

FOUR NEW RECORDS OF PHILIPPINE ARMORED SCALE INSECTS (DIASPIDIDAE: COCCOIDEA, HEMIPTERA)

Ireneo L. Lit, Jr.* and Juancho B. Balatibat

Entomological Museum, Museum of Natural History and Department of Forest Biological Sciences, College of Forestry, respectively, U.P. Los Baños, College, Laguna 4031 Philippines

ABSTRACT

Aulacaspis madiunensis (Zehntner), *Greenaspis elongata* (Green), *Ischnaspis longirostris* (Signoret) and *Unaspis citri* (Comstock) are reported for the first time in the Philippines. Diagnostic characters, illustrations and photographs as well as distribution records are provided.

INTRODUCTION

We have been working independently for some time on a general taxonomic study of Philippine armored scale insects (ILLJ) and on diaspidine (including lepidosaphedine) species from Mount Makiling, Laguna Province (JBB). This group of insects includes many species that are considered pests of field crops, fruit trees, ornamental plants, industrial and plantation crops as well as seedlings to full grown trees of reforestation species. Comparing our notes for the last four years or so, we found four species common to our findings, which we are here reporting as new to the Philippine fauna.

All material examined will be deposited eventually in the Entomological Museum of the UPLB Museum of Natural History. Complete citations of literature other than those listed at the end of this paper could be found in Morrison and Renk (1957).

ANNOTATED LIST OF NEW RECORDS

1. *ULACASPIS MADIUNENSIS* (ZEHTNER) (Figure1)

Chionaspis madiunensis Zehntner, 1808: 1 (Type: Indonesia: Java: Madium).

Aulacaspis madiunensis: Takahashi, 1940: 26; Scott, 1952: 38, fig. 25; Williams and Watson, 1988: 70, fig. 30.

The body is robust as in many *Aulacaspis* species, with a swollen prosoma that is distinctly wider than the posterior segments. The fourth pair of pygidial lobes are well developed and bilobulate and the second abdominal segment is greatly bulging laterally. Williams and Watson (1988) noted its closeness to *A. tegalensis* (Zehntner). However, Dr.D.J. Williams has kindly informed us of the recently described *A.*

* Present address: Division of Botany and Zoology, Australian National University, Canberra, ACT 0200, Australia

neoguineensis Williams and Watson. "A. *neoguineensis* is very close to A. *madiunensis* in possessing well-developed pore prominences between the pygidial lobes but differs in possessing inner and outer submedian macroducts on each side of segment VI; all these ducts are absent in A. *madiunensis*" (Williams and Watson, 1993).

Distribution. Australia, Caroline Islands, Tuvalu; Uganda; China, Indonesia, Philippines (new record).

Material examined. LUZON: Laguna Province: UPLB Campus (Los Baños), on *Phragmites* sp. (ornamental tambo), 1969.iv.16 (I.P. Novero, Velasquez Collection D81); on stem of *Saccharum officinarum* L., 1986. iv.17 (J.B. Balatibat, JB-DOO1). MINDANAO: Zamboanga del Sur Province: Anuling, Pamucutan, Zamboanga City on *Saccharum spontaneum* L., 1987.vii.11 (I.L.Lit, Jr., s.n.).

2. *GREENASPIS ELONGATA* (GREEN) (Figure 2)

Mytilaspis elongata Green, 1896: 4 (Type: Ceylon (Sri Lanka): Pundaluoya, Nuwara Eliya on *Arundinaria* sp.).

Greenaspis elongata: MacGillivray, 1921: 307; Takagi, 1970: 81. fig. 65.

This is the type species of *Greenaspis* MacGillivray. Takagi (1970) cited two other species as likely members of this genus although Ali (1969) listed a total of five. The characters of the genus will differentiate *G. elongata* readily from other Philippine armored scales. These include the elongate body shape, small pygidial lobes and the peculiar shape of the medium lobes i.e. "zygotic basally, slightly sunken into the pygidium, forming a shallow notch at the apex of the latter, divergent and emarginate on the inner side" (Takagi, 1970).

