

A REVISION OF THE
TEMPERATE SOUTH AMERICAN
AND AUSTRALASIAN SPIDERS
OF THE FAMILY ANAPIDAE
(ARANEAE, ARANEOIDEA)

NORMAN I. PLATNICK AND RAYMOND R. FORSTER



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NORMAN I. PLATNICK

*Chairman and Curator, Department of Entomology
American Museum of Natural History
Adjunct Professor, Department of Biology
City College, City University of New York
Adjunct Professor, Department of Entomology
Cornell University*

RAYMOND R. FORSTER

*Thorne Research Fellow, Department of Entomology
American Museum of Natural History
Director Emeritus, Otago Museum, Dunedin, New Zealand*

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ABSTRACT

The anapid spiders known from Chile and Argentina, New Zealand, New Caledonia, and Australia are revised. The family is newly recorded from temperate South America, where it is represented by six new genera (*Crassanapis*, *Sheranapis*, *Elanapis*, *Sofanapis*, *Pecanapis*, and *Minanapis*) including 15 new species. The New Zealand anapids are assigned to three new genera: *Zealanapis*, for *Chasmocephalon armatum* Forster, *C. australis* Forster (which is removed from the synonymy of *C. armatum*), *Risdonius conicus* (Forster), and seven new species; *Novanapis*, for *Pseudanapis spinipes* (Forster); and *Paranapis*, for *Pseudanapis insula* (Forster) and one new species. The two previously known New Caledonian anapids, *Anapogonia insolita* (Berland) and *A. pilu-pilu* Brignoli, are assigned to the new genus *Caledanapis* and the female of the latter species is described for the first time; six additional New Caledonian species are assigned to *Caledanapis* and two other new genera (*Montanapis* and *Mandanapis*). Of the genera previously described from Australia, *Acrobleps* Hickman is transferred to the Mysmenidae and *Olgania* Hickman is transferred

to the Micropholcommatidae. *Pseudanapis aloha* Forster, previously known from Hawaii and Yap, is newly recorded from Queensland; seven previously described and 30 new endemic Australian species are assigned to *Risdonius* Hickman, *Chasmocephalon* O. P.-Cambridge, and eight new genera (*Tasmanapis*, *Victanapis*, *Queenslanapis*, *Hickmanapis*, *Nortanapis*, *Maxanapis*, *Octanapis*, and *Spinanapis*). *Chasmocephalon minutum* Hickman is transferred to *Hickmanapis*; *Anapogonia crassifemoralis* (Wunderlich) and *A. burra* (Forster) are transferred to *Maxanapis*, and the female of the former species is described for the first time; *Risdonius octoculus* (Forster) is transferred to *Octanapis*; *Anapogonia darlingtoni* (Forster) is transferred to *Spinanapis*; and *Pseudanapis grossa* Forster, from New Guinea, is transferred to *Conoculus* Komatsu. Anapid morphology, monophyly, and relationships are reviewed. Both the labral spur and glandular openings at the anterolateral corners of the carapace may be synapomorphic for the family; most (perhaps all) species have haplogyne female genitalia.

INTRODUCTION

The family Anapidae contains tiny araneoid spiders (usually under 2 mm long) typically found in litter and moss on the floor of moist forests; members of at least some genera spin small orbwebs, 2–3 cm in diameter, that are pulled up into a cone at their center (figs. 1, 2). The family is worldwide in distribution, although its occurrence in north temperate areas is patchy (including the western United States, the Mediterranean region, Nepal, Korea, and Japan). The majority of the described species are tropical; the Neotropical representatives were revised by Platnick and Shadab (1978, 1979), but many additional species in collections now available from both the New and Old World tropics have not yet been described.

This paper had its genesis with the discovery that the family also occurs in the forests of Chile. The Chilean fauna has proved, with intensive collecting, to be extensive; 15 new species are described below (two of which also occur in western Argentina). As is typical for spider groups that have speciated exten-

sively within Chile, none of these species belong to the three genera (*Anapis* Simon, *Anapisona* Gertsch, and *Pseudanapis* Simon) that occur widely in the Neotropics.

Because the affinities of the Chilean anapids seemed to lie with other austral genera instead, we surveyed the available material from Australasia and southern Africa. New Zealand, New Caledonia, and Australia each proved to house anapid faunas that are considerably more diverse than had previously been recognized, and that are generally endemic at both the specific and generic levels. Revisions of all four faunas are presented below. The anapids of southern Africa are less well represented in collections, but are equally diverse, and we had originally planned to include the South African genera in this paper as well. However, because some of those genera extend into tropical Africa, and large central African collections are available for study, it seems best to postpone their treatment and deal with all the African representatives together in a subsequent paper.



Figs. 1, 2. Web of *Caledanapis tillierorum*, new species, from Rivière Bleue, New Caledonia; top and side views (photographs by R. J. Raven).

ACKNOWLEDGMENTS

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We are indebted to the following institutions and curators for access to relevant specimens:

- AMA Auckland Museum, Auckland, K. A. J. Wise
- AMNH American Museum of Natural History, New York
- AMS Australian Museum, Sydney, M. R. Gray
- ANIC Australian National Insect Collection, Canberra, R. J. Moran
- CMC Canterbury Museum, Christchurch, R. A. Savill
- EDA Entomology and Ecology Divisions, Department of Scientific and Industrial Research, Auckland, J. S. Dugdale, J. C. Watt, G. Ramsey
- FMNH Field Museum of Natural History, Chicago, A. F. Newton, Jr.
- HDO Hope Department of Entomology, University Museum, Oxford, I. Lansbury
- MACN Museo Argentino de Ciencias Naturales, Buenos Aires, E. A. Maury
- MCZ Museum of Comparative Zoology, Harvard University, Cambridge, H. W. Levi
- MEM Mississippi Entomological Museum, Mississippi State, R. L. Brown
- MNHN Muséum National d'Histoire Naturelle, Paris, J. Heurtault
- MNS Museo Nacional de Historia Natural, Santiago, A. Camousseight M.
- MOV Museum of Victoria, Melbourne, M. S. Harvey
- NMS Natur-Museum Senckenberg, Frankfurt, M. Grasshoff

NMW National Museum, Wellington, R. G. Ordish, R. L. Palma
 OMD Otago Museum, Dunedin
 QMB Queensland Museum, Brisbane, R. J. Raven, V. E. Davies

WAM Western Australian Museum, Perth, L. E. Koch, B. Y. Main

THE CHILEAN FAUNA

Although no anapid spiders have previously been recorded from temperate South America, the family is well represented in Chile, occurring from the relict, fog-fed forests of Coquimbo to the wet forests of the far south. The 15 new species described below are placed in six new genera, none of which are known from either the American tropics or the temperate areas of the other southern continents. As is commonly the case, two of the most widespread Chilean species have also been collected in adjacent parts of Argentina, but no endemic Argentinean species are known.

All measurements are in millimeters; the abbreviations used for eyes and eye patterns are standard for the Araneae.

KEY TO GENERA OF ANAPIDAE FROM CHILE AND ARGENTINA

1. Anterolateral corners of carapace each with rounded, pore-bearing depression situated just above palpal trochanter (figs. 3–8); pars thoracica without paramedian humps; female pedipalps small but all segments present 3
 Anterolateral corners of carapace without such depressions; pars thoracica with conspicuous paramedian humps (as in fig. 67); only coxae of female pedipalps present 2
2. Males with dorsal abdominal scutum elevated, cone-shaped (fig. 63); females without dorsal scutum *Pecanapis*
 Males with dorsal abdominal scutum normal, rounded; females with distinct dorsal scutum *Minanapis*
3. Sternum with extensions between coxae II and III, and between coxae III and IV (extensions often broken at middle of their length) ... *Crassanapis*
 Sternum without such extensions 4
4. Posterior portion of pars cephalica greatly elevated, higher than ocular area (fig. 53) ... *Elanapis*
 Posterior portion of pars cephalica lower than ocular area 5
5. Anterior respiratory organs booklungs; male

palpal bulb with complex conductor (figs. 43, 46, 49); female spermathecae not on twisted stalks (figs. 50–52) *Sheranapis*
 Anterior respiratory organs tracheae; male palpal bulb without conductor (fig. 61); female spermathecae on twisted stalks (fig. 58) ... *Sofanapis*

CRASSANAPIS, NEW GENUS

TYPE SPECIES: *Crassanapis chilensis*, new species.

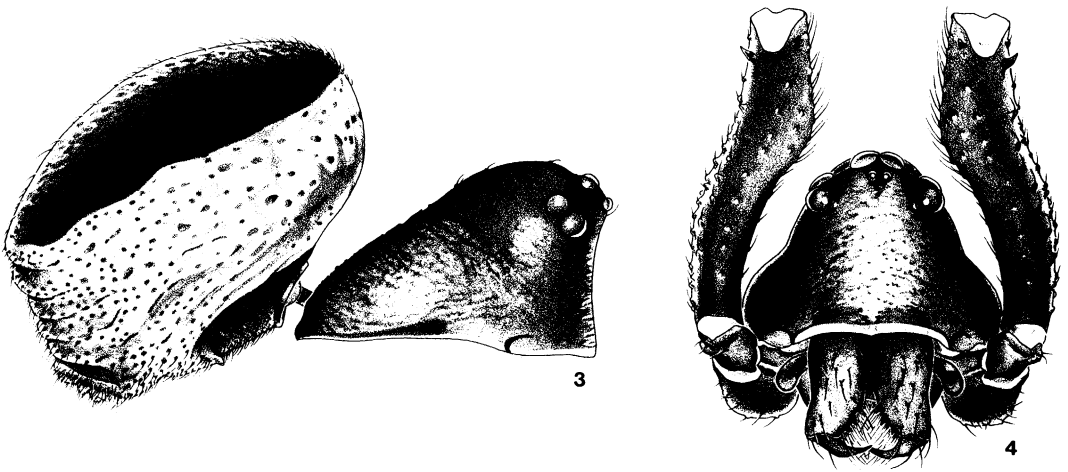
ETYMOLOGY: The generic name is an arbitrary combination of letters and is feminine in gender.

DIAGNOSIS: The combined presence of a sternum with extensions between the coxae and a pair of circular, pore-bearing depressions at the anterolateral corners of the carapace (figs. 5–8) distinguishes *Crassanapis* from the other Chilean anapid genera.

MONOPHYLY: The five species here placed in *Crassanapis* share a common male palpal morphology in which the bulb bears two ventrally situated apophyses in addition to the large and complexly shaped conductor. The more ventral apophysis is the smaller of the two and is variably shaped (although clearly homologous in all five species); the other apophysis is always elongate and may be homologous with the median apophysis of other Araneoidea.

GENERIC RELATIONSHIPS: *Crassanapis* shares with *Sheranapis* a peculiar excavation of the surface of the palpal bulb; in *Crassanapis*, the excavation is situated immediately behind the small ventral apophysis, and consists of a curving groove capped distally by an elevated hood (figs. 18, 19). It is possible that the recurved tip of the patellar apophysis slides through this groove and engages under the hood when the bulb is expanded.

SPECIFIC RELATIONSHIPS: *Crassanapis calderoni* and *C. contulmo* seem to be sister species (although they are widely separated geographically); they share an elongation of the



Figs. 3, 4. *Crassanapis chilensis*, new species, male, lateral and anterior views.

lateral pair of receptacula (figs. 38, 39). *Crassanapis cekalovici* is probably their closest relative, sharing with them a similarly shaped, at least partially bifid, tip of the small ventral palpal apophysis (figs. 29, 32, 35). The other two species, *C. chilensis* and *C. chaiten*, share a fusion of the receptacula of each side into a single spermatheca (figs. 36, 37); a similar transformation apparently occurs within *Sheranapis* as well.

DISTRIBUTION: Found primarily in southern Chile, from Ñuble (Region VIII) to Aisén (Region XI), but one species is apparently endemic to a relict forest in Valparaíso (Region V).

***Crassanapis chilensis*, new species**

Figures 3–16, 21–23, 36

TYPES: Male holotype and female allotype from Berlese sample of litter taken at an elevation of 305 m in a wet forest 1 km east of Termas de Puyehue, Parque Nacional Puyehue, Osorno, Region de los Lagos (X), Chile (Jan. 31, 1985; N. I. Platnick, O. F. Francke), deposited in MNS.

ETYMOLOGY: The specific name refers to the type locality.

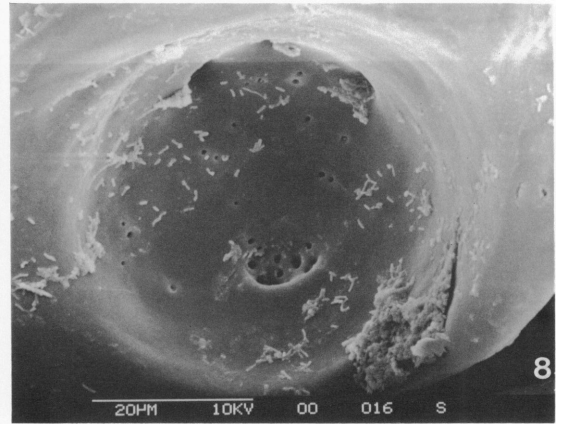
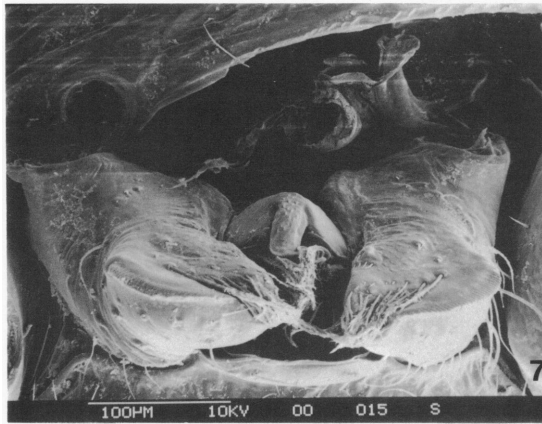
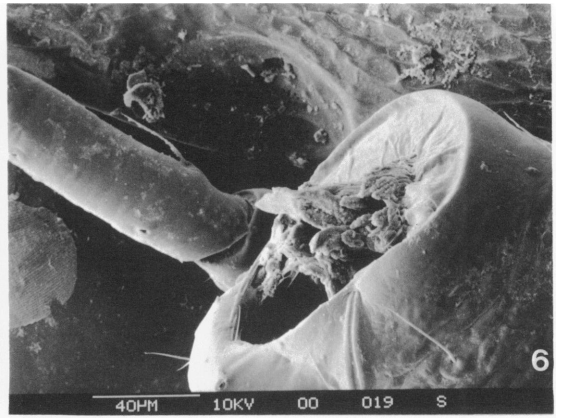
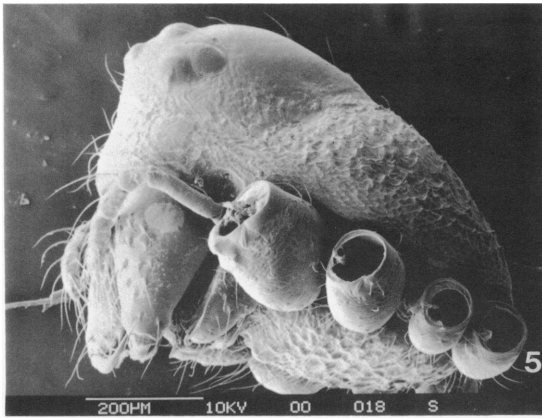
DIAGNOSIS: The enlarged and distally sinuous femur I (fig. 4), as well as the conformation of the male palp (figs. 13, 21–23) and female spermathecae (fig. 36), are diagnostic.

MALE: Total length 1.51. Carapace 0.78 long, 0.72 wide, 0.58 high. Abdomen 0.83

long, 0.83 wide, 0.90 high. Carapace dark reddish brown, almost circular in dorsal view (except for protruding ocular area), widest at coxae II, posterior margin slightly invaginated at middle; surface of pars cephalica finely granulate, with two stout setae along midline and two paramedian stout setae posteriorly, surface of pars thoracica irregularly roughened except where encircling pedicel; thoracic groove represented by gentle depression; clypeus greatly elevated, height at middle almost five times that of anterior lateral eyes, with conspicuous circular glandular areas at anterolateral corners, just above palpal trochanters (figs. 3–8).

Eight eyes in four pairs; eyes of each pair contiguous except PME separated by their radius; AME circular, less than half as large as other, oval, subequal eyes; from front, both eye rows procurved; from above, both rows recurved; ALE separated by twice their diameter from AME; PLE separated by slightly more than their diameter from PME; AME separated by about their diameter from PME (to which they are connected by black pigment); MOQ almost twice as long as wide in front, twice as wide in back as in front.

Sternum and mouthparts dark reddish brown. Sternum elevated, about as wide as long, truncated posteriorly, separating coxae IV by more than their length, posterior portion extending dorsally to fuse with carapace; thin strips extend between coxae II and III and between coxae III and IV; sternal surface



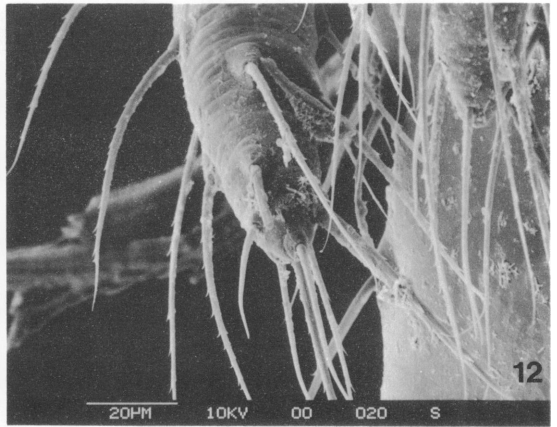
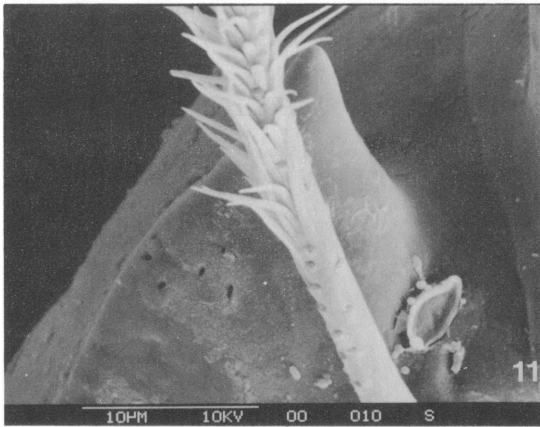
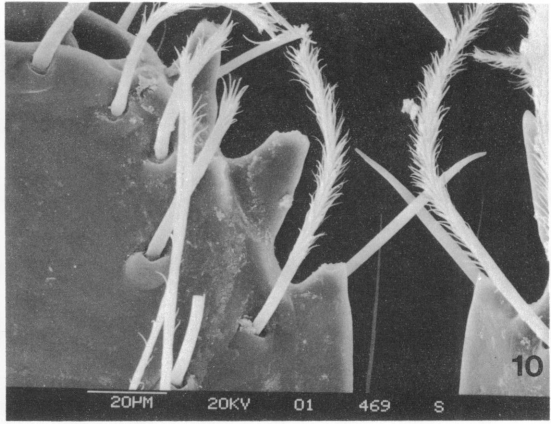
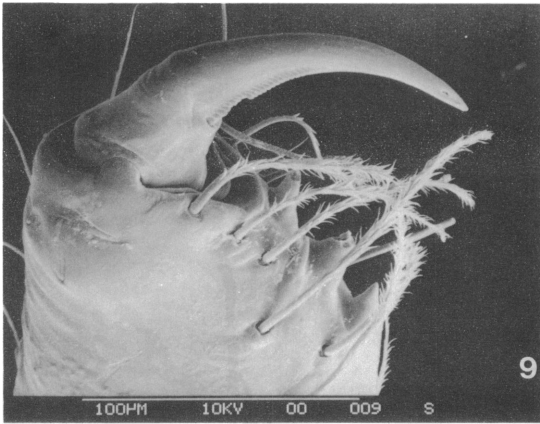
Figs. 5–8. *Crassanapis chilensis*, new species. 5, 6. Female cephalothorax, lateral views, showing glandular depression on carapace above endite. 7, 8. Male cephalothorax, anterior views, showing glandular depression.

covered with large excavations. Labium triangular, anteriorly truncated, almost twice as wide posteriorly as long, fused to sternum. Endites convergent, expanded anteriorly, distal rim with slight anteromedian scopula and strong anterolateral serrula. Labrum bent, labral spur protruding medially as low hump (fig. 7). Chelicerae vertical but much thicker proximally than distally, thus appearing to slope posteriorly; promargin with three strong teeth, retromargin with tiny denticle and long, fringed setae (figs. 9, 10); cheliceral gland opening through pores adjacent to most proximal promarginal tooth (fig. 11).

Legs brown, femora darkest, patellae and metatarsi lightest; all segments clothed with fine hairs; patella I with proximal and distal dorsal bristles, other patellae with distal bristles only; tibiae with proximal retrolateral and

median dorsal bristles; leg formula 1243, leg I greatly enlarged; femur I expanded, sinuous distally, armed with two ventral rows of seta-bearing tubercles (distal ones largest) and scattered, similar but smaller lateral tubercles (fig. 4); tibia I similarly, though less strongly, tuberculate; metatarsus I with short proteroventral spur distally; tarsus I sinuous proximally; femora and tibiae II–IV similarly but less strongly tuberculate; tarsi with three claws and several accessory setae, unpaired claw long, distally sinuous (fig. 14); one or two trichobothria on tibiae, one on metatarsi, none on tarsi; trichobothrial bases unmodified (fig. 15); tarsal organ proximal, capsulate (fig. 16).

Abdomen with anterior two-thirds of dorsum covered by oval, strongly sclerotized, reddish brown scutum; less strongly sclero-



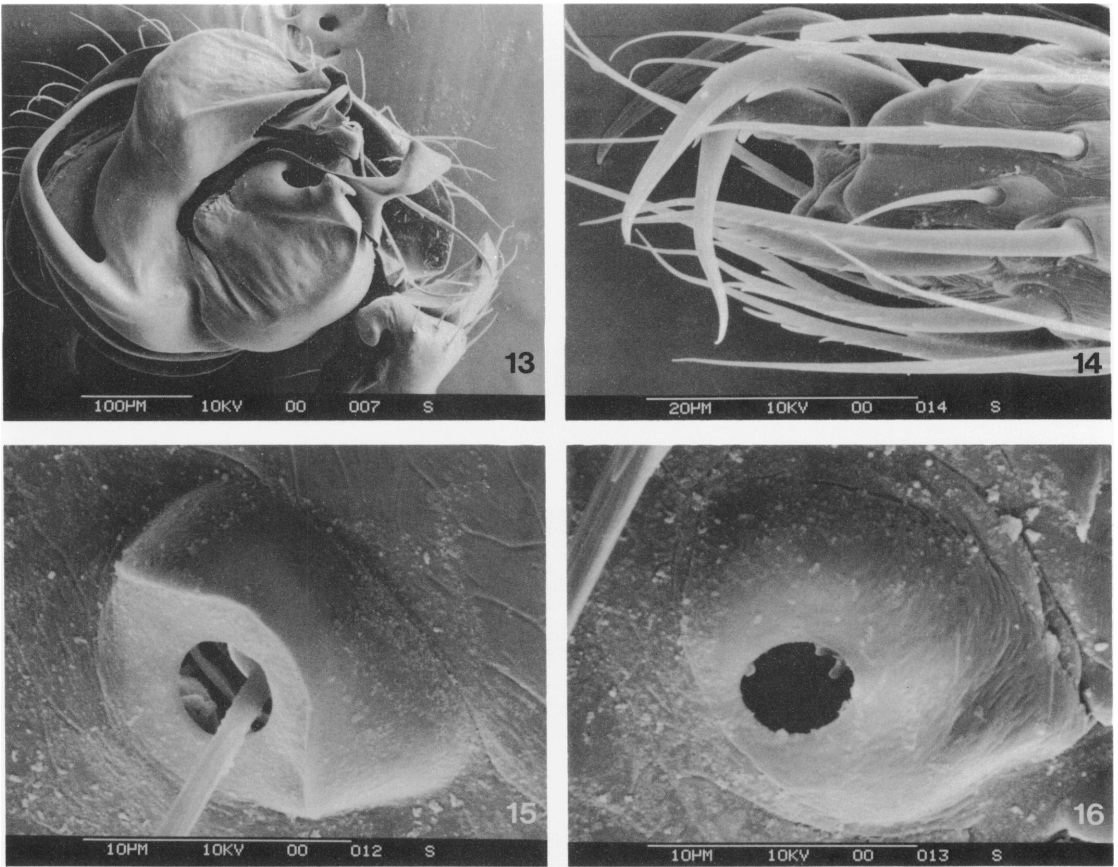
Figs. 9–12. *Crassanapis chilensis*, new species. 9. Male right chelicera, posterior view. 10. Same, female. 11. Openings of cheliceral gland associated with most proximal tooth, medial view. 12. Distal tip of female palp, anterior view, showing absence of claw.

tized, brownish orange, separate scutum surrounds pedicel and just barely encloses anterior spiracles; remainder of cuticle gray, set with irregular rows of tiny, elongate sclerotizations. Six spinnerets and small triangular colulus enclosed by sclerotic ring broken anteriorly on both sides of posterior tracheal spiracle.

Palp with elongate trochanter and femur; patella short, with recurved retrolateral apophysis; tibia reflexed ventrally, flattened, supporting subdistal portion of embolus; cymbium flattened, shifted prolaterally, basal margin with three elongated but not thickened setae; embolus originating distally, extending back between cymbium and tegular elements to dorsal edge of palpal tibia, coiling around and under strongly sclerotized conductor (figs. 13, 21–23).

FEMALE: As in male, except as follows. Total length 1.55. Carapace 0.83 long, 0.61 wide, 0.31 high. Abdomen 1.01 long, 0.94 wide, 0.97 high. Clypeal height only about three times that of ALE; those eyes separated by only slightly more than their diameter from AME. Abdomen without dorsal scutum, dorsum gray with three pairs of round, brown sclerotizations, anterior pair most closely spaced; epigastric scutum incomplete at sides of pedicle but still incorporating anterior spiracles; booklungs normal; posterior spiracle leading to at least two long, very narrow tracheal tubes. Palpi tiny but all segments present, yellow; claw absent (fig. 12). Spermathecae bent, lobate (fig. 36).

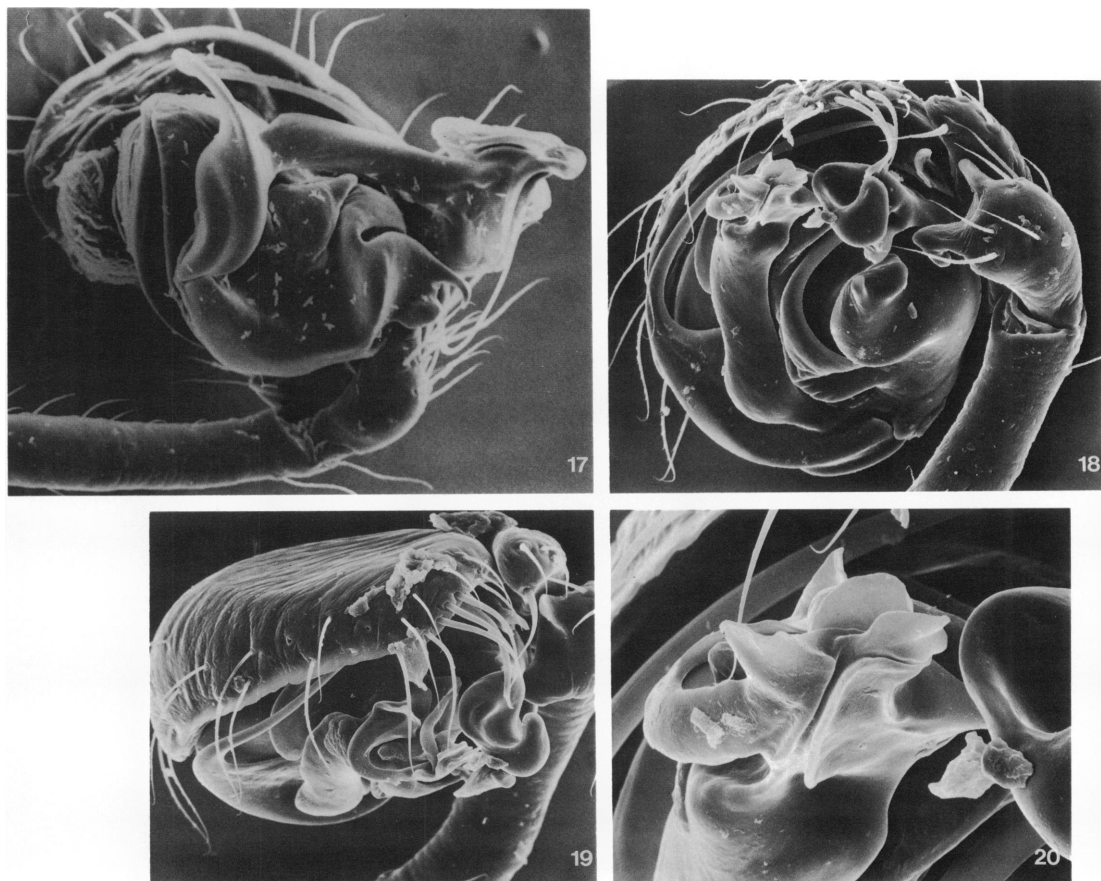
OTHER MATERIAL EXAMINED: CHILE: **Region del Bio-Bio (VIII): Ñuble:** Las Trancas, 19.5 km ESE Recinto, Dec. 10, 1982–Jan. 3,



Figs. 13–16. *Crassanapis chilensis*, new species. 13. Left male palp, retrolateral view. 14. Claws of tarsus IV, lateral view. 15. Trichobothrial base from metatarsus II, dorsal view. 16. Tarsal organ from leg II, dorsal view.

1983, elev. 1250 m, window trap, beech forest (A. Newton, M. Thayer, AMNH), 1♂, Dec. 6, 1984–Feb. 19, 1985, elevation 1700 m, flight intercept trap, beech forest (S. and J. Peck, AMNH), 1♂. *Concepción*: 6 km S San Pedro, Dec. 12, 1982–Jan. 2, 1983, elev. 360 m, window and baited pitfall traps, pine forest (A. Newton, M. Thayer, AMNH), 2♂, 3♀. *Arauco*: Monumento Naturale Contulmo, 10 km W Purén, Dec. 12, 1982, elev. 240 m, Berlese, leaf and log litter, mixed hardwood forest (A. Newton, M. Thayer, AMNH), 1♀, Dec. 11, 1984–Feb. 13, 1985, elev. 350 m, flight intercept trap, mixed evergreen forest (S. and J. Peck, AMNH), 2♂, 2♀. **Region de la Araucanía (IX)**: *Malleco*: 6.5 km E Malcahuello, Dec. 13–31, 1982, elev. 1080 m, window trap, beech forest (A. Newton, M. Thayer, AMNH), 3♂, 1♀; Princesa, 20 km W

Curacautín, Dec. 12, 1984–Feb. 16, 1985, elev. 1000 m, flight intercept trap, beech forest (S. and J. Peck, AMNH), 1♂; 15 km W Victoria, Dec. 29, 1976, elev. 200 m, Berlese, litter under forest mushrooms (S. Peck, FMNH), 1♀. *Cautín*: Bellavista, N shore Lago Villarrica, Dec. 15–30, 1982, elev. 310 m, Berlese, leaf and log litter, valdivian rainforest (A. Newton, M. Thayer, AMNH), 2♀; Flor del Lago, 15 km NE Villarrica, Dec. 14, 1984–Feb. 10, 1985, elev. 300 m, flight intercept traps, beech forest (S. and J. Peck, AMNH), 2♂, 4♀; Lago Caburgua, 21 km NE Pucón, Dec. 15, 1984–Feb. 10, 1985, elev. 600 m, flight intercept trap, mixed forest remnant (S. and J. Peck, AMNH), 1♂, 1♀; Parque Nacional Cerro Nielol, Temuco, Dec. 14–30, 1982, elev. 250 m, Berlese, leaf and log litter, native forest remnant with beeches



Figs. 17–20. Left male palp of *Crassanapis*. 17. *C. calderoni*, new species, retrolateral view. 18–20. *C. cekalovici*, new species, retrolateral and dorsal views, and enlargement of palpal conductor.

(A. Newton, M. Thayer, AMNH), 1♀. **Region de los Lagos (X):** *Valdivia*: 34 km WNW La Unión, Dec. 17, 1984–Feb. 7, 1985, elev. 700 m, flight intercept trap, mixed evergreen forest (S. and J. Peck, AMNH), 3♂, 1♀; 35 km WNW La Unión, Feb. 7, 1985, elev. 700 m, mixed forest litter (S. and J. Peck, AMNH), 1♂; 26 km SE Panguipulli, Dec. 16, 1984–Feb. 11, 1985, elev. 300 m, carrion trap, beech forest remnant (S. and J. Peck, AMNH), 1♂, 1♀; Pirehueico, Dec. 1, 1985 (E. A. Maury, MACN), 1♂. *Osorno*: Aguas Calientes, Parque Nacional Puyehue, Dec. 18, 1984–Feb. 8, 1985, elev. 600 m, malaise trap, beech forest (S. and J. Peck, AMNH), 1♂, 1♀, Jan. 31, 1985, elev. 425 m, Berlese, litter and moss, valdivian rainforest (N. I. Platnick, O. F. Francke, AMNH), 1♀; 4.1 km E Anticura, Parque Nacional Puyehue, Dec. 19–26, 1982,

elev. 430 m, Berlese, leaf and log litter, window trap, baited pitfall trap, valdivian rainforest (A. Newton, M. Thayer, AMNH), 5♂, 6♀; Antillanca road, Parque Nacional Puyehue, Dec. 20–25, 1982, elev. 470 m, Berlese, leaf and log litter, valdivian rainforest (A. Newton, M. Thayer, AMNH), 1♂, 2♀; Derumbes Forest Trail, Aguas Calientes, Parque Nacional Puyehue, Dec. 20, 1984–Feb. 8, 1985, elev. 500 m, flight intercept trap (S. and J. Peck, AMNH), 1♂; hills S Muicolpué, Jan. 26, 1986, elev. 75 m, Berlese, litter, wet disturbed forest (N. I. Platnick, R. T. Schuh, AMNH), 1♂, 1♀; Pucatrihue, Feb. 1985, Berlese (L. E. Peña G., AMNH), 1♂; Repucura Forest Trail, Anticura, Parque Nacional Puyehue, Dec. 19, 1984–Feb. 6, 1985, elev. 500 m, carrion trap (S. and J. Peck, AMNH), 1♂; Termas de Puyehue, Parque Nacional



Figs. 21–23. *Crassanapis chilensis*, new species, left male palp, oblique dorsal, ventral, and retrolateral views.

Puyehue, Nov. 24, 1981, elev. 180 m, Berlese, forest litter and moss (N. I. Platnick, R. T. Schuh, AMNH), 4♂, 2♀; 1 km E Termas de Puyehue, Parque Nacional Puyehue, Jan. 31, 1985, elev. 305 m, Berlese, wet forest litter (N. I. Platnick, O. F. Francke, AMNH), 1♀; 7.7 km NE Termas de Puyehue, Parque Nacional Puyehue, Dec. 19–25, 1982, elev. 200 m, window trap, valdivian rainforest (A. Newton, M. Thayer, AMNH), 1♀. *Llanquihue*: Frutillar Bajo, Dec. 22, 1984–Feb. 2, 1985, elev. 100 m, carrion and flight intercept traps, mixed forest in ravine (S. and J. Peck, AMNH), 8♂, 9♀; Lago Chapo, 11.7 km E Correntoso, Dec. 16–27, 1982, elev. 320 m, Berlese, leaf and log litter, disturbed valdivian rainforest (A. Newton, M. Thayer, AMNH), 1♂; Lago Chapo, 34 km E Puerto Montt, Dec. 24, 1984–Feb. 2, 1985, elev. 300 m, flight intercept trap, second growth beech forest (S. and J. Peck, AMNH), 6♂; 13 km W Río Negro, Jan. 24, 1986, elev. 20 m, Berlese, litter from edge of disturbed forest (N. I. Platnick, R. T. Schuh, AMNH), 2♀; 35 km NW Río Negro, Jan. 24, 1986, elev. 240 m, Berlese, litter from edge of disturbed forest (N. I. Platnick, R. T. Schuh, AMNH), 1♂, 1♀. *Chiloé*: 11 km NW Castro, Isla de Chiloé, Dec. 27, 1984–Feb. 1, 1985, elev. 200 m, carrion trap, ravine in second growth forest (S. and J. Peck, AMNH), 1♀. *Palena*: Chaitén, Dec. 5–7, 1981, elev. 10–100 m, Berlese, wet forest floor litter (N. I. Platnick, R. T. Schuh, AMNH), 1♀; 37 km SE Chaitén, Dec. 28,

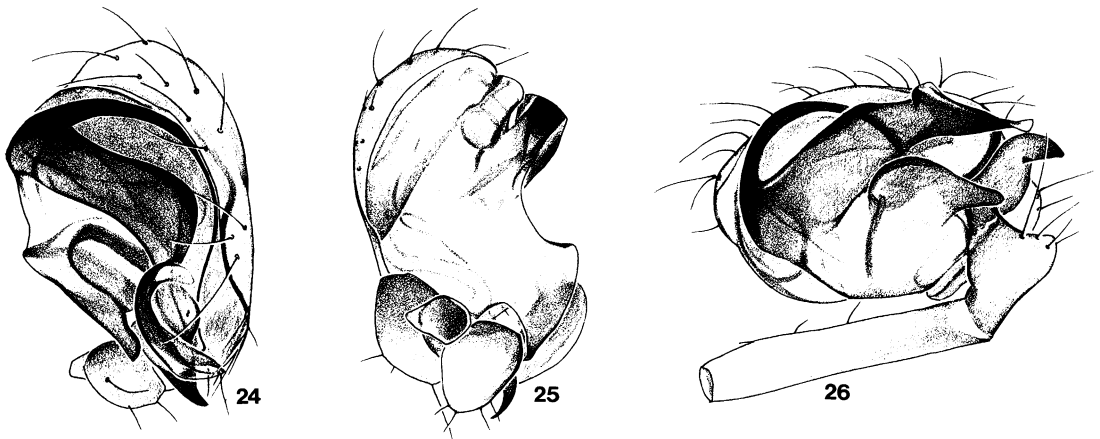
1984–Jan. 30, 1985, elev. 60 m, carrion and flight intercept traps, second growth forest beside river (S. and J. Peck, AMNH), 2♂, 3♀; 28.5 km W Futaleufú, Jan. 16, 1986, elev. 90 m, Berlese, dry forest litter (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 1♂, 1♀. **Region de Aisén (XI)**: *Aisén*: 16 km NW Cisnes Medio, Río Grande, Dec. 30, 1984–Jan. 28, 1985, elev. 200 m, flight intercept trap, mature beech forest (S. and J. Peck, AMNH), 1♂, 1♀; 15 km S Las Juntas, 30 km N Puyuhuapi, Dec. 30, 1984–Jan. 29, 1985, elev. 100 m, flight intercept trap, beech forest (S. and J. Peck, AMNH), 1♂, 1♀; Parque Nacional Río Simpson, 33 km E Puerto Aisén, Jan. 28, 1985, elev. 70 m, sifted forest leaf and stick litter (S. and J. Peck, AMNH), 1♀; 85–89 km S Puerto Puyuhuapi, Jan. 19, 1986, elev. 220–270 m, Berlese, litter from burned forest (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 2♂, 2♀.

DISTRIBUTION: Central and southern Chile, from Ñuble to Aisén.

Crassanapis chaiten, new species

Figures 24–26, 37

TYPES: Male holotype and female allotype from Berlese sample of litter taken at an elevation of 40 m in a wet virgin forest 25–27 km north of Chaitén, Palena, Region de los Lagos (X), Chile (Jan. 17, 1986; N. I. Platnick, P. A. Goloboff, R. T. Schuh), deposited in AMNH.



Figs. 24-26. *Crassanapis chaiten*, new species, left male palp, oblique dorsal, ventral, and retrolateral views.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This is a distinctive species, easily recognized by the rounded small proximal apophysis of males (fig. 26) and the multilobular spermathecae of females (fig. 37).

MALE: As in *C. chilensis*, except as follows. Total length 1.22. Carapace 0.54 long, 0.54 wide, 0.36 high. Abdomen 0.70 long, 0.63 wide, 0.85 high. Sclerotized portions of body and appendages orange. PME almost contiguous. Sternal strips extending between coxae II and III, and between coxae III and IV, broken at middle. Patella I without proximal bristle; femur I sinuous but not expanded distally; femoral and tibial tubercles reduced to low points; metatarsus I without spur; tarsus I straight. Palp with retrolateral apophysis on patella ledge-shaped; basal margin of cymbium with two elongated but not thickened setae; embolar origin relatively simple, embolus relatively short; conductor distally expanded, scoop-shaped; small ventral apophysis rounded (figs. 24-26).

FEMALE: As in *C. chilensis*, except as noted for male. Total length 1.18. Carapace 0.56 long, 0.52 wide, 0.26 high. Abdomen 0.85 long, 0.82 wide, 0.89 high. Abdominal dorsum with medial white longitudinal stripe occupying anterior half, expanded laterally to include first pair of round sclerotizations. Spermathecae multilobular (fig. 37).

OTHER MATERIAL EXAMINED: CHILE: **Region de los Lagos (X): Osorno:** Termas de

Puyehue, Parque Nacional Puyehue, Nov. 24, 1981, elev. 180 m, Berlese, forest litter and moss (N. I. Platnick, R. T. Schuh, AMNH), 1♂. **Chiloé:** 5 km N Quellón, Isla de Chiloé, Dec. 1, 1981, elev. 105 m, Berlese, floor litter and moss, modified forest (N. I. Platnick, R. T. Schuh, AMNH), 7♂, 1♀. **Palena:** 25-27 km N Chaitén, Jan. 17, 1986, elev. 40 m, Berlese, litter and moss, wet virgin forest (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 4♂.

DISTRIBUTION: Known only from Osorno to Palena, Chile.

Crassanapis calderoni, new species

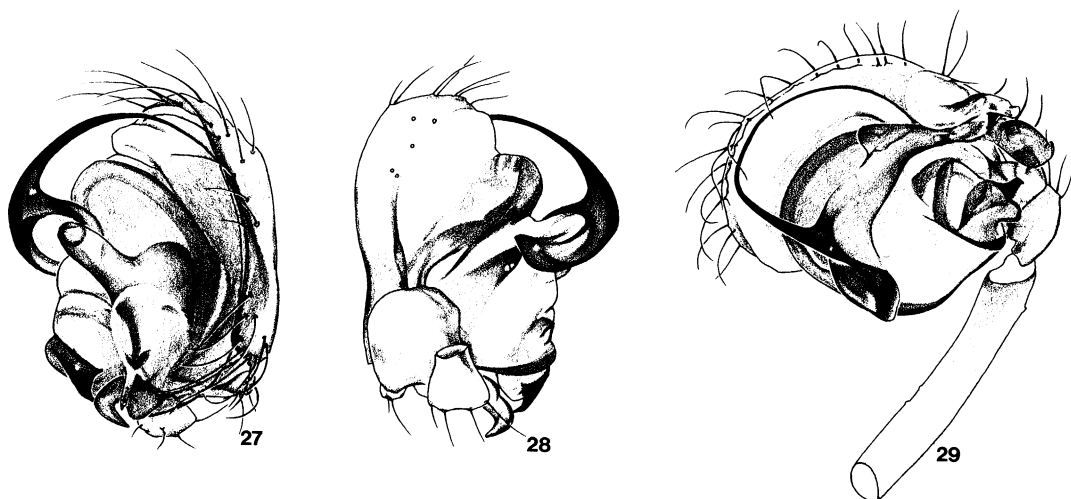
Figures 17, 27-29, 38

TYPES: Male holotype and female allotype from pitfall trap in relict forest at Quintero, Valparaíso, Region de Valparaíso (V), Chile (Oct. 2, 1968; R. Calderón G.), deposited in MNS.

ETYMOLOGY: The specific name is a patronym in honor of Dr. Raúl Calderón G. of the Universidad de Playa Ancha, Valparaíso, Chile, collector of the type specimens and many other fascinating Chilean spiders.

DIAGNOSIS: Males can be distinguished from those of *C. chilensis* by the dorsally twisted embolar base (figs. 17, 27-29), females by the rounded medial and elongated lateral receptacula (fig. 38).

MALE: As in *C. chilensis*, except as follows. Total length 1.33. Carapace 0.54 long, 0.52



Figs. 27–29. *Crassanapis calderoni*, new species, left male palp, oblique dorsal, ventral, and retrolateral views.

wide, 0.44 high. Abdomen 0.78 long, 0.67 wide, 0.88 high. Sternal strips extending between coxae II and III, and between coxae III and IV, broken at middle. Tibia I with subdistal prolateral bristle, not tuberculate; distal end of femur I slightly sinuous but not expanded; prolateroventral spur on metatarsus I reduced to bristle or lacking; tarsus I not sinuous proximally. Dorsal abdominal scutum shifted posteriorly, covering posterior half of abdomen dorsally. Sclerotizations in posterior rows on soft portion larger, longer than those of anterior rows. Basal margin of cymbium with three greatly thickened bristles; conductor relatively narrow, distally translucent; smaller ventral apophysis hook-shaped, larger one distally folded (figs. 17, 27–29).

FEMALE: As in *C. chilensis*, except as noted for male. Total length 1.35. Carapace 0.63 long, 0.52 wide, 0.30 high. Abdomen 0.85 long, 0.82 wide, 1.02 high. Four receptacula; medial pair rounded, lateral pair elongate (fig. 38).

OTHER MATERIAL EXAMINED: CHILE: **Region de Valparaíso (V):** *Valparaíso:* Quintero, Aug. 12, 1968, pitfall traps, relict forest (R. Calderón G., AMNH), 52♂, 15♀, Oct. 2, 1968, pitfall traps, relict forest (R. Calderón G., AMNH), 30♂, 6♀.

DISTRIBUTION: Known only from a protected, relict forest on the outskirts of Quintero, Valparaíso, Chile.

Crassanapis contulmo, new species

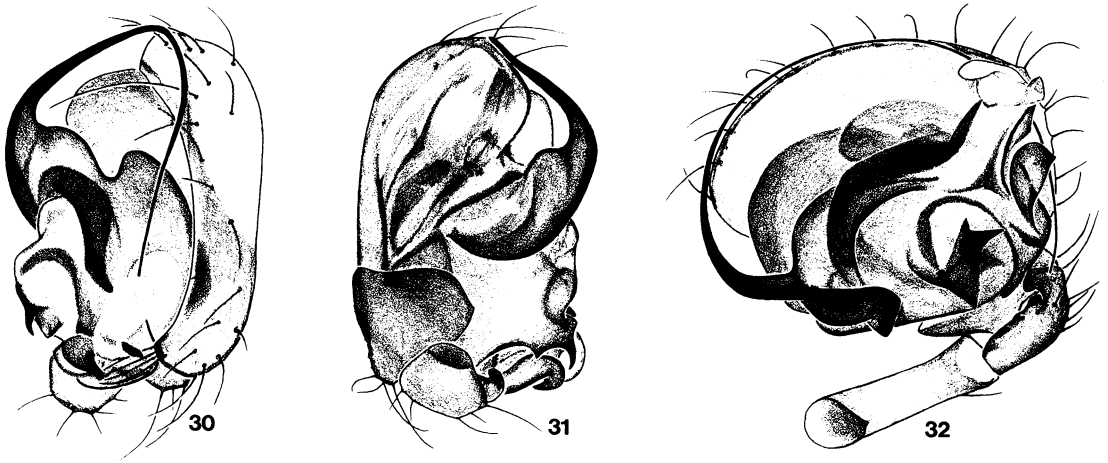
Figures 30–32, 39

TYPE: Male holotype from Berlese sample of wet forest litter taken at an elevation of 300 m in the Monumento Naturale Contulmo, 10 km west of Purén, Arauco, Region del Bío-Bío (VIII), Chile (Jan. 31, 1986; N. I. Platnick, R. T. Schuh), deposited in MNS.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species seems closest to *C. calderoni*; males can be distinguished by the simple, rather than hooked, dorsal prong on the small ventral apophysis (fig. 32), females by the basally narrower lateral pair and relatively smaller median pair of receptacula (fig. 39).

MALE: As in *C. chilensis*, except as follows. Total length 1.22. Carapace 0.52 long, 0.52 wide, 0.37 high. Abdomen 0.78 long, 0.63 wide, 0.58 high. Sternal strips extending between coxae II and III, and between coxae III and IV, broken at middle. Tibiae darkened distally; patella I without proximal bristle; femur I sinuous but not expanded distally, with retrolateral row of tubercles stronger than prolateral row, lateral tubercles absent; tibiae not tuberculate; spur on metatarsus I strong; tarsus I straight. Basal margin of cymbium with three thickened bristles; embolar base relatively narrow, extending beyond distal margin of cymbium; small



Figs. 30-32. *Crassanapis contulmo*, new species, left male palp, oblique dorsal, ventral, and retro-lateral views.

proximal apophysis with straight dorsal prong (figs. 30-32).

FEMALE: As in *C. chilensis*, except as noted for male. Total length 1.32. Carapace 0.58 long, 0.52 wide, 0.44 high, Abdomen 0.98 long, 0.93 wide, 0.96 high. Abdominal dorsum with white circles surrounding sclerotizations and along midline. Four receptacula, with long, basally narrowed lateral pair and small, rounded, widely separated medial pair (fig. 39).

OTHER MATERIAL EXAMINED: CHILE: **Region del Bio-Bio (VIII): Arauco:** Monumento Naturale Contulmo, 10 km W Purén, Dec. 11, 1984-Feb. 13, 1985, elev. 350 m, flight intercept trap, mixed evergreen forest, sifted from mixed forest litter (S. and J. Peck, AMNH), 2♀.

DISTRIBUTION: Known only from the Monumento Naturale Contulmo in Arauco, Chile.

***Crassanapis cekalovici*, new species**

Figures 18-20, 33-35, 56

TYPES: Male holotype and female allotype from Berlese sample taken at Tomé, Concepción, Region del Bio-Bio (VIII), Chile (Dec. 12, 1982; T. Cekalovic K.), deposited in AMNH.

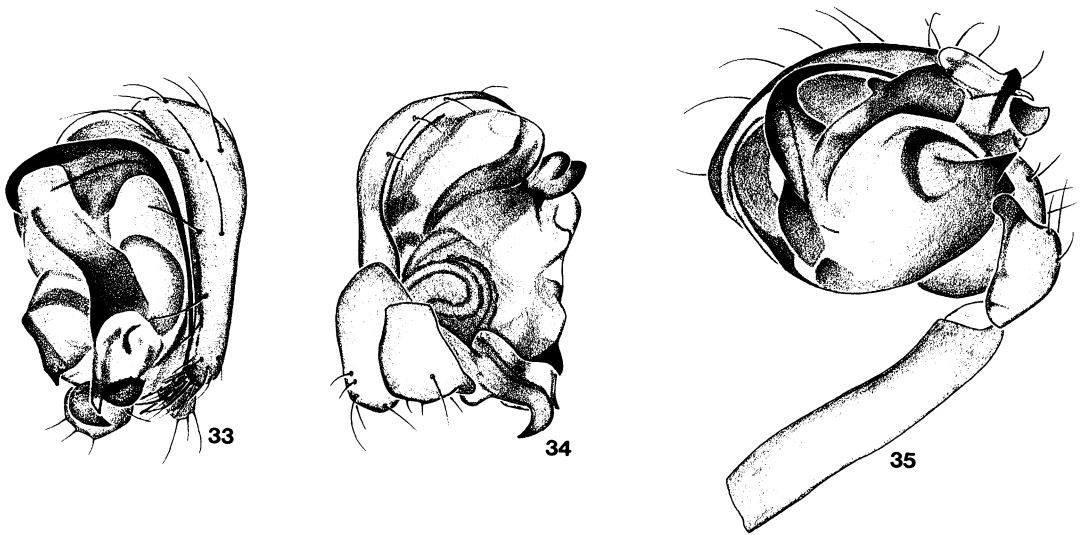
ETYMOLOGY: The specific name is a patronym in honor of the Chilean arachnologist and naturalist, Dr. Tomás Cekalovic K., collector of the types and many other anapids.

DIAGNOSIS: Males resemble those of *C. calderoni* but have the embolus origin more dorsally situated (fig. 35); females can be recognized easily by the four rounded receptacula (fig. 56).

MALE: As in *C. chilensis*, except as follows. Total length 0.93. Carapace 0.56 long, 0.50 wide, 0.28 high. Abdomen 0.74 long, 0.57 wide, 0.74 high. Patella I without proximal bristle; femur I laterally compressed proximally, sinuous but not expanded distally, with tubercles reduced to low humps; tibiae without tubercles; metatarsus I without spur; tarsus I straight. Basal margin of cymbium with three thickened bristles; embolus origin on dorsal half of bulb, embolar base wide; small ventral apophysis ledge-shaped, with proximally directed extension on dorsal side (figs. 18-20, 33-35).

FEMALE: As in *C. chilensis*, except as noted for male. Total length 1.18. Carapace 0.56 long, 0.50 wide, 0.37 high. Abdomen 0.85 long, 0.78 wide, 0.82 high. Patella I with short proximal bristle; tubercles on femur I distinct. Abdominal dorsum with two anteriorly converging, longitudinal pale yellow stripes, on gray background; round sclerotizations within white areas. Epigastric scutum surrounding pedicel. Four rounded receptacula (fig. 56).

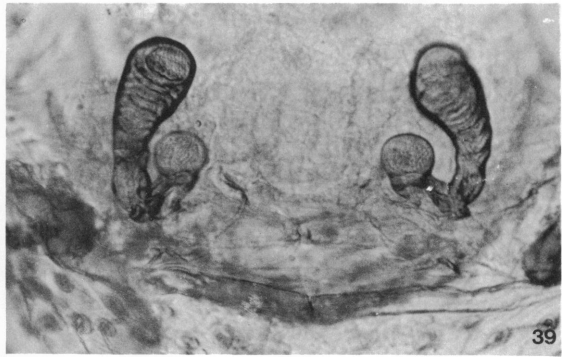
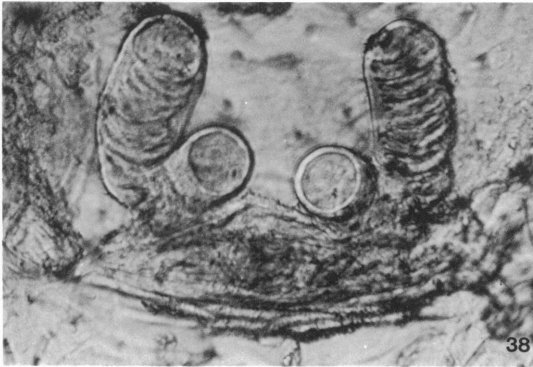
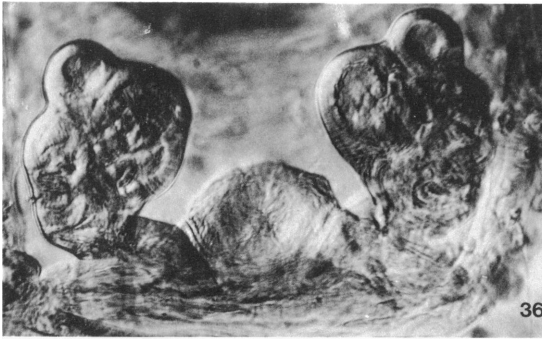
OTHER MATERIAL EXAMINED: CHILE: **Region del Bio-Bio (VIII): Ñuble:** 22.7 km ESE Recinto, Dec. 10, 1982-Jan. 3, 1983, elev.



Figs. 33–35. *Crassanapis cekalovici*, new species, left male palp, oblique dorsal, ventral, and retro-lateral views.

1330 m, window trap and Berlese, log and leaf litter, beech forest (A. Newton, M. Thayer, AMNH), 1♂, 1♀. *Concepción*: Colcura, Jan. 30, 1985, Berlese (T. Cekalovic K., AMNH), 2♂; El Manzano, Mar. 31, 1984, Berlese (T. Cekalovic K., AMNH), 2♂, 2♀, Jan. 13, 1985, Berlese (T. Cekalovic K., AMNH), 3♀, Jan. 3, 1988, Berlese (T. Cekalovic K., AMNH), 1♂; Escuadrón, Apr. 2–10, 1988, Berlese (T. Cekalovic K., AMNH), 16♂, 16♀; Estero Nonguén, Mar. 13, 1977 (T. Cekalovic K., AMNH), 1♂, 1♀, Dec. 11, 1977 (T. Cekalovic K., AMNH), 1♂, Aug. 19, 1978, Berlese (T. Cekalovic K., AMNH), 1♂, 1♀, Dec. 6, 1981, Berlese (T. Cekalovic K., AMNH), 2♂, Dec. 3, 1982, Berlese (T. Cekalovic K., AMNH), 4♂, 6♀; Hualpén, Jan. 12, 1979, Berlese (T. Cekalovic K., AMNH), 1♀, Nov. 17, 1981, elev. 60 m, Berlese, concentrated floor litter, native forest (N. I. Platnick, R. T. Schuh, AMNH), 1♀, Mar. 29, 1986, Berlese (T. Cekalovic K., AMNH), 1♂; 8.4 km W La Florida, Jan. 2, 1983, elev. 170 m, Berlese, leaf and log litter, subtropical xerophytic forest (A. Newton, M. Thayer, AMNH), 1♂; Penco, Feb. 11, 1979, Berlese (T. Cekalovic K., AMNH), 1♀, Oct. 30, 1982, Berlese (T. Cekalovic K., AMNH), 1♂, 2♂; Pinares, Oct. 23, 1972, Berlese (T. Cekalovic K., AMNH), 2♂, 4♀, Dec. 10, 1972, Berlese (T. Cekalovic K., AMNH), 2♂, Mar. 18, 1973,

Berlese (T. Cekalovic K., AMNH), 2♂, 1♀; Quilacoya, Mar. 2, 1986, Berlese (T. Cekalovic K., AMNH), 2♂, 3♀; Tomé, Nov. 12, 1971, Berlese (T. Cekalovic K., AMNH), 1♂, Dec. 12, 1982, Berlese (T. Cekalovic K., AMNH), 5♂, 8♀. *Arauco*: Monumento Natural Contulmo, 10 km W Purén, Dec. 12, 1982, elev. 240 m, Berlese, leaf and log litter, mixed hardwood forest (A. Newton, M. Thayer, AMNH), 1♂, 2♀, Dec. 11, 1984–Feb. 13, 1985, elev. 350 m, flight intercept trap, mixed evergreen forest (S. and J. Peck, AMNH), 1♀, Feb. 13, 1985, elev. 350 m, mixed forest litter (S. and J. Peck, AMNH), 6♂, 1♀; 16 km N Tres Pinos, Dec. 12, 1982, elev. 170 m., Berlese, leaf and log litter, cupressus-eucalypt mixed forest (A. Newton, M. Thayer, AMNH), 4♂, 5♀. **Region de la Araucania (IX)**: *Malleco*: 11 km W Angol, Dec. 9, 1984–Feb. 16, 1985, elev. 1000 m, carrion trap, boggy mixed forest remnant (S. and J. Peck, AMNH), 2♂, 1♀; 17 km W Angol, Dec. 8, 1984–Feb. 16, 1985, elev. 800 m, mixed beech forest (S. and J. Peck, AMNH), 2♀; 6 km W Curacautín, Dec. 12, 1984–Feb. 16, 1985, elev. 750 m, carrion trap, grazed beech forest remnant (S. and J. Peck, AMNH), 2♂; 6.5 km E Malalcahuello, Dec. 13–31, 1982, elev. 1080 m, window trap, beech forest (A. Newton, M. Thayer, AMNH), 6♂, 3♀; 3 km W Victoria, Dec. 13, 1984–Feb. 12,



Figs. 36–39. Internal female genitalia of *Crassanapis*, dorsal views. 36. *C. chilensis*, new species. 37. *C. chaiten*, new species. 38. *C. calderoni*, new species. 39. *C. contulmo*, new species.

1985, elev. 100 m, flight intercept trap, mixed beech forest (S. and J. Peck, AMNH), 1♀; 15 km W Victoria, Dec. 29, 1976, elev. 200 m, Berlese, under forest mushrooms (S. Peck, FMNH), 1♂, 1♀. **Cautín:** Estero Chaulico, Jan. 25, 1980, Berlese (T. Cekalovic K., AMNH), 1♀; Molco Alto, Jan. 24, 1988, Berlese (T. Cekalovic K., AMNH), 1♀. **Region de los Lagos (X):** *Llanquihue:* Estación Concordia, Feb. 23, 1986, Berlese (T. Cekalovic K., AMNH), 1♂; Frutillar Bajo, Dec. 22, 1984–Feb. 2, 1985, elev. 100 m, flight intercept traps, mixed forest in ravine (S. and J. Peck, AMNH), 3♂; Salto Petrohué, Parque Nacional Vicente Perez Rosales, Dec. 23, 1984, elev. 150 m, Berlese, mixed forest litter (S. and J. Peck, AMNH), 1♂, 2♀. **Chiloé:** Canan, Isla de Chiloé, Feb. 26, 1972, Berlese (T. Cekalovic, AMNH), 1♀. **Region de Aisén (XI):** *Aisén:* 102 km S Puerto Puyuhuapi, Jan. 19, 1986, elev. 220 m, Berlese, wet forest litter (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 1♂. **ARGENTINA:** **Río Negro:** El Bolsón, Río Azul valley, Sept. 22, 1961, elev. 300 m, sift-

ed litter and moss, marshy forest (G. Topal, OMD), 3♂.

DISTRIBUTION: Central and southern Chile, from Ñuble to Aisén, and adjacent Argentina.

SHERANAPIS, NEW GENUS

TYPE SPECIES: *Sheranapis bellavista*, new species.

ETYMOLOGY: The generic name is in honor of Sher Platnick, who gracefully coped with the disruption of all domestic routine while the work reported on here was being done, and is feminine in gender.

DIAGNOSIS: *Sheranapis* differs from *Pecanapis* and *Minanapis* in having circular pore-bearing depressions at the anterolateral corners of the carapace, from *Sofanapis* in having anterior booklungs rather than tracheae, and from *Elanapis* in having the male palpal patella and tibia unfused. The only Chilean genus with which species are likely to be confused is *Crassanapis*; its species are similar in general appearance but differ in having a

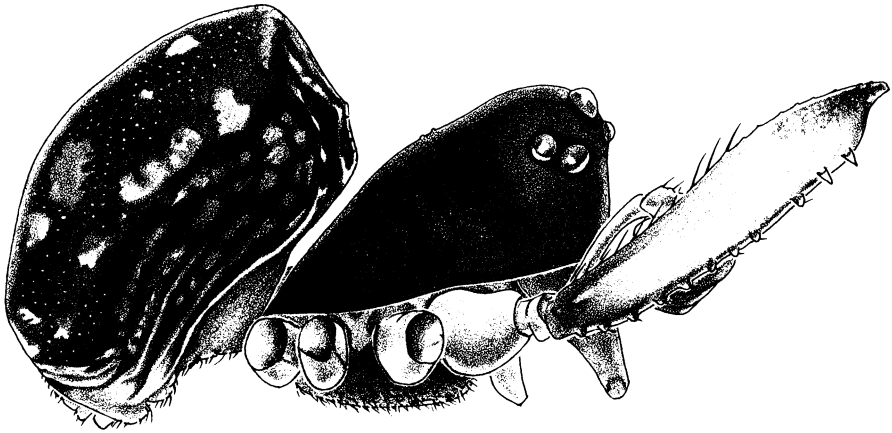


Fig. 40. *Sheranapis bellavista*, new species, male, lateral view.

higher clypeus and sternal extensions between the coxae.

MONOPHYLY: The three species assigned below to *Sheranapis* share a uniquely modified male palpal tibia that bears a projecting lobe surmounted by one or more enlarged or elongated setae (figs. 41, 44, 47).

GENERIC RELATIONSHIPS: *Sheranapis* shares with *Crassanapis* the tegular groove capped by a hood described above; in *Sheranapis*, however, there is no trace of the small ventral apophysis, so that the groove and cap are immediately obvious on the tegular surface.

SPECIFIC RELATIONSHIPS: *Sheranapis bellavista* and *S. quellon* differ from *S. villarica* in having the receptacula of each side fused into a single spermatheca (compare figs. 50, 51 with fig. 52).

DISTRIBUTION: Central and southern Chile, from Quillota (Region V) to Palena (Region X).

***Sheranapis bellavista*, new species**

Figures 40–43, 50

TYPE: Male holotype from Berlese sample of litter taken at an elevation of 305 m in a native forest at Bellavista, on the north shore of Lago Villarrica, Cautín, Region de la Araucanía (IX), Chile (Jan. 28, 1985; N. I. Platnick, O. F. Francke), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species is easily recognized by the abdominal coloration, with a

pale yellow venter contrasting strongly with a dark gray dorsum and sides (the yellow coloration extends around the spinnerets but is not visible in dorsal view); the elongated retrolateral apophysis on the male palpal patella (fig. 43) and rectangular spermathecae of females (fig. 50) are also diagnostic.

MALE: Total length 1.22. Carapace 0.61 long, 0.56 wide, 0.33 high. Abdomen 0.70 long, 0.59 wide, 0.63 high. Carapace dark brown, almost circular in dorsal view but posterior margin truncated and slightly invaginated at middle, widest at rear of coxae II, anterior and lateral margins with several parallel ridges, remainder of surface pitted; pars cephalica relatively low, with one median and two more posteriorly situated paramedian stout setae toward rear; pars thoracica smoothly sloping to rear, thoracic groove represented only by slight depression; clypeus relatively low, height at middle only 3.5 times that of anterior lateral eyes, with conspicuous oval glandular areas at anterolateral corners, just above palpal trochanters.

Eight eyes in four pairs, eyes of each pair subcontiguous; AME circular, less than half as large as other, oval, subequal eyes; from front, both rows procurved; from above, both rows recurved; ALE separated by more than their diameter from AME, PLE slightly closer to PME; AME separated by almost twice their diameter from PME (to which they are connected by black pigment); MOQ 1.5 times as long as wide in front, almost twice as wide in back as in front.



Figs. 41-43. *Sheranapis bellavista*, new species, left male palp, prolateral, ventral, and retrolateral views.

Sternum and mouthparts light brown. Sternum elevated, slightly wider than long, truncated posteriorly, separating coxae IV by more than their length, extending dorsally to fuse with rear of carapace but without sclerotized strips between coxae; surface irregularly pitted. Labium triangular, rebordered and reflexed distally, fused to sternum by deep groove. Endites distally expanded, each with slight anteromedian scopula and strong anterolateral serrula. Labral spur reduced to tiny hump. Cheliceral promargin with three strong teeth.

Legs pale yellow, with proximal ends of femora, sides of patellae, and distal ends of all tibiae and metatarsi III and IV darkened; all segments clothed with fine hairs; patellae with proximal and distal dorsal bristles; tibiae with proximal and median dorsal bristles, tibia I with additional median prolateral bristle; leg formula 1243, leg I greatly enlarged, femur I expanded, slightly sinuous distally, armed with two ventral rows of seta-bearing tubercles (fig. 40; retrolateral row much stronger than prolateral), tibia I with slightly enlarged ventral setal bases, metatarsus I with strong distal prolateral spur, tarsus I straight; other femora and tibiae with weaker indications of tubercles.

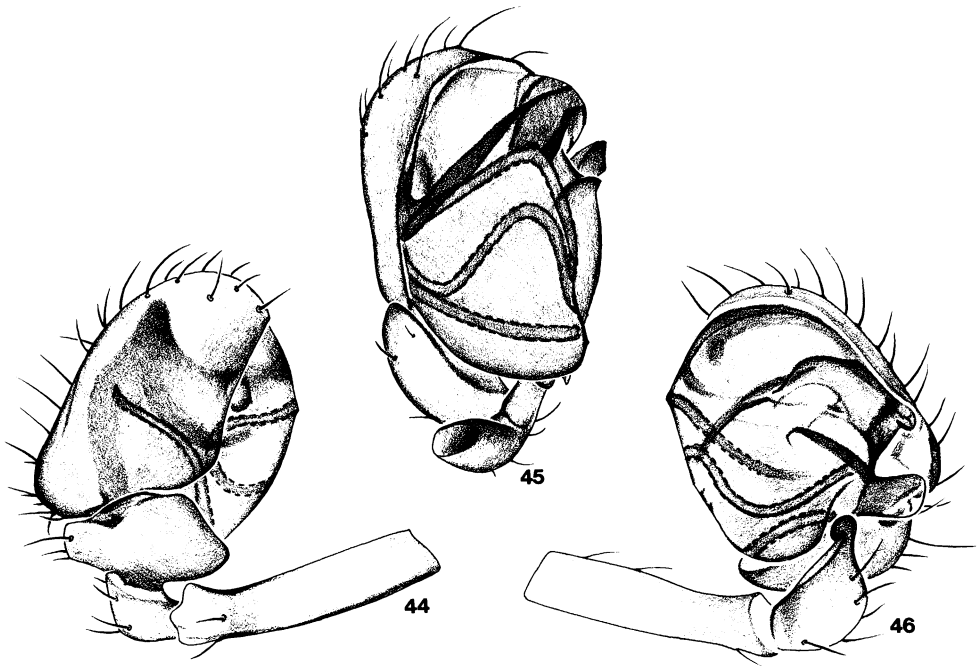
Dorsum of abdomen dark gray, with scattered white, circular muscle impressions, surface with vaguely defined, weak, shiny scutum not reaching onto anterior surface; epigastric scutum only weakly sclerotized, not

extending around pedicel; venter pale yellow with pair of white spots at sides between epigastric furrow and spinnerets, yellow coloration extending around spinnerets; six spinnerets and wide colulus, not surrounded by sclerotized ring.

Palpal patella with elongate, distally recurved apophysis almost twice as long as remainder of segment; tibia with projecting lobe bearing one weak and three strong setae; basal margin of cymbium slightly protuberant, bearing one strong and several weaker setae; subtegulum expanded, clearly visible distally; embolus short, supported by heavily sclerotized, bent conductor and more lightly sclerotized, T-shaped dorsal apophysis (figs. 41-43).

FEMALE: As in male, except for the following. Total length 1.67. Carapace 0.81 long, 0.56 wide, 0.28 high. Abdomen 0.98 long, 0.87 wide, 1.18 high. Carapace margins with fewer ridges. Clypeal height at middle only three times that of ALE. Spur on metatarsus I weak but present. Dorsum of abdomen without scutum; anterior scutum represented only by distinct, oval sclerotization restricted to epigynal area. Palp small but all segments present. Booklungs normal. Spermathecae rectangular, widely separated (fig. 50).

OTHER MATERIAL EXAMINED: CHILE: **Region del Bio-Bio (VIII):** *Nuble:* Las Trancas, 19.5 km ESE Recinto, Dec. 10, 1982-Jan. 3, 1983, screen-sweeping at dusk (A. Newton, M. Thayer, AMNH), 1♀. **Region de los Lagos**



Figs. 44-46. *Sheranapis quellon*, new species, left male palp, prolateral, ventral, and retrolateral views.

(X): *Osorno*: Termas de Puyehue, Parque Nacional Puyehue, Nov. 24, 1981, elev. 180 m, forest (N. I. Platnick, R. T. Schuh, AMNH), 1♀; 1 km E Termas de Puyehue, Parque Nacional Puyehue, Jan. 31, 1985, elev. 305 m, Berlese, wet forest litter (N. I. Platnick, O. F. Francke, AMNH), 1♀. *Llanquihue*: Salto Petrohué, Parque Nacional Vicente Perez Rosales, 6.4 km SW Petrohué, Dec. 28, 1982, elev. 140 m, Berlese, leaf and log litter, valdivian rainforest (A. Newton, M. Thayer, AMNH), 1♀.

