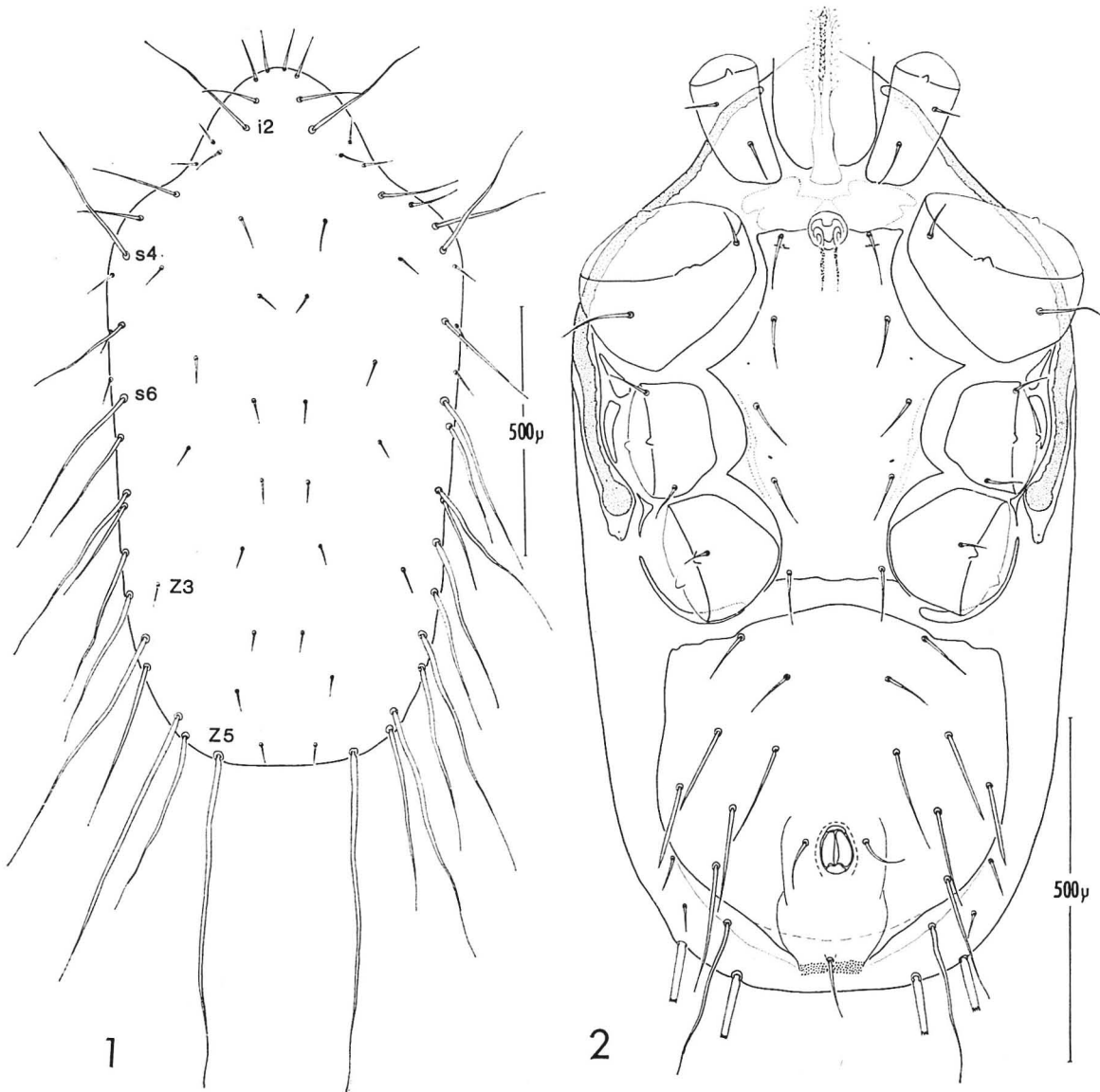
The absence of any females as well as a rather unusual combination of characters in the males and the deutonymphs, make it undesirable, or even impossible, to place the mites with any degree of certainty into any one of the known families of gamasid mites, until females will be found and described. They belong, however, to a new genus and species which are described herewith.

Cerambylaelaps n. gen.

