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A Taxonomic Study of Free-living Gamasine Mite Family Veigaiidae Oudemamand (Acari : Mesostigmata) From Taiwan 【Research report】

台灣維殼蟎科之分類研究 (珞蟎亞綱：中氣門目) 【研究報告】

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Abstract

The eleven species included in two genera of veigaiid mites are illustrated, keyed and described throughout this island. Among them, the seven species described as new i. e. *Gamasolaelaps bidentis* n. sp., *Veigaia anmashanensis* n. sp., *Veigaia carpillaris* n. sp., *Veigaia formosana* n. sp., *Veigaia hohuanshanensis* n. sp., *Veigaia limulus* n. sp., and *Veigaia pseudouncata* n. sp. The four species as following: *Gamasolaelaps whartoni* Farrier, *Veigaia arvensis* Ishikawa, *Veigaia planicola* Berlese and *Veigaia uncata* Farrier are newly recorded from Taiwan.

摘要

本文筆者敘述在臺灣發現2屬11種之維殼蟎，其中有7種為新種，4種為新記錄；所有種類如下：*Gamasolaelaps bidentis* n. sp., *Gamasolaelaps whartoni* (Farrier), *Veigaia anmashanensis* n. sp., *Veigaia arevensis* Ishikawa, *Veigaia carpillaris* n. sp., *Veigaia formosana* n. sp., *Veigaia hohuanshanensis* n. sp., *Veigaia limulus* n. sp., *Veigaia planicola* Berlese, *Veigaia pseudouncata* n. sp., 及 *Veigaia uncata* Farrier。

Key words: Taxonomy, gamasine mite, Veigaiidae, new species, new recorded species.

關鍵詞: 維殼蟎、分類、自由生活、新種、新記錄種。

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A Taxonomic Study of Free-living Gamasine Mite Family Veigaiidae Oudemand (Acari: Mesostigmata) from Taiwan

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ABSTRACT

The eleven species included in two genera of veigaiid mites are illustrated, keyed and described throughout this island. Among them, the seven species described as new i.e. *Gamasolaelaps bidentis* n. sp., *Veigaia anmashanensis* n. sp., *Veigaia carpillaris* n. sp., *Veigaia formosana* n. sp., *Veigaia hohuanshanensis* n. sp., *Veigaia limulus* n. sp., and *Veigaia pseudouncata* n. sp. The four species as following: *Gamasolaelaps whartoni* Farrier, *Veigaia arvensis* Ishikawa, *Veigaia planicola* Berlese and *Veigaia uncata* Farrier are newly recorded from Taiwan.

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台灣維殼蟎科之分類研究（蟎蜱亞綱：中氣門目）

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摘 要

本文筆者敘述在臺灣發現 2 屬 11 種之維殼蟎，其中有 7 種為新種，4 種為新記錄；所有種類如下：*Gamasolaelaps bidentis* n.sp., *Gamasolaelaps whartoni* (Farrier), *Veigaia anmashanensis* n.sp., *Veigaia arevensis* Ishikawa, *Veigaia carpillaris* n.sp., *Veigaia formosana* n.sp., *Veigaia hohuanshanensis* n.sp., *Veigaia limulus* n.sp., *Veigaia planicola* Berlese, *Veigaia pseudouncata* n.sp., 及 *Veigaia uncata* Farrier。

關鍵詞：維殼蟎、分類、自由生活、新種、新記錄種。

Introduction

This is the second report concerning free-living gamasine mites in Taiwan. In the first paper, the author illustrated and described the twenty-eight species belonging to the seven genera of parholaspid mites in Taiwan. In present study, the author adds eleven species of veigaiid mites to the fauna of the free-living gamasine mites in Taiwan.

The veigaiid mite fauna is associated with forest soil, humus or decaying organic materials, particularly logs and soil of coniferous plants. They are essentially playing a predatory role in microarthropodes such as mites, eggs of insects, springtails and nematodes.

Members of the veigaiid mites are usually pale to dark brown, and about 250-1200 μ in length. Palptarsal claw of palp with 3 tines, and with a transparent membranous lobe arising at the apotelic base. Distal extensions of the internal malae of the hypostome are broadly fringed. Dorsal shield entire, with lateral incisions transversely. In some of the species, the dorsal shield is divided into 2 subdorsal shields. The metasternal shields are rectangular, elongated, and are closer to the posterior margin of sternal shield. The genital shield is usually separated to a ventral shield by an incomplete suture.

Prior to this study, the mite family of Veigaiidae was not intromission into the

free-living gamasine mite fauna of Taiwan. This study provides descriptions, illustrations and keys for the eleven species and two genera of this group of mites, found in Taiwan.

The type materials are deposited in Hsinchu Branch Office, Bureau of Commodity Inspection and Quarantine, Ministry of Economic Affairs.

Materials and Methods

The samples for the present study were collected by the author's from litter, moss, humus, log and soil etc. The mite specimens were separated using modified Berlese funnels, which were equipped with 100 watt electric bulbs, after heating for at least 48 hours. The collected mites specimens were cleaned with lactophenol solution (lactic acid : phenol crystalis : water = 50ml : 25g : 25ml) for 24-48 hours at 50 °C before being mounted. Hoyer's medium was used for the permanent slide preparation. The covered and mounted slides were gently heated to allow all the mite legs to stretch naturally and they were then examined under 20-1600 magnification.

The illustrations are based on the holotype, while the measurements are based on the holotype and the paratypes. Most of the morphological terms, especially the names of the dorsal setae, chaetotaxic formulae for the gnathosome,

palpi and legs follow Evans and Till (1979).

Key to the known species of the mite family Veigaiidae from Taiwan.

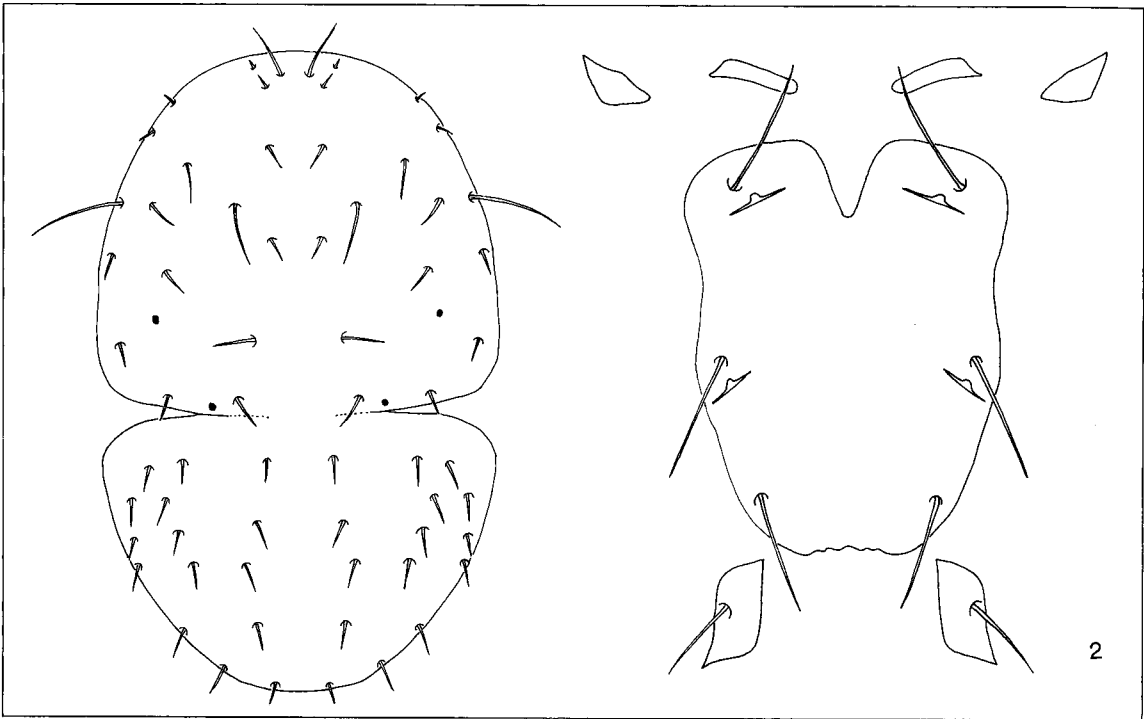
- 1. Genital shield absent, ventral shield reduced to a small plate.....*Gamasolaelaps*(Berlese)···2
- Genital and ventral shields present; ventral shield broad*Veigaia* Oudemans···3
- 2. Movable chela with 2 teeth; genitoventral shield with one pair of short setae.....*G. bidentis* n.sp.
- Movable chela with more than 5 teeth; genitoventral shield with 2 pairs of short and one pair of long setae.....*G. whartoni* Farrier
- 3. Fixed chela with 22-24 teeth; genital and ventral shields completely separated by a transverse suture; dorsal shield divided into 2 subdorsal shields*V. planicola* (Berlese)
- Fixed chela with 2-5 teeth; genital and ventral shields not completely separated by a transverse suture.....4
- 4. Femur IV with a strong hook or lobe like protuberance.....5
- Femur IV without such protuberance6
- 5. Femur IV with strong hook-like protuberance; ventral surface of femur IV with round puncta from base to apex; posterior margin of peritremal plate sharply pointed.....*V. uncata* Farrier
- Femur IV with strong lobe-like protuberance; ventral surface of femur IV with round puncta from base to seta av; posterior margin of peritremal plate round.....*V. pseudouncata* n.sp.
- 6. Posterior margin of peritremal plate connect with anterolateral corner of ventral shield···*V. anmashanensis* n.sp.
- Posterior margin of peritremal plate free from anterolateral corner of ventral shield.....7
- 7. Dorsal shield divided into 2 subdorsal shield; internal tuber long, which

extend from base of coxa IV to apex of ventral shield.....

-*V. hohuanshanensis* n.sp.
- Dorsal shield entire; internal tuber absent, if present then to form bituber-shaped, extending not to apex of ventral shield.....8
- 8. Dorsal shield rather small, less than 550 μ long; podonotal setae j_4 less 1.4 times longer than j_59
- Dorsal shield large, more than 700 μ long, podonotal setae j_4 more 1.7 times longer than j_510
- 9. Lateral incisions of dorsal shield distinctly curving posteriorly medially, ending in sharp points; medial tectum Y-shaped, with convex on anteromedial margin; trochanter IV with a strong protuberance on dorsal surface of distal margin; with one pair of presternal shield.....*V. formosana* n.sp.
- Lateral incisions of dorsal shield straight posteriorly medially; medial tectum bulb-shaped; trochanter IV without a strong protuberance on dorsal surface of distal margin; with 2 pairs of presternal shields.....*V. carpillaris* n.sp.
- 10. Lateral incisions of dorsal shield distinctly curving posteriorly medially, ending in blunt points; podonotal setae j_4 about 5.2 times longer than j_5 ; ventral setae vs_1 about 1.3 times longer than vs_3*V. limulus* n.sp.
- Lateral incisions of dorsal shield straight posteriorly medially; podonotal setae j_4 about 1.7 times longer than j_5 ; ventral shield with vs_1 seta slightly shorter than vs_3*V. arvensis* Ishikawa

1. *Gamasolaelaps bidentis* n.sp. (Figs. 1-9)

This new species can be distinguished from related consanguineous species in movable chela having 2 teeth; by having one pair of shorter setae on genitoventral shield only; hypostomal setae arranged in



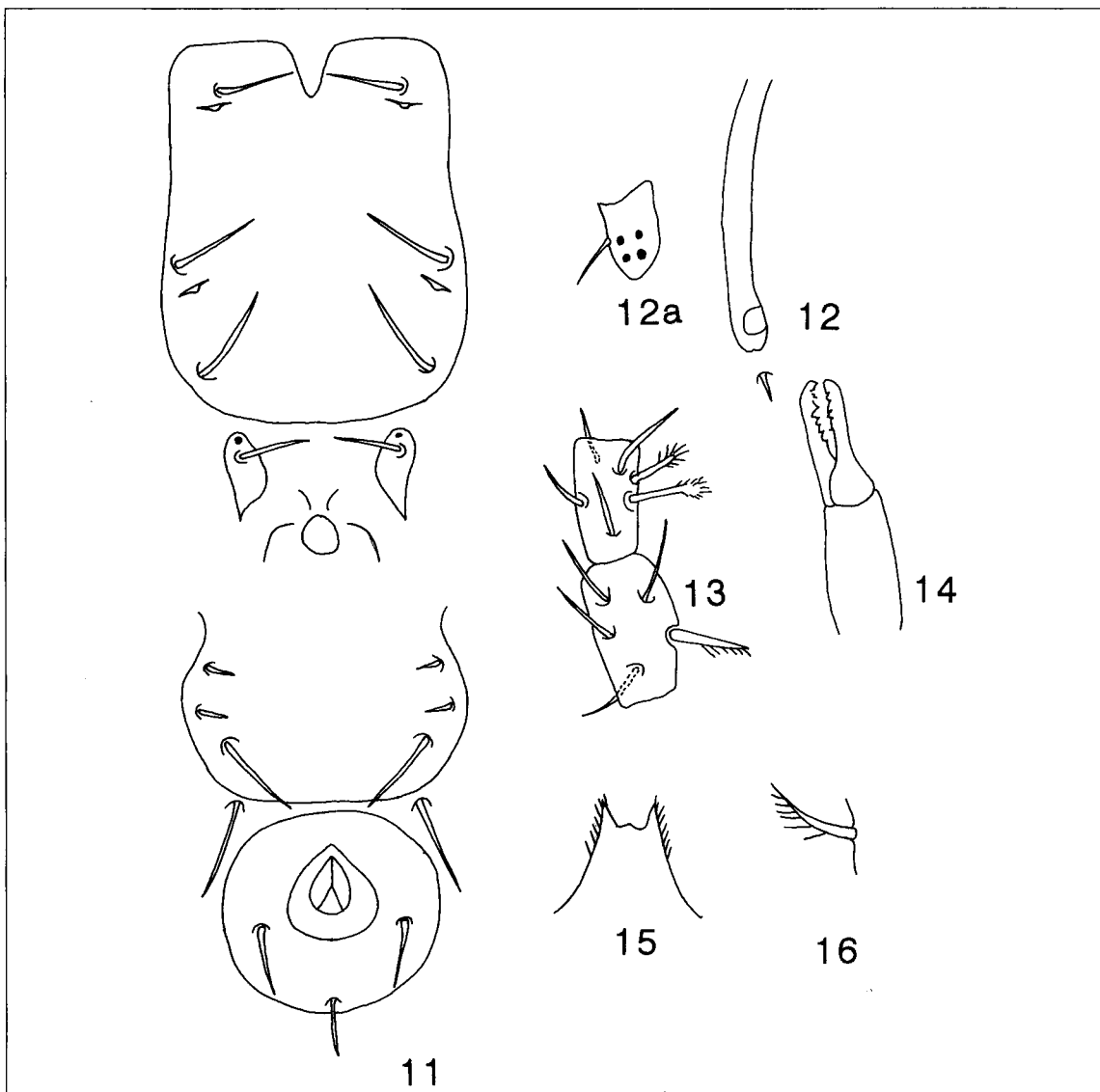
Figs. 1-2. *Gamasolaelaps bidbentis* n. sp. (female). 1, dorsal view; 2, presternal, sternal and metasternal shields.

a triangle-shaped.