DISTRIBUTION: South-central Chile, from Ñuble to Llanquihue.

***Sheranapis quellon*, new species**

Figures 44-46, 51

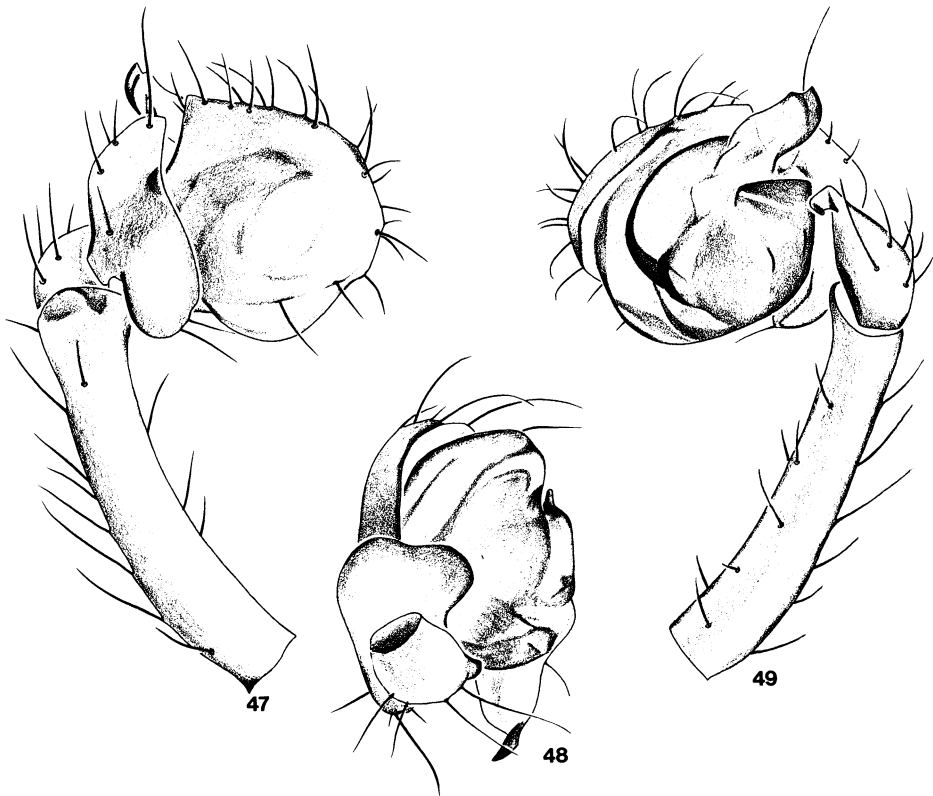
TYPES: Male holotype and female allotype from Berlese sample of floor litter and moss taken at an elevation of 105 m in a modified forest 5 km N Quellón, Isla de Chiloé, Chiloé, Region de los Lagos (X), Chile (Dec. 1, 1981; N. I. Platnick, R. T. Schuh), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be distinguished from those of *S. bellavista* and *S. villarrica* by the shorter embolus (figs. 45, 46), females by the triangular spermathecae (fig. 51).

MALE: As in *S. bellavista*, except as follows. Total length 1.20. Carapace 0.61 long, 0.52 wide, 0.22 high. Abdomen 0.74 long, 0.59 wide, 0.65 high. Carapace dark orange, without ridges at margin. Clypeal height at margin only three times that of ALE. Legs orange, without dark markings; femur I not greatly enlarged, with only four tubercles on retrolateral side of ventral surface, prolateral row virtually obsolete; metatarsus I without spur. Abdominal venter gray. Palpal patella with recurved retrolateral apophysis; projecting lobe on tibia bearing three short, thickened setae (one subdistal, two terminal); basal margin of cymbium slightly protuberant, with normal setae; embolus short, curved, supported by translucent conductor (figs. 44-46).

FEMALE: As in *S. bellavista*, except as noted for male. Total length 1.22. Carapace 0.56 long, 0.52 wide, 0.20 high. Abdomen 0.81 long, 0.83 wide, 0.85 high. Clypeal height at middle only twice that of ALE. Spermathecae expanded anteriorly (fig. 51).



Figs. 47-49. *Sheranapis villarrica*, new species, left male palp, prolateral, ventral, and retrolateral views.

OTHER MATERIAL EXAMINED: CHILE: **Region de los Lagos (X): Llanquihue:** 13 km W Río Negro, Jan. 24, 1986, elev. 20 m, Berlese, litter from edge of disturbed forest (N. I. Platnick, R. T. Schuh, AMNH), 1♂; 35 km NW Río Negro, Jan. 24, 1986, elev. 240 m, Berlese, moss, wet leaf litter, disturbed forest (N. I. Platnick, R. T. Schuh, AMNH), 3♂, 3♀. **Chiloé:** 5 km N Quellón, Dec. 1, 1981, elev. 105 m, Berlese, floor litter and moss, modified forest (N. I. Platnick, R. T. Schuh, AMNH), 2♀. **Palena:** Chaitén, Dec. 5-7, 1981, elev. 10-100 m, Berlese, litter and moss, wet forest (N. I. Platnick, R. T. Schuh, AMNH), 2♂, 2♀; 70 km S Chaitén, Jan. 16, 1986, elev. 500 m, Berlese, moss from wet streambank (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 4♂, 1♀.

DISTRIBUTION: Known only from Chiloé Island and the adjacent mainland (Llanquihue and Palena).

Sheranapis villarrica, new species

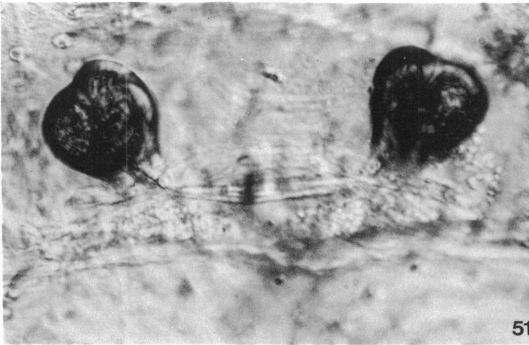
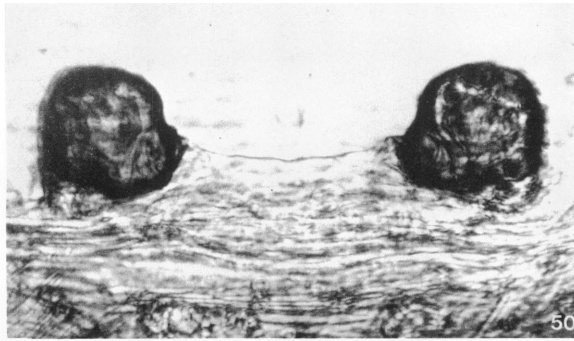
Figures 47-49, 52

TYPES: Male holotype and female allotype taken in flood debris from a stream in a valdivian rainforest at an elevation of 310 m at Bellavista, on the north shore of Lago Villarrica, Cautín, Region de la Araucanía (IX), Chile (Dec. 15-30, 1982; A. Newton, M. Thayer), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can easily be separated from those of the other two species of the genus by their enlarged and heavily tuberculate tibia I as well as by the greatly elongated bristle on the projecting lobe of the palpal tibia (figs. 47, 49), females by the four tiny but distinctly separated receptacula (fig. 52).

MALE: As in *S. bellavista*, except as follows.



Figs. 50–52. Internal female genitalia of *Sheranapis*, dorsal views. 50. *S. bellavista*, new species. 51. *S. quellon*, new species. 52. *S. villarrica*, new species.

Total length 1.87. Carapace 0.94 long, 0.80 wide, 0.28 high. Abdomen 1.00 long, 0.87 wide, 0.85 high. Carapace light brown, elongate, without marginal ridges. Clypeal height at middle only three times that of ALE. Sternum slightly longer than wide. Legs yellow, distal ends of femora slightly darkened; femur I enormously enlarged, incrassate distally, with two ventral rows of large seta-bearing tubercles and additional prolateral tubercles distally; tibia I enlarged, also with two rows of ventral tubercles, retrolateral row restricted to distal half of segment; spur on metatarsus I strong; femora and tibiae II–IV not tuberculate. Dorsal abdominal scutum covered with short, white hairs; venter gray. Tip of retrolateral apophysis on palpal patella abruptly bent; tibia with distinct projecting lobe bearing extremely long seta; basal margin of cymbium produced into slight triangle; embolus relatively long, supported by wide, translucent conductor (figs. 47–49).

FEMALE: As in *S. bellavista*, except as noted for male. Total length 1.96. Carapace 0.83 long, 0.67 wide, 0.28 high. Abdomen 1.28

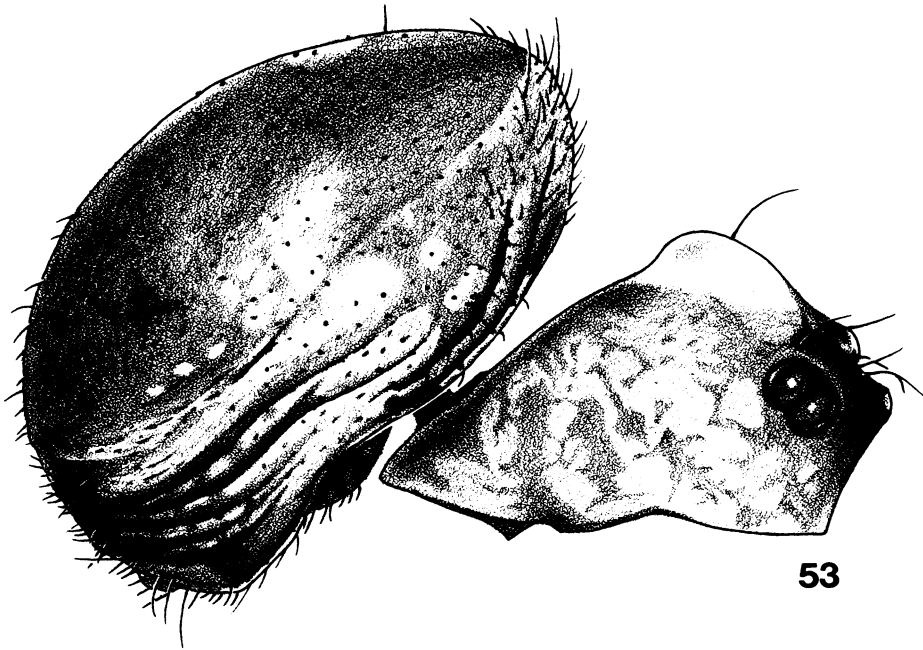
long, 1.24 wide, 1.20 high. Clypeal height at middle only 2.5 times that of ALE. Tibia I without tubercles; spur on metatarsus I strong. Epigastric region darkened but sclerotization restricted to tiny oval at midline of posterior margin. Four narrow, tiny receptacula (fig. 52).

OTHER MATERIAL EXAMINED: CHILE: **Region de Valparaíso (V):** *Quillota:* Olmue, Parque Nacional La Campana, Dec. 2, 1984–Feb. 21, 1985, elev. 900 m, flight intercept trap, hygrophilous forest (S. and J. Peck, AMNH), 1♂. **Region de la Araucanía (IX):** *Cautín:* Bellavista, N shore, Lago Villarrica, Dec. 15–30, 1982, elev. 310 m, flood debris from stream in valdivian rainforest (A. Newton, M. Thayer, AMNH), 1♂, 1♀.

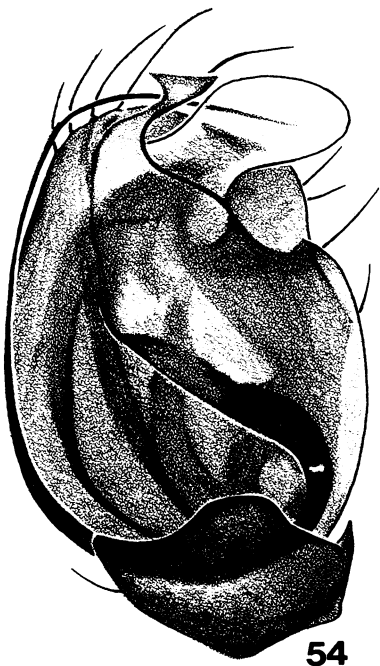
DISTRIBUTION: Known only from two widely separated localities in Chile.

ELANAPIS, NEW GENUS

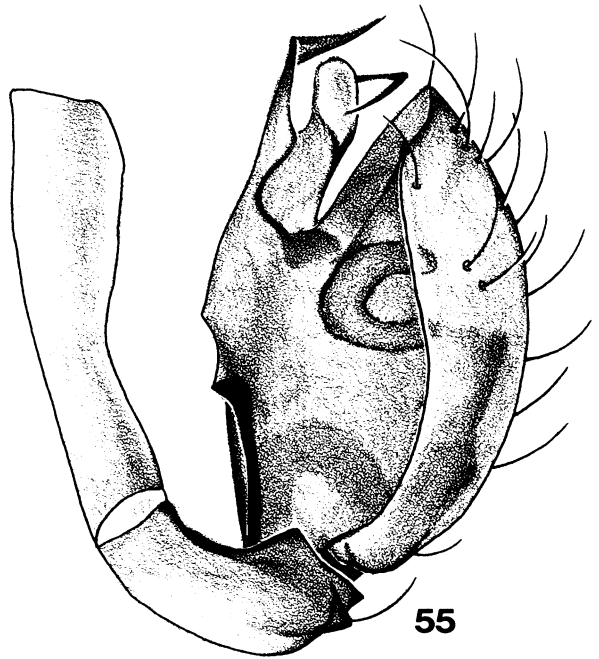
TYPE SPECIES: *Elanapis aisen*, new species.
ETYMOLOGY: The generic name is an ar-



53



54



55

Figs. 53–55. *Elanapis aisen*, new species, male. 53. Lateral view. 54, 55. Left palp, ventral and retrolateral views.

bitrary combination of letters and is feminine in gender.

DIAGNOSIS: Specimens of *Elanapis* can be immediately separated from all other Chilean

anapids by the elaboration of the rear portion of the pars cephalica, which is paler in coloration than the remainder of the carapace, and which is elevated considerably above the ocular area (fig. 53).

GENERIC RELATIONSHIPS: *Elanapis* may be closely related to *Crassanapis* and *Sheranapis*; the general conformation of the palpal bulb is similar, although the embolus originates proximally rather than distally. The exposed tegular surface shows no hooded groove, but there is a possible homolog in the form of an elevated ridge that originates distally and extends behind the conductor.

DISTRIBUTION: Southern Chile, from Valdivia (Region X) to Aisén (Region XI).

Elanapis aisen, new species

Figures 53–55, 57

TYPES: Male holotype and female allotype from Berlese sample of litter taken at an elevation of 220–270 m in a burned forest 85–89 km south of Puerto Puyuhuapi, Aisén, Region de Aisén (XI), Chile (Jan. 19, 1986; N. I. Platnick, P. A. Goloboff, R. T. Schuh), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This distinctive species is easily recognized by the elevated rear portion of the pars cephalica (fig. 53), as well as by the fusion of the male palpal patella and tibia (fig. 55) and the female genitalic configuration (fig. 57).

MALE: Total length 0.87. Carapace 0.46 long, 0.38 wide, 0.30 high. Abdomen 0.52 long, 0.52 wide, 0.61 high. Carapace pale brown except for white, U-shaped, elevated area at rear of pars cephalica (where highest), pear-shaped in dorsal view, widest at coxae II, posterior margin straight; surface finely granulate, elevated portion of pars cephalica and ocular area with scattered, long setae; thoracic groove represented by wide depression; clypeal height at middle only about three times that of anterior lateral eyes, surface sloping toward anterior dorsally, with scattered, medially directed, short setae; small but pronounced, oval glandular areas at anterolateral corners, just above palpal trochanters.

Eight eyes in four pairs; each pair contig-

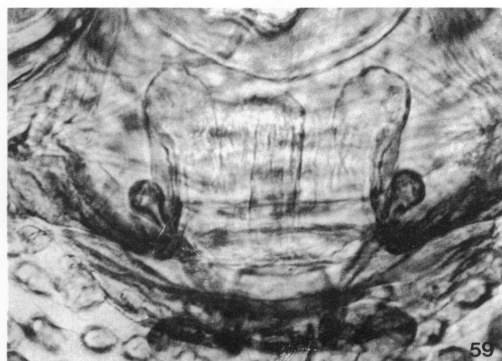
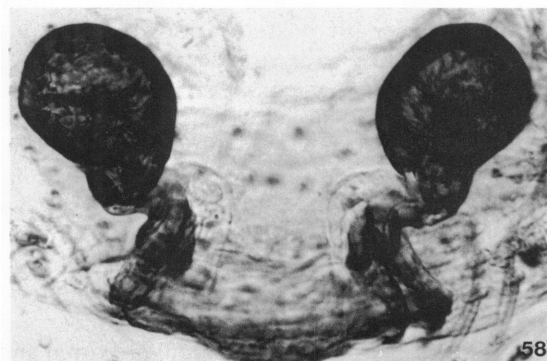
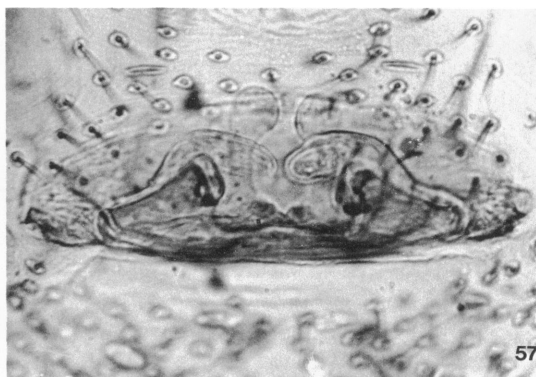
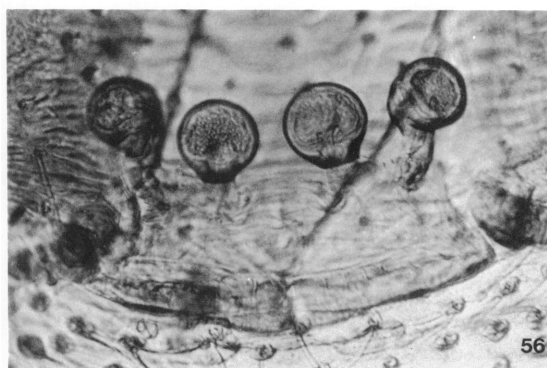
uous except PME separated by almost their diameter; AME circular, about half size of other, subequal eyes; from front, both eye rows procurved; from above, both rows recurved; ALE separated by twice their diameter from AME, PLE equally far from PME; AME separated by slightly more than their diameter from PME (to which they are connected by black pigment); MOQ 1.5 times as long as wide in front, 1.5 times as wide in back as in front.

Sternum and mouthparts light brown. Sternum elevated, slightly longer than wide, truncated posteriorly, separating coxae IV by more than their length, posterior portion extending dorsally to fuse with carapace; no lateral strips extending between coxae; surface with weak, scattered depressions, weak setae, and transverse row of strong setae immediately behind labial groove. Labium much wider than long, anteriorly truncated, fused to sternum by depressed groove. Endites convergent, not expanded anteriorly, distal rim with slight anteromedian scopula and strong anterolateral serrula. Labrum with small but distinct spur. Chelicerae short, with one small proximal and two large distal promarginal teeth.

Legs light brown with tibiae darkened and femora lightest; all segments clothed with fine hairs; patellae with short proximal and long distal bristles; tibiae with proximal and distal dorsal bristles, tibia I with distal promarginal bristle as well; leg formula 1243, leg I not greatly enlarged, with all segments normal in shape; femur I with ventral series of very low humps but without true tubercles; metatarsus I without spur; tarsus I straight.

Entire dorsum of abdomen covered with shiny, weak scutum irregularly delimited at edges; pattern of median, longitudinal white stripe (limited to anterior half of dorsum) on gray background visible through scutum; weakly sclerotized ventral scutum incomplete around pedicel, just barely enclosing spiracles; remainder of cuticle pale white with dusky gray markings concentrated on distinct posterior ridges extending to almost half of abdomen length, without distinct sclerotizations. Six spinnerets and small, triangular colulus bordered anteriorly by narrow transverse sclerotized strip incorporating tracheal spiracle.

Palp with femur slightly thickened proxi-



Figs. 56–59. Internal female genitalia of Chilean anapids, dorsal views. 56. *Crassanapis cekalovici*, new species. 57. *Elanapis aisen*, new species. 58. *Sofanapis antillanca*, new species. 59. *Pecanapis franckei*, new species.

mally; patella and tibia fused, patellar portion with protruding, ledge-shaped retrolateral apophysis covering entire retrolateral side, tibial portion invaginated prolaterally; cymbium unmodified; embolus originating basally, supported apically by large, distally bifid conductor (figs. 54, 55).

FEMALE: As in male, except as follows. Total length 1.02. Carapace 0.46 long, 0.39 wide, 0.30 high. Abdomen 0.76 long, 0.67 wide, 0.81 high. Clypeal height at middle only about twice that of ALE. Dorsum of abdomen without scutum, median longitudinal stripe longer than in male, accompanied posteriorly by pair of paramedian white spots surrounding pair of round sclerotizations. Palpi light brown, tiny but all segments present. Booklungs normal. One medial pair of receptacula expanded anteriorly, two lateral pairs directed medially (fig. 57).

OTHER MATERIAL EXAMINED: CHILE: **Region de los Lagos (X):** *Valdivia*: 35 km WNW

La Union, Feb. 7, 1985, elev. 700 m, mixed forest litter (S. and J. Peck, AMNH), 1♀. *Osorno*: Aguas Calientes, Parque Nacional Puyehue, Jan. 31, 1985, elev. 425 m, Berlese, valdivian forest litter (N. I. Platnick, O. F. Francke, AMNH), 1♂; 4.1 km E Anticura, Parque Nacional Puyehue, Dec. 19–26, 1982, elev. 430 m, screen-sweeping, Berlese, leaf and log litter, valdivian rainforest (A. Newton, M. Thayer, AMNH), 3♀; Antillanca road, Parque Nacional Puyehue, Dec. 18–24, 1982, elev. 690 m, window trap, valdivian rainforest (A. Newton, M. Thayer, AMNH), 1♂, 1♀, elev. 470–720 m, screen-sweeping at dusk, valdivian rainforest (A. Newton, M. Thayer, AMNH), 5♂, 3♀; Bahía Mansa, 3 km S Mui-colpué, Dec. 21, 1982, elev. 200 m, Berlese, mixed forest litter (S. and J. Peck, AMNH), 1♀; Chincay, 10 km E Bahía Mansa, Dec. 21, 1982, elev. 50 m, Berlese, leaf and log litter, second growth valdivian forest (A. Newton, M. Thayer, AMNH), 1♀; Termas de Puyehue,

Parque Nacional Puyehue, Nov. 24, 1981, elev. 180 m, Berlese, forest litter and moss (N. I. Platnick, R. T. Schuh, AMNH), 1♀; 1 km E Termas de Puyehue, Parque Nacional Puyehue, Jan. 31, 1985, elev. 305 m, Berlese, wet forest litter (N. I. Platnick, O. F. Francke, AMNH), 1♂, 2♀. *Llanquihue*: Lago Chapo, 34 km E Puerto Montt, Dec. 24, 1984–Feb. 2, 1985, elev. 300 m, flight intercept trap, second growth beech forest (S. and J. Peck, AMNH), 3♂, 2♀; 13 km W Río Negro, Jan. 24, 1986, elev. 20 m, Berlese, litter from edge of disturbed forest (N. I. Platnick, R. T. Schuh, AMNH), 6♀; 35 km NW Río Negro, Jan. 24, 1986, elev. 240 m, Berlese, wet leaf litter from edge of disturbed forest (N. I. Platnick, R. T. Schuh, AMNH), 1♂, 1♀; Salto Petrohué, Parque Nacional Vicente Perez Rosales, Feb. 4, 1985, elev. 150 m, sifted from mixed forest litter (S. and J. Peck, AMNH), 1♀. *Chiloé*: 5 km N Quellón, Isla de Chiloé, Dec. 1, 1981, elev. 105 m, Berlese, floor litter and moss, modified forest (N. I. Platnick, R. T. Schuh, AMNH), 1♂, 3♀. *Palena*: 25–27 km N Chaitén, Jan. 17, 1986, elev. 40 m, Berlese, wet virgin forest litter (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 2♂; 37 km SE Chaitén, Dec. 8, 1984–Jan. 30, 1985, elev. 60 m, flight intercept trap, riverside second growth forest (S. and J. Peck, AMNH), 1♀; 70 km S Chaitén, Jan. 16, 1986, elev. 500 m, Berlese, moss from wet streambank (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 1♂. **Region de Aisén (XI)**: *Aisén*: Parque Nacional Queulat, near Puerto Cisnes, Feb. 6, 1985, elev. 500 m, Berlese, moss from wet forest (N. I. Platnick, O. F. Francke, AMNH), 1♀; 85–89 km S Puerto Puyuhuapi, Jan. 19, 1986, elev. 220–270 m, Berlese, litter from burned forest (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 2♂, 2♀; 102 km S Puerto Puyuhuapi, Jan. 19, 1986, elev. 220 m, Berlese, wet forest litter (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 1♀; Río Grande, 16 km NW Cisnes Medio, Dec. 30, 1984–Jan. 25, 1985, elev. 200 m, flight intercept trap, mature beech forest (S. and J. Peck, AMNH), 1♀.

DISTRIBUTION: Southern Chile, from Valdivia to Aisén.

NOTE: Many females in collections are parasitized by nematodes.

SOFANAPIS, NEW GENUS

TYPE SPECIES: *Sofanapis antillanca*, new species.

ETYMOLOGY: The generic name is an arbitrary combination of letters and is feminine in gender.

DIAGNOSIS: *Sofanapis* shares with *Pecanapis* a transformation of the anterior booklungs into tracheae, but differs in having circular pore-bearing depressions on the anterolateral corners of the carapace as well as a fully developed female pedipalp.

GENERIC RELATIONSHIPS: The totally simplified male palp (with only a tegulum and embolus visible, fig. 61) and spermathecae on twisted ducts (fig. 58) indicate that *Sofanapis* is unlikely to be closely related to any of the other Chilean anapids.

DISTRIBUTION: South-central Chile, from Arauco (Region VIII) to Chiloé (Region X).

Sofanapis antillanca, new species

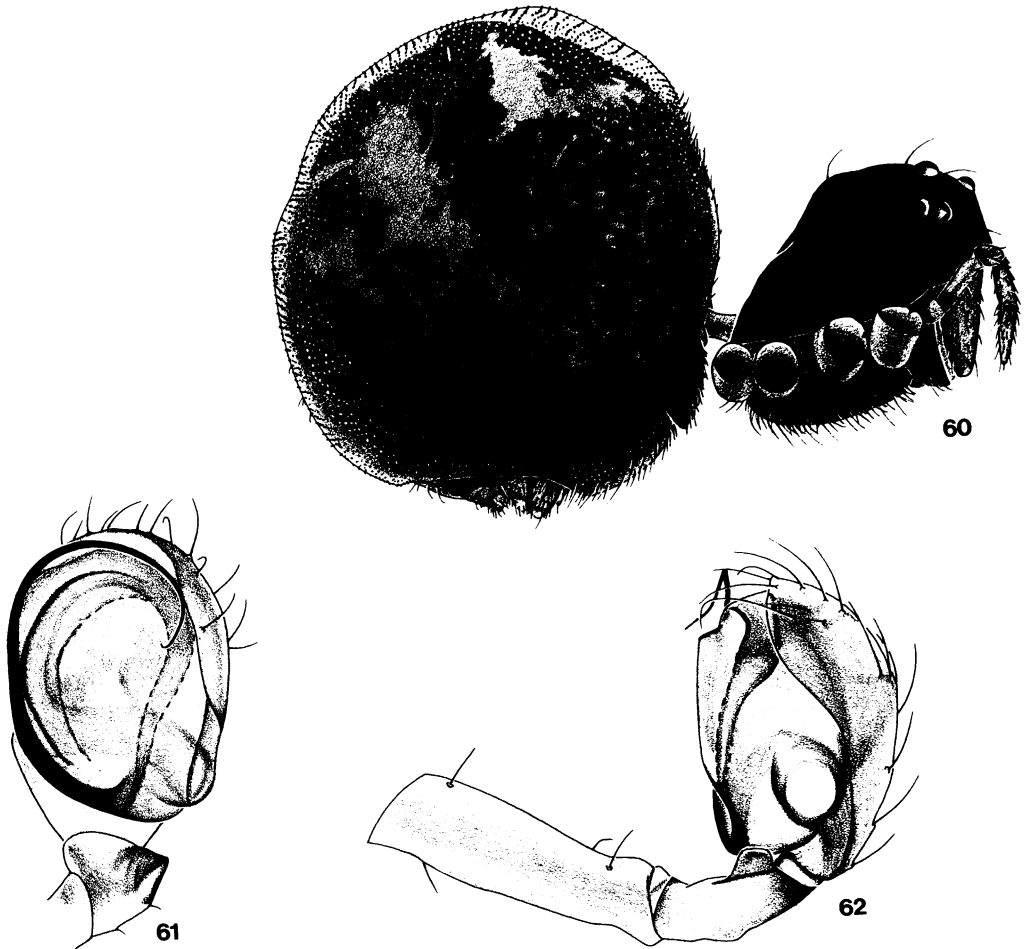
Figures 58, 60–62

TYPES: Male holotype and female allotype taken by pyrethrin fogging inside rotten tree trunk in a beech forest at an elevation of 720 m on the Antillanca road, Parque Nacional Puyehue, Osorno, Region de los Lagos (X), Chile (Dec. 18–24, 1982; A. Newton, M. Thayer), deposited in AMNH.

ETYMOLOGY: The specific name in a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be recognized by the prolaterally shifted palpal tibia and the simple palpal bulb (figs. 61, 62), females by the laterally displaced ducts leading to the spermathecae (fig. 58).

MALE: Total length 1.20. Carapace 0.52 long, 0.48 wide, 0.24 high. Abdomen 0.75 long, 0.63 wide, 0.83 high. Carapace dark brown except for sharply demarcated, paler, lightly sclerotized area encircling pedicel, pear-shaped in dorsal view, widest at coxae II, posterior margin not invaginated at middle; surface appearing smooth, pars cephalica with two long but thin setae along midline and scattered setae in ocular area; thoracic groove represented by slight, wide depression; clypeus relatively low, height at middle between two and three times that of anterior



Figs. 60–62. *Sofanapis antillanca*, new species. 60. Female, lateral view. 61, 62. Left male palp, ventral and retrolateral views.

lateral eyes, with conspicuous oval glandular areas at anterolateral corners, just above palpal trochanters.

Eight eyes in four pairs; eyes of each pair contiguous except PME separated by almost their diameter; AME circular, only slightly smaller than other oval, subequal eyes; from front, both rows procurved; from above, both rows recurved; ALE separated by twice their diameter from AME; PLE separated by same distance from PME; AME separated by their diameter from PME; MOQ 1.5 times as long as wide in front, twice as wide in back as in front.

Sternum and labium dark brown, endites and chelicerae light brown. Sternum elevated, almost as wide as long, truncated poste-

riorly, separating coxae IV by more than their length, not fused to carapace posteriorly, without strips extending between coxae; surface setose, without notable tubercles or depressions. Labium much wider than long, fused to sternum along distinct groove. Endites rectangular, widely separated distally, distal rim with thick anteromedian scopula and strong anterolateral serrula. Labral spur produced as tiny point. Chelicerae excavated below fang, with two promarginal teeth on distinct ledge.

Legs bicolored, proximal segments yellow, tibiae, metatarsi, and tarsi light brown; all segments clothed with fine hairs; patellae with distal, tibiae with proximal dorsal bristles; leg formulae 1423, leg I not elongated or en-

larged; tubercles absent, metatarsus I without spur, tarsus I straight.

Abdomen without scuta, with epigastric region slightly sclerotized but anterior spiracles not incorporated into sclerotized area; dorsum gray with pattern of white markings: median longitudinal white stripe on anterior half, two pairs of oblique, transverse white stripes on anterior half, posterior half with narrow white chevrons; venter dark gray; six spinnerets and large, elongate colulus not surrounded by sclerotized ring, median and posterior spinnerets in nearly straight line.

Palpal patella with retrolateral apophysis in form of oblique ledge; tibia entirely displaced to prolateral side of cymbium; cymbium unmodified; bulb simple, with large marginal duct leading to basally originating embolus making about two-thirds of one coil around bulb (figs. 61, 62).

FEMALE: As in male, except as follows. Total length 1.52. Carapace 0.56 long, 0.52 wide, 0.33 high. Abdomen 0.94 long, 0.93 wide, 1.09 high. Palpi not greatly reduced in size, all segments present (fig. 60). Anterior respiratory system with booklungs each replaced by several long tracheae evidently confined to abdomen; posterior spiracle leading to four narrow tracheal tubes. Genitalia with widely separated spermathecae situated anteriorly on long, laterally twisted and displaced ducts (fig. 58).

OTHER MATERIAL EXAMINED: CHILE: Region del Bio-Bio (VIII): Arauco: Monumento Naturale Contulmo, 10 km W Purén, Jan. 23, 1985, elev. 425 m, Berlese, litter and moss, montane forest (N. I. Platnick, O. F. Francke, AMNH), 1♀. **Region de los Lagos (X): Valdivia:** 34 km WNW La Union, Dec. 17, 1984–Feb. 7, 1985, elev. 700 m, flight intercept trap, mixed evergreen forest (S. and J. Peck, AMNH), 1♀. **Osorno:** Aguas Calientes, Parque Nacional Puyehue, Jan. 28, 1986, elev. 430 m, Berlese, moss, primary forest (N. I. Platnick, R. T. Schuh, AMNH), 1♂; 4.1 km W Anticura, Dec. 19–25, 1982, elev. 270 m, Berlese, leaf litter, valdivian rainforest floor (A. Newton, M. Thayer, AMNH), 1♂; Antillanca road, Parque Nacional Puyehue, Dec. 18–24, 1982, elev. 720 m, pyrethrin fogging inside rotten tree trunk, beech forest (A. Newton, M. Thayer, AMNH), 1♂, 3♀; Termas de Puyehue, Nov. 24, 1981, elev. 180 m,

Berlese, forest litter and moss (N. I. Platnick, R. T. Schuh, AMNH), 2♀; 7.7 km NE Termas de Puyehue, Dec. 19–25, 1982, elev. 200 m, pyrethrin fogging of log with fungi, valdivian rainforest (A. Newton, M. Thayer, AMNH), 2♂. **Llanquihue:** Lago Chapo, 34 km E Puerto Montt, Dec. 24, 1984–Feb. 2, 1985, elev. 300 m, flight intercept trap, second growth beech forest (S. and J. Peck, AMNH), 1♂. **Chiloé:** Chepu, Isla de Chiloé, Feb. 2, 1985, elev. 15 m, Berlese, wet forest litter (N. I. Platnick, O. F. Francke, AMNH), 1♀.

DISTRIBUTION: South-central Chile (Arauco to Chiloé).

PECANAPIS, NEW GENUS

TYPE SPECIES: *Pecanapis franckei*, new species.

ETYMOLOGY: The generic name is an arbitrary combination of letters and is feminine in gender.

DIAGNOSIS: The elevated, cone-shaped dorsal scutum on the abdomen of males (fig. 63) and the greatly enlarged muscle depressions on the abdominal dorsum of females readily separate specimens of *Pecanapis* from all other Chilean anapids.

GENERIC RELATIONSHIPS: The shape and sclerotizations of the male abdomen indicate that this genus might be more closely related to Australasian genera with similarly ridged, triangular abdomens than to any of the other Chilean anapids.

DISTRIBUTION: Known only from a single locality near Santiago.

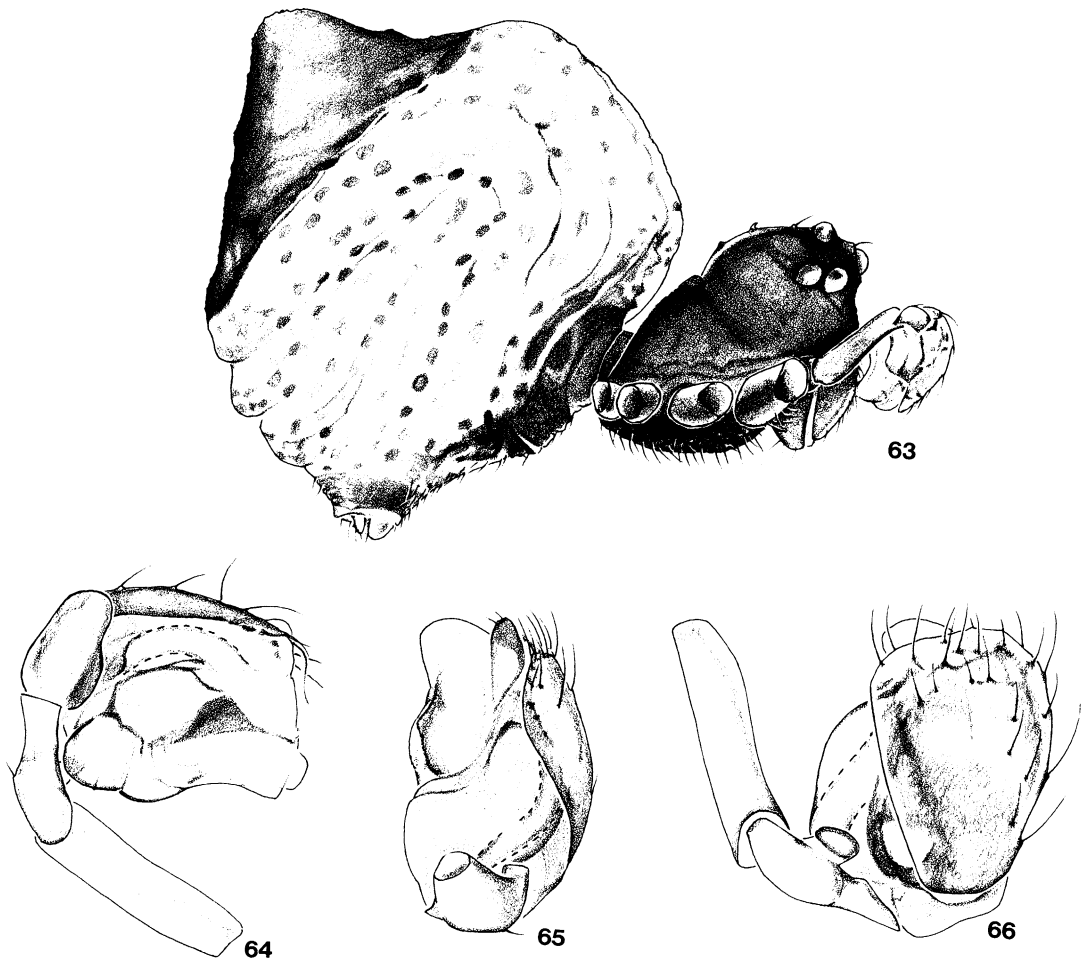
Pecanapis franckei, new species

Figures 59, 63–66

TYPES: Male holotype and female allotype from Berlese sample of streamside litter taken in the Quebrada de La Plata, near Maipú, Santiago, Region Metropolitana, Chile (Jan. 15, 1985; N. I. Platnick, O. F. Francke), deposited in AMNH.

ETYMOLOGY: The specific name is a patronym in honor of Dr. Oscar Francke, one of the collectors of the types.

DIAGNOSIS: Males can be recognized easily by the cone-shaped dorsal abdominal scutum, females by the enlarged posterior pair of sclerotizations on the abdominal dorsum.



Figs. 63–66. *Pecanapis franckei*, new species, male. 63. Lateral view. 64–66. Left palp, prolateral, ventral, and retrolateral views.

MALE: Total length 1.09. Carapace 0.46 long, 0.43 wide, 0.22 high. Abdomen 0.83 long, 0.65 wide, 0.83 high. Carapace dark reddish brown, almost circular in dorsal view (except for protruding ocular area), widest at coxae II, posterior margin truncated; surface of pars cephalica finely granulate, with two stout anterior median setae and pair of parame-dian posterior setae originating from enlarged tubercles; surface of pars thoracica irregularly roughened except around pedicel; thoracic groove wide depression extended obliquely and anteriorly as pair of deep, procurved, glabrous grooves, followed posteriorly by pair of wide, obliquely situated parame-dian humps; clypeal height at midline more than four times that of anterior lateral

eyes, surface covered with small pits, without distinct glandular areas at lateral corners.

Eight eyes in four pairs; eyes of each pair contiguous except PME separated by their radius; AME circular, about half size of other, oval, subequal eyes; from front, both rows procurved; from above, both rows recurved; ALE separated by slightly more than their diameter from AME, PLE slightly farther from PME; AME separated by more than their diameter from PME; MOQ almost twice as long as wide in front, almost twice as wide in back as in front.

Sternum and mouthparts dark reddish brown except chelicerae paler distally. Sternum elevated, longer than wide, rounded posteriorly, separating coxae IV by more than

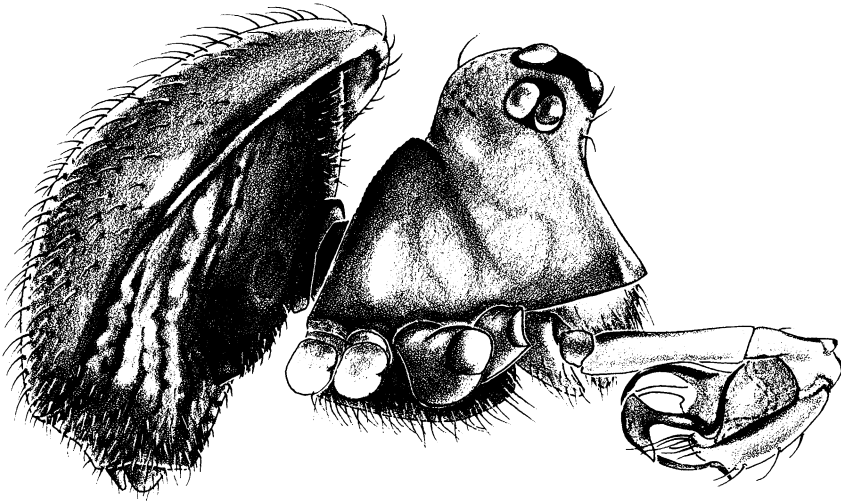


Fig. 67. *Minanapis talinay*, new species, male, lateral view.

their length, extending dorsally to fuse with carapace posteriorly and around coxae; surface of elevated area rugose. Labium triangular, anteriorly truncated, almost twice as wide as long, fused to sternum by groove. Endites rectangular, widely separated distally, distal rim with slight anteromedian scapula and strong anterolateral serrula. Labral spur long, projecting downward. Chelicerae apparently with two promarginal teeth on low plate.

Legs reddish brown except patellae and distal halves of metatarsi yellowish; all segments clothed with fine hairs; patellae with distal, tibiae with median, dorsal, long, strong bristles; leg formula 1423, leg I elongated but not enlarged; femur I with about four low tubercles; metatarsus I without spur; tarsus I straight.

Abdomen with posterior half of dorsum covered with cone-shaped, dark reddish brown scutum; anterior scutum surrounding pedicel incorporating spiracles, extending posteriorly at epigastric region; soft portions of cuticle with wide ridges sloping down posteriorly, spaces between ridges occupied by oval to elongate sclerotizations; six spinnerets and digitiform colulus surrounded by wide sclerotized ring.

Palpal patella elongate, bearing rounded, slightly recurved retrolateral apophysis at half its length; tibia shifted prolaterally; cymbium with row of strong setae distally; bulb with

short distal embolus and wide, translucent conductor (figs. 64–66).

FEMALE: As in male, except as follows. Total length 1.18. Carapace 0.50 long, 0.44 wide, 0.24 high. Abdomen 0.91 long, 0.87 wide, 0.89 high. Clypeal height at midline only about three times that of ALE. Abdomen without dorsal scutum, dorsum flattened rather than cone-shaped, with anterior, procurved row of four rounded sclerotizations (median pair largest) and posterior procurved row of three rounded sclerotizations (paramedian pair greatly enlarged), remainder of dorsum with scattered sclerotizations as on lateral ridges. Booklungs replaced by tracheae. Palpal segments beyond coxae absent. Genitalia consisting of large posterior and trilobed anterior receptacula, anterior one bearing two small lateral spermathecae, lateral pair of anterior lobes each bearing small, oval anterolateral poreplates (fig. 59).

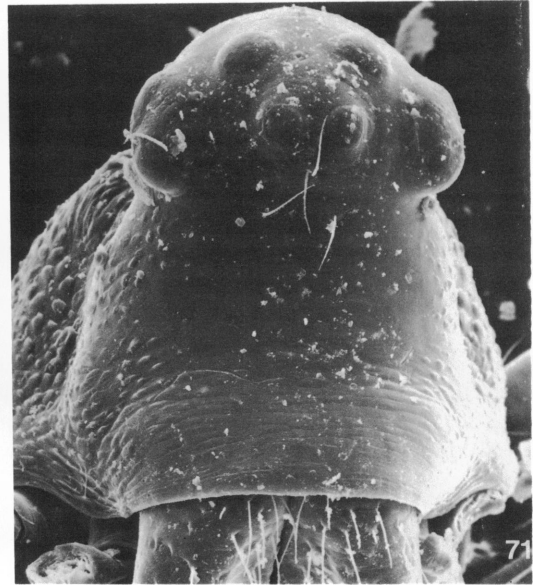
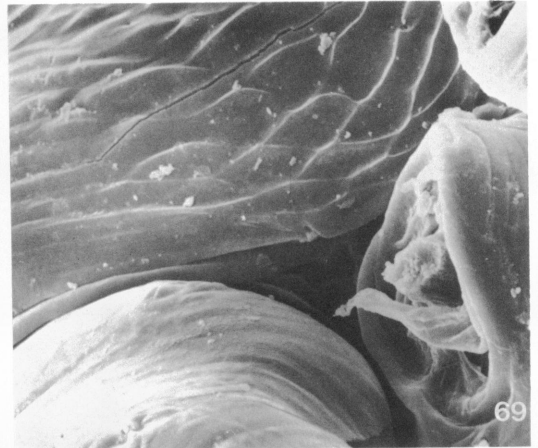
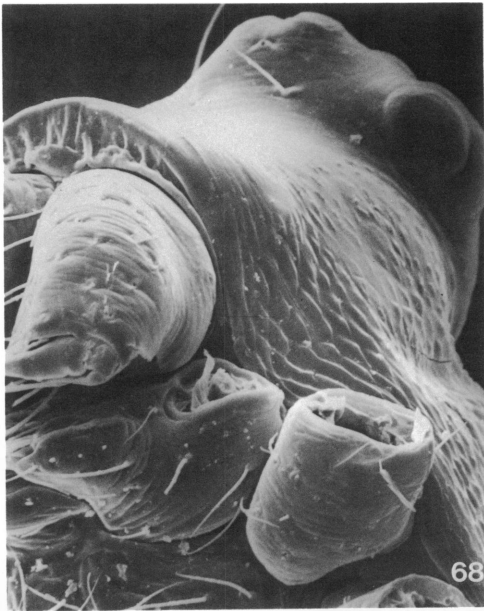
OTHER MATERIAL EXAMINED: One male and one female taken with the types (AMNH).

DISTRIBUTION: Known only from the Quebrada de La Plata near Santiago, Chile.

MINANAPIS, NEW GENUS

TYPE SPECIES: *Minanapis talinay*, new species.

ETYMOLOGY: The generic name is an arbitrary combination of letters and is feminine in gender.

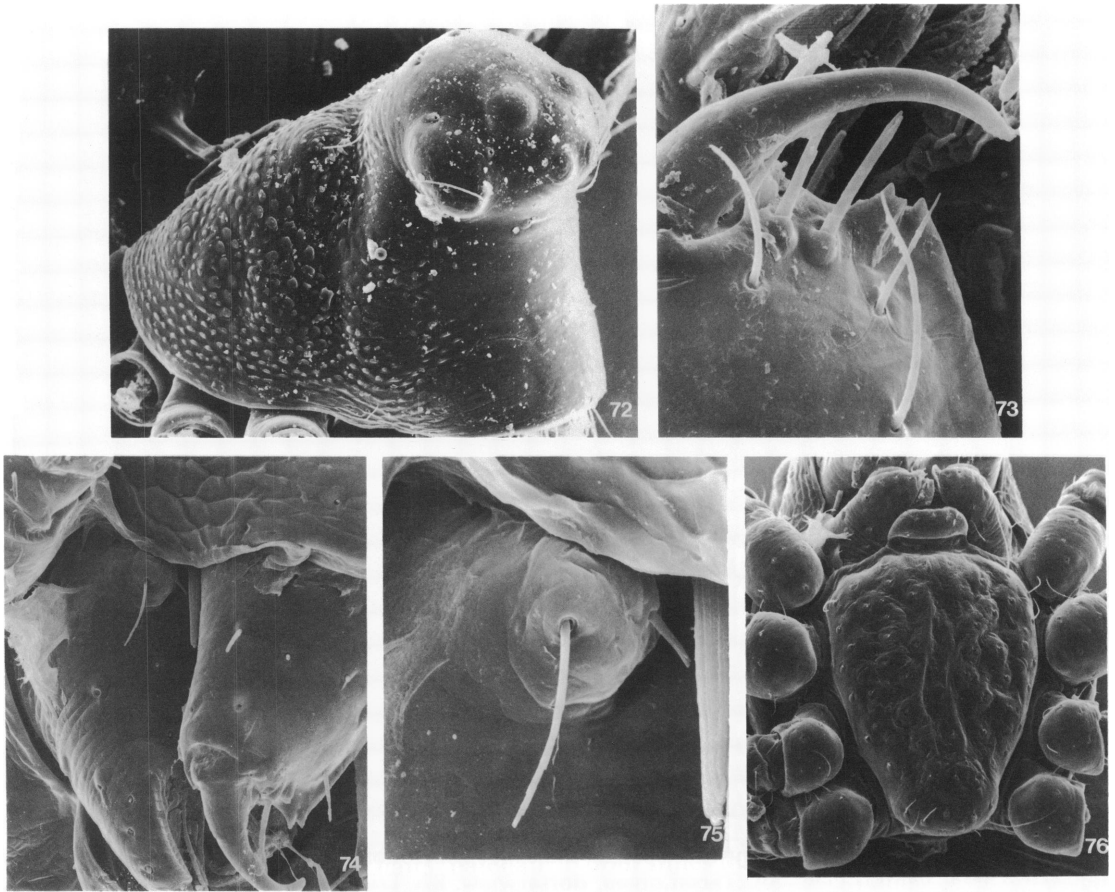


Figs. 68–71. *Minanapis talinay*, new species, male cephalothorax. 68–70. Anterolateral views, showing single pore on carapace between areas of cheliceral and endite origin. 71. Same, anterior view; note absence of distinct glandular depressions.

DIAGNOSIS: *Minanapis* differs from the other Chilean genera except *Pecanapis* in lacking circular, pore-bearing depressions on the anterolateral corners of the carapace as well as female pedipalpal segments beyond the coxae, and from *Pecanapis* in retaining

anterior booklungs and lacking the abdominal modifications of that genus (fig. 67).

MONOPHYLY: The four species here placed in *Minanapis* share a unique form of male palp, in which the embolus extends far out from the palpal bulb and is supported api-



Figs. 72–76. *Minanapis talinay*, new species, female. 72. Carapace, lateral view. 73. Chelicera, anterior view. 74, 75. Endite, lateral views, showing remnant of palpal trochanter. 76. Cephalothorax, ventral view.

cally by an equally protuberant conductor (figs. 83–96), and the presence of a full dorsal abdominal scutum in females.

GENERIC RELATIONSHIPS: *Minanapis* is probably more closely related to some of the Australasian genera than to any of the other Chilean anapids; although the absence of a pore-bearing depression on the carapace is shared with *Pecanapis*, that condition might be plesiomorphic.

SPECIFIC RELATIONSHIPS: *Minanapis casablanca* and *M. palena* share an apically widened embolus (figs. 91–96); *M. floris* is probably more closely related to those two species than to *M. talinay*, as it shares with them bipartite spermathecae having anterolaterally directed anterior portions (figs. 98–100).

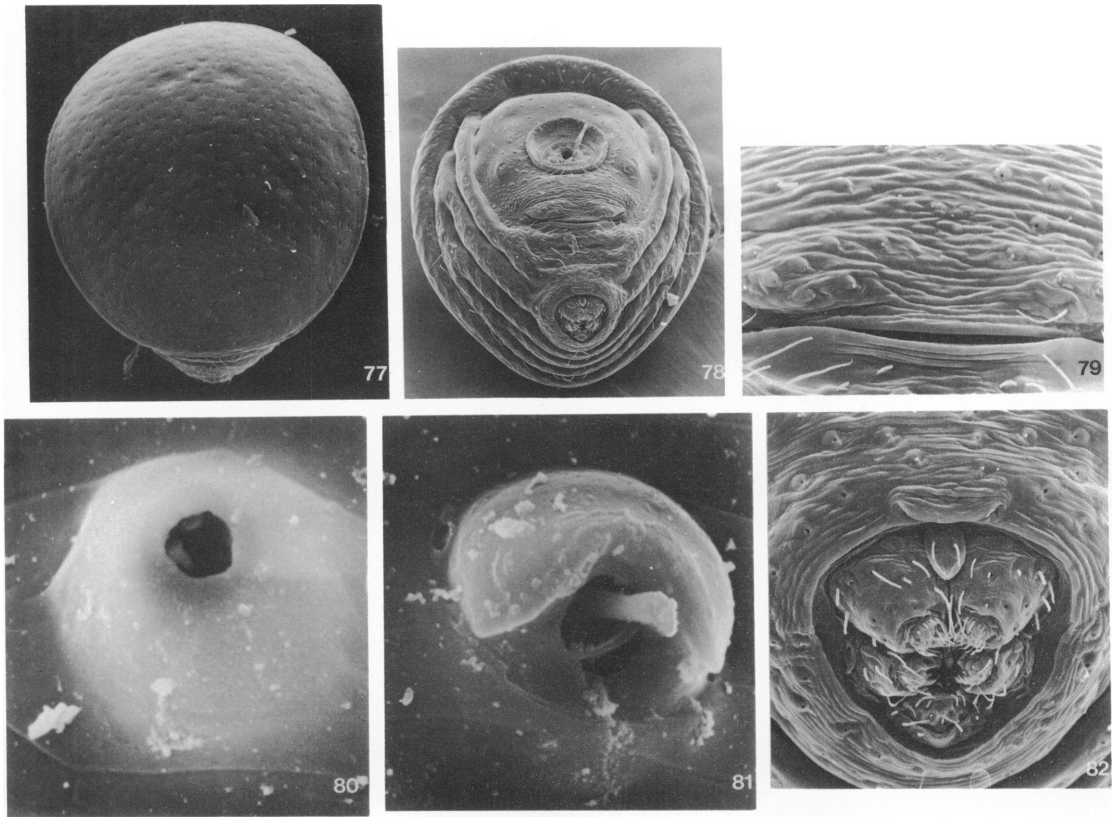
DISTRIBUTION: Widely distributed, from Limari (Region IV) to Coihaique (Region XI).

Minanapis talinay, new species
Figures 67–87, 97

TYPES: Male holotype and female allotype from Berlese sample of litter taken at an elevation of 560 m in a relict fog-fed forest, the Bosque Talinay, 35 km south of the road to the Bosque Fray Jorge, Parque Nacional Fray Jorge, Limarí, Region de Coquimbo (IV), Chile (Feb. 6, 1986; N. I. Platnick, R. T. Schuh), deposited in MNS.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be recognized by the



Figs. 77–82. *Minanapis talinay*, new species, male. 77, 78. Abdomen, dorsal and ventral views. 79. Epigastric area, ventral view. 80. Tarsal organ, dorsal view. 81. Trichobothrial base, dorsal view. 82. Spinnerets and colulus, ventral view.

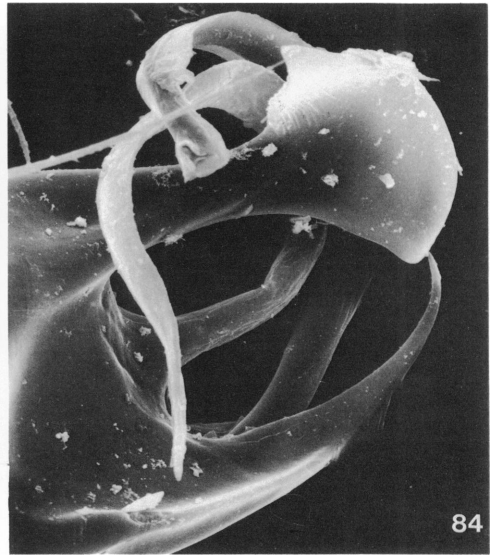
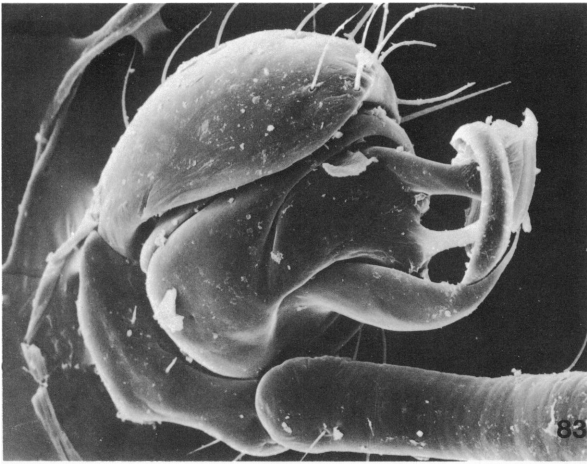
U-shaped embolus (figs. 85–87), females by having the spermathecae on wide, curled ducts (fig. 97).

MALE: Total length 0.81. Carapace 0.44 long, 0.41 wide, 0.30 high. Abdomen 0.61 long, 0.56 wide, 0.54 high. Carapace light reddish brown, pear-shaped in dorsal view, widest between coxae II and III, posterior margin not invaginated at middle; surface of pars cephalica finely granulate, eyes on elevated mound bearing two strong paramedian setae posteriorly; surface of pars thoracica irregularly roughened except in circular depression around pedicel; thoracic groove represented by shallow longitudinal depression connected anteriorly to two oblique grooves delimiting pars cephalica, preceded posteriorly by paramedian rounded humps; clypeus greatly elevated, height at middle about five times that of anterior lateral eyes, with-

out circular glandular areas at anterolateral corners but with single pore in that position (figs. 68–72).

Eight eyes in four pairs; eyes of each pair contiguous except PME separated by almost their diameter; AME circular, half as large as other, subequal, oval eyes; from front, both rows procurved; from above, both rows recurved; ALE separated by 1.5 times their diameter from AME; PLE slightly closer to PME; AME separated by about their diameter from PME; MOQ 1.5 times as long as wide in front, twice as wide in back as in front.

Sternum and mouthparts reddish brown; sternum elevated, longer than wide, truncated posteriorly, extending dorsally and between coxae to fuse with carapace, surface with irregular depressions. Labium broad, almost rectangular, fused to sternum by deep



Figs. 83, 84. *Minanapis talinay*, new species, left male palp, prolateral and retrolateral views.

groove (fig. 76). Endites convergent, distal rim with slight anteromedian scopula and strong anterolateral serrula. Labral spur reduced to tiny lobe. Chelicerae short, depressed anteromedially, with two short pro-marginal teeth (fig. 73).

Legs light reddish brown, patellae lightest; all segments clothed with fine hairs; patella I with proximal and distal dorsal bristles, other patellae with proximal bristles; tibia I with one prolateral, one retrolateral, and two dorsal bristles, other tibiae with subdistal dorsal bristle; leg formula 1243, legs I and II much stronger than III and IV; tubercles absent; metatarsus I without spur; tarsus I straight; trichobothrial bases with elevated ridge (fig. 81); tarsal organ capsulate (fig. 80).

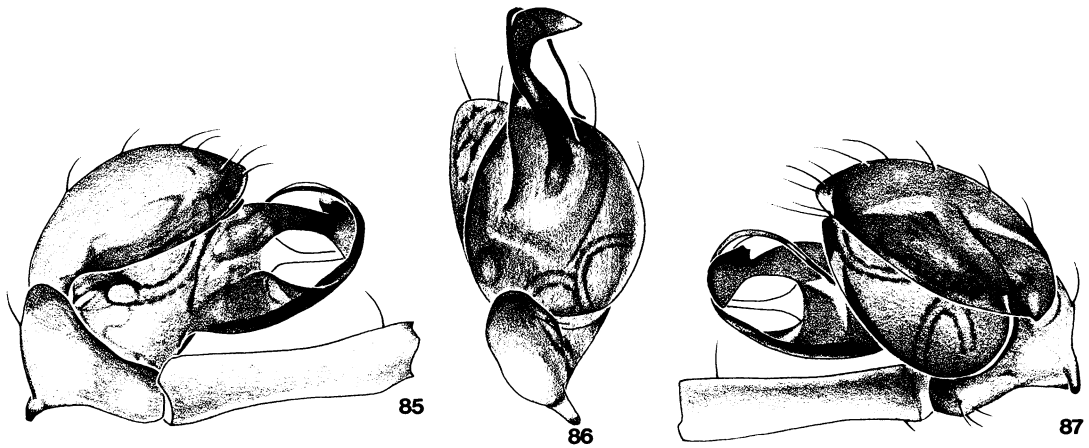
Abdomen with dorsum entirely covered by circular scutum (fig. 77); anterior scutum reaching nearly to dorsal scutum, enclosing pedicel, incorporating anterior spiracles; sides with about three long, sclerotized strips, remainder of cuticle with scattered sclerotizations (fig. 78); epigastric area with small spigots (fig. 79); six spinnerets and wide colulus surrounded by sclerotized ring incorporating posterior spiracle (fig. 82).

Palpal patella and tibia fused, bearing dorsally directed retrolateral apophysis at about half of combined length; cymbium unmodified; embolus hairpin-shaped, supported by

basally thickened conductor, T-shaped apophysis, and translucent projections from bulb (figs. 83–87).

FEMALE: As in male, except as follows. Total length 0.96. Carapace 0.44 long, 0.35 wide, 0.28 high. Abdomen 0.81 long, 0.81 wide, 0.57 high. Clypeal height at middle only about four times that of ALE. Abdominal scuta and sclerotization as in male except strips on sides replaced by scattered small sclerotizations and area just behind epigastric furrow occupied by rectangular transverse sclerotization. Booklungs normal, posterior tracheae simple, median pair short. Palpal segments beyond coxae absent (trochanter represented only by slight lobe; figs. 74, 75). Spermathecae on wide, curved ducts (fig. 97).

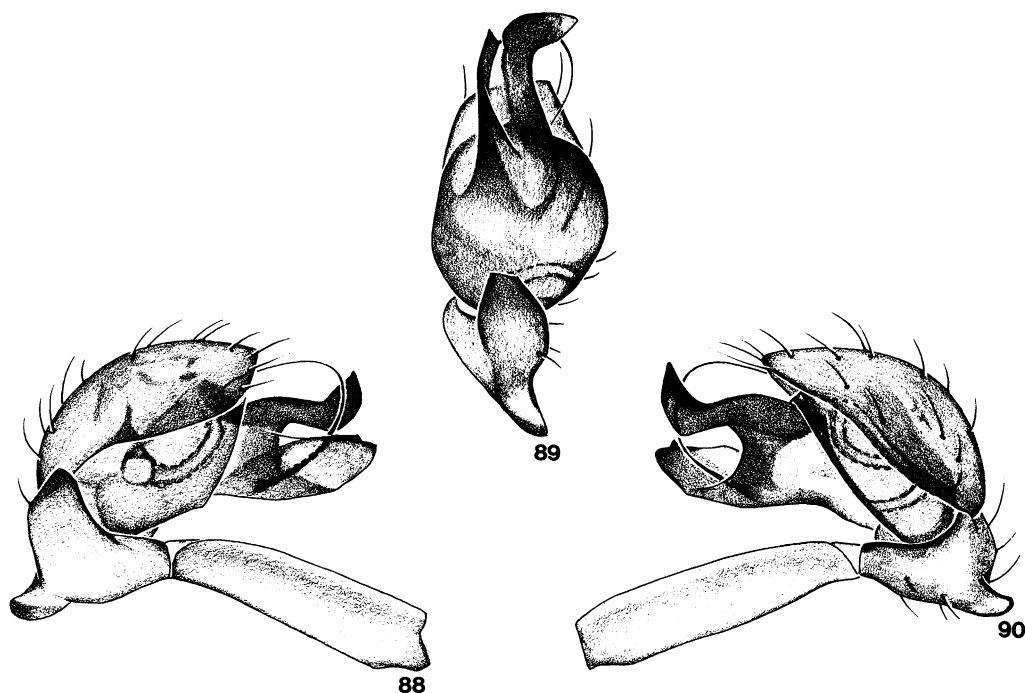
OTHER MATERIAL EXAMINED: CHILE: **Region de Coquimbo (IV): Limarí:** Bosque Talinay, 35 km S road to Parque Nacional Fray Jorge, Oct. 1957, elev. 800 m (G. Kuschel, MCZ), 1♂, 4♀, Oct. 1957, elev. 630 m (G. Kuschel, MCZ), 3♂, 6♀, elev. 560 m, Berlese, litter, fog-fed relict forest, Feb. 6, 1986 (N. I. Platnick, R. T. Schuh, AMNH), 16♂, 25♀; Parque Nacional Fray Jorge, Nov. 5, 1981, elev. 180–270 m, Berlese, litter and root mat, fog-fed relict forest (N. I. Platnick, R. T. Schuh, AMNH), 1♀, Feb. 8, 1986, elev. 560 m, Berlese, litter, hygrophilous forest (N. I. Platnick, R. T. Schuh, AMNH), 1♂, 2♀. **Re-**



Figs. 85-87. *Minanapis talinay*, new species, left male palp, prolateral, ventral, and retrolateral views.

gion de Valparaíso (V): *Quillota*: Palmas de Ocoa, Parque Nacional La Campana, May 25–Oct. 16, 1984, pitfall traps, unburned area (R. Calderón G., AMNH), 6♂, 5♀, June 21, 1985, pitfall trap, burned area (R. Calderón G., AMNH), 1♀, June 21–Sept. 27, 1985, pitfall traps, unburned area (R. Calderón G., AMNH), 8♂, 3♀, Jan. 12, 1985, elev. 475 m, Berlese, oak litter, riparian forest (N. I. Platnick, O. F. Francke, AMNH), 1♂, 6♀. **Valparaíso:** 11 km E Quintero, Jan. 10, 1985, elev. 8 m, Berlese, oak litter, small mixed forest (N. I. Platnick, O. F. Francke, AMNH), 1♂, 2♀. **Region Metropolitana:** *Santiago*: Quebrada de La Plata, near Maipú, Jan. 15, 1985, elev. 580 m, Berlese, streamside litter (N. I. Platnick, O. F. Francke, AMNH), 3♂, 4♀. **Region del Maule (VII):** *Talca*: Alto Vilches, Jan. 18, 1985, elev. 1160 m, Berlese, litter, montane forest (N. I. Platnick, O. F. Francke, AMNH), 3♂. **Region del Bio-Bio (VIII):** *Nuble*: Las Trancas, 19.5 km ESE Recinto, Dec. 10, 1982–Jan. 3, 1983, elev. 1250 m, window trap, beech forest (A. Newton, M. Thayer, AMNH), 8♂, 9♀. *Concepción*: Agua de la Gloria, Aug. 14, 1978 (T. Cekalovic K., MCZ, MACN), 4♀; Cerro Caracol, Concepción, May 1957 (G. Kuschel, MCZ), 1♂, 2♀; Collico, 8 km S Florida, Dec. 29, 1987, Berlese (T. Cekalovic K., AMNH), 3♂, 2♀; El Manzano, Mar. 31, 1984, Berlese (T. Cekalovic K., AMNH), 1♂, Jan. 13, 1985, Berlese (T. Cekalovic K., AMNH), 1♂, 2♀; Escuadrón, Apr. 2–10, 1988, Berlese (T. Cekalovic K., AMNH), 5♂, 23♀; Estero Bellavista Dichoco, Apr. 12, 1984,

Berlese (T. Cekalovic K., AMNH), 2♂, 6♀, Mar. 9, 1985, Berlese (T. Cekalovic K., AMNH), 2♂, 11♀; Estero Nonguén, Oct. 15, 1977, Berlese (T. Cekalovic K., AMNH), 1♂, 1♀, Apr. 21, 1976, Berlese (T. Cekalovic K., AMNH), 1♀, Nov. 16, 1981, elev. 90 m, Berlese, floor litter, modified forest (N. I. Platnick, R. T. Schuh, AMNH), 1♂, Dec. 6, 1981, Berlese (T. Cekalovic K., AMNH), 3♂, 9♀, Dec. 3, 1982, Berlese (T. Cekalovic K., AMNH), 8♂, 8♀, Apr. 2, 1983, Berlese (T. Cekalovic K., AMNH), 7♀, Jan. 17, 1988, Berlese (T. Cekalovic K., AMNH), 1♀; Florida, Oct. 3, 1971, Berlese (T. Cekalovic K., AMNH), 4♂, 5♀; Hualpén, Dec. 10, 1971, Berlese (T. Cekalovic K., AMNH), 2♂, 5♀, Jan. 10, 1979, Berlese (T. Cekalovic K., MCZ), 1♀, Nov. 17, 1981, elev. 60 m, Berlese, floor litter, native forest (N. I. Platnick, R. T. Schuh, AMNH), 4♂, 13♀, Mar. 29, 1986, Berlese (T. Cekalovic K., AMNH), 8♂, 11♀; Las Escaleras, Sept. 10, 1961 (T. Cekalovic K., MCZ), 1♀; Penco, Feb. 11, 1979, Berlese (T. Cekalovic K., AMNH), 1♂, 5♀, Dec. 5, 1981, Berlese (T. Cekalovic K., AMNH), 9♂, 18♀, Oct. 30, 1982, Berlese (T. Cekalovic K., AMNH), 5♂, 8♀, Dec. 12, 1982, Berlese (T. Cekalovic K., AMNH), 2♂, 1♀, Feb. 11, 1986, Berlese (T. Cekalovic K., AMNH), 3♂, 3♀, May 4, 1986, Berlese (T. Cekalovic K., AMNH), 1♂; Quebrada Pinares, July 13, 1968, Berlese (T. Cekalovic K., AMNH), 7♂, 7♀, Oct. 23, 1971, Berlese (T. Cekalovic K., AMNH), 3♂, 8♀, Dec. 10, 1972, Berlese (T. Cekalovic K., AMNH), 1♂, 7♀; road to Ra-



Figs. 88-90. *Minanapis floris*, new species, left male palp, prolateral, ventral, and retrolateral views.

muncho, Dec. 8, 1981, Berlese (T. Cekalovic K., AMNH), 13♂, 41♀; Rocoto, July 15, 1986 (N. Cekalovic, AMNH), 1♂; 6 km S San Pedro, Dec. 12, 1982-Jan. 2, 1983, elev. 360 m, baited pitfall trap, pine forest (A. Newton, M. Thayer, AMNH), 2♂, 1♀; Tomé, Nov. 12, 1971, Berlese (T. Cekalovic K., AMNH), 2♀, Oct. 8, 1983, Berlese (T. Cekalovic K., AMNH), 1♂, 5♀.

DISTRIBUTION: Central Chile, from Coquimbo to Concepción.

Minanapis floris, new species

Figures 88-90, 98

TYPES: Male holotype and female allotype taken in forest litter at an elevation of 500 m at Flor del Lago, 15 km northeast of Villarica, Cautín, Region de la Araucanía (IX), Chile (Feb. 10, 1985; S. and J. Peck), deposited in AMNH.