Distribution. China, India, Malaysia, Philippines (new record), Sri Lanka, Taiwan; Japan.

Material examined. LUZON: Quezon Province: Philippine National Botanic Gardens, Real, on *Schizostachyum* sp., 1991.11.14 (I.L.Lit, Jr., s.n.); Laguna Province: Mount Makiling, on undersurface of leaves of *Schizostachyum diffusum* (Blanco) Merr., 1986.xii.11 (J.B. Balatibat, JB-D71A); on leaves of *Gigantochloa aspera* Kurz., 1990.x.29 (J.B. Balatibat, JB-D172); on leaves of *Bambusa spinosa* Roxb., 1990.i.05 (J.B. Balatibat, JB-D143). MINDANAO: North Cotabato Province: Sagpangan, Agco, Mount Apo (1,325 m elev.), Kidapawan, on *Schizostachyum lumampao* (Blanco) Merr., 1988.v.02 (I.L.Lit, Jr., 88-d21); Davao del Norte Province: Pandapan, Tagum (Caasi Bamboo Farm), on *Bambusa philippinensis* (Gamble) McLure, 1990.xii.23 (I.L.Lit, Jr./M. Caasi-Lit, s.n.).

3. *ISCHNASPIS LONGIROSTRIS* (SIGNORET) (Figure 3)

Mytilaspis longirostris Signoret, 1882: 35 (Type: Europe).

Ischnaspis longirostris: Hempel, 1900: 509; Ferris, 1937: fasc. 67; Beardsley, 1966: 533; Ben-Dov, 1974: 20, fig. 1.

The occurrence of this species is not surprising because it is widespread in the tropics. It was first collected in 1970 by F.J. Velasquez though he published only on some Aspidiotini. Large numbers of this species occur during dry months on seedlings and young trees of the ornamental 'Indian tree' (*Polyalthia longifolia* Benth. & Hook.f.) (Annonaceae), causing yellowing of leaves and wilting (Lit, personal observation). Usually affected 2-4 month old seedlings hardly recover and eventually die. Therefore, it could be considered a pest of the said plant.

The pygidium has a pair of prominent, rounded median lobes that are well separated. The gland spines are also absent between the median lobes. The presence of perivulvar pores which are in five small groups, distinguishes it from the other two species assigned to *Ischnaspis* by Ben-Dov (1974).

Distribution. Tropicopolitan. Williams and Watson (1988) note, however, that it is common in greenhouses in temperate areas.

Material examined. LUZON: Laguna Province: UPLB Campus (Los Baños), on *Polyalthia longifolia*, 1990.viii.30 (I.L. Lit, Jr., IL032); 1990.xi.28 (I.L. Lit, Jr., s.n.); same locality and host, 1990.xi.28 (I.L. Lit, Jr./J.M. Pelegrina, s.n.); PCARRD Compound, Los Baños, on same host, 1989.vi.15 (J.E. Eusebio, 88-d20); on *Mangifera indica* L., 1986.vii.04 (J.B. Balatibat, JB-D021); on *Veitchia merrillii* (Becc.) Moore, 1986.vii.04 (J.B. Balatibat, JB-DO25b); on *Coffea arabica* L., 1986.xi.11 (J.B. Balatibat, JB-D042); on *Chrysalidocarpis lutescens* H. Wendl., 1987.vi.09 (J.B. Balatibat, JB-D095b); on *Amherstia nobilis* (Wall.), 1987.i.10 (J.B. Balatibat, JB-DO80); on *Acacia mangium* Willd., 1989.iii.03 (J.B. Balatibat, JB-D-116); National Arts Center, Mount Makiling, on *Cocos nucifera* L., 1989.v.23 (J.B. Balatibat, JB-D120); UPLB Campus, on *Voacanga globosa* (Blanco) Merr., 1987.i.10 (J.B. Balatibat, JB-D085); Pila, on *Piper nigrum* L., 1986.v.04 (J.B. Balatibat, JB0D003).