Female. Movable chela 70μ long, with 2 teeth; fixed chela as long as movable chela, with 3 teeth, apical tooth minute. Tectum 2 tines, inner margins paralleled, with sharp tips, and with lateral serrated; anterior margin between these tines slight concave. Palpfemur with al seta, slightly expanded tip, densely pectinate apically. Palpgenu with setae al_1 and al_2 , narrowly fan-shaped and pectinated apically. Hypostome with 3 pairs of hypostomal setae, almost arranged in a triangle-shaped, 2nd and 3rd setae almost in a transverse line.

Dorsal shield entire, with transverse lateral incisions; bearing 33 pairs of setae, lanceolate, setae on podonotum distinctly longer and stouter than that of setae on opisthonotum. Podonotum with 18 pairs of setae; while the opisthonotum with 15 pairs of uniform length setae; setae j_1 , j_4 , z_5 and r_3 long. Two pairs of

presternal shields arranged in a transverse line; internal pair oval, transversely, outer pair triangular. Sternal shield subrectangular, anterior margin with strong incision medially, posterior margin very little concave, lateral edges convex; the shield bears 3 pairs of setae, subequal in length and 2 pairs of pores; interbasal distances of st_1 , st_2 and st_3 as 90μ , 107μ and 86μ respectively; the shield length 172μ , width 133μ . One pair of metasternal shields large, longer than wide, with one pair of setae and one pair of pores. Genitoventral shield rather small, hemisphere, with one pair of shorter setae. One pair of shorter and 3 pairs of longer setae on membrane between space of genitoventral and anal shields. Anal shield ball-shaped, broader than genitoventral shield, with one pair of paranal and one of postanal setae. Inguinal gland with 5 large pores. Peritreme extending anteriorly to the level of seta z_2 ; Para-



Figs. 3-9. *Gamasolaelaps bidbentis* n. sp. (female). 3, chelicera; 4, tectum; 5, palpfemur; 6, inguinal gland; 7, ventral view; 8, posterior margin of peritremal plate; 9, palpgenu.

stigmatic seta stout, short, arising from membrane behind to stigma. Femur I with one small tubercle, half-moon-shaped.

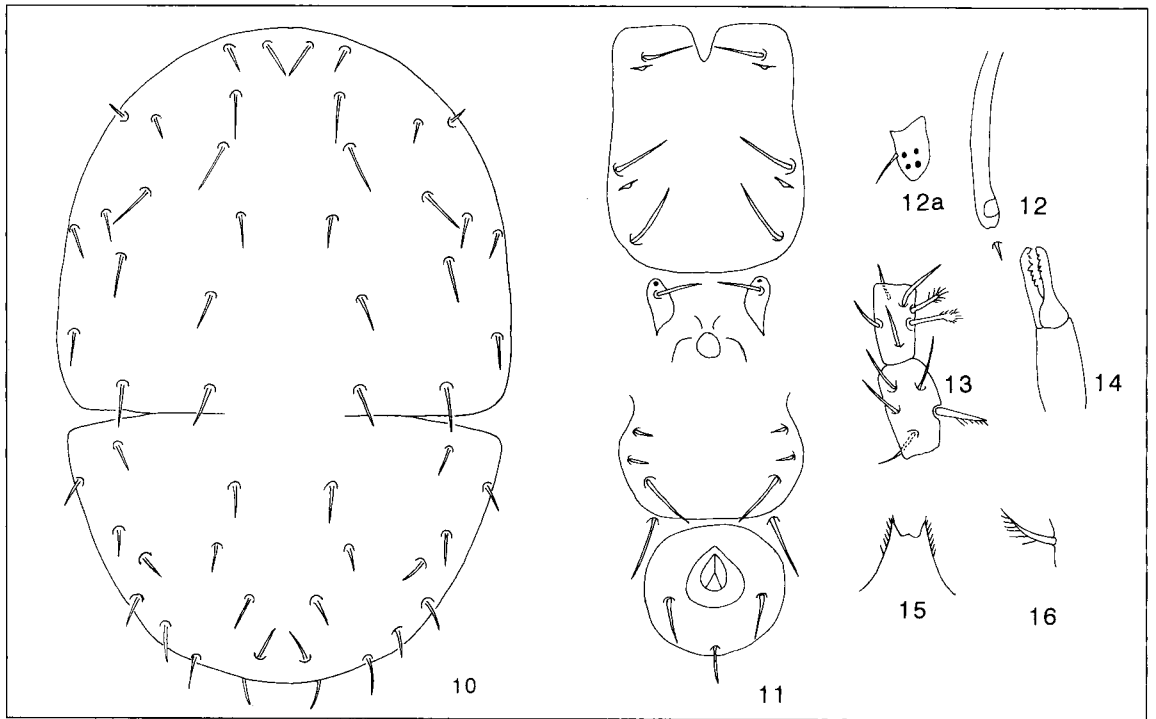
Collection data. Holotype, female, Alishan (2300m), Chiayi Hsien, ex soil, 27-XI-1991, C.H. Chen.

2. *Gamasolaelaps whartoni* (Farrier)
(Figs. 10-16)

Gorirossia whartoni Farrier, 1957, N. Carolina Agr. Exp. Sta. Bull. 124: 90-92. Type locality. Carthage, N. Carolina, USA.

Gamasolaelaps pygmaeus Bregetova, 1961, Parasitol. bornik Zool. Inst. Akad. nauk SSSR, 20: 99-100.

Gorirossia cooki Woodring, 1964, Proc. Louisiana Acad. Sci. 27: 5-8. Type



Figs. 10-16. *Gamasolaelaps whartoni* (Farrier) (female). 10, dorsal view; 11, ventral view; 12, posterior margin of peritremal plate; 13, palp femur and palp genu; 14, chelicera; 15, tectum; 16, a₁ seta on palp femur.

locality. Louisiana, USA

Gamasolaelaps ctenisetiger Ishikawa, 1978, *Annotationes Zoologicae Japonensis* 51: 100-102. Type locality: Japan

Female. Movable chela of chelicera with 5 teeth, basal to fourth teeth more or less equidistance and subequal size, while the fifth tooth rather small, which is adjacent to fourth tooth; fixed chela with 8 teeth; basal tooth large, while the apical four teeth minute. Tectum two tines, anterior margin between two tines slight convex medially; lateral edge of each tine oblique, serrated. Palp femur with one process on dorsal surface of distal margin; a₁ seta on palp femur strongly pectinated. Palp genu with a₁ and a₂ setae, strongly pectinated apically.

Dorsal shield entire, 285 μ long, 205 μ wide, with transverse lateral incisions; comprising with 29 pairs of setae lanceo-

late, the 15 pairs of setae on podonotum, and the 11 pairs of setae on opisthonotum, podonotal setae distincted longer than that of setae on opisthonotum, and j group of setae longer than other groups of setae. Sternal shield slightly rectangular, parallel-side; anterior margin with deeply incision medially, while the posterior margin more or less straight; the shield with 3 pairs of setae and 2 pairs of pores. One pair of metasternal shields large, with one pair of setae and one pair of pores. Genitoventral shield sub-rectangular, slight convex posteriorly and laterally, with 2 pairs of shorter and one pair of longer setae, the latter about 3 times longer than the former 2 pairs. Anal shield with one pair of paraanal and one of postanal setae. On membrane between genitoventral and anal shields with 2 pairs of setae. Inguinal gland with 4 pores. Peritremal plate narrow, para-

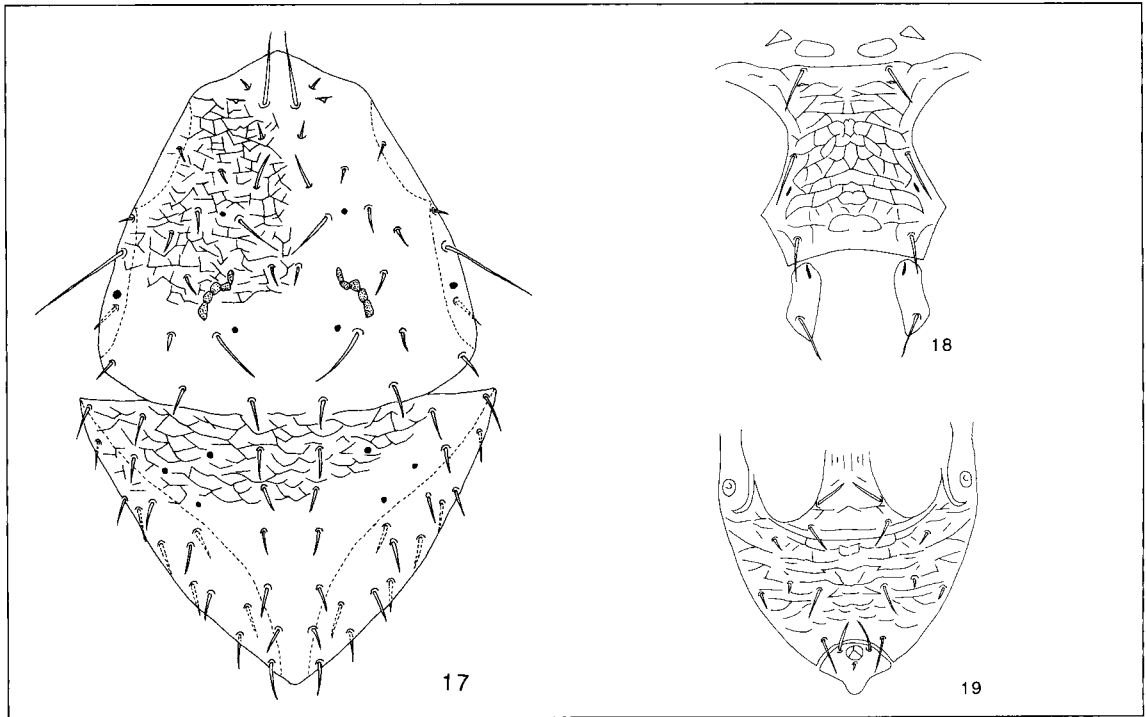
lateral side; peritreme extending anteriorly to anterior of j_1 seta. Parastigmatic seta on membrane behind to posterior margin of stigma.

Collection data. 4 females, Yilan, ex soil, 4-IV-1992, C. H. Chen; 2 females, Shanping, Kaohsiung Hsien, ex litter, 26-IV-1992, Y. H. Tseng; 3 females, National Kenting park, Pintung Hsien, ex litter, 12-V-1992; 2 females, Chilau, Yilan Hsien, ex litter, 1-X-1992, C. H. Chen; 2 females, Fenchihu, Chiayi Hsien, ex soil, 19-X-1992, C. H. Chen.