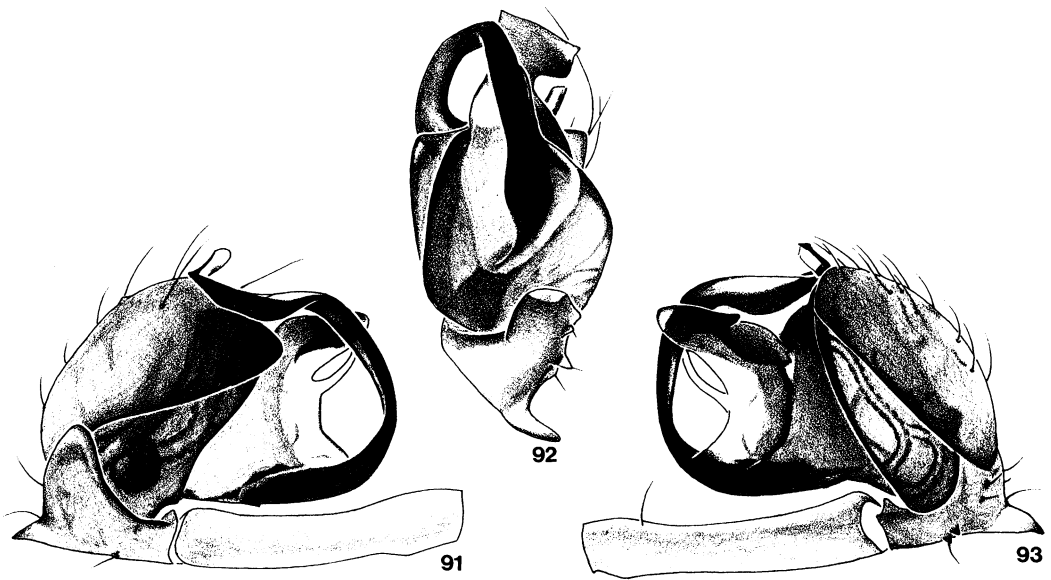
ETYMOLOGY: The specific name is an arbitrary combination of letters.

DIAGNOSIS: The short, thin embolus of males (fig. 90) and the small spermathecae situated on c-shaped ducts of females (fig. 98) are diagnostic.

MALE: As in *M. talinay*, except as follows. Total length 0.81. Carapace 0.36 long, 0.28 wide, 0.22 high. Abdomen 0.52 long, 0.48 wide, 0.50 high. Strips between coxae broken at middle. Labium almost triangular. Tibia I without retrolateral bristle. Only most ventral of sclerotized strips on sides of abdomen entire, two more dorsal ones broken. Apophysis on patellar portion of fused palpal patella-tibia enlarged. Embolus very short, weak, supported ventrally by broad apophysis, dorsally by sinuous, rather than T-shaped apophysis, with tiny translucent projection between dorsal and ventral apophyses (figs. 88-90).

FEMALE: As in *M. talinay*, except as noted for male. Total length 0.85. Carapace 0.46 long, 0.35 wide, 0.28 high. Abdomen 0.67 long, 0.63 wide, 0.63 high. Spermathecae small, situated on proximally twisted, c-shaped ducts, each surrounded by translucent sac (fig. 98).

OTHER MATERIAL EXAMINED: CHILE: Region de la Araucanía (IX): Cautín: Bellavista, N shore Lago Villarica, Jan. 30, 1986, elev. 260 m, Berlese, moss, litter, wet forest (N. I. Platnick, R. T. Schuh, AMNH), 5♂, 2♀; Flor



Figs. 91–93. *Minanapis casablanca*, new species, left male palp, prolateral, ventral, and retrolateral views.

del Lago, 15 km NE Villarrica, Feb. 10, 1985, elev. 500 m, forest litter (S. and J. Peck, AMNH), 4♀.

DISTRIBUTION: Known only from Cautín, Chile.

Minanapis casablanca, new species

Figures 91–93, 99

TYPES: Male holotype and female allotype from Berlese sample of leaf and log litter taken in a *Nothofagus* forest with *Drimys* at an elevation of 1100–1130 m on Volcán Casa Blanca, Parque Nacional Puyehue, Osorno, Region de los Lagos (X), Chile (Dec. 20, 1982; A. Newton, M. Thayer), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

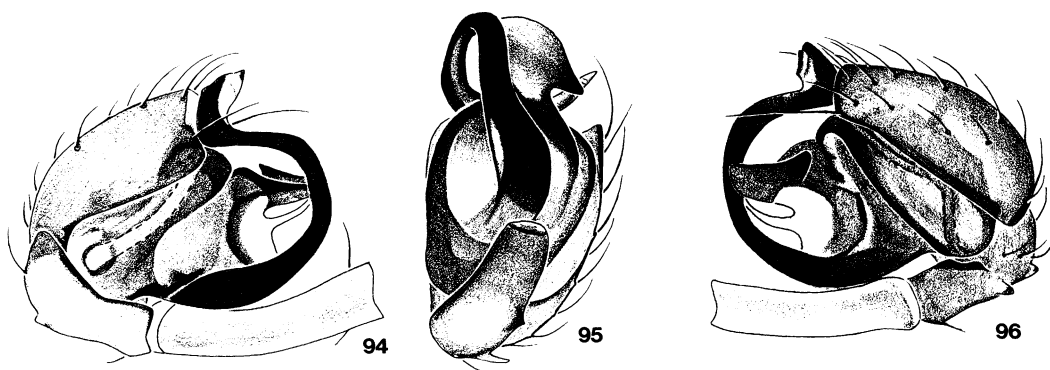
DIAGNOSIS: This high-altitude species (known only from elevations between 1100 and 1700 m) can be recognized easily by the rectangular tip of the large palpal apophysis of males (fig. 92) and the anteromedially directed, triangular sclerotization arising from each spermatheca in females (fig. 99).

MALE: As in *M. talinay*, except as follows. Total length 0.91. Carapace 0.50 long, 0.46 wide, 0.44 high. Abdomen 0.63 long, 0.63 wide, 0.67 high. Strips between coxae broken at middle. Femora as lightly colored as pa-

tellae. Tibia I without retrolateral bristle. Proximal portion of fused palpal patella-tibia with two or three retrolateral tubercles and relatively long, triangular, dorsally directed apophysis; cymbium unmodified; embolus thick, sickle-shaped distally, supported by apically rectangular dorsal apophysis (figs. 91–93).

FEMALE: As in *M. talinay*, except as noted for male. Total length 1.07. Carapace 0.50 long, 0.44 wide, 0.28 high. Abdomen 0.89 long, 0.85 wide, 0.70 high. Spermathecae with triangular sclerotizations extending anteromedially (fig. 99).

OTHER MATERIAL EXAMINED: CHILE: **Region del Bío-Bío (VIII): Ñuble:** Las Trancas, 72 km SE Chillan, near Termas de Chillan, Dec. 6, 1984–Feb. 19, 1985, elev. 1700 m, flight intercept trap, beech forest (S. and J. Peck, AMNH), 2♂. **Region de la Araucanía (IX): Malleco:** 12 km E Malalcahuello, Dec. 13–31, 1982, elev. 1350 m, baited pitfall trap, beech-araucarian forest (A. Newton, M. Thayer, AMNH), 1♂; 14 km E Malalcahuello, Dec. 13–31, 1982, elev. 1570 m, window trap, beech-araucarian forest (A. Newton, M. Thayer, AMNH), 1♂, 1♀. **Region de los Lagos (X): Osorno:** Volcán Casa Blanca, Parque Nacional Puyehue, Dec. 20, 1985, elev. 1100–1130 m, Berlese, leaf and log litter, beech



Figs. 94–96. *Minanapis palena*, new species, left male palp, prolateral, ventral, and retrolateral views.

forest (A. Newton, M. Thayer, AMNH), 1♂, 1♀, Dec. 20–25, 1982, elev. 1270 m, pan trap, treeline beech forest (A. Newton, M. Thayer, AMNH), 1♂, Dec. 22–25, 1982, elev. 1270 m, Berlese, litter from bases of alpine shrubs just above treeline (A. Newton, M. Thayer, AMNH), 1♀.

DISTRIBUTION: Found only at high altitudes between Ñuble and Osorno, Chile.

Minanapis palena, new species

Figures 94–96, 100

TYPES: Male holotype and female allotype from Berlese sample of wet virgin forest litter taken at an elevation of 40 m between 25–27 km north of Chaitén, Palena, Region de los Lagos (X), Chile (Jan. 17, 1986; N. I. Platnick, P. A. Goloboff, R. T. Schuh), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

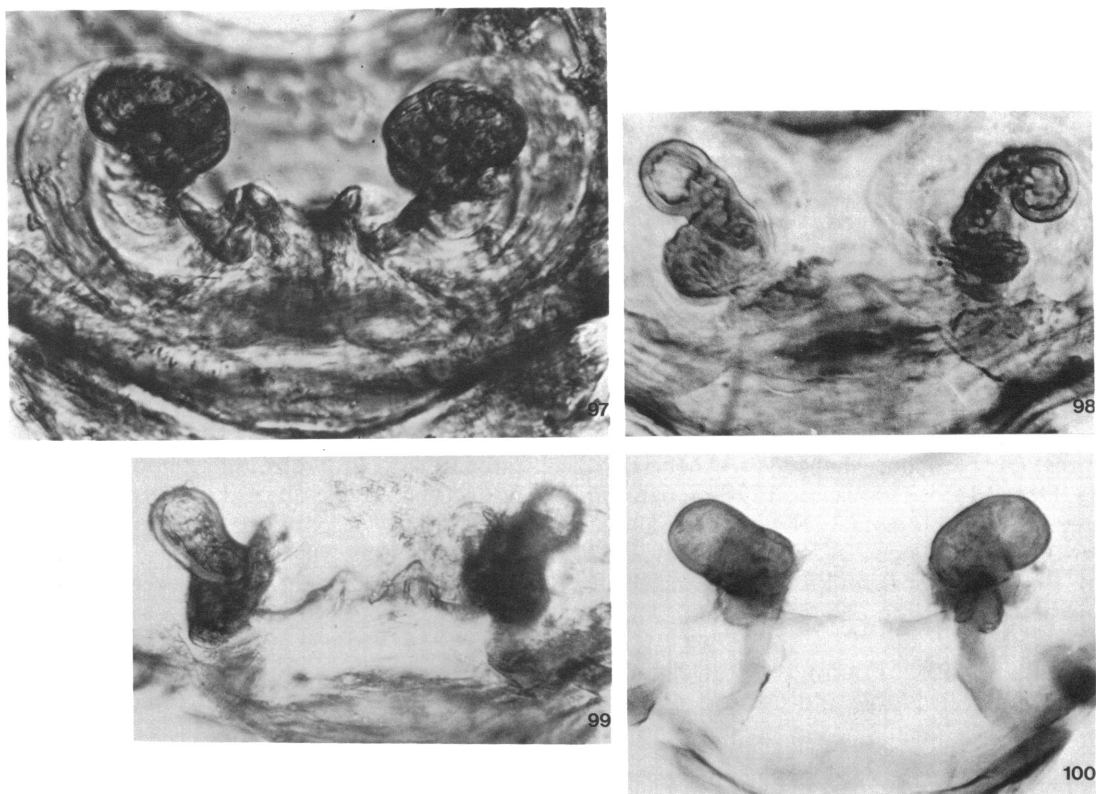
DIAGNOSIS: The combined presence of an apically sickle-shaped embolus and a T-shaped dorsal apophysis (fig. 95) is diagnostic for males; the small spermathecae with anterolaterally directed distal portions (fig. 100) are diagnostic for females.

MALE: As in *M. talinay*, except as follows. Total length 0.83. Carapace 0.33 long, 0.34 wide, 0.26 high. Abdomen 0.54 long, 0.53 wide, 0.54 high. Strips between coxae broken at middle. Labium almost triangular. Tibia I without retrolateral bristle. Sides of abdomen with only two sclerotized strips. Patellar portion of fused palpal patella-tibia with three retrolateral tubercles, most ventral one ledge-shaped, almost contacting palpal bulb; tibial

portion with tiny retrolateral apophysis; embolus thick, sickle-shaped distally, supported by distally expanded, T-shaped dorsal apophysis (figs. 94–96).

FEMALE: As in *M. talinay*, except as noted for male. Total length 0.85. Carapace 0.39 long, 0.35 wide, 0.30 high. Abdomen 0.59 long, 0.65 wide, 0.59 high. Spermathecae small, anterior portions directed anterolaterally (fig. 100).

OTHER MATERIAL EXAMINED: CHILE: **Region del Bio-Bio (VIII):** Ñuble: 22.7 km ESE Recinto, Dec. 10, 1982–Jan. 3, 1983, elev. 1330 m, window trap, beech forest (A. Newton, M. Thayer, AMNH), 1♀. **Arauco:** Monumento Natural Contulmo, 10 km W Purén, Dec. 12, 1982, elev. 240 m, Berlese, leaf and log litter, mixed hardwood forest (A. Newton, M. Thayer, AMNH), 5♀, Jan. 31, 1986, elev. 300 m, wet forest (N. I. Platnick, R. T. Schuh, AMNH), 1♀. **Region de la Araucanía (IX):** Malleco: 17 km W Angol, Dec. 8, 1984–Feb. 16, 1985, elev. 800 m, flight intercept trap, mixed beech forest (S. and J. Peck, AMNH), 1♂, 1♀; 14 km E Malalcahuello, Dec. 13–31, 1982, elev. 1570 m, baited pitfall trap, beech-araucarian forest (A. Newton, M. Thayer, AMNH), 3♀; Parque Nacional Nahuelbuta, 45 km W Angol, Nov. 19, 1981, 1250 m, Berlese, mossy floor litter, beech-araucarian forest (N. I. Platnick, R. T. Schuh, T. Cekalovic K., AMNH), 9♂, 7♀, Dec. 9, 1984–Feb. 16, 1985, elev. 1400 m, carrion trap, beech-araucarian forest (S. and J. Peck, AMNH), 1♀. **Cautín:** Bellavista, N shore Lago Villarica, Dec. 15–30, 1982, elev. 310 m, Berlese, leaf and log litter, baited pitfall traps, valdivian rainforest (A. Newton, M. Thayer,



Figs. 97–100. Internal female genitalia of *Minanapis*, dorsal views. 97. *M. talinay*, new species. 98. *M. floris*, new species. 99. *M. casablanca*, new species. 100. *M. palena*, new species.

AMNH), 1♂, 2♀, Jan. 30, 1986, elev. 260 m, Berlese, moss, litter, wet forest (N. I. Platnick, R. T. Schuh, AMNH), 2♂; Flor del Lago, 15 km NE Villarrica, Dec. 14, 1984–Feb. 10, 1985, elev. 300 m, flight intercept traps, beech forest (S. and J. Peck, AMNH), 2♂, 5♀; Parque Nacional Volcán Villarrica, 10 km S Pucón, Dec. 15–29, 1982, elev. 1250 m, Berlese, leaf and log litter, window and baited pitfall traps, beech forest (A. Newton, M. Thayer, AMNH), 1♂, 5♀, Dec. 15, 1984–Feb. 10, 1985, elev. 900 m, flight intercept trap, beech grove on ash (S. and J. Peck, AMNH), 2♂, 1♀. **Region de los Lagos (X):** *Valdivia*: 34 km WNW La Union, Dec. 17, 1984–Feb. 7, 1985, elev. 700 m, flight intercept trap, mixed evergreen forest (S. and J. Peck, AMNH), 4♂, 2♀. *Osorno*: Aguas Calientes, Parque Nacional Puyehue, Jan. 31, 1985, elev. 425 m, Berlese, valdivian forest litter (N. I. Platnick, O. F. Francke, AMNH), 3♂, 1♀, Dec. 18, 1984–Feb. 9, 1985, elev. 600 m, malaise trap, beech forest (S.

and J. Peck, AMNH), 1♂, 1♀, Jan. 28, 1986, elev. 430 m, Berlese, moss, litter, primary forest (N. I. Platnick, R. T. Schuh, AMNH), 7♂, 8♀; 4.1 km E Anticura, Parque Nacional Puyehue, Dec. 19–26, 1982, Berlese, leaf and log litter, valdivian rainforest (A. Newton, M. Thayer, AMNH), 3♂, 7♀; Antillanca road, Parque Nacional Puyehue, Dec. 18–25, 1982, elev. 965 m, Berlese, leaf and log litter, beech forest (A. Newton, M. Thayer, AMNH), 1♀, Dec. 20–25, 1985, elev. 470 m, Berlese, leaf and log litter, valdivian rainforest (A. Newton, M. Thayer, AMNH), 4♂, 2♀; Bahía Mansa, 3 km S Muicolpué, Dec. 21, 1984, elev. 200 m, mixed forest litter (S. and J. Peck, AMNH), 6♂, 5♀; 10 km E Bahía Mansa, Jan. 30, 1985, elev. 15 m, Berlese, litter, disturbed forest (N. I. Platnick, O. F. Francke, AMNH), 1♀; Derumbes Forest Trail, Aguas Calientes, Parque Nacional Puyehue, Dec. 20, 1984–Feb. 8, 1985, elev. 500 m, flight intercept trap (S. and J. Peck, AMNH), 1♂; hills S Muicol-

pué, Dec. 21, 1982, elev. 160 m, Berlese, leaf and log litter, second growth valdivian forest (A. Newton, M. Thayer, AMNH), 1♂, 1♀, Jan. 30, 1985, elev. 120 m, Berlese, litter, disturbed forest (N. I. Platnick, O. F. Francke, AMNH), 4♂, 3♀, Jan. 26, 1986, elev. 75 m, Berlese, litter, wet disturbed forest (N. I. Platnick, R. T. Schuh, AMNH), 2♂, 4♀; Pionero Trail, Aguas Calientes, Parque Nacional Puyehue, Dec. 20, 1984, elev. 500 m, sifted forest stick litter (S. and J. Peck, AMNH), 2♂, 2♀; Pucatrihue, Feb. 1985, Berlese (L. E. Peña G., AMNH), 2♂, 3♀; Repucura Trail, Anticura, Parque Nacional Puyehue, Feb. 6, 1985, elev. 500 m, forest litter (S. and J. Peck, AMNH), 1♂; Termas de Puyehue, Parque Nacional Puyehue, Nov. 24, 1981, elev. 180 m, Berlese, forest litter with moss (N. I. Platnick, R. T. Schuh, AMNH), 1♂, 4♀; 7.7 km NE Termas de Puyehue, Parque Nacional Puyehue, Dec. 19–25, 1982, elev. 200 m, Berlese, leaf and log litter, valdivian rainforest (A. Newton, M. Thayer, AMNH), 4♀; Volcán Casa Blanca, Parque Nacional Puyehue, Dec. 20–25, 1982, elev. 1130–1180 m, pan trap above treeline (A. Newton, M. Thayer, AMNH), 1♀. *Llanquihue*: 10–14 km E Correntoso, Feb. 3, 1985, elev. 305 m, Berlese, moss, disturbed forest (N. I. Platnick, O. F. Francke, AMNH), 2♂, 1♀; La Arena, 45 km S Puerto Montt, Dec. 25, 1984, elev. 100 m, Berlese, leaf and stick litter, forest remnant (S. and J. Peck, AMNH), 2♂, 1♀; 35 km NW Río Negro, Jan. 24, 1986, elev. 240 m, Berlese, moss, wet leaf litter, disturbed forest (N. I. Platnick, R. T. Schuh, AMNH), 6♂, 5♀; Salto Petrohué, Parque Nacional Vicente Perez Rosales, 6.4 km SW Petrohué, Dec. 28, 1982, elev. 140 m, Berlese, leaf and log litter, valdivian rainforest (A. Newton, M. Thayer, AMNH), 2♂, 4♀, Dec. 23, 1984, elev. 150 m, Berlese, mixed forest litter (S. and J. Peck, AMNH), 1♂, 3♀, Dec. 23, 1984–Feb. 4, 1985, elev. 150 m, flight intercept trap, mixed moist forest (S. and J. Peck, AMNH), 1♀, Feb. 4, 1985, elev. 150 m, sifted from mixed forest litter (S. and J.

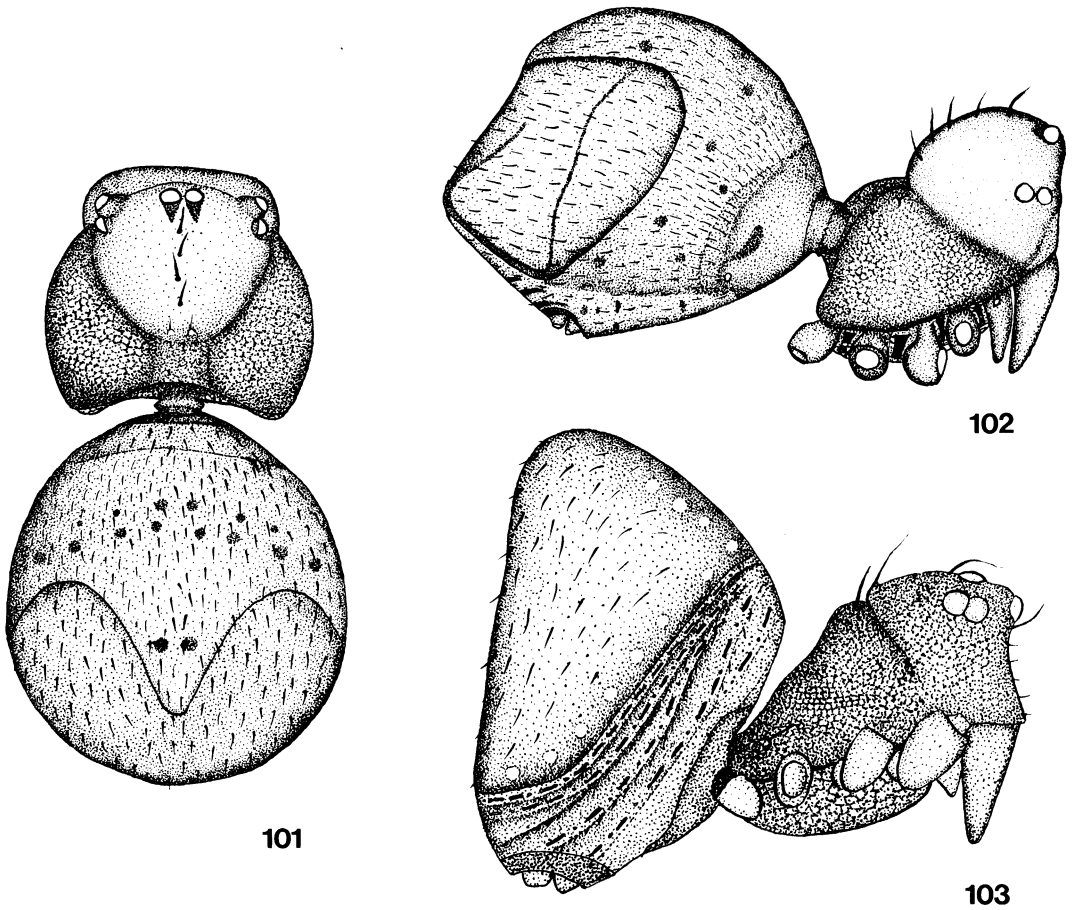
Peck, AMNH), 1♂, 4♀. *Chiloé*: Chepu, Isla de Chiloé, Feb. 2, 1985, elev. 15 m, Berlese, wet forest litter (N. I. Platnick, O. F. Francke, AMNH), 8♂, 8♀; 5 km N Quellón, Isla de Chiloé, Dec. 1, 1981, elev. 105 m, Berlese, floor litter and moss (N. I. Platnick, R. T. Schuh, AMNH), 6♂, 14♀. *Palena*: Chaitén, Dec. 5–7, 1981, elev. 10–100 m, Berlese, forest litter and moss (N. I. Platnick, R. T. Schuh, AMNH), 7♂, 5♀; 25–27 km N Chaitén, Jan. 17, 1986, elev. 40 m, Berlese, wet virgin forest litter (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 3♂, 14♀; 70 km S Chaitén, Jan. 16, 1986, elev. 500 m, Berlese, moss from wet streambank (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 2♂, 1♀; 28.5 km W Futaleufú, Jan. 16, 1986, elev. 90 m, dry forest litter (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 2♂, 3♀. **Region de Aisen (XI)**: *Aisen*: Parque Nacional Queulat, near Puerto Cisnes, Feb. 6, 1985, elev. 500 m, Berlese, wet forest moss (N. I. Platnick, O. F. Francke, AMNH), 1♀; 30 km N Puyuhuapi, Jan. 19, 1985, elev. 100 m, sifted from moss on logs (S. and J. Peck, AMNH), 1♂; 85–89 km S Puerto Puyuhuapi, Jan. 19, 1986, elev. 220–279 m, Berlese, litter, burned forest (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 7♂, 10♀; 102 km S Puerto Puyuhuapi, Jan. 19, 1986, elev. 220 m, Berlese, wet forest litter (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 3♂, 5♀; Río Cisnes, Feb. 1–28, 1961 (L. E. Peña G., FMNH), 1♂; San Sebastian, 34 km W Puerto Aisen, Jan. 24, 1985, elev. 150 m, mixed forest and bamboo litter from cliff base (S. and J. Peck, AMNH), 3♂, 2♀. *Coihaique*: Reserva Nacional Coihaique, 4 km S Coihaique, Feb. 5, 1985, elev. 650 m, Berlese, dry forest litter (N. I. Platnick, O. F. Francke, AMNH), 1♂. **ARGENTINA: Tierra del Fuego**: Bahía Buen Suceso, Península Mitre, Jan. 16–31, 1986 (E. A. Maury, MACN), 3♂, 4♀.

DISTRIBUTION: Southern Chile and adjacent Argentina, from Nuble to Tierra del Fuego.

THE NEW ZEALAND FAUNA

Five species of anapids have been recorded from New Zealand, all of which were origi-

nally described by Forster (1951) as members of the Australian genus *Chasmocephalon* O.



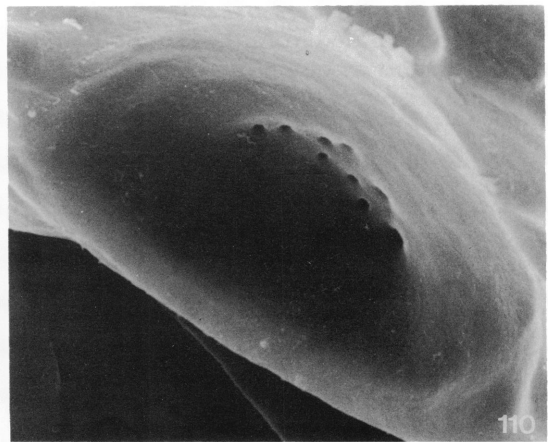
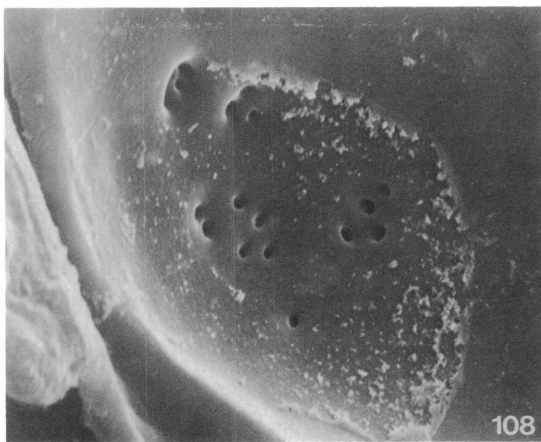
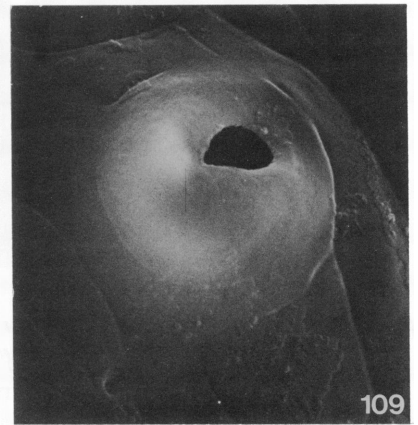
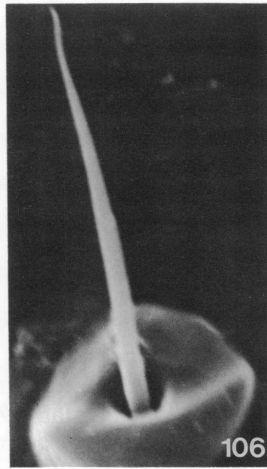
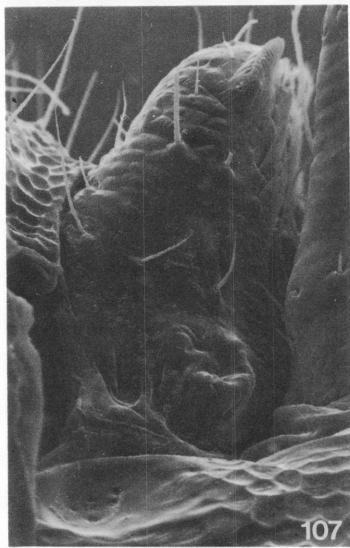
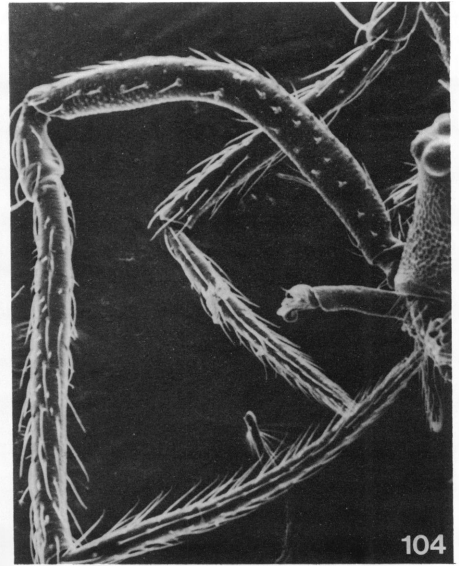
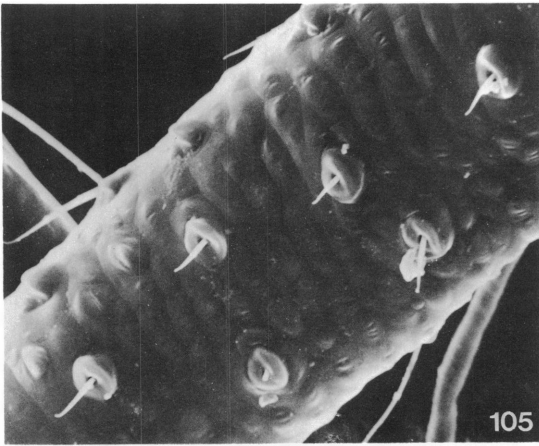
Figs. 101-103. 101, 102. *Paranapis insula* (Forster). 103. *Zealanapis conica* (Forster). 101. Male, dorsal view. 102, 103. Male, lateral views.

P.-Cambridge. Subsequently, two of those species were transferred to *Pseudanapis* Simon and a third to the Tasmanian genus *Risdonius* Hickman (Forster, 1959). The remaining two species (*C. armatum* and *C. australis*) were synonymized under the name *C. armatum* and left in *Chasmocephalon*. Below we consider *C. australis* a valid species and place those two species as well as *R. conicum* in the new endemic genus *Zealanapis*. Seven previously unknown species are here added, bringing the total number in the genus to ten. A separate genus is established for each of the two species earlier transferred to *Pseudanapis*: *Novanapis* for *P. spinipes*, and *Paranapis* for *P. insulum*. A second species of *Paranapis* is newly described from the Three Kings Islands. In total, 13 species of anapids are now known from New Zealand,

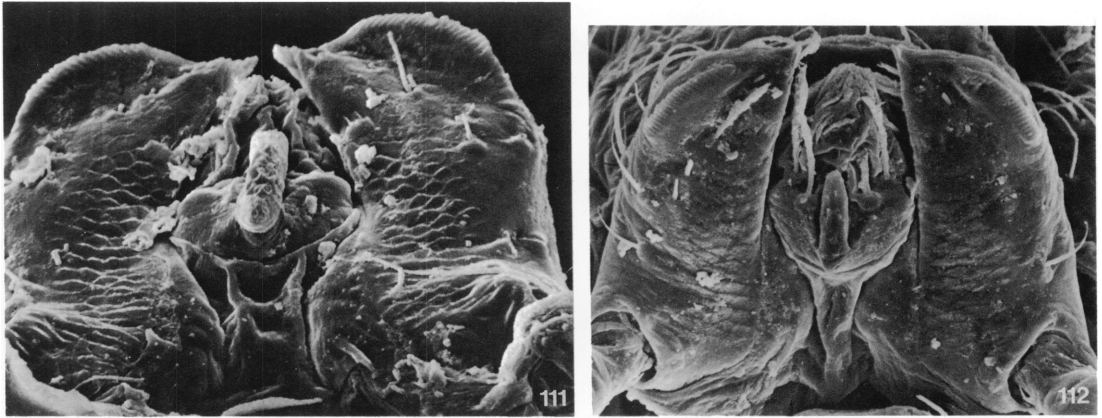
placed in three newly established endemic genera.

KEY TO GENERA OF ANAPIDAE FROM NEW ZEALAND

1. Anterior spiracles in normal position at epigastric furrow (anterior respiratory organs elongate booklungs); tracheal spiracle present at base of spinnerets; sculpturing of pars thoracica reticulate; distal cheliceral teeth simple; cephalothoracic porepit exposed on margin of carapace *Zealanapis*
- Anterior spiracles advanced anteriorly from the epigastric furrow (anterior respiratory organs tracheae); posterior spiracle absent; sculpturing of pars thoracica rugose; chelicerae with two or more teeth combined with numerous denticles distally; cephalothoracic porepit concealed below the margin of the carapace 2



Figs. 104–110. 104–106. *Zealanapis kuscheli*, new species. 107, 108. *Z. insula*, new species. 109, 110. *Z. australis* (Forster). 104. Leg I of male, lateral view, showing curved femur with prolateral rows of bristles. 105. Femur I, lateral view. 106. Femoral bristle, lateral view. 107. Female endite, lateral view, showing reduced palp. 108. Cephalothoracic porepit, lateral view. 109. Tarsal organ, dorsal view. 110. Cephalothoracic porepit, lateral view.



Figs. 111, 112. Endites and labrum, posterior views, showing labral spur. 111. *Zealanapis insula*, new species, female. 112. *Z. australis* (Forster), male.

2. Bulb of male palp distended ventrally, with marginal furrow; female genitalia without lateral ducts *Paranapis*
 Bulb of male palp not distended ventrally, without marginal furrow; female genitalia with lateral ducts *Novanapis*

ZEALANAPIS, NEW GENUS

TYPE SPECIES: *Chasmocephalon armatum* Forster.

ETYMOLOGY: The generic name is a contraction of New Zealand *Anapis* and is feminine in gender.

DIAGNOSIS: Species of *Zealanapis* can readily be separated from those of *Paranapis* and *Novanapis* by numerous characters. The body size is smaller (usually under 1.0). Functional anterior booklungs are retained (although with long and narrow lamellae), in contrast to the true tracheae present in the other two genera. The posterior tracheae open from a spiracle at the base of the spinnerets (they are lost in the other two genera). The chelicerae have one or two simple distal pro-lateral teeth (figs. 119, 120), rather than the complex denticulate process present in both *Paranapis* and *Novanapis*. The cephalothorax has reticulate rather than rugose sculpturing on the pars thoracica. The cephalothoracic porepits (figs. 108, 110) are exposed on the margin of the carapace (rather than hidden below the margin as in both *Paranapis* and *Novanapis*). A labral spur is present but the endites are unfused (figs. 111, 112).

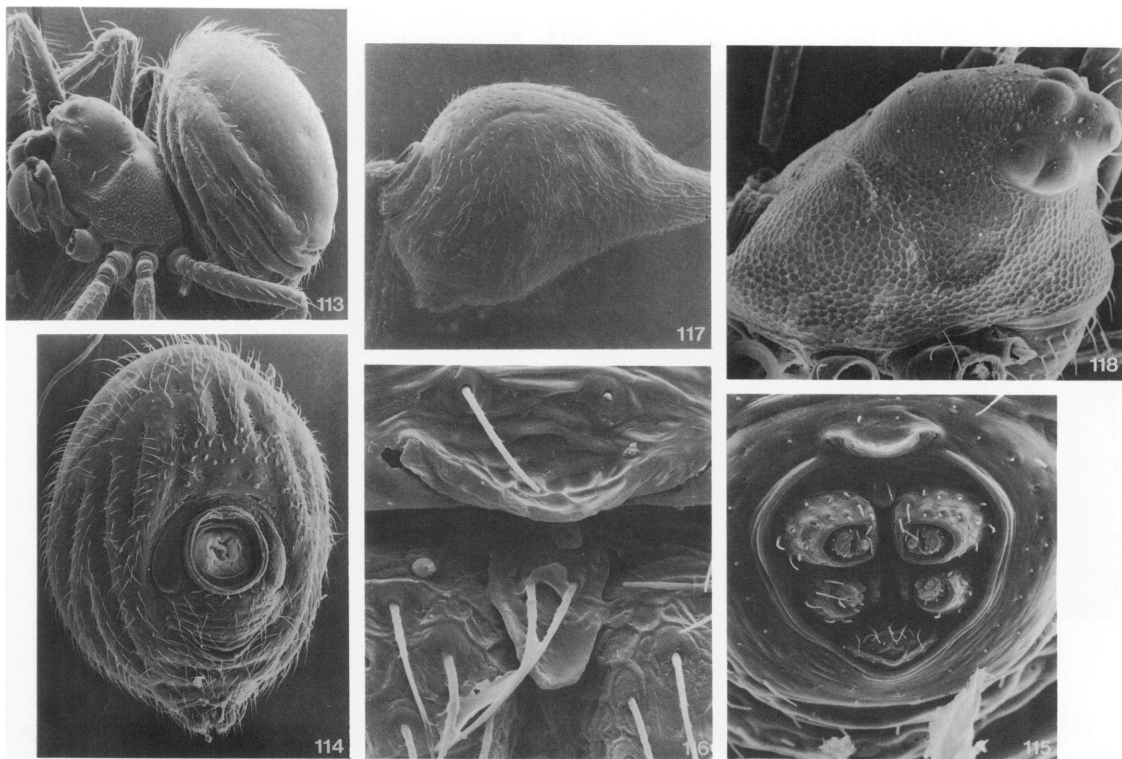
The dorsal abdominal scutum of the male is deeply incised on the anteromedian surface. Macrosetae are not present on the legs. The female genitalia have a pair of sclerotized spherical lateral receptacula associated with long slender ducts in addition to two membranous median receptacula; the dorsal median receptaculum is usually weakly developed, whereas the ventral one is usually deeply incised to form two lobes that may be bent back distally. A prodistal digitate patellar lobe is present on the male palp, terminated by a curved (rather than straight) spine.

MONOPHYLY: The ten included species are united by the lateral receptacula on elongate ducts in the internal female genitalia.

DISTRIBUTION: Although widely distributed over both the North and South Islands of New Zealand and on Stewart Island and its outliers, the genus has not yet been recorded from the far north of the North Island or from the more distant offshore islands.

GENERIC RELATIONSHIPS: These species resemble the Australian *Queenslanapis* and *Tasmanapis* in their small size, the retention of booklungs, and the presence of lateral receptacula in the female genitalia.

SPECIFIC RELATIONSHIPS: Ten species are included in the genus. Three species (*Z. armata*, *Z. australis*, and *Z. waipoua*) form a close-knit group with largely allopatric distributions that together cover most of the North Island and the northern and eastern regions of the South Island, including Stewart Island. Of the seven remaining species, *Z.*



Figs. 113–118. 113–116. *Zealanapis australis* (Forster). 117. *Z. insula*, new species. 118. *Z. matua*, new species. 113. Male, lateral view. 114. Male abdomen, ventral view. 115. Spinnerets of male, posterior view. 116. Posterior spiracle and colulus of male, posterior view. 117. Female abdomen, lateral view. 118. Male carapace, lateral view.

montana occupies the eastern side of the South Island mountain ridge as far south as the Fiordland region, but the remaining six species each have very limited distributions. Of those seven species, four may be grouped (at least superficially) by the presence of a strongly conical abdomen in contrast to the more usual rounded form (*Z. kuscheli*, *Z. matua*, *Z. conica*, and *Z. punta*) but neither the male nor female genitalia suggest that they do in fact represent a closely related group comparable to the *armata* complex. The remaining three species with normal ovoid abdomens are also distinct.

Zealanapis armata (Forster),
new combination

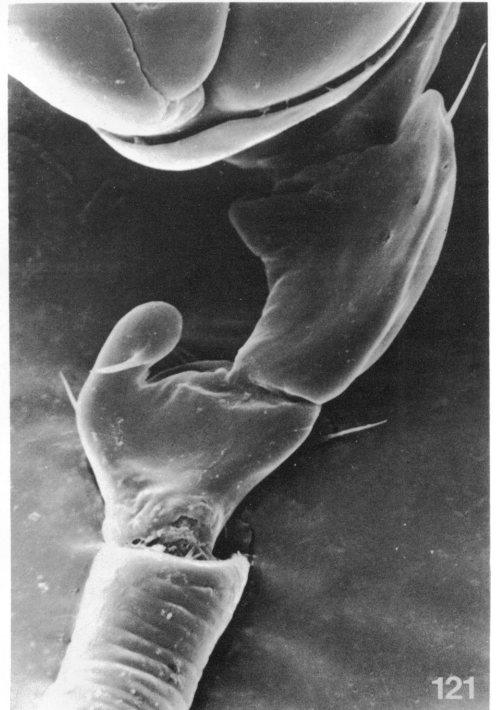
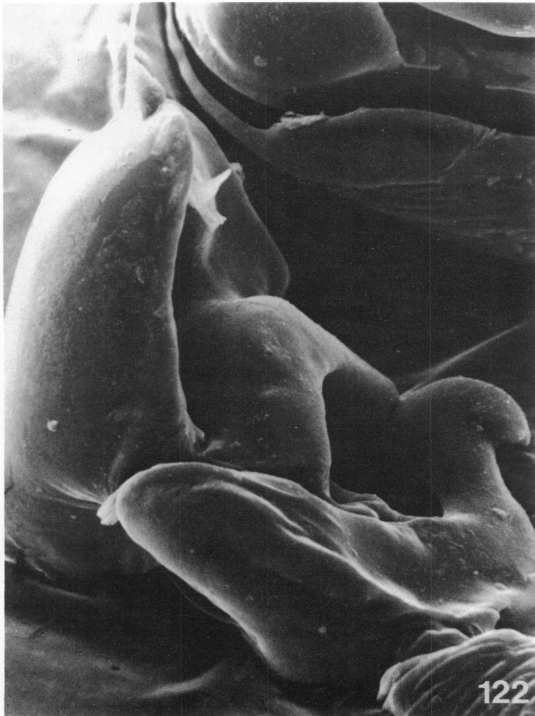
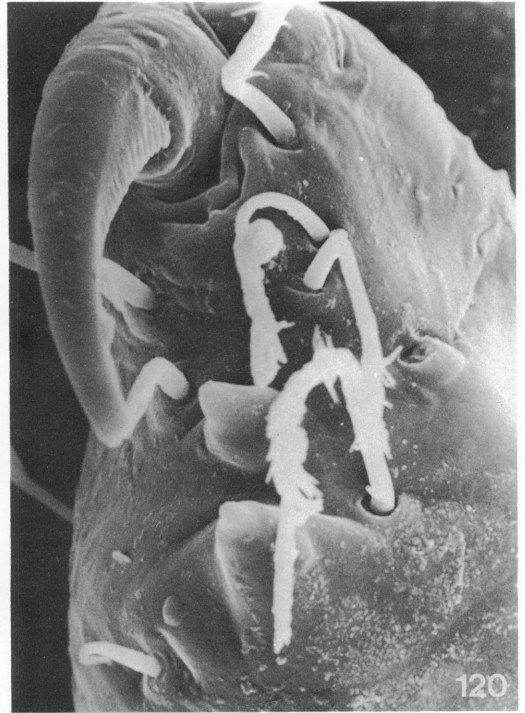
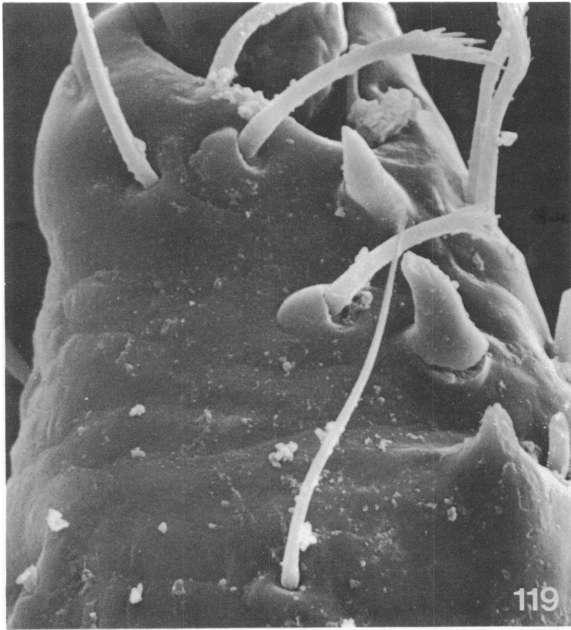
Figures 125, 129, 130, 139

Chasmocephalon armatum Forster, 1951: 232, figs. 1–2 (male holotype from Stokes Valley, Wel-

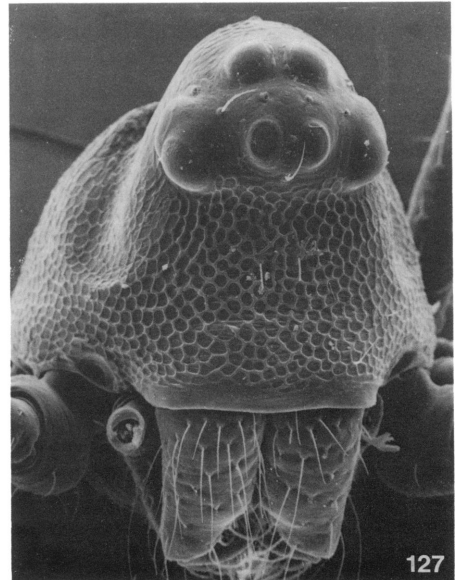
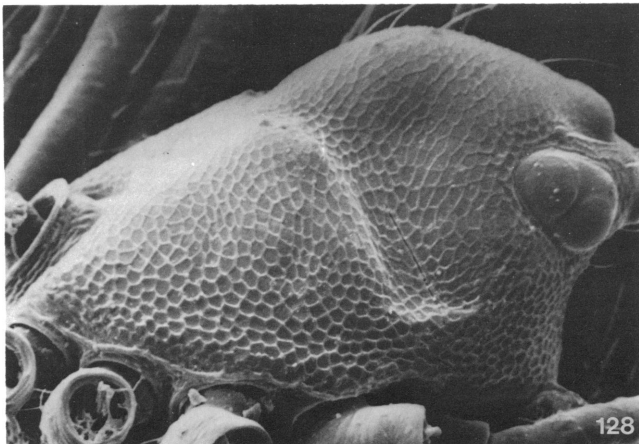
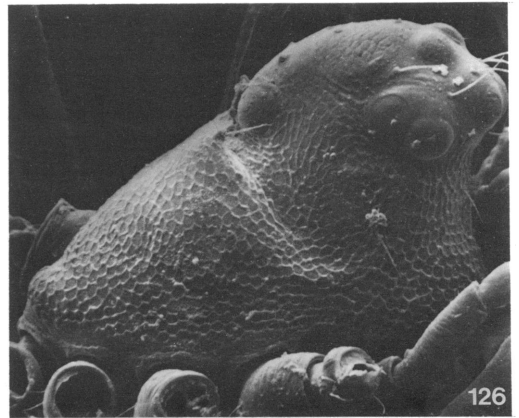
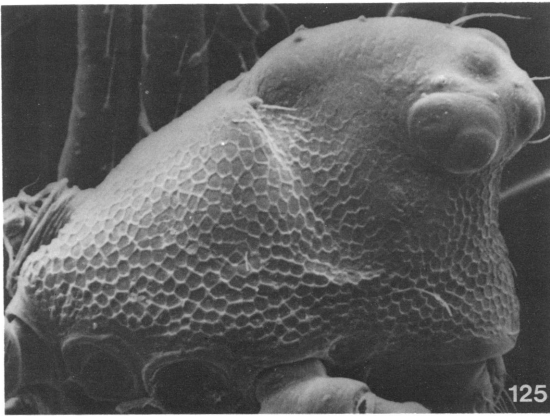
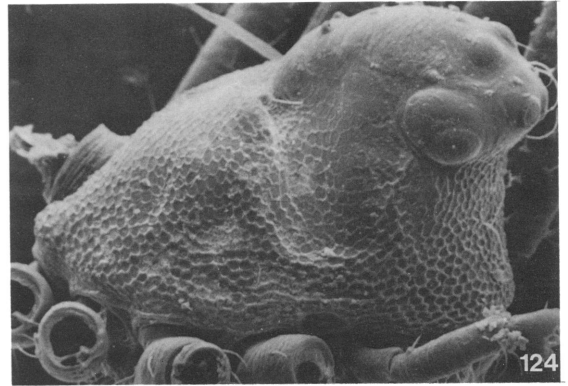
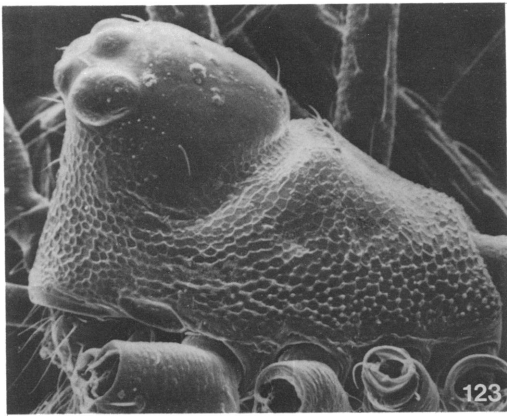
lington, North Island, in CMC, examined); 1959: 307, fig. 142.

DIAGNOSIS: The form of the male bulb and female genitalia is characteristic.

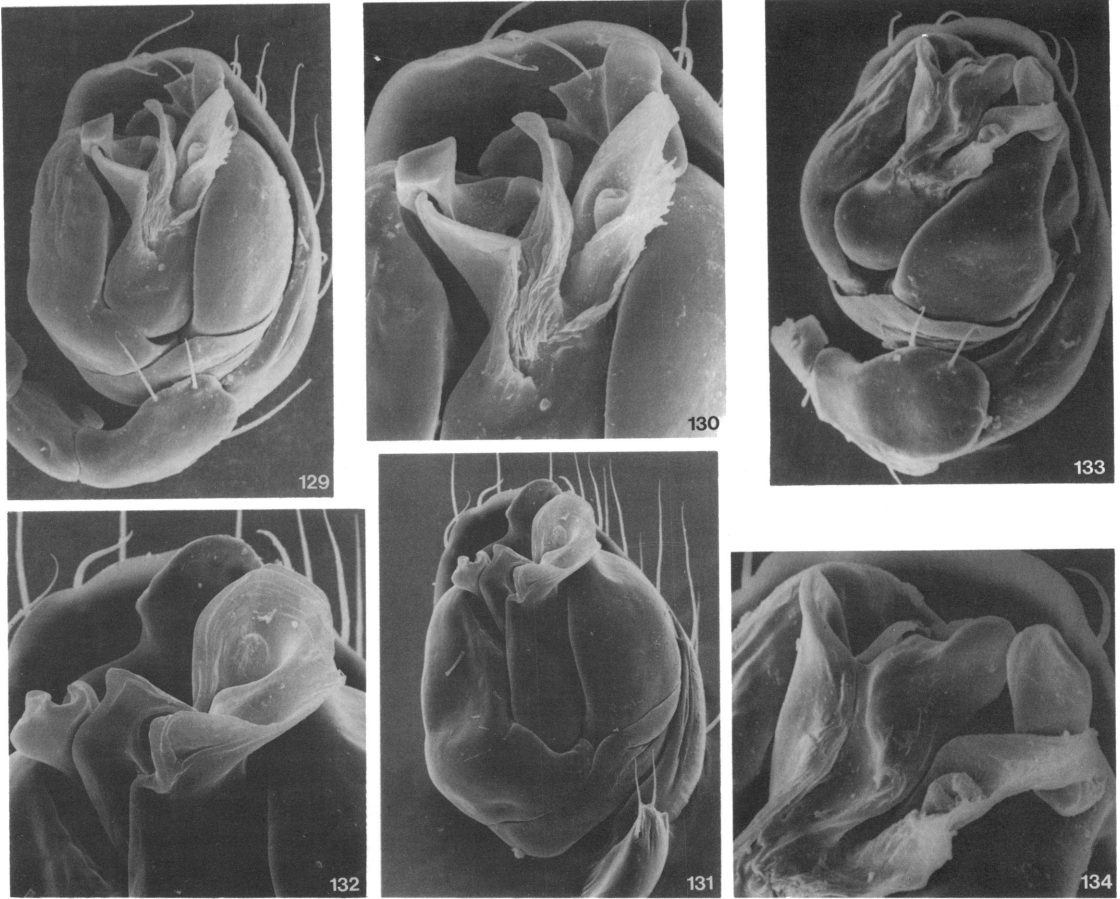
MALE: Total length 1.06. Carapace 0.43 long, 0.34 wide, 0.31 high. Abdomen 0.84 long, 0.60 wide, 0.54 high. Carapace dark reddish brown, slightly higher than wide; lateral and posterodorsal surfaces reticulate but caput only weakly reticulate, almost smooth; cephalic groove relatively broad laterally; pair of rounded swellings on posterior dorsal surface of caput abut furrow, swellings flanked by smaller setose tubercle on each side of posterior margin of furrow (fig. 125). Ocular region slightly overhanging clypeus; ratio of AME:ALE:PME:PLE, 6:10:8:10; AME separated from each other by one-fourth their diameter, from ALE by slightly more than AME diameter; MOQ wider behind than in



Figs. 119–122. 119. *Zealanapis montana*, new species. 120, 121. *Z. australis* (Forster). 122. *Z. otago*, new species. 119, 120. Male chelicera, medial views. 121, 122. Patella and tibia of male palp, lateral views.



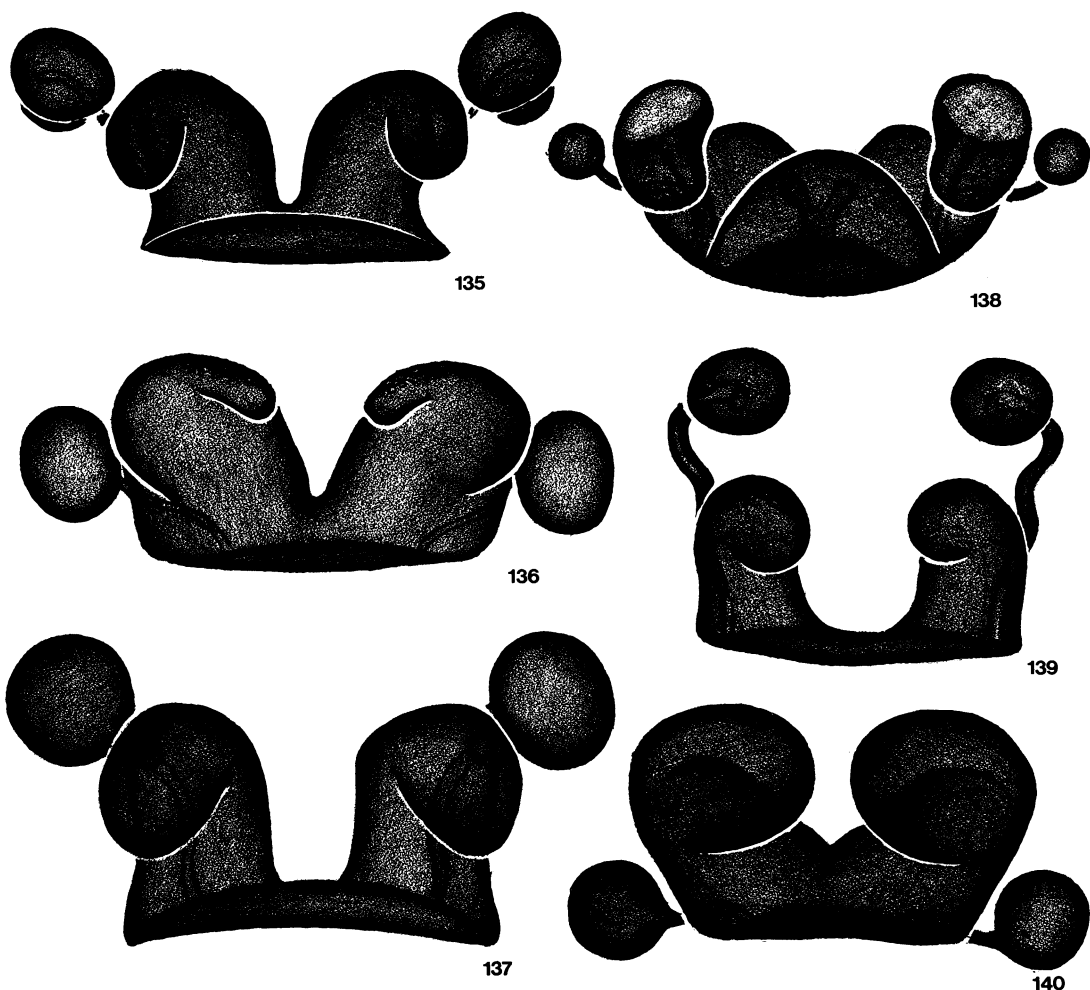
Figs. 123–128. Carapace of male *Zealanapis*, lateral views. 123. *Z. kuscheli*, new species. 124. *Z. waipoua*, new species. 125. *Z. armata* (Forster). 126, 127. *Z. australis* (Forster). 128. *Z. montana*, new species.



Figs. 129–134. Male palp of *Zealanapis*, lateral views. 129, 130. *Z. armata* (Forster). 131, 132. *Z. australis* (Forster). 133, 134. *Z. waipoua*, new species.

front in ratio of 11:7. Chelicerae with single tooth on promargin; retromargin smooth; cheliceral mound present near tip of fang. Legs without macrosetae. Tarsal organ capsulate (as in fig. 109). Abdomen ovoid, with dorsal scutum deeply incised on anteromedian surface; epigastric scutum encircling petiole but not extending back beyond epigastric furrow; six spinnerets encircled by sclerotic ring bearing posterior spiracle at base of spinnerets (as in figs. 114–116); spiracle leading into four simple tracheal tubes limited to abdomen; anterior booklungs with six or seven narrow elongate lamellae; anterior spiracles situated at margin of epigastric furrow. Patella of palp with prodistal digitate process terminated by slender curved spine; bulb as in figures 129, 130.

FEMALE: Total length 1.11. Carapace 0.39 long, 0.25 wide, 0.23 high. Abdomen 0.90 long, 0.59 wide, 0.54 high. Similar to male, with palp reduced to low swelling on margin of endite (as in fig. 107), bearing a small seta. Dorsal abdominal scutum absent. Internal genitalia haplogyne, with shallow membranous receptaculum extending across epigastric furrow, overlaid by larger membranous receptaculum with paired extensions that appear to bear a few secretory pores distally; one strongly sclerotized spherical receptaculum on each side of median receptacula, opening through slender duct at outer posterior margin (fig. 139); duct coiled in some specimens, so that lateral receptacula lie close to median receptacula, but in other specimens duct extended so that lateral recepta-



Figs. 135–140. Internal female genitalia of *Zealanapis*, dorsal views. 135. *Z. australis* (Forster). 136. *Z. montana*, new species. 137. *Z. waipoua*, new species. 138. *Z. matua*, new species. 139. *Z. armata* (Forster). 140. *Z. conica* (Forster).

cula lie adjacent to petiole (possibly an artifact resulting from slide preparation, or a reflection of genitalic function).

MATERIAL EXAMINED: NEW ZEALAND: **North Island:** *Auckland:* Chateau Tongariro, May 12, 1965, moss from beech trunks (R. R. Forster, OMD); Maketu Stream, Dec. 28, 1972, leaf litter (B. M. May, EDA); Moerangi, Apr. 4–9, 1980, elev. 625 m, leaf litter, mixed podocarp forest (A. Newton, M. Thayer, AMNH); Te Tapui Scenic Reserve, Aug. 20, 1984, leaf litter (D. J. Court, OMD); Tikitiki Stream, Horohoro State Forest, Mamaku Plateau, July 24, 1976, leaf litter (J. S. Dugdale, EDA); Urewera, Feb. 19, 1964, elev.

200 ft, moss (T. G. Wood, OMD). *Wellington:* Hill Road, Kaimanawa Forest Park, SSE Taupo, Apr. 5–8, 1980, wet debris from beech forest (A. Newton, M. Thayer, AMNH); Kapiti Island, Apr. 17, 1965, leaf litter (J. M. Moreland, NMW); Levin, Kimberly Reserve, Mar. 8–10, 1978 (S. and J. Peck, AMNH); Opepe Reserve, 16.5 km SE Taupo, Apr. 5–8, 1980, leaf litter, podocarp-broadleaf forest (A. Newton, M. Thayer, AMNH); Orongorongo Valley, June 1976, pitfall, silver beech forest (EDA); Stephen Island, Feb. 1971, leaf litter (J. McBurney, EDA); Stokes Valley (CNC), holotype; 56 km SE Taupo, Waipunga River at Okoeke Stream, Apr. 3–

8, 1980, elev. 560 m, leaf litter, podocarp forest (A. Newton, M. Thayer, AMNH); Wallaceville, Apr. 14, 1965, leaf litter, beech forest (M. G. Luxton, OMD). *Taranaki*: Inglewood, Aug. 28, 1960, leaf litter (B. J. Marples, OMD). *Waikato*: Mount Pirongia, Sept. 24, 1964, leaf litter (G. Kuschel, EDA); near Tirau, July 21, 1965, humus layer in forest (M. G. Luxton, OMD). *Wairarapa*: Mangarei, Aug. 16–Sept. 24, 1947 (C. L. Wilton, OMD); Solway Showgrounds, Masterton, Mar. 18, 1966 (C. L. Wilton, OMD); Te Wharau, Mar. 5, 1967, leaf litter (C. L. Wilton, OMD). *Manawatu*: Anzac Park, Palmerston North, Nov. 14, 1960, litter under pine (M. G. Luxton, OMD); Totara Reserve, Pohangina Valley, Jan. 4, 1977, leaf litter under mature podocarps (J. C. Watt, EDA); Vinegar Hill Reserve, Jan. 11, 1967, leaf litter (R. R. Forster, OMD). **South Island**: *Nelson*: Cable Bay, July 23, 1964, leaf litter (J. I. Townsend, EDA); Donald Creek, May 20, 1979, moss (R. R. Forster, OMD); Mount Starveall, Dec. 29, 1964, elev. 3500 m, moss (G. Kuschel, J. I. Townsend, EDA); Pelorus Valley, July 13, 1965, elev. 700 ft, moss (J. I. Townsend, EDA); Ruby Bay, June 16, 1963, leaf litter (G. Kuschel, EDA); Third House, Dun Mountain, July 12, 1966, moss (J. I. Townsend, EDA); Tonga Island, July 30, 1965, leaf litter (G. W. Ramsay, EDA); Upper Maitai Valley, Oct. 17, 1946, leaf litter (E. S. Gourlay, OMD); Wakefield, Aug. 19, 1966, leaf litter (J. I. Townsend, EDA). *Marlborough*: N Conway River, Sept. 22, 1967, leaf litter from beech forest (C. L. Wilton, OMD); Island Pass, Wairau, 1966, elev. 4500 ft, moss in tussock (J. C. Watt, EDA); Kaikoura, Mount Alexander, Oct. 12, 1966, elev. 3300 ft, moss from rockface (A. K. Walker, EDA); Rag and Famish Stream, Sedgemere, Wairau, Sept. 6, 1966, elev. 4000 ft, litter (J. I. Townsend, EDA); Ships Cove, Nov. 27–30, 1972, elev. 365 m, leaf litter (J. McBurney, J. S. Dugdale, EDA); Wards Pass, Aug. 17, 1966, elev. 3900 ft, from lichens (J. I. Townsend, EDA); Williams Stream, Upper Clarence River, Oct. 13, 1962 (J. I. Townsend, EDA). *Canterbury*: Lake Janet, Aug. 1, 1949, leaf litter (R. R. Forster, OMD); Mount Somers, foot, July 28, 1966, moss (A. D. Lowe, EDA); Petrifying Creek, 8 mi S Mount Somers, Feb. 2, 1966, leaf litter (G. W. Ramsay, EDA);

Prices Bush, Sept. 29, 1957, leaf litter, native bush (A. D. Cooper, OMD); Pudding Hill Stream, N. bank, Nov. 9, 1966, leaf litter, beech forest (A. D. Lowe, EDA); Rakaia River, 3 mi below main gorge bridge, Apr. 14, 1957, leaf litter, mixed native bush (R. L. C. Pilgrim, OMD); Stavely, Feb. 20, 1972, leaf litter (C. L. Wilton, OMD); Talbot Forest, Geraldine, May 12, 1982, leaf litter (R. R. Forster, OMD); Upper Kaituna Valley, Banks Peninsula, May 2, 1967, leaf litter (J. I. Townsend, EDA).

DISTRIBUTION: This is the most widely distributed anapid in New Zealand, with a range encompassing both the North and South Islands. This distribution pattern follows closely that noted earlier (Forster, 1954) for a number of species of Opiliones; it may reflect the Tertiary disposition of the New Zealand land mass, when the two main islands were linked (Forster, 1954). The species is widespread over the southern portion of the North Island south of Auckland but is also found in the South Island where it is limited to the northern portion of the Nelson Province but extends through to Marlborough and down the east side of the Main Divide to Canterbury. This distribution correlates with that of *Z. montana*, which also spans both islands but occurs on the West Coast south of Nelson rather than in the eastern range shown by *Z. armata*. Further south along the east coast the species is replaced by the closely related *Z. australis*; in the northern part of the North Island it is replaced by *Z. waipoua*.

Zealanapis australis (Forster),
new combination

Figures 109, 110, 112–116, 120, 121,
126, 127, 131, 132, 135

Chasmocephalon australis Forster, 1951: 234, figs. 3–6 (male holotype from Bench Island, Foveaux Strait, S of South Island, New Zealand, in NMW, examined).

Chasmocephalon armatum: Forster, 1959: 307 (in part).

DIAGNOSIS: This species seems closely related to *Z. armata* and *Z. waipoua* but can be separated by the form of the male and female genitalia.

MALE: As in *Z. armata*, except as follows. Total length 1.02. Carapace 0.45 long, 0.35

wide, 0.36 high. Abdomen 0.65 long, 0.50 wide, 0.63 high. Ratio of AME:ALE:PME:PLE, 8:12:8:10. Carapace (figs. 113, 126, 127) more strongly reticulate on caput. Palp similar in general form but with distal processes differently shaped (figs. 121, 131, 132).

FEMALE: As in *Z. armata*, except as follows. Total length 1.04. Carapace 0.39 long, 0.25 wide, 0.31 high. Abdomen 0.89 long, 0.59 wide, 0.76 high. Median receptaculum of genitalia more strongly developed, duct leading to lateral receptacula relatively shorter (fig. 135).

MATERIAL EXAMINED: NEW ZEALAND:
South Island: *Otago:* Akatore, Apr. 16, 1966, leaf litter (C. L. Wilton, OMD); Blacks Gully, Tapanui, May 23, 1977, leaf litter, beech forest (C. L. Wilton, OMD); Catlins, near Puketiro Road, Aug. 31, 1966, leaf litter (R. R. Forster, C. L. Wilton, OMD); Catlins, Tautuku, Feb. 14, 1979, leaf litter (R. R. Forster, OMD); Dunedin, Opoho Bush, May 1970–Apr. 1971, pitfall traps (C. L. Wilton, OMD); Leith Saddle, near Dunedin, Oct. 1975, Jan. 6, 1973, leaf litter, mixed forest (R. R. Forster, OMD); Plant Reserve, near Balclutha, Apr. 4, 1966, moss (R. R. Forster, OMD); Waiholo Road, Taieri Mouth, Nov. 26, 1966, leaf litter (C. L. Wilton, OMD); Waipori Gorge, Nov. 13–Mar. 18, 1965–1979, leaf litter, beech forest (R. R. Forster, C. L. Wilton, OMD). *Southland:* Altonburn, near Tuatapere, Mar. 3, 1981, leaf litter (R. R. Forster, OMD), Nov. 25, 1970, moss (R. R. Forster, C. L. Wilton, OMD); Big South Cape Island, North Peak, Nov. 8–12, 1968, elev. 200–700 ft, leaf litter (J. McBurney, EDA); Centre Island, Sept. 1975 (A. Wright, OMD); Dolamore Park, near Gore, Sept. 15, 1979, Feb. 10, 1983, leaf litter (R. R. Forster, OMD); Lake Hauroko, Mar. 11, 1970, leaf litter (C. L. Wilton, OMD), Nov. 25, 1970, moss (R. R. Forster, C. L. Wilton, OMD); 2 mi from N end of Lake Hauroko, Nov. 12, 1966, litter, beech forest (F. D. Alack, EDA); 4 km E Lake Hauroko, Nov. 8, 1966, moss, edge of beech forest (J. I. Townsend, EDA); Lake Monowai, Jan. 15, 1976, Mar. 13, 1981, moss on forest floor (R. R. Forster, OMD); Longwood range, Nov. 25, 1962, elev. 2000 ft, leaf litter (J. I. Townsend, EDA); Piano Flat, Waiaka Valley, Sept. 12, 1979, Mar. 13, 1981, moss in beech forest (R. R. Forster, OMD); Port Pe-

gasus, Jan. 9, 1964 (P. M. Johns, OMD); Ruapuke Island, Jan. 29, 1965 (J. Cranfield, OMD); E end, Sealers Bay, Codfish Island, Dec. 9, 1966, moss, forest in sand dunes (J. I. Townsend, EDA); Stewart Island, Apr. 22, 1957 (B. J. Marples, OMD), Nov. 18, 1959, leaf litter (J. Kikkawa, OMD).

DISTRIBUTION: Known only from Otago and Southland, South Island.

Zealanapis waipoua, new species

Figures 124, 133, 134, 137

TYPES: Male holotype from leaf litter in Waipoua State Forest, Northland, North Island, New Zealand (June 10, 1966; J. I. Townsend) and female allotype from leaf litter taken north of Maketu Stream, Northland, North Island, New Zealand (Jan. 4, 1973; B. M. May), deposited in EDA.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species seems closely related to both *Z. armata* and *Z. australis* but can be separated from them by differences in the male and female genitalia.

MALE: As in *Z. armata*, except as follows. Total length 0.74. Carapace 0.40 long, 0.32 wide, 0.24 high. Abdomen 0.59 long, 0.49 wide, 0.54 high. Carapace (fig. 124), appendages, and abdominal scuta dark reddish brown. Palpal bulb with median anterior process more strongly developed, differing in shape (figs. 133, 134).

FEMALE: As in *Z. armata*, except as follows. Total length 0.76. Carapace 0.40 long, 0.29 wide, 0.22 high. Abdomen 0.67 long, 0.54 wide, 0.50 high. Genitalia with lobes of median membranous receptaculum more widely spaced; lateral receptacula larger, with shorter ducts (fig. 137).

OTHER MATERIAL EXAMINED: NEW ZEALAND: *North Island:* *Northland:* Kirikiri Saddle, Oct. 21, 1976, elev. 40 m (J. S. Dugdale, EDA); Kohokonui, Hunua Range, Mar. 30, 1974, leaf litter (G. Kuschel, EDA); N Maketu Stream, Jan. 4, 1973 (B. M. May, EDA); Maungatapere, Jan. 20, 1972, leaf litter (G. M. Ramsay, EDA); Okaihau, June 29, 1965, moss in mixed scrub (M. Luxton, OMD); Te Ponanga Bush, near Tokaanu, Jan. 27, 1976, leaf litter under podocarp (B. M. May, EDA); Waipoua State Forest, Sisters,

Feb. 4, 1875, leaf litter from agathis-tawa forest (S. E. Nichols, EDA); Waipoua State Forest, Summit, Apr. 11–14, 1980, elev. 387 m (A. Newton, M. Thayer, AMNH); Waipoua State Forest, Yakes Tree Track, Apr. 11–14, 1980, elev. 350 m, leaf litter, broadleaf-podocarp forest (A. Newton, M. Thayer, AMNH); near Whangarei, June 28, 1965, leaf litter, broadleaf forest (M. Luxton, OMD).