The generic diagnosis will be brief until the female can be included. It comprises the combination of the following characters : Dorsal shield entire in male and deutonymph, bearing 38 pairs

* Department of Biology, University of Haifa. *Postal address* : Kibbutz Mishmar Haemek, Israel.

of setae (23 podonotal and 15 opisthonotal). Many marginal setae elongate and whiplike. Male with separate ventro-anal shield, heavily armed legs II and IV. Spermadactyl very long, directed inward; corniculi narrow and elongate, six transverse rows of tiny deutosternal teeth. Associated with a cerambycid beetle.



FIGS. 1-2 : *Cerambylaelaps nadchatrami*, n. sp. male. 1) Dorsal shield ; 2) Venter.

***Cerambylaelaps nadchatrami* n. sp.**

MALE : Dorsal shield 1 580 μm long and 830 μm wide at the level of s4. Range in paratypes shows extreme variability, dorsal shield of smallest male being 1 300 μm \times 700 μm , whereas that of the largest male is 1 900 μm \times 1 100 μm . As in similar cases, the typical male characteristics (e.g. armature of legs II and IV) are in allometric relations to the size of the specimen.

Most specimens are either large or small, approaching the condition of "normal" and "heteromorphic" males. The holotype was the only intermediate specimen. The dorsal shield covers the dorsum completely and bears 23 pairs of setae in the podonotal region (an 8th seta being apparently present in the marginal r series). As in many coleopterophile mites there are many long submarginal and marginal setae which increase in length along the antero-posterior axis. The setae of the Z series, with the exception of the short Z2, are very long, Z5 being the longest (670 μm). The distribution and the relative lengths of the setae are shown in fig. 1. The holotype is assymetrical, one submarginal podonotal seta is absent on the left side. The shield is only weakly sculptured.

Tritosternum with long, weakly pilose, laciniae. The sternal-metasternal shield (fig. 2) bears five pairs of simple, needleshaped setae; a weakly sclerotized, granular, presternal area is well defined. The endopodal shields are fused to the sternal shield. The large ventro-anal shield is well sclerotized and sculptured, it bears 7 pairs of setae in addition to the anal setae. Within the shield and oblong anal shield is well demarkated, the distance between the posterior margin of the anal aperture and the postanal seta being 135 μm . The peritreme (fig. 3) is free posteriorly and fused along its anterior half with the dorsal shield. The parapodal shields are free.

Gnathosome (fig. 4) with six transverse rows of tiny deutosternal denticles (more than 25 denticles per row) which are preceded by a smooth transverse line. Corniculi well sclerotized, narrow and long (180 μm). The anterior and internal hypostomal setae (hyp.1 and hyp.3, after EVANS and TILL, 1965) are very long (170 μm and 210 μm respectively). The palp-tarsus (fig. 5) bears a two-tined apotele, the palp-genu bears two specialised setae: the anterior one with three distal denticles, the posterior seta being spatula like. The chelicera (fig. 6) with bidentate fixed finger and monodentate movable digit. The pilus dentilis is short and inconspicuous. The spermadactyl is very long, about 1.6 times the length of the second cheliceral segment, about 6 times the length of the movable digit. It turns inwards and seems to be hollow throughout its length like a hypodermic needle.