4. *UNASPIS CITRI* (COMSTOCK)

(Figure 4)

Chionaspis citri Comstock, 1833: 100 (Type: U.S.A., on *Citrus*).

Unaspis citri: Ferris, 1936: 27, fig. 60; 1937: facs. 129.

This differs from another Philippine species, *U. yanonensis* (Kuwana), which also occurs on *Citrus* by having reduced number of macroducts (fewer than 80) on the pygidium. Although widespread in distribution, this must be of recent introduction, possibly through the importation of plant parts for grafting or budding.

Distribution. Widespread.

Materials examined. LUZON: Laguna Province: Mount Makiling (Nursery and Recreational Park), on stems, leaves and branches of *Citrus* sp., 1986.i.16 (J.B. Balatibat, JB-DO19a,b); Jamboree Site, Mount Makiling, on leaves of *Citrus grandis* (L.) Osb., 1986.x.22 (J.B. Balatibat, JB-D041); UPLB Campus, on leaves of *Murraya paniculata* (L.) Jacq.: 1969 (R.A. Olaguer, Velasquez, Collection D100); Hortorium Area, UPLB Campus (along Molawain Creek), on *Citrus* sp., 1990.x.12 (I.L. Lit, Jr., s.n.). MINDANAO: Zamboanga del Sur Province: Anuling Pamucutan, Zamboanga City, on *Citrus nobilis*, 1987.vii.11 (I.L. Lit, Jr., 87-d10).

ACKNOWLEDGEMENT

We wish to thank Drs. Venus J. Calilung, Department of Entomology, U.P. Los Baños and Penny J. Gullan, Division of Botany and Zoology, Australian National University, for their advice and suggestions and for allowing one of us (ILLJ) to use facilities in their respective laboratories. Our respective field works were partly funded by the UPLB Basic Research Program (Project No. 90-15) (ILLJ) and the Haribon Foundation for the Conservation of Natural Resources (JBB). We also thank Dr. D.J. Williams, CAB International Institute of Entomology, London for his comments and suggestions.

LITERATURE CITED

- ALI, S.M. 1969. A catalogue of the Oriental Coccoidea, Part II. (Insecta: Coccoidea: Diaspididae). Indian Museum Bulletin 4(2): 38-73.
- BEARDSLEY, J. Jr. W. 1966. Homoptera: Coccoidea. Insects of Micronesia 6(7): 1-562.
- MORRISON, H. and A.V. RENK. 1957. A Selected Bibliography of the Coccoidea. U.S.D.A. Misc. Publ. 734: 1-222.
- TAKAGI, S. 1970. Diaspididae of Taiwan based on material collected in connection with the Japan-US. Cooperative Science Programme, 1965 (Homoptera: Coccoidea). Part II. Insecta Matsumurana 33: 1-146.
- WILLIAMS, D.J. and G.W. WATSON. 1988. The Scale Insects of the Tropical South Pacific Region, Part I. The Armoured Scales (Diaspididae). CAB International Institute of Entomology, London. 290 p.
- WILLIAMS, D.J. and G.W. WATSON. 1993. *Aulacaspis* (Homoptera: Diaspididae) on sugarcane and other *Saccharum* spp. (Gramineae). Bull. Ent. Res. 83: 649-654.

APAT NA BAGONG ULAT NG ESKAMANG MAY-KALISKIS (DIASPIDIDAE, COCCOIDEA, HEMIPTERA) SA PILIPINAS

Ireneo L. Lit, Jr.* at Juancho B. Balatibat

BUOD

Iniulat sa kauna-unahang pagkakataon ang pagkakaroon ng mga sumusunod na eskamang may-kaliskis sa Pilipinas: *Aulacaspis madiunensis* (Zehntner), *Greenaspis elongata* (Green), *Ischnaspis Longirostris* (Signoret) at *Unaspis citri* (Comstock). Naglaan ng mga larawang-guhit, litrato at kaalaman ukol sa mga katangiang pagkakakilanlan at pati na rin mga lugar o bansang katatagpuan.