DISTRIBUTION: Limited to the southern half of the Northland region of the North Island.

Zealanapis montana, new species

Figures 119, 128, 136, 141, 142

TYPES: Male holotype and female allotype from moss on floor of beech forest at Lewis Pass, Riordan's Creek, Canterbury, South Island, New Zealand (Aug. 16, 1965; C. L. Wilton), deposited in OMD.

ETYMOLOGY: The specific name refers to the habitat.

DIAGNOSIS: This species seems closest to the *armata* group but can be readily separated by the strong reticulate patterning on the caput, the different form of the processes on the male palpal bulb, and the short, slender ducts leading from the lateral receptacula of the female genitalia.

MALE: As in *Z. armata*, except as follows. Total length 0.77. Carapace 0.38 long, 0.36 wide, 0.27 high. Abdomen 0.43 long, 0.45 wide, 0.52 high. Carapace evenly reticulate over both thoracic region and caput (fig. 128); caput lacking paired posterior mounds and apposing setose tubercle. Chelicerae with two teeth in addition to prominent mound near tip of fang (fig. 119). Palpal bulb (figs. 141, 142) with embolus a free tube curved around distal end of other processes.

FEMALE: As in *Z. armata*, except as follows. Total length 0.85. Carapace 0.45 long, 0.32 wide, 0.32 high. Abdomen 0.68 long, 0.54 wide, 0.66 high. Internal genitalia (fig. 136) with lateral receptacula relatively large, but ducts short, slender so that receptacula lie lateral to median receptaculum; distal lobes of median receptaculum small, provided with distinct secretory pores.

OTHER MATERIAL EXAMINED: NEW ZEALAND: **North Island:** *Taranaki:* Pouakai Hut, Pouakai Range, Dec. 3, 1975, elev. 1380 m, leaf litter (A. K. Walker, EDA). **South Island:** *Canterbury:* Arthurs Pass, Dec. 9, 1949, moss,

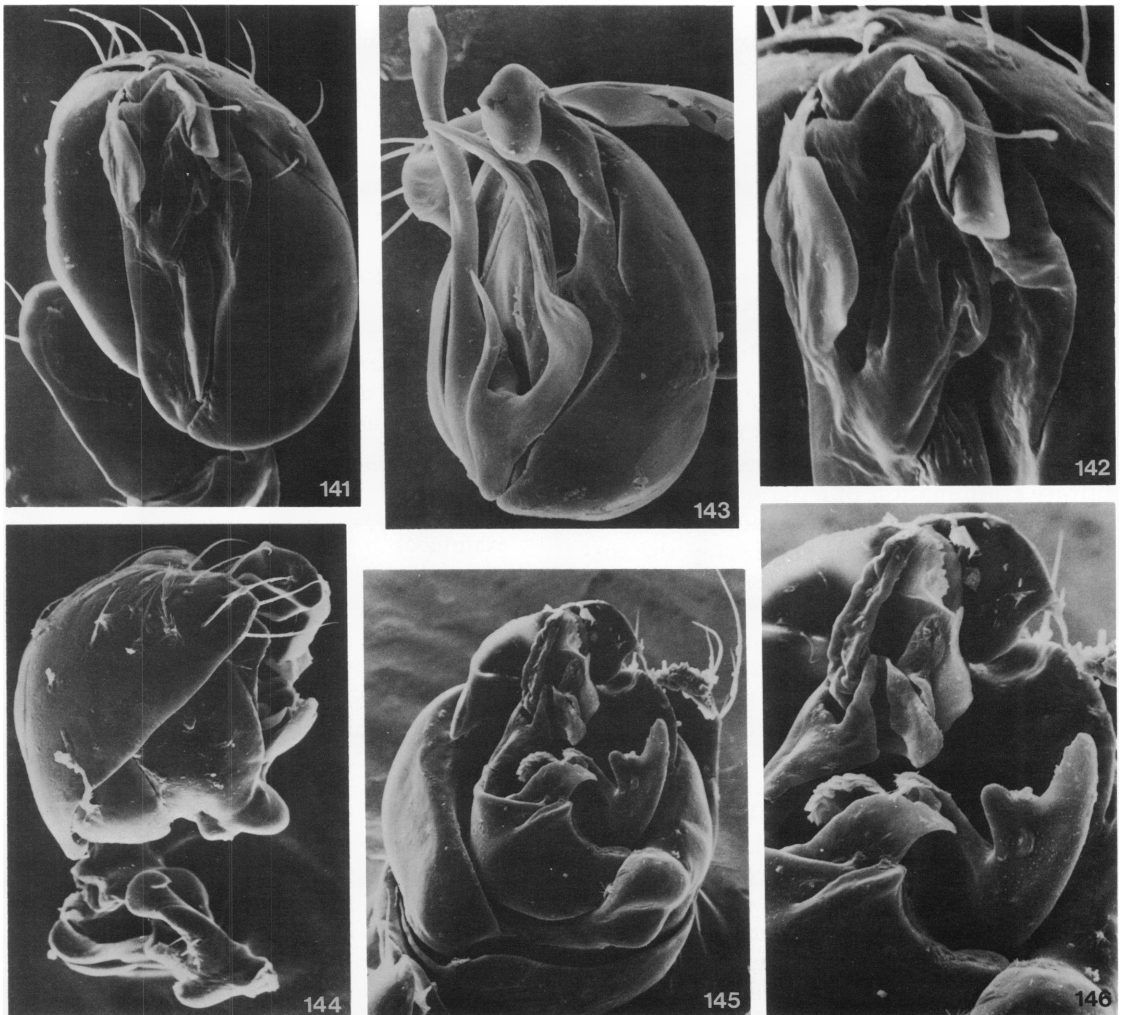
beech forest (R. R. Forster, OMD); Arthurs Pass, Bealey Valley Track, Mar. 18–21, 1980, elev. 840 m, leaf litter, subalpine beech forest (A. Newton, M. Thayer, AMNH); Lewis Pass, Jan. 29, 1956, moss (R. R. Forster, OMD), Apr. 25, 1977, tussock in subalpine region (R. R. Forster, OMD); Lewis Pass, Riordan's Creek, Aug. 16, 1965, moss on beech forest floor (C. L. Wilton, OMD); Riordan's Creek, Jan. 29, 1965, Apr. 25, 1977, moss (R. R. Forster, OMD). *Nelson:* Caplestone, central valley, 4.5 km SE Cronadon, Jan. 28, 1972, leaf litter (J. C. Watt, EDA); N slope, Mount Robert, Mar. 23–26, 1980, elev. 860 m, leaf litter, beech forest (A. Newton, M. Thayer, AMNH); Tuttys Plateau, Mawhero Bridge, Sept. 20, 1972 (J. S. Dugdale, EDA); Wallaby Creek, Mawhero, Nov. 20, 1970, moss and litter (J. S. Dugdale, EDA). *Westland:* Braeburn Track, Buller, Mar. 9, 1965, moss (G. Kuschel, EDA); Buller Gorge, May 11, 1965, leaf litter (A. K. Walker, EDA); Coll Creek, West Inangahua, Sept. 19, 1972, moss (J. S. Dugdale, EDA); Kumara, Mar. 18–22, 1970, window traps, podocarp-broadleaf forest (A. Newton, M. Thayer, AMNH); 7.7 km SSE Kumara, Mar. 18–22, 1980, elev. 90 m, window traps, podocarp-broadleaf forest (A. Newton, M. Thayer, AMNH); Mahinapua Scenic reserve, Mar. 16–22, 1980, elev. 30 m, leaf litter, podocarp-mixed broadleaf forest (A. Newton, M. Thayer, AMNH); Okuko Creek, 11.3 km SSE Kumara, Mar. 18–22, 1980, leaf litter, podocarp-broadleaf forest (A. Newton, M. Thayer, AMNH); Springs Junction, Apr. 25, 1977, leaf litter (R. R. Forster, OMD).

DISTRIBUTION: In the South Island this species is restricted to the northwest coast but extends up the mountains to the subalpine zone. In the North Island it has been collected only once, in the high country in Taranaki. This localized North Island–western South Island distribution pattern is also found in Opiliones and probably reflects the topography of the land during the late Tertiary when the two islands were connected.

Zealanapis otago, new species

Figures 122, 144–146

TYPE: Male holotype from moss on the floor of a mixed podocarp-broadleaf forest at Leith Saddle, near Dunedin, Otago, South Island,



Figs. 141–146. Male palp of *Zealanapis*. **141, 142.** *Z. montana*, new species, ventral views. **143.** *Z. matua*, new species, ventral view. **144–146.** *Z. otago*, new species, retrolateral and ventral views.

New Zealand (Oct. 12, 1975; R. R. Forster), deposited in OMD.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species is clearly separated from all others by the elongate patellar process and broad tibial process of the male palp as well as the form of the processes on the palpal bulb.

MALE: As in *Z. armata*, except as follows. Total length 0.95. Carapace 0.47 long, 0.41 wide, 0.35 high. Abdomen 0.77 long, 0.44 wide, 0.51 high. Ratio of AME:ALE:PME:PLE, 5:6:10:6; each eye pair subcontiguous; MOQ twice as wide behind as in front, slight-

ly longer than wide behind; AME placed on distinct lobe projecting over clypeus. Pars thoracica strongly reticulate but caput only weakly sculptured. Palp with processes on both patella and tibia; patellar process elongate, basal, longer than segment, terminated by small curved spine; tibial process retrolateral, broadly triangular (fig. 122); portion of tegulum bearing apophyses of bulb strongly developed; retrolateral apophysis in form of stout tridentate structure; embolus enclosed in membranous conductor (figs. 144–146).

FEMALE: Unknown.

OTHER MATERIAL EXAMINED: NEW ZEA-

LAND: **South Island: Otago:** Silverpeaks, Sept. 30, 1967, leaf litter, mixed forest (D. A. McHugh, OMD), 1♂.

DISTRIBUTION: The species, which has only rarely been found, is apparently restricted to a small area near Dunedin where it is sympatric with the common, widely distributed southern species *Z. australis*.

Zealanapis matua, new species

Figures 118, 138, 143

TYPE: Male holotype from leaf litter in beech forest on Secretary Island, Fiordland Region, South Island, New Zealand (Oct. 30, 1983; G. Mason), deposited in OMD.

ETYMOLOGY: The specific name is an arbitrary combination of letters.

DIAGNOSIS: The male is readily separated from those of all other species by the distinctive form of the apophyses of the palpal bulb. Because both sexes have not been collected together, the isolated female described below is only tentatively placed in this species. The structure of the internal genitalia does, however, separate this female from all others known.

MALE: As in *Z. armata*, except as follows. Total length 0.84. Carapace 0.40 long, 0.22 wide, 0.29 high. Abdomen 0.68 long, 0.56 wide, 0.43 high. Carapace evenly reticulate over both thoracic region and caput, without paired swellings on posterior margin of caput (fig. 118). Ratio of AME:ALE:PME:PLE, 2:4:5:4; AME and lateral eyes each contiguous but PME separated by AME diameter; MOQ three times wider behind, 3.5 times longer than wide in front. Palpal bulb (fig. 143) with embolus long, tubular, originating from proximal surface; median apophysis strongly bifid, with retrolateral branch extending forward beyond bulb.

FEMALE: As in *Z. armata*, except as follows (the single female described is similar to the holotype male in general characteristics and probably is conspecific). Total length 0.96. Carapace 0.56 long, 0.34 wide, 0.29 high. Abdomen 0.71 long, 0.59 wide, 0.53 high. Internal genitalia very distinctive (fig. 138); lateral receptacula small; pair of larger thin-walled sacs associated with median receptacula appear to have separate ducts leading back to epigastric furrow; dorsal median receptaculum well developed, ventral median

receptaculum only weakly indented on anteromedian surface.

OTHER MATERIAL EXAMINED: NEW ZEALAND: **South Island: Fiordland:** Further males from the type locality (AMNH, OMD); Doubtful Sound, Feb. 12, 1953 (B. J. Marples, OMD); Mount Barber, Wilmot Pass, Jan. 15, 1970, elev. 1350 m, in grass (A. C. Eyles, EDA), 1♀.

DISTRIBUTION: Known only from Fiordland.

Zealanapis conica (Forster),
new combination

Figures 103, 140, 147-150

Chasmocephalon conicum Forster, 1951: 237, figs. 7-11 (male holotype from Homer Tunnel, Fiordland, South Island, New Zealand, in CMC, examined).

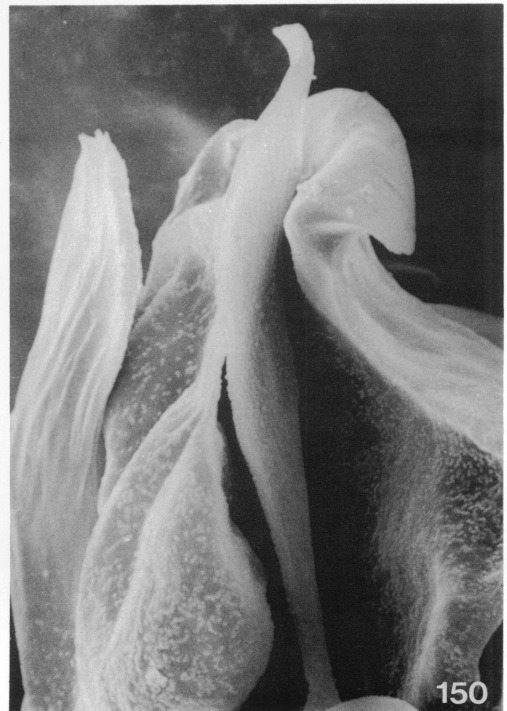
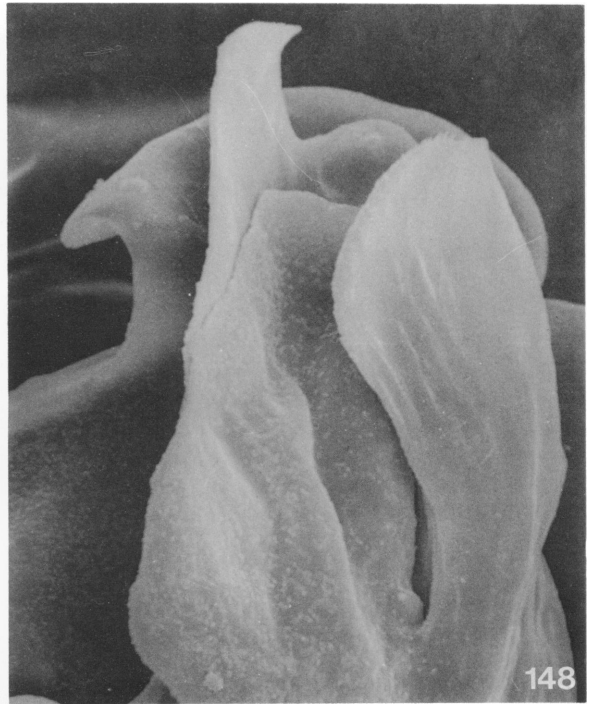
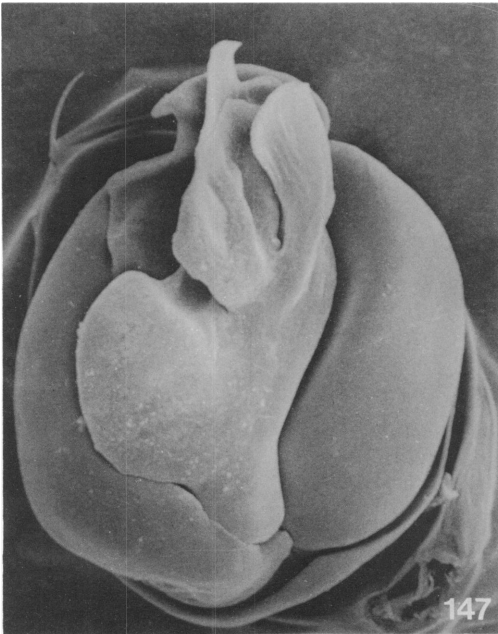
Risdonius conicus: Forster, 1959: 307, fig. 134.

DIAGNOSIS: This species can be separated from all others except *Z. kuscheli*, *Z. insula*, and *Z. punta* by the conical abdomen (fig. 103), and from those three species by the form of the male and female genitalia.

MALE: As in *Z. armata*, except as follows. Total length 1.06. Carapace 0.45 long, 0.35 wide, 0.41 high. Abdomen 0.78 long, 0.51 wide, 0.79 high. Carapace evenly reticulate. Ratio of AME:ALE:PME:PLE, 8:11:10:10; MOQ wider behind than in front in ratio of 8:6, slightly longer than wide in front. Chelicerae with two teeth in addition to cheliceral mound. Abdomen subtriangular in lateral view, only slightly higher than long; dorsal scutum covering most of surface but broadly incised anteriorly from near apex of abdomen. Femora of legs not curved. Palpal patellar process with short curved distal spine; bulb as in figures 147-150.

FEMALE: As in *Z. armata*, except as follows. Total length 0.91. Carapace 0.65 long, 0.34 wide, 0.32 high. Abdomen 0.43 long, 0.56 wide, 0.72 high. Abdomen triangular in lateral view as in male but without dorsal scutum. Internal genitalia with ducts leading from lateral receptacula short so that spherical receptacula lie to sides of median receptacula (fig. 140).

MATERIAL EXAMINED: NEW ZEALAND: **South Island: Fiordland:** Cascade Creek, Nov. 16, 1979, moss on floor of beech forest (R. R. Forster, OMD); Gunn's Camp, Hollyford



Figs. 147-150. Male palp of *Zealanapis conica* (Forster), ventral and retrolateral views.

Valley, Feb. 1986, leaf litter, mixed forest (R. R. Forster, OMD); E end, Homer Tunnel,

Apr. 24, 1949, moss on trunks of subalpine beech (R. R. Forster, CMC), holotype; Lake

Alabaster airstrip, Pyke Valley, Jan. 11, 1967, fern litter (A. K. Walker, EDA); Lower Hollyford Valley, Feb. 2, 1946, leaf litter, beech forest (R. R. Forster, NMW), paratype; Simonin Pass, W Olivine Ranges, Jan. 27, 1975, elev. 1967 m, litter in beech forest (G. W. Ramsay, EDA); Takahe Valley, Murchison Mountains, Dec. 11, 1972, leaf litter (A. C. Eyles, EDA). *Westland*: summit, Haast Pass, Dec. 13, 1977, moss on beech forest floor (R. R. Forster, OMD); Lake Paringa, Nov. 8, 1965, leaf litter, mixed broadleaf forest (D. A. McHugh, OMD); Wolfe Flat, Turret range, Jan. 9, 1970, leaf litter (A. C. Eyles, EDA). *Otago*: Makarora, Feb. 12, 1977, moss on floor of beech forest (R. R. Forster, OMD). *Nelson*: Mount Balloon, Jan. 26, 1948, elev. 4100 ft, leaf litter, beech forest (R. R. Forster, NMW).

DISTRIBUTION: Known only from the South Island.

Zealanapis insula, new species

Figures 107, 108, 111, 117,
152, 156, 157, 160

TYPES: Male holotype and female allotype from pitfall traps on Motuhoropapa Island, Noises Islands, Hauraki Gulf, Auckland, New Zealand (Dec. 13–15, 1977; J. C. Watt), deposited in EDA.

ETYMOLOGY: The specific name refers to the insular distribution.

DIAGNOSIS: This species can be readily separated from the other species with a conical abdomen by the structure of the male and female genitalia.

MALE: As in *Z. armata*, except as follows. Total length 1.02. Carapace 0.54 long, 0.38 wide, 0.43 high. Abdomen 0.72 long, 0.63 wide, 1.01 high. Caput of carapace only weakly reticulate, without posterior mounds. Ratio of AME:ALE:PME:PLE, 3:6:6:6; AME, PME each subcontiguous; MOQ wider behind, longer than wide in front in ratio of 13:7. Labrum with distal spur (fig. 111). Abdomen strongly conical (fig. 160), higher than long, with dorsal scutum incised full length of anterior surface. Femur I gently curved; tibia weakly sinuous. Palpal patellar process retrolateral, strong, digitiform, bearing short, slender, backwardly directed spine on ventral surface at two-thirds of its length; bulb as in figures 156, 157.

FEMALE: As in *Z. armata*, except as follows. Total length 1.03. Carapace 0.52 long, 0.40 wide, 0.36 high. Abdomen 0.72 long, 0.65 wide, 1.28 high. Abdomen much more strongly raised than in male, drawn into distinct apical peak (fig. 117). Genitalia (fig. 152) with ducts leading from lateral receptacula stout; lobes of median receptaculum long, relatively slender.

OTHER MATERIAL EXAMINED: Further specimens from the type locality.

DISTRIBUTION: Known only from the Noises Islands.

Zealanapis kuscheli, new species

Figures 104–106, 123, 151, 154, 155

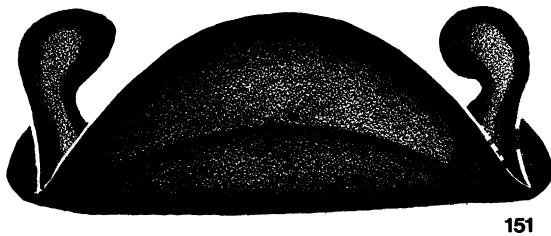
TYPE: Male holotype taken under rotten acacia stump at Lynfield, Auckland, North Island, New Zealand (Mar. 9, 1977; G. Kuschel), deposited in EDA.

ETYMOLOGY: The specific name is a patronym in honor of the collector of the holotype.

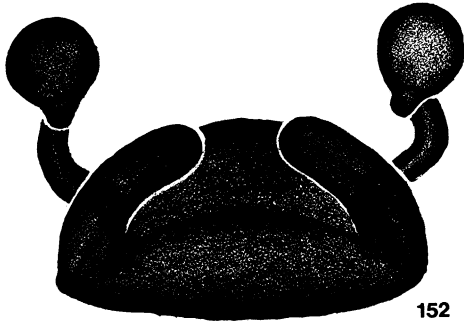
DIAGNOSIS: This species seems most closely related to *Z. insula*; males can be separated by the form of the palpal processes and the female (if correctly allocated) by the structure of the internal genitalia, which lacks lobes on the median receptaculum and clearly separated slender ducts linking the lateral receptacula with the epigastric furrow.

MALE: As in *Z. armata*, except as follows. Total length 1.01. Carapace 0.54 long, 0.34 wide, 0.36 high. Abdomen 0.58 long, 0.45 wide, 0.81 high. Carapace (fig. 123) with caput weakly reticulate, lacking posterior humps. Ratio of AME:ALE:PME:PLE, 3:4:6:4; MOQ wider behind than in front in ratio of 14:8, longer than wide in front in ratio of 19:8. Abdomen conical in lateral view, distinctly higher than long; dorsal scutum incised anteriorly to tip of abdomen. Femur I strongly bowed, with two rows of erect bristles along proximal half of prolateral surface (figs. 104–106). Patellar process typical; bulb as in figures 154, 155.

FEMALE: As in *Z. armata*, except as follows. Total length 1.12. Carapace 0.58 long, 0.38 wide, 0.31 high. Abdomen 0.58 long, 0.45 wide, 0.81 high. Carapace and eyes as in male. Abdomen higher than in male, as in female *Z. isolata* and *Z. punta*. Femur I less strongly curved than in male. Lateral recep-



151



152



153

Figs. 151–153. Internal female genitalia of *Zealanapis*, dorsal views. 151. *Z. kuscheli*, new species. 152. *Z. insula*, new species. 153. *Z. punta*, new species.

tacula broadly linked to base of internal genitalia; median receptaculum evenly rounded, without lobes (fig. 151).

OTHER MATERIAL EXAMINED: The female described was collected from leaf litter in a podocarp forest in Kitchener Park, Feilding, Manawatu, North Island; it may represent a further species but is tentatively associated with the male holotype collected from near Auckland.

DISTRIBUTION: Known only from the North Island.

Zealanapis punta, new species

Figures 153, 158, 159

TYPES: Male holotype from moss collected at an elevation of 1250 m on Mount Domett, Nelson, South Island, New Zealand (Dec. 1, 1971; G. Kuschel), and female allotype from leaf litter collected from Wooded Peak, east summit of Dun track, Nelson, South Island, New Zealand (Sept. 14, 1971; G. W. Ramsay), deposited in EDA.

ETYMOLOGY: The specific name is an arbitrary combination of letters.

DIAGNOSIS: This species can be separated from the other three species with conical abdomens (*Z. conica*, *Z. kuscheli*, and *Z. insula*) by the distinctive male and female genitalia.

MALE: As in *Z. armata*, except as follows.

Total length 1.02. Carapace 0.52 long, 0.40 wide, 0.34 high. Abdomen 0.77 long, 0.54 wide, 0.97 high. Posterior margin of caput rising vertically from thoracic groove, dorsal surface flattened, weakly reticulate, lacking posterior mounds. Ratio of AME:ALE:PME:PLE, 6:6:10:6; MOQ wider behind than in front in ratio of 11:7, longer than wide in front in ratio of 15:7; AME subcontiguous, overhanging clypeus. Dorsal abdominal scutum typical, deeply incised anteriorly. Femur I only slightly bowed. Bulb very distinctive, with prominent pestle-shaped erect process (figs. 158, 159).

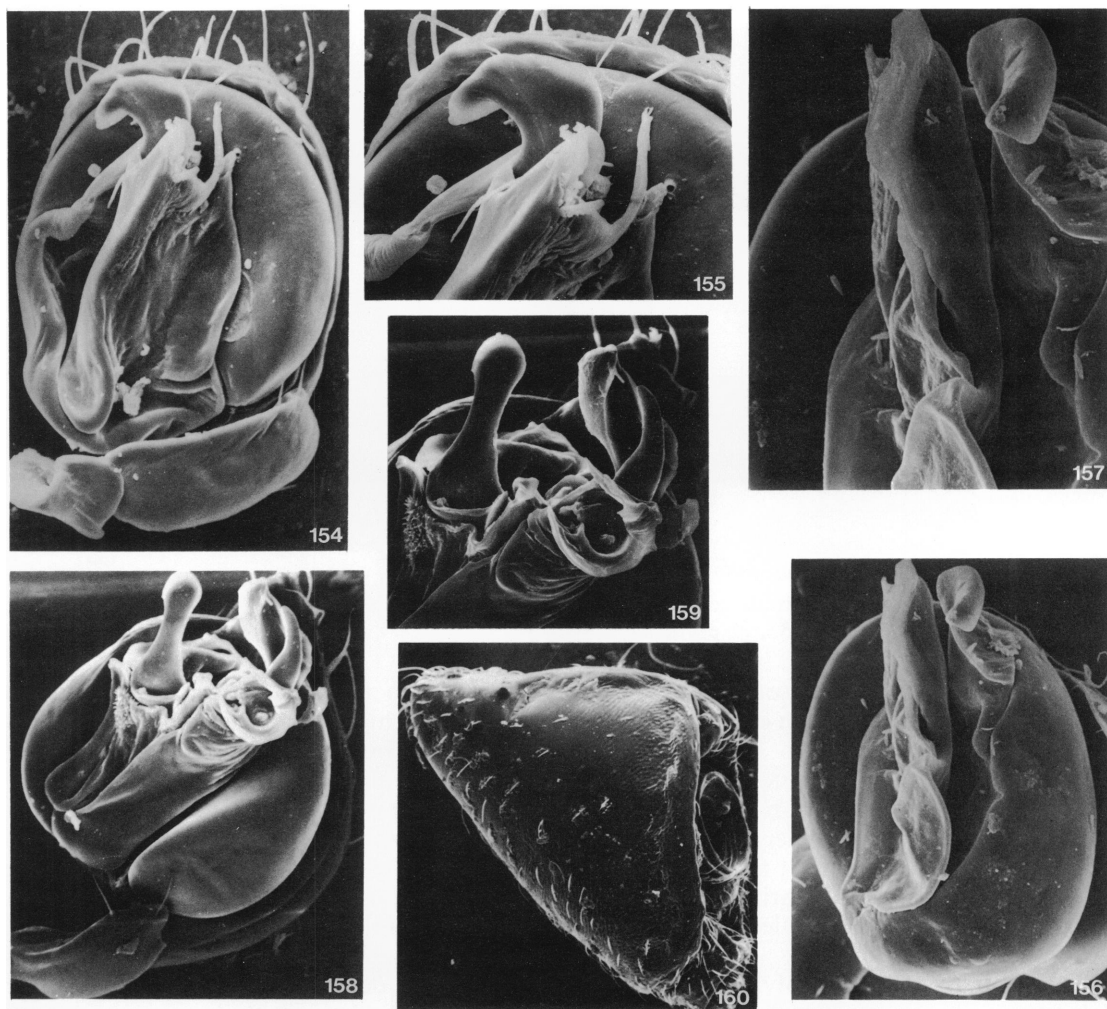
FEMALE: As in *Z. armata*, except as follows. Total length 1.21. Carapace 0.58 long, 0.40 wide, 0.34 high. Abdomen 0.77 long, 0.61 wide, 0.86 high. Abdomen lacking dorsal scutum. As in *Z. kuscheli*, median receptacula without lobes; lateral receptacula small, situated next to petiolar opening, linked to genital opening by very long, slender ducts (fig. 153).

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Known only from Nelson.

NOVANAPIS, NEW GENUS

TYPE SPECIES: *Pseudanapis spinipes* (Forster).



Figs. 154–160. 154, 155. *Zealanapis kuscheli*, new species. 156, 157, 160. *Z. insula*, new species. 158, 159. *Zealanapis punta*, new species. 154–159. Male palp, retrolateral and ventral views. 160. Male abdomen, lateral view.

ETYMOLOGY: The generic name is an arbitrary combination of letters and is feminine in gender.

DIAGNOSIS: The presence of anterior tracheae, a concealed submarginal cephalothoracic porepit, a complex denticulate cheliceral tooth structure, and rugose rather than reticulate sculpturing of the carapace separate both *Novanapis* and *Paranapis* from *Zealanapis*. *Novanapis* can be separated from *Paranapis* by the absence of a marginal furrow on the palpal bulb of the male, the presence of lateral ducts on the female genitalia, and the retention of all eight eyes (the AME are lost in *Paranapis*).

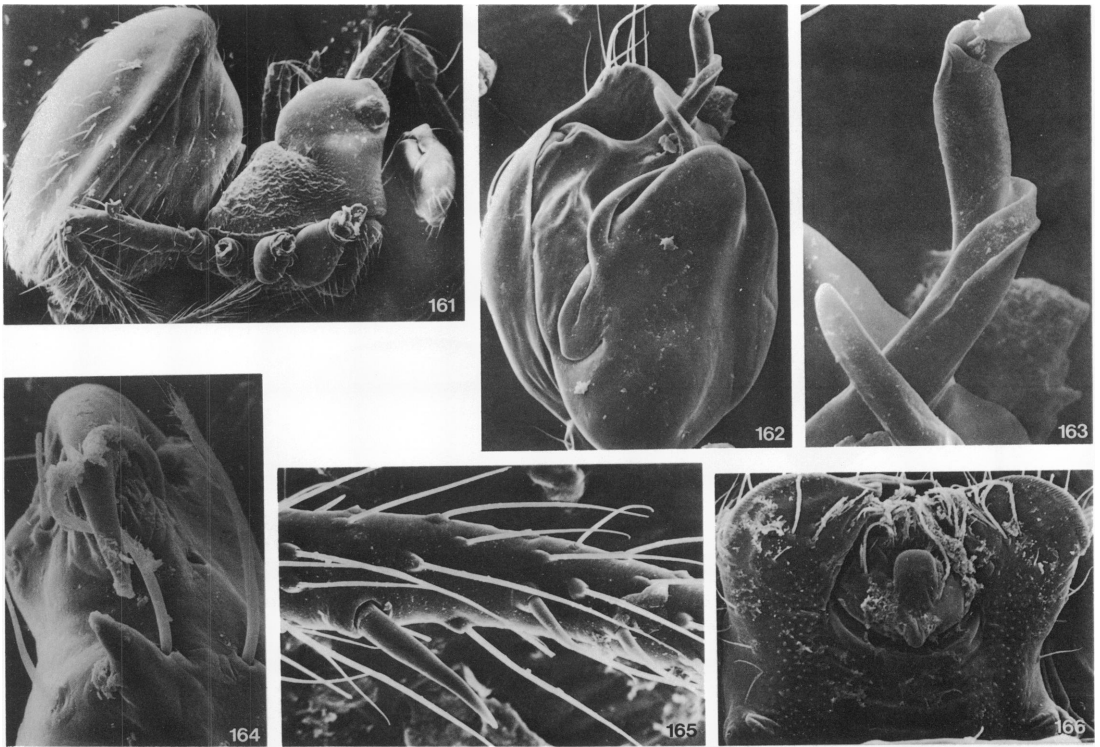
DISTRIBUTION: The single known species is widely distributed over the North and South Islands but has not been found in the southern part of the South Island or on Stewart Island.

Novanapis spinipes (Forster),
new combination

Figures 161–166, 169, 170

Chasmocephalon spinipes Forster, 1951: 239, figs. 12–18 (male holotype from Akatarawa Divide, Tararua Range, near Wellington, North Island, New Zealand, in NMW, examined).

Pseudanapis spinipes: Forster, 1959: 308, fig. 151.



Figs. 161–166. *Novanapis spinipes* (Forster). **161.** Male, lateral view. **162, 163.** Male palp, ventral views. **164.** Male chelicera, medial view; the basal spinous process houses the cheliceral glands. **165.** Proximal portion of tarsus I of male, lateral view, showing three macrosetae. **166.** Endites and labrum of female, posterior view.

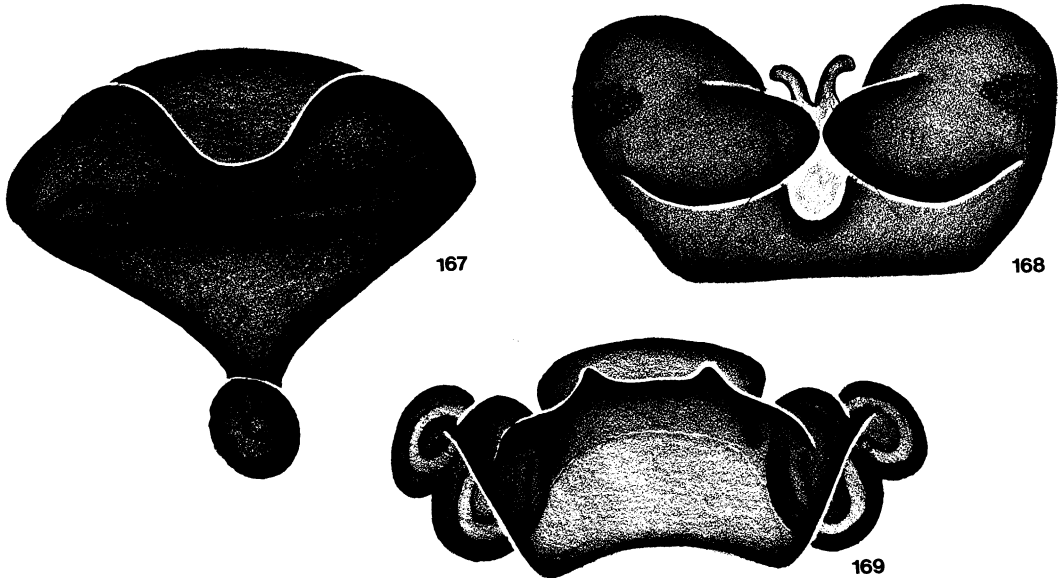
DIAGNOSIS: The single species is characterized by the form of the male and female genitalia.

MALE: Total length 1.39. Carapace 0.55 long, 0.37 wide, 0.43 high. Abdomen 0.93 long, 0.74 wide, 0.81 high. Pars thoracica rugose but caput smooth, almost as high as length of cephalothorax (figs. 161, 170); poropit situated on triangular plate below margin of carapace adjacent to palp, bearing 9–10 pores in center of depression. Eight eyes but AME very small, difficult to see; ratio of AME:ALE:PME:PLE, 3:14:20:14. Chelicerae with distoventral compound denticulate structure consisting of four promarginal normal teeth and numerous denticles; spinous cheliceral mound near tip of fang with three subdistal pores (fig. 164). Endites fused posteriorly behind labrum (fig. 166). Labrum with prominent spur. Abdomen ovoid; dorsal scutum not incised anteriorly, where abutting on dorsal extension of epigastric scutum. Anterior spiracle midway between epigastric

furrow and petiole; anterior respiratory system with numerous tracheae extending to both prosoma and opisthosoma; posterior spiracle absent. Tarsus I with row of three macrotrichae along proximoventral surface; proximal one stronger than two more distal (fig. 165). Palpal tibia with digitate process on distal prolateral surface; cymbium constricted distally; embolus tubular, extending beyond tip of cymbium, enclosed in conductor sheath (figs. 162, 163).

FEMALE: As is male, except as follows. Total length 1.32. Carapace 0.55 long, 0.42 wide, 0.50 high. Abdomen 0.95 long, 0.75 wide, 0.70 high. Abdomen without dorsal scutum. Palp reduced to small mound with short seta. Internal genitalia (fig. 169) without lateral receptacula but with outer margins of ventral median receptaculum extended as twisted blind duct.

MATERIAL EXAMINED: NEW ZEALAND: **North Island:** *Northland:* Waipoua State Forest, Te Matua Ngahere Track, Apr. 11–14,



Figs. 167–169. Internal female genitalia, dorsal views. 167. *Paranapis insula* (Forster). 168. *P. isolata*, new species. 169. *Novanapis spinipes* (Forster).

1980, elev. 335 m, pitfall, agathis-podocarp-broadleaf forest (A. Newton, M. Thayer, AMNH). *Auckland*: Rotorua, Apr. 21, 1965, leaf litter (N. A. Walker, EDA); Thames, Whangaiteranga River, Kauaeranga Valley, Dec. 7, 1970–Apr. 1971, pitfall (H. A. Oliver, OMD); Wattle Bay, Mar. 10–17, 1979, pan trap, carex swamp (G. Kuschel, EDA). *Poverty Bay*: Gisborne, 10 mi S Opotiki, Dec. 19, 1966, leaf litter (R. G. Ordish, NMW); Opotiki, Motu River, Oct. 6, 1966, treefern litter (K. A. J. Wise, AMA); Panekiri Track, Waikaremoana, Dec. 11, 1946, elev. 2600 ft (R. R. Forster, OMD); South Opotiki, Apr. 20, 1965, leaf litter (A. K. Walker, EDA); Waikareiti, Dec. 22, 1949, leaf litter (C. L. Wilton, OMD). *Manawatu*: Kitchener Park, Feilding, Dec. 29, 1966, May 28, 1979, leaf litter, podocarp forest (R. R. Forster, OMD); Totara Reserve, Pohangina Valley, Jan. 20, 1967, leaf litter, podocarp forest (R. R. Forster, OMD). *Hawkes Bay*: White Pine Bush, Apr. 7, 1968, leaf litter (R. R. Hutton, OMD). *Wairarapa*: Holdsworth Lodge, Tararua Forest Park, Oct. 16–31, pitfall (C. L. Wilton, OMD); Mangareia (C. L. Wilton, OMD); Solway (R. R. Hutton, C. L. Wilton, OMD). *Wellington*: Akatarawa Divide, Tararua Range, near Wellington, Jan. 3, 1947, leaf litter (J. T. Salmon, NMW), holotype; Bal-

ance Bridge Reserve, Jan. 3, 1974, litter under shrubs (J. C. Watt, EDA); Kahuterawa, North Tararua Range, Apr. 7, 1961 (R. A. Cumber, OMD); Mill Road, Kaimanawa Forest Park, SSE Taupo, Apr. 3–8, 1980, elev. 840 m, leaf litter, beech forest (A. Newton, M. Thayer, AMNH); Moerangi, Apr. 4–9, elev. 625 m, leaf litter, mixed podocarp forest (A. Newton, M. Thayer, AMNH); National Park, near Ohakune, Feb. 2, 1981, moss on forest floor (R. R. Forster, OMD); Opepe Reserve, 16.5 km SE Taupo, elev. 680 m, leaf litter, podocarp-broadleaf forest (A. Newton, M. Thayer, AMNH); Stokes Valley, near Wellington, Jan. 10, 1948 (R. R. Forster, NMW), paratype ♀; 34 km SSE Taupo, Kaimanawa Forest Park, Mar. 11–26, 1978, rotted mushrooms, beech forest (S. and J. Peck, AMNH); 56 km SE Taupo, Waipunga River at Okoeke Stream, Apr. 3–8, 1980, elev. 560 m, litter, podocarp forest (A. Newton, M. Thayer, AMNH); Tuna Saddle, near Taumararua, Jan. 6, 1974, leaf litter (R. R. Forster, OMD); Turukenga Scenic reserve, W Ngongotaha, Apr. 2, 1980, elev. 490 m, leaf litter, mixed broadleaf forest (A. Newton, M. Thayer, AMNH); Waikanae, Jan. 3, 1948 (R. R. Forster, OMD); Waitomo, Apr. 15, 1965, leaf litter (A. K. Walker, EDA); Whanganui Bay, Lake Taupo, Feb. 1959, leaf litter (J. T.

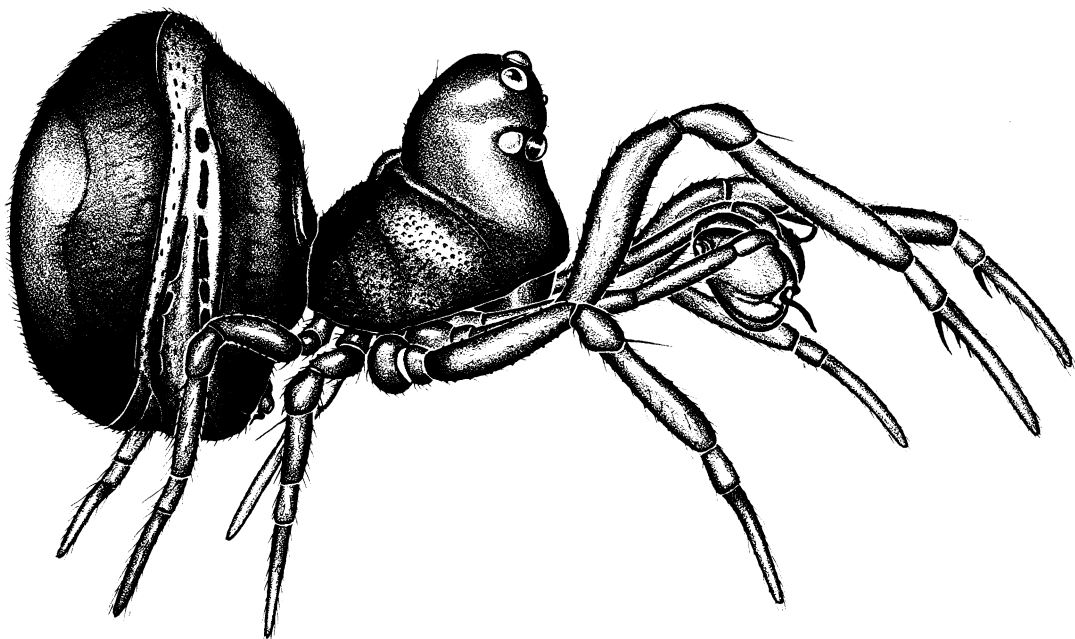


Fig. 170. *Novanapis spinipes* (Forster), male, lateral view.

Salmon, NMW). **South Island:** *Nelson:* Mangles Bridge, Murchison, Feb. 12, 1969, leaf litter (C. L. Wilton, OMD); Marahua, Sandy Bay, Aug. 1970, litter, coastal forest (J. S. Dugdale, EDA); Paynes Reserve, Takaka, May 3, 1984 (W. Holloway, OMD); Pelorus Reserve, Oct. 2, 1963, leaf litter (J. I. Townsend, EDA); Riwaka, Apr. 11, 1968, beating shrubs (C. L. Wilton, OMD); Rotoiti, St. Arnaud track, Mar. 24–26, 1980, elev. 610–650 m, leaf litter, beech forest (A. Newton, M. Thayer, AMNH); Takaka, The Grove, Feb. 20, 1984, tradescantia ground cover in native forest (W. Holloway, OMD); Takaka Valley, Nov. 26, 1963, leaf litter (J. I. Townsend, EDA); Tawhia State Forest, Nov. 9, 1971, Apr. 17, 1972, Mar. 6, 1972, Sept. 18, 1972, leaf litter (J. S. Dugdale, J. C. Watt, J. McBurbey, EDA); Tennyson Inlet, 70 km SE Nelson, May 27, 1982, elev. 480 m, leaf litter, beech forest (S. and J. Peck, AMNH); Upper Maitai Valley, Feb. 18, 1965, moss (J. I. Townsend, EDA); Whangamoia, Aug. 10, 1948 (R. A. Cumber, EDA). *Marlborough:* Irongate, Kaikoura, May 24, 1967, leaf litter, mixed coastal forest (R. R. Forster, OMD); Pelorus Bridge, July 25, 1967, leaf litter (G. Kuschel, EDA); 3 km NW Picton, Queen

Charlotte Drive, May 26, 1982, litter, ravine forest (S. and J. Peck, AMNH); Puhipuhi Reserve, Kaikoura, Oct. 13, 1966, elev. 600 ft, leaf litter (A. K. Walker, EDA); Spey Downs, Kaikoura, Oct. 31, 1963, leaf litter (J. I. Townsend, EDA). *Westland:* Hokitika, Tukatatai, July 14, 1974, grass (A. D. Blest, OMD); Mount Messenger, Mar. 21, 1969, leaf litter (R. R. Forster, OMD); Otira River, 16.8 km NE Otira, Mar. 18–21, 1980, leaf litter, beech-podocarp forest (A. Newton, M. Thayer, AMNH). *Canterbury:* Halpins Creek, Arthur Pass, May 18, 1976 (D. S. Horning, OMD); Kowai Bush, Springfield, Jan. 18, 1960 (G. W. O'Brien, OMD); Maruia Springs, Lewis Pass, elev. 2000 ft, leaf litter (G. Kuschel, EDA); McLennans Bush, Mount Hutt, Dec. 11, 1973, moss (G. Kuschel, EDA); foot, Mount Hutt, Jan. 27, 1964, leaf litter, beech forest (J. I. Townsend, EDA); Peel Forest, Sept. 30, 1966, Jan. 20, 1982, June 2, 1986, niggerheads in swamp (R. R. Forster, OMD); S bank, Pudding Hill Stream, Rakaia, Sept. 1, 1966, leaf litter (A. D. Lowe, EDA). *Otago:* Taieri Mouth, Jan. 14, 1962 (B. J. Marples, OMD).

DISTRIBUTION: Widely distributed on both islands.

PARANAPIS, NEW GENUS

TYPE SPECIES: *Pseudanapis insula* (Forster).

ETYMOLOGY: The generic name is an arbitrary combination of letters and is feminine in gender.

DIAGNOSIS: This genus can be separated from *Novanapis* by the more squat carapace, the ventral extension of the tegulum of the male bulb to form a cone (in lateral view) and a prominent marginal ridge, the absence of lateral ducts on the female genitalia, and the loss of the AME.

MONOPHYLY: A ventrally distended male palpal tegulum unites the two included species.

DISTRIBUTION: Restricted to the northern portion of the North Island.

Paranapis insula (Forster),
new combination

Figures 101, 102, 167, 171–177

Chasmocephalon insulum Forster, 1951: 242, figs. 19–23 (male holotype from Little Barrier Island, New Zealand, in CMC, examined).

Pseudanapis insula: Forster, 1959: 308, fig. 153.

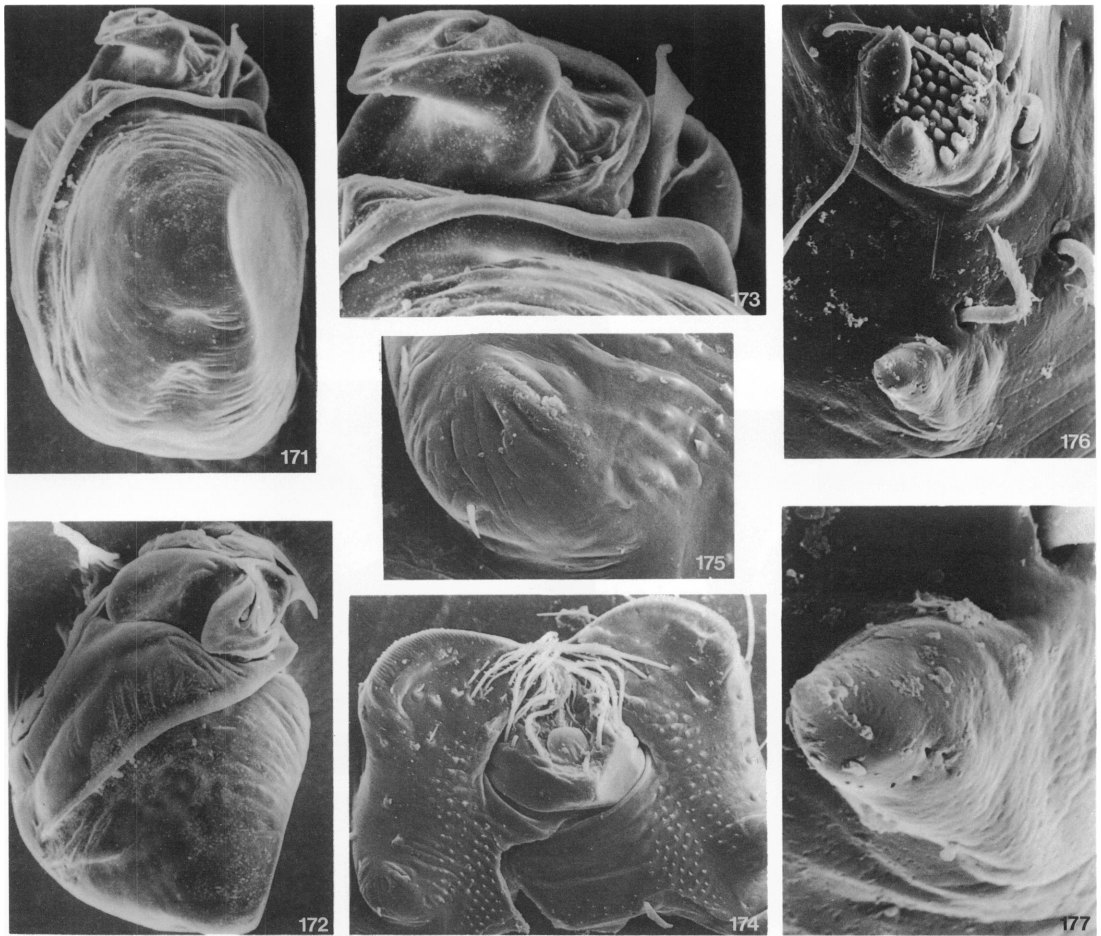
DIAGNOSIS: This species can be separated from *P. isolata* by the form of the male and female genitalia and by the deeply incised dorsal scutum of the male (figs. 101, 102).

MALE: Total length 1.41. Carapace 0.60 long, 0.58 wide, 0.55 high. Abdomen 0.98 long, 0.79 wide, 0.90 high. Cephalothorax and appendages dark reddish brown; abdominal scuta pale brown but soft portions creamy white with three darker chevrons above spinnerets. Carapace relatively low; pars thoracica rugose, almost denticulate; caput smooth; porepit present below margin of carapace. Six eyes in three subcontiguous pairs (AME missing); ratio of ALE:PME:PLE, 8:10:7; lateral eyes separated from medians by about 1.5 times ALE diameter. Chelicerae with three compound teeth on promargin of distal mound, two prolateral true teeth, and numerous denticles; cheliceral mound conical, situated near tip of fang, with four subdistal pores (figs. 176, 177). Endites fused posteriorly (as in fig. 174). Abdomen globular, with dorsal scutum limited to posterior surface, well separated from dorsal extension of epigastric scutum, which extends above petiole;

dorsal scutum deeply incised on anterior surface, depressed so that in lateral view abdomen appears clavate posteriorly (fig. 101). Anterior spiracles in front of epigastric furrow; booklungs absent; anterior tracheae supplying both prosoma and opisthosoma; posterior tracheae lacking. Metatarsus I with transverse pair of short spines on midventral surface. Palp (figs. 171–173) with prodistal spine; bulb distended below to form a cone, bounded by distinct ridge; processes distal.

FEMALE: As is male, except as follows. Total length 1.37. Carapace 0.76 long, 0.52 wide, 0.40 high. Abdomen 1.01 long, 0.86 wide, 0.86 high. Abdomen ovoid, without dorsal scutum, gray except for unpigmented area surrounding spinnerets. Palp represented by low mound and small bristle (fig. 175). Internal genitalia (fig. 167) with dorsal receptaculum narrowing to form short neck before expanding into small distal sphere (dorsal receptaculum, which in life lies above ventral receptaculum, has been bent back in the illustration).

MATERIAL EXAMINED: NEW ZEALAND: **North Island:** *Northland:* Little Barrier Island, Nov. 20, 1949, leaf litter (E. W. Dawson, CMC), holotype; Mount Maunaupaki, Sept. 22, 1976, leaf litter (J. S. Dugdale, EDA); Tarakenga Scenic reserve, 9 km W Ngongotaha, Apr. 2, 1980, elev. 490 m, leaf litter, mixed broadleaf forest (A. Newton, M. Thayer, AMNH); Waipoua State Forest, Summit, Apr. 11–14, 1980, elev. 367 m, leaf litter, mixed podocarp-broadleaf forest (A. Newton, M. Thayer, AMNH); Waipoua State Forest, Toatoa Trig, Apr. 12–15, 1980, elev. 270 m, leaf litter, toatoa-kauri-podocarp-broadleaf forest (A. Newton, M. Thayer, AMNH); Waipoua State Forest, Toranui Trig, Apr. 13, 1980, leaf litter, kauri-podocarp-broadleaf-nikau palm forest (A. Newton, M. Thayer, AMNH), Apr. 13, 1980, decaying nikau palm bases and underlying litter (A. Newton, M. Thayer, AMNH); Waipoua State Forest, Waikohatu Bridge, Apr. 11–14, 1980, elev. 290 m, leaf litter, agathis-podocarp-broadleaf forest (A. Newton, M. Thayer, AMNH). *Auckland:* Alice Island, Hen and Chicken Islands, Jan. 7, 1982, leaf litter, kohekohe-karaka forest (J. C. Court, OMD); Chicken Island, Oct. 24–31, 1968, pitfall, mixed forest (J. C. Watt, EDA); Kohuko-



Figs. 171–177. *Paranapis insula* (Forster). 171–173. Male palp, ventral views. 174. Endites and labrum of female, posterior view. 175. Mound and seta representing reduced female palp, posterior view. 176. Cheliceral teeth (distal) and cheliceral mound, medial view. 177. Cheliceral mound showing four subdistal pores, medial view.

hunui, Hunua Range, Feb. 30, 1974, leaf litter (G. Kuschel, EDA); Ngaruawahia, June 21, 1974, fern and manuka litter (M. Luxton, OMD); Ponga Bush, Jan. 4, 1973, leaf litter (B. M. May, EDA). *Wellington*: National Park, near Taumaranui, Feb. 2, 1981, moss on forest floor (R. R. Forster, OMD).

DISTRIBUTION: Known only from the North Island.

***Paranapis isolata*, new species**

Figures 168, 178–182

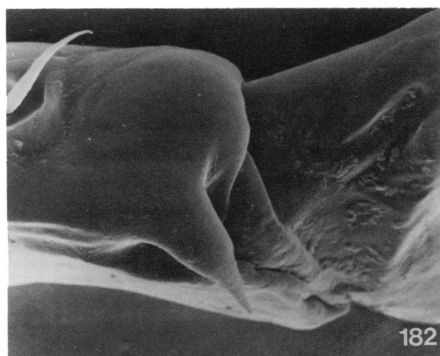
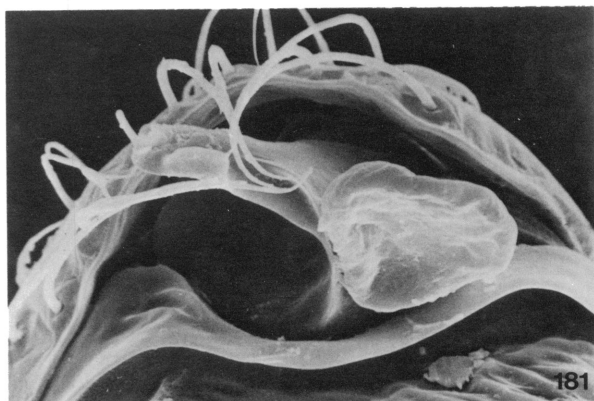
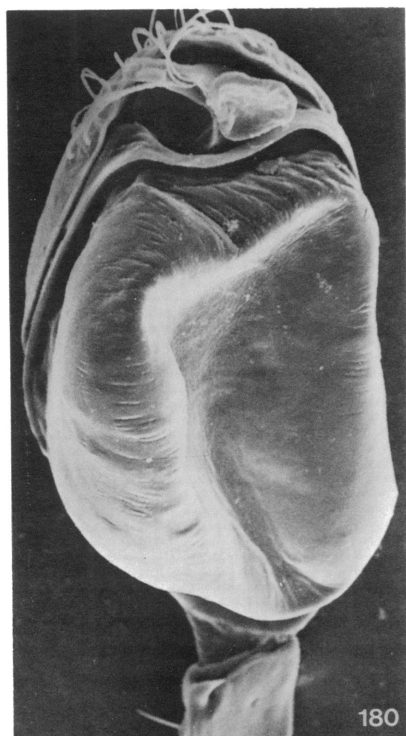
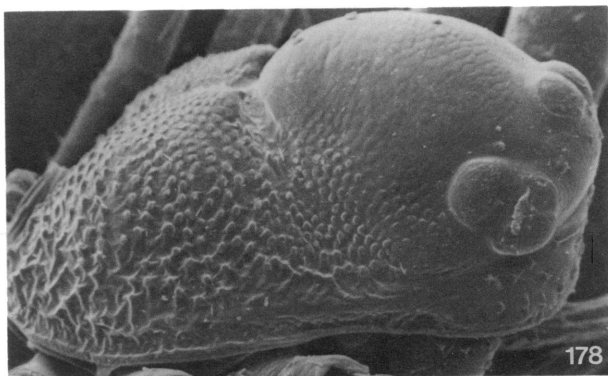
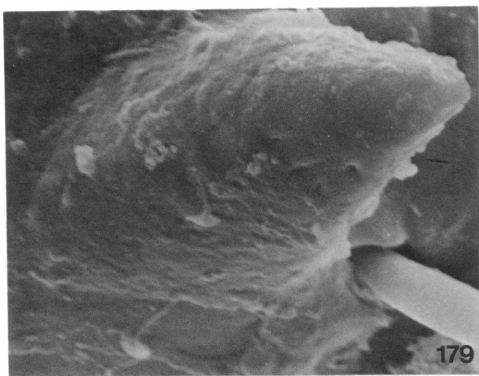
TYPES: Male holotype and female allotype from leaf litter at Castaway Camp, Three

Kings Islands, New Zealand (Nov. 22, 1970; G. Kuschel), deposited in EDA.

ETYMOLOGY: The specific name refers to the isolated distribution.

DIAGNOSIS: This species can be separated from *P. insula* by differences in the genitalia in both sexes and by the unincised anterior margin of the male dorsal abdominal scutum.

MALE: As in *P. insula*, except as follows. Total length 1.10. Carapace 0.68 long, 0.50 wide, 0.40 high. Abdomen 0.58 long, 0.58 wide, 0.58 high. Carapace (as in female, fig. 178) strongly denticulate on thorax but with caput relatively smooth. PME and lateral eyes of equal width; PME contiguous, separated



Figs. 178–182. *Paranapis isolata*, new species. 178. Female carapace, lateral view. 179. Cheliceral mound, medial view. 180, 181. Male palpal bulb, ventral views (the tegulum has collapsed in fig. 179). 182. Prodistal patellar spine of male palp, lateral view.

from lateral eyes by twice PME diameter. Chelicerae with a compound distoventral tooth structure (fig. 179). Dorsal scutum of abdomen extensive, entire along anterior margin where abutting dorsal extension of epigastric scutum. Femur I relatively stout; metatarsus I without macrosetae. Palp similar to that of *P. insula* but with distal processes differently shaped (figs. 180–182).

FEMALE: As in *P. insula*, except as follows.

Total length 1.35. Carapace 0.68 long, 0.52 wide, 0.40 high. Abdomen 0.85 long, 0.77 wide, 0.71 high. Epigastric scutum extending short distance above petiole as in male. Internal genitalia (fig. 168) with ventral receptaculum appearing distally bifid; dorsal receptaculum deeply divided, each lobe with centrally directed extension and group of pores on outer margin.

OTHER MATERIAL EXAMINED: Further

specimens from the type collection (AMNH, OMD), and other records from the Three Kings Islands: Castaway Camp, Nov. 16–29, 1970, litter (G. Kuschel, G. W. Ramsay, EDA); Southwest Island, Dec. 1, 1970, litter

(G. Kuschel, EDA); Tasman Valley, Three Kings Islands, Nov. 3, 1970, litter (G. Kuschel, EDA).

DISTRIBUTION: Known only from the Three Kings Islands.

THE NEW CALEDONIAN FAUNA

Although only two species of anapids have previously been reported from New Caledonia (Berland, 1924; Brignoli, 1981), and those two species are congeneric, the fauna is actually quite diverse. Eight species (in three genera) are recorded below, and (as in the Chilean, Australian, and New Zealand faunas) the New Caledonian taxa are all endemic at both the specific and generic levels.

KEY TO GENERA OF ANAPIDAE FROM NEW CALEDONIA

1. Relatively large anapids (total length 1.3–2.0); male palpal patella distinctly angled (fig. 194); females with sclerotized, posteriorly directed median receptaculum in addition to paired lateral receptacula (figs. 197–200) *Caledanapis*
 Relatively small anapids (total length 0.5–0.8); male palpal patella not angled; females without sclerotized, posteriorly directed median receptaculum 2
2. Male palp with femoral apophysis (fig. 220); females with externally projecting ridge in epigynal area (fig. 215) *Mandanapis*
 Male palp without femoral apophysis; females without projecting ridge in epigynal area *Montanapis*

CALEDANAPIS, NEW GENUS

TYPE SPECIES: *Caledanapis peckorum*, new species.

ETYMOLOGY: The generic name is a contraction of Caledonian *Anapis* and is feminine in gender.

DIAGNOSIS: Members of this genus can easily be distinguished from those of the other New Caledonian anapid genera by their larger size (total length over 1.3), angled male palpal patella (fig. 194), and posteriorly directed female median receptaculum (fig. 197). Males typically have a peculiarly shortened sternum and elongated posterior cephalothoracic projection extending around the pedicel

(figs. 183, 189, and an abdomen that is triangular in lateral view (fig. 188); both features are less pronounced in females.

MONOPHYLY: The posteriorly directed, finger-like median receptaculum of the internal female genitalia is unique to the six included species.

GENERIC RELATIONSHIPS: The presence of a compound cheliceral tooth (figs. 186, 187) indicates that *Caledanapis* may be more closely related to the similarly modified New Zealand and Australian genera than to the other, smaller New Caledonian anapids.

SPECIFIC RELATIONSHIPS: The first three species discussed below, all from southern New Caledonia, are united by a similar morphology of the embolic division of the male palp, which is flattened and transversely oriented (figs. 195, 202, 205). The remaining three species, from localities farther north on the island, have coiled, much more complex embolic divisions.

DISTRIBUTION: Known only from New Caledonia.

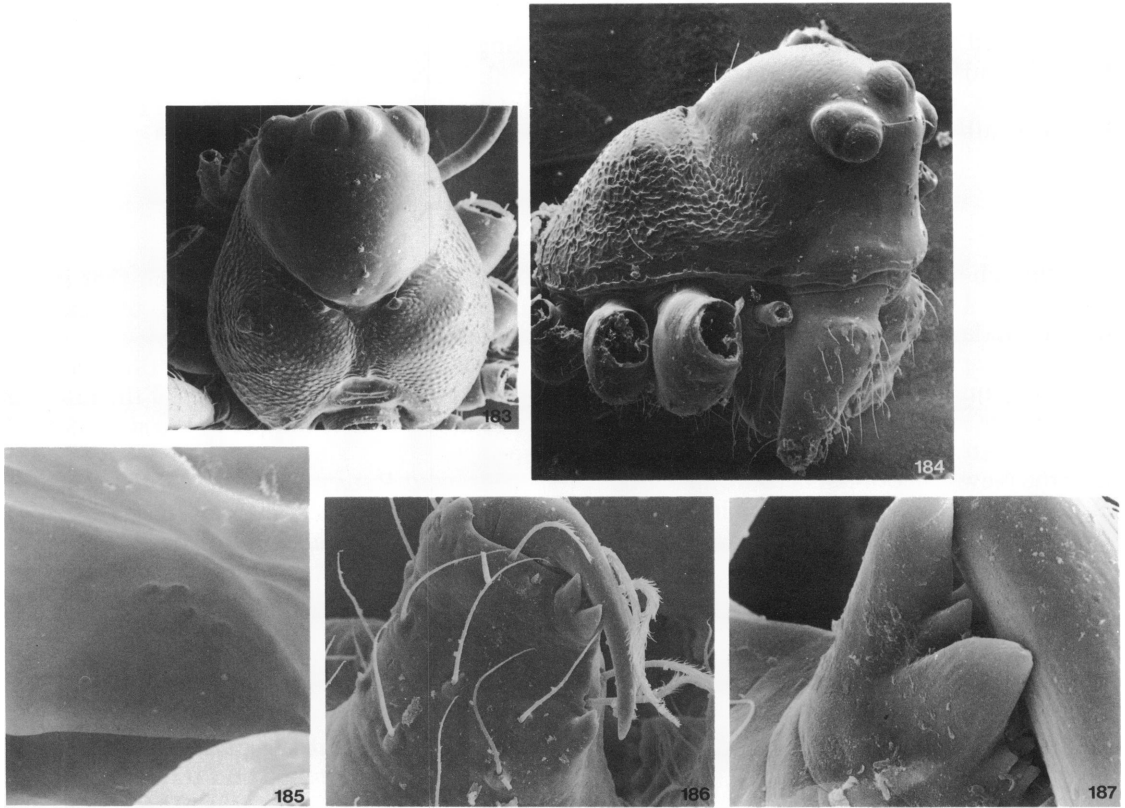
Caledanapis peckorum, new species Figures 194–197

TYPE: Male holotype from Berlese sample of rainforest litter taken at an elevation of 500 m at Auberge, Mt. Koghis, near Nouméa, New Caledonia (July 26–Aug. 13, 1978; S. and J. Peck), deposited in AMNH.

ETYMOLOGY: The specific name is a patronym in honor of the collectors of the holotype and many other austral anapids.

DIAGNOSIS: This species most closely resembles *C. tillierorum* in somatic characters; males can be distinguished by the more sinuous embolus and conductor (figs. 194–196), females by the uniformly narrow median receptaculum (fig. 197).

MALE: Total length 1.59. Carapace 0.67 long, 0.56 wide, 0.30 high. Abdomen 0.93 long, 0.73 wide, 1.07 high. Carapace dark



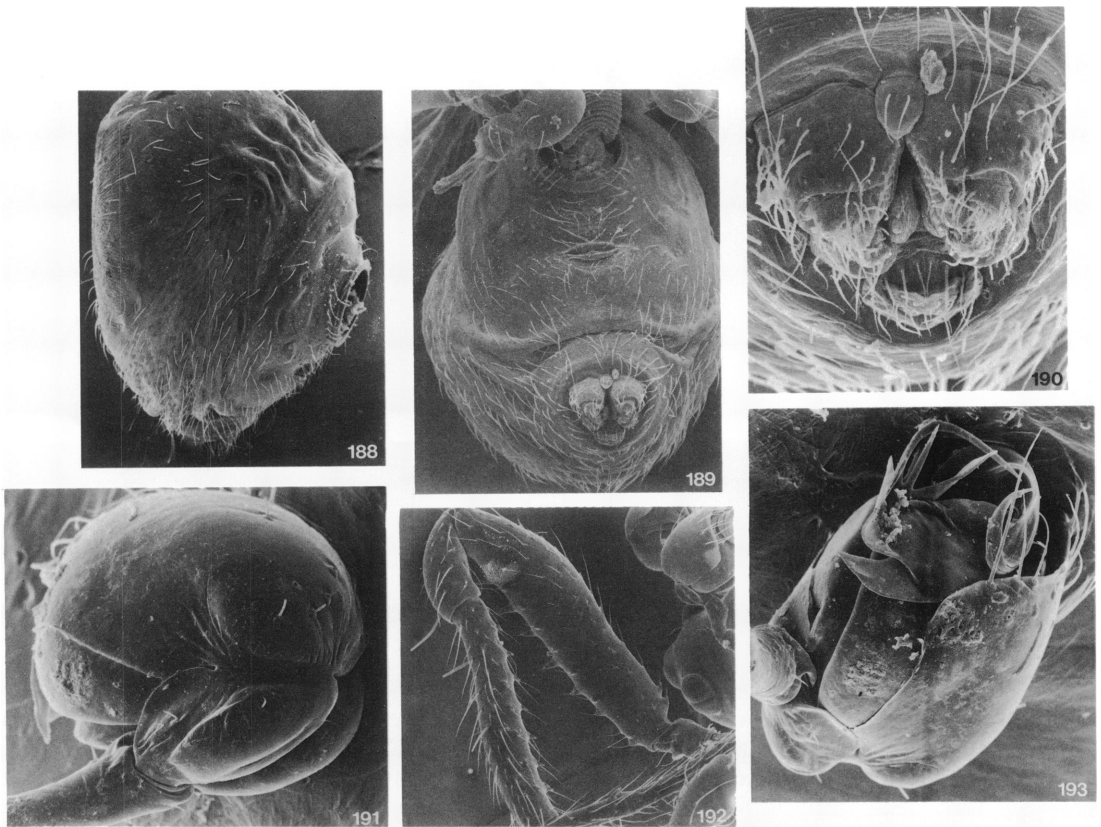
Figs. 183–187. *Caledanapis pilupilu* (Brignoli), male. 183. Carapace, dorsal view. 184. Carapace, lateral view. 185. Pores on subcephalic sclerite, lateral view. 186. Chelicera, medial view. 187. Same, showing denticles associated with distal teeth.

reddish brown, oval in dorsal view except for protruding lateral eyes, widest at rear of coxae II, posterior margin slightly invaginated at sides of distinct, ridged projection surrounding pedicel; pars cephalica with two seta-bearing tubercles along midline, surface reticulate; pars thoracica deeply impressed around extension to pedicel, thoracic groove long, longitudinal, cephalic grooves low, not accompanied by anteromedial humps, surface reticulate; clypeal height at middle about four times that of anterior lateral eyes, anterolateral corners with slight depressions but glandular area apparently shifted to small sclerite interposed between carapace margin and dorsal edge of endites.

Six subequal eyes in three pairs, eyes of each pair contiguous; posterior row procurved from front, recurved from above; posterior laterals separated by 1.5 times their diameter from posterior medians.

Sternum and mouthparts dark reddish brown, distal half of endites lightest. Sternum elevated, elevated portion longer than wide but shortened posteriorly, barely reaching coxae IV, continuing posteriorly as long, ringed projection around pedicel, extending between coxae but intercoxal strips broken at middle of their length; surface with irregular excavations. Labium almost vertical, incised at tip. Endites expanded distally, each with strong anterolateral scopula and anteromedian serrula. Labral spur long. Chelicerae with three promarginal teeth, two most distal fused on distinct plate.

