

NEW DERMANYSSID MITES (ACARI : MESOSTIGMATA)  
FROM NESTS OF *SPALAX EHRENBURGI* NEHRING<sup>1</sup>

BY

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INTRODUCTION.

During a recent survey of the nidicolous arthropods associated with *Spalax ehrenbergi* Nehring (COSTA & NEVO, in press), a number of new species of mesostigmatic mites were collected. Three new laelapine species and one haemogamasine species are described in this study. In the taxonomic arrangement EVANS & TILL (1966) are followed. All the figures and measurements have been prepared from temporary mounts cleared in Vitzthum's fluid.

Dermanyssidae Kolenati.

Laelapinae Berlese.

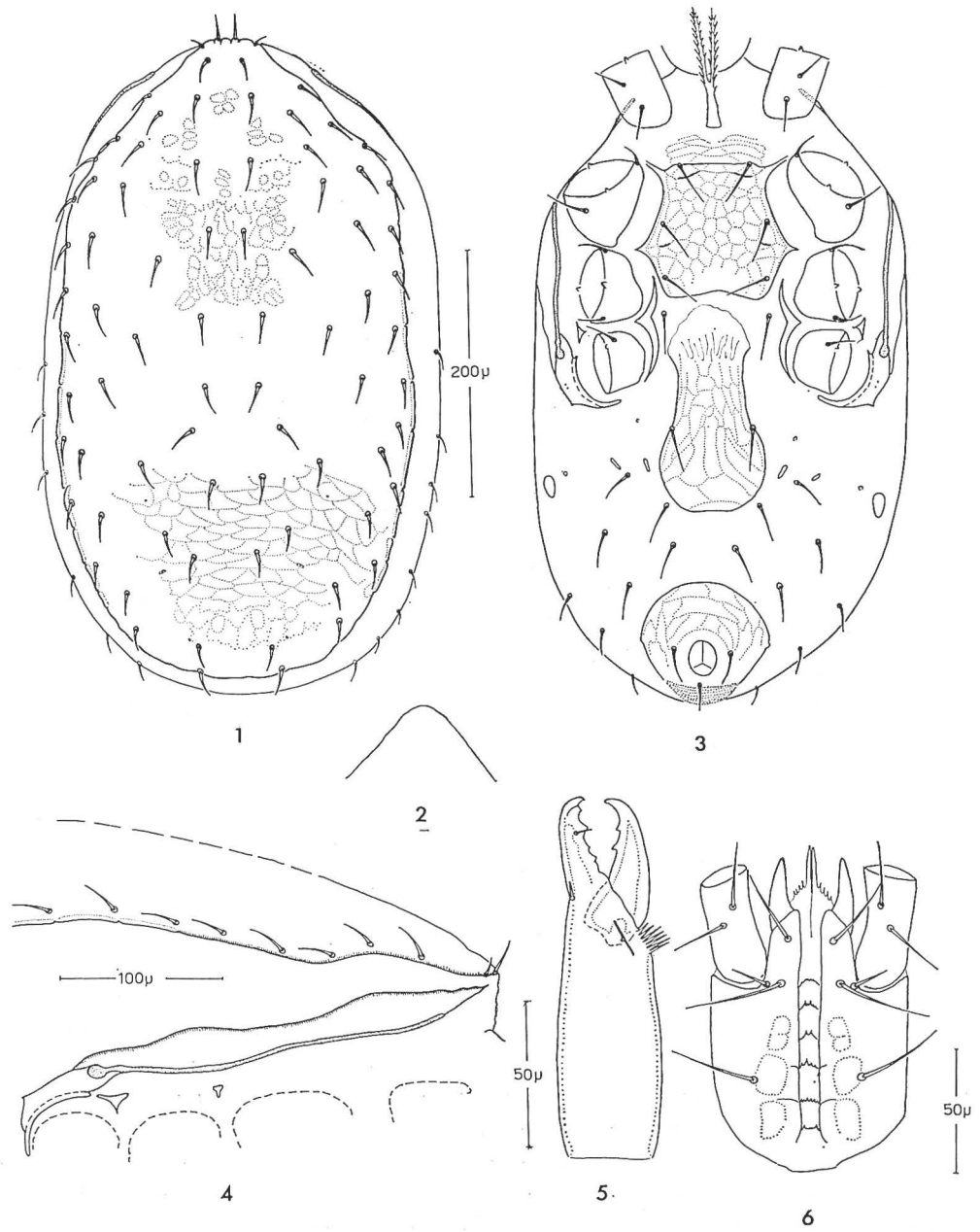
**Hypoaspis golanii** sp. nov.