ACKNOWLEDGEMENT

We wish to thank Dr. Venus J. Calilung, Department of Entomology, UP Los Baños and Prof. J. Gullan, Division of Botany and Zoology, Australian National University for their advice and suggestions and for allowing one of us (I.L.L.) to use facilities in their respective laboratories. Our respective field works were partly funded by the UP's Basic Research Program (Project No. 90-16) (I.L.L.) and the Harold Foundation for the Conservation of Natural Resources (J.B.B.). We also thank Dr. D.J. Williams, CAB International Institute of Entomology, London for his comments and suggestions.

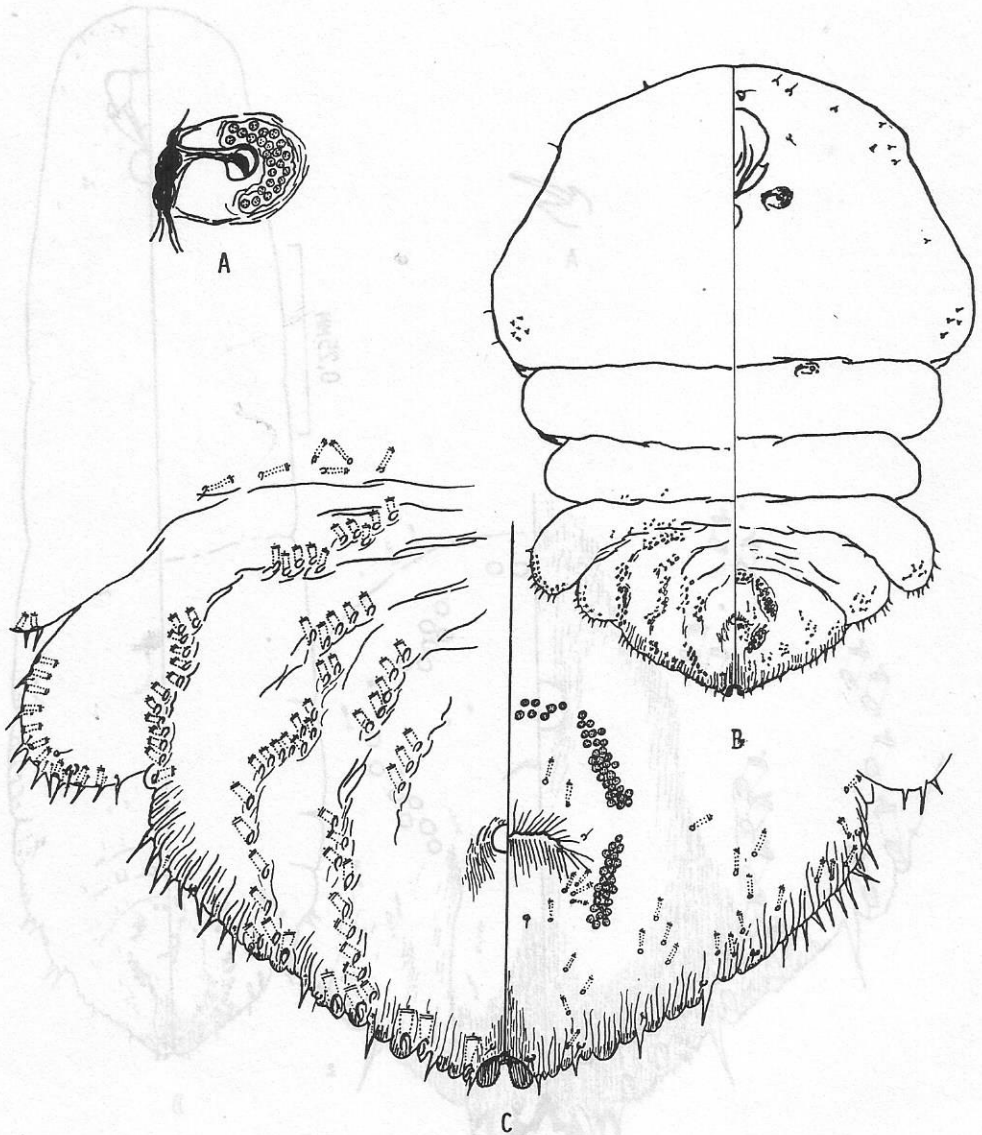


Figure 1 *Aulacaspis madiunensis* (Zehntner), A. Anterior spiracle, B. Body of adult female, C. Pygidium.