Legs orange, with distal ends of tibiae and metatarsi darkened; all segments clothed with fine setae; patellae with distal, tibiae with proximal and medial dorsal bristles, tibia I with additional prolateral bristle at half its length; leg formula 1243, femur I enlarged, slightly sinuous at middle of length, venter



Figs. 188–193. *Caledanapis pilupilu* (Brignoli), male. **188.** Abdomen, lateral view, showing anterodorsal ridges. **189.** Abdomen, ventral view. **190.** Spinnerets and colulus, ventral view. **191.** Palp, retrolateral view. **192.** Leg I, lateral view. **193.** Palp, ventral view.

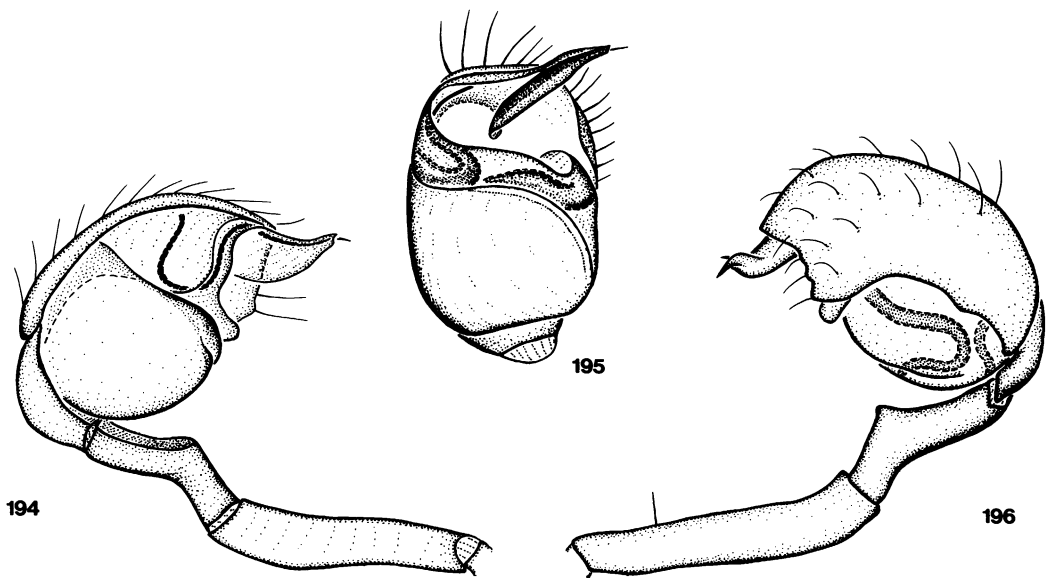
and sides tuberculate, retroventral tubercles largest; tibia I with two rows of ventral tubercles; metatarsus I with thick spur proventrally at distal end; tarsus I with two rows of slightly thickened setae ventrally; femora II–IV weakly tuberculate.

Abdomen triangular in lateral view; dorsal scutum shifted posteriorly, incised, appearing v-shaped in dorsal view, sides of scutum darkened, medial area showing pattern, white anteriorly but with paramedian, longitudinal gray stripes posteriorly; soft portions of cuticle with gray longitudinal stripes and ridges dorsally and gray dorsoventral stripes laterally; anterior scutum enclosing pedicel, extending further toward spinnerets at sides than at middle; anterior spiracles advanced to position about halfway between epigastric furrow and pedicel; posterior spiracle absent. Six spinnerets and long colulus (as in fig. 190)

surrounded by sclerotic ring, ring very short anteriorly but still complete.

Palpal femur unmodified; patella widened ventrally at half its length, distal half excavated ventrally, situated at angle to proximal half, with slight distal ventral apophysis, evidently fitting into groove on tegulum; tibia short, broad; cymbium unmodified; tegulum with distal groove, large, bulbous, with ducts marginal; embolus and conductor oriented transversely, distally sinuous (figs. 194–196).

FEMALE: As in male, except as follows. Total length 1.41. Carapace 0.74 long, 0.57 wide, 0.28 high. Abdomen 0.81 long, 0.80 wide, 0.96 high. Carapace and sternal extension around pedicel much less pronounced than in male; pars cephalica with two additional seta-bearing tubercles paramedially near posterior edge; clypeal height at middle only about twice that of anterior lateral eyes. Ster-



Figs. 194-196. *Caledanapis peckorum*, new species, left male palp, prolateral, ventral, and retrolateral views.

num not shortened for extension around pedicel. Leg tubercles weaker than in male but still present; spur on metatarsus I strong; tarsus I ventral setae unmodified. Abdomen without dorsal scutum, gray with white mark at highest point (apex of triangle as seen laterally) and other, smaller, scattered white marks; anterior scutum greatly shortened, reaching only as far as anterior spiracles, so that entire genital area remains uncovered. Palpal segments beyond coxae represented only by slight knob. Genitalia with pair of lateral receptacula bearing posterior pore plates and single, posteriorly directed median receptaculum (fig. 197).

OTHER MATERIAL EXAMINED: NEW CALEDONIA: Mt. Do, summit, May 20, 1984, elev. 1000 m, Berlese, rainforest litter (G. Monteith, D. Cook, QMB), 1♀, May 20, 1987, elev. 830-950 m, wet forest with araucaria (N. I. Platnick, R. J. Raven, S. and A. Tillier, AMNH), 3♀; Mt. Koghis, July 26, 1978, elev. 500 m, Berlese, leaf litter (S. and J. Peck, FMNH), 2♀, May 22-24, 1987, elev. 500 m, montane forest (N. I. Platnick, R. J. Raven, AMNH), 15♂, 18♀; Mt. Koghis, Auberge, near Nouméa, July 26-Aug. 13, 1978, elev. 500 m, Berlese, fungi with logs and litter, rainforest (S. and J. Peck, AMNH), 1♂; Mt. Kogh-

is, Cascade, Aug. 12, 1978, elev. 650 m, leaf litter (G. Kuschel, EDA), 2♂, 1♀.

DISTRIBUTION: Known only from Mt. Koghis and Mt. Do in southern New Caledonia.

***Caledanapis tillierorum*, new species**

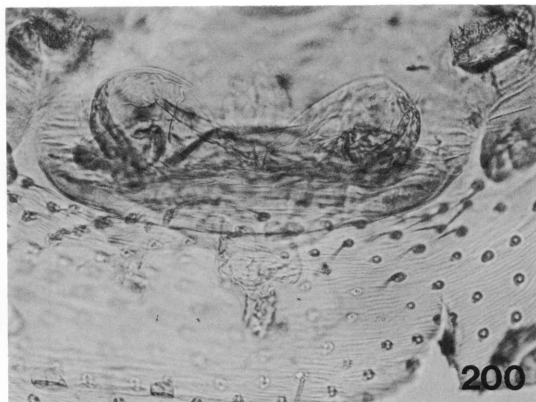
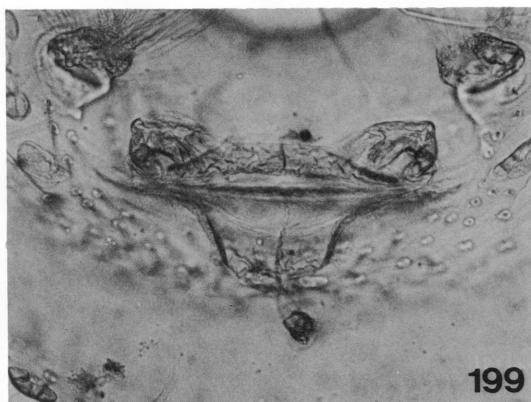
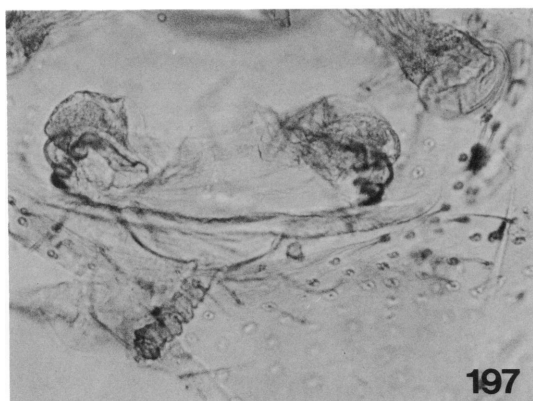
Figures 198, 201-203

TYPE: Male holotype taken in a pitfall trap in a humid forest (station 261, hors parcelles VI) at an elevation of 160 m at Rivière Bleue (Dec. 4-11, 1986; S. and A. Tillier), deposited in MNHN.

ETYMOLOGY: The specific name is a patronym in honor of the collectors of the holotype and many other New Caledonian spiders.

DIAGNOSIS: This species most closely resembles *C. peckorum* in somatic characters; males can be distinguished by the short, straight tip of the embolus and conductor (figs. 201-203), females by the anteriorly widened median receptaculum (fig. 198). In genitalic characters, the species seems closest to *C. dzumac* (see the diagnosis of that species).

MALE: As in *C. peckorum*, except as follows. Total length 1.30. Carapace 0.63 long, 0.56 wide, 0.26 high. Abdomen 0.80 long,

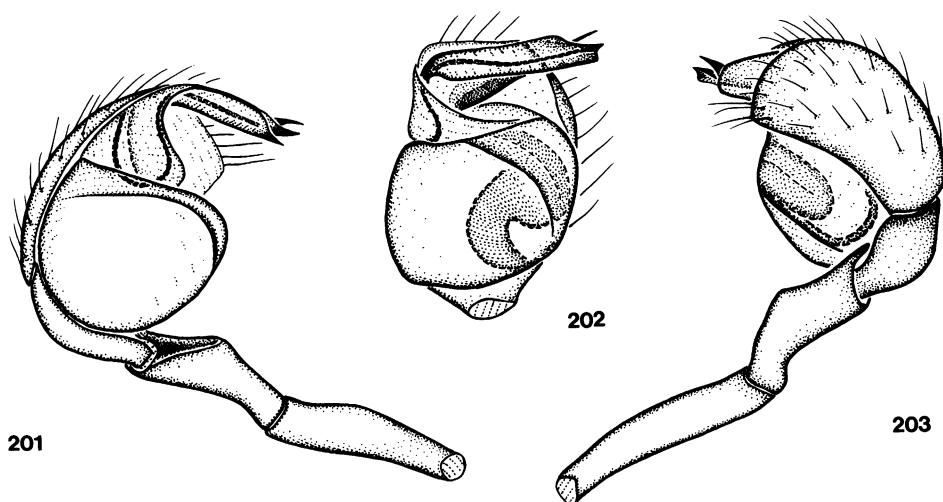


Figs. 197–200. Internal female genitalia of *Caledanapis*, dorsal views. 197. *C. peckorum*, new species. 198. *C. tillierorum*, new species. 199. *C. dzumac*, new species. 200. *C. pilupilu* (Brignoli).

0.56 wide, 0.85 high. Carapace brownish orange; pars cephalica with two additional parame-dian, posterior seta-bearing tubercles; pars thoracica with anteromedian pair of small tubercles. Posterior lateral eyes separated by twice their diameter from posterior medians. Patellae with proximal as well as distal dorsal bristles; femur I with five enlarged retrolateral tubercles on proximal half of segment, ventral tubercles reduced to low mounds. Abdomen triangular in lateral view but sharply constricted behind anterior scutum; surface with about ten long, stiff bristles scattered irregularly over posterior half; dorsal scutum indistinct, with m-shaped orange mark on gray background; longitudinal and dorsoventral gray stripes accompanied by actual grooves and ridges in cuticle. Embolus and conductor relatively straight, transversely oriented, with conductor extending farther retrolaterally than embolus (figs. 201–203).

FEMALE: As in *C. peckorum*, except as noted for male. Total length 1.31. Carapace 0.69 long, 0.53 wide, 0.25 high. Abdomen 0.85 long, 0.75 wide, 0.86 high. Anterior patellae with distal bristles only, tibial bristles apparently present only proximally on legs III, IV; femur I retrolateral tubercles not enlarged. Posterior surface of abdomen, from distinct dorsal point down, with light orange median longitudinal stripe on dark gray background, stripe expanded laterally anteriorly and posteriorly; abdominal bristles lacking on specimen examined but may have rubbed off. Lateral receptacula expanded anteriorly, sclerotized laterally; median receptaculum abruptly narrowed posteriorly (fig. 198).

OTHER MATERIAL EXAMINED: NEW CAL-EDONIA: Rivière Bleue, May 21, 1987, elev. 280 m, litter, wet forest (N. I. Platnick, R. J. Raven, AMNH), 1♂, 1♀, elev. 160 m, Aug. 13, 1987 (A. and S. Tillier, MNHN), 1♂; Ri-



Figs. 201-203. *Caledanapis tillierorum*, new species, left male palp, prolateral, ventral, and retrolateral views.

vière Bleue, dry site near bridge before hut, Nov. 7-8, 1988, rainforest litter (R. J. Raven, QMB), 2♂, 1♀.

DISTRIBUTION: Known only from Rivière Bleue in southern New Caledonia.

Caledanapis dzumac, new species

Figures 199, 204-206

TYPES: Male holotype and female allotype from dry forest litter taken at an elevation of 900 m on Mt. Dzumac, New Caledonia (May 28, 1987; N. I. Platnick, R. J. Raven, S. and A. Tillier), deposited in MNHN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

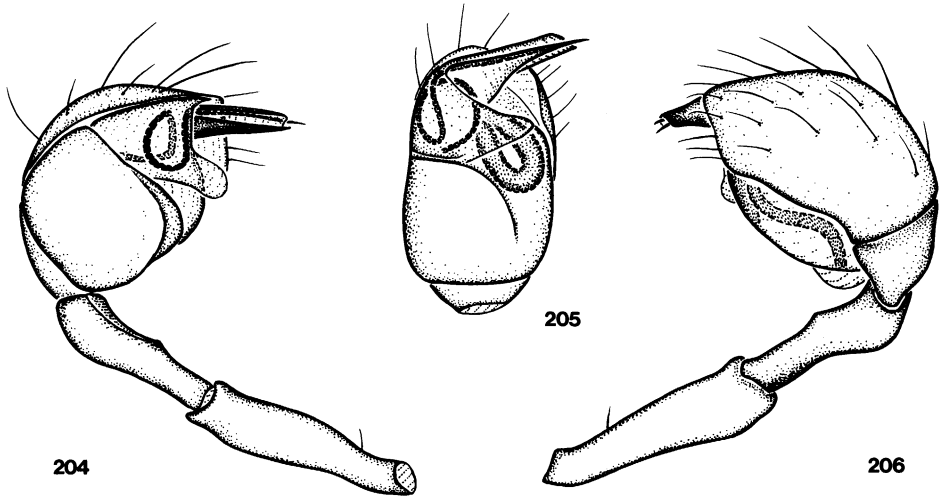
DIAGNOSIS: This species resembles *C. peckorum* and *C. tillierorum* but can be distinguished by the paler coloration, smooth abdominal dorsum, and the straight embolus (that extends farther retrolaterally than the conductor) of males (figs. 204-206) and by the rounded (rather than triangular in lateral view) abdomen and short lateral but longer median receptacula of females (fig. 199).

MALE: As in *C. peckorum*, except as follows. Total length 1.61. Carapace 0.56 long, 0.56 wide, 0.34 high. Abdomen 0.96 long, 0.71 wide, 0.98 high. Pars thoracica with anteromedian pair of small tubercles; clypeal height at middle about three times that of anterior lateral eyes. Legs pale yellow, darkest

distally; patellae with proximal and distal bristles; femur I with sharply pointed tubercles in rows at sides only; femora II-IV scarcely tuberculate. Sides of dorsal abdominal scutum not darkened but median longitudinal stripe paler than sides; soft portions of dorsum with median longitudinal gray stripe. Embolus and conductor relatively straight, transversely oriented, with embolus extending farther retrolaterally than conductor (figs. 204-206).

FEMALE: As in *C. peckorum*, except as noted for male. Total length 1.28. Carapace 0.62 long, 0.53 wide, 0.25 high. Abdomen 0.88 long, 0.86 wide, 0.86 high. Leg tubercles scarcely apparent. Abdomen rounded, not triangular in lateral view, pale gray with darker transverse stripe at about three-fourths its length. Lateral receptacula relatively short, with medially directed sclerotizations; median receptaculum abruptly narrowed posteriorly (fig. 199).

OTHER MATERIAL EXAMINED: NEW CALEDONIA: Kwa Neie transmitter, Forêt Nord, near Plaines des Lacs, SE Noumea, Oct. 25, 1988, mixed dry forest (T. Churchill, R. J. Raven, QMB), 2♂, 1♀; Mt. Dzumac, May 28, 1987, elev. 900 m, litter, dry forest (N. I. Platnick, R. J. Raven, S. and A. Tillier, AMNH, MNHN), 10♂, 9♀; Mt. Koghis, Nov. 12-14, 1986, elev. 400 m, blacklight trap (R. L. Brown, MEM), 2♀, May 22-24, 1987, elev.



Figs. 204-206. *Caledanapis dzumac*, new species, left male palp, prolateral, ventral, and retrolateral views.

500 m, montane forest (N. I. Platnick, R. J. Raven, AMNH), 7♂, 2♀.

DISTRIBUTION: Known only from southern New Caledonia.

Caledanapis pilupilu (Brignoli),
new combination

Figures 183-193, 200, 207-209

Anapogonia pilupilu Brignoli, 1981: 128, figs. 20-22 (male holotype from Grottes d'Adio, near Poya, New Caledonia, in Muséum d'Histoire Naturelle, Geneva, not examined).

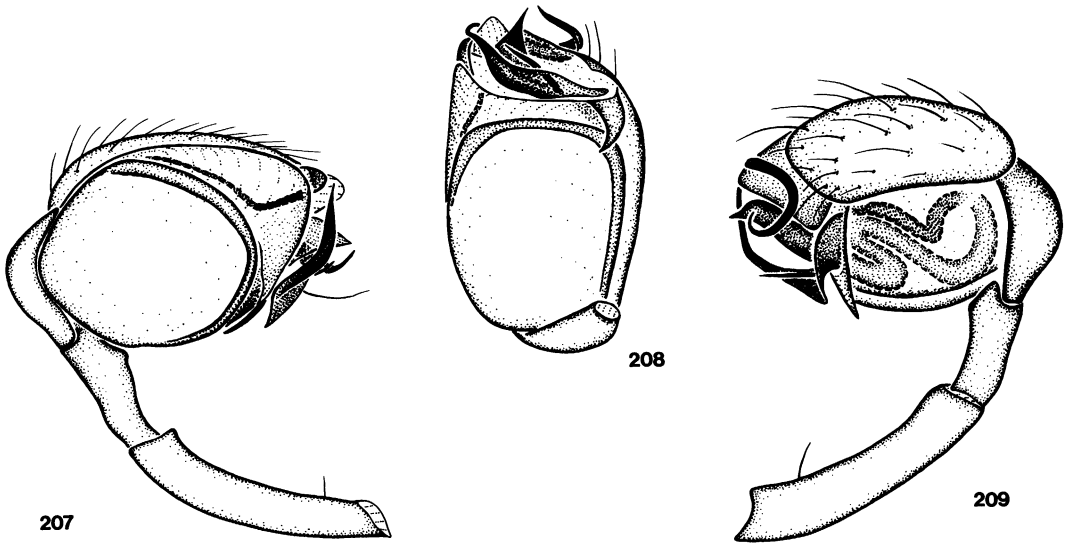
DIAGNOSIS: Males can be distinguished from those of the other known species by the elaborated distal processes of the palp (figs. 207-209), females by the shape of the median receptaculum, which is wider anteriorly than in *C. peckorum* but narrowed than in *C. tillierorum* and *C. dzumac* (fig. 200).

MALE: As in *C. peckorum*, except as follows. Total length 1.41. Carapace 0.78 long, 0.57 wide, 0.44 high. Abdomen 0.74 long, 0.63 wide, 0.89 high. Carapace dark orange; pars cephalica finely striated, with four seta-bearing tubercles along midline, one anterior, others posterior; pars thoracica with pair of anteromedial seta-bearing tubercles situated just behind medially deepened cervical grooves, surface tuberculate (fig. 183); clypeal height at middle almost five times that of anterior lateral eyes. Posterior lateral eyes separated by twice their diameter from pos-

terior medians. Dorsal surface of femur I with two enlarged tubercles at proximal end (fig. 192); tarsus I setae unmodified. Dorsal abdominal scutum with conspicuous pair of orange longitudinal bars at sides, longitudinal white bar at middle, and transverse white bar dorsal to spinnerets. Palpal tibia almost fused to cymbium (fig. 191); palpal processes elaborate (figs. 193, 207-209).

FEMALE: As in *C. peckorum*, except as noted for male. Total length 1.41. Carapace 0.75 long, 0.55 wide, 0.36 high. Abdomen 0.86 long, 0.85 wide, 1.03 high. Pars thoracica distinctly elevated anterolaterally. Dorsal tubercles on femur I less pronounced than in male but still distinct. Abdomen with anterior longitudinal stripes and ridges but rounded rather than triangular in lateral view, without distinct peak posterodorsally, gray with median longitudinal white stripe, stripe expanded laterally at about half and about three-fourths of abdominal length; anterior scutum extending posteriorly to epigastric furrow but less strongly sclerotized over epigynal area than elsewhere. Internal genitalia with median receptaculum about twice as wide anteriorly as posteriorly (fig. 200).

MATERIAL EXAMINED: NEW CALEDONIA: Col des Roussettes, Aug. 31, 1978, elev. 550 m, sifted litter (G. Kuschel, EDA), 3♂, Oct. 26, 1978, elev. 400 m, sifted litter (G. Kuschel, EDA), 1♂, Aug. 7, 1978, elev. 500 m, Berlese, rainforest litter (S. and J. Peck,



Figs. 207–209. *Caledanapis pilupilu* (Brignoli), left male palp, prolateral, ventral, and retrolateral views.

AMNH), 3♀, May 29, 1987, elev. 490 m, litter, dry forest (N. I. Platnick, R. J. Raven, S. and A. Tillier, AMNH, QMB), 8♂, 7♀.

DISTRIBUTION: Known only from Col des Roussettes and the Grottes d'Adio in central New Caledonia.

Caledanapis insolita (Berland),
new combination
Figures 210–213

Pseudanapis insolitus Berland, 1924: 200, figs. 75–82 (male lectotype, designated by Brignoli, 1981: 127, from Mont Ignambi, New Caledonia, in Naturhistorisches Museum, Basel, examined by Brignoli, 1981).

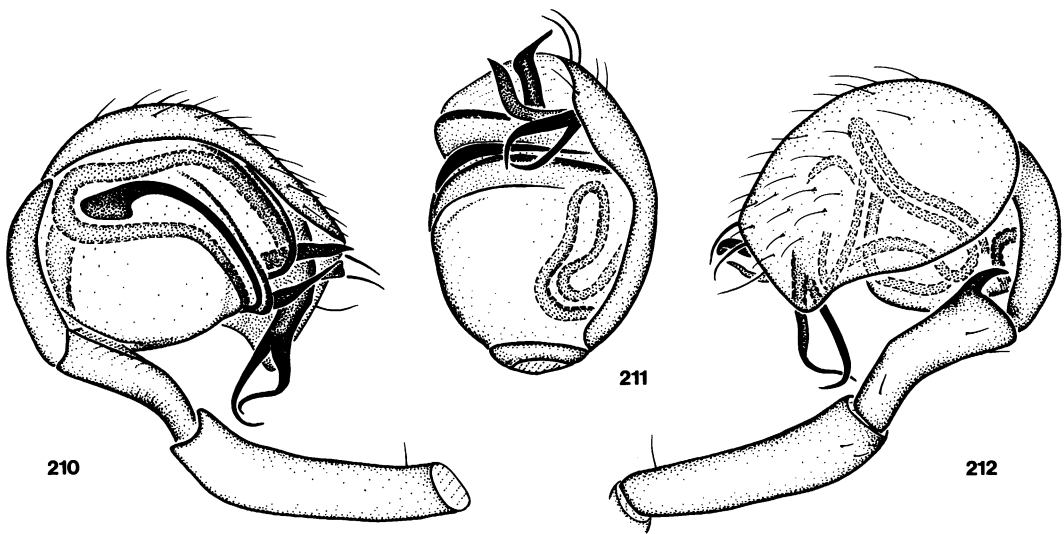
Anapogonia insolita: Brignoli, 1981: 127, figs. 23–25.

DIAGNOSIS: Males can be recognized by the elongated palpal processes (figs. 210–212), females by the highly coiled ducts of the lateral receptacula and short median receptaculum (fig. 213).

MALE: As in *C. peckorum*, except as follows. Total length 1.98. Carapace 0.76 long, 0.65 wide, 0.35 high. Abdomen 1.24 long, 0.89 wide, 0.89 high. Pars thoracica with pair of anteromedial seta-bearing tubercles situated just behind medially deepened cervical grooves, surface tuberculate; clypeal height at middle almost five times that of anterior

lateral eyes. Posterior lateral eyes separated by twice their diameter from posterior medians. Femur I scarcely tuberculate; tibia and tarsus I greatly elongated; tibia I with weak tubercles but with two long spines retrolaterally at distal end; metatarsus I with one or two strong proventral spurs, one distal, one immediately subdistal (sometimes absent on one or both of metatarsi I). Abdomen with conspicuous pair of orange longitudinal bars at sides and transverse white bar dorsal to spinnerets; anterior scutum greatly expanded, occupying over one-third of abdominal length, more heavily sclerotized anteriorly than posteriorly, without longitudinal grooves and ridges; dorsal surface of abdomen with five dark marks arranged in stellate pattern (Berland, 1924: fig. 76); spiracles advanced to near pedicel; epigastric furrow restricted to narrow slit contained within anterior scutum. Palpal tibia almost fused to cymbium; palpal processes elaborate (figs. 210–212).

FEMALE: As in *C. peckorum*, except as noted for male. Total length 1.78. Carapace 0.68 long, 0.59 wide, 0.33 high. Abdomen 1.18 long, 1.02 wide, 1.11 high. Clypeal height at middle four times that of anterior lateral eyes. Tibia I without retrolateral spines; metatarsus I with distal spur only. Abdomen rounded, smooth anteriorly, dark markings less distinct than in male; anterior scutum not



Figs. 210–212. *Caledanapis insolita* (Berland), left male palp, prolateral, ventral, and retrolateral views.

extending beyond dorsal edge of pedicel anteriorly or level of spiracles posteriorly. Spermathecal ducts highly coiled, median receptaculum short (fig. 213).

MATERIAL EXAMINED: NEW CALEDONIA: Mt. Panié, May 14–16, 1984, elev. 950–1300 m, Berlese (G. Monteith, D. Cook, QMB, AMNH), 9♂, 18♀, May 15, 1984, elev. 1300–1600 m, Berlese (G. B. Monteith, D. Cook, QMB), 1♂, 4♀; Mt. Panié (station 293, E peak), 20°34′42″S, 164°45′55″E, Nov. 18, 1986, elev. 1100–1300 m, humid forest (J. Chazeau, S. and A. Tillier, MNHN), 1♂; Mt. Panié, Nov. 2–4, 1988, elev. 700–1300 m, webs above water under bank overhang (T. Churchill, R. J. Raven, QMB), 1♂, 2♀.

DISTRIBUTION: Known only from two montane localities in northwestern New Caledonia.

Caledanapis sera, new species

Figures 398–404

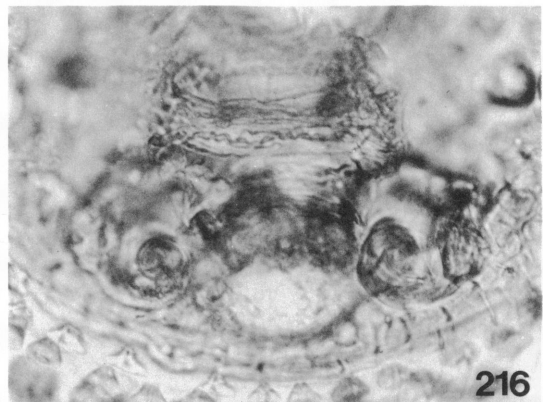
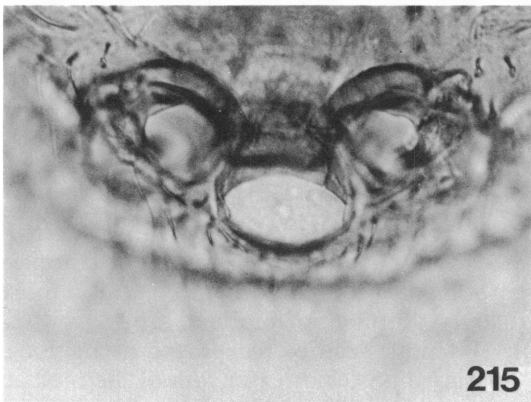
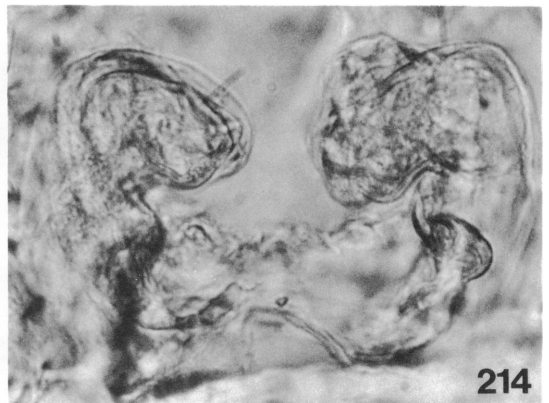
TYPES: Male holotype and female allotype from a Berlese sample of humid forest litter taken at an altitude of 610 m at Ouayaguette, 20°40′13″S, 164°42′53″E, in northcentral New Caledonia (Oct. 20, 1988; A. and S. Tillier, J. Chazeau), deposited in MNHN.

ETYMOLOGY: The specific name is from the Latin *serus* (late), referring to its very recent first collection.

DIAGNOSIS: Males resemble those of *C. pilupilu* and *C. insolita* in having a complex embolic division, but differ in having a more distally protuberant embolar tip (figs. 402–404); females can be recognized by the long, unstriated posterior extension of the median receptaculum (figs. 399, 401).

MALE: As in *C. peckorum*, except as follows. Total length 1.24. Carapace 0.60 long, 0.53 wide, 0.33 high. Abdomen 0.71 long, 0.54 wide, 0.75 high. Pars thoracica with pair of anteromedial seta-bearing tubercles situated just behind medially deepened cervical grooves, surface tuberculate; clypeal height at middle almost five times that of anterior lateral eyes. Tibia I sinuous. Posterior surface of abdomen white with two pairs of dark paramedian spots, lateral surface with oblique white stripe; posteriorly shifted dorsal scutum distinctly narrowed over posterior one-fourth of abdomen. Palpal patella with long distoventral apophysis; tibia almost fused to cymbium; palpal processes elaborate, embolus prolonged, curved distally (figs. 402–404).

FEMALE: As in *C. peckorum*, except as noted for male. Total length 1.27. Carapace 0.68 long, 0.53 wide, 0.26 high. Abdomen 0.71 long, 0.68 wide, 0.80 high. Clypeal height at middle four times that of anterior lateral eyes. Abdomen distinctly prolonged, narrowed



Figs. 213–216. Internal female genitalia. 213. *Caledanapis insolita* (Berland), dorsal view. 214. *Montanapis koghis*, new species, dorsal view. 215, 216. *Mandanapis cooki*, new species, ventral and dorsal views.

posteriorly; anterior scutum not restricted, extending beyond dorsal edge of pedicel anteriorly and past level of spiracles to epigastric furrow posteriorly. Spermathecal ducts highly coiled, posterior projection of median receptaculum long, unstriated (figs. 398–401).

OTHER MATERIAL EXAMINED: One female taken with the types (MNHN), and two females from a Berlese sample of dry forest litter taken at an elevation of 480 m at Ouémou, 20°36'13"S, 164°36'30"E, in northcentral New Caledonia (Oct. 20, 1988; A. and S. Tillier, J. Chazeau; MNHN).

DISTRIBUTION: Known only from northcentral New Caledonia.

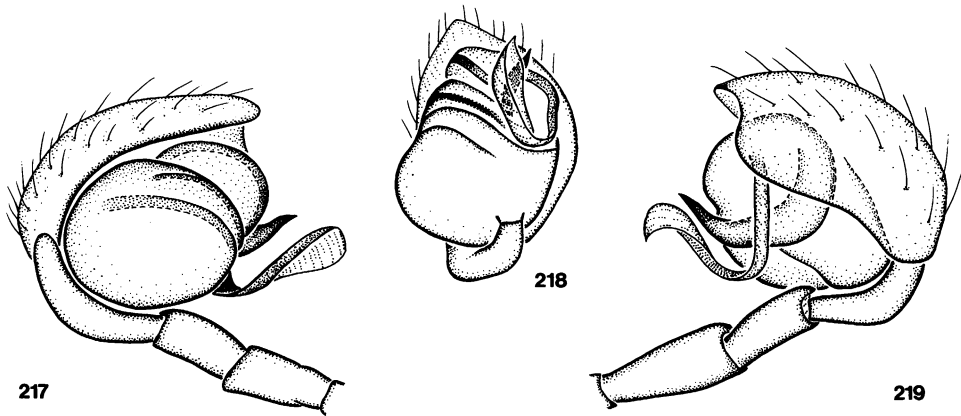
MONTANAPIS, NEW GENUS

TYPE SPECIES: *Montanapis koghis*, new species.

ETYMOLOGY: The generic name is a contraction of montane *Anapis* and is feminine in gender.

DIAGNOSIS AND GENERIC RELATIONSHIPS: The small size immediately separates specimens of *Montanapis* from those of *Caledanapis*, and they differ greatly in genitalic features from those of *Mandanapis* (see couplet 2 in the key above). Among the Australian taxa, they seem closest in somatic morphology to *Hickmanapis*, but differ strongly in both male and female genitalia: males have a very short palpal patella and two closely associated terminal processes on the embolic division (fig. 219), and females have a duct surrounding the terminal portion of the lateral receptacula (fig. 214).

DISTRIBUTION: Known only from New Caledonia.



Figs. 217-219. *Montanapis koghis*, new species, left male palp, prolateral, ventral, and retrolateral views.

Montanapis koghis, new species

Figures 214, 217-219

TYPES: Male holotype and female allotype from Berlese sample of leaf litter taken at an elevation of 500 m on Mt. Koghis, New Caledonia (July 26, 1978; S. and J. Peck), deposited in FMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: With the characters of the genus, male palpi with a distally dilated apophysis accompanying the embolus (fig. 217), and internal female genitalia with a pair of recurved lateral receptacula (fig. 214).

MALE: Total length 0.75. Carapace 0.38 long, 0.28 wide, 0.29 high. Abdomen 0.46 long, 0.46 wide, 0.52 high. Carapace orange, almost circular in dorsal view, widest at coxae II, posterior margin truncate; surface of pars cephalica shiny, with two seta-bearing tubercles along midline and two others situated paramedially, more posteriorly; surface of pars thoracica roughened, with ridges radiating from thoracic groove and two enlarged tubercles along posterior edge of each cervical groove; clypeal height at midline about four times that of anterior lateral eyes, glandular depressions shifted to triangular sclerite interposed between carapace margin and dorsal edge of endites.

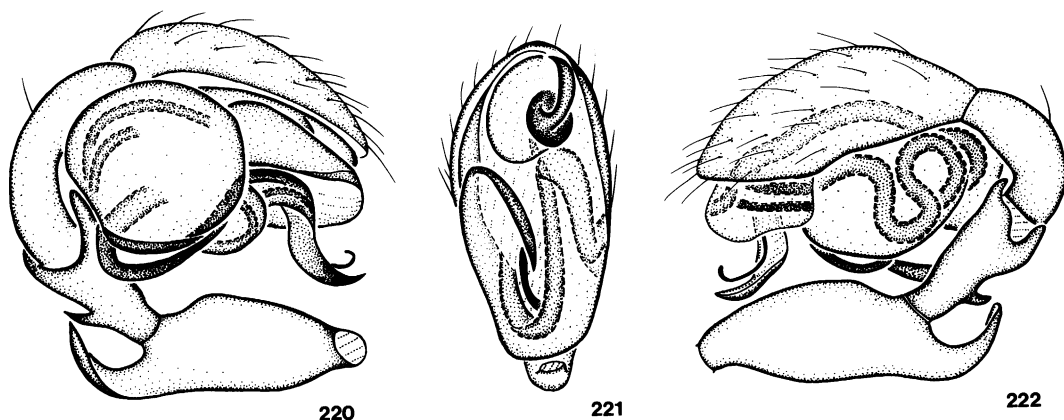
Six subequal eyes in three pairs, posterior medians separated by less than their diameter, lateral eyes of each side contiguous; posterior row procurved from front, recurved

from above; posterior laterals separated by almost twice their diameter from posterior medians.

Sternum and mouthparts orange. Sternum elevated, elevated portion slightly longer than wide, truncated posteriorly, separating coxae IV by more than their length, without distinct posterior extension but continuing dorsally and between coxae to fuse with carapace, intercoxal strips entire; surface irregularly excavated. Labium triangular, incised distally, fused to sternum by groove. Endites distally oblique, each with weak anteromedian scapula and anterolateral serrula. Labral spur small but distinct. Chelicerae with three promarginal teeth, two most distal apparently separate.

Legs light orange, patellae lightest; all segments clothed with fine setae; patellae with distal, tibiae with proximal and distal dorsal bristles; leg formula 1243, legs subequal in length; femur I not expanded, with only weak indications of tubercles; tibia I slightly expanded, squared, with three strong retroventral bristles; metatarsus and tarsus I unmodified.

Abdomen with most of dorsum covered by rounded dorsal scutum narrowly separated from anterior scutum surrounding pedicel, extending slightly farther toward spinnerets at sides than middle, with anterior spiracles advanced to position about halfway between epigastric furrow and pedicel; posterior spiracle absent; soft portions of cuticle with about three longitudinal rows of small, elongate



Figs. 220–222. *Mandanapis cooki*, new species, left male palp, prolateral, ventral, and retrolateral views.

sclerotizations. Six spinnerets and large colulus surrounded by sclerotic ring.

Palpal femur unmodified; patella relatively short, with distal ventral apophysis probably fitting into tegular groove of expanded palp; tibia long, arched; cymbium unmodified; embolus spiralling around bulb, distally bent, accompanied by sinuous, distally expanded apophysis with subdistal hook (figs. 217–219).

FEMALE: As in male, except as follows. Total length 0.76. Carapace 0.35 long, 0.28 wide, 0.19 high. Abdomen 0.48 long, 0.46 wide, 0.37 high. Tibia I without retrolateral bristles. Abdomen without dorsal scutum, dorsum coriaceous, surface coated with numerous small sclerotizations; anterior scutum with accompanying postgenital sclerite. Anterior spiracles leading to tracheae. Palpal segments beyond coxae represented by slight knob on endites. Receptacula encircled distally by ducts (fig. 214).

OTHER MATERIAL EXAMINED: NEW CALEDONIA: 4 km N Col d'Amieu, May 8, 1984, elev. 300 m, Berlese, rainforest litter (G. Monteith, D. Cook, QMB), 1♀; Mt. Do, NW Bouloupari, Oct. 22, 1978, elev. 900–1020 m, sifted, litter, rotten wood (G. Kuschel, EDA), 2♂, May 20, 1987, elev. 830–950 m, wet forest with araucaria (N. I. Platnick, R. J. Raven, S. and A. Tillier, AMNH), 2♂; Mt. Koghis, July 26, 1978, elev. 500 m, Berlese, leaf litter (S. and J. Peck, FMNH, AMNH), 81♂, 100♀; Mt. Koghis, Auberge, nr. Noumea, July 26, 1978, elev. 500 m, Berlese, rainforest litter (S. and J. Peck, AMNH), 1♀; Rivière

Bleue, May 21, 1987, elev. 280 m, litter, wet forest (N. I. Platnick, R. J. Raven, AMNH), 1♂, Nov. 8, 1988, sieved rainforest litter (T. Churchil, R. J. Raven, QMB), 1♂, 1♀.

DISTRIBUTION: Relatively widespread in central and southern New Caledonia.

MANDANAPIS, NEW GENUS

TYPE SPECIES: *Mandanapis cooki*, new species.

ETYMOLOGY: The generic name is an arbitrary combination of letters and is feminine in gender.

DIAGNOSIS: The small size (total length less than 0.8) of these animals immediately separates them from species of *Caledanapis*; they differ from members of that genus and *Montanapis* in having a femoral apophysis on the male palp (fig. 220) and three oval external ridges on the female epigastric area (fig. 215).

GENERIC RELATIONSHIPS: The genitalia of this genus are so highly autapomorphic that they provide no clues on possible relatives.

DISTRIBUTION: Known only from New Caledonia.

Mandanapis cooki, new species

Figures 215, 216, 220–222

TYPES: Male holotype and female allotype from Berlese sample of rainforest litter taken at an elevation of 700 m at Mandjéla, 20°24'S, 164°32'E, northwestern New Caledonia (May 12, 1984; G. B. Monteith, D. Cook), deposited in QMB.

ETYMOLOGY: The specific name is a patronym in honor of one of the collectors of the types.

DIAGNOSIS: With the characters of the genus, palpi as in figures 220–222, and female genitalia as in figures 215, 216.

MALE: Total length 0.67. Carapace 0.37 long, 0.31 wide, 0.24 high. Abdomen 0.37 long, 0.43 wide, 0.48 high. Carapace dark orange, almost circular in dorsal view, widest between coxae II and III, posterior margin truncate; pars cephalica with distinctive pair of anterolaterally directed humps posteriorly, humps almost meeting similar pair of anterolateral projections from front of pars thoracica, preceded by three much smaller seta-bearing tubercles along midline; pars thoracica steeply sloped, surface finely tuberculate; clypeal height at middle four times that of anterior lateral eyes, glandular areas shifted to triangular sclerite interposed between carapace margin and dorsal edge of endites.

Six subequal eyes in three pairs; posterior medians separated by their radius; posterior row procurved from front, recurved from above; posterior laterals separated by their diameter from posterior medians.

Sternum and mouthparts orange. Sternum elevated, elevated portion much wider than long, without posterior extension, continuing dorsally to fuse with carapace; intercoxal strips entire; surface slightly convex, shiny. Labium much wider than long, incised anteriorly. Endites almost touching medially, each with seta-bearing tubercle laterally at half of length, anteromedian scopula, and anterolateral serrula. Labral spur sharply pointed. Chelicerae with three promarginal teeth, two more distal ones united on short plate.

Legs yellow, femora and tibiae I darkest; all segments clothed with fine setae; patellae with distal, tibiae with proximal and medial dorsal bristles, tibia I with additional median prolateral bristle; leg formula 1243, leg I not greatly elongated; femur I weakly tuberculate, tibia I unmodified, metatarsus I with three equidistantly spaced proventral spines, tarsus

I unmodified; femora II–IV with low, rounded humps only.

Abdomen with large, rounded dorsal scutum covering posterior two-thirds of dorsum, very narrowly separated from large anterior scutum extending further toward spinnerets at sides than at middle, anterior spiracles advanced more than half distance to pedicel; soft portions of cuticle gray, weakly ridged, with three longitudinal rows of tiny, elongate sclerotizations between ridges. Six spinnerets and wide colulus surrounded by complete sclerotic ring.

Palpal femur enlarged, with sickle-shaped dorsal apophysis at distal end; patella long, with small, simple subbasal dorsal apophysis and larger, bent, subdistal dorsal apophysis; tibia long, bent, distally expanded; cymbium unmodified; embolus originating proximally, entering body of bulb at about half its length, reappearing distally (figs. 220–222).

FEMALE: As in male, except as follows. Total length 0.63. Carapace 0.33 long, 0.28 wide, 0.20 high. Abdomen 0.44 long, 0.31 wide, 0.48 high. Pars cephalica with two most posterior seta-bearing tubercles paramedially situated. Metatarsus I without proventral spines. Abdomen without dorsal scutum, gray, coriaceous, with numerous fine seta arising from tiny round sclerotizations, larger circular sclerotizations scattered around margin and paramedially on dorsum; anterior spiracles leading to tracheae. Palp segments beyond coxae reduced to low knob on endites. Epigynal area with externally projecting ridges, internal genitalia highly sclerotized (figs. 215, 216).

OTHER MATERIAL EXAMINED: Four males and seven females taken with the types (QMB, AMNH), and one female from a Berlese sample of humid forest litter taken at an elevation of 820 m on the N crest of Mt. Tandji, 20°57'14"S, 164°55'12"E (Nov. 16, 1988; A. and S. Tillier, MNHN).

DISTRIBUTION: Known only from northern New Caledonia.

THE AUSTRALIAN FAUNA

Like the Chilean fauna, the Australian anapids seem sharply delimited, at the generic

level, from those species occurring in more tropical areas to the north (see below for one

possible exception). Only two anapids, *Pseudanapis wilsoni* Forster (1959) and *Pseudanapis grossa* Forster (1959), have been described from New Guinea. The first of these is, as indicated by Platnick and Shadab (1979), correctly placed in *Pseudanapis*, which has a pantropical distribution reaching, in the Indo-Pacific area, at least as far north as Hong Kong, Malaysia, Thailand, and Sri Lanka. The second New Guinea species, like the three described from Australia by Forster (1959), is not congeneric with the type species, *Pseudanapis paroculus* (Simon, 1899) from Sumatra. It has the elongated legs, reduced male palpi, and protuberant eye pattern characteristic of *Conoculus* Komatsu (1940), and *P. grossa* is here transferred to that genus. Other (undescribed) species of *Conoculus* do occur on islands between New Guinea and the areas occupied by the two described species, *Conoculus lyugandinus* Komatsu (1940) from Japan and *Conoculus simboggulensis* Paik (1971) from Korea.

Four generic names have been based on Australian and Tasmanian species: *Chasmocephalon* O. P.-Cambridge (1889), *Risdonius* Hickman (1939), *Olmania* Hickman (1979), and *Acrobleps* Hickman (1979). However, the latter two taxa do not actually belong to the Anapidae. *Acrobleps* is based on a Tasmanian species, *A. hygrophilus* Hickman (1979), that lacks a labral spur and therefore cannot be placed in the Anapidae. The shape of the carapace, and its higher elevation in males than in females, indicate that *Acrobleps* is one of several (mostly undescribed) genera belonging to the *Trogloneta* complex (Mysmenidae), and the genus is here transferred to that family. The few known specimens of *Acrobleps* were all collected in the wet, marshy habitats typical of the *Trogloneta* complex; the genus occurs in Queensland, Western Australia, and New Caledonia as well as Tasmania. *Acrobleps* does have anterolateral carapace excavations, but we doubt their homology to the glandular depressions of anapids.

Similarly, *Olmania* is based on a Tasmanian species, *Olmania excavata* Hickman (1979), that lacks a labral spur as well as glandular depressions on the carapace. In addition, the female pedipalp is fully developed, and the eyes are reduced in size. The protu-

berant chelicerae and palpal morphology of males, along with the carapace shape (the pars cephalica is raised for its entire length), indicate that *Olmania* belongs to the Micropholcommatidae, and the genus is here transferred to that family. Both the male and female genitalia seem more similar to those of *Textricella* than to those of *Micropholcomma* and its closest relatives. Undescribed species of *Olmania* are known from Tasmanian caves; females of some of these show vague indications of anapid-like depressions at the anterolateral corners of the carapace, but scanning electron microscope observations of *O. excavata* have revealed no trace of glandular openings, just punctations of the same shape and size as those scattered elsewhere over the carapace.

Brignoli (1981) transferred three Australian species (and one from New Caledonia) to *Anapogonia* Simon (1905). However, Brignoli was unable to study the type species, *Anapogonia lyrata* Simon (1905) from Java, and those transfers are all incorrect. *Anapogonia* is a widespread genus, reaching at least as far as India, Thailand, and Malaysia, but is poorly known and remains of uncertain familial placement (it probably belongs to the Symphytognathidae, but because the chelicerae are unfused, including it in that family will require broadening the current limits of the group). *Anapogonia* does not, however, contain any known Australian or New Caledonian species.

The Australian anapids are diverse, and only two of the seven previously described species are congeneric. We record below a total of 37 species, placed in ten genera. Not included in this total (or the key and descriptions below) is the enigmatic species *Pseudanapis aloha* Forster (1959), originally described on the basis of a male from Hawaii and subsequently redescribed (as a tetrablemid, *Gossiblemma yapensis*) from Yap by Roewer (1963). The female of the species was described from Hawaii by Suman (1967), and Roewer's name was first synonymized by Shear (1978). A single male of this species (in QMB) was purportedly collected in a Berlese sample of sieved rainforest litter taken at an elevation of 710 m at Roaring Meg Creek, 6 km west of Cape Tribulation in northeastern Queensland, by G. B. Monteith and D. K.

Yeates. If this specimen is not merely mislabeled, it is possible that the natural range of *Pseudanapis* does include the tropical parts of Queensland, and *P. aloha* might even be a natively Australian species that has been introduced into Hawaii and Yap. No conclusions can be drawn, however, in the absence of further Queensland material of the species.

KEY TO GENERA OF ANAPIDAE FROM AUSTRALIA AND TASMANIA

1. Anterior spiracles in normal position at epigastric furrow (anterior respiratory organs elongate booklungs); conspicuous, oval glandular depressions present at anterolateral corners of carapace (no triangular fold of cuticle present between carapace margin and dorsal edge of endite) 2
- Anterior spiracles advanced anteriorly at least half distance between epigastric furrow and pedicel (anterior respiratory organs tracheae); glandular areas of carapace shifted onto triangular fold of cuticle (often a separate sclerite) interposed between carapace margin and dorsal edge of endite (figs. 271, 272) 5
2. Abdomen triangular in lateral view; dorsal scutum of male incised anteriorly, v-shaped in dorsal view; anterior portion of female abdomen with longitudinal grooves and ridges 3
- Abdomen rounded in lateral view; dorsal scutum of male not incised anteriorly, rounded in dorsal view; anterior portion of female abdomen smooth 4
3. Males with apophysis on palpal patella proximally situated (as in fig. 230); females with massive, heavily sclerotized internal genitalia (figs. 226, 227) *Risdonius*
- Males with apophysis on palpal patella distally situated (fig. 239); females with two pairs of tiny, widely separated spermathecae (fig. 240) *Tasmanapis*
4. Males with conspicuous tuft of long, sinuous setae distally on tibia I (fig. 246); females with dorsal abdominal scutum . *Victanapis*
- Males without tuft of setae on tibia I; females without dorsal abdominal scutum *Queenslanapis*
5. Anterior spiracles advanced anteriorly almost to level of pedicel 6
- Anterior spiracles about halfway between epigastric furrow and pedicel 8
6. Relatively large anapids (total length 0.9 mm or more) 7
- Relatively small anapids (total length 0.7 mm or less) *Nortanapis*
7. Trochanter and femur I with retrolateral tubercles, often enlarged (fig. 273); males with pair of curved processes at posterior edge of sternum (fig. 275); female genitalia without anteriorly projecting median process *Maxanapis*
- Trochanter and femur I without retrolateral tubercles; males without pair of curved processes at posterior edge of sternum; female genitalia with anteriorly projecting median process (as in figs. 324, 327) . . . *Spinanapis*
8. Males with both proximal and distal apophyses on palpal patella (figs. 386, 387); female genitalia with spermathecal ducts coiled at least once (as in figs. 375–378) *Chasmocephalon*
- Males with at most one apophysis on palpal patella; female genitalia with spermathecal ducts uncoiled 9
9. Leg I greatly elongated, more than twice as long as leg III *Octanapis*
- Leg I not greatly elongated, only slightly longer than leg III *Hickmanapis*

RISDONIUS HICKMAN

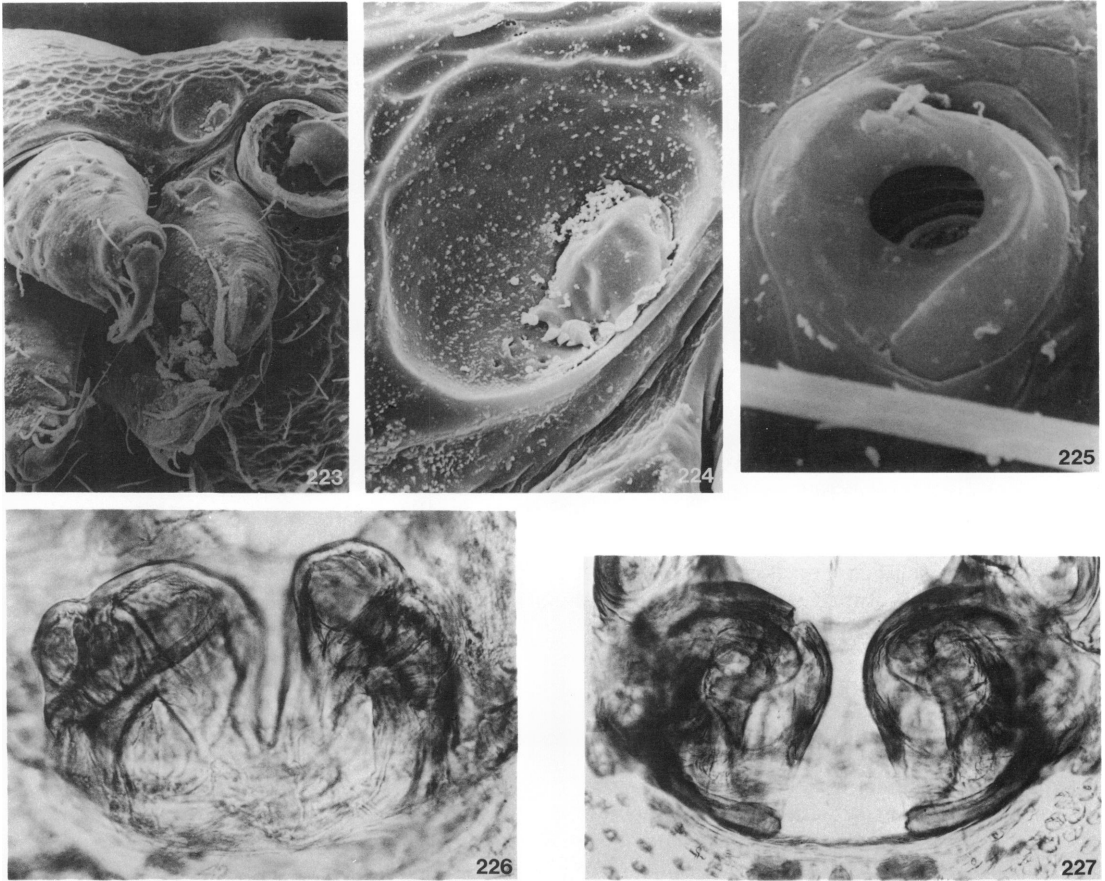
Risdonius Hickman, 1939: 655 (type species by original designation *Risdonius parvus* Hickman).

DIAGNOSIS: *Risdonius* differs from the other Australian anapid genera other than *Tasmanapis*, *Victanapis*, and *Queenslanapis* in retaining anterior booklungs (which do, nonetheless, have elongate, tracheiform lamellae) originating from normally placed spiracles. Its species resemble those of *Tasmanapis* rather than the latter two genera in having a triangular abdomen (with an incised dorsal scutum in males), but differ from *Tasmanapis* in genitalic structure (see couplet 3 in the key above).

MONOPHYLY: The three included species have very similar palpi, differing primarily in the shape of the prolateral apophysis on the bulb.

GENERIC RELATIONSHIPS: The presence of a prolateral bulbal apophysis, as well as the abdominal shape and scutation, indicate that *Risdonius* and *Tasmanapis* are probably sister taxa.

SPECIFIC RELATIONSHIPS: The Victorian species *R. lind* and the New South Wales



Figs. 223–227. 223–226. *Risdonius parvus* Hickman. 227. *R. barrington*, new species. 223. Pars cephalica and mouthparts, lateral view. 224. Cephalic porepit, lateral view. 225. Trichobothrial base, dorsal view. 226, 227. Internal female genitalia, dorsal view.

species *R. barrington* agree in having a shorter, heavier proateral bulbal apophysis than does the more widespread *R. parvus*, but whether this accurately reflects the interrelationships is difficult to determine in the absence of females of *R. lind*.

DISTRIBUTION: New South Wales to Tasmania.

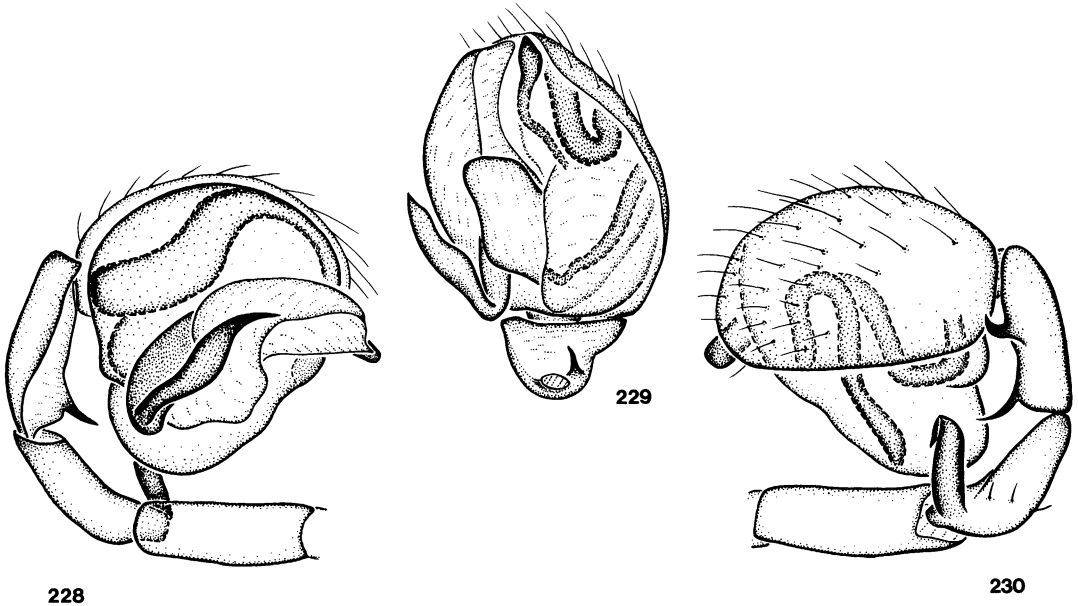
Risdonius parvus Hickman
Figures 223–226, 228–230

Risdonius parvus Hickman, 1939: 656, figs. 1–14 (male and female syntypes from East Risdon, Tasmania, in AMS, examined). – Forster, 1959, fig. 133.

DIAGNOSIS: Males can be distinguished from those of *R. barrington* and *R. lind* by

the longer proateral palpal apophysis (fig. 229), females by the different form of the internal genitalia (fig. 226).

MALE: Total length 1.50. Carapace 0.59 long, 0.50 wide, 0.41 high. Abdomen 0.85 long, 0.75 wide, 1.04 high. Carapace dark reddish brown except for paler, glabrous area around pedicel, oval in dorsal view, widest at coxae II, posterior margin not invaginated at middle; surface of pars cephalica shiny, with three strong setae originating from enlarged tubercles, one along midline at about half of length, two paramedian near posterior edge; thoracic groove represented only by gentle depression; surface of pars thoracica finely tuberculate, with three large tubercles on each side immediately behind, and about five large tubercles in procurved row im-



Figs. 228-230. *Risdonius parvus* Hickman, left male palp, prolateral, ventral, and retrolateral views.

mediately in front, of deep cephalic grooves; no true thoracic humps present; clypeal height at middle about five times that of anterior lateral eyes, anterolateral corners with conspicuous oval depressions just above palpal trochanters (figs. 223, 224).

Eight eyes in four pairs; eyes of each pair contiguous except PME separated by their radius; AME circular, about two-thirds size of other oval, subequal eyes; from front, both rows procurved; from above, both rows slightly recurved; ALE separated by their diameter from AME, PLE slightly farther from PME; AME separated by almost twice their diameter from PME; MOQ 1.5 times as long as wide in front, 1.5 times as wide in back as in front.

Sternum and mouthparts dark reddish brown. Sternum elevated, longer than wide, truncated posteriorly, separating coxae IV by more than their length, posterior edge with definite ridge in front of portion continuing dorsally to fuse with carapace, extensions present between, and surrounding, all coxae; surface irregularly excavated. Endites transversely depressed at middle of length, paler distally, each with slight anteromedial scapula and strong anterolateral serrula. Labium small, triangular, fused to sternum along

shallow groove. Labral spur distinct. Cheliceratal promargin with three short teeth.

Legs orange, with femora and patellae lightest; all segments clothed with fine hairs; patellae each with extremely long distal dorsal bristle; tibiae each with extremely long median dorsal bristle; leg formula 1243; femur I elongated, femur and tibia I slightly enlarged distally but without tubercles; metatarsi I and II with one or two, tarsi I and II with five or six, short, thick modified setae on proventral surface; trichobothrial base ridged (fig. 225).

Abdomen triangular in lateral view, with posterior half of sides covered with strong scutum not extending onto dorsal surface, appearing v-shaped in dorsal view; dorsal surface crenulate, with two paramedian ridges separating three deep grooves, similar grooves on sides (in front of, and below scutum), all containing small but elongate sclerotizations; anterior scutum surrounding pedicel, incorporating anterior spiracles (normally situated), followed posteriorly by short, transverse sclerite occupying one-third of venter width; venter with small, circular sclerotizations. Six spinnerets and narrow colulus encircled by sclerotic ring.

Palp with elongate femur; patella with long,

basally originating, distally hooked, retrolateral apophysis; tibia with two (basal and distal) sharply pointed retrolateral apophyses; cymbium unmodified; tegulum globose, with embolus sheathed in translucent conductor, distinct lateral apophysis long, jutting out from bulb, and small but strongly sclerotized distal apophysis that may engage palpal apophysis in expanded bulb (figs. 228–230).

FEMALE: As in male, except as follows. Total length 1.11. Carapace 0.56 long, 0.46 wide, 0.28 high. Abdomen 0.61 long, 0.57 wide, 0.89 high. Clypeal height at middle only about three times that of ALE. Anterior metatarsi and tarsi without modified setae. Abdomen without dorsal scutum, dorsum with few, scattered circular sclerotizations. Palpal segments beyond coxae lacking; trochanter represented by slight hump on endites. Booklungs still present but narrowed, elongated, reaching nearly to dorsal edge of pedicel. Internal genitalia complex, with paired basal sacs fused along midline near posterior edge; pair of large anterior arches arising medially from basal sacs, protruding dorsally and laterally, terminating posteriorly (fig. 226).

MATERIAL EXAMINED: AUSTRALIA: **New South Wales:** Batemans Bay, May 27, 1978, elev. 10 m, Berlese, wet stump and log (S. and J. Peck, AMNH), 2♀; Congo, 8 km SE Moruya, Mar. 12, 1983, Berlese (M. S. Upton, ANIC), 1♀. **Australian Capital Territory:** Black Mountain, near lookout, Jan. 9, 1968, Berlese, dry sclerophyll leaf litter (C. Brooks, ANIC), 1♂, 3♀; Blundells Creek, 3 km E Piccadilly Circus, Feb.–Apr. 1984, elev. 850 m (J. F. Lawrence, T. Weir, M.-L. Johnson, ANIC), 3♂; 1 km ESE Bulls Head, Bendora Road, Brindabella Range, Apr. 3, 1983, Berlese, under log (R. J. Moran, M. S. Harvey, ANIC), 1♀; 1 km N Mt. Gingera, Feb. 18, 1981, Berlese, leaf litter (A. A. Calder, ANIC), 1♂, 1♀; Piccadilly Circus, Jan. 1984, elev. 1240 m (J. F. Lawrence, T. Weir, M.-L. Johnson, ANIC), 1♀. **Victoria:** Acheron Gap, 16 km N Warburton, Apr. 28–30, 1978, elev. 750 m, Berlese, frass under eucalypt and beech logs (S. and J. Peck, AMNH), 2♂; Alfred National Park, 19 km E Cann River, Mar. 23, 1978, in bank (M. Gray, AMS), 1♀, May 21, 1978, elev. 200 m, Berlese, bark and rotten logs in temperate rainforest (S. and J. Peck, AMNH), 1♀; Cann River, May 25, 1978,

Berlese, rotten eucalypt bark (S. and J. Peck, AMNH), 2♂; Cape Schanck, May 28–July 8, 1978 (V. Salanitri, QMB), 3♂, 3♀; Captain Creek, Mallacoota, Croajingalong National Park, May 22, 1978, elev. 10 m, Berlese, eucalypt bark and litter with fungi (S. and J. Peck, AMNH), 1♂; Cement Creek, E (dry) slopes Donna Buang, Sept. 1, 1958, moss and ferns on trees (S. Sexhan, OMD), 1♂; Coranderrk Reserve, SE Healesville, Jan. 13, 1980, elev. 240 m, Berlese, forest litter, eucalypt, tree ferns (A. Newton, M. Thayer, AMNH), 3♀, Feb. 25, 1985, Berlese, inside log (N. Wentworth, MOV), 1♀; 7.5 km E Marysville, Sept. 30, 1986, elev. 600 m, in flimsy sheet web under eucalypt bark (M. S. Harvey, MOV), 1♂, 2♀; Wingam Inlet National Park, May 23, 1978, elev. 2 m, Berlese, fungi and eucalypt bark (S. and J. Peck, AMNH), 1♀, (S. and J. Peck, MCZ), 1♀. **Tasmania:** Dismal Swamp, 35 km W Smithtown, Mar. 7, 1977, Berlese, litter in crown of tree fern (J. Kethley, FMNH), 1♀; Dismal Swamp, West Slope, 34 km W Smithtown, Feb. 26, 1977, Berlese, under bark of beech log (J. Kethley, FMNH), 1♂, 1♀; East Risdon, June 30, 1937 (V. V. Hickman, AMS), 6♂, 2♀ (syntypes); W side, Lake St. Clair, Jan. 25–29, 1980, elev. 750 m, fine debris under bark of beech logs (A. Newton, M. Thayer, AMNH), 1♀; Ridgeway, Oct. 1958 (C. Oke, MOV), 1♂, 1♀; Risdon, July 11, 1938 (V. V. Hickman, AMNH), 3♂, 3♀; Trevallyn, Nov. 7, 1939 (V. V. Hickman, OMD), 2♂.

DISTRIBUTION: Southern New South Wales to Tasmania.

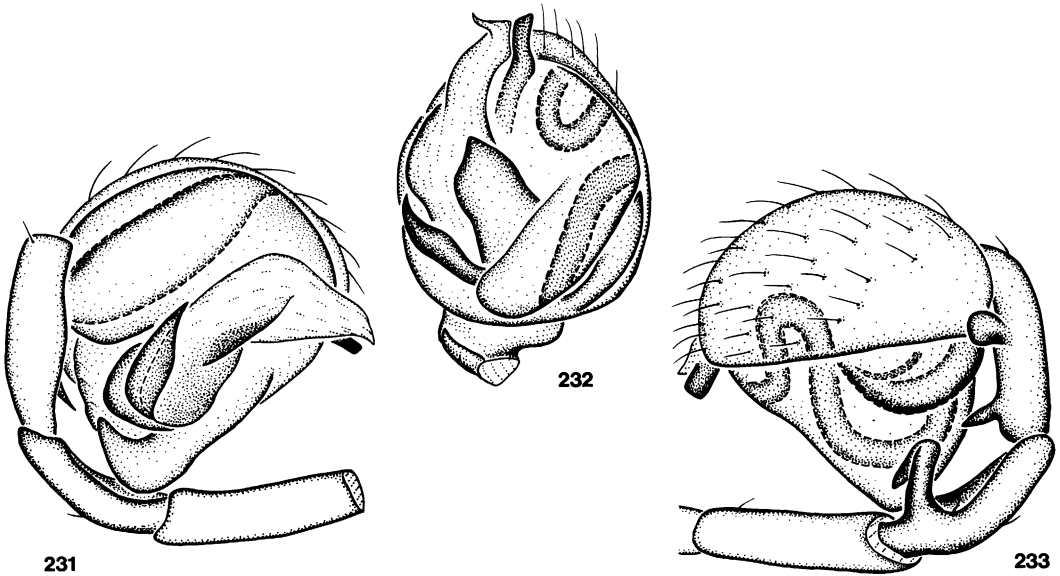
Risdonius barrington, new species

Figures 227, 231–233

TYPES: Male holotype and female allotype from Berlese sample of moss on rock faces taken at Dilgry River, Barrington Tops State Forest, New South Wales, Australia (Nov. 15–16, 1981; T. Weir and A. Calder), deposited in ANIC.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be recognized by having the prolateral palpal apophysis relatively short and closely appressed to the palpal bulb (fig. 232), females by the lobe-shaped anterior genitalic arches (fig. 227).



Figs. 231–233. *Risdonius barrington*, new species, left male palp, prolateral, ventral, and retrolateral views.

MALE: As in *R. parvus*, except as follows. Total length 1.04. Carapace 0.54 long, 0.46 wide, 0.37 high. Abdomen 0.59 long, 0.67 wide, 0.96 high. Tarsus II with fewer (only about three) modified setae. Palp with prolateral apophysis of bulb shorter than in *R. barrington*, excavated medially, gradually narrowed distally, closely appressed to bulb (figs. 231–233).

FEMALE: As in *R. parvus*, except as noted for male. Total length 1.22. Carapace 0.57 long, 0.46 wide, 0.26 high. Abdomen 0.67 long, 0.74 wide, 1.02 high. Booklungs bipartite, with lateral elements as in *R. parvus* but with additional paramedian lamellae almost in tracheal form. Distal arches of internal genitalia with dorsal lobes (fig. 227).

OTHER MATERIAL EXAMINED: AUSTRALIA: New South Wales: Burruga Trail, Mt. Allyn, Barrington Tops, June 17–July 16, 1978, elev. 1000 m, Berlese of bark, litter, and fungi from beech forest (S. and J. Peck, AMNH), 1♀; 7 km ENE Captains Flat, Tal-laganda State Forest, Aug. 29, 1981, Berlese of leaf and log litter, moss (W. Allen, ANIC), 1♀; Dilgry River, Barrington Tops State Forest, Nov. 15–16, 1981, Berlese, moss on rock faces (T. Weir, A., Calder, ANIC), 9♂, 10♀; 2 km N Monga, Sept. 18, 1983, under eucalypt bark (M. S. Harvey, ANIC), 1♀.

DISTRIBUTION: Known only from New South Wales.

***Risdonius lind*, new species**

Figures 234–236

TYPE: Male holotype taken from rotten eucalypt bark in Lind National Park, Victoria, Australia (May 25, 1978; S. and J. Peck), deposited in MOV.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be recognized by the anteriorly widened and bipartite tip of the prolateral palpal apophysis (fig. 235).

MALE: As in *R. parvus*, except as follows. Total length 1.48. Carapace 0.57 long, 0.52 wide, 0.37 high. Abdomen 0.73 long, 0.65 wide, 1.02 high. Tarsus II with only one or no modified setae. Palp with prolateral apophysis of bulb shorter than *R. parvus*, widened and bipartite distally (figs. 234–236).