FEMALE : Medium large mites which are invariably encrusted with a waxy secretion (which can be usually removed completely after moderate heating in Vitzthum's fluid). The dorsal shield (530  $\mu$  long and 290  $\mu$  wide) covers most of the dorsum, leaving only a narrow strip of integument. The shield bears 39 pairs of short spiny setae, on the opisthonotal part the arrangement may be asymmetrical owing to the absence of a paired seta in the J series or the addition of an unpaired seta between the J setae. The shield is well ornamented throughout, the ornamentation being different in the two parts of the shield. The relative lengths and the distribution of the setae are shown in fig. 1. The tectum (fig. 2) is triangular and has a smooth margin.

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FIGS. 1-6 : *Hypoaspis golanii* sp. nov., female  
 1. — Dorsum. 2. — Tectum. 3. — Venter. 4. — Lateral view.  
 5. — Chelicera. 6. — Gnathosoma, venter.

The tritosternum has well developed pilose laciniae. The sternal shield (105  $\mu$  long and 100  $\mu$  wide at the level of St2) has a rather indistinct anterior margin and merges with a weakly sclerotized and granulated preendopodal area. The shield is well ornamented and bears 3 pairs of sternal setae which are markedly longer than the dorsal setae. Both pairs of sternal pores are slit-like. The posterior margin of the shield is slightly concave (fig. 3). The metasternal setae are inserted on the nonsclerotized integument. The genital shield is tongue-shaped, expanding slightly behind the single pair of genital setae. The shield is well ornamented. A wide strip of integument separates the genital from the large anal shield (100  $\mu$  long and 100  $\mu$  wide). Eight pairs of ventral setae (longer than the dorsal setae) are inserted on the ventral integument. The metapodal shields are oval and small. The peritreme extends anteriorly to the middle of coxa I, it is accompanied throughout its length by a weakly sclerotized peritrematal shield that is free anteriorly, posteriorly it is fused with the podal shield of coxa IV (fig. 4).

The gnathosoma (fig. 6) with six rows of deutosternal teeth (2-5 per row), well sclerotized corniculi and fimbriate internal malae. The chelicera (fig. 5) with a bidentate movable digit, the immovable digit having four teeth. Palp with two-tined apotele.

All the legs are provided with pretarsi bearing pulvilli and claws, they are noticeably shorter than the dorsal shield. The approximate lengths of the legs (excluding pretarsi) are : I — 420  $\mu$  ; II — 350  $\mu$  ; III — 300  $\mu$  ; IV — 425  $\mu$ .

Chaetotaxy normal, genu IV with nine setae ( $2\frac{2}{1}\frac{3}{0}1$ ).

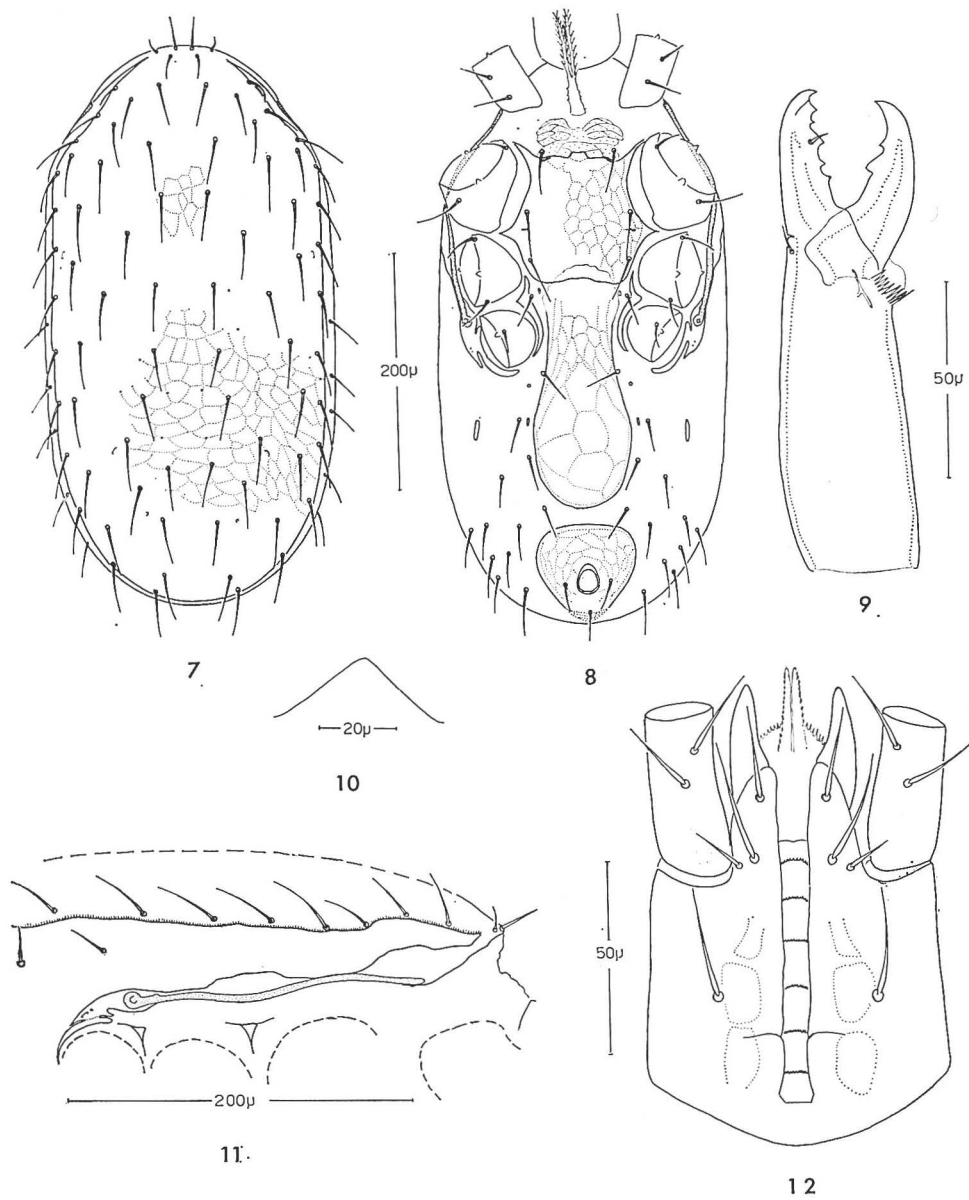
NOTES : The new species is closely related to *Hypoaspis heselhausi* Ouds. and keys out as this species in the key of *Hypoaspis* by EVANS & TILL (1966). The new species can be separated easily by its small tongue-shaped genital shield and by its large anal shield with a semicircular anterior margin.