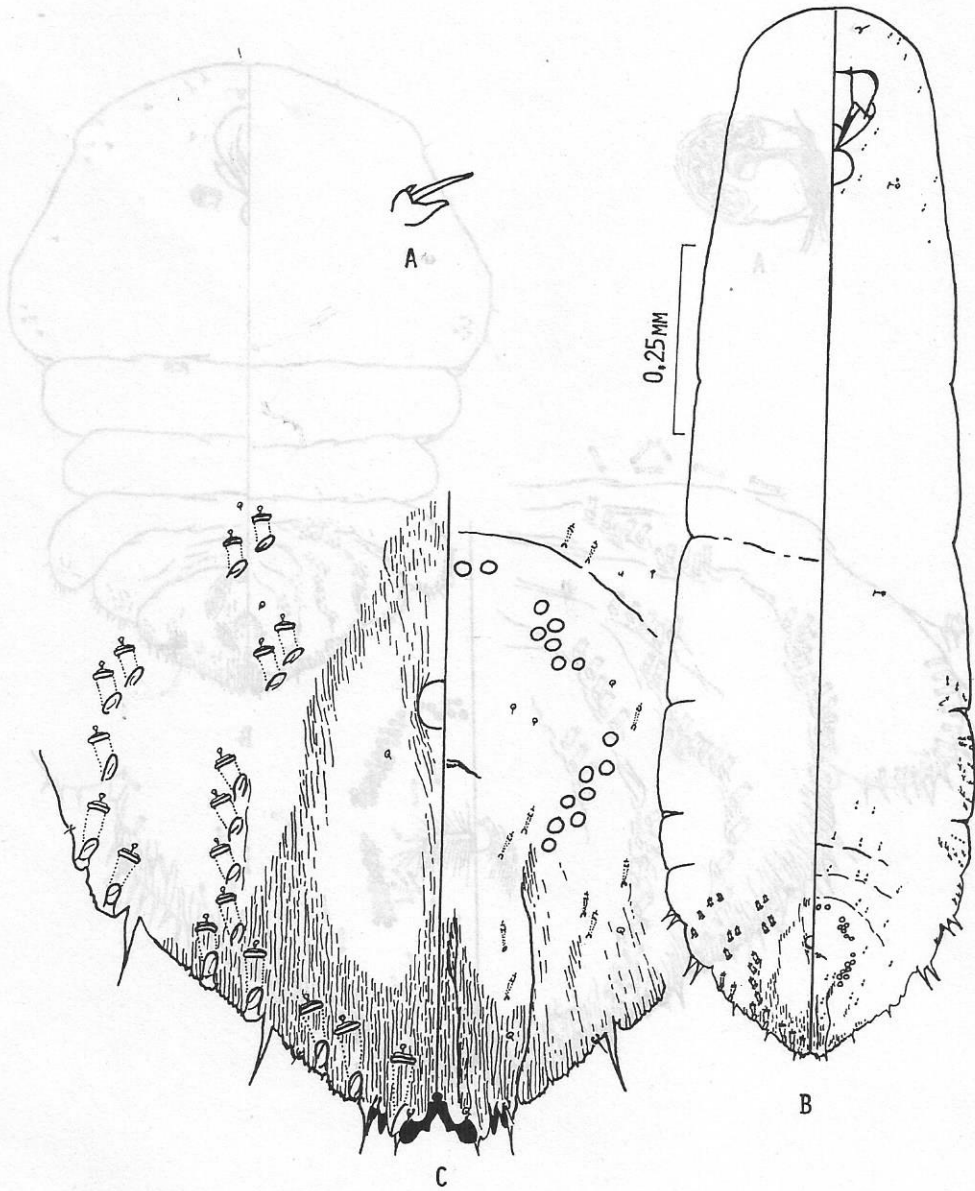


Figure 2 *Greenaspis elongata* (Green), A. Antenna, B. Body of adult female, C. Pygidium.