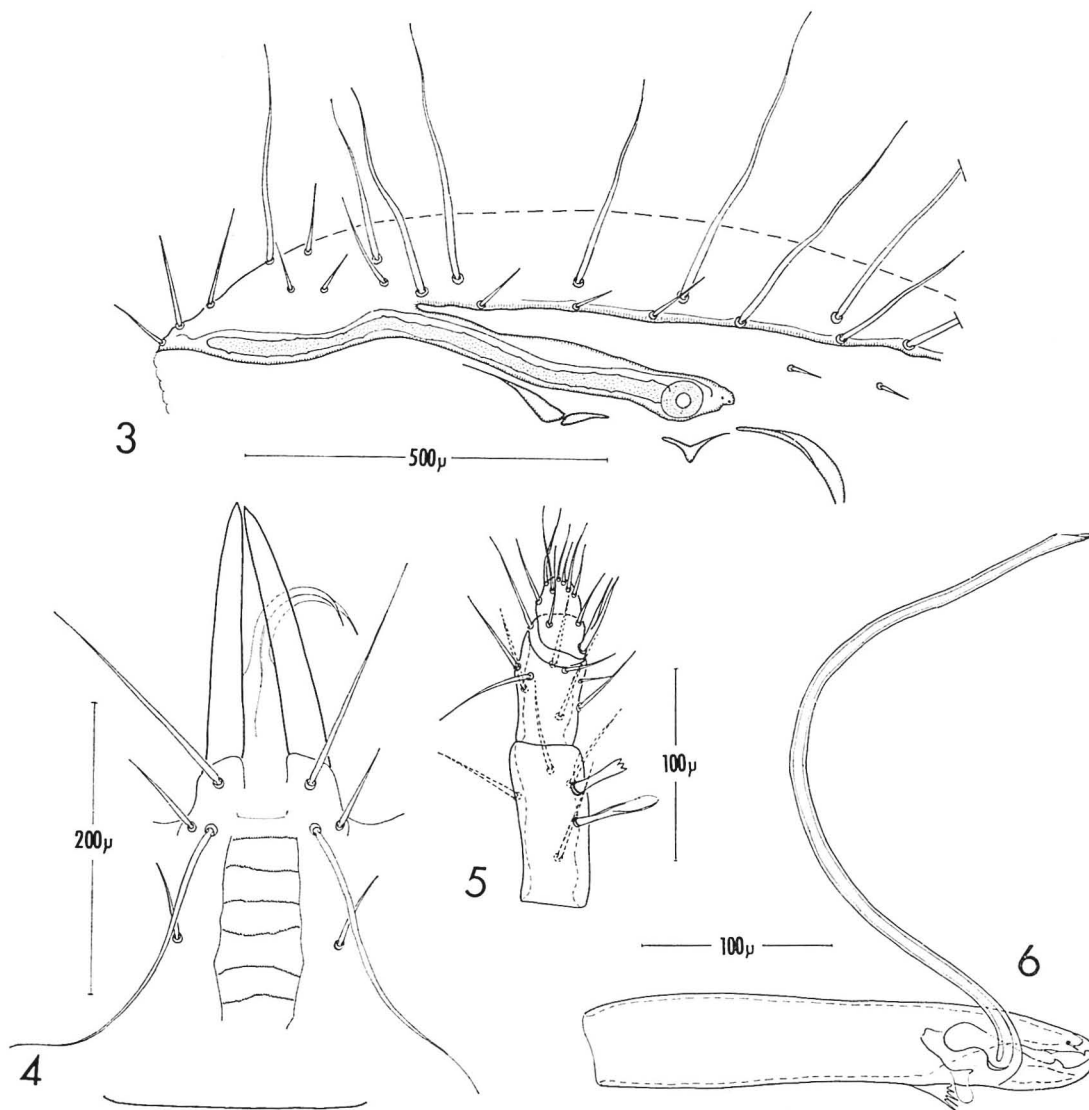
The legs have the following chaetotactic formulae :

	I	II	III	IV
femur	2, 5/3, 2	2, 5/3, 1	1, 2/1; 1/0, 1	1, 2/1; 1/0, 1
genu	2, 3/2; 3/1, 1	2, 3/1; 2/1, 2	2, 2/1; 2/0, 1	2, 2/1; 3/0, 1
tibia	2, 3/2; 3/1, 2	2, 1/1; 3/1, 2	2, 1/1; 2/0, 1	2, 1/1; 3/1, 2

Leg II (fig. 7) is heavily armed with a large spur and a small, seta bearing, protuberance on its femur; genu and tibia with smaller protuberances. Leg IV (fig. 8) with two sharp, blade like, spurs on its femur and with many robust, dagger-like, setae. Legs II and IV are much thicker and more robust than legs I and III which are thin, almost delicate in comparison. All the legs have pretarsi. The approximate lengths of the legs (excluding pretarsi) are: I — 1 320 μm ; II — 1 070 μm ; III — 1 030 μm ; IV — 1 370 μm .