MATERIAL : Holotype female : Nest of *Spalax ehrenbergi*, Mt. Hermon, 4.5.1968 ; paratypes : 24 ♀, same data ; 1 ♀, Golan Heights, 1.3.1968.

#### ***Hypoaspis hermonensis* sp. nov.**

FEMALE : The dorsal shield (485  $\mu$  long and 235  $\mu$  wide) covers most of the dorsum, leaving only a narrow strip of integument. The shield is ornamented throughout and bears 39 pairs of long simple setae. Four pairs of R setae are inserted on the lateral integument, the remaining R setae are progressively ventrally displaced. The distribution and relative lengths of setae are shown in fig. 7. The tectum (fig. 10) is triangular and has a smooth anterior margin.

The sternal shield (115  $\mu$  long and 100  $\mu$  wide at the level of St2) is well ornamented, the posterior margin is slightly concave. The anterior margin of the sclerified part of the shield is continuous with the first pair of sternal pores and



FIGS. 7-12 : *Hypoaspis hermonensis* sp. nov., female.  
 7. — Dorsum. 8. — Venter. 9. — Chelicera. 10. — Tectum.  
 11. — Lateral view. 12. — Gnathosoma, venter.

has a characteristic bulge at its center. The first pair of sternal setae are situated in a poorly sclerotized, well granulated jugular area in front of the shield (fig. 8). The metasternal setae are inserted on the integument. The ornamented genital shield is large, expending behind the genital setae which are inserted on the outside of its margins. The large anal shield ( $85\ \mu$  long and  $85\ \mu$  wide) is ornamented, the distance of the anus from the anterior margin of the shield exceeds in length the diameter of the anus. The paranal setae are slightly longer than the post-anal seta. The metapodal shields are small and elongate. The peritreme is fused anteriorly to the dorsal shield and posteriorly to the podal shield of coxa IV (fig. 11), anteriorly the peritreme extends to the posterior margin of coxa I (the center of the distance between r2 and r3).

The gnathosoma (fig. 12) with well sclerotized corniculi and hirsute internal malae, six rows of deutosternal denticles (about 10 per row) and smooth posterior and anterior transverse ridges. The chelicera (fig. 9) with a bidentate movable digit and five teeth on the immovable digit. Palp with two-tined apotele.

All the legs are provided with ambulacra. The approximate lengths of the legs (excluding pretarsi) are : I —  $395\ \mu$  ; II —  $300\ \mu$  ; III —  $255\ \mu$  ; IV —  $360\ \mu$ .

Chaetotaxy of legs normal, genu IV with nine ( $2\frac{2}{1}\ 3\ 1$ ) setae.