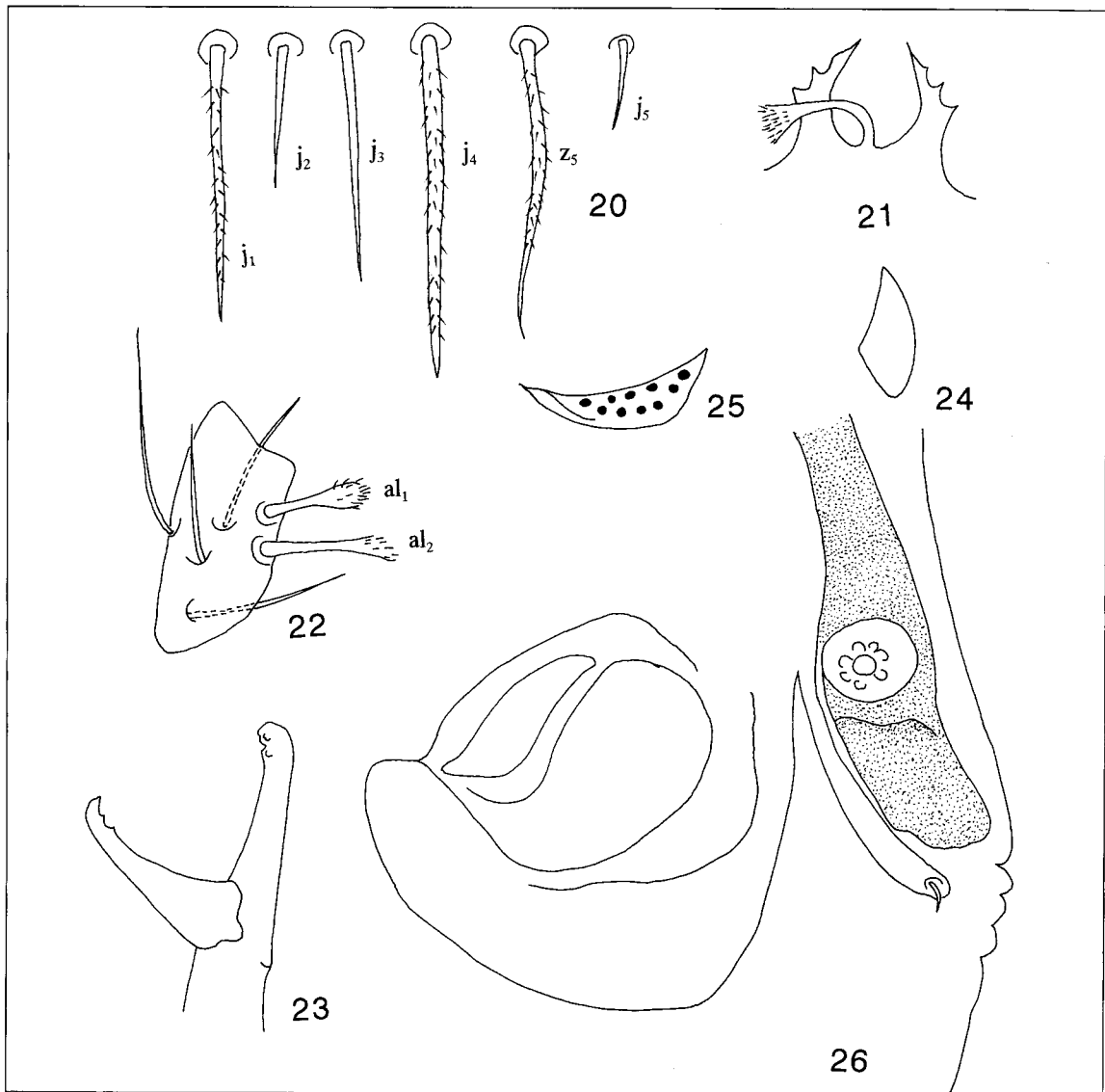
3. *Veigaia anmashanensis* n. sp. (Figs. 17-26)

This new species is similar in many respects to the *V. preendopodalis* Hurlbut, but differs from the latter in that the medial tine of tectum forming T-shaped; by having 3 setae on anal shield.

Female. Movable chela of chelicera about 0.44 time of the length of tibia I, 61μ long; with 2 teeth, which set on apical $1/3$ of chela. Fixed chela equal of the length of movable chela; with 2 teeth, proximal tooth broader than apical one. Tectum with 3 tines; lateral tines narrow long, 3 to 4 robust serrate, inner margins slightly covering apically, anterolateral margins strongly oblique; medial tines T-shaped, pectinate. Hypostome with 3 pairs of hypostomal setae, almost arranged in longitudinal lines; interbasal distance of hyp_1-hyp_2 about half time of the length of interbasal distance of hyp_2-hyp_3 . Length of interbasal distances hyp_1-hyp_2 , hyp_2-hyp_3 , hyp_1-hyp_1 , hyp_2-hyp_2 and hyp_3-hyp_3 as 14μ , 31μ , 40.6μ , 36μ and 55μ respectively. Cornicula triangle-shaped, rather long, with parallel inner margins, about 2.5 times as long as width; length 41μ , width 17μ . Palpal segments bears al_1 and



Figs. 17-19. *Veigaia anmashanensis* n. sp. (female). 17, dorsal view; 18, sternal shield; 19, genital and ventral shields.



Figs. 20-26. *Veigaia anmashanensis* n. sp. (female). 20, j group setae; 21, tectum; 22, palpgenu; 23, chelicera; 24, cornicula; 25, inguinal gland; 26, peritremal plate and ventral shield.

al₂ setae, slightly expanded and pectinated apically.

Dorsal shield reticulated, with lateral incisions. Podonotum 470 μ long, comprising 20 pairs of setae; length of j₁, j₂, j₃, j₄, j₅, j₆, z₅, r₃ and J, as 45 μ , 10 μ , 27 μ , 48 μ , 18 μ , 26 μ , 60 μ , 90 μ and 26 μ respectively. Opisthonotum 344 μ long, with 21 pairs of uniform length setae. Two pairs of pre-

sternal shields, basal pair broad, oval, elongated transversely; apical pair triangular. Sternal shield ornamented with reticulation, anterior margin straight, while the posterior margin very little concave; the shield with 3 pairs of sternal setae (st₁-st₃), subequal in length, 55 μ long, and 2 pairs of pores; mutual distances of st₁, st₂ and st₃ as 70 μ , 101 μ and

94 μ respectively. Metasternal shields broad, about twice longer than wide, with one pair of setae and one pair of pores. Genital shield with 2 pairs of long and one pair of short setae. Ventral shield narrowing posteriorly, 180 μ long, sharp at anterolateral corner; the shield decorated with reticulation, bearing 5 pairs of setae; vs_1 and vs_3 subequal in length, about 1/4 time as long as vs_2 seta; vs_4 more or less 1.5 times longer than vs_3 ; vs_5 5 times longer than vs_3 ; length of vs_1 , vs_2 , vs_3 , vs_4 , and vs_5 as 15 μ , 55 μ , 15 μ , 23 μ and 76 μ respectively. Anal shield with 3 setae. Inguinal gland with 10 pores. Posterior margin of peritremal plate connected with anterolateral corner of ventral shield; peritreme extending anteriorly to level of seta j_1 . Parastigmatic seta short, arising from membrane behind to posteromedial corner of stigma.

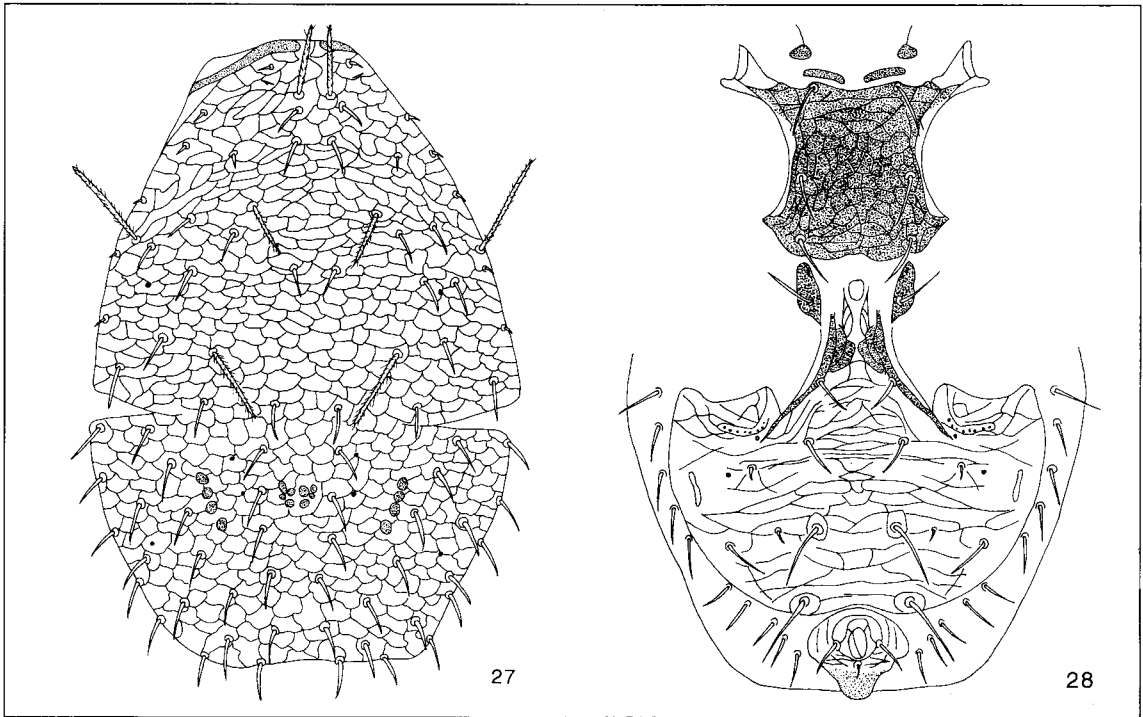
Collection data. Holotype, female, Anmashan (2300m), Taichung Hsien, ex

soil, 2-XI-1991, Y. H. Tseng.

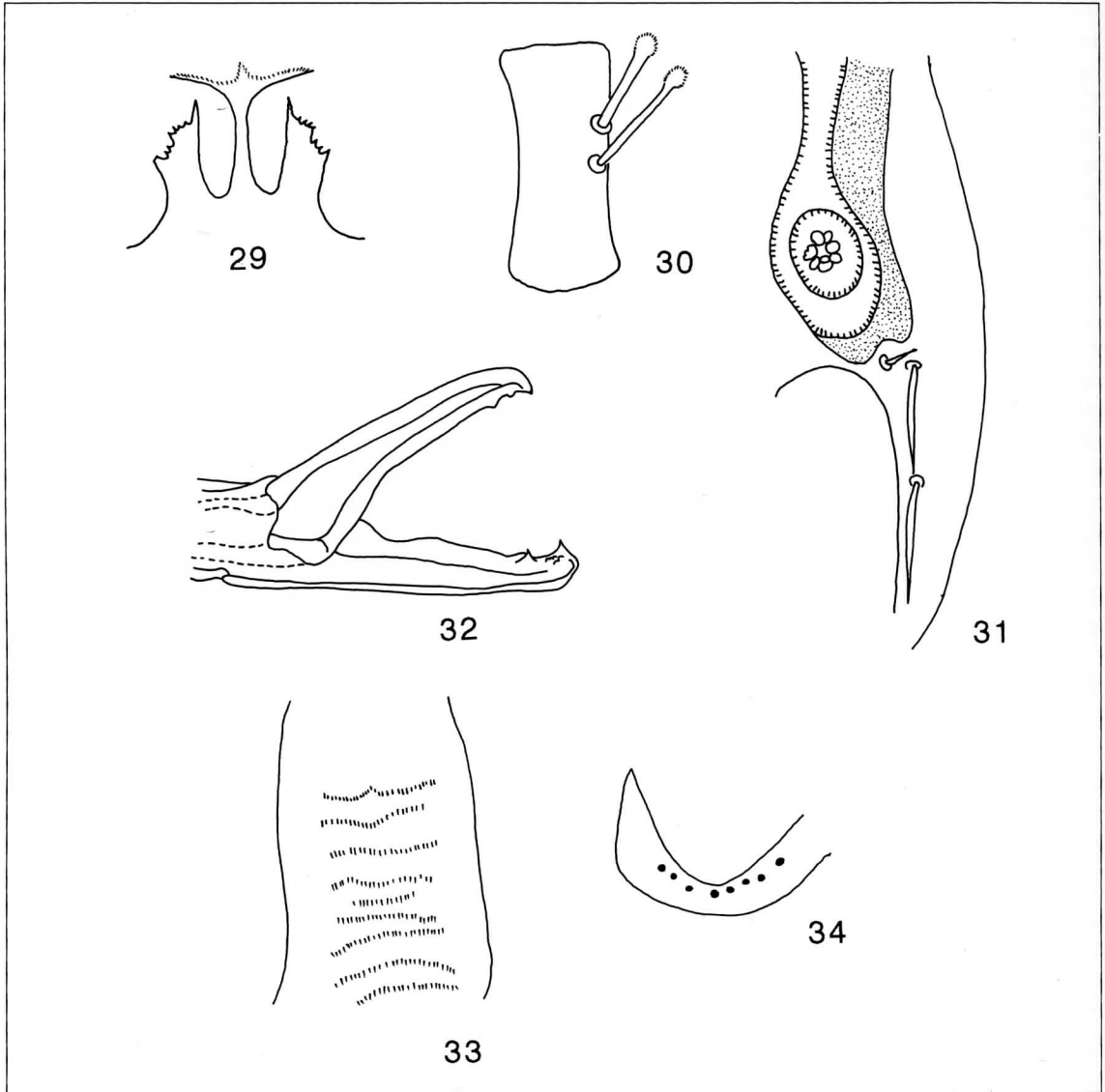
4. *Veigaia arvensis* Ishikawa (Figs. 27-34)

Veigaia arvensis Ishikawa, 1978, Annot. Zool. Jap., 51: 103. Type locality: Japan

Female. Fixed chela 81 μ long, with 2 apical teeth. Movable chela as long as fixed chela, with 2 teeth, apical tooth rather short. Movable chela setae clevated, 18.7 μ long. Tectum with 3 tines; medial tine Y-shaped, anterior margin with triangular process medially; lateral tines with inner margins more or less parallel; anterolateral margins oblique, serrated. Deutosternum has 9 rows, each row with denticles. Hypostome with 3 pairs of hypostomal setae arranged to form triangular; hyp_1 about 1.8 times as long as hyp_3 , 67 μ long; hyp_2 and hyp_3



Figs. 27-28. *Veigaia arvensis* Ishikawa (female). 27, dorsal view; 28, ventral view.



Figs. 29-34. *Veigaia arvensis* Ishikawa (female). 29, tectum; 30, al setae on palpgenu; 31, posterior margin of peritremal plate; 32, chelicera; 33, deutosternum; 34, inguinal gland.

subequal in length, 38μ long; mutual distances of hyp_1 , hyp_2 and hyp_3 respectively as 39μ , 36μ and 48.4μ ; interbasal distance of hyp_1 - hyp_2 about half time as long as interbasal distance of hyp_1 - hyp_2 , 15.6μ long, hyp_2 - hyp_3 31.2μ long. Cornicula short. Palptrochanter with 2 ventral setae; av robust, about 0.8 time as long as the width of segment, 51.5μ long; pv

slender, shorter than av, about 0.48 time as long as the width of the segment, 31.2μ long. Palpfemur with 5 setae; al peg-shaped, blunted tip with sparsely minute barb. Palpgenu with setae al_1 and al_2 ; al_1 slightly shorter than al_2 , with broad round tip and barb, about 0.4 time as long as the width of segment, 28μ long; al_2 with narrow expansion apically, barbed, about

0.48 time as long as the width of segment; a tooth like process on dorsal surface of distal margin of segment.