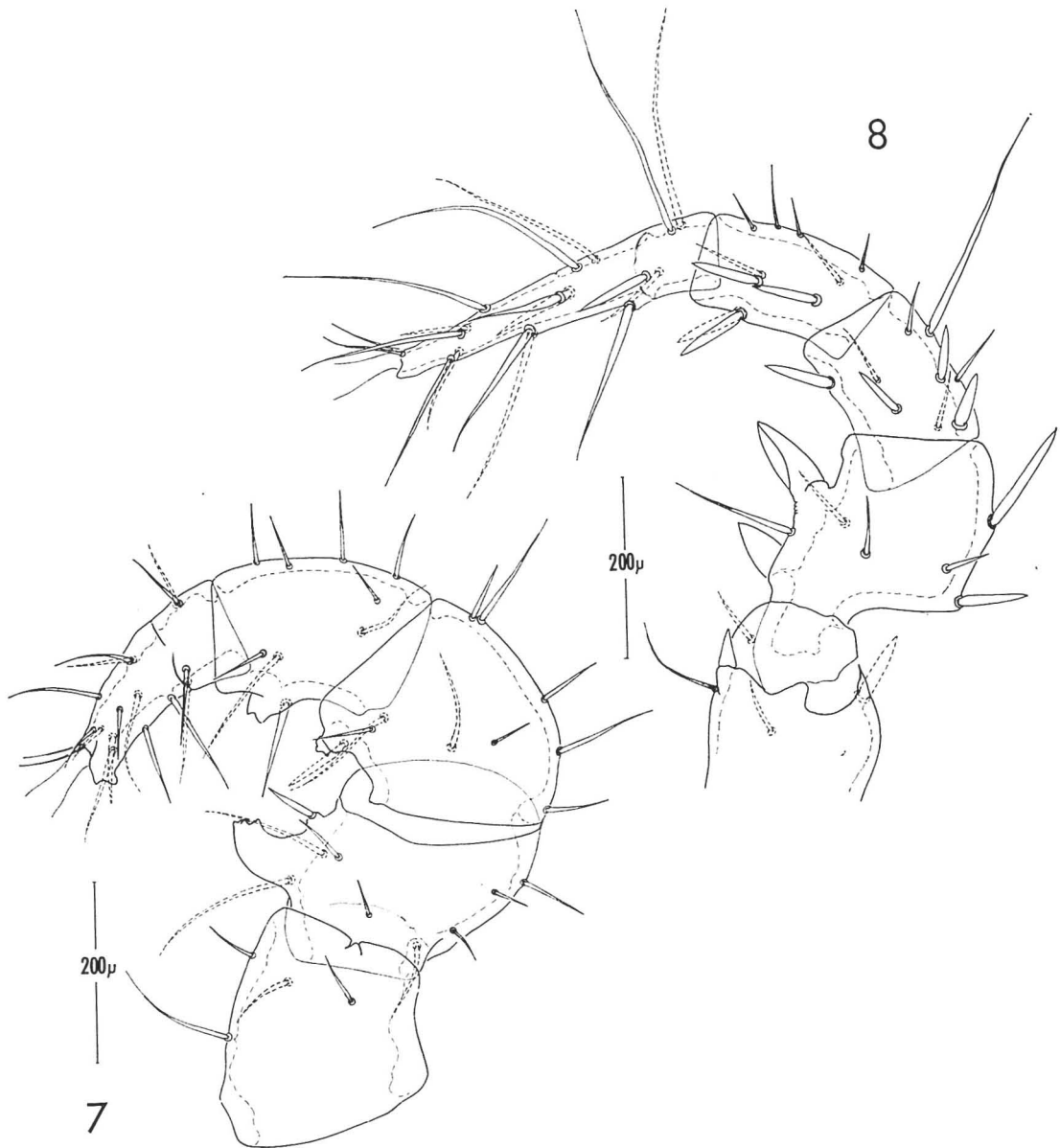
DEUTONYMPH: Dorsal shield (850 μm \times 450 μm) entire, without any indication of lateral incisions. The shield bears 28 pairs of setae. Setae Z5 are longest (450 μm), the setae of the S series which are elongate in the male, are much shorter and needle-shaped in the deutonymph. The distribution and the relative lengths of the setae are shown in fig. 9.

Tritosternum (fig. 10) with pilose laciniae. Sternal-genital shield (250 μm long) with the usual four pairs of setae, presternal area well defined. Genital setae situated on soft integument