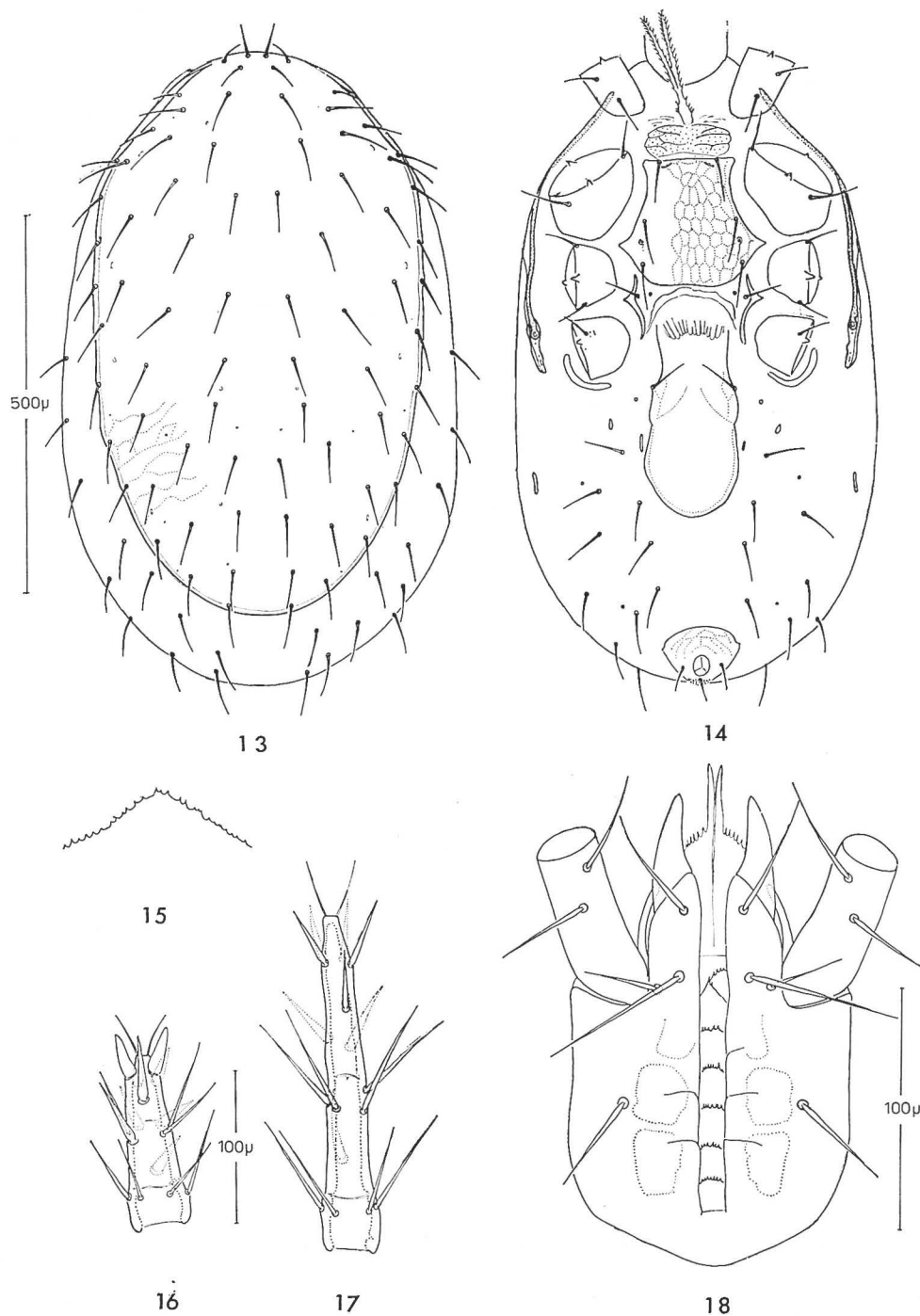
NOTES : The new species seems to be closely related to *Hypoaspis paracasalis* Ryke, 1963 from which it differs mainly in length of dorsal setae, shape of tectum, shorter metapodal shields and shorter peritreme. It is also similar to *Hypoaspis heyi* Karg, 1962, from which it can be separated by its much shorter legs, larger number of deutosternal denticles, differing lengths of gnathosomal setae and differing sculpture of genital shield. *Hypoaspis hermonensis*, having a smooth bordered tectum and polydont (more than 6 denticles per row) deutosternal ridges, is intermediate between the subgenera *Hypoaspis* Can. s. str. and *Hypoaspiella* Bernhard, 1955 i. l. (*sic* !) according to the key by KARG (1962) and cannot be assigned to either of them. The validity of the subgeneric division of *Hypoaspis* Can. is questionable and for further discussion vide EVANS & TILL (1966).

MATERIAL : Holotype ♀ — Nest of *Spalax ehrenbergi*, Mt. Hermon 9.3.1968 ; paratypes — numerous ♀, same data and also 4.5.1968.

#### ***Hypoaspis negevi* sp. nov.**

FEMALE : Fairly large, light brown mites. The dorsal shield ( $745\ \mu$  long and  $420\ \mu$  wide) does not cover the dorsum completely. The shield is almost devoid of any ornamentation and bears 38 pairs of simple setae (22 podonotal and 16 pairs opisthonotal). Seven pairs of R setae are inserted on the lateral integument. The distribution and the relative lengths of the setae are shown in fig. 13. The tectum (fig. 15) with denticulate margin.