Idiosoma with one complete dorsal shield, heavily sclerotized with deeply lateral incisions, 794μ long, through midline, 450μ wide through setae r_3 ; the shield ornamented with heavy reticulation throughout. Podonotum with 22 pairs of setae, while opisthonotum with 21 pairs of uniform length setae; the setae of j_1 , j_4 , z_5 and r_3 robust, long and plumose, the remainder setae minute to moderate length and smooth; length of j_1 , j_2 , j_3 , j_4 , j_5 , j_6 , z_1 , z_5 , J_1 and r_3 as 68.6μ , 28μ , 39μ , 59.3μ , 36μ , 43.7μ , 12.5μ , 80μ , 46μ and 109.2μ respectively. Two pairs of presternal shields, poorly sclerotized; 1st pair oval, longitudinal, transversely. 2nd pair triangular. Tritosternal shield base 84.3μ long, 15.6μ wide in base, with sparse pectinate on apical half; lacinia 65.5μ long. Sternal shield heavy sclerotization, 156μ long, 128μ wide, with reticulation and fine punctate; the shield with 3 pairs of setae and 2 pairs of pores; sternal setae subequal in length, 47μ long; interbasal distance of setae st_1 , st_2 and st_3 as 76.4μ , 98.3μ and 95μ respectively. Metasternal shield broad, poorly sclerotized, with one pair of setae and one pair of pores; metasternal setae as long as 3rd pair of sternal shield, metasternal pores set on anterointernal edge of the shield. Genital shield with heavily lateral sclerotization and punctate, the shield ornamented with faint reticulation and inlaid with 2 pairs long, one pair shortest setae. Ventral shield much wider than the length, parallel in lateral sides, with faintly reticulate and comprising 3 pairs long and 2 pairs short ventral setae. Anal shield with 3 setae. Ventral setae on membrane broad lanceolate. Inguenal gland with 8 pores. Peritremal plate broad, posterior margin with strong incision that to form a sharp pointed apex; peritreme extending anteriorly to level of j_1 setae. Parastigmatic seta on membrane behind to stigma.

Legs normal length: I, 725μ ; II, 560μ ; III, 540μ ; IV, 840μ . Coxa IV with one small protuberle on posterior aspect of distal margin.

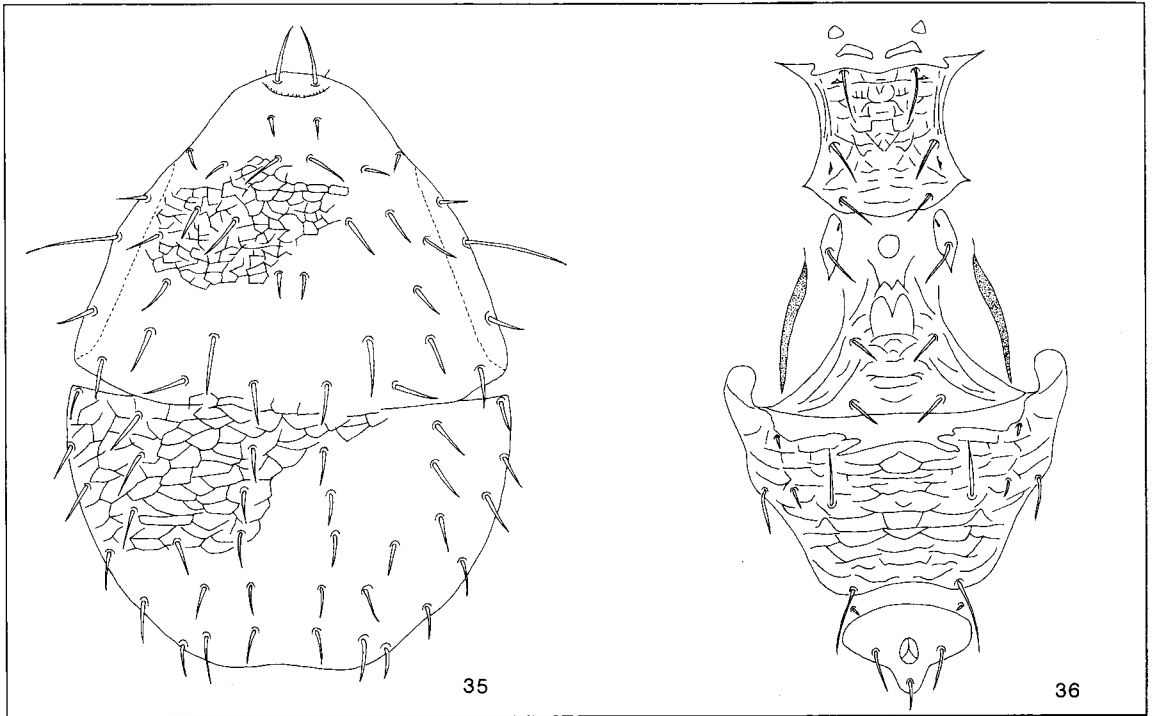
Collection data. 10 females, Anmashan (2300m). Taichung Hsien, ex decaying *Chamaecyparis formosensis*, 2-XI-1991, Y. H. Tseng.

5. *Veigaia carpillaris* n. sp. (Figs. 35-46)

This new species is characterized the consanguineous species by having medial projection of tectum with bulb-shaped and pectination; by the shape of ventral shield.

Movable chela of chelicera about 0.48 time as long as tibia I, 58μ long, with 2 apical teeth; fixed chela as long as movable chela, with 5 teeth on apical portion. Cornicula triangular, about twice as long as wide. Tectum with 3 tines; lateral tines elongated, basal half of inner margins strongly divergent, apical half of inner margins slightly converging, anterolateral margins oblique, with 4-5 strong serrate; medial tines forming bulb-shaped and pectinate apically, with H-shaped sclerite in base. Hypostome with 3 pairs of hypostomal setae, almost arranged in longitudinal lines; the 2nd pair of hypostomal setae slightly shorter than 1st pair of hypostomal setae, 41μ long; the 1st pair and 3rd pair of hypostomal setae subequal in length, 47μ long; interbasal distances of hyp_1-hyp_2 , hyp_2-hyp_3 , hyp_1-hyp_1 , hyp_2-hyp_2 and hyp_3-hyp_3 as 10μ , 23μ , 39μ , 30μ and 36μ respectively. Palpgenu with al_1 and al_2 setae, slightly expanded apically, al_1 23.4μ long, shorter than al_2 ; al_2 34.3μ long. The seta al on palpfemur peg-shaped, distinctly shorter than that of al_1 seta on palpgenu, 17μ long.

Dorsal shield entire, with lateral incisions; ornamented with reticulation. Podonotum 313μ long, with 20 pairs of setae; j_1 , j_4 , z_5 and r_3 rather long and plumose, other setae smooth, rather short. Length of j_1 , j_2 , j_3 , j_4 , j_5 , j_6 , z_1 , z_5 , J_1 and r_3 as

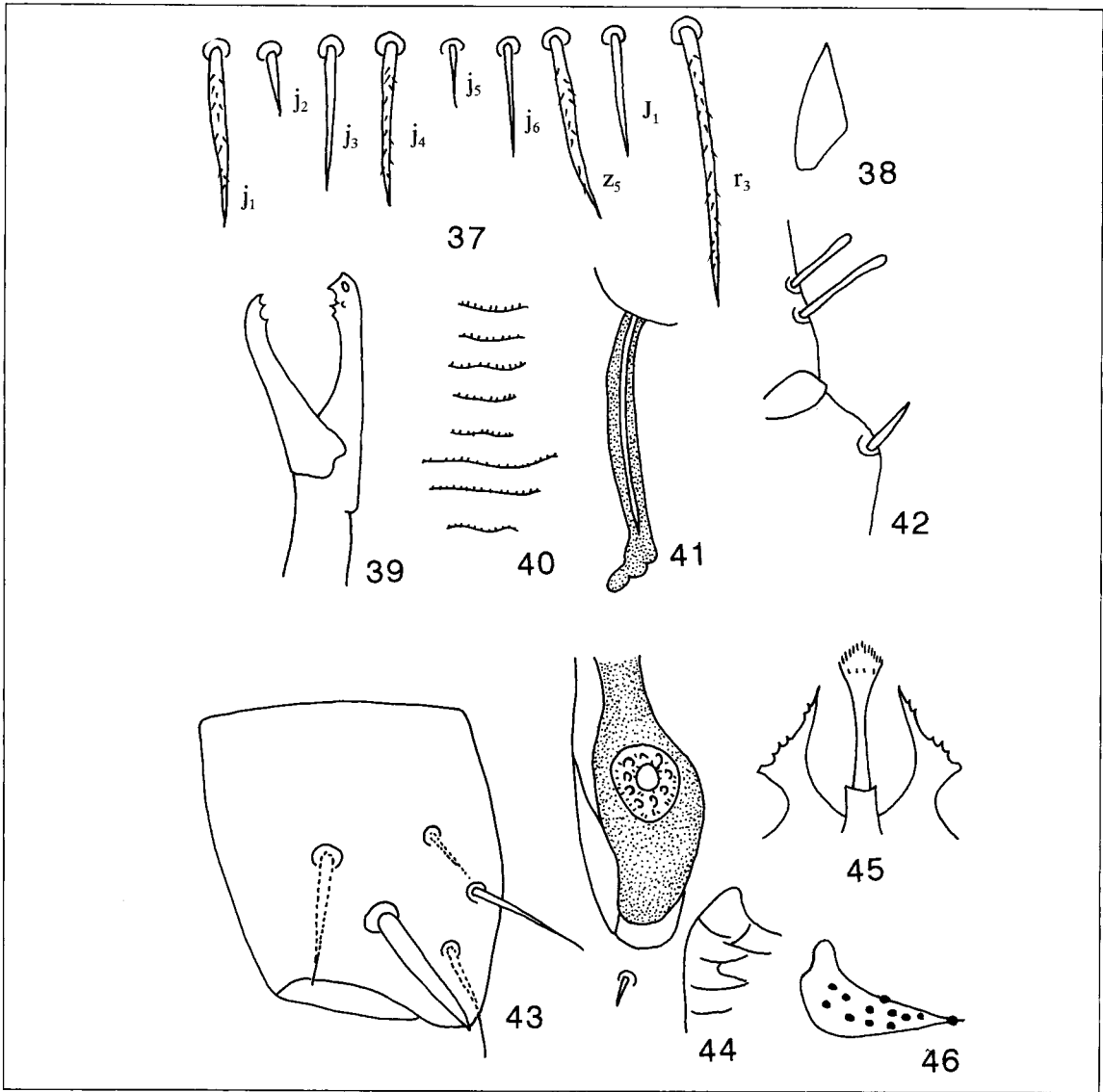


Figs. 35-36. *Veigaia carpillaris* n. sp. (female). 35. dorsal view; 36. ventral view.

50 μ , 23.4 μ , 36 μ , 45.24 μ , 23.4 μ , 36.8 μ , 57.7 μ and 87.4 μ respectively. Opisthonotum 238 μ long, comprising 17 pairs of setae, subequal in length, which are equal of the length of j_s . Two pairs of presternal shields. The 1st pair olive-shaped, elongated, transversely; the 2nd pair triangle-shaped. Sternal shield slightly concave on anterior margin, posterior margin gently convex medially; the shield decorated with reticulation and with 3 pairs of sternal setae and 2 pairs of pores; st_1 very little longer than st_2 , 43.7 μ long; st_2 and st_3 subequal in length, 40.6 μ long; interbasal distances of st_1 - st_1 , st_2 - st_2 , st_3 - st_3 3, st_1 - st_2 and st_2 - st_3 as 70.2 μ , 89 μ , 78 μ , 43.7 μ and 68.6 μ . Metasternal shield broad, with one pair of setae and one pair of pores. Genital shield ornamented with reticulation, with one circular mark on anterior margin of shield; lateral margins each with one of longitudinal sclerite, punctate; the shield with 2 pairs of long,

the latter arising from behind to bases of coxae IV. Ventral shield large, trapezoidal, gently narrowing toward posterior margin; the shield with reticulation and comprising 5 pairs of setae (vs_1 - vs_5); vs_1 the shortest, about 0.56 time as long as vs_3 , 7.8 μ long; vs_2 longer, about 7 times longer than vs_1 , 54.6 μ long; vs_3 14 μ long; vs_4 moderated long, more or less 4.3 times longer than vs_1 , 33.5 μ long; vs_5 longest, about 7.4 times as long as vs_1 , 57.7 μ long. One pair of short setae on membrane between space of ventral and anal shields. Anal shield subtriangle-shaped, with 3 setae. Inguinal gland with 12 pores. Internal tubules long, bituber-shaped. Peritremal plate round on posterior margin. Parastigmatic seta stout and short, which set on membrane behind to stigma. Femur IV of leg with one stout seta.

Collection data. Holotype, female; paratype, 2 females, Hohuanshan (3400 m), Taichung Hsien, ex Compositae, 2-XI-



Figs. 37-46. *Veigaia carpillaris* n. sp. (female). 37, j-J groups of setae and r_3 seta; 38, cornicula; 39, chelicera; 40, deutosternum; 41, internal tubulet; 42, a1 setae on palpgenu and palpfemur; 43, genu IV; 44, posterior margin of peritremal plate; 45, tectum; 46, inguinal gland.