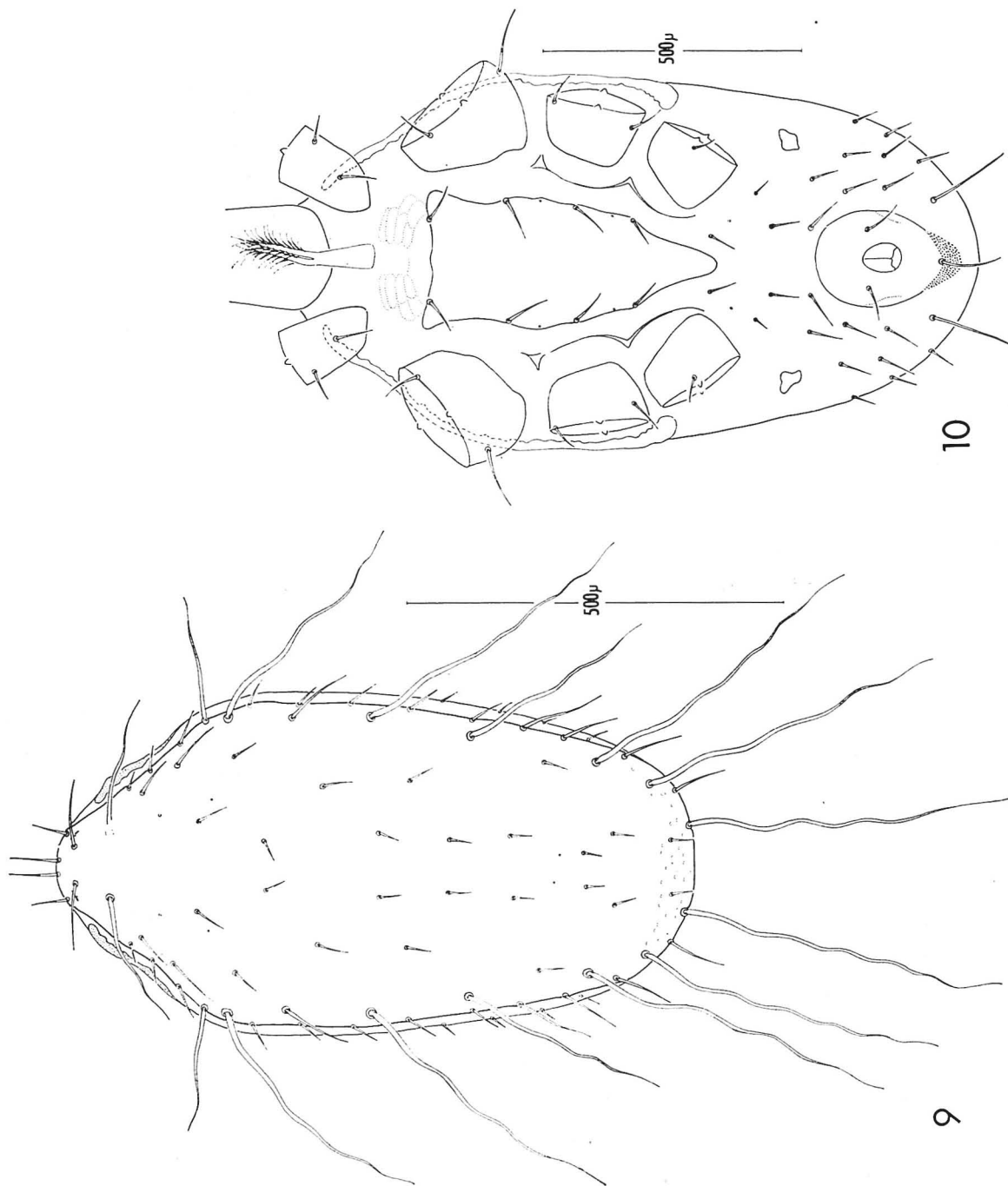


FIGS. 3-6 : *Cerambylaelaps nadchatrami*, n. sp. male.

3) Lateral view ; 4) Gnathosome, ventral view ; 5) Palp ; 6) Chelicera.



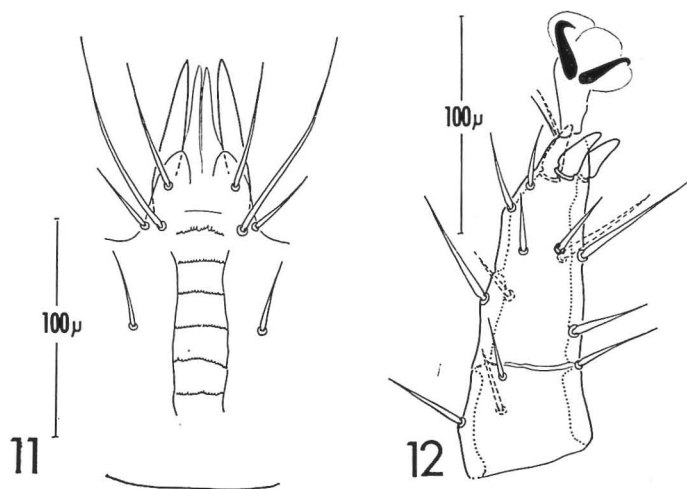
FIGS. 7-8 : *Cerambylaelaps nadchatrani*, n. sp. male. 7) leg II ; 8) Leg IV.