The tritosternum has long pilose laciniae and a barbed shaft. The sternal



FIGS. 13-18 : *Hypoaspis negevi* sp. nov., female.  
 13. — Dorsum. 14. — Venter. 15. — Tectum. 16. — Tarsus II, dorsal.  
 17. — Tarsus IV, dorsal. 18. — Gnathosoma, venter.

shield (180  $\mu$  long and 140  $\mu$  wide at the level of St2) is faintly ornamented throughout. The presternal area is weakly sclerotized and granulated. The metasternal setae are inserted on the integument. The genital shield is tongue shaped (fig. 14) it has a characteristic constriction somewhat posterior to the genital setae. The metapodal shields are small, narrow and elongate. Nine pairs of ventral setae are inserted on the integument. The paranal setae are slightly longer than the postanal seta. The peritreme extends anteriorly to the middle of coxa I, anteriorly it is fused to the dorsal shield by a narrow connection, posteriorly it is free (fig. 19).

The gnathosoma (fig. 18) with six rows of deutosternal denticles (5-7 per row) which are irregular and variable in size. The corniculi are well sclerotized, the internal malae with an inner lobe that exceeds the corniculi in length and an outer fimbriate margin. The palp with two-tined apotele. Salivary styles short. The movable digit of the chelicera (fig. 20) is bidentate, the immovable digit with four small teeth.

The approximate lengths of the legs (excluding pretarsi) are : I — 685  $\mu$  ; II — 540  $\mu$  ; III — 505  $\mu$  ; IV — 815  $\mu$ . All the legs have claws and pulvilli. Chaetotaxy normal, tarsus II (fig. 16) with setae  $av_{1-2}$ ,  $pv_{1-2}$  and  $mv$  spine-like and pointed ; tarsus IV (fig. 17) with long simple setae, genu IV with 9 setae ( $2 \frac{2}{1} \frac{3}{0} 1$ ).

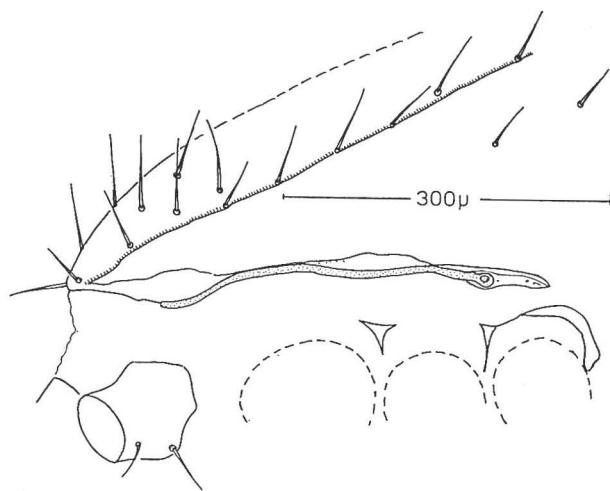
MALE : Dorsal shield (700  $\mu$  long and 360  $\mu$  wide) with chaetotaxy as in female, the shield covers the dorsum completely. The venter (fig. 21) is covered by a compound sternito-genito-ventral shield (475  $\mu$  long) and a separate anal shield. The posterior area of the mite invariably folded during preparation with a consequent distortion of the shape of the anal shield. The compound ventral shield bears 8 to 9 pairs of simple setae, the region of the shield posterior to the genital setae being variable in its extent of sclerotization. Specimens bearing 6, 7 and 8 setae on this part of the shield were observed, the normal complement seems to be 4 pairs. Peritreme as in female, its anterior connection to the dorsal shield being broader.

The chelicera (fig. 22) with monodentate movable digit to which a relatively short, straight spermatodactyl is attached ; movable digit with about five denticles.

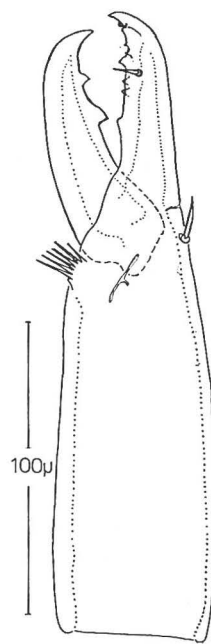
Chaetotaxy of legs as in female, their approximate lengths (excluding pretarsi) are : I — 636  $\mu$  ; II — 515  $\mu$  ; III — 480  $\mu$  ; IV — 745  $\mu$ .

DIAGNOSTIC FEATURES : Dorsal chaetotaxy with one pair of px setae only (16 pairs of opisthonotal setae), shape of female genital shield and separate anal shield in the male.