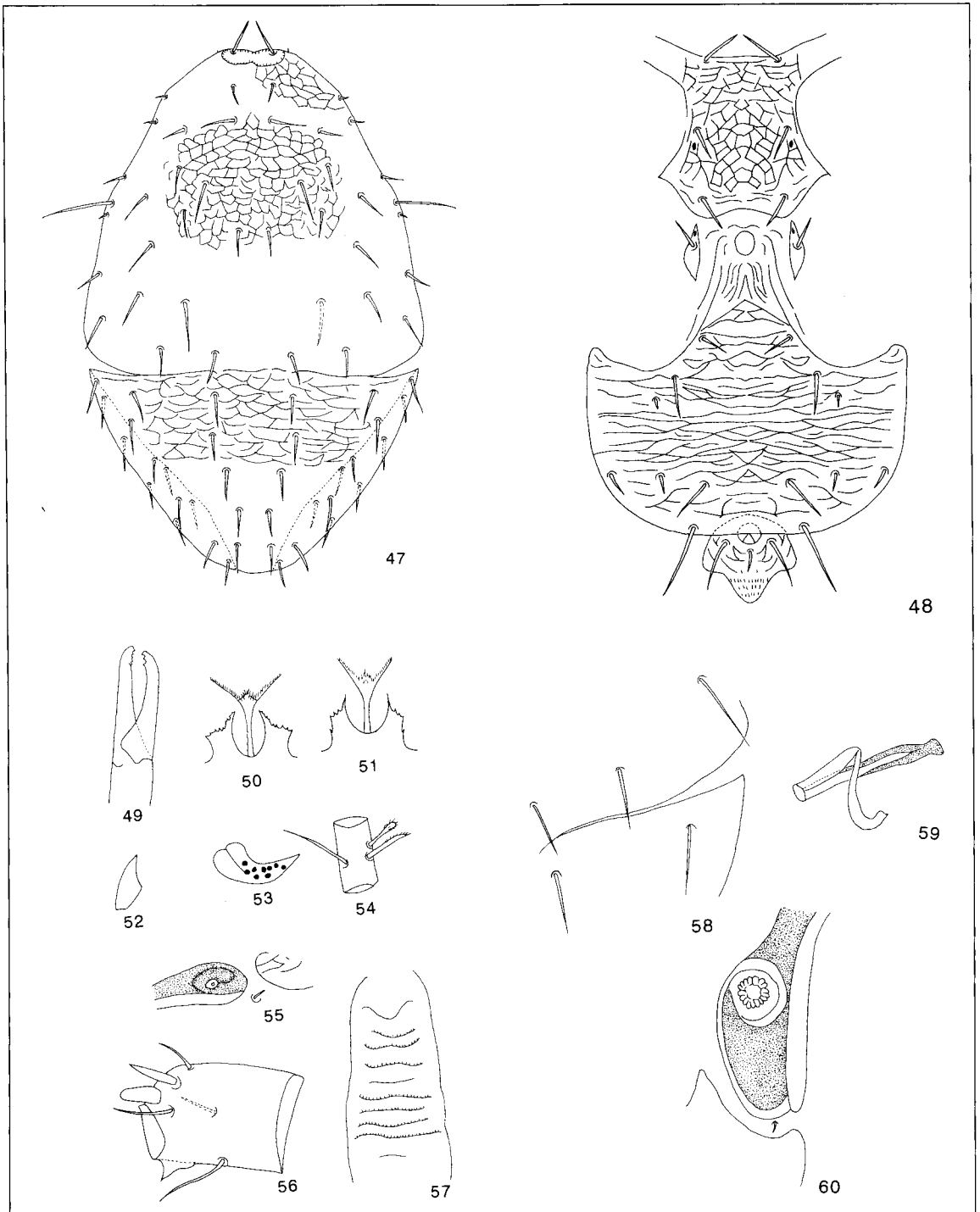
1992, Y. H. Tseng.

6. *Veigaia formosana* n.sp. (Figs. 47-59)

This species is closely related to *V. arvensis* Ishikawa, but differs from the latter in that dorsal surface of distal margin of leg IV with one strong tube-

rcle, and in having one pair of presternal shields, posterior margin of peritremal plate round.

Movable chela about 0.6 time as long as tibia I, 95μ long, with 2 apical teeth; fixed chela as long as movable chela, with 5 teeth on apical portion. Tectum with 3 tines; medial tine Y-shaped, anterior



Figs. 47-60. *Veigaia formosana* n. sp. (female). 47, dorsal view; 48, ventral view; 49, chelicera; 50-51, tectum; 52, cornicula; 53, inguinal gland; 54, a1 setae on palpgenu; 55, posterior margin of peritremal plate; 56, genu IV; 57, deutosternum; 58, lateral incision; 59, internal tubulet; 60, posterior margin of peritremal plate.

margin pectinate and with slightly convex medially; lateral tines elongate, apical portion cylindrical and inner margins almost paralleled, oblique and serrated at anterolateral margins. Cornicula stout, triangular and short, about 1.8 times of the length of base. Hypostome with 3 pairs of hypostomal setae, almost arranged in longitudinal lines; hyp_1 about 1.7 times longer than hyp_2 , 75μ long; hyp_2 and hyp_3 subequal in length, 45μ long. Palpfemur with one al seta, peg-shaped, 25μ long. Palpgenu bears al_1 and al_2 setae; al_1 slightly expanded apex and with minute barb, 30μ long; al_2 pectinated apically, which is distinctly longer than al_1 , 40μ long. Deutosternum with 9 rows, each row bears denticles.

Dorsal shield entire, 470μ long, reticulated, with lateral incisions; incisions distinctly curving posteriorly medially, ending in sharp points. Podonotum 297 with 22 pairs of setae; j_1 , j_4 , z_6 and r_3 long and plumose; length of j_1 , j_2 , j_3 , j_4 , j_5 , j_6 , z_6 , J_1 and r_3 as 36μ , 15.6μ , 37.4μ , 43μ , 31.2μ , 34.3μ , 56.2μ , 36μ and 76.4μ respectively. Opisthonotum with 18 pairs of setae, subequal in length. One pair of presternal shields, triangle-shaped. Sternal shield reticulate and punctate, anterior margin of the shield indistinct, while posterior margin slight concave; comprising 3 pairs of setae (st_1 - st_3), subequal in length, 33μ long and 2 pairs of pores; mutual distances of setae st_1 , st_2 and st_3 as 59.3μ , 74μ and 66μ interbasal distances of st_1 - st_2 equal of the length of st_2 - st_3 , 56 One pair of metasternal shields, elongated, somewhat triangle-shaped with one pair of setae and one pair of pores. Genital shield with longitudinal reticulation before to 1st pair of genital setae, behind to 1st pair of genital setae with reticulate transversely; anterior of the shield with one circular mark; the shield bearing 2 pairs of genital setae, subequal in length, about as long as sternal setae. Ventral shield wider than long, gently narrowed toward posteriorly; with reticulated, and

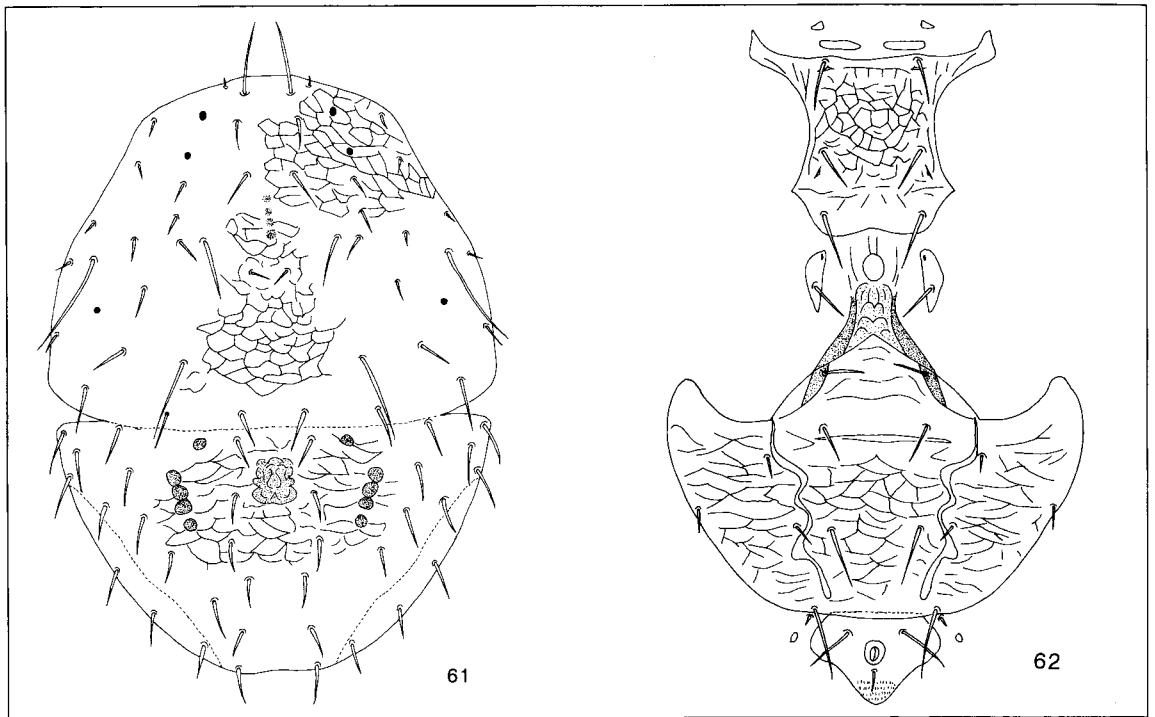
comprising 5 pairs of setae; vs_1 short, 12.5μ long; vs_2 about 4.2 times longer than vs_1 , 52.5μ long; vs_3 1.6 times as long as vs_1 , 20 long; vs_4 2.2 times the length of vs_1 , 27.5 vs_5 longest, 5 times the length of vs_1 , 62.5μ long. Anal shield with one pair of paraanal and one of postanal setae. Inguinal gland with 9 pores. Peritremal plate with round posterior margin. Parastigmatic seta on membrane behind to stigma, 9.4μ long. Trochanter IV of leg with one strong tubercle on dorsal surface of distal margin of segment; one stout seta arising near the tubercle; one broad spine-like process on ventral surface of distal margin.

Collection data. Holotype, female, paratype, 10 female, Taipingshan (2000m), Yi-lan Hsien, ex litter, 29-IX-1992, Y. H. Tseng.

7. *Veigaia hohuanshanensis* n. sp. (Figs. 61-71)

This new species resembles *V. as-hizunensis* Ishikawa for having the same chaetotaxy on dorsal shield. While differs from the latter by posterior margin of peritremal plate not jointed to anterolateral margin of ventral plate. Medial projection of tectum Y-shaped with medial round convex; and by having one pair of long, whip-like internal tubules.

Movable chela about 0.6 time longer than tibia I, 78μ long, with 2 teeth. Fixed chela as long as movable chela, with 4 teeth. Tectum 3 tines; lateral tines broad, elongated, basal half of inner margins strong divergent, apical half slightly converging; anterolateral margin strong oblique with serrated; medial tines Y-shaped, anterior margin convex round medially. Cornicula triangular, slight concave on inner margins, which are about twice as long as base. Hypostome with 3 pairs of hypostomal setae; the 3rd pair of setae about 1.4 times longer than 1st pair of setae, 1st and 2nd pairs of setae subequal in length; length of hyp_1 , hyp_2 , and hyp_3 as

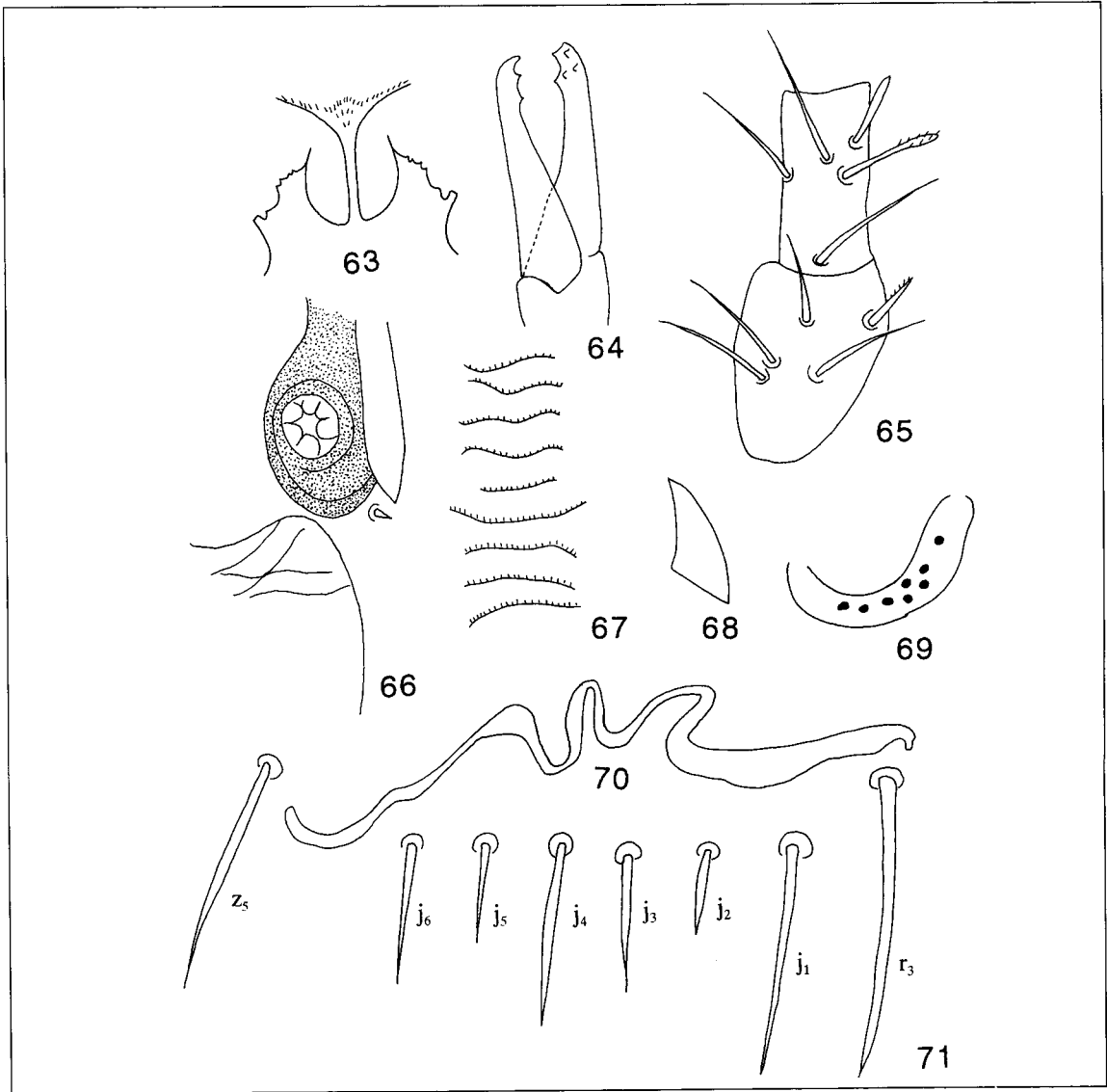


Figs. 61-62. *Veigaia hohuanshanensis* n. sp. (female). 61, dorsal view; 62, ventral view.