Figs. 9-10 : *Cerambylaelaps nadchatrani*, n. sp. deutonymph. 9) Dorsum ; 10) Venter.

near the posterior projection of the shield. About 12 pairs of simple setae are inserted on the soft integument. Endopodal shields narrow and free, metapodals small and irregular. Peritreme long, reaching anteriorly nearly to the level of serae s1. Anal shield (125 μ m long and 110 μ m wide) with circular anterior margin, postanal seta markedly longer than paranal setae.

Gnathosome (fig. 11) similar to that of female, with only about 20 denticles per row. Tarsus II (fig. 12) with three subterminal blunt spines. The approximate lengths of the legs (excluding pretarsi) are : I — 850 μ m ; II — 660 μ m ; III — 690 μ m ; IV — 890 μ m.



FIGS. 11-12 : *Cerambylaelaps nadchatrani*, n. sp. deutonymph.
11) Gnathosome, ventral view ; 12) Tarsus II.

TYPE MATERIAL : Holotype (♂) and paratypes comprising 8 ♂ and 4 DN, all with identical data : Cerambycid beetle, 12th mile Gombak (Hooper study area), Selangor, Malaysia, 5th June, 1972. The holotypes and two paratypes have been deposited in the British Museum (Natural History), London. Remaining paratypes have been divided between the author's collection and the I.M.R., Kuala Lumpur, Malaysia.

DISCUSSION : In trying to relegate *Cerambylaelaps nadchatrani* to one of the known families of Gamasina, a real puzzle is set, showing us how dependent we still are on the female in our classifications. Although the chaetotaxy of the opisthonotal region, of femur I and a separate ventro-anal shield in the male indicate ascid relationships, — the armature of the legs, the form of the spermadactyle and the al setae on the palp-genu are atypical for the ascidae. The long, inwardly curved, spermadactyl, narrow and elongate corniculi, the armature of legs II and IV and the association of males and deutonymphs only with the host, are well known from the eviphidoid complex (sensu KARG, 1965) in which both two-tined and three-tined mites are included. On the other hand, the long dorsal setae, the tendency for the reduction of px setae (Zx) so that the chaetotaxy of the opisthonotum resembles the ascid form, the armature of the legs and the long spermadactyl in the male would be also acceptable in the laelapidae. Puzzling is the entire dorsal shield in the deutonymph, barring any lateral incision. According to BREGETOVA (1969) this character is typical only for the Phytoseiidae and the Haemogamasidae.

The insecticolous mesostigmatic mites have still been comparatively little studied and the range and degree of various adaptations to specific habitats within the groups are unknown.

The long whip-like dorsal setae (not uncommon in insecticolous mites), the armature of the legs in the male and the length of the spermadactyl are characters which are difficult to assess within a morphologically plastic group. There seems to be little point, therefore, in strictly applying family diagnoses based on free living forms, to such a complex. The least we can do to avoid confusion, is to wait for the description of the female of the species, before family placement shall be attempted.

The new species is named in honour of Mr. M. NADCHATRAM, I.R.M., Kuala Lumpur, Malaysia.

ACKNOWLEDGEMENTS

I wish to thank Dr. R. DOMROW and Mr. M. NADCHATRAM for placing the material at my disposal. Special thanks are due to Prof. G. O. EVANS (Dept. of Agricultural Zoology, University College, Glasvenin, Dublin, Eire) for his advice. In the discussion I have freely borrowed large parts from his correspondence.

REFERENCES

- BREGETOVA (N. G.), 1969. — Ontogeny of Gamasid Mites as a Basis of their Natural System. — *Proc. 2nd Int. Cong. Acarology, Prague, 1967* : 289-295.
- KARG (W.), 1965. — Larvalsystematische und phylogenetische Untersuchungen sowie Revision des Systems der Gamasina Leach, 1915 (Acarina, Parasitiformes). — *Mitt. zool. Mus. Berlin*, **42** : 193-340.
- EVANS (G. O.) & (W. M.) TILL, 1965. — Studies on the British Dermanyssidae (Acari : Mesostigmata). Pt. I — External Morphology. *Bull. Brit. Mus. (Nat. Hist.), Zoology*, **13** (8) : 249-294.

Paru en Mars 1979.