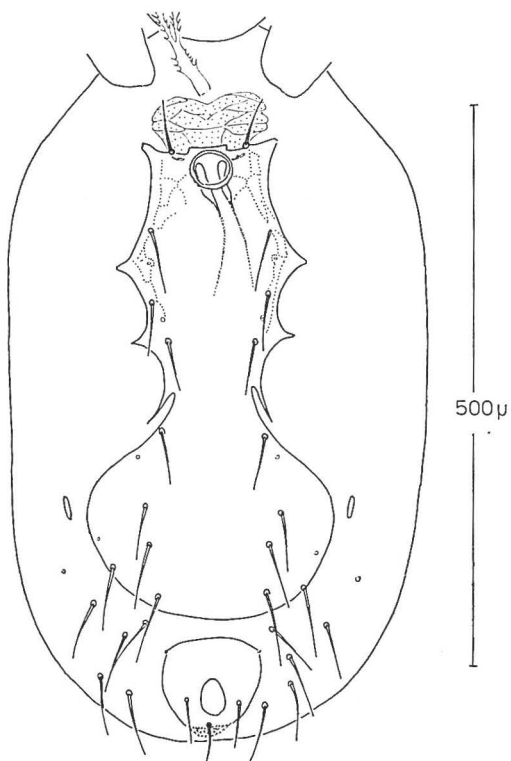
MATERIAL : Holotype ♀ — Nest of *Spalax ehrenbergi*, Yeroham, 26.3.1968 ; Paratypes — 13 ♂, 28 ♀, same data ; 5 ♂, 5 ♀, Yeroham, 12.2.1968 ; 3 ♂, 7 ♀, Mash'abbe Sade, 12.2.1968.



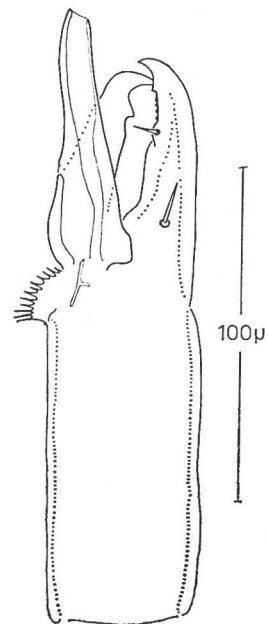
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FIGS. 19-22 : *Hypoaspis negevi* sp. nov.  
Female. 19. — Lateral view. 20. — Chelicera.  
Male. 21. — Venter. 22. — Chelicera.



Haemogamasinae Oudemans.

**Haemogamasus hermonensis** sp. nov.

FEMALE : Dorsal shield (950  $\mu$  long and 515  $\mu$  wide) densely covered with smooth setae of subequal length, the smooth vertical setae being much longer (85  $\mu$ ) than the remaining setae (fig. 23). The posterior margin of the shield is often very irregular and varies from specimen to specimen. The tectum (fig. 27) is lobed and very complex in outline.

The tritosternum has a barbed shaft and long pilose laciniae. The sternal shield (155  $\mu$  long and 205  $\mu$  wide at the level of St2) is ornamented, its posterior border being slightly concave. The shield bears about 45 accessory setae in addition to the sternal setae which are longer and stouter. All the setae are smooth. The presternal area is lined with very small denticles (fig. 24). The metasternal setae are inserted on the integument. The genito-ventral shield is tongue shaped, ornamented and covered with numerous setae, its outline is very variable and varies from specimen to specimen. The anal shield (110  $\mu$  long and 95  $\mu$  wide) bears usually 4, sometimes 5, accessory setae. The postanal seta (70  $\mu$ ) is always shorter than the paranal setae (78  $\mu$ ). The metapodal shields are small and oval. The integument is covered densely with setae, at the posterior margin of the opisthogaster a pair of stout setae (75  $\mu$ ) is present, but these never approach the conspicuous length present in *Haemogamasus hirsutosimilis* Willmann. The peritreme reaches anteriorly to coxa I, the peritrematal shield is free anteriorly, posteriorly it is fused with the podal shield of coxa IV (fig. 28).