62 μ , 62 μ and 86 μ respectively; interbasal distances of hyp₁-hyp₁, hyp₂-hyp₂, hyp₃-hyp₃, hyp₁-hyp₂ and hyp₂-hyp₃ as 38 μ , 33 μ , 47 μ , 16 μ and 34 μ . Deutosternum with 9 rows, each row bears denticles. Palpfemur bears seta al, peg-shaped, pectinated. Palpgenu with al₁ and al₂ setae, al₁ lanceolate, smooth, 26.5 μ long, al₂ about 1.3 times as long as al₁, slightly expanded and pectinated apically.

Idiosoma round. Dorsal shield heavily reticulate, divided into 2 subdorsal shield. Podonotum 345 μ long; comprising 22 pairs of setae; j₁, j₄, z₅ and r₃ longest and finely pectinate, z₁ tiny. Opisthonotum 257 μ long; with 18 pairs of setae, subequal in length. Length of j₁, j₂, j₃, j₄, j₅, j₆, z₅, r₃ and J₁ as 69 μ , 26.5 μ , 34 μ , 58 μ , 33 μ , 43 μ , 95 μ , 97 μ and 43 μ respectively. Two pairs of presternal shields, basal pair narrow long, transversely; apical pair triangle-shaped. Sternal shield with puncta-reticulated on anterior to 2nd pair of setae; the shield

with 3 pairs of setae, subequal in length, 45 μ long, and 2 pairs of pores. Metasternal shields large, punctate, with one pair of setae and one pair of pores. Genital shield puncta-reticulated, with one circular mark on anterior margin; bearing 2 pairs of genital setae. Ventral shield, trapezoidal, gradually narrowing toward posterior margin, ornamented with reticulation, and with 5 pairs of setae of which are 3 short and 2 long; length of vs₁, vs₂, vs₃, vs₄ and vs₅ as 11 μ , 59 μ , 11 μ , 17 μ and 61 μ . Anal shield with 3 setae. One pair of short setae on membrane between space of ventral and anal shields. Inguinal gland with 7 pores. Posterior margin of peritremal plate sharp point, not jointed to ventral plate. Parastigmatic seta short, on membrane behind to stigma, 9 μ long. One pair of internal tubules extending from coxae IV to apex of ventral shield. 13 pairs of lanceolate setae on membrane surrounding ventral shield.



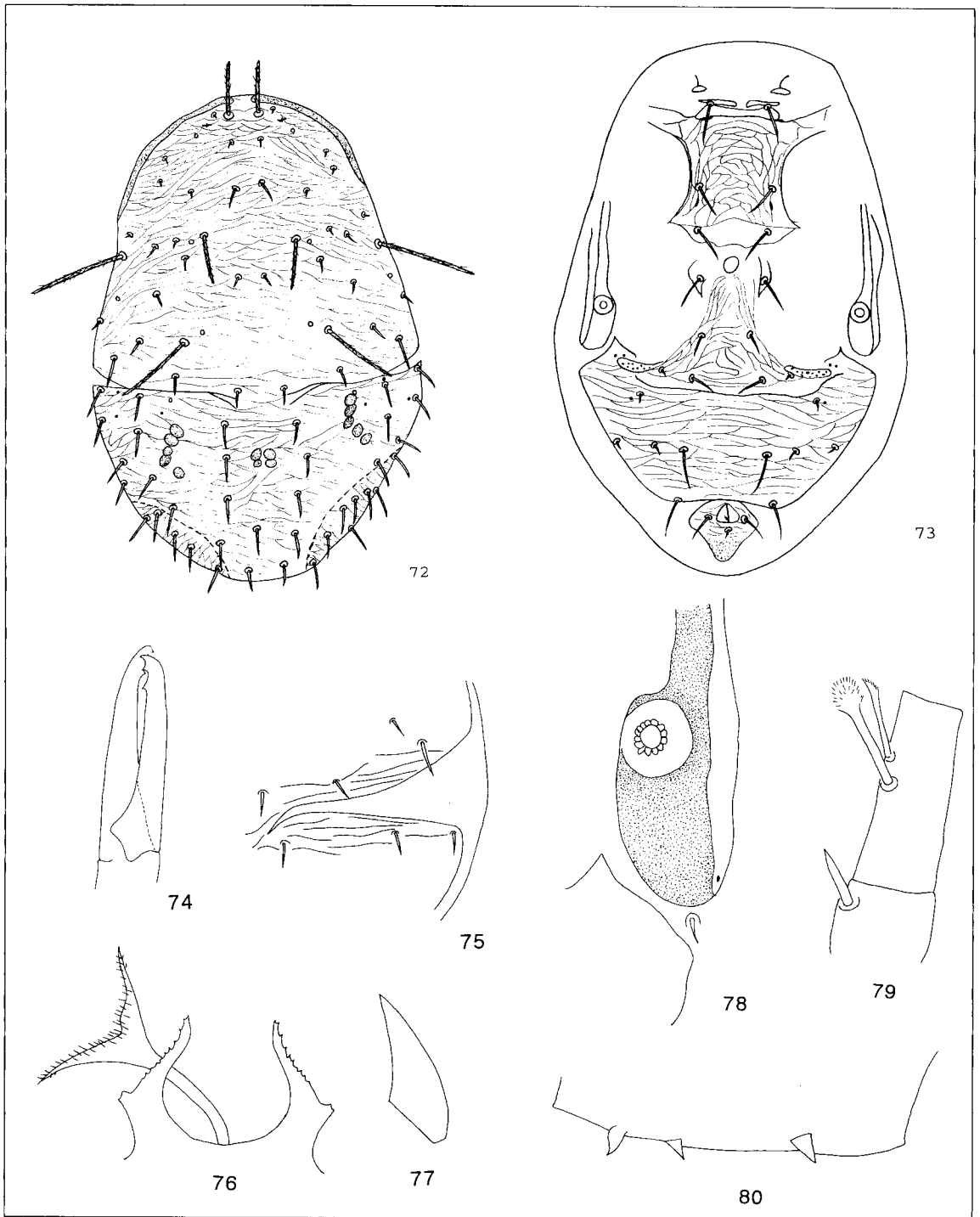
Figs. 63–71. *Veigaia hohuanshanensis* n. sp. (female). 63, tectum; 64, chelicera; 65, palpfemur and palpgenu; 66, posterior margin of peritremal plate; 67, deutosternum; 68, cornicula; 69, inguinal gland; 70, internal tubulet; 71, j–J groups setae and r_3 seta.

Collection data. Holotype, female, Paratype, female, Hohuanshan (3400 m), Taichung Hsien; soil of *Pseudosasa usawai* (Hayata), 2–XI–1992, Y. H. Tseng.

8. *Veigaia limulus* n.sp. (Figs. 72–80)

This new species is similar in many

respects to *V. uncata* Farrier, but differs from the latter in having lateral incisions distinctly curving posteriorly medially; by having no large hook on posterior margin of femur IV and ventral shield with seta vs_3 ; distinct longer than vs_3 ; and cornicula elongated triangle-shaped, about 2.8 times longer than base.



Figs. 72-80. *Veigaia limulus* n. sp. (female). 72, dorsal view; 73, ventral view; 74, chelicera; 75, lateral incision; 76, tectum; 77, cornicula; 78, posterior margin of peritremal plate; 79, a1 setae on palpgenu and palpfemur; 80, protuberces on posterior lateral margin of genu IV.

Movable chela having sclerotized, about 0.7 time as long as tibia I, 156.5 μ long, with 2 teeth apically. Fixed chela equal of the length of movable chela, with 5 apical teeth. Cornicula elongated triangular, about 2.8 times of the length of base. Tectum with 3 tines; medial tines Y-shaped and with minute barbed on anterior margin; lateral tines, converging of inner margins of apical half, anterior margin between these tines nearly straight, anterolateral margin oblique with irregularly serrate. Hypostome with 3 pairs of hypostomal setae, almost arranged in longitudinal line; hyp₁ distinct longer than hyp₂ setae; setae hyp₂ as long as hyp₃ setae; interbasal distances of hyp₁ to hyp₂ about half time as long as hyp₂ to hyp₃. Palpfemur with al seta, peg-shaped. The al₁ seta on palpgenu narrow spatulate and minute barbed apically; al₂ seta on palpgenu with broadly spatulate and pectinate apically.

Dorsal shield entire, reticulated, with lateral incisions, which are distinctive curve posteriorly, ending in blunt points; 957 μ long. Podonotum with 22 pairs of setae. j₁, j₄, z₅ and r₃ longer and pectinate; length of j₁, j₂, j₃, j₄, j₅, j₆, J₁ and r₃ as 117 μ , 20 μ , 37.4 μ , 96.7 μ , 187 μ , 42 μ , 51.5 μ and 226 μ respectively. Opisthonotum with 21 pairs of setae, uniform and slightly longer than that of j₆. Two pairs of presternal shields; the first pair elongate, transversely; the 2nd pair triangle-shaped. Sternal shield strongly convex on anterior margin, ornamented with reticulated and possessing with 3 pairs of sternal setae (st₁-st₃) and 2 pairs of pores; the 1st pair of sternal setae distinct longer than 2nd pair of sternal setae, 78 μ long; the 2nd and 3rd pairs of sternal setae subequal in length, 70 μ long; mutual distances of setae st₁, st₂ and st₃ as 101.4 μ , 124.8 μ and 131 μ interbasal distances of st₁ to st₂ slightly longer than st₂ to st₃, the former 95 μ long, and the later 81 μ long. Metasternal shields elongated, closing to posterior of sternal shield; with one pair of setae and one pair of pores.

Genital shield with longitudinal reticulation before to 1st pair of genital setae, and with transverse reticulate behind to that of setae; the shield with 3 pairs of setae; the 1st pair of setae lanceolate, 31 μ long; the 2nd pair of setae seta-like, more or less 1.8 times longer than the 1st pair of setae, 56.2 μ long; the 3rd pair of setae shortest, 15.6 μ long, which set behind to coxae IV. Ventral shield trapezoidal in general outline; decorated with reticulated and with 5 pairs of setae; vs₁ short, rather small, 31.2 μ ; vs₂ long, about 2.65 times longer than vs₁, 82.6 μ long; vs₃ shortest, 0.75 time the length of vs₁, 23.4 μ long; vs₄ as long as vs₁, vs₅ longest, about 3.4 times the length of vs₁, 106 μ long. One pair of metapodal platelet, elongated ovality or cylindrically. Anal shield broad, with one pair of paraanal and one of postanal setae. One pair of short setae on membrane between space of ventral and anal shields, 18.7 μ long. Inguinal gland with 12 pores. Peritremal plate with round posterior margin. Parastigmatic seta on membrane behind to stigma. Femur IV with round punctate on area behind to av seta; trochanter IV with 3 protuberles on posterolateral margin.

Collection data. Holotype, female, paratype, 2 females, Shenmuchuan (850m), Nantou Hsien, ex soil of *Phyllostachys pubescens*, 18-IX-1992, C. H. Chen.