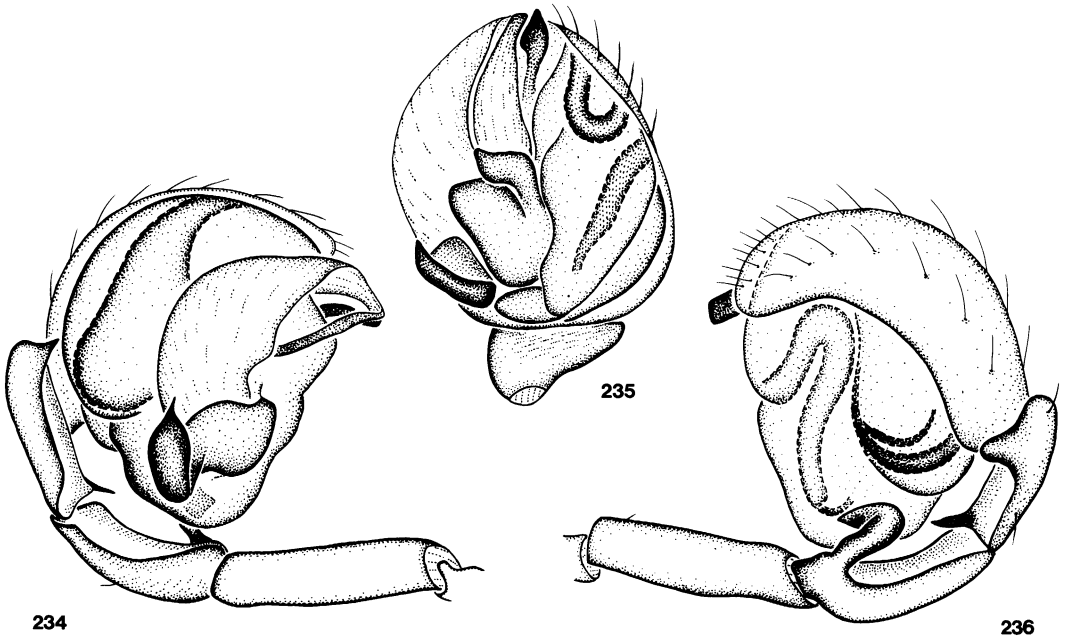
FEMALE: Unknown.

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Known only from the type locality in Victoria.

TASMANAPIS, NEW GENUS

TYPE SPECIES: *Tasmanapis strahan*, new species.



Figs. 234–236. *Risdonius lind*, new species, left male palp, prolateral, ventral, and retrolateral views.

ETYMOLOGY: The generic name is a contraction of Tasmanian *Anapis* and is feminine in gender.

DIAGNOSIS AND GENERIC RELATIONSHIPS: The single known species of *Tasmanapis* resembles *Risdonius* in one plesiomorphic character (retention of the anterior booklungs) and two apparently synapomorphic features, the triangular abdomen with an incised male scutum, and the presence of a prolateral apophysis on the male palpal bulb. The two genera differ in details of the structure of both the male and female genitalia (see couplet 3 in the key above).

DISTRIBUTION: Tasmania.

***Tasmanapis strahan*, new species**

Figures 237–240

TYPES: Male holotype and female allotype from Berlese sample of leaf and log litter taken in a beech forest 10.4–13.1 km SE of Strahan, Tasmania (Feb. 18, 1980; A. Newton, M. Thayer), deposited in AMS.

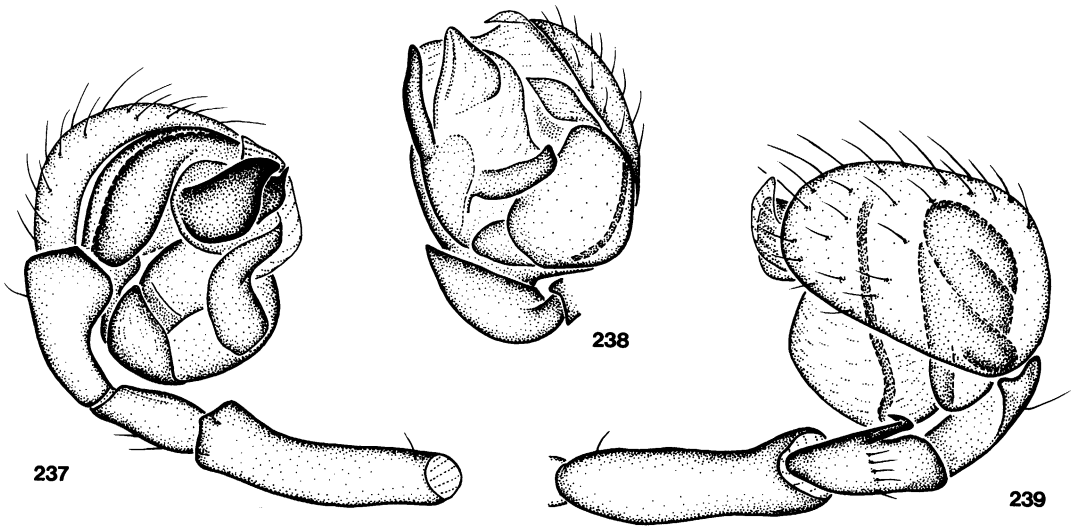
ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: With the characters of the genus, palpi as in figures 237–239, and female genitalia as in figure 240.

MALE: Total length 1.40. Carapace 0.52 long, 0.46 wide, 0.20 high. Abdomen 0.65 long, 0.52 wide, 0.80 high. Carapace dark reddish brown, oval in dorsal view, widest at rear of coxae II, posterior margin truncate; surface of pars cephalica striate, posterior portion with about three seta-bearing tubercles on each side; pars thoracica set off by deep cervical grooves but without distinct anteromedial humps, surface reticulate; clypeal height at middle about four times that of anterior lateral eyes, anterolateral corners with distinct circular glandular depressions above endites.

Eight eyes in four pairs, eyes of each pair subcontiguous; AME circular, half as large as other, oval eyes; from front, both rows procurved; from above, both rows recurved; ALE separated by slightly more than their diameter from AME, PLE farther from PME; MOQ as wide in back as long, less than 1.5 times as wide in back as in front.

Sternum and mouthparts dark reddish brown. Sternum elevated, elevated portion longer than wide, truncated posteriorly, without distinct posterior extension, separating coxae IV by more than their length, extending between coxae to fuse with carapace, intercoxal strips entire; surface reticulate. Labium



Figs. 237-239. *Tasmanapis strahan*, new species, left male palp, prolateral, ventral, and retrolateral views.

rounded distally. Endites only slightly convergent, each with strong anteromedian scapula and anterolateral serrula. Labral spur short, triangular. Chelicerae produced anteriorly just below base, promargin with three large, separated teeth.

Legs orange, femora darkest; all segments clothed with fine hairs; patellae with distal dorsal bristles, tibiae with dorsal bristles at about half their length; leg formula 1423, femur I elongate, slightly enlarged, distally sinuous, with small but distinct prolateral, ventral, and retrolateral tubercles, tibia I elongate but otherwise unmodified, metatarsi I and II each with two short, proventral spiniform setae, tarsus I with three or four similar setae.

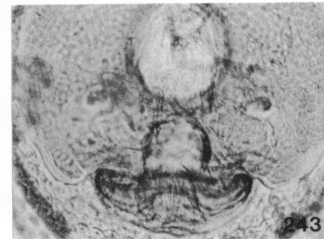
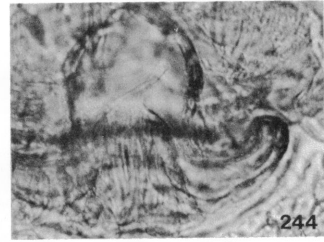
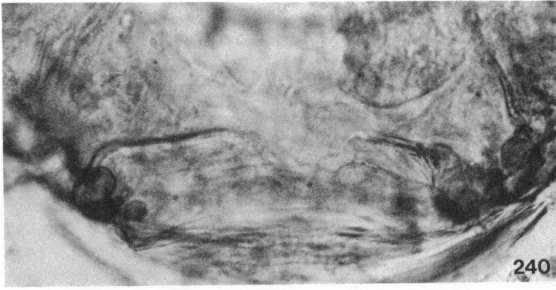
Abdomen triangular in lateral view, dorsal scutum shifted posteriorly, not covering median portion of dorsum, appearing v-shaped in dorsal view; soft portion of cuticle between arms of dorsal scutum with three deep grooves bearing elongate sclerotizations, situated between four elevated ridges; anterior scutum small, encircling pedicel but not extending farther toward spinnerets at sides than at middle, spiracles incorporated but not advanced anteriorly; soft portions of venter gray, slightly ridged, with elongate sclerotizations; six spinnerets and large colulus surrounded by sclerotic ring.

Palpal femur expanded at distal tip; patella with lobe-shaped retrolateral apophysis at half

its length; tibia elongate; cymbium unmodified; bulb with small but distinct, spiniform prolateral apophysis, embolic division projecting ventrally (figs. 237-239).

FEMALE: As in male, except as follows. Total length 1.26. Carapace 0.50 long, 0.41 wide, 0.20 high. Abdomen 0.59 long, 0.56 wide, 0.85 high. Posterior portion of pars cephalica with about five seta-bearing tubercles on each side; clypeal height at middle less than three times that of ALE. ALE separated by less than their diameter from AME. Femur and tibia I elongate but legs I, II otherwise unmodified. Abdomen without dorsal scutum, posterior surface of abdomen with two large transverse white spots; anterior scutum followed by short, wide, transverse postgenital sclerite. Anterior respiratory organs booklungs, lamellae elongate, tracheiform at tip but not extending into cephalothorax, posterior tracheae with four simple tubes. Palpal segments beyond coxae lost. Genitalia with two pairs of widely separated receptacula (fig. 240).

OTHER MATERIAL EXAMINED: AUSTRALIA: **Tasmania:** Donaghy's Hill, 35 km W Derwent Bridge, Apr. 29, 1987, elev. 480 m, pyrethrin fogging of tree ferns at night (N. I. Platnick, R. J. Raven, T. Churchill, AMNH), 1♂; 10.4-13.1 km SE of Strahan, Feb. 18, 1980, Berlese, leaf and log litter, beech forest (A. Newton, M. Thayer, AMNH), 2♀.



Figs. 240–244. Internal female genitalia, dorsal views. 240. *Tasmanapis strahan*, new species. 241. *Victanapis warburton*, new species. 242. *Queenslanapis lamington*, new species. 243, 244. *Nortanapis lamond*, new species.

DISTRIBUTION: Known only from north-western Tasmania.

VICTANAPIS, NEW GENUS

TYPE SPECIES: *Victanapis warburton*, new species.

ETYMOLOGY: The generic name is a contraction of Victorian *Anapis* and is feminine in gender.

DIAGNOSIS: The single known species of *Victanapis* can be easily distinguished from all other Australian anapids by the triangular dorsal extensions present in both sexes on the right and left sides of the sclerotized ring surrounding the spinnerets and colulus (fig. 245), as well as by the conspicuous tuft of long, sinuous setae found distally on tibia I of males (fig. 246).

GENERIC RELATIONSHIPS: *Victanapis* is a monotypic genus containing a highly auto-

pomorphic species of enigmatic relationships to other genera.

DISTRIBUTION: Victoria.

Victanapis warburton, new species

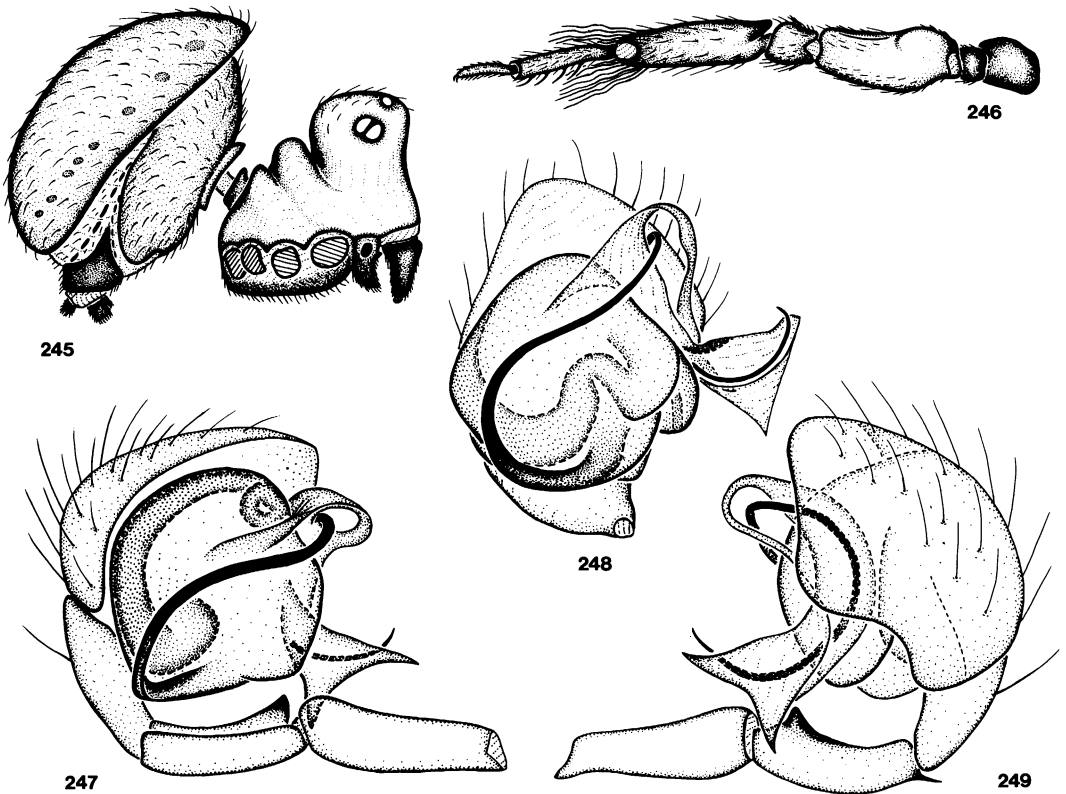
Figures 241, 245–249

TYPES: Male holotype and female allotype from Berlese sample of beech forest litter taken at an elevation of 670 m at Cement Creek, Warburton, Victoria, Australia (Jan. 10–17, 1980; A. Newton, M. Thayer), deposited in MOV.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: With the characters of the genus, an elaborately coiled embolus (fig. 248), and coiled ducts inside heavily sclerotized spermathecae (fig. 241).

MALE: Total length 0.81. Carapace 0.45 long, 0.38 wide, 0.27 high. Abdomen 0.43



Figs. 245–249. *Victanapis warburton*, new species. 245. Body, lateral view. 246. Leg I, ventrolateral view. 247–249. Left male palp, prolateral, ventral, and retrolateral views.

long, 0.53 wide, 0.59 high. Carapace dark reddish brown, almost circular in dorsal view, widest at coxae II, posterior margin truncate; pars cephalica with ocular area globose, shiny, posterior portion without obvious seta-bearing tubercles, pars thoracica with pair of rounded anteromedian humps and series of three smaller humps along each side; clypeus constricted immediately below ocular area, with pair of paramedian depressions immediately below constriction, height at middle five times that of anterior lateral eyes, anterolateral corners with circular glandular areas immediately above endites.

Six eyes in three pairs, PME separated by almost their diameter, by twice their diameter from PLE; lateral eyes of each side contiguous; posterior row procurved from front, recurved from above.

Sternum and mouthparts dark reddish brown, chelicerae lightest. Sternum elevated, elevated portion slightly wider than long, tri-

angular, without distinct posterior extension, separating coxae IV by more than their length, extending between coxae to fuse with carapace, intercoxal strips interrupted at middle; surface with slight depressions. Labium wider at half of length than posteriorly, truncate anteriorly. Endites convergent, each with strong anteromedian scopula and anterolateral serrula. Labral spur short, knob-shaped. Chelicerae relatively short, directed posteriorly, with short proximal and two very long distal promarginal teeth.

Legs orange, with patellae lightest; all segments clothed with fine setae; patellae with distal dorsal bristles, tibiae with dorsal bristles at half their length, tibia I with additional prolateral bristles at half its length; leg formula 1423; femur I enlarged, expanded just beyond base, flattened on prolateral, ventral, and retrolateral surfaces, so as to appear almost rectangular in cross section; tibia I enlarged, bearing sharp spur proximally at ret-

rolateral corner and distal brush of long, sinuous setae dorsally and prolaterally; metatarsus I with four or five spiniform setae, tarsus I much narrower than metatarsus I.

Abdomen with dorsum covered with rounded, setose scutum bearing about seven circular impressions along each side and two pairs of rounded paramedian sclerotizations, narrowly separated from long anterior scutum extending farther toward spinnerets at sides than middle, with spiracles incorporated by scutum but not advanced from epigastric furrow; soft portions of cuticle gray with tiny sclerotizations. Six spinnerets and lobate colulus surrounded by sclerotic ring extended laterally into long triangles.

Palpal patella with ventral apophysis at base, extended beyond origin of tibia dorsodistally; tibia bent medially at about half its length; cymbium widened distally; coiling embolus supported by wide conductor (figs. 247–249).

FEMALE: As in male, except as follows. Total length 0.83. Carapace 0.46 long, 0.30 wide, 0.26 high. Abdomen 0.52 long, 0.59 wide, 0.63 high. Pars cephalica with pair of paramedian seta-bearing tubercles posteriorly; paramedian clypeal depressions absent, clypeal height at middle four times that of ALE. Leg I unmodified. Dorsal, anterior, and posterior scuta fully developed, as in male; invaginated portion of posterior margin of anterior scutum accompanied by thin transverse postgenital sclerite. Anterior respiratory organs booklungs, posterior respiratory system with four simple tracheal tubes. Palpal segments beyond coxae reduced to slight hump. Spermathecae heavily sclerotized, tubular, with coiled ducts (fig. 241).

OTHER MATERIAL EXAMINED: AUSTRALIA: **Victoria:** Acheron Gap, 16 km N Warburton, Apr. 28–May 7, 1978, elev. 750 m, carrion trap, beech forest (S. and J. Peck, AMNH), 1♀; Bulga National Park, May 17, 1978, elev. 550 m, Berlese, fungi on logs (S. and J. Peck, AMNH), 1♀; Cement Creek, Warburton, Jan. 10–17, 1980, elev. 670 m, Berlese, beech forest litter (A. Newton, M. Thayer, AMNH), 4♀; Mt. Donna Buang, 1966–1967, elev. 3300 ft, litter, beech forest (T. M. Howard, MOV), 1♂, 2♀.

DISTRIBUTION: Known only from Victoria.

QUEENSLANAPIS, NEW GENUS

TYPE SPECIES: *Queenslanapis lamington*, new species.

ETYMOLOGY: The generic name is a contraction of Queensland *Anapis* and is feminine in gender.

DIAGNOSIS: The single, small species assigned to this genus resembles those of *Risdonius*, *Tasmanapis*, and *Victanapis* in retaining anterior booklungs, but differs from the first two genera in having a rounded abdomen, and from the last in having a normal, rather than laterally elongated, sclerotic ring surrounding the spinnerets and colulus.

GENERIC RELATIONSHIPS: In the structure of the female genitalia, which have a pair of large, membranous median receptacula and a pair of small, more heavily sclerotized lateral receptacula, *Q. lamington* resembles the New Zealand genus *Zealanapis*, and may be more closely related to that genus than to the other Australian anapids.

DISTRIBUTION: Queensland.

Queenslanapis lamington, new species

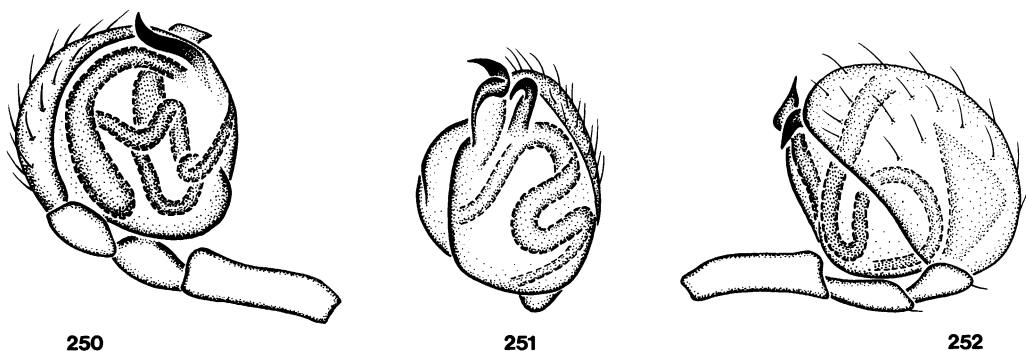
Figures 242, 250–252

TYPES: Male holotype and female allotype taken in litter in Lamington National Park, southeastern Queensland, Australia (Feb. 12, 1981; R. J. Raven, V. T. Davies), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: With the characters of the genus, a compact male palp (fig. 251), and lateral receptacula on posteriorly widened stalks (fig. 242).

MALE: Total length 0.67. Carapace 0.28 long, 0.29 wide, 0.22 high. Abdomen 0.48 long, 0.48 wide, 0.48 high. Carapace orange, sides darker than median area, oval in dorsal view, widest at rear of coxae II, posterior margin truncate; surface of pars cephalica smoother anteriorly than posteriorly, with about three seta-bearing tubercles along midline and pair of larger ones situated posteriorly, paramedially; surface of pars thoracica with network of reticulations, without pronounced anteromedian humps; clypeal height at middle three times that of anterior lateral eyes, conspicuous circular glandular areas



Figs. 250-252. *Queenslanapis lamington*, new species, left male palp, prolateral, ventral, and retrolateral views.

present at anterolateral corners of clypeus, just above endites.

Eight eyes in four pairs, eyes of each pair contiguous except PME separated by their radius; AME circular, about half as large as other, oval eyes; from front, both rows procurved, from above, both recurved; ALE separated by less than their diameter from AME, PLE slightly farther from PME; MOQ as long as wide in back, 1.5 times as wide in back as in front.

Sternum dark gray, mouthparts orange. Sternum elevated, elevated portion slightly wider than long, truncated posteriorly, with distinct, unnotched extension separating coxae IV by more than their length, bearing transverse row of about six setae, extending dorsally and between coxae to fuse with carapace, intercoxal strips narrow but entire. Labium wider than long, rounded apically. Endites convergent, each with weak anteromedian scopula and anterolateral serrula. Labral spur ledge-shaped, dorsally situated. Chelicerae with three promarginal teeth, two most distal apparently not on distinct plate.

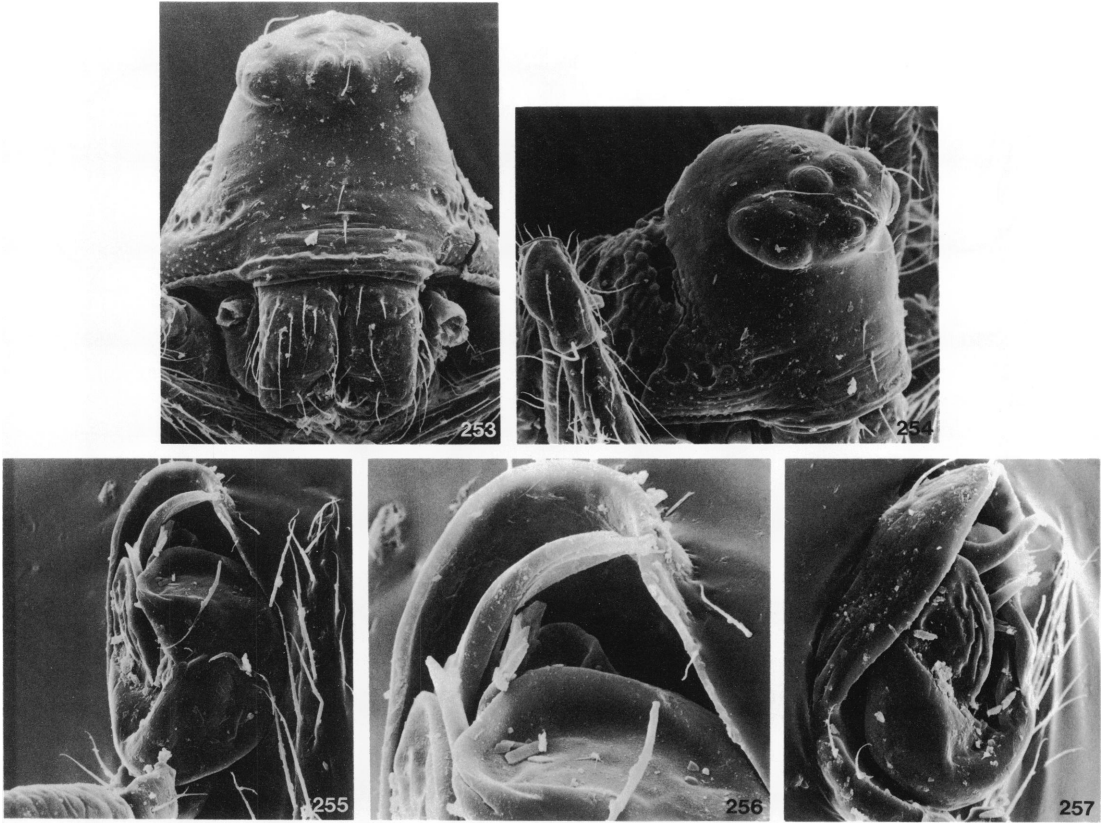
Legs yellow, with patellae lightest and distal halves of tibiae darkest; all segments clothed with fine setae; patellae with long, distal, dorsal bristles, tibiae with dorsal bristles at half of segment length, tibiae I with additional prolateral bristles at half of segment length; leg formula 1243 but all legs subequal in length, femur I not enlarged, only very weakly tuberculate, other segments of leg I also unmodified.

Abdomen with large dorsal scutum covering entire dorsum, with about nine circular sclerotizations marginally on each side and two pairs of paramedian ones equally spaced longitudinally, posterior pair more widely separated from each other than anterior ones; anterior scutum surrounding pedicel and incorporating anterior spiracles but spiracles not advanced toward pedicel, scutum not reaching farther toward spinnerets at sides than at middle; soft portions of cuticle ridged, with three rows of elongate sclerotizations between ridges. Six spinnerets and digitiform colulus surrounded by sclerotic ring.

Palpal femur expanded ventrally at distal end; patella with hook-shaped retrolateral apophysis at about half of length, tibia oval; bulb globose, compact (figs. 250-252).

FEMALE: As in male, except as follows. Total length 0.85. Carapace 0.41 long, 0.28 wide, 0.20 high. Abdomen 0.48 long, 0.56 wide, 0.57 high. Clypeal height at middle only twice that of ALE. AME smaller than in male. Abdomen without dorsal scutum, with about four small, round posteromedial sclerotizations in addition to four larger paramedian ones; anterior scutum accompanied by short, wide, transverse postgenital sclerite. Anterior respiratory system with long booklungs, posterior tracheae present. Palpal segments beyond coxa reduced to tiny knob. Genitalia with two large lateral membranous sacs and pair of lateral receptacula on posteriorly wide but anteriorly sharply narrowed ducts (fig. 242).

OTHER MATERIAL EXAMINED: AUSTRALIA-



Figs. 253–257. *Hickmanapis minuta* (Hickman), male. 253. Carapace, anterior view. 254. Carapace, lateral view. 255–257. Male palp, ventral and prolateral views.

LIA: **Queensland:** O'Reillys, Lamington National Park, Nov. 22–27, 1978, Berlese, rainforest litter (J. F. Lawrence, T. Weir, ANIC), 1♀.

DISTRIBUTION: Known only from Lamington National Park in southeastern Queensland.

HICKMANAPIS, NEW GENUS

TYPE SPECIES: *Hickmanapis renison*, new species.

ETYMOLOGY: The generic name is in honor of the late Prof. V. V. Hickman, who first studied these small spiders.

DIAGNOSIS: Specimens of *Hickmanapis* can be distinguished from those of all other Australia anapids except some *Chasmocephalon* by having an incomplete sclerotic ring that surrounds only the sides and posterior edge of the spinneret group, and from *Chasmocephalon* by having only one apophysis on the male palpal patella and a T-shaped apo-

demal lobe originating from a distinct post-genital sclerite in females (fig. 264).

MONOPHYLY: The T-shaped apodemal lobe found in females of both species (fig. 264), and the unique, sclerotized arch enclosing the posterior genitalic elements in both species (fig. 267), leave little doubt that the genus is monophyletic.

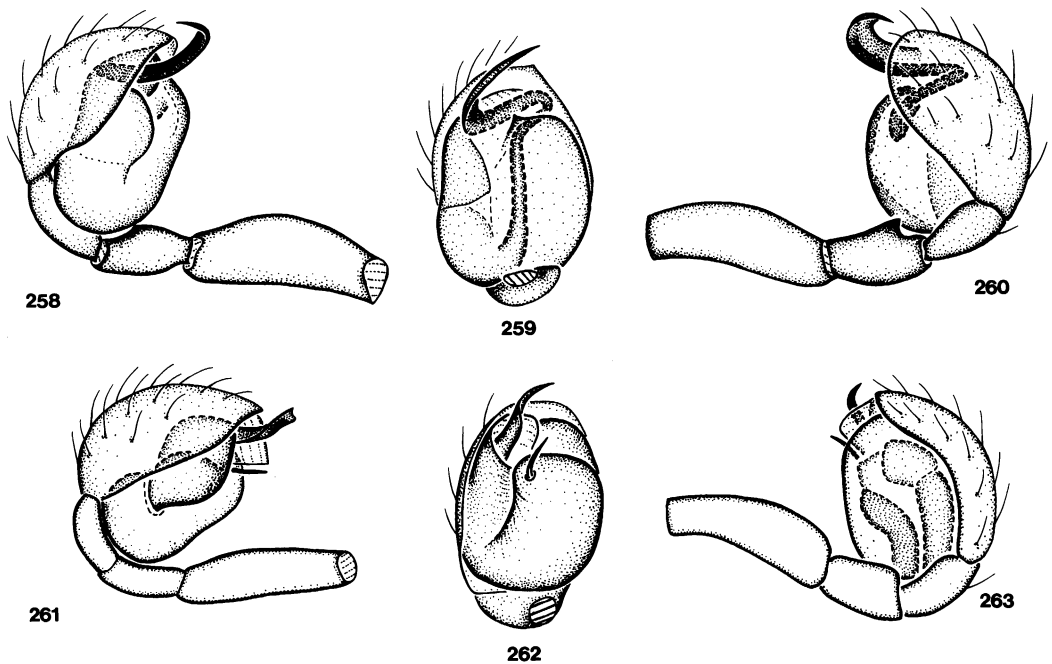
GENERIC RELATIONSHIPS: *Hickmanapis* may be most closely related to *Chasmocephalon*, as indicated by the spinneret ring feature mentioned above; not all species of *Chasmocephalon* share the feature, however, and some show intermediate stages in the loss, or gain, of a complete ring.

DISTRIBUTION: Tasmania.

Hickmanapis renison, new species

Figures 258–260, 264, 265

TYPES: Male holotype and female allotype from Berlese sample of rainforest litter taken



Figs. 258–263. 258–260. *Hickmanapis renison*, new species, left male palp, prolateral, ventral, and retrolateral views. 261–263. *H. minuta* (Hickman), left male palp, prolateral, ventral, and retrolateral views.

2 km west of Commonwealth Hill, via Renison Bell, northwestern Tasmania (Feb. 1, 1983; I. D. Naumann, J. C. Cardale), deposited in ANIC.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be distinguished from those of *H. minuta* by the more pronounced retrolateral patellar apophysis of males (fig. 260) and the narrow postgenital sclerite of females (fig. 264).

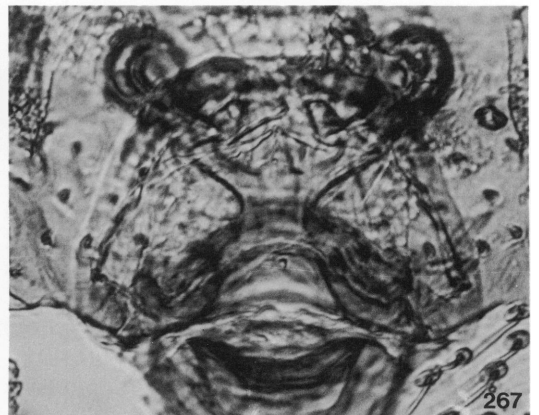
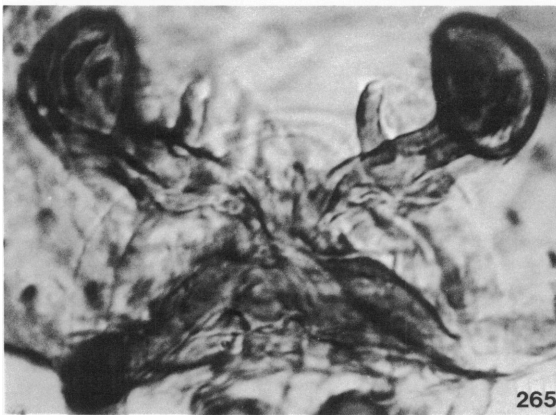
MALE: Total length 0.72. Carapace 0.30 long, 0.30 wide, 0.28 high. Abdomen 0.37 long, 0.46 wide, 0.56 high. Carapace dark reddish brown, almost circular in dorsal view, widest at rear of coxae II, posterior margin truncate; surface of pars cephalica finely granulate, postocular portion with two seta-bearing tubercles along midline and two more posteriorly situated ones paramedially; surface of pars thoracica irregularly pitted, sides raised immediately behind deep cervical grooves but without distinct anterolateral humps, thoracic groove represented by smooth medial area; clypeal height at middle four times that of anterior lateral eyes; glandular areas apparently shifted to triangular

sclerite interposed between carapace margin and endites.

Eight eyes in four pairs, AME half as large as other, subequal eyes; both rows procurved from front, recurved from above; both pairs of medians separated by less than their radius, both pairs of laterals contiguous; ALE separated by their diameter from AME, PLE slightly closer to PME; MOQ 1.5 times as long as wide in front, 1.5 times as wide in back as in front.

Sternum and labium dark reddish brown, endites and chelicerae lighter. Sternum elevated, elevated portion about as wide as long, truncated posteriorly, without distinct posterior extension but continuing dorsally and around coxae to fuse with carapace; intercoxal strips broken at middle; surface irregularly pitted. Labium much wider than long, truncated distally. Endites distally oblique but widely separated at tip, each with strong anteromedian scopula and anterolateral serrula. Labral spur rounded. Chelicerae with three promarginal teeth, distal pair apparently not on plate.

Legs orange, patellae lightest; all segments clothed with fine setae; patellae with distal,



Figs. 264–267. Internal female genitalia, dorsal views. 264, 265. *Hickmanapis renison*, new species. 266, 267. *H. minuta* (Hickman).

tibiae with proximal and distal dorsal bristles, tibiae I with additional prolateral bristle at half of length; leg formula 1423 but all legs nearly equal in length, femur I not expanded, with weak tubercles, metatarsus I with two enlarged, elongated proventral setae, tarsus I with first proventral seta slightly enlarged.

Abdomen with large, rounded dorsal scutum covering posterior two-thirds of length, narrowly separated from anterior scutum encircling pedicel, extending farther toward spinnerets at sides than at middle, spiracles advanced about half distance to pedicel; soft portions of cuticle dark gray, with two or three

rows of small, long sclerotizations. Six spinnerets and triangular colulus accompanied at sides and posteriorly by wide sclerotic ring not extending around spinnerets anteriorly.

Palpal femur greatly thickened, patella ventrally excavated, with distinct retrolateral apophysis, tibia triangular, cymbium slightly excavated ventrally at tip, embolus long, curving retrolaterally, not supported by more proximal process (figs. 258–260).

FEMALE: As in male, except as follows. Total length 0.83. Carapace 0.43 long, 0.26 wide, 0.20 high. Abdomen 0.44 long, 0.26 wide, 0.59 high. Clypeal height at middle only three

times that of ALE. Metatarsus and tarsus I without enlarged setae. Anterior respiratory organs tracheae penetrating into cephalothorax; abdominal dorsum shiny but without distinct scutum; anterior scutum with posterior margin slightly invaginated at midline, accompanied by distinct, narrowly triangular postgenital sclerite protruding internally as large T-shaped sclerotization (with long dorsoventral muscles attached to each end of its distal bar). Palpal segments beyond coxae reduced to slight knob. Spermathecal ducts long, posterior portion apparently contained within strong-walled median receptaculum, anterior portion with two lateral spermathecae (figs. 264, 265).

OTHER MATERIAL EXAMINED: AUSTRALIA: Tasmania: Black Bog Creek, May 14, 1988, from poa, gleichenia, rushes (L. Hill, QMB), 1♂; Bubs Hill, just W Victoria Pass, Apr. 28, 1987, Berlese, litter (N. I. Platnick, R. J. Raven, T. Churchill, AMNH), 1♂; Christmas Hills, 35 km SW Smithton, Feb. 27, 1977, Berlese, musk litter (J. Kethley, FMNH), 3♂, 1♀; 2 km W Commonwealth Hill, via Renison Bell, Feb. 1, 1983, Berlese, rainforest litter (I. D. Naumann, J. C. Cardale, ANIC), 1♀; W slope, Dismal Swamp, 34 km W Smithton, Feb. 26, 1977, Berlese, dogwood litter (J. Kethley, FMNH), 2♀; Dismal Swamp, 35 km W Smithton, Mar. 7, 1977, Berlese, musk litter (J. Kethley, FMNH), 1♂, 1♀; N side, Hellyer Gorge, 8 km N Parrawe, Feb. 18, 1980, elev. 280 m, Berlese, beech forest litter (A. Newton, M. Thayer, AMNH), 1♂; Mt. Rufus, Lake St. Clair National Park, Apr. 29, 1987, Berlese, litter, beech-eucalypt forest (N. I. Platnick, R. J. Raven, T. Churchill, AMNH), 1♂; Savage River Pipeline Road, SE Smithton, Mar. 5, 1977, Berlese, dry myrtle litter (J. Kethley, FMNH), 2♀; Scenic Drive, Zeehan-Renison Bell State Reserve, Feb. 18, 1980, elev. 250 m, Berlese, leaf and log litter, beech forest (A. Newton, M. Thayer, AMNH), 5♂, 6♀; 12 km W Smithton, Feb. 25, 1977, Berlese, leptospermum, eucalypt litter (J. Kethley, FMNH), 1♂, 1♀; 30 km W Smithton on Bass Highway, Mar. 4, 1977, Berlese, blackwood and tree fern (J. Kethley, FMNH), 5♂, 5♀; 40 km SW Smithton on Lerunna Road, Mar. 4, 1977, Berlese, blackwood litter (J. Kethley, FMNH), 5♂, 2♀; 45 km S Smithton, Mar. 3, 1977, Berlese, eucalypt-dicksonia lit-

ter (J. Kethley, FMNH), 1♀; 58 km S Smithton on Sumac Road, Feb. 28, 1977, Berlese, mixed beech, eucalypt litter (J. Kethley, FMNH), 1♂; 64 km S Smithton on Sumac Road, Mar. 3, 1977, Berlese, myrtle litter under groundfern (J. Kethley, FMNH), 1♂, 1♀; 10.4–13.1 km SE Strahan, Feb. 18, 1980, Berlese, leaf and log litter, beech forest (A. Newton, M. Thayer, AMNH), 1♀.

DISTRIBUTION: Known only from northwestern Tasmania.

Hickmanapis minuta (Hickman),
new combination

Figures 253–257, 261–263, 266, 267

Chasmocephalon minutum Hickman, 1943: 180, figs. 1–7, 32, 33 (male and female syntypes from Cascades and Mount Wellington, may be in AMS, not examined).

DIAGNOSIS: Males can be distinguished from those of *H. renison* by the absence of a distinct retrolateral patellar apophysis (fig. 263), females by the much wider postgenital sclerite (fig. 266).

MALE: As in *H. renison*, except as follows. Total length 0.67. Carapace 0.38 long, 0.28 wide, 0.22 high. Abdomen 0.33 long, 0.48 wide, 0.52 high. AME subcontiguous (figs. 253, 254). Metatarsus I with single, distal proventral enlarged seta. Palpal patella thickened distally but without distinct apophysis; embolus supported by two more proximal processes, one long, pointed, one sheetlike (figs. 255–257, 261–263).

FEMALE: As in *H. renison*, except as noted for male. Total length 0.87. Carapace 0.39 long, 0.31 wide, 0.26 high. Abdomen 0.56 long, 0.31 wide, 0.67 high. Postgenital sclerite wider than in *H. renison*, with v-shaped elevated ridge; spermathecae more widely separated than in *H. renison* (figs. 266, 267).

MATERIAL EXAMINED: AUSTRALIA: Tasmania: Derwent Valley, 7 km NW Maydena, Feb. 16, 1977, Berlese, myrtle, sassafras litter (J. Kethley, FMNH), 2♂, 3♀; Dobson Road, Mt. Field National Park, Feb. 7, 1955, elev. 2500 ft (T. E. Woodward, OMD), 1♂; Eaglehawk Neck, Sept. 2, 1981, Berlese (G. Bornemissza, ANIC), 1♀; Edwards Road, Hartz Mountains, Feb. 4, 1983, Berlese, leaf litter (I. D. Naumann, J. C. Cardale, ANIC), 1♂, 1♀; Florentine Valley, 20 km NW Maydena,

Feb. 14, 1977, elev. 700 ft, Berlese, myrtle litter (J. Kethley, FMNH), 9♂, 17♀; Florentine Valley, 22 km NW Maydena, Feb. 15, 1977, elev. 700 ft, Berlese, dogwood, myrtle, tree fern litter, root mat (J. Kethley, FMNH), 7♂, 10♀; Florentine Valley, 29.2 km WNW Maydena on Eleven Road, Feb. 1–6, 1980, elev. 460 m, Berlese, beech forest litter (A. Newton, M. Thayer, AMNH), 8♂, 11♀; Florentine Valley, 32 km NW Maydena, Feb. 19, 1977, elev. 700 ft, Berlese, acacia, wallabywood litter (J. Kethley, FMNH), 9♂, 5♀; The Gap, Florentine Road, 15 km WNW Maydena, Feb. 1, 1980, elev. 600 m, Berlese, beech forest litter (A. Newton, M. Thayer, AMNH), 1♂, 1♀; Gordon River Road, nr. Little Florentine River, Feb. 3, 1980, elev. 440 m, Berlese, beech forest litter (A. Newton, M. Thayer, AMNH), 2♀; Huon Camping Area, Jan. 25, 1981, Berlese, rainforest litter (I. D. Naumann, J. C. Cardale, ANIC), 1♂; Hytton Hall Gully, University of Tasmania, Hobart, May. 10, 1977, Berlese, leaf litter (L. Hill, FMNH), 1♀; Lake Dobson Road, Mt. Field National Park, Jan. 30–Feb. 5, 1980, elev. 710 m, Berlese, beech-eucalypt forest litter (A. Newton, M. Thayer, AMNH), 1♀; Lake Fenton, SE end Mt. Field National Park, Jan. 30–Feb. 5, 1980, elev. 1000 m, Berlese, beech forest litter (A. Newton, M. Thayer, AMNH), 4♂, 4♀, Jan. 31, 1980, elev. 1000 m, Berlese, beech forest litter (J. F. Lawrence, T. Weir, ANIC), 2♀; Maydena (A. N. M. forestry station), Feb. 13, 1977, elev. 600 ft, Berlese, pine litter (J. Kethley, FMNH), 5♂, 3♀; Mt. Barrow Road, Feb. 15–17, 1980, elev. 890 m, Berlese, beech forest litter (A. Newton, M. Thayer, AMNH), 1♀; Mt. Field National Park, Jan. 30–Feb. 4, 1980, elev. 160–240 m, Berlese, moss, leaf and log litter, beech forest (J. F. Lawrence, T. Weir, ANIC), 2♂, 2♀; 7 km WNW Mt. Field West, Feb. 1, 1980, Berlese, leaf litter, moss (J. F. Lawrence, T. Weir, ANIC), 3♂, 4♀; 2 km S Mt. Phipps, June 5, 1977, elev. 400 m, Berlese, open, dry sclerophyll forest (L. Hill, FMNH), 1♀; N Mt. Sprent, via Strathgordon, Jan. 23–25, 1987, leaf litter, moss (J. Gallon, R. J. Raven, QMB), 1♀; N Mt. Sprent, 0–10 km W Strathgordon, Apr. 27, 1987, elev. 290 m, Berlese, moss, litter, wet rainforest (N. I. Platnick, R. J. Raven, T. Churchill, AMNH), 1♂; Mt. Wellington, June 14, 1944 (V. V. Hickman, AMNH),

3♂, 2♀ (V. V. Hickman, OMD), 1♂; Scotts Peak Dam Road, 15 km S Strathgordon, just S Mt. Anne Track, Apr. 26, 1987, elev. 300 m, wet beech rainforest (N. I. Platnick, R. J. Raven, T. Churchill, AMNH), 3♂, 2♀; Styx Valley, 15 km WNW Maydena, Feb. 21, 1977, Berlese, moss, sassafras, tree fern litter (J. Kethley, FMNH), 3♂, 5♀; Styx Valley, 25 km WNW Maydena, Feb. 21, 1977, Berlese, mixed scrub, eucalypt, myrtle litter (J. Kethley, FMNH), 6♂, 4♀; E Tooms Lake, nr. Anglers Creek, Apr. 14–24, 1977, Berlese, sclerophyll forest litter (L. Hill, FMNH), 15♂; University gully, Sandy Bay, University of Tasmania Campus, Jan. 26–30, 1977, Berlese, eucalypt litter (J. Kethley, FMNH), 1♂, 5♀; Willie's Saddle, 9 km W Geeveston, Feb. 8–10, 1980, elev. 310 m, Berlese, eucalypt forest litter (A. Newton, M. Thayer, AMNH), 2♂, 2♀; Wombat Moor, E edge, Mt. Field National Park, Jan. 30–Feb. 5, 1980, elev. 1060 m, Berlese, eucalypt forest litter (A. Newton, M. Thayer, AMNH), 1♀.

DISTRIBUTION: Known only from eastern and south-central Tasmania.

NORTANAPIS, NEW GENUS

TYPE SPECIES: *Nortanapis lamond*, new species.

ETYMOLOGY: The generic name is an arbitrary combination of letters considered feminine in gender.

DIAGNOSIS AND GENERIC RELATIONSHIPS: *Nortanapis* resembles *Maxanapis* and *Spinanapis* in having the anterior spiracles greatly advanced anteriorly, virtually to the level of the pedicel, but differs in size (being much smaller) and in having a much more steeply sloped pars thoracica.

DISTRIBUTION: Queensland.

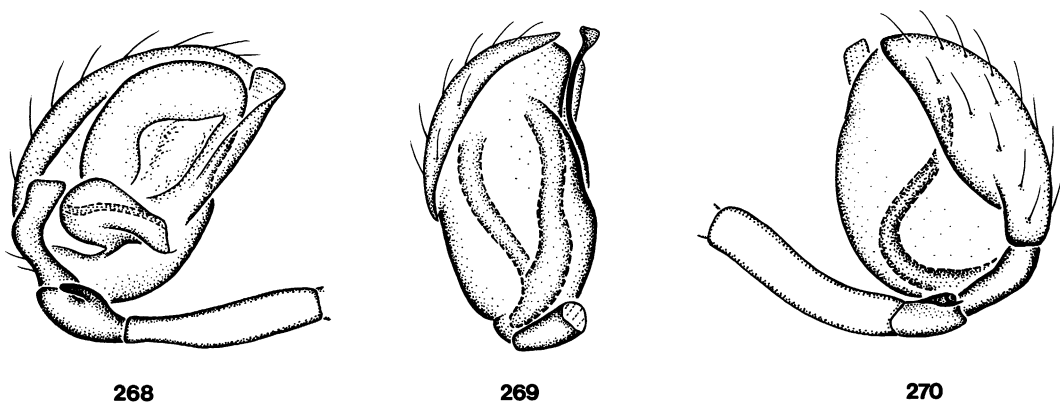
Nortanapis lamond, new species

Figures 243, 244, 268–270

TYPE: Male holotype from litter taken at the top of Lamond Hill, Iron Range, north-northeastern Queensland (June 29, 1976; R. J. Raven, V. T. Davies), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be recognized by the relatively elongate palp (fig. 269), females by



Figs. 268-270. *Nortanapis lamond*, new species, left male palp, prolateral, ventral, and retrolateral views.

the triangular median receptaculum (figs. 243, 244).

MALE: Total length 0.60. Carapace 0.30 long, 0.22 wide, 0.22 high. Abdomen 0.33 long, 0.46 wide, 0.44 high. Carapace brownish orange, pars thoracica darker than pars cephalica, almost rectangular in dorsal view, widest at rear of coxae II, posterior margin truncate, lateral margins slightly produced above each coxa; surface of pars cephalica smoother anteriorly than posteriorly, without obvious seta-bearing tubercles; pars cephalica higher posteriorly than in ocular area; surface of pars thoracica strongly sloping, almost concave medially, with pronounced anteromedian humps; clypeal height at middle almost five times that of anterior lateral eyes, conspicuous circular glandular areas on triangular fold of cuticle reflexed toward endites (but not forming separate sclerite).

Eight eyes in four pairs, eyes of each pair contiguous except PME separated by their radius; AME circular, about half as large as other, oval eyes; from front, both rows procurved, from above, both recurved; ALE separated by their diameter from AME, PLE slightly farther from PME; MOQ as long as wide in back, twice as wide in back as in front.

Sternum brownish orange, mouthparts orange. Sternum elevated, elevated portion longer than wide, truncated posteriorly, with distinct, unnotched extension separating coxae IV by more than their length, extending dorsally and between coxae to fuse with carapace, intercoxal strips narrow but entire. Labium wider than long, truncate apically. En-

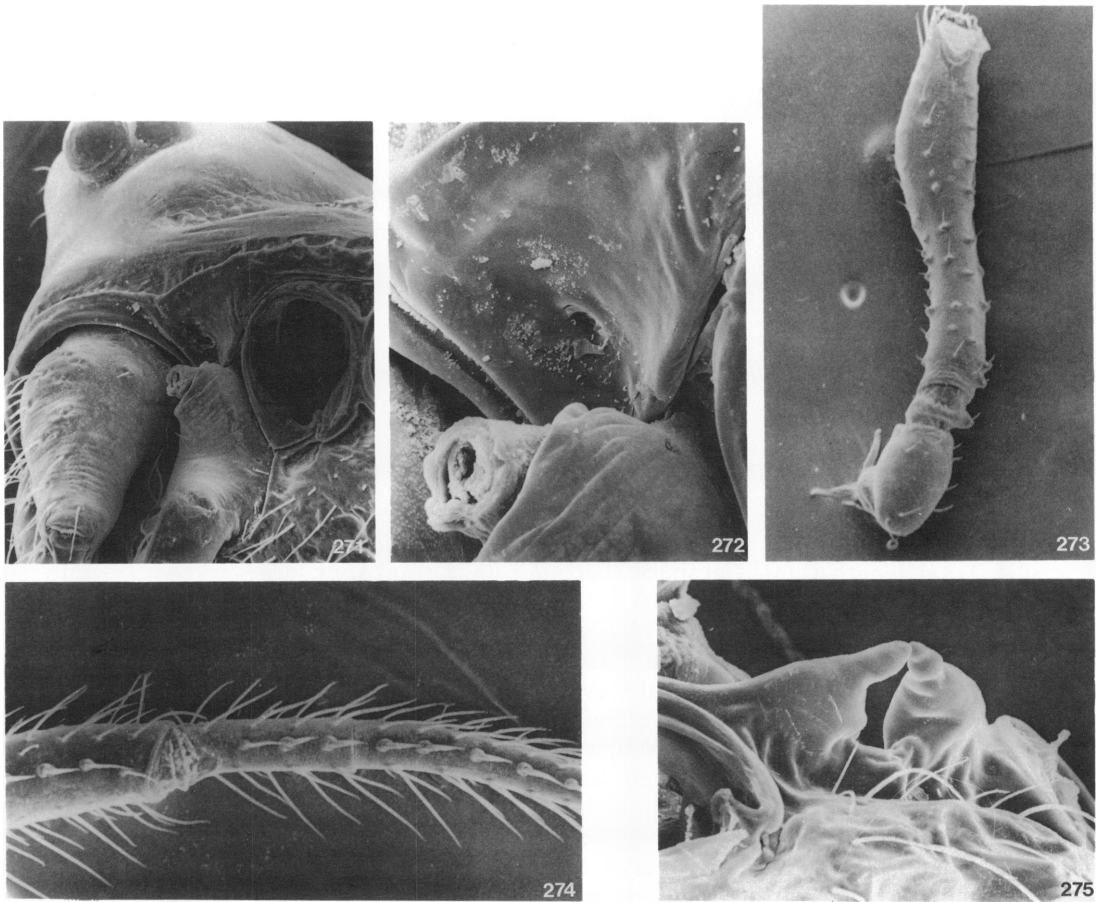
dites convergent, each with weak anteromedian scopula and anterolateral serrula. Labral spur ledge-shaped, dorsally situated. Chelicerae divergent, with three promarginal teeth, two most distal apparently not on distinct plate.

Legs yellow, with patellae lightest, femora and metatarsi darkest; all segments clothed with fine setae; patellae with long, distal, dorsal bristles, tibiae with dorsal bristles near distal end; leg formula 1243 but all legs subequal in length, femur I not enlarged, not tuberculate, other segments of leg I also unmodified.

Abdomen with large dorsal scutum covering entire dorsum, with circular sclerotizations scarcely evident; anterior scutum surrounding pedicel, anterior spiracles advanced almost to posterior rim of pedicel opening, scutum not reaching farther toward spinnerets at sides than at middle, where accompanied by slight, v-shaped postepigastric sclerite; soft portions of cuticle ridged, with three rows of elongate sclerotizations between ridges. Six spinnerets and digitiform colulus surrounded by sclerotic ring.

Palpal femur not expanded at distal end; patellar apophysis sharply pointed, directed distally; bulb relatively elongate (figs. 268-270).

FEMALE: As in male, except as follows. Total length 0.60. Carapace 0.30 long, 0.23 wide, 0.23 high. Abdomen 0.53 long, 0.51 wide, 0.47 high. Abdomen without dorsal scutum, dorsum coated with closely spaced small sclerotizations along with marginal rows of



Figs. 271–275. *Maxanapis burra* (Forster), male. 271. Carapace, lateral view. 272. Cephalic porepit, lateral view. 273. Proximal segments of leg I, ventral view. 274. Distal segments of leg I, ventral view. 275. Sternal extension, oblique posterior view.

larger, circular sclerotizations and two pairs of larger, paramedian circular sclerotizations. Anterior respiratory system with anterior tracheae entering cephalothorax, posterior tracheae absent. Palpal segments beyond coxa reduced to tiny knob. Genitalia with membranous, trinangular median receptaculum, curved lateral sclerotizations, and curved anterior sclerotizations (figs. 243, 244).

OTHER MATERIAL EXAMINED: AUSTRALIA: **Queensland:** Cableway Base Station, Bellenden Ker Range, Oct. 17–24, 1981, elev. 100 m, stick brushings (QMB), 1♂; Noah Head, via Cape Tribulation, Oct. 16, 1980, elev. 40 m, sieved rainforest litter (G. B. Monteith, QMB), 1♀.

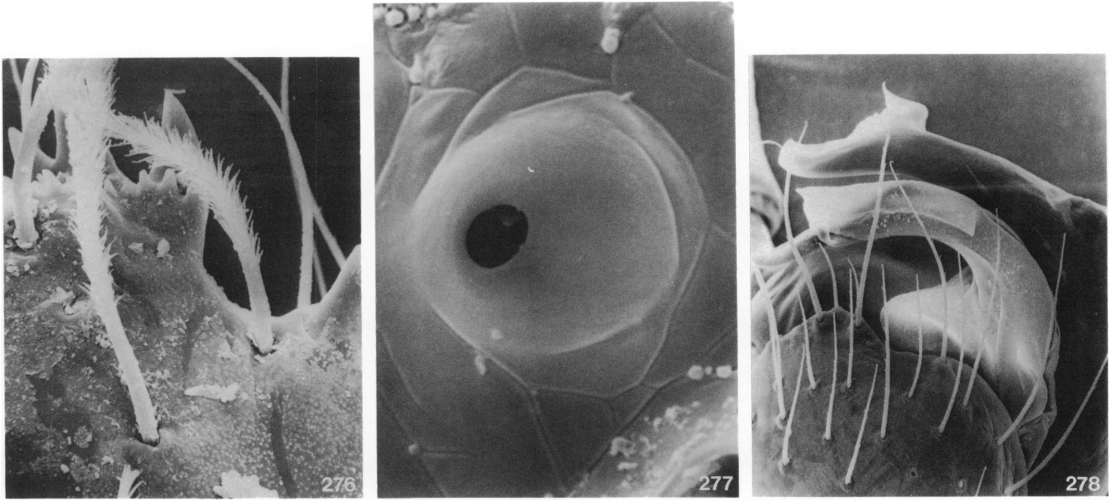
DISTRIBUTION: Known only from northern Queensland.

MAXANAPIS, NEW GENUS

TYPE SPECIES: *Maxanapis bartle*, new species.

ETYMOLOGY: The generic name is an arbitrary combination of characters and is feminine in gender.

DIAGNOSIS: The presence of retrolateral tubercles on the first trochanter and femur (fig. 273) distinguishes *Maxanapis* from all other Australian anapids except some *Chasmocephalon* species; males of *Maxanapis* can be distinguished from those of all other genera by the presence of a pair of curved processes on the posterior edge of the sternum (fig. 275), and females can be distinguished from those of *Chasmocephalon* by their uncoiled spermathecae.



Figs. 276–278. *Maxanapis burra* (Forster), male. 276. Cheliceral tooth plate, posterior view. 277. Tarsal organ, dorsal view. 278. Male palp, ventral view.

MONOPHYLY: The peculiar sternal extensions of males leave little doubt that the eight species assigned to *Maxanapis* form a monophyletic group.

GENERIC RELATIONSHIPS: *Maxanapis* shares uniquely with *Spinanapis* and *Nortanapis* the extreme advancement of the anterior spiracles virtually to the level of the pedicel.

DISTRIBUTION: Queensland and New South Wales.

***Maxanapis bartle*, new species**

Figures 279–282

TYPES: Male holotype and female allotype from leaf and log litter in rainforest at an elevation of 700 m on the west side of Mt. Bartle Frere, northern Queensland, Australia (July 30, 1982; S. and J. Peck), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

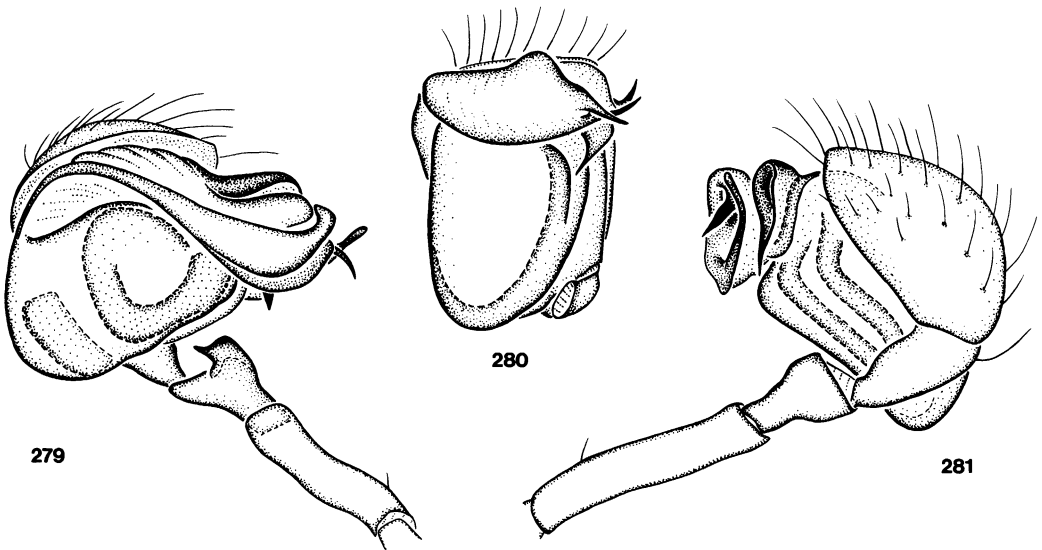
DIAGNOSIS: The elongated and ventrally expanded palpal conductor of males (fig. 280) and anteriorly expanded, translucent receptacula of females (fig. 282) are diagnostic.

MALE: Total length 1.57. Carapace 0.72 long, 0.59 wide, 0.48 high. Abdomen 0.83 long, 0.83 wide, 1.00 high. Carapace dark reddish brown, oval in dorsal view, widest at rear of coxae II, posterior margin broadly notched; surface of pars cephalica finely

striated, posterior half with four greatly enlarged seta-bearing tubercles, two in longitudinal row along midline, followed by two more posteriorly situated paramedians; pars thoracica separated by shallow groove, surface with elevated ridges radiating from longitudinal thoracic groove; clypeal height at middle almost five times that of anterior lateral eyes, anterolateral corners without conspicuous oval glandular areas, openings shifted instead to triangular fold of cuticle interposed between carapace margin and palpal coxae (as in figs. 271, 272).

Six eyes in three pairs, AME represented only by pair of lightly pigmented spots; eyes of each pair contiguous or nearly so; from front, posterior row procurved; from above, posterior row recurved; PLE separated by twice their diameter from PME, ALE closer to PME.

Sternum and mouthparts dark reddish brown. Sternum elevated, longer than wide, with long posterior extension separating coxae IV by more than their length, bearing deep, narrow notch along midline (as in fig. 275), extending dorsally and around coxae to fuse with carapace; surface irregularly excavated. Labium wider than long, anteriorly excavated, fused to sternum by groove. Endites distally pale, expanded, each with strong anteromedial scopula and anterolateral serrula. Labral spur long. Chelicerae with large pro-



Figs. 279–281. *Maxanapis bartle*, new species, left male palp, prolateral, ventral, and retrolateral views.

marginal tooth followed distally by wide plate bearing two large promarginal teeth and series of smaller retromarginal teeth (as in fig. 276).

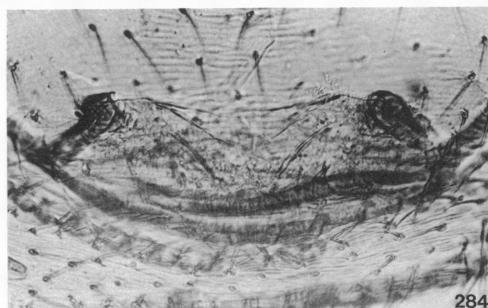
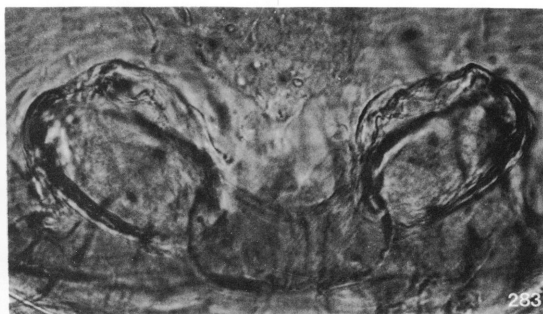
Legs I, II orange, III, IV light orange, patellae lightest; all segments clothed with fine hairs; tibia I with prolateral bristle near middle of length, tibia III with proximal dorsal bristle; leg formula 1243, legs I, and to lesser extent, II greatly enlarged; trochanter I with large retrolateral tubercle; femur I greatly expanded, sinuous distally, with all surfaces tuberculate (as in fig. 273) and three greatly tubercles proximally along retrolateral surface; tibia I slightly expanded distally; tibia, metatarsus, and tarsus I with five, two, and seven or eight short, thick setae on prolateral side of ventral surface, respectively (as in fig. 274); tarsus I flexed dorsally but straight; femur II tuberculate but without enlarged tubercles; tarsal organ capsulate (as in fig. 277).

Abdomen with large anterior and dorsal scuta situated such that, from above, transverse strip of soft cuticle appears sandwiched between them; anterior scutum extending far posterior of epigastric furrow at sides but not at middle; spiracles greatly advanced, almost at level of pedicel; soft portions of abdomen with three longitudinal rows of small but elongate sclerotizations. Six spinnerets and digitiform colulus encircled by sclerotic ring.

Palpal femur elongate, bowed toward sides; patella with short, subdistal, ledge-shaped retrolateral apophysis; tibia long, triangular; cymbium unmodified; tegulum flattened, with marginal ducts; embolic division flexed proximally, widened ventrally (figs. 279–281).

FEMALE: As in male, except as follows. Total length 1.91. Carapace 0.78 long, 0.57 wide, 0.44 high. Abdomen 1.04 long, 1.05 wide, 1.26 high. Posterior sternal extension short, without distinct notch. Tibia III without bristle; trochanter and femur I with retrolateral tubercles present but not enlarged; tibia I with only two or three short, thick setae. Abdomen without dorsal scutum, dorsum with few scattered, small, round sclerotizations; anterior scutum not extended posteriorly at sides, with small triangular sclerotizations there instead. Palpal segments beyond coxae absent, trochanter represented only by small lobe. Anterior respiratory organs tracheae, in large mass; posterior tracheae lost. Genitalia with pair of curled, sclerotized spermathecae at anterolateral corners of wide, membranous receptaculum (fig. 282); most females examined have large portions of male embolic division broken off inside receptaculum.

OTHER MATERIAL EXAMINED: AUSTRALIA: Queensland: Atherton, Lake Eacham National Park, July 23, 1982, elev. 760 m, log and fungal litter, rainforest (S. and J. Peck,



Figs. 282–285. Internal female genitalia, dorsal views. 282. *Maxanapis bartle*, new species. 283. *M. crassifemoralis* (Wunderlich). 284. *M. tribulation*, new species. 285. *M. bell*, new species.

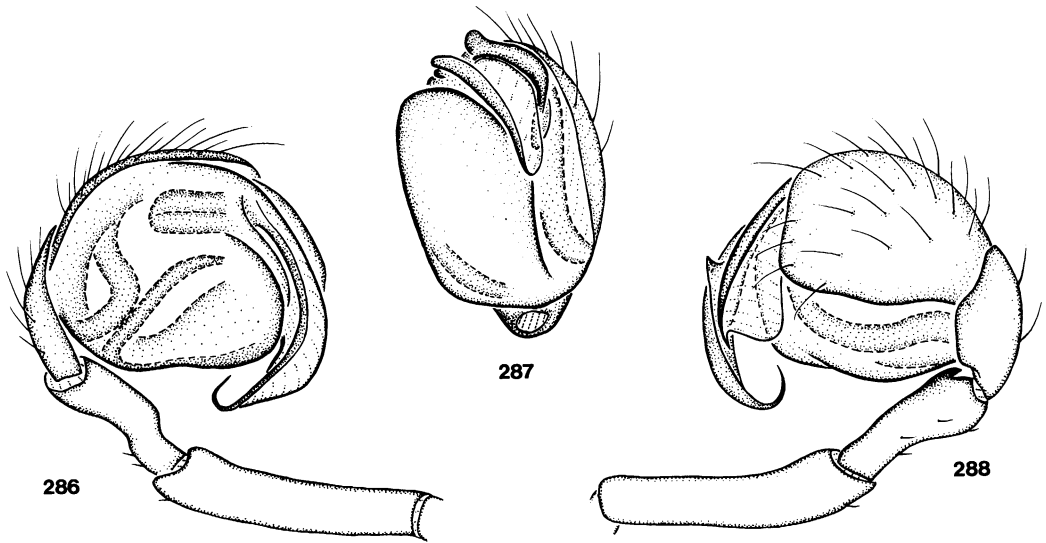
AMNH), 1♂; 21 km S Atherton, Nov. 5, 1983, elev. 1040–1100 m, pyrethrin knockdown, rainforest (D. K. Yeates, G. I. Thompson, QMB), 1♂; Baldy Mtn., SW Atherton, Oct. 10, 1980, elev. 1200 m, Berlese, sieved rainforest litter (G. B. Monteith, QMB), 4♂, 3♀; Bellenden Ker Range, 1 km S Cable Tower 6, Oct. 17–24, 1981, elev. 500 m, Berlese, rainforest litter (QMB), 1♂, 0.5 km S Cable Tower 7, Oct. 17–Nov. 7, 1981, elev. 500 m, litter, stick brushings (QMB), 2♂, 5♀; 10 km SE El Arish, Lacey's Creek, near Mission Beach, June 23–Aug. 5, 1982, flight intercept trap, rainforest (S. and J. Peck, AMNH), 1♂; Lake Barrine, Oct. 8, 1980, elev. 760 m, Berlese, sieved rainforest litter (G. B. Monteith, QMB), 1♀; Lamb's Head, 20 km SW Cairns, Nov. 10, 1981, elev. 1200 m, Berlese, sieved rainforest litter with agathis (G. B. Monteith, QMB), 7♂, 3♀; Malaan State Forest, Apr. 20–24, 1978, litter (V. T. Davies, R. J. Raven, QMB), 1♂; SE Malanda, Topaz National Park, July 28, 1982, elev. 720 m, log and leaf litter, rainforest (S. and J. Peck, AMNH), 1♂; 22 km SE Mareeba, Nov. 4, 1983, elev. 900 m, pyrethrin knockdown, rainforest (D. K. Yeates, G. I. Thompson, QMB), 1♀; 2.5 km NW Mt. Baldy, Mar. 29,

1984, elev. 1000 m, Berlese, araucaria forest litter (A. Calder, T. Weir, ANIC), 4♂, 4♀; Mt. Edith road, Lamb Range, Oct. 12, 1982, elev. 900 m, stick brushing, Berlese, sieved rainforest litter (G. B. Monteith, D. K. Yeates, G. Thompson, QMB), 1♂, 4♀; Mt. Fisher, 7 km SW Millaa Millaa, Apr. 27, 1982, elev. 1100 m, Berlese, sieved rainforest litter (G. B. Monteith, D. K. Yeates, D. Cook, QMB), 1♂; Mt. Hypipamee National Park, Oct. 5, 1980, elev. 950 m, Berlese, stick brushings (G. B. Monteith, QMB), 12♂, 11♀; Tully Falls State Forest, Oct. 4, 1978, Berlese, rainforest (A. Walford-Huggins, ANIC), 1♂, 1♀; Windsor Tableland, 35 km NNW Mt. Carbine, Apr. 20, 1982, elev. 1050 m, Berlese, sieved rainforest litter (G. B. Monteith, D. K. Yeates, D. Cook, QMB), 1♂; Wrights Creek, Atherton, Lake Eacham National Park, July 31, 1982, elev. 720 m, leaf litter and soil, rainforest (S. and J. Peck, AMNH), 1♀.

DISTRIBUTION: Northern Queensland.

Maxanapis crassifemoralis (Wunderlich),
new combination
Figures 283, 286–288

Chasmocephalon crassifemoralis Wunderlich,
1976: 123, figs. 37–42 (male holotype from Ku-



Figs. 286–288. *Maxanapis crassifemoralis* (Wunderlich), left male palp, prolateral, ventral, and retrolateral views.

ring-gai National Park, near Sydney, New South Wales, Australia, in NMS, examined); 1986: 113, figs. 224–227.

Anapogonia crassifemoralis: Brignoli, 1981: 115.

DIAGNOSIS: Males can be recognized easily by the recurved tip of the embolic division (fig. 286), females by the ovoid receptacula (fig. 283).

MALE: As in *M. bartle*, except as follows. Total length 1.83. Carapace 0.67 long, 0.61 wide, 0.44 high. Abdomen 1.02 long, 0.89 wide, 1.20 high. Most anterior tubercle on pars cephalica situated near ocular area. Patellae with proximal and distal dorsal bristles, all tibiae with proximal dorsal bristles, tibia I with median dorsal and prolateral bristles as well; femur I with only two enlarged retrolateral tubercles at base, more distal one much larger than most proximal one, prolateral surface also with two enlarged tubercles near base; tibia, metatarsus, and tarsus with three, two, and six short, thick setae on prolateral side of ventral surface, respectively; femora II–IV distinctly tuberculate but without enlarged tubercles. Embolic division of palp not expanded ventrally, recurved at tip (figs. 286–288).

FEMALE: As in *M. bartle*, except as noted for male. Total length 1.74. Carapace 0.83 long, 0.68 wide, 0.38 high. Abdomen 1.02

long, 0.94 wide, 1.17 high. Posterior sternal extension with slight notch. Dorsum of abdomen with distinct pattern of two paramedian longitudinal white stripes on dark gray background; stripes restricted to anterior half of dorsum, followed posteriorly by transverse white stripe that encircles spinnerets; anterior scutum slightly extended at sides; transverse sclerotization present behind epigastric region, occupying about two-thirds of space between extensions of anterior scutum. Two unsclerotized, oval receptacula (fig. 283).