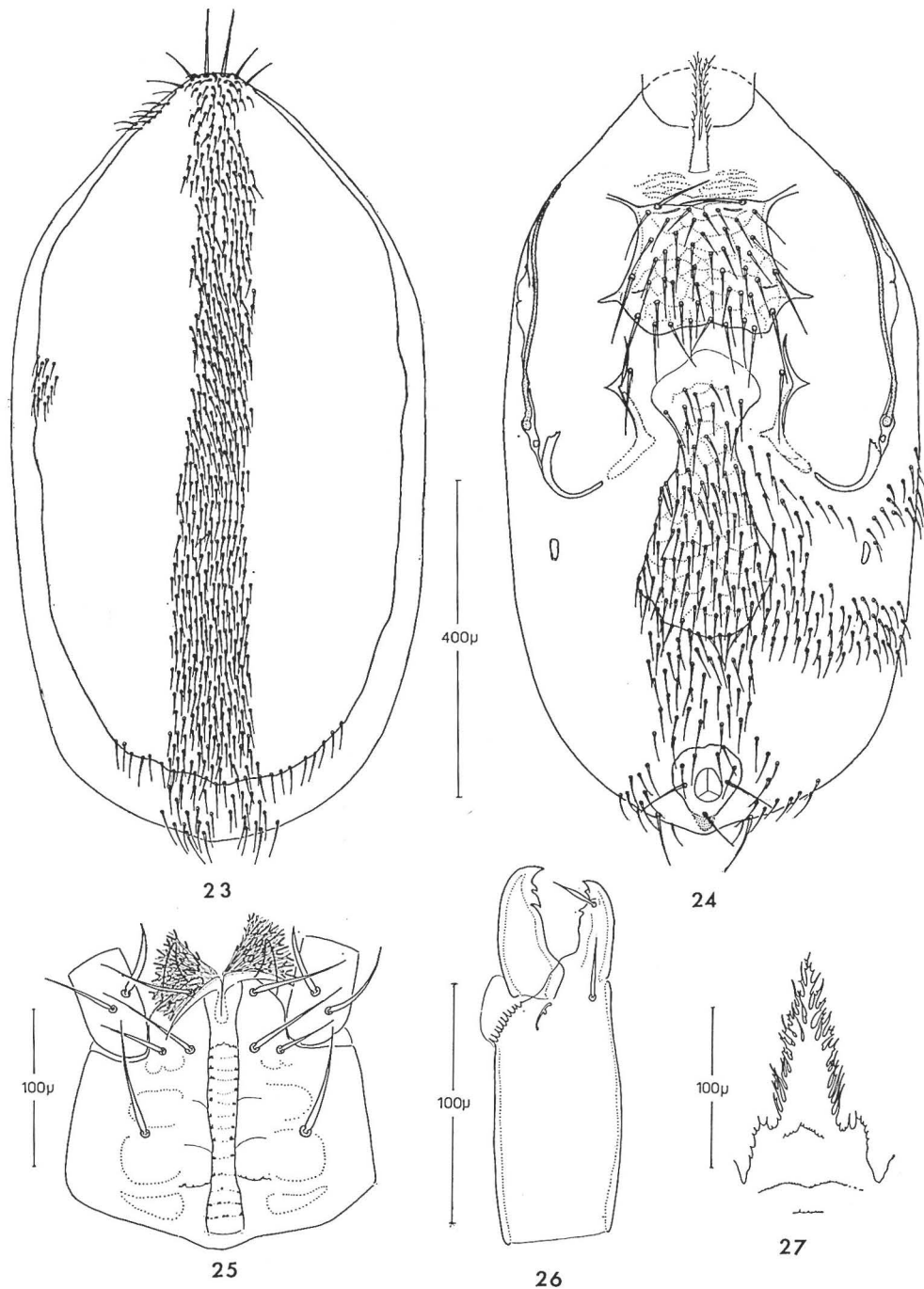
The gnathosoma (fig. 25) with well sclerotized corniculi, inner malae with numerous narrow pilose lobes. Fourteen rows of deutosternal teeth (2-8) are present. The chelicera (fig. 26) with a conspicuously long (< 20  $\mu$ ) pilus dentilis and along dorsal seta, both digits being bidentate.

The chaetotaxy of the legs as in *H. hirsutosimilis* Willmann (after Evans & TILL, 1966) : femur II with 12 setae (4 ventrals), femur III bears 7 setae (2 ventrals), genu IV bears two posterolateral setae and tibia IV has two antero- and two postero-dorsal setae. The distal margin of all segments, except tarsi, are serrated. The approximate lengths of the legs (excluding pretarsi) are : I — 960  $\mu$  ; II — 675  $\mu$  ; III — 780  $\mu$  ; IV — 1080  $\mu$ . All the legs have long ambulacra.