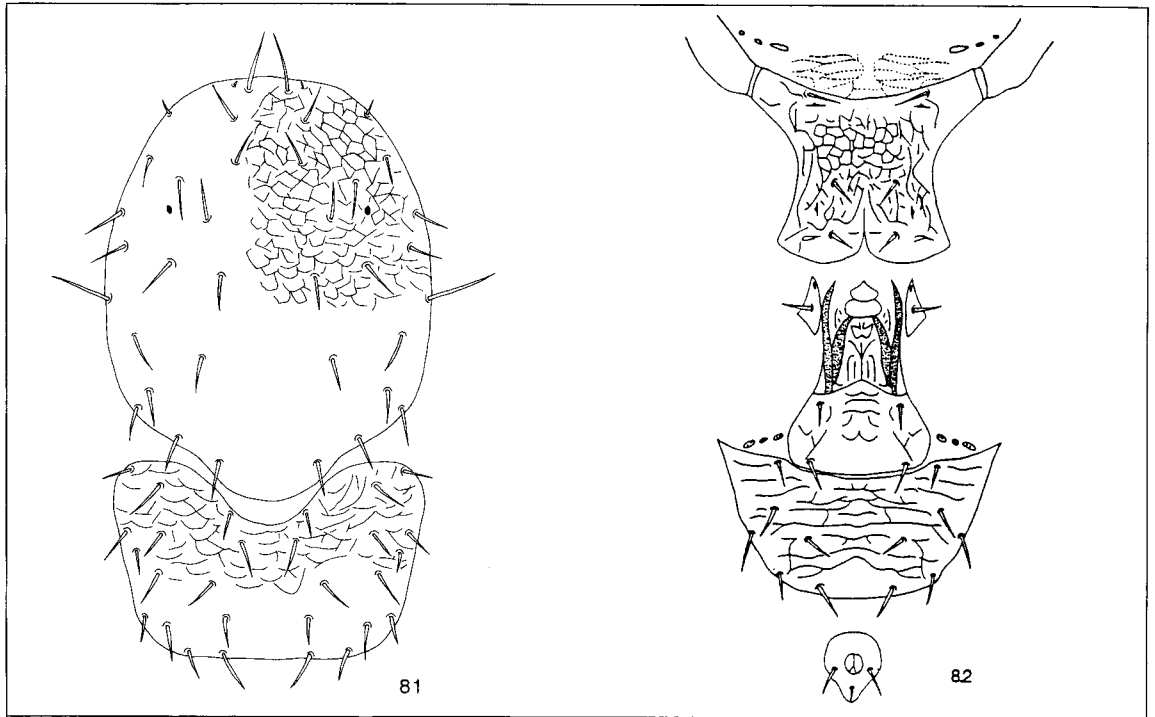
9. *Veigaia planicola* (Berlese) (Figs. 81-90)

Cryptolaelaps nemorensis var. *planicoa* Berlese, 1892, Acari. Myriopoda et Scorpions hurusque in Italia reporta. Fusc. LXII no.6. Type locality. Italia

Veigaia planicola Evans, 1955, Proc. Zool. Soc. London 125: 583.

Veigaia serrata Willmann, 1935, Bull. Mos. R. Hist. Nat. Belgicae, 11: 10-11. Type locality. Belgium

Female. Movable chela 156 μ long, with 3 indistinctly teeth, equidistance.

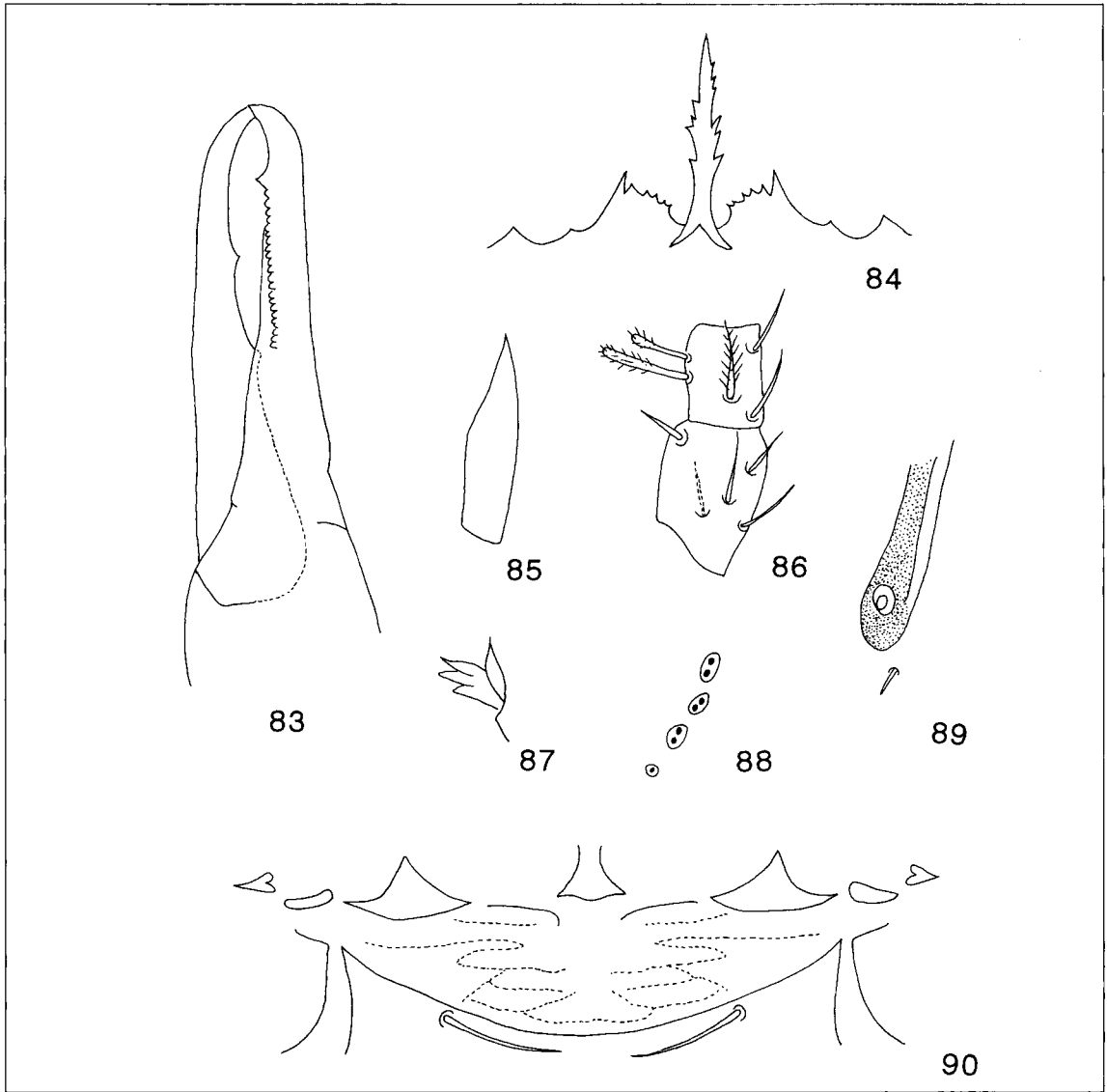


Figs. 81-82. *Veigaia planicola* (Berlese) (female). 81, dorsal view; 82, ventral view.

Fixed chela very little shorter than movable chela, with 21-22 rectangular teeth. Tectum shown as figure; medial tines robust, elongated, sharply point anteriorly, with robust serrate laterally, base with strong convex to form converse V-shaped; lateral margins irregular, with moderated to broad spine-shaped serrates. Hypostome with 3 pairs of hypostomal setae, subequal in length, 25μ long, arranged almost in a triangle-shaped; interbasal distances of setae hyp_1 , hyp_2 , hyp_3 , hyp_1-hyp_2 and hyp_2-hyp_3 as 27μ , 30μ , 55μ , 25μ and 16μ respectively. Coricula elongated, about 4.5 times as long as wide. Deutosternum with 9 rows, each row with denticles. Palpgenu with setae al_1 and al_2 ; al_1 slightly expanded and with 5 branches apically; al_2 longer than al_1 , pectinated; pd seta on palpgenu with strong pectinate. Palpfemur comprises one al seta, peg-shaped.

Dorsal shield reticulate, divided into

2 subdorsal shield. Podonotum 365μ long in middle line, posterior margin strong convex medially; the shield with 19 pairs of setae, more or less subequal in length except for z_1 and s_1 tiny. Opisthonotum 115μ long in middle line, anterior margin with strong concave medially, comprising 14 pairs of setae, subequal in length. Presternal region with 7-8 pairs of puncti-reticulation, and 3 pairs of small pre-sternal shields. Sternal shield reticulated, anterior margin slight concave, posterior margin strong cleft; with 3 pairs of setae and 2 pairs of pores; the 1st pair of sternal setae about 1.5 times longer than 2nd pair of setae, 44μ long; the 2nd and 3rd pairs of sternal setae subequal in length, 28μ long; mutual distance of setae st_1 about 1.8 times longer than mutual distance of setae st_2 , 97μ wide, mutual distances of setae st_2 55μ wide, which is shorter than mutual distance of setae st_3 , mutual distance st_3 62μ wide; interbasal



Figs. 83-90. *Veigaia planicola* (Berlese) (female). 83, chelicera; 84, tectum; 85, chelicera; 86, palp genu and palp femur; 87, three tines seta on palptarsus; 88, inguinal gland; 89, posterior margin of peritremal plate; 90, presternal region.

distances of setae st_1 to st_2 about 1.6 times longer than setae st_2 - st_3 , the former 72μ long and the latter 44μ long. Metasternal shields triangle-shaped, with one pair of setae and one pair of pores; metasternal setae almost equal of the length of the 3rd pair of sternal setae; metasternal pore set on anterointernal edge of shield.

Genital shield with 2 oval round marks on anterior region; ornamented with longitudinal ridges and reticulation; One pair of lateral longitudinal sclerites, extending from medial coxae II to basal $2/3$ of coxae IV, punctate; the 2 pairs of genital setae, subequal in length, 30μ long. Ventral shield very little narrowing

toward posterior margin, trapezoid, decorated with reticulation; with 6 pairs of setae, subequal in length. Anal shield with one pair of paraanal and one of postanal setae. Inguinal gland with 7 pores, arising from 4 small oval plates, anterior 3 plates with 2 pores. Peritremal plate rather narrow, round on posterior margin; peritreme extending anteriorly to level of j_1 . Parastigmatic seta short, on membrane behind to lateral of posterior margin of stigma.

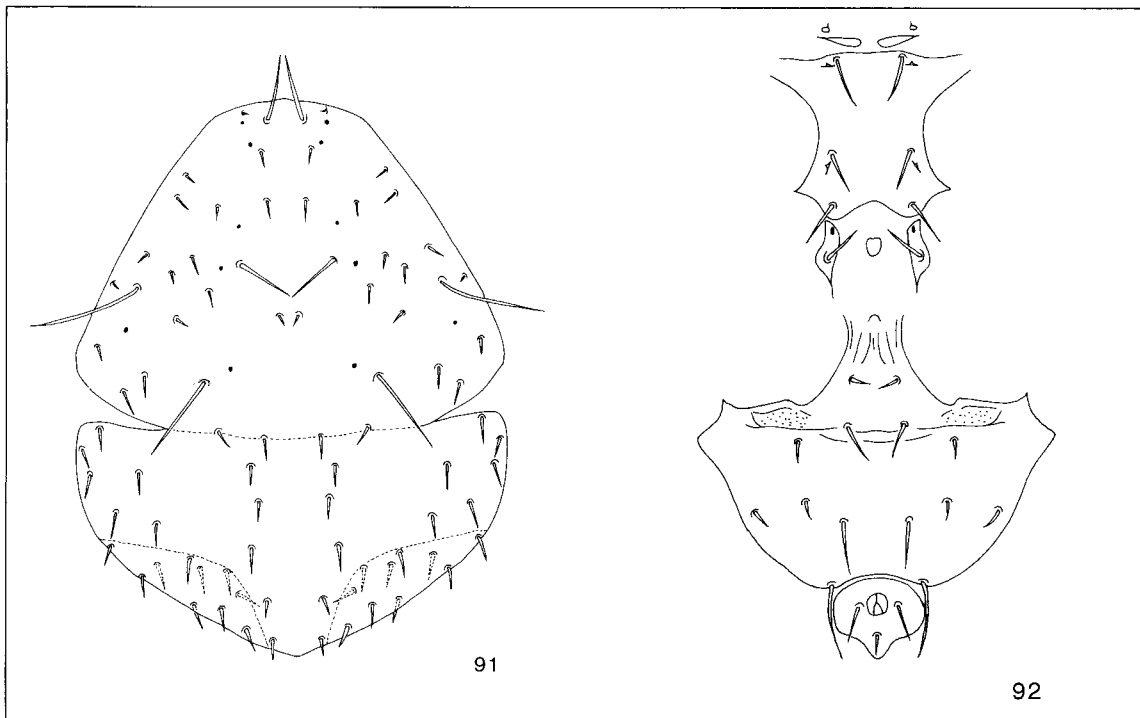
Collection data. 3 females, Tayuling (2100m), Hualien Hsien, ex soil of cabbage, 2-XI-1992, Y. H. Tseng.