MATERIAL EXAMINED: AUSTRALIA: **Queensland:** Binna Burra, Lamington National Park, Feb. 11, 1981 (R. J. Raven, V. T. Davies, QMB), 1♀, July 2, 1986, litter (M. S. Harvey, P. J. Vaughan, MOV), 1♀; Central Station, Fraser Island, Apr. 14–Oct. 20, 1978 (G. B. Monteith, QMB), 1♂; Chevallum, via Nambour, Sept. 27, 1978, Berlese (G. B. Monteith, QMB), 1♂; Cooran Plateau, via Traveston, pitfall (G. B. and S. R. Monteith, QMB), 1♂; 60 km NE Dalby, Bunya Mountains, June 17–Aug. 19, 1982, elev. 900 m, flight intercept trap, araucarian forest (S. and J. Peck, AMNH), 1♂, 2♀; Dingo Creek, via Traveston, Aug. 10–Nov. 9, 1974, elev. 30 m, pitfall (G. B. and S. R. Monteith, QMB), 1♂, 1♀; 7 km SW Kenilworth, Yabba Creek Forest, June 18–Aug. 15, 1982, elev. 150 m, flight intercept trap, wet sclerophyll forest (S.

and J. Peck, AMNH), 5♂, 12♀; Lamington National Park, Aug. 9–10, 1977 (R. J. Raven, QMB), 1♀; Mary Cairncross Park, via Maleny, pitfall (G. B. and S. R. Monteith, QMB), 1♂; Mt. Glorious, June 20, 1974, sweeping rainforest path (V. T. Davies, QMB), 1♀, Nov. 18, 1974, rainforest (M. Gray, AMS), 1♂; Mt. Glorious (Hiller), Mar. 22, 1979, Berlese, rainforest stick brushings (G. B. Monteith, QMB), 1♀; Mt. Mee Forest Reserve, 70 km N Brisbane, Feb. 28, 1979, rainforest (H. W. Levi, MCZ), 1♂; Mt. Tenison Woods, Mar. 22, 1979, Berlese, rainforest stick brushings (G. B. Monteith, QMB), 1♂; Neurum Creek, Mt. Mee, Feb. 28, 1979, elev. 210 m, Berlese, rainforest stick brushings (G. B. Monteith, QMB), 1♂, 2♀; Upper Neurum, Mt. Mee, Sept. 3, 1979, Berlese, sieved rainforest litter (G. B. Monteith, QMB), 1♀; Wrattens Camp Forestry, via Widgee, pitfall (G. B. and S. R. Monteith, QMB), 1♂. **New South Wales:** Barrington House, Barrington Tops, June 16, 1978, elev. 410 m, Berlese, log, bark, litter, subtropical rainforest (S. and J. Peck, AMNH), 2♀, June 24, 1987, night (T. Churchill, R. J. Raven, QMB), 1♀; Brindle Creek, Wiangaree State Forest, June 21–July 8, 1978, elev. 800 m, Berlese, log, bark, litter, warm temperate rainforest (S. and J. Peck, AMNH), 1♀, Feb. 29–Mar. 3, 1980, elev. 740 m, on gilled mushrooms, subtropical rainforest (A. Newton, M. Thayer, AMNH), 2♀; Bruxner Park, 8 km N Coffs Harbour, July 9–15, 1978, elev. 200 m, rainforest log litter (S. and J. Peck, AMNH), 1♀; Ingalla State Forest, 13 km S Macksville, June 12–Aug. 26, 1982, flight intercept trap, wet sclerophyll forest (S. and J. Peck, AMNH), 3♀; Ku-ring-gai National Park, nr. Sydney, Aug. 1975 (J. Wunderlich, NMS), 2♂ (including holotype); nr. Lismore, Aug. 1977, rainforest (QMB), 1♀; Lorne State Forest, May 30–Sept. 1, 1979, pitfall, litter (D. Milledge, AMS), 1♂; Mt. Clunie, via Woodenbong, May 8–Aug. 15, 1976, elev. 670 m (G. B. Monteith, QMB), 1♂; Mt. Glennie, Roseberry State Forest, 30 km NNW Kyogle, Aug. 21, 1982, elev. 820 m, litter (S. and J. Peck, AMNH), 1♂, 1♀; Sheepstation Creek, Wiangaree State Forest, 16 km NE Wiangaree, Feb. 29–Mar. 3, 1980, Berlese, leaf and log litter, subtropical rainforest (A. Newton, M. Thayer, AMNH), 1♀, June 13–Aug. 24, 1982, elev. 600 m, flight intercept

trap, rainforest (S. and J. Peck, AMNH), 6♂, 3♀; Stott's Island, Tweed River, Nov. 18, 1978, leaf litter (R. J. Raven, QMB), 1♀; Wilson River Flora Reserve, Bellangry State Forest, Mar. 6, 1981 (M. Gray, AMS), 1♀.

DISTRIBUTION: Southeastern Queensland and New South Wales, frequently sympatric with *M. burra*.

Maxanapis burra (Forster),
new combination

Figures 271–278, 289–292

Pseudanapis burra Forster, 1959: 309, figs. 82–87 (male holotype from Binna Burra, Lamington Plateau, Queensland, Australia, in QMB, examined).

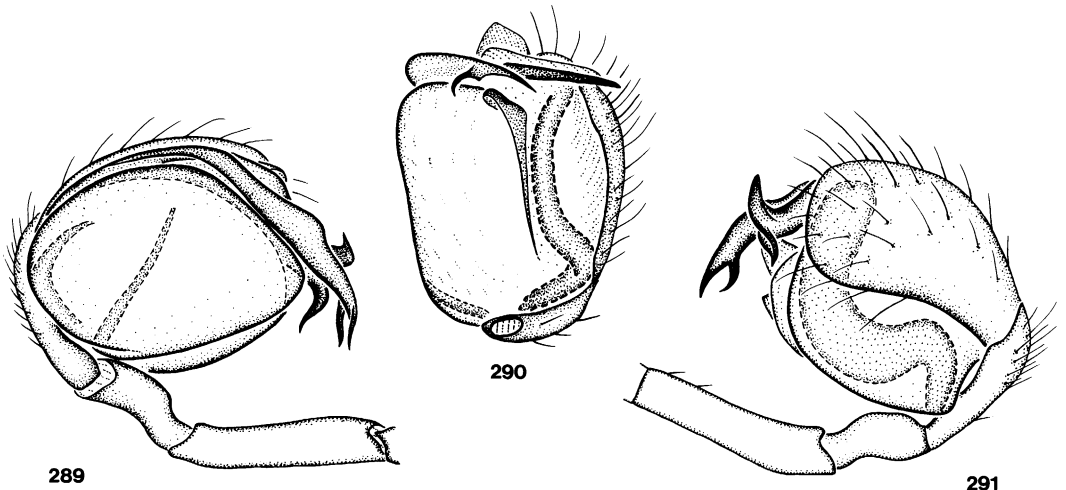
Anapogonia burra: Brignoli, 1981: 115.

DIAGNOSIS: Males can be recognized by the tripartite tip of the palpal embolic division (fig. 290), females by the small lateral lobe at the tips of the widely separated, heavily sclerotized spermathecae (fig. 292).

MALE: As in *M. bartle*, except as follows. Total length 1.57. Carapace 0.72 long, 0.59 wide, 0.44 high. Abdomen 0.74 long, 0.87 wide, 1.15 high. Clypeal height at middle about four times that of ALE. Triangular fold of cuticle bearing glandular depression almost fused with endite. Tibia II with median dorsal bristle; only two most proximal retrolateral tubercles on femur I enlarged; tibia, metatarsus, and tarsus I with two, three, and eight short, wide setae, respectively; femora III and IV weakly tuberculate. Palpal patella expanded distally, with apophysis almost ventral; embolic division with one ventrally and two retrolaterally directed spurs (figs. 278, 289–291).

FEMALE: As in *M. bartle*, except as noted for male. Total length 1.61. Carapace 0.65 long, 0.56 wide, 0.31 high. Abdomen 1.09 long, 1.04 wide, 1.26 high. Patellae with distal dorsal bristles; tibiae with proximal dorsal bristles; tibia, metatarsus, and tarsus I with zero, two, and four or five short, wide setae, respectively. Anterior scutum as in *M. crassifemoralis*. Two widely separated, heavily sclerotized spermathecae bearing tiny distal lobes (fig. 292).

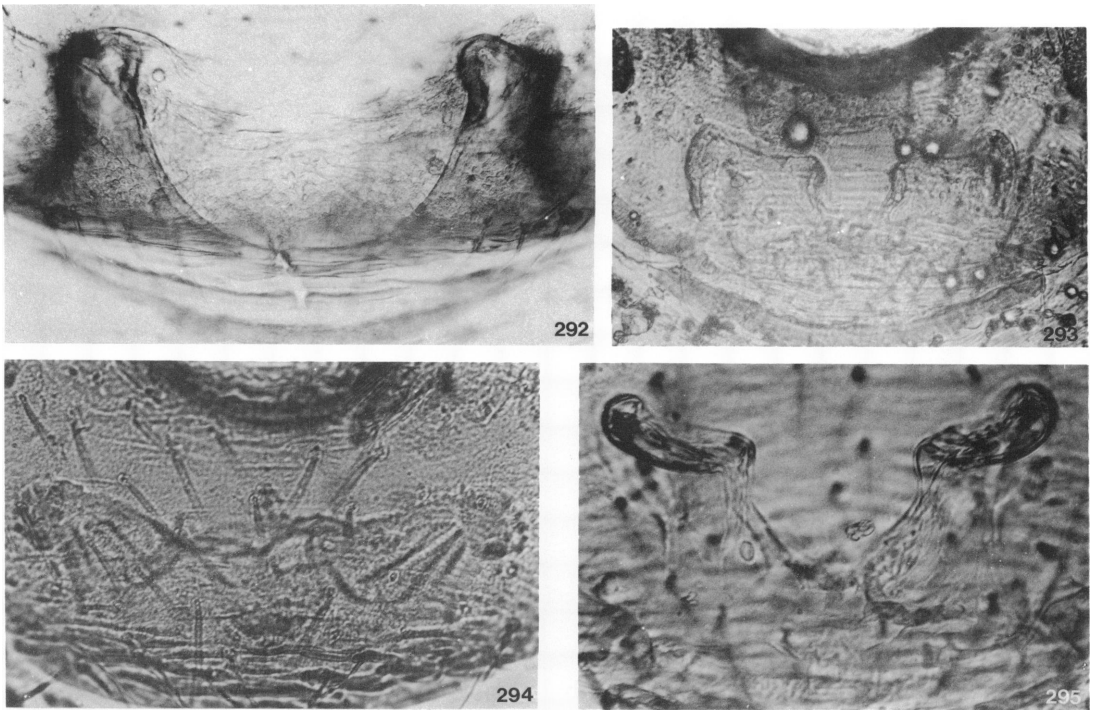
MATERIAL EXAMINED: AUSTRALIA: **Queensland:** Ballungui Track, near Binna Burra, Lamington National Park, Oct. 30,



Figs. 289–291. *Maxanapis burra* (Forster), left male palp, prolateral, ventral, and retrolateral views.

1955, rainforest leafmold (T. E. Woodward, OMD), 1♀ (paratype); Barkers Track, Bunya Mountains National Park, June 20, 1982, Berlese, closed forest litter (L. Hill, ANIC), 1♂; Binna Burra, Lamington Plateau (southeastern Queensland), Aug. 28, 1953, rainforest leafmold (T. E. Woodward, QMB), 1♂ (holotype), Sept. 7, 1952, rainforest leafmold (T. E. Woodward, QMB), 1♀ (allotype); Bunya Mountains National Park, Feb. 28–Mar. 4, 1976, pitfall traps and litter (R. J. Raven, V. T. Davies, QMB), 2♂, 2♀; Crediton Creek, Eungella National Park (ANIC), 2♂, 2♀; 15 km NE Eungella, Nov. 18, 1981, elev. 950 m, Berlese, simple mesonotophyll forest (A. Gillison, ANIC), 1♂; Joalah National Park, Mar. 14, 1973, elev. 380 m, Berlese, rainforest (R. W. Taylor, R. J. Kohout, ANIC), 3♂, 2♀; Mary Cairncross Park, 7 km SE Maleny, June 18–Aug. 15, 1982, elev. 900 m, flight intercept trap, rainforest (S. and J. Peck, AMNH), 1♂; Mt. Tamborine, Joalah National Park, June 22, 1978, elev. 500 m, Berlese, litter under bark (S. and J. Peck, AMNH), 1♀, Oct. 18–21, 1978, Berlese, rainforest litter (J. F. Lawrence, T. Weir, ANIC), 1♀; Mt. William, lower slopes, Dalrymple Heights, nr. Eungella, Apr. 1975, elev. 1120 m, pitfall, rainforest (M. Gray, C. Horseman, AMS), 2♀; Neurum Creek, Mt. Mee, Feb. 28, 1979, elev. 210 m, Berlese, rainforest stick brushings (G. B. Monteith, QMB), 3♂, 1♀; O'Reillys, Lamington National Park, Nov. 22–27, 1978, Berlese, rainforest litter (J. F. Lawrence, T.

Weir, ANIC), 1♀; Upper Neurum, Mt. Mee, Sept. 3, 1979, Berlese, sieved rainforest litter (G. B. Monteith, QMB), 1♀; 14 km SW Yarraman, June 20, 1982, Berlese, picabeen palm forest litter (L. Hill, ANIC), 1♀. **New South Wales:** Allyn River, Chichester State Forest, Nov. 10–11, 1981, Berlese, rainforest log and leaf litter (T. Weir, A. Calder, ANIC), 1♀; Beaury State Forest, Feb. 15–17, 1983, elev. 700 m, Berlese, closed forest (T. Weir, A. Calder, ANIC), 1♂; Brindle Creek, Wiangaree State Forest, Feb. 29–Mar. 3, 1980, elev. 740 m, Berlese, leaf and log litter, pyrethrin fogging of araucarian bark, subtropical rainforest (A. Newton, M. Thayer, AMNH), 3♂, 9♀; Bruxner Park, Mar. 22–Nov. 13, 1980, elev. 150 m (G. B. Monteith, QMB), 2♂, 1♀; Bruxner Park, 8 km N Coff's Harbour, June 12–Aug. 25, 1982, elev. 140 m, flight intercept traps, wet sclerophyll rainforest (S. and J. Peck, AMNH), 5♀, July 9–15, 1978, elev. 200 m, Berlese, rotten bark from base of eucalypt, log litter, wet sclerophyll rainforest (S. and J. Peck, AMNH), 2♂, 4♀; Kerewong State Forest, nr. Lorne, Aug. 15–Sept. 26, 1978, pitfall (D. Milledge, AMS), 1♂; Lorne State Forest, nr. Lorne, Aug. 19–Sept. 26, 1978, pitfall (D. Milledge, AMS), 1♀; Middle Brother State Forest, nr. Lorne, Aug. 21, 1978–Dec. 20, 1978, pitfall (D. Milledge, AMS), 1♂, 2♀; Mt. Glennie, Roseberry State Forest, 30 km NNW Kyogle, Aug. 21, 1982, elev. 820 m, litter (S. and J. Peck, AMNH), 1♂, 1♀; Mt. Royal Road, 58 km NW Singleton, Jan. 1977 (M. R. Gray,



Figs. 292–295. Internal female genitalia, dorsal views. 292. *Maxanapis burra* (Forster). 293. *M. bellenden*, new species. 294. *M. tenterfield*, new species. 295. *M. dorrigo*, new species.

AMS), 1♂; Noonpak State Forest, nr. Dorrigo, July 12, 1975 (J. Nicholson, OMD), 1♀; Numinbah Valley, June 14–Dec. 26, 1978, elev. 200 m (G. B. Monteith, QMB), 1♀; O'Sullivan Gap Reserve, 11 km NE Buladelah, Aug. 27, 1982, elev. 50 m, rainforest litter (S. and J. Peck, AMNH), 1♂, 1♀; Sheepstation Creek, Wiangaree State Forest, 16 km NE Wiangaree, Feb. 29–Mar. 3, 1980, elev. 600 m, Berlese, leaf and log litter, subtropical rainforest (A. Newton, M. Thayer, AMNH), 1♂; Terania Creek, N Lismore, Apr.–May 1976, elev. 340 m, rainforest litter (M. R. Gray, C. Horseman, AMS), 2♀; Tuglo, 48 km N Singleton, Jan. 1977, pitfall, rainforest (M. R. Gray, AMS), 3♂, 2♀.

DISTRIBUTION: Queensland and New South Wales, frequently sympatric with *M. crassifemoralis*.

***Maxanapis mossman*, new species**

Figures 296–298, 316

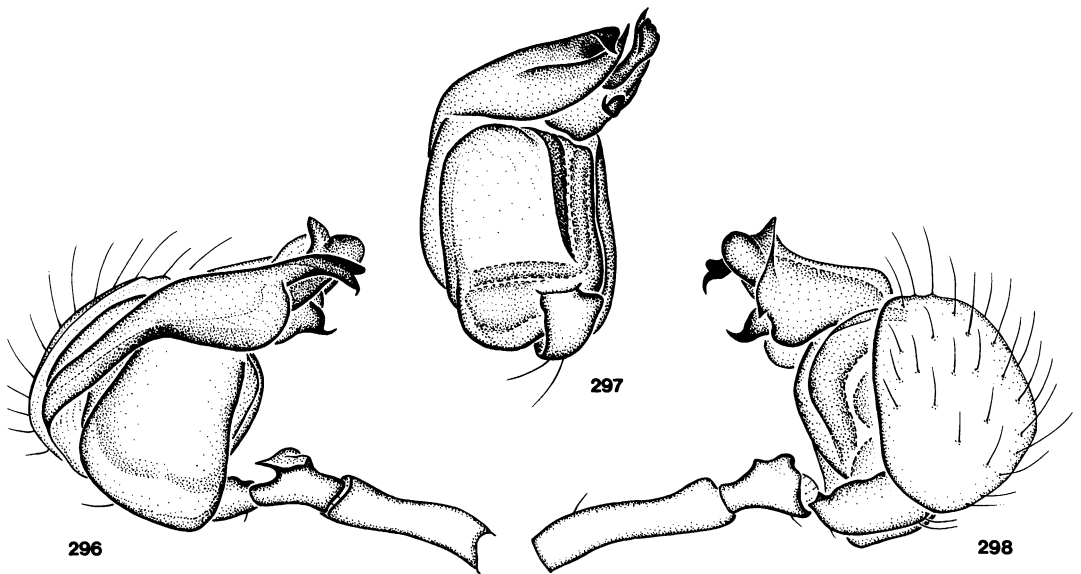
TYPE: Male holotype taken in a flight intercept trap in a rainforest at an elevation of

900 m on Mt. Lewis, 20 km southwest of Mossman, northeastern Queensland, Australia (June 26–Aug. 1, 1982; S. and J. Peck), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be recognized easily by the greatly protuberant embolic division of the palp (fig. 296), females by the angular, paramedian epigynal sclerotizations (fig. 316).

MALE: As in *M. bartle*, except as follows. Total length 2.13. Carapace 0.91 long, 0.81 wide, 0.63 high. Abdomen 1.20 long, 1.20 wide, 1.59 high. Pars thoracica with pair of anterior paramedian tubercles just behind cephalic grooves. Patellae with distal dorsal bristles; tibiae with proximal dorsal bristles; femur I with four large and two smaller, more distally situated retrolateral tubercles, two most proximal tubercles almost fused to each other; tibia, metatarsus, and tarsus I with eight, four, and nine short, wide setae, respectively. Anterior abdominal scutum with about four circular depressions along dorsal margin of each side. Patellar apophysis ex-



Figs. 296–298. *Maxanapis mossman*, new species, left male palp, prolateral, ventral, and retrolateral views.

cavated ventrally; embolic division of bulb greatly protuberant, with one single and two bifid distal processes (figs. 296–298).

FEMALE: As in *M. bartle*, except as noted for male. Total length 2.06. Carapace 1.16 long, 0.88 wide, 0.49 high. Abdomen 1.24 long, 1.31 wide, 1.61 high. Posterior sternal extension with shallow but distinct median notch. Tibia, metatarsus, and tarsus I with six, three, and seven thick setae prolaterally. Genitalia similar to those of *M. bartle* but with pair of angular paramedian sclerotizations (fig. 316).

OTHER MATERIAL EXAMINED: AUSTRALIA: **Queensland:** Mt. Lewis, 20 km SW Mossman, June 26–Aug. 1, 1982, elev. 1000 m, flight intercept trap, rainforest (S. and J. Peck, AMNH), 1♂; summit, Mt. Lewis, via Julatten, Sept. 9, 1981, elev. 1200 m, Berlese, rainforest moss (G. B. Monteith, D. Cook, QMB), 1♂; 2.5 km N Mt. Lewis, via Julatten, Nov. 3, 1983, elev. 1040 m, pyrethrin knock-down, rainforest (D. K. Yeates, G. I. Thompson, QMB), 2♂, 2♀.

DISTRIBUTION: Known only from northeastern Queensland.

***Maxanapis tribulation*, new species**

Figures 284, 299–301

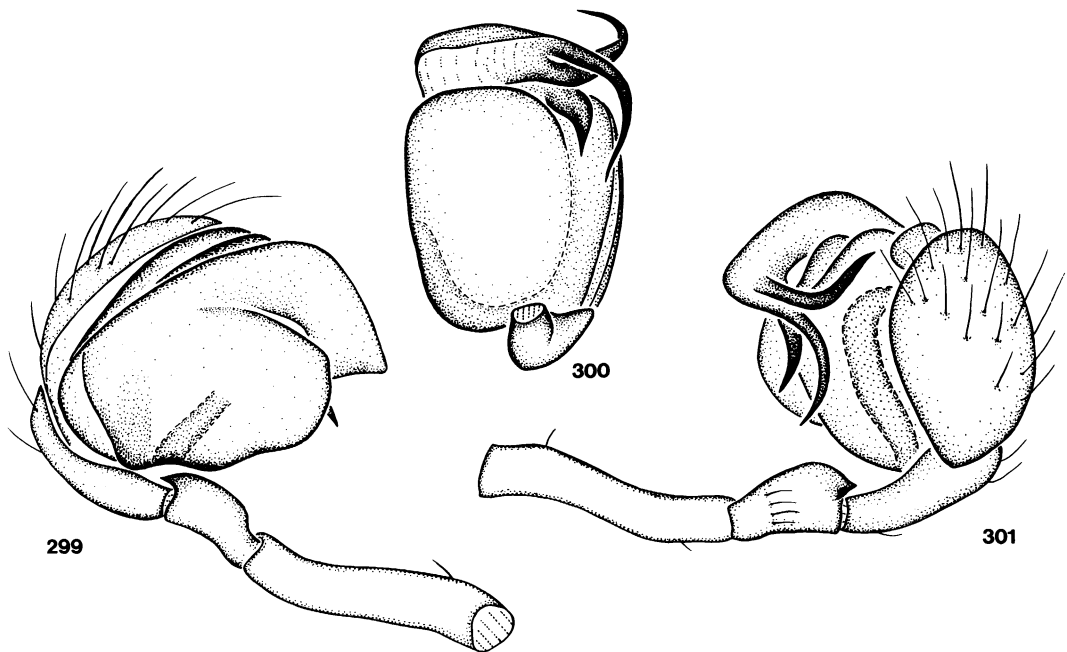
TYPE: Male holotype from a Berlese sample of rainforest litter taken at an elevation of

720 m at a site 4 km west of Cape Tribulation, northeastern Queensland, Australia (Apr. 23, 1983; G. B. Monteith, D. K. Yeates), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males of this relatively small species can be recognized by the two arched distal process on the palpal embolic division (fig. 300), females by the posteriorly narrow spermathecae (fig. 284).

MALE: As in *M. bartle*, except as follows. Total length 1.09. Carapace 0.54 long, 0.46 wide, 0.26 high. Abdomen 0.56 long, 0.59 wide, 0.81 high. Posterior portion of pars cephalica with irregularly circular cluster of five seta-bearing tubercles. Clypeal height at middle about three times that of ALE; anterolateral corners and interposed flap of cuticle apparently both with glandular depressions. Patellae with proximal and distal dorsal bristles; tibiae with proximal and subdistal dorsal bristles; femur I with four retrolateral tubercles, all small; tibia, metatarsus, and tarsus I with zero, two, and five elongated but only slightly widened setae, respectively. Anterior scutum not extending much further posteriorly at sides than at middle; soft portions of cuticle with relatively few sclerotizations, only two longitudinal rows discernible. Palpal patella with ventral, proximal seta-bearing



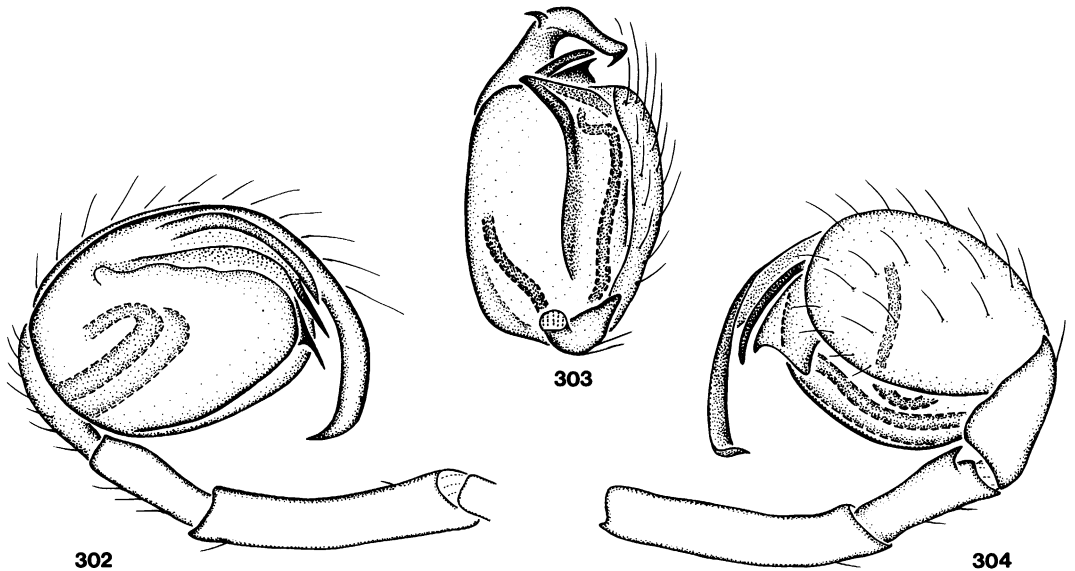
Figs. 299–301. *Maxanapis tribulation*, new species, left male palp, prolateral, ventral, and retrolateral views.

ing tubercle as well as small but normal distal apophysis; embolic division of bulb with two arched processes (figs. 299–301).

FEMALE: As in *M. bartle*, except as noted for male. Total length 1.26. Carapace 0.63 long, 0.54 wide, 0.26 high. Abdomen 0.72 long, 0.72 wide, 0.83 high. Posterior portion of pars cephalica with two offset paramedian seta-bearing tubercles. Spermathecae as in *M. burra* but narrower at base (fig. 284).

OTHER MATERIAL EXAMINED: AUSTRALIA: **Queensland:** Boonjee, Apr. 3–6, 1978, litter (V. T. Davies, R. J. Raven, QMB), 1♀; 3.0 km W Cape Tribulation, Oct. 2, 1982, elev. 500 m, Berlese, sieved rainforest litter (G. B. Monteith, D. K. Yeates, D. Cook, QMB), 1♂, 1♀; 3.5 km W Cape Tribulation, Sept. 23–Oct. 7, 1982, elev. 680 m, Berlese, sieved rainforest litter, pitfalls (G. B. Monteith, D. K. Yeates, G. Thompson, QMB), 3♂, 1♀, Jan. 3, 1983, elev. 680 m, Berlese, sieved rainforest litter (G. B. Monteith, QMB), 1♂; 4.0 km W Cape Tribulation, Sept. 24–29, 1982, elev. 720 m, Berlese, sieved rainforest litter (G. B. Monteith, D. K. Yeates, G. Thompson, QMB), 5♂, 1♀, Dec. 29, 1982, elev. 720 m, Berlese, sieved rainforest litter

(G. B. Monteith, QMB), 1♂; 4.5 km W Cape Tribulation, Sept. 23–Oct. 7, 1982, elev. 760 m, rainforest pitfalls (G. B. Monteith, D. K. Yeates, G. Thompson, QMB), 1♂; 4.5–5.0 km W Cape Tribulation, Sept. 29–Oct. 6, 1982, elev. 760–780 m, Berlese, sieved rainforest litter, pyrethrum knockdown (G. B. Monteith, D. K. Yeates, G. Thompson, QMB), 5♂; 5.0 km W Cape Tribulation, Sept. 28, 1982, elev. 780 m, pyrethrum knockdown (G. B. Monteith, D. K. Yeates, G. Thompson, QMB), 2♀, Dec. 19, 1982, elev. 780 m, Berlese, sieved rainforest litter (G. B. Monteith, QMB), 1♀; Mt. Finnigan, Nov. 10, 1974, elev. 2600 ft. (V. E. Davies, QMB), 1♂; Mt. Finnigan, 37 km S Cooktown, Apr. 21–22, 1982, elev. 900–1050 m, Berlese, sieved rainforest litter (G. B. Monteith, D. K. Yeates, D. Cook, QMB), 2♀, Dec. 20, 1982, elev. 1100 m, pyrethrum (L. Roberts, QMB), 2♂, 1♀; SW Mt. Hartley flanks, 30 km S Cooktown, July 3, 1982, elev. 700 m, rainforest litter (S. and J. Peck, AMNH), 2♂; 2.5 km SW Mt. Hartley, via Cooktown, Apr. 24, 1982, elev. 610 m, Berlese, rainforest litter (G. B. Monteith, D. K. Yeates, D. Cook, QMB), 1♂; Mt. Hemmant, 6 km SW Cape Tribulation, Apr. 25,



Figs. 302-304. *Maxanapis dorrigo*, new species, left male palp, prolateral, ventral, and retrolateral views.

1983, elev. 880 m, Berlese, sieved rainforest litter (G. B. Monteith, D. Cook, QMB), 3♂, 3♀; Mt. Sorrow, Cape Tribulation, Oct. 19, 1980, sieved rainforest litter (G. B. Monteith, QMB), 2♂; summit Mt. Sorrow, Cape Tribulation, Oct. 15-19, 1980, elev. 800 m, Berlese, sieved rainforest litter (G. B. Monteith, QMB), 3♂, 4♀; Thornton Peak, via Daintree, Nov. 1975, elev. 955-1242 m, rainforest litter (M. Gray, AMS), 14♂, 15♀, Sept. 20-22, 1981, elev. 1300 m, Berlese, sieved rainforest litter, moss (G. B. Monteith, D. Cook, QMB), 2♂, 2♀.

DISTRIBUTION: Known only from north-eastern Queensland.

***Maxanapis dorrigo*, new species**

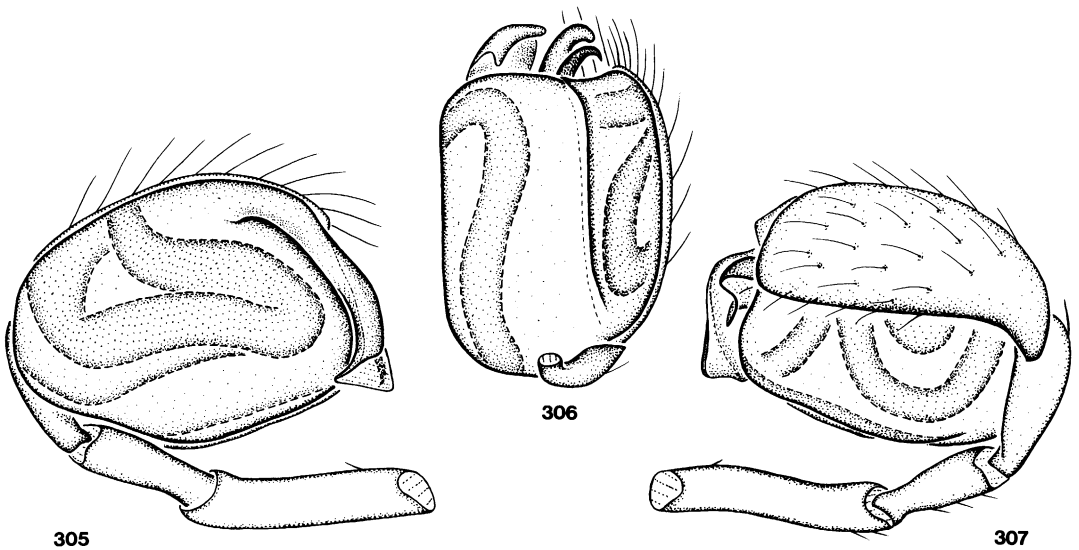
Figures 295, 302-304

TYPE: Male holotype taken in rotting fruits of *Schizomeria ovata* in a subtropical rainforest at an elevation of 710 m at the east end of Blackbutt Track, Dorrigo National Park, New South Wales, Australia (Feb. 28-Mar. 5, 1980; A. Newton, M. Thayer), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species resembles *M. tenerfield* in retaining the anterior median eyes, but differs in having a long distal process on the embolic division of the male palp (fig. 302) and in having stump-shaped female spermathecae (fig. 295).

MALE: As in *M. bartle*, except as follows. Total length 1.57. Carapace 0.74 long, 0.59 wide, 0.50 high. Abdomen 0.89 long, 0.87 wide, 1.11 high. Pars cephalica with three small seta-bearing tubercles in longitudinal row along midline. Clypeal height at middle about three times that of ALE. Eight eyes in four pairs, AME small, only about one-third as large as other eyes, separated by almost their diameter, by twice their diameter from PME (to which they are connected by black pigment). Patellae with proximal and distal dorsal bristles; tibiae with proximal and subdistal dorsal bristles; femur I with about seven retrolateral tubercles, none enlarged; femora I and II with retrolateral row of ventral tubercles greatly enlarged, prolateral row virtually obsolete; tibia, metatarsus, and tarsus I with two, four, and six short, wide setae, respectively. Palpal patella with apophysis almost ventral, very small; median prong of embolic division enormously elongated (figs. 302-304).



Figs. 305–307. *Maxanapis tenerfield*, new species, left male palp, prolateral, ventral, and retrolateral views.

FEMALE: As in *M. bartle*, except as noted for male. Total length 1.78. Carapace 0.81 long, 0.57 wide, 0.44 high. Abdomen 1.02 long, 0.94 wide, 1.11 high. Posterior sternal extension with definite notch. Tibia, metatarsus, and tarsus I with two, two, and five short, wide setae, respectively. Abdominal dorsum with w-shaped dark marking occupying anterior three-fourths of length. Spermathecae stump-shaped (fig. 295).

OTHER MATERIAL EXAMINED: AUSTRALIA: **New South Wales:** E end, Blackbutt Track, Dorrigo National Park, Feb. 28–Mar. 5, 1980, elev. 710 m, Berlese, leaf and log litter, subtropical rainforest (A. Newton, M. Thayer, AMNH), 1♀; W flank, Mt. Lumeah, Chichester State Forest, nr. Dungog, Jan. 1976, elev. 1000 m, rainforest litter (M. Gray, AMS), 1♀; Never Never, Dorrigo, Mar. 23, 1980–Mar. 13, 1981, elev. 700 m (G. B. Monteith, QMB), 12♂, 4♀; New England National Park, June 19–July 12, 1978, elev. 1500 m, Berlese, litter, beech forest (S. and J. Peck, AMNH), 2♀; Point Lookout Lower, New England National Park, Mar. 23–Nov. 11, 1980 (G. B. Monteith, QMB), 2♂; Point Lookout Upper, New England National Park, elev. 1400 m, Mar. 21, 1980–Mar. 16, 1981 (G. B. Monteith, QMB), 1♂, 1♀.

DISTRIBUTION: Known only from New South Wales.

Maxanapis tenerfield, new species

Figures 294, 305–307

TYPES: Holotype male and allotype female from stick brushings taken at Poverty Point, Tenterfield, New South Wales, Australia (Feb. 22, 1979; G. B. Monteith), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be distinguished from those of the other eight-eyed species, *M. dorrigo*, by the much shorter embolic division of the palp (fig. 305), females by the much smaller spermathecae (fig. 294).

MALE: As in *M. bartle*, except as follows. Total length 1.61. Carapace 0.74 long, 0.61 wide, 0.44 high. Abdomen 0.93 long, 0.89 wide, 1.24 high. Pars cephalica with four seta-bearing tubercles in longitudinal row along midline; sides with submarginal elevated ridge. Clypeal height at middle about four times that of ALE. Eight eyes in four pairs, AME about one-third as large as others, separated by almost their diameter, by almost three times their diameter from PME (to which they are connected by black pigment).

Patellae with distal dorsal bristles; tibiae with proximal dorsal bristles; femur I with six retrolateral tubercles, none enlarged; tibia, metatarsus, and tarsus I with two, three, and five short, wide setae, respectively. Embolic division of palp short, not extending beyond sides of bulb (figs. 305–307).

FEMALE: As in *M. bartle*, except as noted for male. Total length 1.63. Carapace 0.76 long, 0.56 wide, 0.48 high. Abdomen 0.91 long, 0.87 wide, 1.20 high. Tibiae with additional subdistal dorsal bristles; femur I with only three, scarcely discernible, retrolateral tubercles; tibia, metatarsus, and tarsus I with zero, three, and three short, wide setae, respectively. Abdominal dorsum with w-shaped dark marking; no triangular sclerites at posterolateral corners of anterior scutum. Spermathecae tiny, at ends of large membranous cones (fig. 294).

OTHER MATERIAL EXAMINED: AUSTRALIA: **Queensland:** Bald Mountain, via Emu Vale, Nov. 17, 1974–Mar. 30, 1975, elev. 1130 m (G. B. Monteith, QMB), 3♂, 3♀; Little Yabba Creek, via Kenilworth, Aug. 10–Nov. 9, 1974, elev. 150 m (G. B. Monteith, QMB), 1♂; Plateau S of “The Head,” via Killarney, Mar. 31–Aug. 2, 1975, elev. 1070 m (G. B. Monteith, QMB), 1♀. **New South Wales:** Bar Mountain, via Kyogle, Oct. 2, 1978, elev. 1070 m (G. B. Monteith, QMB), 1♂; Gibraltar Range (lower), Mar. 30–Nov. 10, 1980, elev. 450 m (G. B. Monteith, QMB), 1♂; 10.5 km W Gibraltar Range National Park headquarters, Mar. 29, 1980, Berlese, sieved rainforest litter (G. B. Monteith, QMB), 1♂; Mt. Glenie, 16 km E Woodenbong, Nov. 25, 1982, elev. 910 m, Berlese, sieved rainforest litter (G. B. Monteith, D. K. Yeates, D. Cook, QMB), 1♂; Mt. Woodenbong, May 15, 1979, male from horizontal orb web supported by pyramid of threads, female from “sheet” or orb web, both from lower portion of beech/eucalypt zone (B. Y. Main, WAM), 1♂, 1♀; Nothofagus Mountain, via Woodenbong, June 17, 1982, elev. 1100 m, Berlese, beech forest stick brushings (G. B. Monteith, G. Thompson, QMB), 5♂, 2♀; Nothofagus Mountain, 12 km N Woodenbong, Nov. 26, 1982, elev. 1200 m, Berlese, moss on trees and rocks, beech forest (G. B. Monteith, D. K. Yeates, D. Cook, QMB), 3♂, 4♀; Poverty Point, Tenterfield, Feb. 22, 1979, stick brushings (G. B. Monteith, QMB), 1♂; Poverty Point

Creek, via Tenterfield, May 27–Oct. 2, 1978, elev. 945 m (G. B. Monteith, QMB), 1♂; West Gibraltar, Nov. 11, 1980, elev. 990 m (G. B. Monteith, QMB), 3♂, 2♀; West Gibraltar Range, Mar. 14, 1981, elev. 990 m (G. B. Monteith, QMB), 3♀.

DISTRIBUTION: Southeastern Queensland and New South Wales.

Maxanapis bellenden, new species

Figures 293, 308–310

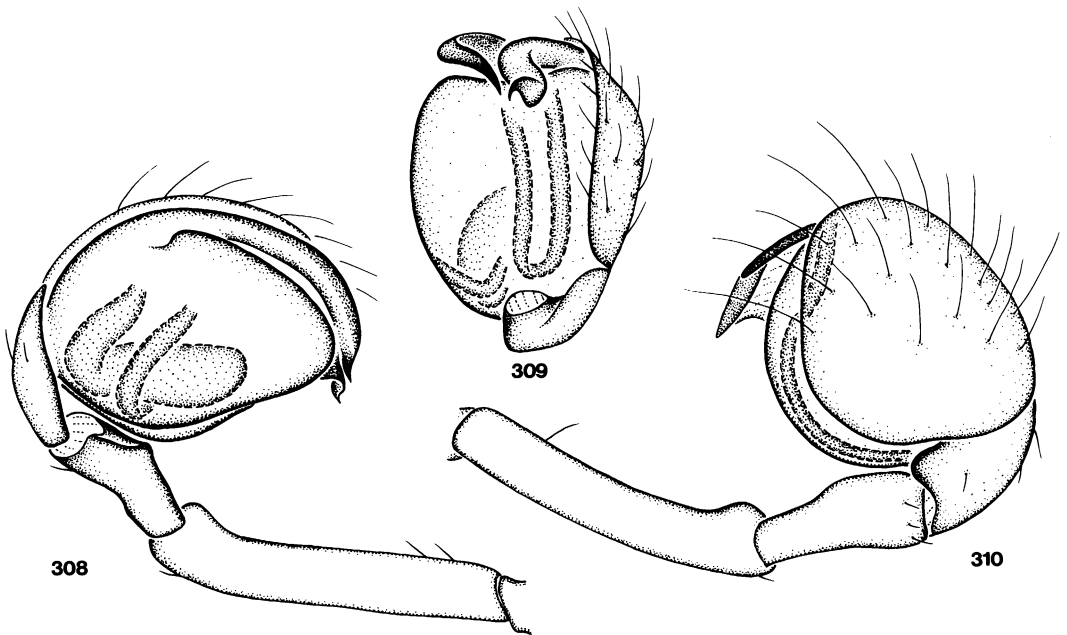
TYPES: Male holotype and female allotype from Berlese sample taken at the summit of Mt. Bellenden Ker, northern Queensland, Australia (June 10, 1980; G. B. Monteith), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Both sexes of this bizarre-looking species can be recognized easily by the greatly elongated tibia I, which is nearly as long as femur I.

MALE: As in *M. bartle*, except as follows. Total length 2.09. Carapace 0.87 long, 0.68 wide, 0.35 high. Abdomen 1.18 long, 0.87 wide, 1.18 high. Clypeal height at middle about four times that of ALE. Notch in posterior sternal extension much wider posteriorly than anteriorly. Patellae and tibiae with proximal and distal dorsal bristles; femur I with four enlarged and two normal retrolateral tubercles; tibia I greatly elongated, ventral surface with four or five enlarged tubercles bearing short, wide setae, two forming pair at about half of length, others scattered more distally, metatarsus I with pair of short, wide setae at apex, tarsus I with typical longitudinal row of seven short, wide setae. Abdomen elongate, almost rectangular in lateral view, with dorsal scutum restricted to posterior surface, without sclerotizations on soft portions of cuticle; limits of anterior scutum poorly defined at posterolateral corners but extending at least somewhat beyond level of epigastric furrow. Palpal tibia short, bulb small, embolic division with hook-shaped, retrolaterally directed distal process (figs. 308–310).

FEMALE: As in *M. bartle*, except as noted for male. Total length 2.35. Carapace 0.91 long, 0.65 wide, 0.26 high. Abdomen 1.42 long, 1.31 wide, 1.39 high. Posterior sternal extension only slightly notched. Femur I with



Figs. 308–310. *Maxanapis bellenden*, new species, left male palp, prolateral, ventral, and retrolateral views.

five retrolateral tubercles, none enlarged; tibia I with two prolateral widened setae not on tubercles; tarsus I with two or three short, wide setae. Abdominal dorsum with w-shaped dark marking; anterior scutum relatively short. Genitalia with two large, almost rectangular receptacula (fig. 293).

OTHER MATERIAL EXAMINED: AUSTRALIA: **Queensland:** Cable Tower 3, Bellenden Ker Range, Oct. 17–24, 1981, elev. 1054 m, sweeping, gutter trap, litter (QMB), 5♂, 7♀, Oct. 25–31, 1981, elev. 1054 m, litter (QMB), 1♂; 4.5–5.0 km W Cape Tribulation, top camp, Oct. 6, 1982, elev. 760–780 m, pyrethrum knockdown, rainforest (G. B. Monteith, D. K. Yeates, G. Thompson, QMB), 1♂; summit, center peak, Bellenden Ker Range, Apr. 11, 1979, elev. 1500 m, rainforest, Berlese, sieved litter, moss on trees, stick brushings (G. B. Monteith, QMB), 3♂, 3♀; summit, Mt. Bellenden Ker, June 10, 1980, Berlese (G. B. Monteith, QMB), 1♂; summit TV station, Bellenden Ker Range, Oct. 17–Nov. 7, 1981, elev. 1560 m, rainforest, Berlese, stick brushings, sweeping and beating, yellow pan trap, baited window trap, pitfalls, pyrethrum knockdown from foliage, logs, stones, and tree trunks, in litter, in horizontal orbweb pulled up into cone (QMB), 58♂, 82♀, Apr.

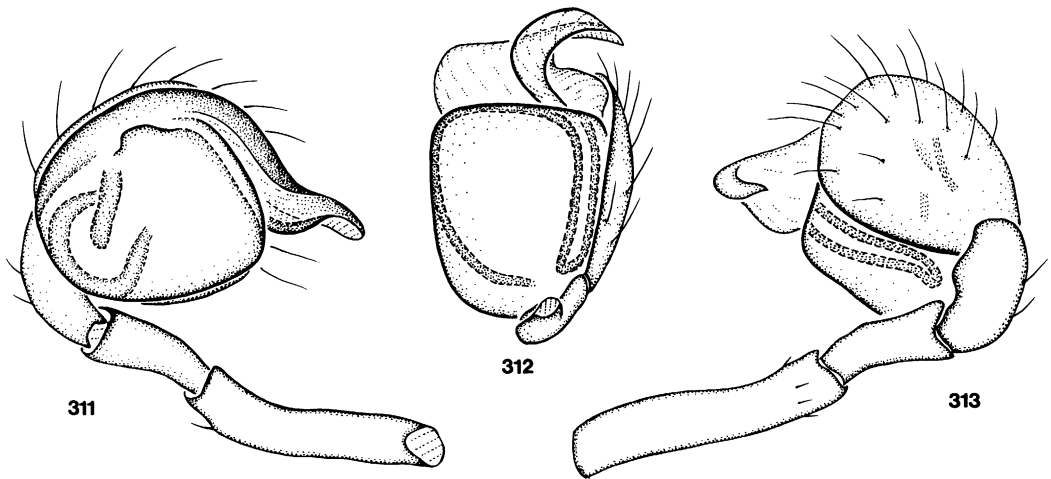
1–30, 1982, elev. 1560 m, pitfall (S. Montague, QMB), 1♀; Oct.–Dec. 1982, elev. 1560 m, pitfall trap (S. Montague, QMB), 2♂, 4♀, Apr. 29–May 3, 1983, elev. 1560 m, rainforest, baited pitfall traps, Berlese, sifted litter (G. B. Monteith, D. K. Yeates, QMB), 7♂, 18♀; top station, Bellenden Ker, Sept. 29, 1981, elev. 1560 m, Berlese, sieved litter (G. B. Monteith, D. Cook, QMB), 1♀; NW peak, Mt. Bartle-Frere, Sept. 24, 1981, elev. 1440 m, pyrethrum on mossy rocks (G. B. Monteith, QMB), 1♂; S peak, Mt. Bartle Frere, Nov. 6–8, 1981, elev. 1620 m (QMB), 2♂, 8♀; 0.5 km N S peak, Mt. Bartle-Frere, Nov. 6–8, 1981, elev. 1550 m, pyrethrum (QMB), 1♂, 2♀; summit creek, Mt. Bartle Frere, Sept. 24, 1981, elev. 1500 m, Berlese, sieved rainforest litter (G. B. Monteith, D. Cook, QMB), 1♂, 1♀.

DISTRIBUTION: Known only from northern Queensland.

Maxanapis bell, new species

Figures 285, 311–313

TYPES: Male holotype and female allotype from a Berlese sample of sieved litter and moss taken from a rainforest at an elevation of 900–1000 m at North Bell Peak, via Gor-



Figs. 311–313. *Maxanapis bell*, new species, left male palp, prolateral, ventral, and retrolateral views.

donvale, northeastern Queensland, Australia (Sept. 16, 1981; G. B. Monteith, D. Cook), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: The distally sinuous palpal conductor of males (fig. 311) and the posterodorsally prolonged abdomen and anteromedially angular receptacula (fig. 285) of females are diagnostic.

MALE: As in *M. bartle*, except as follows. Total length 1.16. Carapace 0.57 long, 0.49 wide, 0.34 high. Abdomen 0.66 long, 0.60 wide, 0.68 high. Clypeal height at middle about four times that of ALE. Patellae with dorsodistal bristles; tibiae with two dorsal bristles; femur I retrolateral tubercles not greatly expanded; tibia, metatarsus, and tarsus I with zero, two, and seven thick setae, respectively. Anterior abdominal scutum extending only slightly posterior of epigastric furrow at sides; soft portions of abdomen slightly constricted dorsally at about half their length, where bearing transverse row of small sclerites. Palpal conductor distally sinuous (figs. 311–313).

FEMALE: As in *M. bartle*, except as noted for male. Total length 1.35. Carapace 0.66 long, 0.50 wide, 0.26 high. Abdomen 0.83 long, 0.53 wide, 0.64 high. Abdomen prolonged anterodorsally, triangular in lateral view, slightly constricted at about one-fourth of total length (as viewed dorsally). Receptacula angular anteromedially (fig. 285).

OTHER MATERIAL EXAMINED: AUSTRALIA:

LIA: Queensland: Bell Peak North, 10 km E Gordonvale, Oct. 13, 1982, elev. 850–1000 m, pyrethrum knockdown, Berlese, sieved rainforest litter (G. B. Monteith, D. K. Yeates, G. Thompson, QMB, AMNH), 11♂, 17♀; North Bell Peak, via Gordonvale, Sept. 16, 1981, elev. 900–1000 m, Berlese, sieved rainforest litter and moss (G. B. Monteith, D. Cook, QMB), 9♂, 3♀.

DISTRIBUTION: Known only from Bell Peak in northeastern Queensland.

OCTANAPIS, NEW GENUS

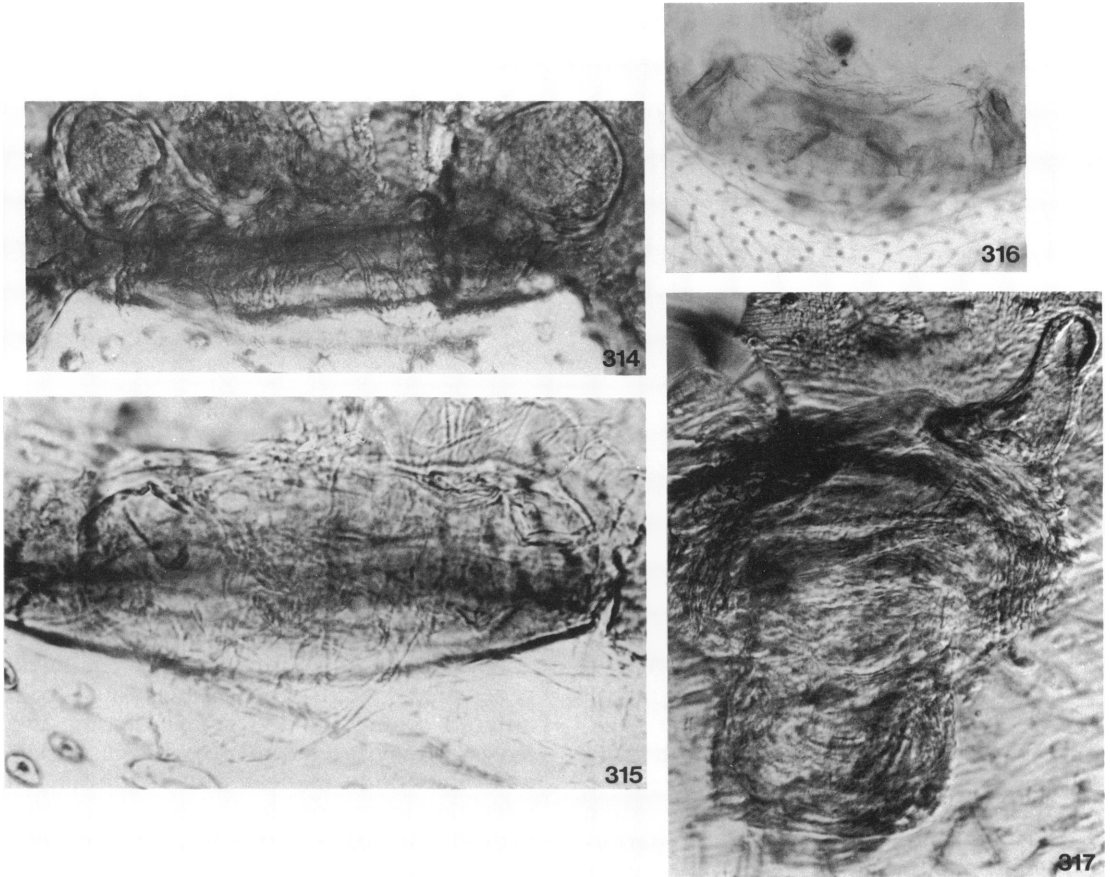
TYPE SPECIES: *Octanapis cann*, new species.

ETYMOLOGY: The generic name is an arbitrary combination of letters and is feminine in gender.

DIAGNOSIS: The presence of anterior spiracles advanced to about halfway between the epigastric furrow and pedicel distinguishes members of this genus from all others except *Hickmanapis* and *Chasmocephalon*, and the greatly elongated femur and tibia I separate them from members of those genera.

MONOPHYLY: The elongated femur and tibia I, and the presence of a dorsal abdominal scutum in females, unite the two species assigned to *Octanapis*.

GENERIC RELATIONSHIPS: The presence of a sclerite interposed between the carapace margin and the dorsal edge of the endites unites *Octanapis* with *Maxanapis*, *Spinanapis*, *Chasmocephalon*, and *Hickmanapis*, but its relationships with those two pairs of pu-



Figs. 314–317. Internal female genitalia, dorsal views. 314. *Octanapis cann*, new species. 315. *O. octocula* (Forster). 316. *Maxanapis mossman*, new species. 317. *Spinanapis lewis*, new species (with median receptaculum folded posteriorly).

tative sister groups (and the probably allied *Nortanapis*) remain uncertain.

DISTRIBUTION: Queensland to Victoria.

***Octanapis cann*, new species**

Figures 314, 318–320

TYPES: Male holotype and female allotype from Berlese sample of rotted *Eucalyptus* bark taken at Cann River, Victoria, Australia (May 25, 1978; S. and J. Peck), deposited in MOV.

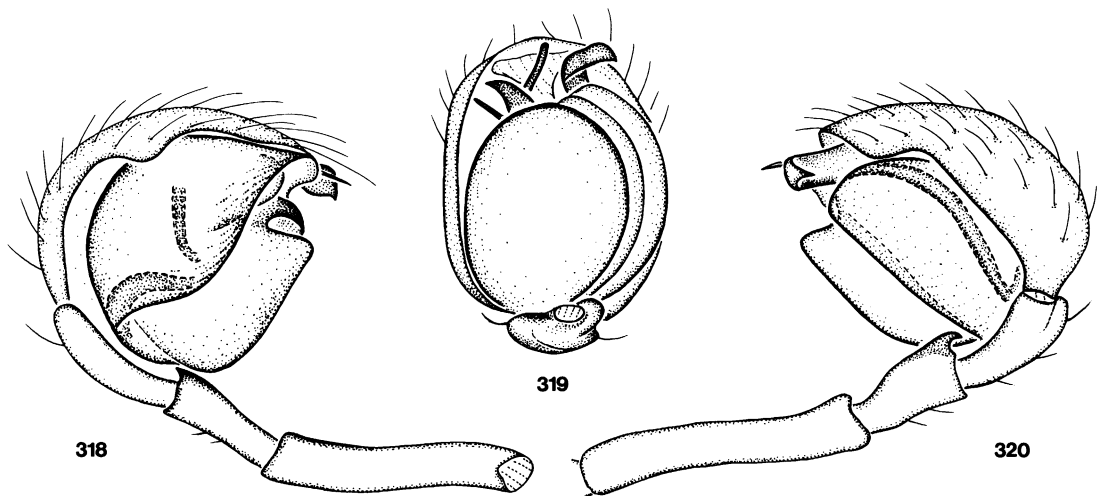
ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be distinguished from those of *O. octocula* by the longer retrolateral process on the palpal embolic division (fig. 320), females by the larger, stalked receptacula (fig. 314).

MALE: Total length 1.37. Carapace 0.61 long, 0.59 wide, 0.47 high. Abdomen 0.72

long, 0.94 wide, 1.15 high. Carapace dark reddish brown, oval in dorsal view, narrowed at front such that lateral eyes protrude as sides of pars cephalica, widest at rear of coxae II, posterior margin broadly invaginated at middle; surface of pars cephalica finely granulate, posterior margin with four or five seta-bearing tubercles along each side; surface of pars thoracica tuberculate, with tubercles arranged in ridges radiating from longitudinal thoracic groove; clypeal height at middle about four times that of anterior lateral eyes, circular glandular areas shifted to triangular flap interposed between carapace margin and endites, flap oriented almost horizontally.

Eight eyes in four subcontiguous pairs; AME circular, about one-third as large as other oval, subequal eyes; from front, both rows procurved; from above, both rows recurved; ALE separated by their diameter from



Figs. 318-320. *Octanapis cann*, new species, left male palp, proteral, ventral, and retrolateral views.

AME; PLE separated by less than their diameter from PME; AME separated by about three times their diameter from PME (to which they are connected by black pigment); MOQ only about as long as wide in back, almost three times as wide in back as in front.

Sternum and mouthparts dark reddish brown. Sternum elevated, elevated portion slightly wider than long, truncated posteriorly by short, unnotched extension, separating coxae IV by almost twice their length, extending dorsally and around coxae to fuse with carapace; surface covered with large excavations. Labium broadly triangular, excavated anteriorly, fused to sternum by groove. Endites expanded, paler distally, each with bristles-bearing tubercle laterally at about half of length, strong anteromedian scopula, and anterolateral serrula. Labral spur ledge-shaped dorsally. Chelicerae elongated, with large proximal promarginal tooth and two slightly smaller distal promarginal teeth on small plate with at least two minor retromarginal teeth.

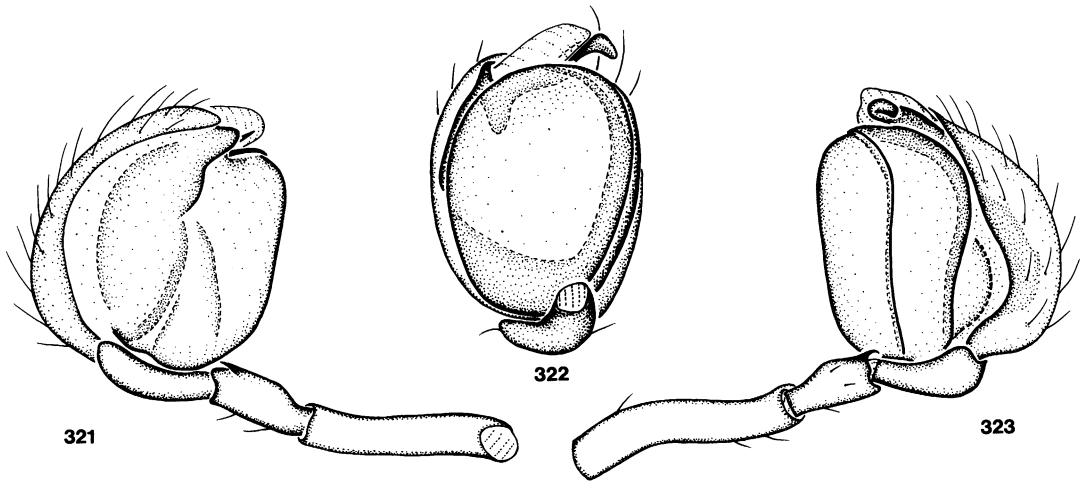
Legs light reddish brown with yellow patellae and tibiae darkened distally; all segments clothed with fine setae; patellae with distal dorsal bristles; tibiae with proximal and medial to subdistal dorsal bristles; leg formula 1243, leg I much longer than others; femur I elongated but not expanded, with two rows of tiny tubercles ventrally; tibia I greatly elongated, without tubercles; metatarsus and

tarsus I without modified setae; femur II with weak ventral tubercles.

Abdominal dorsum with large, flat, thick, reticulated scutum narrowly separated from anterior scutum by soft cuticle bearing two irregular longitudinal rows of elongate sclerotizations and smaller, scattered, rounded sclerotizations; anterior scutum encircling pedicel, extending farther toward spinnerets at sides than at middle; spiracles about midway between epigastric furrow and pedicel. Six spinnerets and triangular colulus encircled by strongly sclerotized ring.

Palpal femur elongated; patella with small, lobe-shaped, ventrally situated distal apophysis; tibia long, triangular; cymbium unmodified; tegulum with retrolateral groove fitting shape of patellar apophysis (which presumably arrests palpal expansion when it reaches the distal end of the groove); embolic division with hook-shaped proteral prong and arrow-shaped retrolateral prong apparently sheathing tip of embolus (figs. 318-320).

FEMALE: As in male, except as follows. Total length 1.73. Carapace 0.83 long, 0.57 wide, 0.46 high. Abdomen 0.92 long, 1.09 wide, 1.37 high. Dorsal abdominal scutum slightly smaller than in male but structurally identical; anterior scutum with sides extending only slightly farther posteriorly than middle portion. Palpal segments beyond coxa lacking, trochanter represented only by slight lobe.



Figs. 321–323. *Octanapis octocula* (Forster), left male palp, prolateral, ventral, and retrolateral views.

Two lateral spermathecae on short stalks at sides of median receptaculum (fig. 314).

OTHER MATERIAL EXAMINED: AUSTRALIA: New South Wales: O'Sullivan's Gap Reserve, 11 km NE Bulahdelah, June 11–Aug. 27, 1982, elev. 50 m, flight intercept trap, wet sclerophyll forest (S. and J. Peck, AMNH), 1♂; Warrah, Jan. 7–8, 1976 (OMD), 1♂, 1♀.

DISTRIBUTION: Known only from New South Wales and Victoria.

Octanapis octocula (Forster),
new combination
Figures 315, 321–323

Pseudanapis octocula Forster, 1959: 310, figs. 88–91, 152 (male holotype from Binna Burra, Queensland, Australia, in QMB, examined).

Risdonius octoculus: Brignoli, 1981: 116.

DIAGNOSIS: Males can be distinguished from those of *O. cann* by the shorter retrolateral prong of the palpal embolic division (fig. 323), females by the tiny lateral receptacula (fig. 315).

MALE: As in *O. cann*, except as follows. Total length 1.18. Carapace 0.61 long, 0.54 wide, 0.44 high. Abdomen 0.61 long, 0.78 wide, 0.96 high. Palpal patella slightly expanded at middle, without distal apophysis; tegulum without retrolateral groove; embolic division with distally expanded, retrolaterally directed, distal projection (figs. 321–323).

FEMALE: As in *O. cann*, except as follows.

Total length 1.41. Carapace 0.69 long, 0.50 wide, 0.43 high. Abdomen 0.80 long, 0.93 wide, 1.22 high. Genitalia consisting of large, oval, membranous sac apparently containing pair of tiny lateral receptacula (fig. 315).

MATERIAL EXAMINED: AUSTRALIA: Queensland: Binna Burra, Lamington Plateau, Sept. 7, 1952, leafmold (T. E. Woodward, QMB), 1♂ (holotype), (T. E. Woodward, OMD), 3♂, 1♀ (paratypes); Sunnybank, Brisbane, Oct. 5, 1955 (W. Haseler, QMB), 1♀ (allotype).

DISTRIBUTION: Known only from southeastern Queensland.

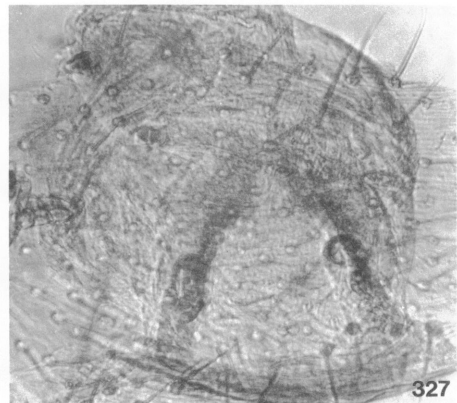
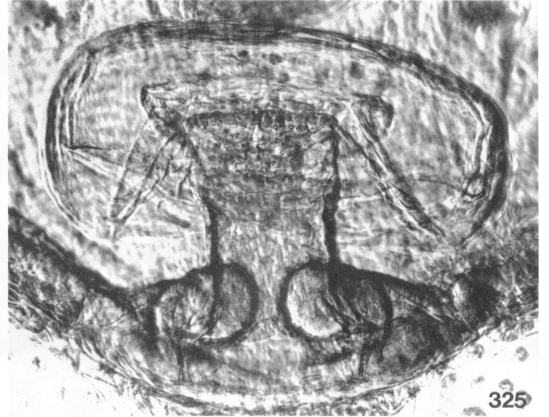
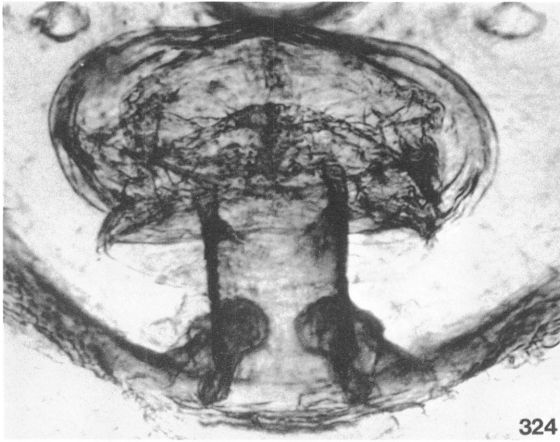
SPINANAPIS, NEW GENUS

TYPE SPECIES: *Spinanapis ker*, new species.

ETYMOLOGY: The generic name is an arbitrary combination of letters and is feminine in gender.

DIAGNOSIS: Specimens of *Spinanapis* can be recognized easily by genitalic characters: males have a long embolus that originates proximally and runs along the entire length of the palpal bulb (as in fig. 328), and the female genitalia include a large, anteriorly directed, flaplike median projection (as in figs. 324, 327).

MONOPHYLY: The genitalic details mentioned above, as well as the presence of true spines on at least metatarsus I, unite the nine species assigned to *Spinanapis*.



Figs. 324–327. Internal female genitalia, dorsal views. 324. *Spinanapis ker*, new species. 325. *S. frere*, new species. 326. *S. monteithi*, new species (with median receptaculum folded posteriorly). 327. *S. julatten*, new species.

GENERIC RELATIONSHIPS: See comments under *Maxanapis* and *Octanapis*, above.

SPECIES RELATIONSHIPS: The nine included species fall into two groups; *Spinanapis ker* and *S. frere* share a uniquely T-shaped median receptaculum, whereas the remaining seven species are united by a greatly elevated pars cephalica with the lateral eyes distinctively protruding from its sides. Of those seven, *S. monteithi* and *S. lewis* seem to be sister species, uniquely sharing distoventral tubercles on femur I, and *S. julatten* uniquely shares a row of retroventral tubercles on tibia I with those two species. Three other species (*S. darlingtoni*, *S. thornton*, and *S. thompsoni*) share a distally expanded, dorsally hooked palpal conductor; the relationships among those three species, and of *S. yeatesi*, remain unresolved.

DISTRIBUTION: All nine known species are apparently endemic to the mountains of northern Queensland.

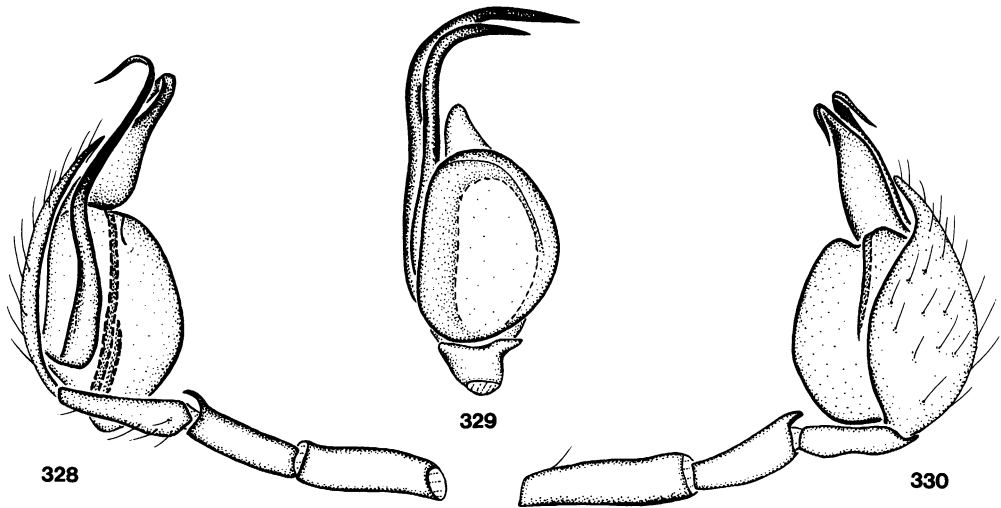
***Spinanapis ker*, new species**

Figures 324, 328–330

TYPES: Male holotype and female allotype from Berlese sample of sieved litter taken in a rainforest at an elevation of 1500 m on the Centre Peak Summit of Bellenden Ker, northeastern Queensland, Australia (Apr. 11, 1979; G. B. Monteith), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be recognized by the elongated and similarly shaped palpal embolus and conductor (fig. 329), females by the massive, T-shaped internal genitalia (fig. 324).



Figs. 328–330. *Spinanapis ker*, new species, left male palp, prolatateral, ventral, and retrolateral views.

MALE: Total length 1.17. Carapace 0.52 long, 0.46 wide, 0.30 high. Abdomen 0.74 long, 0.59 wide, 0.85 high. Carapace dark reddish brown, oval in dorsal view, widest at rear of coxae II, with posterior margin slightly invaginated at middle; surface of pars cephalica finely granulate, posterior portion with three small seta-bearing tubercles arranged in anteriorly directed triangle; surface of pars thoracica rugose, with elevated ridges radiating from scarcely detectable thoracic groove and two pairs of paramedian circular depressions on anterior half, anterior pair just behind pair of distinct humps; clypeal height at middle five times that of anterior lateral eyes, glandular areas shifted to elongated, triangular flap interposed between carapace margin and endites.

Six subequal eyes in three contiguous pairs, PLE separated by more than their diameter from PME, ALE slightly farther away; posterior eye row slightly procurved from front, recurved from above.

Sternum and mouthparts dark reddish brown. Sternum elevated, elevated portion about as long as wide, truncated posteriorly, without posterior extension but reaching dorsally and around coxae to fuse with carapace; surface covered with large excavations. Endites convergent, distally expanded, each with strong anteromedian scopula and anterolateral serrula. Labium broadly triangular but truncated distally, fused to sternum by groove.