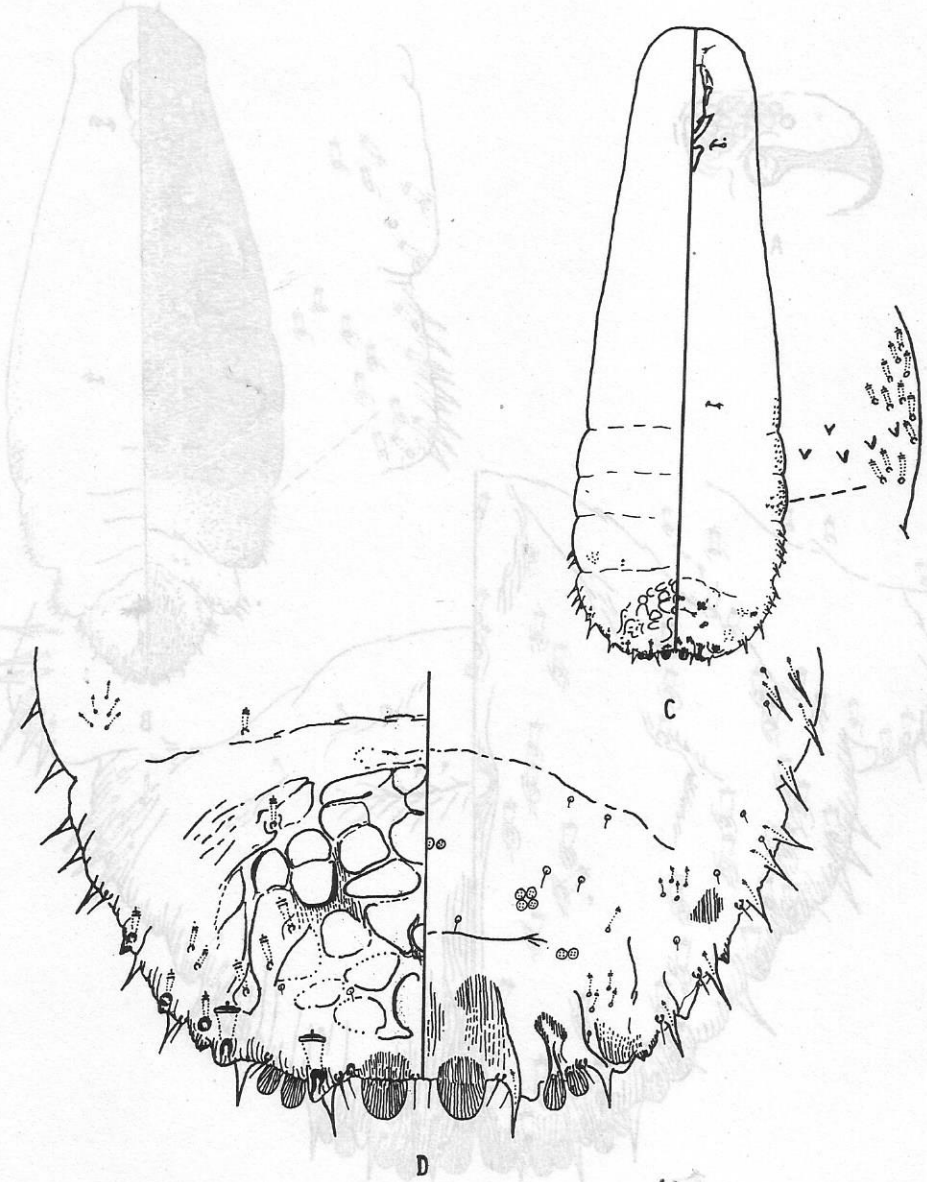


Figure 3 *Ischnaspis longirostis* (Signoret). A. Antenna, B. Anterior spiracle, C. Body of adult female, D. Pygidium.