10. *Veigaia pseudouncata* n.sp. (Figs. 91-98)

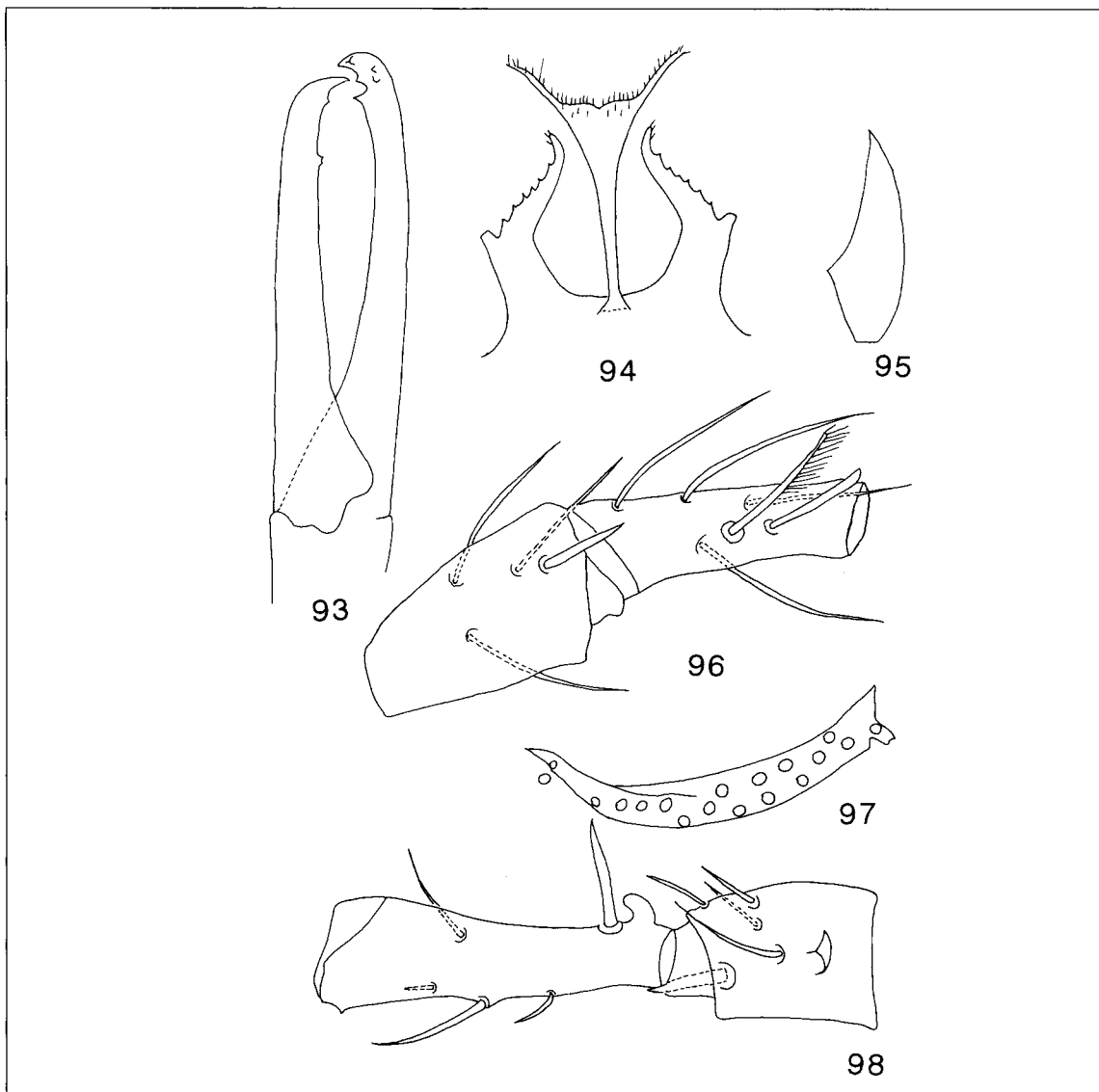
This new species resembles *V. uncata* Farrier. It differs from *V. uncata* by the shape of tectum, by having the posterior margin of peritremal plate round, and

femur IV with a strong posterior protuberance to form a lobe-shaped.

Female. Chelae of chelicera heavily sclerotized, tanned in colour. Movable chela with 2 teeth, 191μ long; fixed chela as long as movable chela, bearing 2 teeth. Tectum with 3 tines; medial tines, funnel-shaped, pectinated; lateral tines elongated with anterior inner margins strongly converging apically, basal half of inner margins divergent, anterolateral margins strongly oblique and serrate. Cornicula triangle-shaped, slightly converging on inner margins, about 2.5 times longer than width, 81μ long, 33μ wide. Hypostome with 3 pairs of setae, more or less arranged in longitudinal line; the 1st pair of setae distinctly longer than other 2 pairs; the 2nd and 3rd pairs of setae subequal in length. The al seta on palpfemur slightly expanded and pectinated apically. Palpgenu bearing al_1 and al_2 setae, slightly expanded and minutely



Figs. 91-92. *Veigaia pseudouncata* n. sp. (female). 91, dorsal view; 92, ventral view.



Figs. 93-98. *Veigaia pseudouncata* n. sp. (female). 93, chelicera; 94, tectum; 95, cornicula; 96, palpgenu and palp femur; 97, inguinal gland; 98, genu IV and femur IV.

barbed apically, al_1 shorter than al_2 .

Dorsal shield entire, heavily reticulation, with transverse lateral incisions; dorsal setae with the exception of j_1 , j_4 , z_5 and r_3 pectinated, smooth. Podonotum 625μ long, with 22 pairs of setae; opisthonotum 430μ long, with 21 pairs of uniform length setae. Length of j_1 , j_4 , z_1 , z_5 and r_3 as 114μ , 121μ , 13μ , 176μ and 251μ respec-

tively. Two pairs of presternal shields, punctated. Sternal shield sclerotized, ornamented with reticulation before 3rd pair of sternal setae; comprising 3 pairs of setae and 2 pairs of pores; st_1 setae longer than other 2 pairs, 94μ long; st_2 and st_3 subequal in length, 78μ long; interbasal distances of st_1 , st_2 and st_3 as 115μ , 137μ and 133μ respectively. Metasternal shields

broad, twice as long as broad, with one pair of setae and one pair of pores; metasternal setae equal of the length of 3rd pair of sternal setae. Genital shield reticulated, with 2 pairs long. Ventral shield broad, trapezoidal, lateral edges gently narrowed toward posterior margin; the shield ornamented with transverse reticulation; with 5 pairs of ventral setae; vs_1 and vs_3 subequal in length, 28μ long; vs_2 about 3 times as long as vs_3 , 81μ long; vs_4 about 1.3 times longer than vs_3 , 36μ long; vs_5 2.2 times of the length of vs_3 , 62μ long. Anal shield with one pair of paraanal and one of postanal setae. Posterior margin of peritremal plate round. Parastigmatic short, seta arising from membrane behind to stigma. Inguinal gland with 17 pores. Trochanter IV with one relative large and one small posterior lateral protuberances, triangular; basal one larger than apical. One stout seta on posterior margin of segment. Femur IV with one protuberance, large, and lobe-shaped; one stout, smooth setae arising near the protuberance. Ventral surface of femur IV with punctations extending from base to av seta.

Collection data. Holotype, female, paratype 3 females, Alishan (2300 m), ex soil, 27-XI-1991, C. H. Chen.

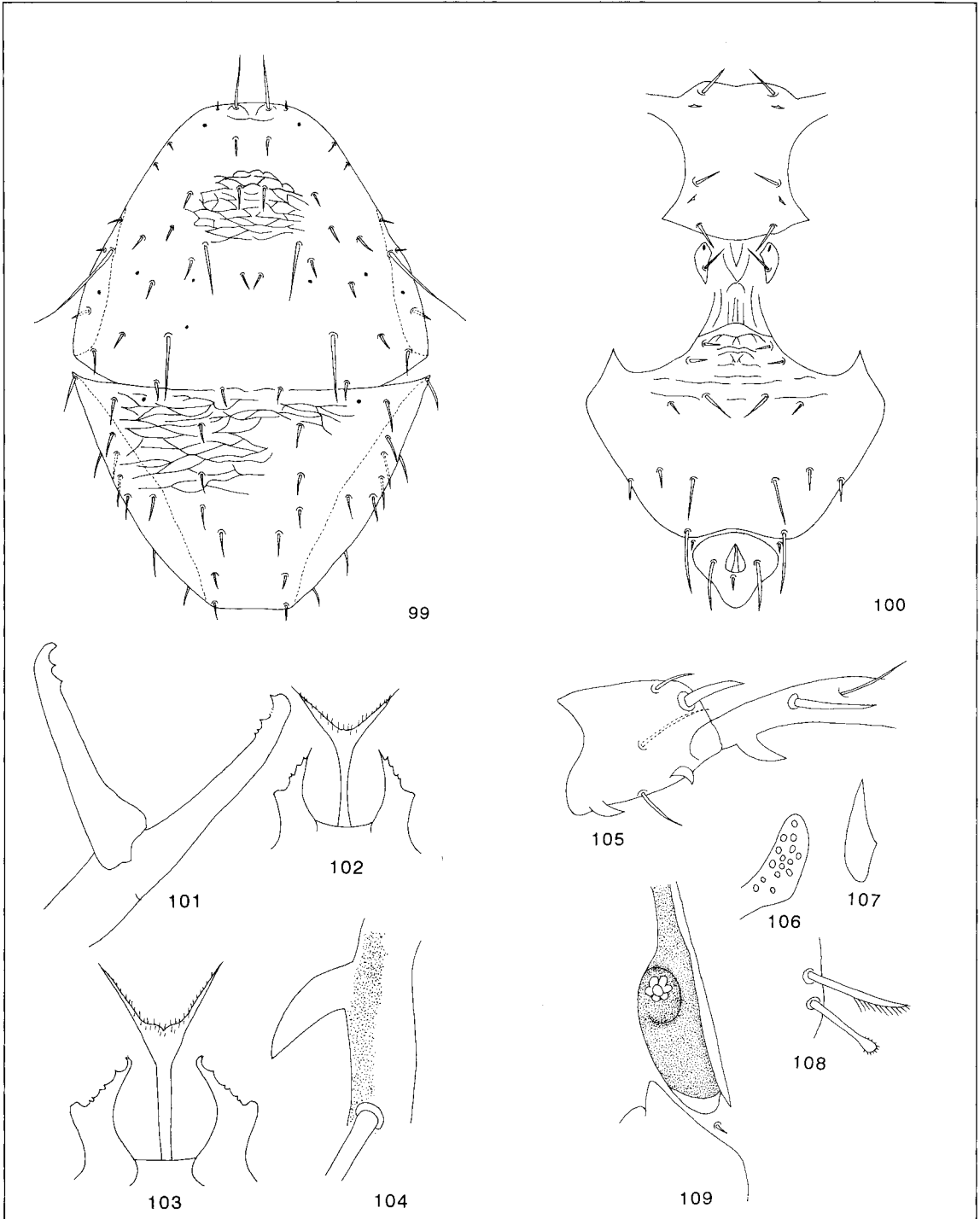
11. *Veigaia uncata* Farrier (Figs. 99-109)

Veigaia uncata Farrier, 1957, N. Carolina Agr. Exp. Sta. Bul. 124: 82-85. Type locality. N. Carolina, USA

Female. Movable chela of chelicera about 0.66 time of the length of tibia I, 151μ long; with 2 apical teeth; fixed chela as long as movable chela, with 7 teeth, of which 6 teeth extremely minuted. Cornicula rather long, about 2.4 times longer than wide. Tectum 3 times; medial tine Y-shaped and pectinated on anterior margin; lateral tines with inner margin divergent in basal half, while apical half

convergent; anterolateral margins strongly oblique each with 4-5 robust serrate; anterior margin straight on anterior between lateral tines. Hypostome with 3 pairs of hypostomal setae, arranged in longitudinal line; hyp_1 distinctly longer than hyp_2 , hyp_2 and hyp_3 subequal in length; interbasal distances of hyp_1 - hyp_2 about $1/3$ as long as hyp_2 - hyp_3 , the former 19μ long and the latter 55μ long. Palpfemur with seta al_1 , peg-shaped. Palpgenu bears al_1 and al_2 setae; al_1 expanded apically, with minute barbed; al_2 longer than al_1 , with expanded and plumose apically.

Dorsal shield entire, oval, with lateral incisions and ornamented with reticulation. Podonotum 506μ long, bearing 22 pairs of setae; podontal setae exception of the j_1 , j_4 , z_5 and r_3 plumose, smooth, pine-shaped; length of j_1 , j_2 , j_3 , j_4 , j_5 , j_6 , z_5 , J_1 , r_3 as 101.4μ , 31.2μ , 54.6μ , 93.6μ , 28μ , 42μ , 111μ , J_1 46.8μ , 192μ . Opisthonotum 364μ long, with 16 pairs of uniform length setae. Two pairs of presternal shields; inner pair elongated transversely; outer pair to form triangular. Sternal shield with reticulate and punctate; comprising 3 pairs of sternal setae and 2 pairs of pores; the st_1 setae about 1.4 times longer than st_2 , 78μ long; the st_2 and st_3 setae subequal in length, 56μ , Interbasal distances of st_1 - st_1 , st_2 - st_2 , st_3 - st_3 , st_1 - st_2 and st_2 - st_3 as 123μ , 137μ , 120μ , 148μ and 72μ respectively. Metasternal shields rectangular, elongated, with one pair of setae and one pair of pores; metasternal setae equal in length to 2nd pair of sternal setae. Genital shield with longitudinal reticulate before to 1st pair of genital setae, posterior to these setae with transversely reticulate; the shield bearing 2 pairs of setae; gs_1 lanceolate, 34μ long; gs_2 setiform, narrower than gs_1 , which is about 1.5 times longer than gs_1 , 50μ long. gs_3 seta tiny, behind to coxae IV, 11μ long. Ventral shield trapezoidal, gently narrowing toward posterior margin; the shield ornamented with reticulate and bearing 5



Figs. 99-109. *Veigaia uncata* Farrier (female). 99, dorsal view; 100, ventral view; 101, chelicera; 102-103, tectum; 104, protubercles on posterior lateral margin of femur IV. 105, genu IV and base of femur IV; 106, inguinal gland; 107, cornicula; 108, al setae on palpgenu; 109, posterior margin of peritremal plate.

pairs of setae; length of vs_1 15μ , vs_2 84μ , vs_3 19μ , vs_4 23.4μ , vs_5 93.6μ . Anal shield with 3 setae. Inguinal gland 16 pores. Trochanter IV of leg with 3 protuberclcs in basal and distal of posterolateral margin, one on dorsal surface of distal margin; one stout seta on dorsal surface of distal margin near dorsal protuberclce. Femur IV with strong hook-like protuberance on basal posterolateral margin; ventral view of segment with puncta on whole length. Posterior margin of peritremal plate sharply pointed. Parastigmatic seta on membrane behind to stigma.

Collection data. 2 female, Anmashan (2300m), Taichung Hsien, ex decaying stem of *Chamaecyparis formosensis* Matsum, 2-XI-1991, Y.H. Tseng; 3 female, Shenmuchun (850m), Nantou Hsien, ex decaying bamboo leaf, 18-IX-1992, C.H. Chen.

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