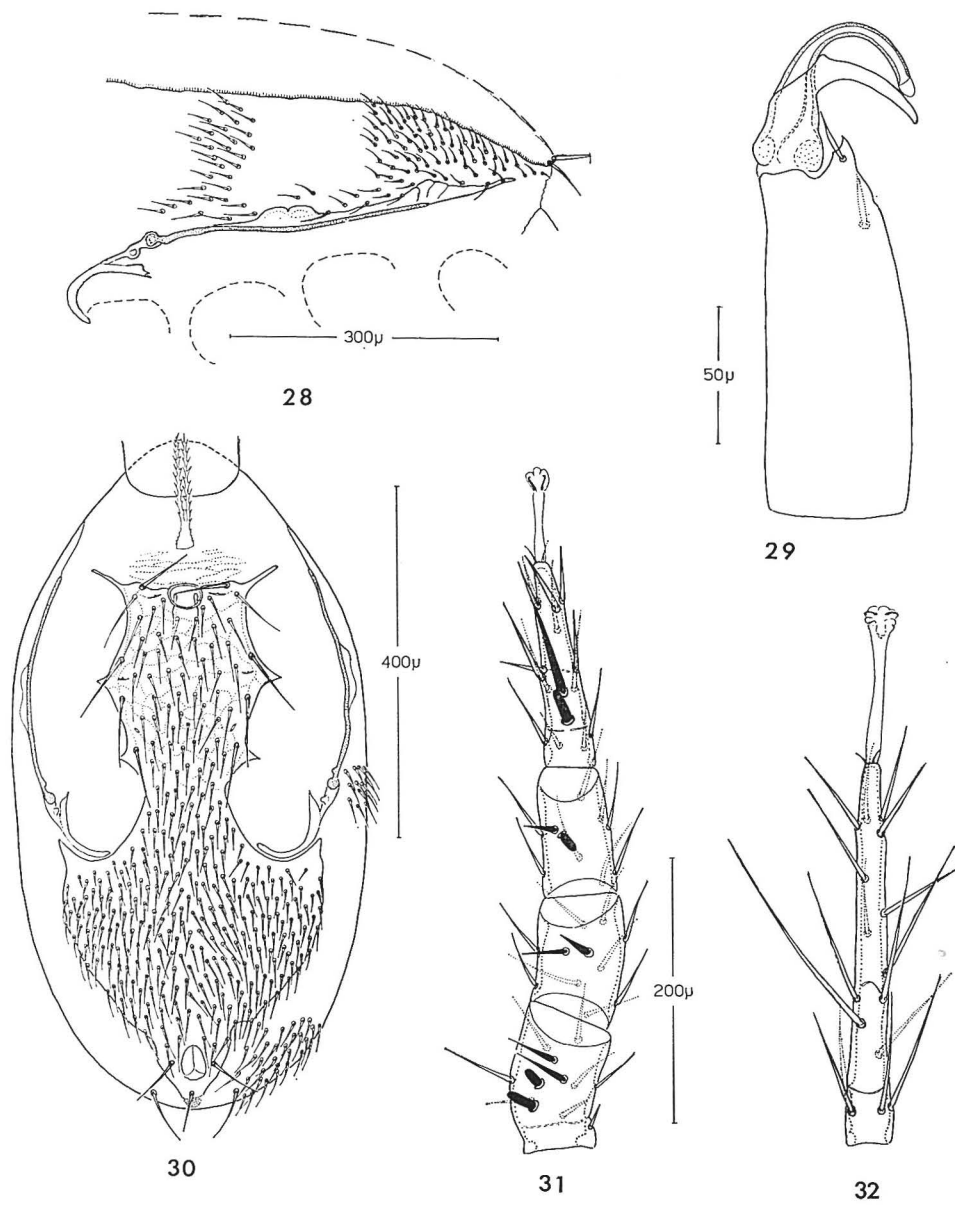
MALE : The male is considerably smaller than the female and its dorsal shield (755  $\mu$  long and 420  $\mu$  wide) covers the body completely. Other dorsal features as in female.

The venter (fig. 30) is covered by a single holoventral shield that is covered densely with smooth setae. The shield is ornamented mainly on its anterior part. Peritreme and remaining ventral features as in female.

The gnathosoma is similar to that of the female, the corniculi differ in shape, being broader and less sclerotized. The chelicera (fig. 29) with a rudimentary



FIGS. 23-27 : *Haemogamasus hermonensis* sp. nov., female.  
 23. — Dorsum. 24. — Venter. 25. — Gnathosoma, venter. 26. — Chelicera. 27. — Tectum.



FIGS. 28-32 : *Haemogamasus hermonensis* sp. nov.

28. — Lateral view of female. 29. — Chelicera of male. 30. — Venter of male.  
31. — Leg II of male, ventral view. 32. — Tarsus IV of male, dorsal view.

immovable digit which is exceeded in length by the long pilus dentilis. The edentate movable digit and the spermatodactyle are elongate and very strongly curved.

Leg chaetotaxy as in *H. hirsutosimilis* Willmann (sensu EVANS & TILL, 1966) with the exception that *av* of genu II is not peg-like but stout and pointed (fig. 31). Tarsus IV (150  $\mu$ ) bears a long (90  $\mu$ ) dorsal seta (fig. 32).

DEUTONYMPH : Normal, less sclerotized. The sternal and anal shields without accessory setae, opisthogastric and lateral integument densely covered with accessory setae. The chaetotaxy of the legs differs from that of the adults in femur II, which has 11 setae (3 ventrals) only.

NOTES : The new species is very closely related to *Haemogamasus hirsutosimilis* Willmann (sensu EVANS & TILL, 1966), it can be separated from it by the following characters : in both sexes by the presence of a very long pilus dentilis and the absence of "extremely long setae at the posterior end of the body". The male differs in the long curved movable digit and spermatodactyle and the absence of a peg-like seta (*av*) on genu II.

MATERIAL : Holotype ♀ — Nest of *Spalax ehrenbergi*, Mt. Hermon, 4.5.1968. Numerous paratypes with the same data and also 9.4.1968.

#### ABSTRACT.

The following new dermanyssid mites have been described from nests of *Spalax ehrenbergi* Nehring : **Hypoaspis golanii** sp. nov., **Hypoaspis hermonensis** sp. nov., **Hypoaspis negevi** sp. nov., **Haemogamasus hermonensis** sp. nov., and Thirty-two figures.

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