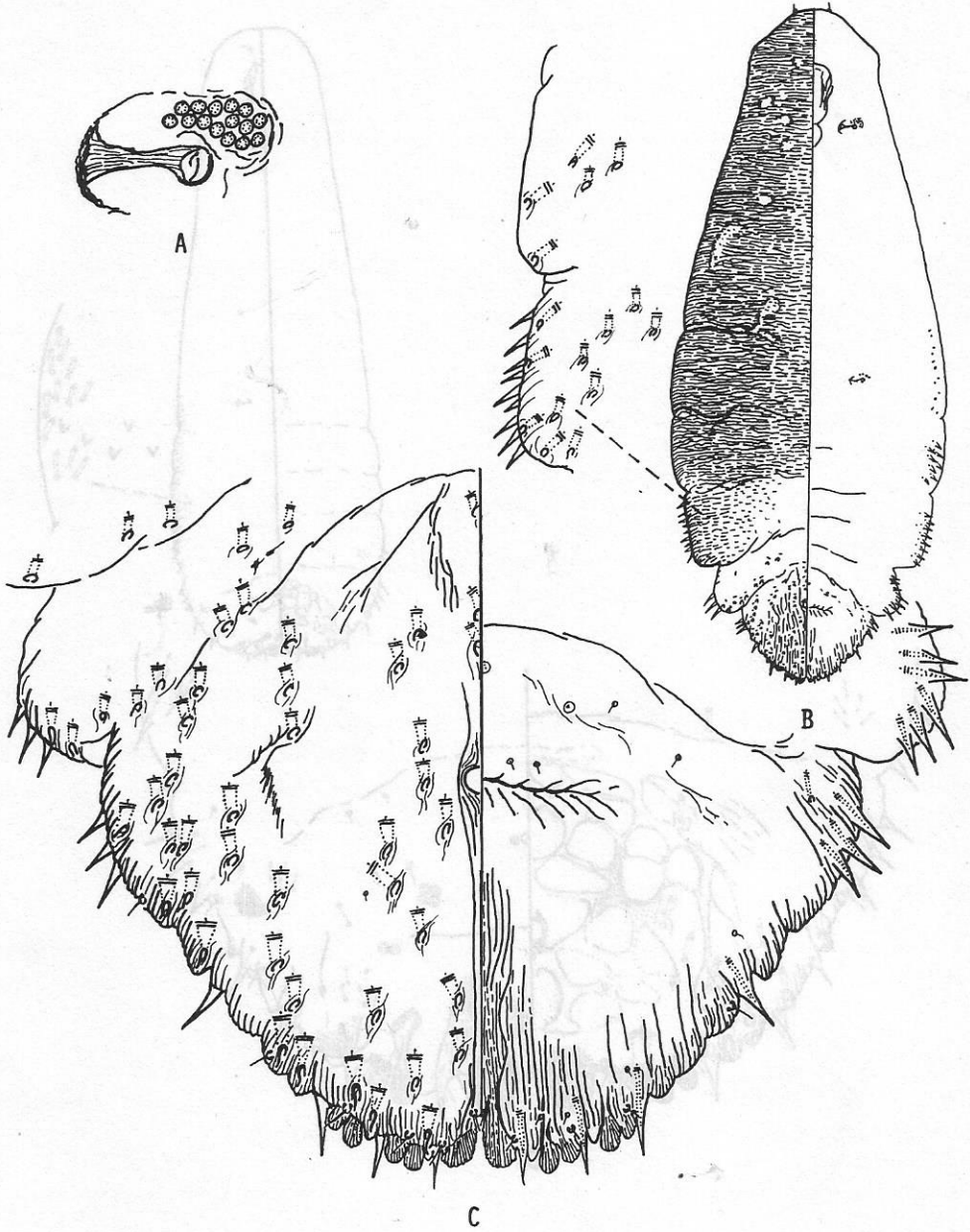


Figure 4 *Unaspis citri* (Comstock). A. Anterior spiracle, B. Body of adult female, C. Pygidium.