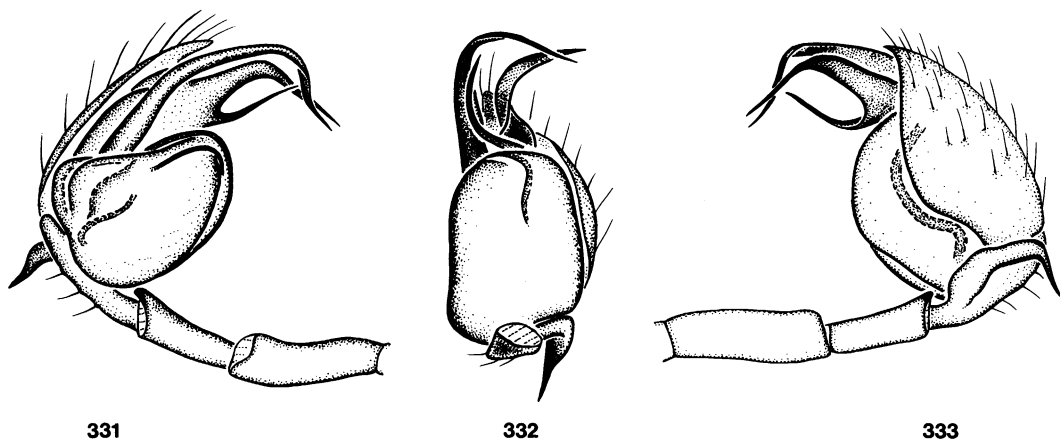
Labral spur large, rounded dorsally. Chelicerae with short promarginal tooth widely separated from two larger, distal promarginal teeth on low plate.

Legs orange with yellow patellae; all segments clothed with fine setae; patellae with distal, tibiae with proximal and distal dorsal bristles; leg formula 1243, leg I not enlarged; femur I with very weak ventral tubercles; tibia I unmodified; metatarsus I with distal pair of long ventral spines; tarsus I with all ventral setae enlarged.

Dorsal abdominal scutum oval, occupying most of dorsum, separated from anterior scutum by soft cuticle bearing three longitudinal rows of elongate sclerotizations; anterior scutum surrounding pedicel, scarcely extended posteriorly at sides, with spiracles advanced to near pedicel. Six spinnerets and triangular colulus surrounded by sclerotic ring narrower near midline than at sides.

Palp with patella almost as long as femur, bearing ledge-shaped distoventral apophysis; tibia triangular, with retrolateral excavation apically; cymbium drawn out to elongate point; tegulum with retrolateral and distal groove probably engaging patellar apophysis in expanded palp; embolus originating at base of prolatateral side, extending full length of bulb, protruding almost length of bulb again, bent distally, supported beyond bulb by long, curved conductor (figs. 328–330).

FEMALE: As in male, except as follows. To-



Figs. 331-333. *Spinanapis frere*, new species, left male palp, prolateral, ventral, and retrolateral views.

tal length 1.31. Carapace 0.56 long, 0.48 wide, 0.33 high. Abdomen 0.89 long, 0.76 wide, 0.93 high. Clypeal height at middle about four times that of ALE. Two distal teeth of chelicerae not on obvious plate. Tibia I with additional prolateral bristles at middle of length; metatarsus I without distal spines. Abdominal dorsum without scutum, with scattered rounded sclerotizations; anterior scutum long, epigastric furrow followed by wide, oval to triangular sclerite. Palpal segments beyond coxae absent, trochanter represented by low mound. Internal genitalia massive, T-shaped (fig. 324).

OTHER MATERIAL EXAMINED: AUSTRALIA: **Queensland:** summit, center peak, Bellenden Ker, Apr. 10-11, 1979, elev. 1500 m, Berlese, moss on trees, stick brushings, rainforest (G. B. Monteith, QMB), 2♀, Oct. 23, 1980, elev. 1560 m, Berlese, sieved rainforest litter (G. B. Monteith, QMB), 2♀; summit TV station, Bellenden Ker Range, Oct. 17-Nov. 7, 1981, elev. 1560 m, Berlese, sieved rainforest litter (QMB), 1♂, 28♀, Apr. 29-May 2, 1983, elev. 1560 m, Berlese, sieved rainforest litter (G. B. Monteith, D. K. Yeates, QMB), 3♀; top of Mt. Bellenden Ker, June 10, 1980, Berlese (G. B. Monteith, QMB), 1♀.

DISTRIBUTION: Known only from the Bellenden Ker Range, northeastern Queensland.

Spinanapis frere, new species

Figures 325, 331-333

TYPES: Male holotype and female allotype from a Berlese sample of sieved rainforest

litter taken at an elevation of 1620 m on the South Peak summit of Mt. Bartle-Frere, northern Queensland, Australia (Nov. 6-8, 1981; Earthwatch-Queensland Museum Expedition), deposited in QMB.

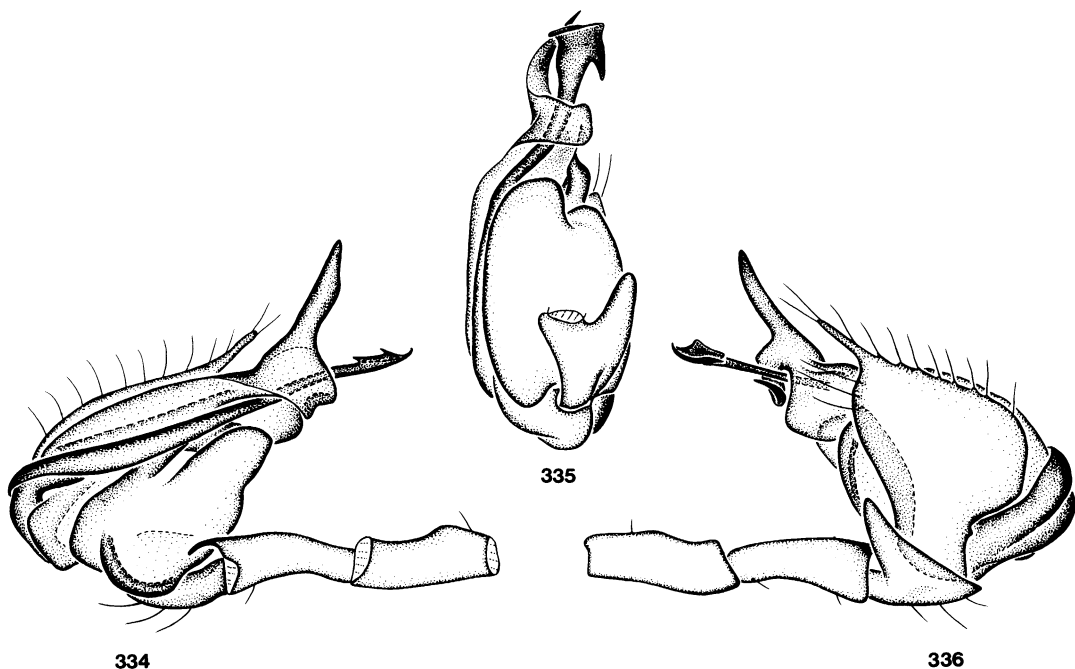
ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species is most closely related to *S. ker*, sharing an elongate female abdomen and heavily sclerotized median receptaculum, but can be distinguished by the presence of three elongated, distal prongs on the male palp (fig. 332) and the more angular posterior margin of the T-shaped median receptaculum of females (fig. 325).

MALE: As in *S. ker*, except as follows. Total length 0.94. Carapace 0.45 long, 0.49 wide, 0.36 high. Abdomen 0.66 long, 0.61 wide, 0.68 high. Posterior portion of pars cephalica with dark markings; pars thoracica without paramedian depressions. Palpal tibia with retrolateral apophysis, conductor bifid (figs. 331-333).

FEMALE: As in *S. ker*, except as noted for male. Total length 1.23. Carapace 0.52 long, 0.49 wide, 0.30 high. Abdomen 0.84 long, 0.68 wide, 0.79 high. Median receptaculum with shorter stalk than in *S. ker*, posterior margin of transverse bar angular (fig. 325).

OTHER MATERIAL EXAMINED: AUSTRALIA: **Queensland:** Northwest/Centre Peak ridge, Mt. Bartle-Frere, Oct. 7-8, 1981, elev. 1400-1500 m, Berlese, sieved rainforest litter (Earthwatch-Queensland Museum Expedition, QMB), 1♂, 1♀; South Peak summit, Mt. Bartle-Frere, Nov. 6-8, 1981, elev. 1620 m,



Figs. 334–336. *Spinanapis monteithi*, new species, left male palp, prolatateral, ventral, and retrolateral views.

Berlese, sieved rainforest litter (Earthwatch–Queensland Museum Expedition, QMB, AMNH), 4♂, 2♀; 0.5 km N South Peak, Mt. Bartle-Frere, Nov. 6–8, 1981, Berlese, sieved rainforest litter (Earthwatch–Queensland Museum Expedition, QMB), 1♂, 1♀.

DISTRIBUTION: Known only from Mt. Bartle-Frere, northern Queensland.

Spinanapis monteithi, new species

Figures 326, 334–336

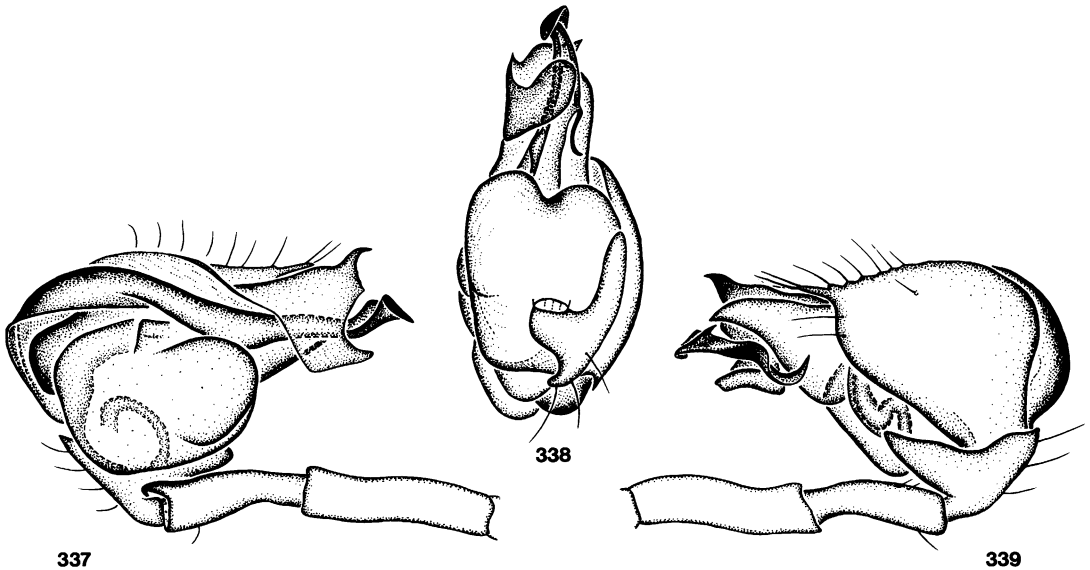
TYPE: Male holotype from Berlese sample of sieved litter taken in a rainforest at an elevation of 1150 m in the Devil's Thumb area, 10 km northwest of Mossman, northeastern Queensland, Australia (Oct. 9, 1982; G. B. Monteith, D. K. Yeates, G. Thompson), deposited in QMB.

ETYMOLOGY: The specific name is a patronym in honor of Dr. G. B. Monteith of the Queensland Museum, collector of many fascinating anapids.

DIAGNOSIS: The presence of a row of enlarged tubercles on the proximal portion of tibia I as well as two ventral tubercles on femur I unites males with those of *S. lewis*,

but the bizarre palpal structure (fig. 334), with a barbed embolus, is diagnostic; females also resemble those of *S. lewis*, but have narrower lateral sclerotizations beside the median receptaculum (fig. 326).

MALE: As in *S. ker*, except as follows. Total length 1.26. Carapace 0.63 long, 0.56 wide, 0.48 high. Abdomen 0.68 long, 0.56 wide, 0.76 high. Lateral eyes protruding from sides of pars cephalica, surface of which has additional seta-bearing tubercle anteriorly along midline; pars thoracica without paired depressions. Clypeal height at middle almost six times that of ALE. PLE separated by twice their diameter from PME. Sternum with slight posterior extension bearing shallow, rectangular median invagination. Femur I expanded, sinuous distally, with two distinct ventral tubercles at about half of length, proximal one much larger than distal one; tibia I sinuous basally, with five or six greatly enlarged retroventral tubercles proximally; metatarsus I with six or seven, tarsus I with four or five long, ventral spines; tibia II with three or five greatly elongated retroventral spines. Soft portions of abdominal cuticle without sclerotizations, dorsum with w-shaped dark



Figs. 337–339. *Spinanapis lewis*, new species, left male palp, prolateral, ventral, and retrolateral views.

marking visible through scutum. Palpal patella with apophysis shifted to prolateral side of bulb; tibia with long prolateral extension; cymbium drawn out into long point bearing two strong setae; embolus running along entire distal edge of bulb, spade-shaped distally (figs. 334–336).

FEMALE: As in *S. ker*, except as noted for male. Total length 1.28. Carapace 0.60 long, 0.49 wide, 0.30 high. Abdomen 0.79 long, 0.70 wide, 0.73 high. Femur and tibia I unmodified, metatarsus I with single, weak prolaterodistal spine. Anterior abdominal scutum excised near midline along narrow, semicircular postepigastric sclerite. Median receptaculum long, narrowed distally; lateral sclerotization expanded distally (fig. 326).

OTHER MATERIAL EXAMINED: AUSTRALIA: **Queensland:** Devil's Thumb area, 10 km NW Mossman, Oct. 10, 1982, elev. 1000–1180 m, pyrethrum knockdown, Berlese, rainforest stick brushings (G. B. Monteith, D. K. Yeates, G. Thompson, QMB), 3♀.

DISTRIBUTION: Known only from the Mossman area of northeastern Queensland.

Spinanapis lewis, new species

Figures 317, 337–339

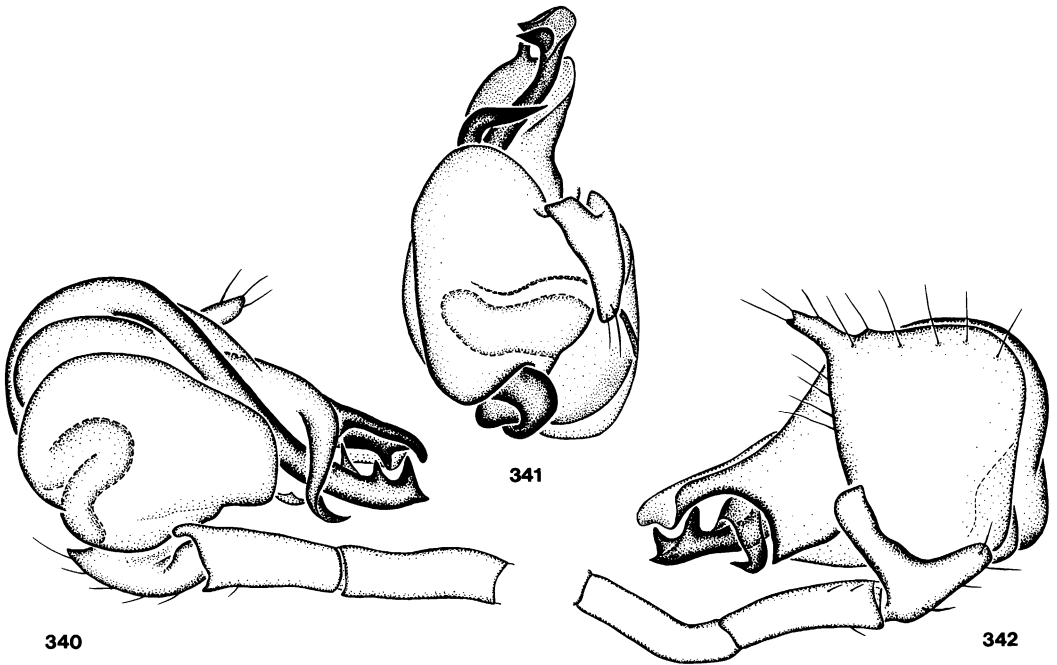
TYPES: Male holotype and female allotype from a Berlese sample of sieved rainforest

litter taken at an elevation of 1200 m at Hilltop, 5.5 km N of Mt. Lewis, northeastern Queensland, Australia (Sept. 13, 1981; G. B. Monteith, D. Cook), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males resemble those of *S. monteithi* in tibia I and femur I modifications, and in having a ventral expansion of the palpal conductor that partially ensheathes the embolus, but differ in having that expansion more distally situated (fig. 338); females have a long, distally narrowed median receptaculum, with basally wider lateral sclerotizations than in *S. monteithi* (fig. 317).

MALE: As in *S. ker*, except as follows. Total length 1.24. Carapace 0.62 long, 0.54 wide, 0.42 high. Abdomen 0.66 long, 0.56 wide, 0.71 high. Lateral eyes protruding from sides of pars cephalica, surface of which has additional seta-bearing tubercle anteriorly along midline; pars thoracica without paired depressions. Clypeal height at middle almost six times that of ALE. PLE separated by twice their diameter from PME. Sternum with slight posterior extension bearing shallow, rectangular median invagination. Femur I expanded, sinuous distally, with three distinct ventral tubercles at about half of length, proximal one much smaller than distal ones; tibia I sinuous basally, with seven greatly enlarged



Figs. 340–342. *Spinanapis julatten*, new species, left male palp, prolateral, ventral, and retrolateral views.

retroventral tubercles proximally; metatarsus and tarsus I each with seven or eight long, ventral spines; tibia II with four greatly elongated retroventral spines. Soft portions of abdominal cuticle without sclerotizations, dorsum with w-shaped dark marking visible through scutum. Palpal patella with apophysis shifted to prolateral side of bulb; tibia with long prolateral extension; cymbium drawn out into long point bearing strong, curved seta; embolus running along entire distal edge of bulb, blunt distally (figs. 337–339).

FEMALE: As in *S. ker*, except as noted for male. Total length 1.28. Carapace 0.62 long, 0.49 wide, 0.34 high. Abdomen 0.83 long, 0.80 wide, 0.75 high. Femur and tibia I unmodified, metatarsus I with two weak prolaterodistal spines. Anterior abdominal scutum excised near midline along narrow, semicircular postepigastric sclerite. Median receptaculum long, narrowed distally; lateral sclerotization expanded wider proximally than distally (fig. 317).

OTHER MATERIAL EXAMINED: One male taken with the types (QMB).

DISTRIBUTION: Known only from the type locality in northeastern Queensland.

Spinanapis julatten, new species

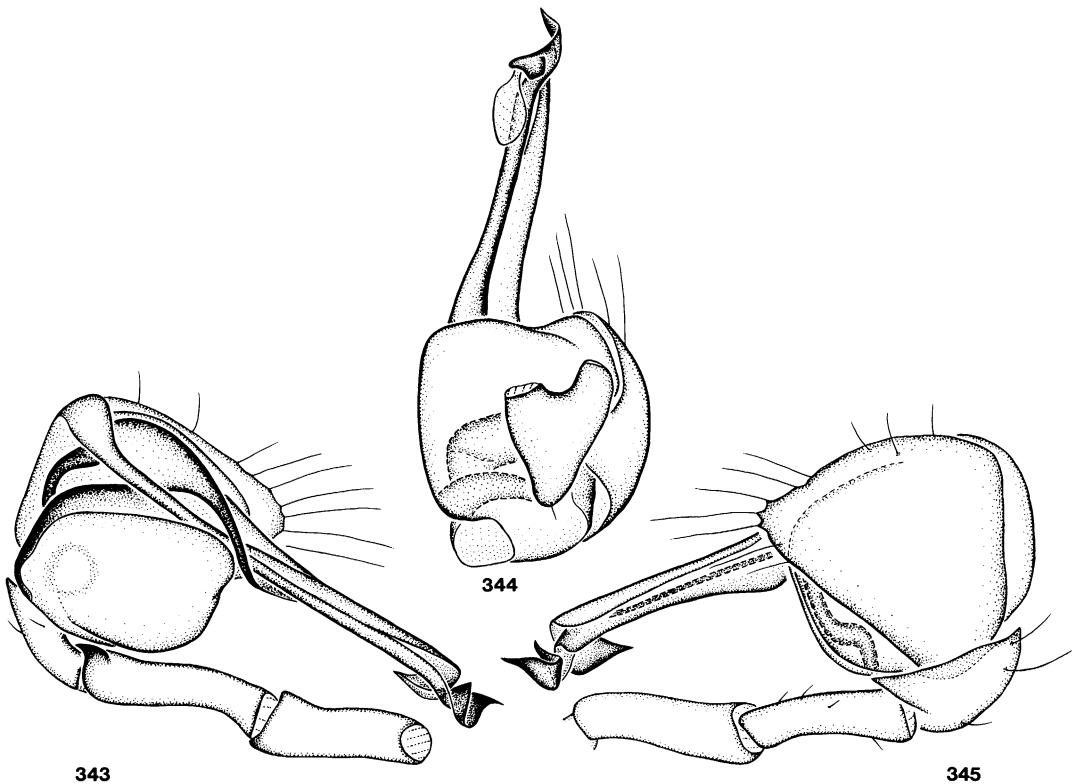
Figures 327, 340–342

TYPE: Male holotype from a Berlese sample of sieved rainforest litter taken on Mt. Lewis, via Julatten, northeastern Queensland, Australia (Oct. 12, 1980; G. B. Monteith), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males resemble those of *S. monteithi* and *S. lewis* in having a series of retroventral tubercles proximally on tibia I, but lack the ventral tubercles on the opposing surface of femur I; females have a pair of tiny side branches on the sclerotizations lateral to the median receptaculum (fig. 327).

MALE: As in *S. ker*, except as follows. Total length 1.22. Carapace 0.59 long, 0.53 wide, 0.38 high. Abdomen 0.66 long, 0.54 wide, 0.64 high. Lateral eyes protruding from sides of pars cephalica, surface of which has ad-



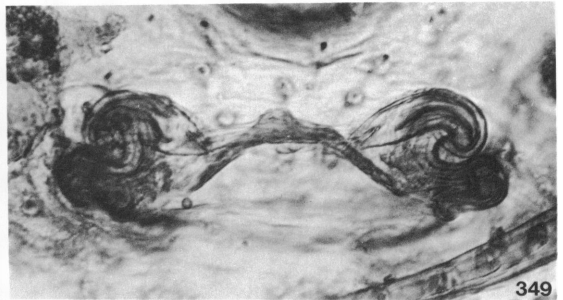
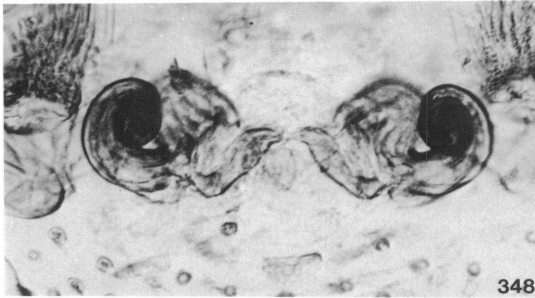
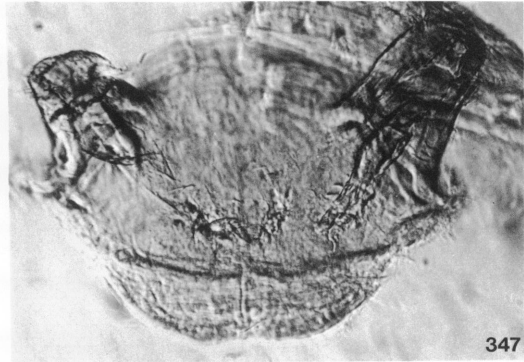
Figs. 343–345. *Spinanapis yeatesi*, new species, left male palp, prolateral, ventral, and retrolateral views.

ditional seta-bearing tubercle anteriorly along midline; pars thoracica without paired depressions. Clypeal height at middle almost six times that of ALE. PLE separated by twice their diameter from PME. Sternum with slight posterior extension bearing shallow, rectangular median invagination. Femur I expanded, sinuous distally, without ventral tubercles; tibia I sinuous basally, with six greatly enlarged retroventral tubercles proximally; metatarsus I with six, tarsus I with four long, ventral spines; tibia II with three or four greatly elongated retroventral spines. Soft portions of abdominal cuticle with few sclerotizations, dorsum with w-shaped dark marking visible through scutum. Palpal patella with apophysis shifted to prolateral side of bulb; tibia with long prolateral extension; cymbium drawn out into long point bearing two strong, curved setae; embolus running along entire distal edge of bulb, enlarged distally (figs. 340–342).

FEMALE: As in *S. ker*, except as noted for male. Total length 1.22. Carapace 0.56 long, 0.49 wide, 0.28 high. Abdomen 0.77 long, 0.62 wide, 0.66 high. Femur and tibia I unmodified, metatarsus I with two weak prolaterodistal spines. Anterior abdominal scutum scarcely excised, heavily sclerotized along epigastric furrow. Median receptaculum long, not narrowed distally; lateral sclerotization each bearing one tiny expansion (fig. 327).

OTHER MATERIAL EXAMINED: AUSTRALIA: Queensland: Mt. Lewis, via Julatten, Oct. 12, 1980, Berlese, sieved rainforest litter (G. B. Monteith, QMB), 1♂; Mt. Lewis summit, via Julatten, Sept. 10, 1981, elev. 1200 m, Berlese, rainforest stick brushings (G. B. Monteith, D. Cook, QMB), 2♀; 5.5 km N Mt. Lewis, via Julatten, Sept. 8, 1981, elev. 1100 m, Berlese, sieved rainforest litter (G. B. Monteith, D. Cook, QMB), 1♀.

DISTRIBUTION: Known only from the Mt. Lewis area in northeastern Queensland.



Figs. 346–349. Internal female genitalia, dorsal views. 346. *Spinanapis yeatesi*, new species (with median receptaculum folded posteriorly). 347. *S. darlingtoni* (Forster). 348. *Chasmocephalon acheron*, new species. 349. *C. alfred*, new species.

***Spinanapis yeatesi*, new species**

Figures 343–346

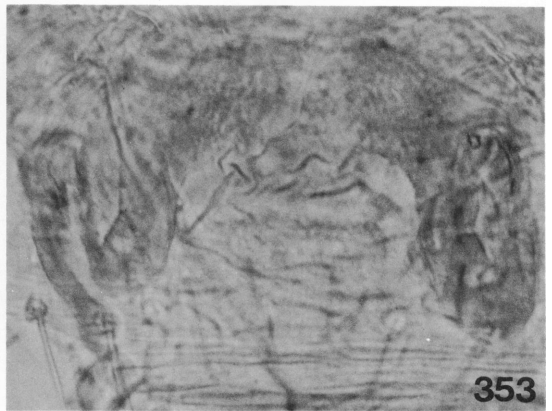
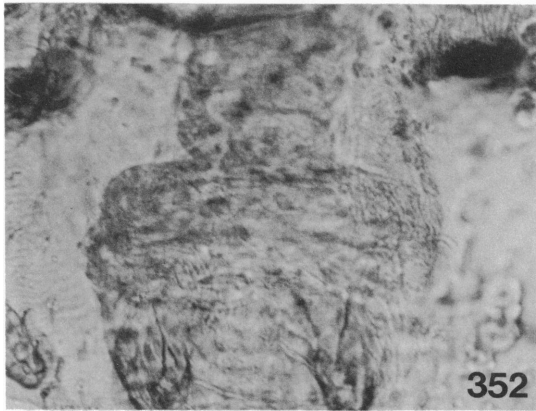
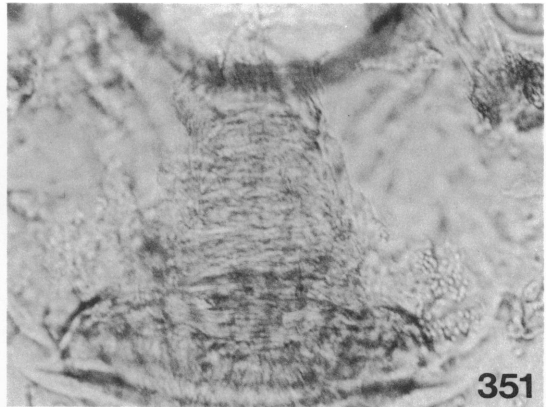
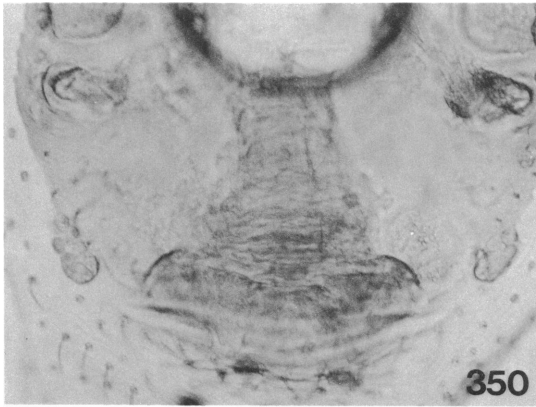
TYPES: Male holotype and female allotype taken by pyrethrum knockdown at an elevation of 800–1000 m on Black Mountain, 17 km ESE of Julatten, northern Queensland, Australia (Apr. 29–30, 1982; G. B. Monteith, D. K. Yeates, D. Cook), deposited in QMB.

ETYMOLOGY: The specific name is a patronym in honor of one of the collector of the types.

DIAGNOSIS: Males of this distinctive species can be recognized by the greatly elongated embolus (fig. 344), females by the lobe-shaped sclerotizations lateral to the median receptaculum (fig. 346).

MALE: As in *S. ker*, except as follows. Total length 1.39. Carapace 0.60 long, 0.50 wide, 0.47 high. Abdomen 0.83 long, 0.68 wide, 0.83 high. Lateral eyes protruding from sides

of pars cephalica, surface of which has additional seta-bearing tubercle anteriorly along midline; pars thoracica without paired depressions. Clypeal height at middle almost six times that of ALE. PLE separated by twice their diameter from PME. Sternum with slight posterior extension bearing shallow, rectangular median invagination. Femur I and tibia I expanded, sinuous, but without tubercles; metatarsus I with five (distal pair strongest), tarsus I with four long, ventral spines; tibia II with one or two greatly elongated retroventral spines. Soft portions of abdominal cuticle with few sclerotizations, dorsum with w-shaped dark marking visible through scutum. Palpal patella with apophysis shifted to prolateral side of bulb; tibia with retrolateral expansion; embolus long, narrow, running along entire distal edge of bulb, enlarged distally (figs. 343–345).



Figs. 350–353. Internal female genitalia, dorsal views. 350, 351. *Spinanapis thornton*, new species. 352, 353. *S. thompsoni*, new species.

FEMALE: As in *S. ker*, except as noted for male. Total length 1.39. Carapace 0.63 long, 0.51 wide, 0.30 high. Abdomen 0.85 long, 0.83 wide, 0.83 high. Femur and tibia I unmodified, metatarsus I with two weak prolaterodistal spines. Anterior abdominal scutum slightly excised along small, semicircular postepigastric sclerite. Median receptaculum long, rounded distally; lateral sclerotization lobe-shaped (fig. 346).

OTHER MATERIAL EXAMINED: Two males and two females taken with the types (QMB, AMNH).

DISTRIBUTION: Known only from Black Mountain in northern Queensland.

Spinanapis darlingtoni (Forster),
new combination
Figures 347, 354–356

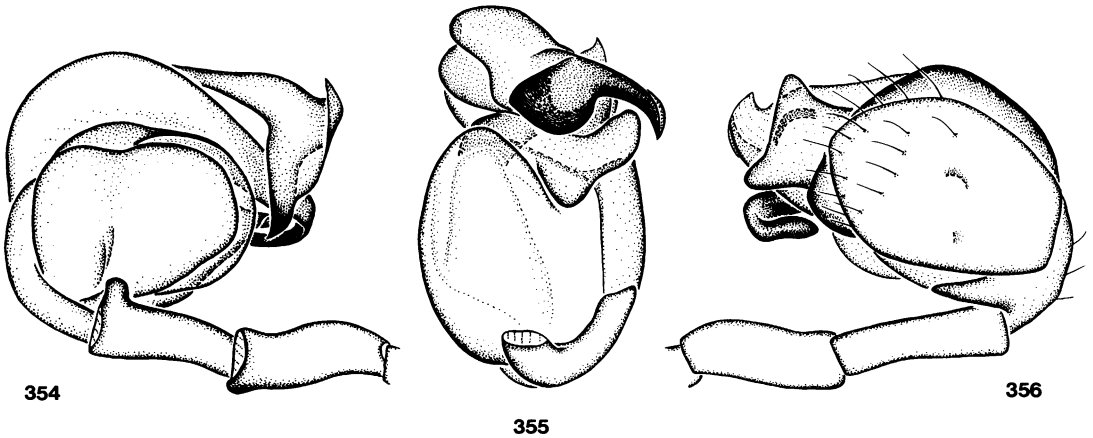
Pseudanapis darlingtoni Forster, 1959: 312, figs. 92–97, 150 (male holotype from Mount Spur-

geon, Queensland, Australia, in MCZ, examined).

Anapogonia darlingtoni: Brignoli, 1981: 115.

DIAGNOSIS: Males can easily be recognized by the recurved embolar tip (fig. 355), females by the greatly expanded median receptaculum (fig. 347).

MALE: As in *S. ker*, except as follows. Total length 1.30. Carapace 0.61 long, 0.54 wide, 0.44 high. Abdomen 0.70 long, 0.59 wide, 0.70 high. Lateral eyes protruding from sides of pars cephalica, surface of which has additional seta-bearing tubercle anteriorly along midline; pars thoracica without paired depressions. PLE separated by almost twice their diameter from PME. Sternum with slight posterior extension bearing broad, median, rectangular invagination. Proximal cheliceral tooth and distal cheliceral plate both large. Femur I enlarged, distally sinuous, scarcely tuberculate; tibia I enlarged, basally sinuous,



Figs. 354–356. *Spinanapis darlingtoni* (Forster), left male palp, prolateral, ventral, and retrolateral views.

with two proximal ventral spines and about four distal spines; metatarsus I with about seven, tarsus I with about six, strong ventral spines; tibia II with three retroventral spines; metatarsus III with two proventral spines. Palpal patella with lobe-shaped apophysis shifted to prolateral side of bulb; tibia with distinct prolateral lobe; cymbium not elongated; embolus originating prolaterally, passing through massive conductor, recurved dorsally at tip (figs. 354–356).

FEMALE: As in *S. ker*, except as noted for male. Total length 1.31. Carapace 0.61 long, 0.50 wide, 0.30 high. Abdomen 0.81 long, 0.73 wide, 0.80 high. Tibia I not enlarged, without spines; metatarsus and tarsus I with about three long spines each. Abdominal dorsum with w-shaped dark markings. Two posterolateral spermathecae dwarfed by enlarged median receptaculum (fig. 347).

MATERIAL EXAMINED: AUSTRALIA: Queensland: Mount Spurgeon, July 1932, elev. 3500–4000 ft (P. J. Darlington, MCZ), 1♂, 1♀ (types), same data (P. J. Darlington, OMD), 7♂, 6♀ (paratypes), same data (QMB), 1♀ (paratype).

DISTRIBUTION: Known only from the type locality, Mount Spurgeon, in northeastern Queensland.

Spinanapis thornton, new species

Figures 350, 351, 357–359

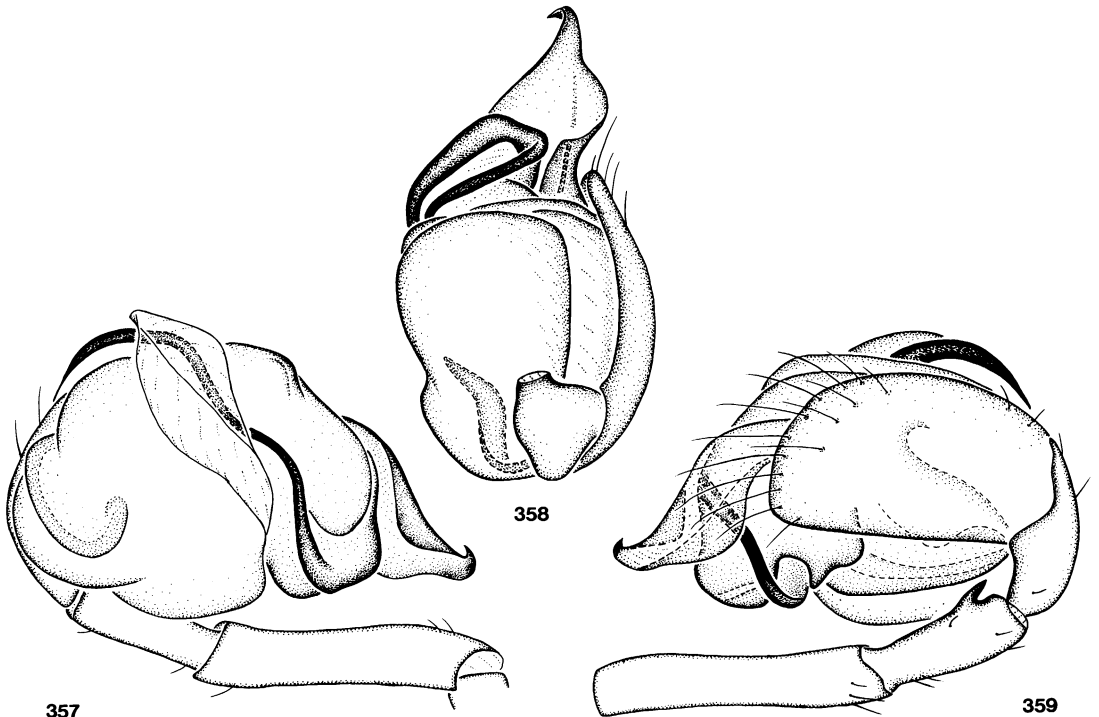
TYPE: Male holotype from a Berlese sample of sieved rainforest litter taken at an eleva-

tion of 1000–1300 m on Thornton Peak, via Daintree, northeastern Queensland, Australia (Sept. 20–22, 1981; G. B. Monteith, D. Cook), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: The shape of the male palpal conductor (fig. 358) and the short, wide sclerotizations lateral to the female median receptaculum (figs. 350, 351) are diagnostic.

MALE: As in *S. ker*, except as follows. Total length 1.50. Carapace 0.64 long, 0.51 wide, 0.47 high. Abdomen 0.84 long, 0.75 wide, 0.84 high. Lateral eyes protruding from sides of pars cephalica, surface of which has additional seta-bearing tubercle anteriorly along midline; pars thoracica without paired depressions. PLE separated by almost twice their diameter from PME. Sternum with slight posterior extension bearing broad median rectangular invagination. Proximal cheliceral tooth and distal cheliceral plate both large. Femur I scarcely enlarged, distally sinuous, with retroventral row of small but distinct tubercles, similar tubercles present on femur II; tibia I slightly enlarged, distally sinuous, without spines; metatarsus I with four proventral, tarsus I with about four strong ventral spines; tibia II with three retroventral spines. Palpal patella with short apophysis situated distoventrally; tibia with small prolateral lobe; cymbium not elongated; embolus originating prolaterally, passing through massive conductor, not recurved dorsally at tip (figs. 357–359).



Figs. 357-359. *Spinanapis thornton*, new species, left male palp, prolateral, ventral, and retrolateral views.

FEMALE: As in *S. ker*, except as noted for male. Total length 1.61. Carapace 0.66 long, 0.55 wide, 0.34 high. Abdomen 1.07 long, 1.09 wide, 1.01 high. Tibia I not enlarged, without spines; metatarsus and tarsus I each with one long prolateroventral spine. Abdominal dorsum with w-shaped dark markings. Lateral sclerotizations short, broadly connected, dwarfed by enlarged median receptaculum (figs. 350, 351).

OTHER MATERIAL EXAMINED: AUSTRALIA: **Queensland:** Thornton Peak, N Daintree, Nov. 1975, elev. 1242 m, rainforest (M. Gray, AMS), 3♂, 2♀.

DISTRIBUTION: Known only from Thornton Peak, northeastern Queensland.

***Spinanapis thompsoni*, new species**

Figures 352, 353, 360-362

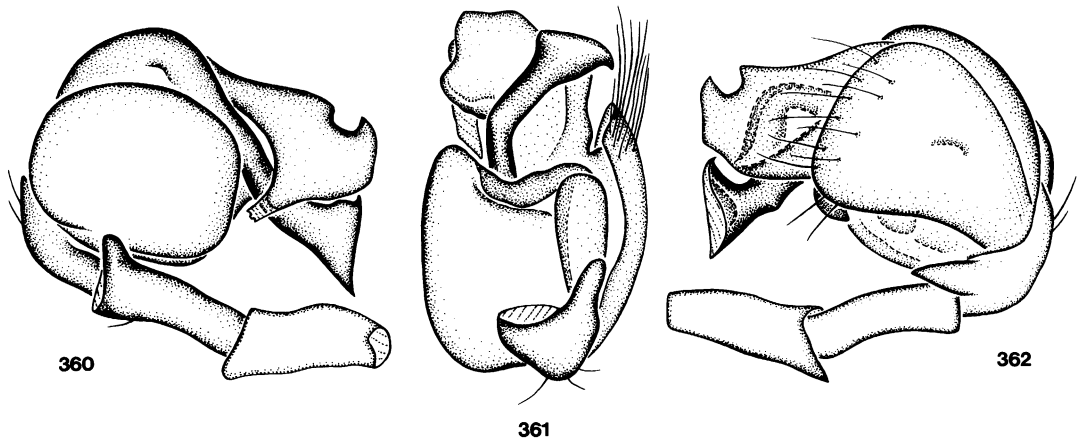
TYPES: Male holotype and female allotype taken by pyrethrum knockdown in a rainforest at an elevation of 1040 m located 2.5 km N of Mt. Lewis, via Julatten, northeastern

Queensland, Australia (Nov. 3, 1983; D. K. Yeates, G. I. Thompson), deposited in QMB.

ETYMOLOGY: The specific name is a patronym in honor of one of the collector of the types.

DIAGNOSIS: The beak-shaped tip of the male palpal conductor (fig. 361) and the recurved sclerotizations lateral to the female median receptaculum (figs. 352, 353) are diagnostic.

MALE: As in *S. ker*, except as follows. Total length 1.27. Carapace 0.60 long, 0.50 wide, 0.30 high. Abdomen 0.73 long, 0.64 wide, 0.75 high. Lateral eyes protruding from sides of pars cephalica; pars thoracica without paired depressions. PLE separated by almost twice their diameter from PME. Sternum with slight posterior extension bearing broad median rectangular invagination. Proximal cheliceral tooth and distal cheliceral plate both large. Femur I scarcely enlarged, distally sinuous, with retroventral row of about three greatly reduced tubercles, similar tubercles present on femur II; tibia I slightly enlarged, distally sinuous, with three long prolateral



Figs. 360–362. *Spinanapis thompsoni*, new species, left male palp, prolatateral, ventral, and retrolateral views.

spines; metatarsus I with eight, tarsus I with about six strong ventral spines; tibia II with two retroventral spines. Palpal patella with apophysis shifted to prolateral surface; tibia with large prolateral lobe; cymbium not elongated; palpal conductor expanded, beak-shaped distally (figs. 360–362).

FEMALE: As in *S. ker*, except as noted for male. Total length 1.24. Carapace 0.60 long, 0.50 wide, 0.30 high. Abdomen 0.66 long, 0.61 wide, 0.68 high. Tibia I not enlarged, without spines; metatarsus and tarsus I each with about three weak ventral spines. Abdominal dorsum with w-shaped dark markings. Lateral sclerotizations distinctly recurved, dwarfed by enlarged median receptaculum (figs. 352, 353).

OTHER MATERIAL EXAMINED: Two females taken with the types (QMB).

DISTRIBUTION: Known only from the type locality in northeastern Queensland.

CHASMOCEPHALON O. P.-Cambridge

Chasmocephalon O. P.-Cambridge, 1889: 45 (type species by monotypy *Chasmocephalon neglectum* O. P.-Cambridge).

Chasmocephalum: Bonnet, 1956: 1039 (invalid emendation).

DIAGNOSIS: Males can be distinguished from those of all other Australian anapids by the presence of a retrolaterally directed proximal apophysis as well as a distal apophysis on the male palpal patella (figs. 386, 387); females

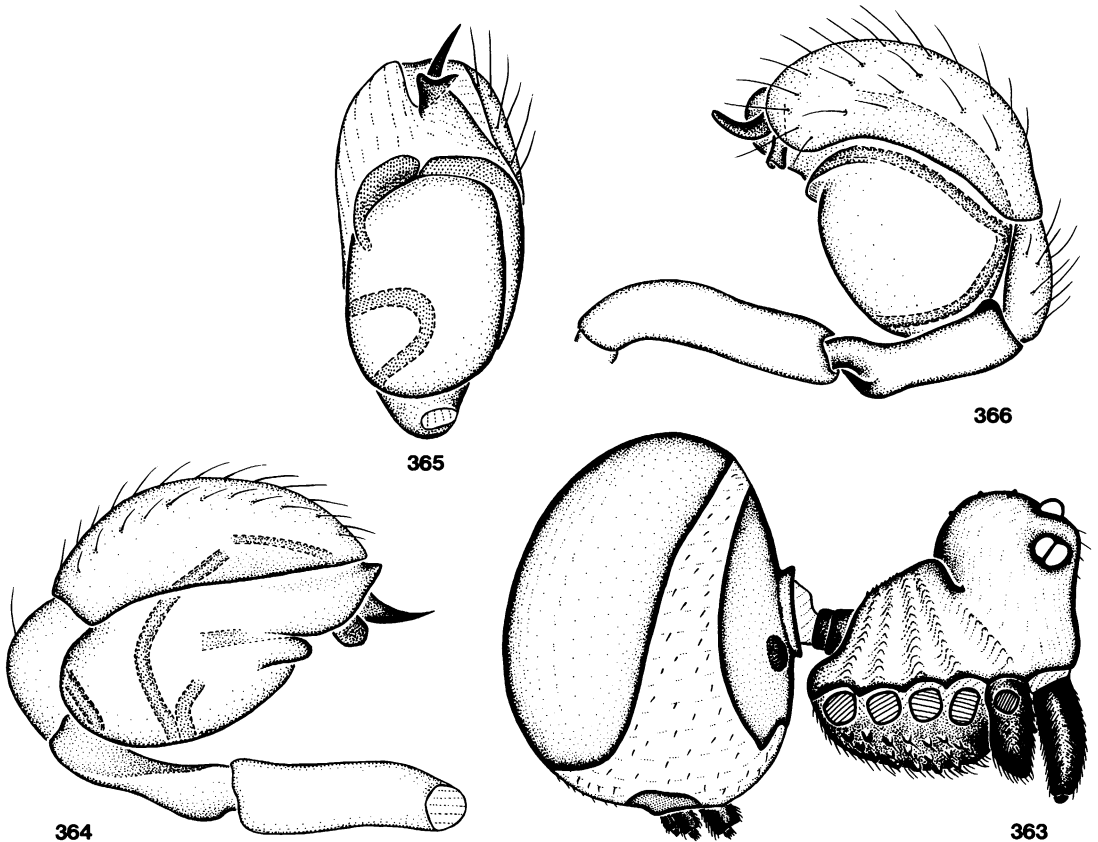
can be distinguished from those of all genera except *Victanapis* by the coiled spermathecal ducts (as in figs. 375–378), and from those of *Victanapis* by the presence of anterior tracheae and anteriorly advanced anterior spiracles.

MONOPHYLY: The form of the palpal patellar apophyses and the spermathecal ducts seems unique to *Chasmocephalon* as here defined, although the palpal character is merely predicted for the type species, *C. neglectum*, and for *C. tingle* (both known only from females).

GENERIC RELATIONSHIPS: See comments under *Hickmanapis* and *Octanapis*, above.

SPECIFIC RELATIONSHIPS: About all that can be said with any confidence is that the two abundant small species, *C. flinders* of Western Australia and *C. iluka* of New South Wales and Queensland, are almost certainly sister taxa, as evidenced by their close correspondence in embolar shape and degree of spermathecal coiling.

MISPLACED SPECIES: Numerous species have been misplaced in this genus over the last century, primarily because no authors have consulted the type species or its true Australian relatives. *Chasmocephalon bimaculatum* Simon (1895) from southern Africa was transferred to *Metanapis* by Brignoli (1981). *Chasmocephalon minutum* Hickman (1943) is transferred to *Hickmanapis* here. The five New Zealand species described by Forster (1951) are here placed in *Zealanapis*, *Novan-*



Figs. 363–366. *Chasmocephalon acheron*, new species. 363. Body, lateral view. 364–366. Left male palp, prolateral, ventral, and retrolateral views.

apis, and *Paranapis*. The Californian species *Chasmocephalon shantzi* Gertsch (1960) belongs to a new genus that will be described elsewhere. The Australian species *Chasmocephalon crassifemoralis* Wunderlich (1976), assigned to *Anapogonia* by Brignoli (1981), is placed in *Maxanapis* here.

DISTRIBUTION: Western Australia to Victoria and Queensland.

***Chasmocephalon acheron*, new species**

Figures 348, 363–366

TYPES: Male holotype and female allotype taken in carrion traps in a *Nothofagus* forest at an elevation of 750 m at Acheron Gap, 16 km north of Warburton, Victoria, Australia (Apr. 28–May 7, 1978; S. and J. Peck), deposited in MOV.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be distinguished from those of the other Victorian species, *C. alfred*, by the unexpanded femur I and shorter palpal embolus (fig. 365), females by the more widely separated spermathecae (fig. 348); males can also be distinguished from those of the very similar Queensland species *C. eungella* by the characters listed under that species.

MALE: Total length 0.85. Carapace 0.46 long, 0.32 wide, 0.27 high. Abdomen 0.46 long, 0.49 wide, 0.52 high. Carapace dark reddish brown, almost circular in dorsal view, widest at rear of coxae II, truncated posteriorly; surface of pars cephalica finely reticulate, posterior portion with four seta-bearing tubercles, two situated anteriorly along midline, two farther back, paramedially situated; surface of pars thoracica irregularly roughened (fig. 363), anteromedian corners with pronounced humps, thoracic groove sit-

uated between two large, paramedian, circular depressions; clypeal height at middle five times that of anterior lateral eyes, glandular openings probably shifted to triangular sclerite interspersed between carapace margin and endites.

Six subequal eyes in three pairs; PME separated by almost their radius; lateral eyes of each side contiguous; posterior row procurved from front, recurved from above; PLE separated by more than their diameter from PME, ALE farther away.

Sternum and mouthparts dark reddish brown. Sternum elevated, elevated portion slightly longer than wide, truncated posteriorly, with slight, unnotched posterior extension, extended dorsally and around coxae to fuse with carapace; intercoxal strips broken at middle. Labium broadly triangular, rounded distally, fused to sternum by groove. Endites convergent, not expanded distally, each with strong anteromedian scopula and anterolateral serrula. Labral spur short, ventrally directed. Chelicerae with three large promarginal teeth, two distal ones on small plate.

Legs orange, patellae lightest; all segments clothed with fine setae; patellae with distal, tibiae with proximal and subdistal dorsal bristles, tibia I with additional prolateral bristle at almost half of length; leg formula 1423 but all legs almost equal in length; femur I not expanded, with only weak indications of tubercles, remaining segments of leg I unmodified.

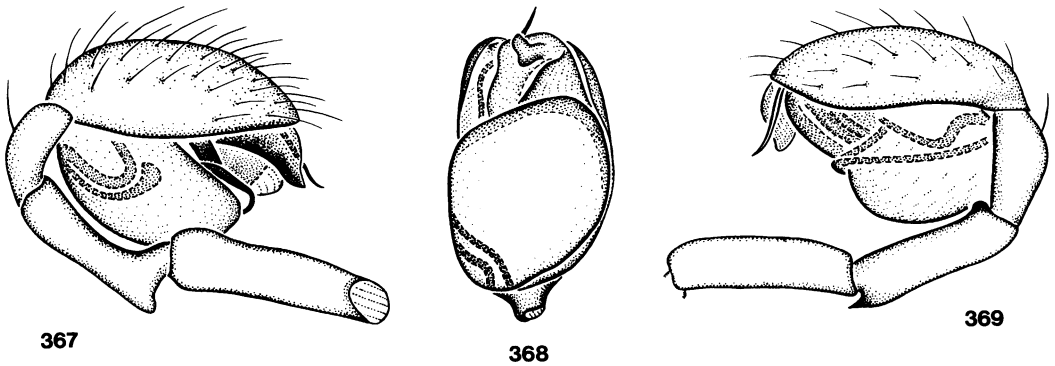
Abdomen with most of dorsum covered by rounded scutum only narrowly separated at front from large anterior scutum surrounding pedicel; anterior scutum extending farther toward spinnerets at sides than at middle, with spiracles advanced about halfway to pedicel; soft portions of cuticle unmodified anteriorly, with three longitudinal rows of small, elongate sclerotizations posteriorly; area immediately behind epigastric furrow with two small, transverse sclerotizations. Six spinnerets and wide colulus surrounded by sclerotization only at sides and posteriorly.

Palpal femur thickened; patella elongate, almost as long as femur, with retrolaterally directed dorsal apophysis basally and ventrally shifted ledge-shaped apophysis distally; tibia short; cymbium unmodified; tegulum

with deeply excavated retrolateral and distal groove; embolic division expanded, almost half as large as tegulum; embolus supported distally by triangular, translucent conductor (figs. 364–366).

FEMALE: As in male, except as follows. Total length 1.14. Carapace 0.56 long, 0.46 wide, 0.30 high. Abdomen 0.67 long, 0.57 wide, 0.80 high. Clypeal height at middle about four times that of ALE. Abdominal dorsum brownish gray, shiny, but without true scutum; soft portion of cuticle gray; anterior scutum greatly shortened immediately behind pedicel, such that the internal genitalia are not covered by scutum. Anterior respiratory organs tracheae. Palpal segments beyond coxae lacking, trochanter represented only by slight knob. Spermathecae laterally coiled, widely separated (fig. 348).

OTHER MATERIAL EXAMINED: AUSTRALIA: Victoria: Acheron Gap, 16 km N Warburton, Apr. 28–May 7, 1978, elev. 750 m, carrion traps, beech forest (S. and J. Peck, AMNH), 1♂; Acheron Way, Warburton, Jan. 11–16, 1980, elev. 495 m, Berlese, litter, beech-eucalypt second growth forest (A. Newton, M. Thayer, AMNH), 2♂, 5♀; Cement Creek, Warburton, Jan. 10–17, 1980, elev. 670 m, pitfall, litter, beech forest (A. Newton, M. Thayer, AMNH), 14♂, 8♀; Cement Creek, 5 km N Warburton, May 7, 1978, elev. 500 m, Berlese, fungus, beech forest in ravine (S. and J. Peck, AMNH), 4♂; Cement Creek, 8 km NE Warburton, May 7, 1978, elev. 200 m, wet sclerophyll forest (S. and J. Peck, AMNH), 1♂, 4♀; Coranderrk Reserve, SE Healesville, Jan. 13, 1980, elev. 240 m, Berlese forest litter, eucalypts, tree ferns (A. Newton, M. Thayer, AMNH), 3♀; Hammond Road, Errinundra Plateau, Mar. 1982, eucalypts (MOV), 3♂, 1♀; Lilly Pilly Trail, Wilsons Promontory National Park, May 13, 1978, elev. 3 m, temperate rainforest (S. and J. Peck, AMNH), 13♂, 7♀, same, litter (MCZ), 1♀, May 15, 1978, elev. 10 m, Berlese, under bark, stringy bark eucalypts (S. and J. Peck, AMNH), 1♂, 2♀; Mt. Donna Buang, 1966–1967, elev. 3300 ft, beech litter (T. M. Howard, MOV), 1♂, 4♀; Mt. Macedon, July 13, 1980, litter (R. J. Raven, QMB), 1♂, 1♀; 9 km SE Narbethong, Oct. 14, 1987, beech litter (M. S. Harvey, S. A. Sloan, MOV), 1♂; Reefton, East Warburton, Feb. 9–Sept. 1982,



Figs. 367-369. *Chasmocephalon eungella*, new species, left male palp, prolateral, ventral, and retrolateral views.

Berlese, wet litter (MOV), 5♂, 3♀; Sealers Cove Trail, Wilsons Promontory National Park, May 13, 1978, elev. 500 m, Berlese, fungi, log litter (S. and J. Peck, AMNH), 7♂, 2♀; Sherbrooke Forest Park, Kallista, Jan. 15, 1980, elev. 400-500 m, Berlese, litter, wet sclerophyll forest (A. Newton, M. Thayer, AMNH), 4♂, 1♀; Warburton, Apr. 30, 1978, elev. 500 m, Berlese, beech litter (S. and J. Peck, AMNH), 14♂, 5♀.

DISTRIBUTION: Known only from Victoria.

***Chasmocephalon eungella*, new species**

Figures 367-369

TYPE: Male holotype from Berlese sample of sieved litter taken on Mt. William, Eungella, mideastern Queensland, Australia (Apr. 19, 1979; G. B. Monteith), deposited in QMB.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: The palpi of this minute species differ only slightly from those of the geographically disparate *C. acheron*; however, males of *C. eungella* lack the conspicuous pair of depressions on the pars thoracica found in *C. acheron*, and have the spinnerets surrounded by a complete sclerotic ring (in *C. acheron*, only the sides and posterior edge of the spinneret area are accompanied by a distinct sclerotization).

MALE: As in *C. acheron*, except as follows. Total length 0.67. Carapace 0.33 long, 0.28 wide, 0.22 high. Abdomen 0.50 long, 0.46 wide, 0.52 high. Carapace dark orange; pars thoracica without paired depressions, thoracic groove represented by small median depression only. Sternum without posterior

extension. Spinnerets surrounded by full sclerotic ring. Palp smaller than in *C. acheron*, structurally similar but with less pronounced lobe below embolus (figs. 367-369).

FEMALE: Unknown.

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Known only from the type locality in mideastern Queensland.

***Chasmocephalon alfred*, new species**

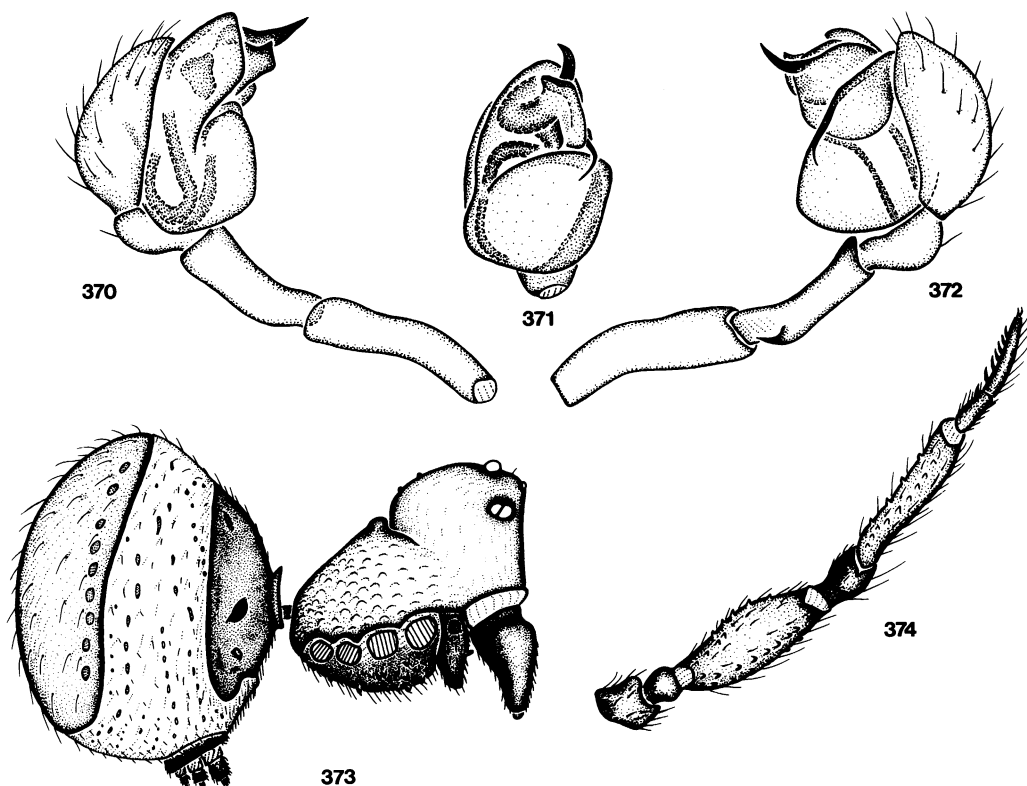
Figures 349, 370-374

TYPES: Male holotype and female allotype from Berlese sample of bark and rotted logs taken at an elevation of 200 m in a temperate rainforest in Alfred National Park, Victoria, Australia (May 21, 1978; S. and J. Peck), deposited in MOV.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species resemble *C. pemberton* in having an enlarged femur I (fig. 374), but differs in retaining the anterior median eyes.

MALE: As in *C. acheron*, except as follows. Total length 1.43. Carapace 0.72 long, 0.52 wide, 0.40 high. Abdomen 0.74 long, 0.74 wide, 0.90 high. Thoracic groove deep, longitudinal, not between circular depressions; clypeal height at middle four times that of ALE. AME present but tiny, about one-third as large as others, separated by less than their diameter; anterior row procurved from front, recurved from above; ALE separated by almost twice their diameter from AME; AME separated by three times their diameter from PME; MOQ longer than wide in back, twice as wide in back as in front. Elevated portion



Figs. 370–374. *Chasmocephalon alfred*, new species, male. 370–372. Left male palp, prolateral, ventral, and retrolateral views. 373. Body, lateral view. 374. Leg I, ventral view.

of sternum slightly wider than long, with distinct tubercles and posterior extension slightly produced posteriorly near sides; intercoxal strips entire. Labral spur triangular (fig. 373). Leg formula 1243; femur and tibia I thickened, with small prolateral, ventral, and retrolateral tubercles; metatarsus I with elongated, spiniform seta proventrally at distal end; tarsus I with four or five elongated, spiniform setae proventrally; femora II–IV weakly tuberculate. Anterior abdominal scutum with paramedian excavations situated behind spiracles, accommodating coxae IV; sclerotizations on soft cuticle continuing anteriorly. Sclerotic ring surrounding spinnerets except above colulus, where broken. Embolic division of palp with filiform process extending proximally in addition to presumptive embolus and conductor extending distally (figs. 370–372).

FEMALE: As in *C. acheron*, except as noted for male. Total length 1.16. Carapace 0.54 long, 0.48 wide, 0.31 high. Abdomen 0.63

long, 0.59 wide, 0.85 high. Clypeal height at middle about three times that of ALE. Posterior extension of sternum truncate. Tarsus I with only two or three elongated setae. Abdominal dorsum with w-shaped dark marking; anterior scutum without excavations. Spermathecae laterally coiled, not widely separated (fig. 349).

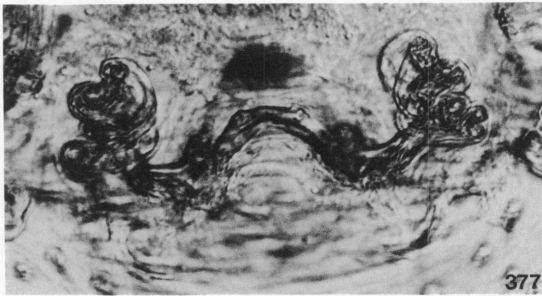
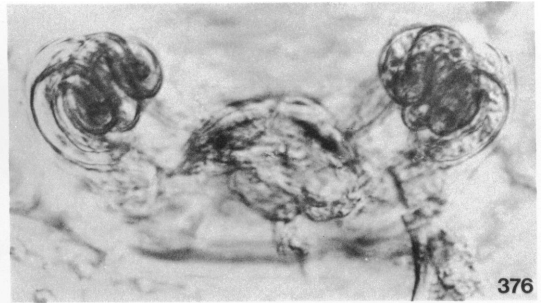
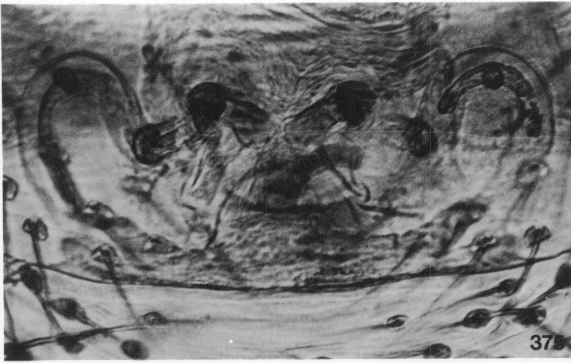
OTHER MATERIAL EXAMINED: AUSTRALIA: Victoria: Dingo Creek, Lind National Park, June 17, 1987, litter (M. S. Harvey, MOV), 2♂; Lind National Park, May 25, 1978, Berlese, rotted eucalypt bark (S. and J. Peck, AMNH), 1♂.

DISTRIBUTION: Known only from Victoria.

***Chasmocephalon pemberton*, new species**

Figures 375, 379–381

TYPES: Male holotype and female allotype from station 24 of a forest survey at Pemberton, Western Australia (1971; J. Springett), deposited in AMS.



Figs. 375–378. Internal female genitalia, dorsal views. 375. *Chasmocephalon pembedton*, new species. 376. *C. flindersi*, new species. 377. *C. iluka*, new species. 378. *C. tingle*, new species.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

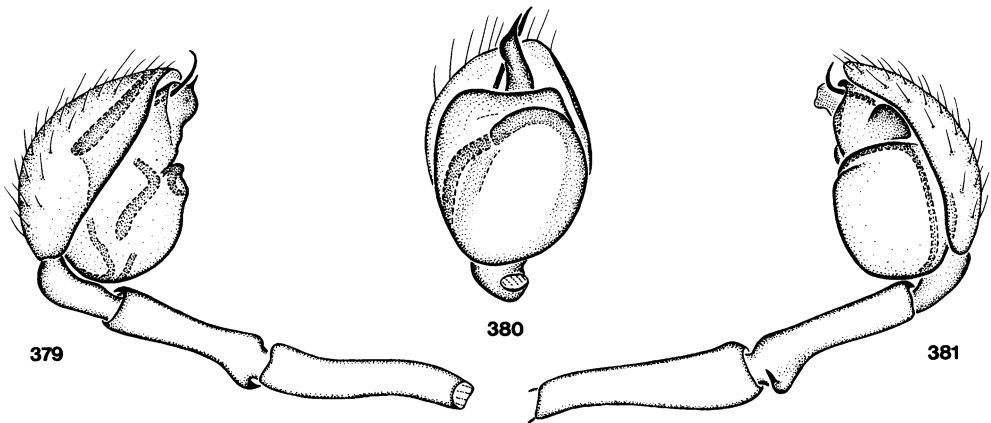
DIAGNOSIS: This species can be recognized by the presence of five or six elevated ridges on the soft portion of the abdominal dorsum (these ridges resemble those found in *Risdonius*, but are more numerous).

MALE: As in *C. acheron*, except as follows. Total length 1.63. Carapace 0.75 long, 0.57 wide, 0.36 high. Abdomen 0.94 long, 0.83 wide, 1.13 high. Carapace oval in dorsal view; thoracic groove deep, longitudinal; not between circular depressions. PME almost contiguous. Sternum without posterior extension, intercoxal strips broken, portions near carapace widely separated from sternum itself. Modifications of femora and tibia I as in *C. alfredi*; metatarsus I with two large proventral cusps; tarsus I with single long spine retroventrally near base. Abdomen triangular in outline, dorsal scutum shifted posteriorly, incised, v-shaped as viewed dorsally; anterior scutum reaching to almost half of abdomen height anteriorly; long portion of soft cuticle separating anterior and dorsal scuta with series of six elevated, longitudinal ridges separating grooves bearing numerous tiny scler-

otizations. Sclerotic ring surrounding spinnerets entire. Palpal embolus originating on dorsal side of bulb, protruding distally, accompanied by conductor widened just below tip (figs. 379–381).

FEMALE: As in *C. acheron*, except as noted for male. Total length 1.46. Carapace 0.61 long, 0.56 wide, 0.28 high. Abdomen 0.93 long, 1.00 wide, 1.02 high. Sternum with slight, truncate posterior extension. Tarsus I without long spine. Abdomen globose but with anterior ridges and grooves evident; dorsum with w-shaped dark marking; anterior scutum not elongated dorsally. Sclerotic ring around spinnerets broken near colulus. Spermathecae lobular, translucent, separated by m-shaped ducts (fig. 375).

OTHER MATERIAL EXAMINED: AUSTRALIA: **Western Australia:** Hilltop Road, Walpole-Nornalup National Park, June 12, 1987 (N. I. Platnick, R. J. Raven, AMNH), 1♂, 1♀; Shedley Drive, Walpole-Nornalup National Park, June 22, 1980, Berlese, fungi, bark, litter (S. and J. Peck, AMNH), 1♀; Sues Bridge, 50 km SW Nannup, July 26, 1980, Berlese, marri forest log litter (S. and J. Peck, AMNH), 1♀; Valley of Giants, Nornalup, June 21, 1980,



Figs. 379–381. *Chasmocephalon pamberton*, new species, left male palp, prolateral, ventral, and retrolateral views.

Berlese, rotten tingle bark (S. and J. Peck, AMNH), 1♂; Walpole-Nornalup National Park, Oct. 6, 1981, Berlese, leaf litter (I. D. Naumann, J. C. Cardale, ANIC), 1♀; Warren National Park, Pemberton, July 12, 1980, Berlese, litter, mossy karri base (S. and J. Peck, WAM), 1♂; White Gum Flat, Stirling Range, Jan. 15, 1974, small tangle web under log, forested creek flat (M. Gray, AMS), 1♀.

DISTRIBUTION: Known only from south-western Western Australia.

***Chasmocephalon flinders*, new species**

Figures 376, 382–384

TYPES: Male holotype and female allotype from Berlese sample of litter under shrub and *Dryandra cuneata* on slope with *Banksia dryandroides* and *Adenathos cygnorum*, taken on Flinders Peninsula near Isthmus Bay, Torndirup National Park, 28 km southeast of Albany, Western Australia (Dec. 28, 1976; J. Kethley), deposited in WAM.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

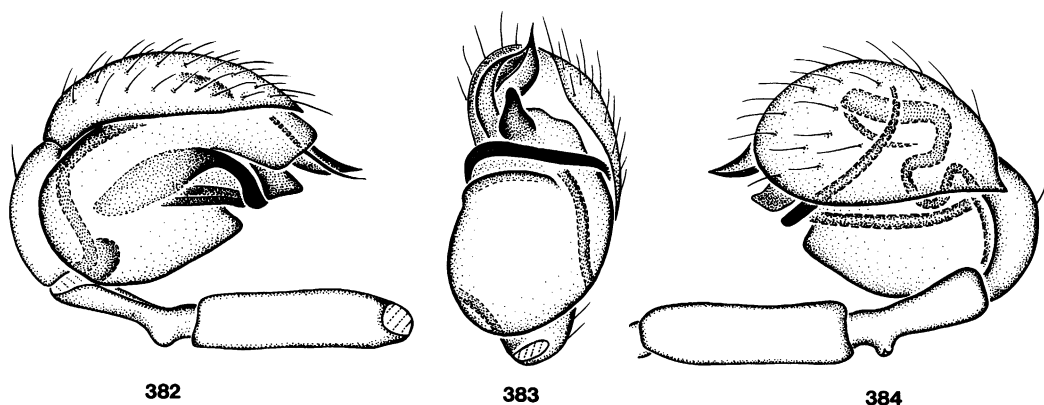
DIAGNOSIS: The thickened embolus of males (fig. 383) and distally coiled spermathecal ducts of females (fig. 376) are diagnostic.

MALE: As in *C. acheron*, except as follows. Total length 0.70. Carapace 0.37 long, 0.30 wide, 0.25 high. Abdomen 0.48 long, 0.50 wide, 0.52 high. Sternum without posterior extension. Tarsus I with one thickened seta ventrally near base. Embolus thick, orientat-

ing prolaterally, extending to dorsal surface of bulb (adjacent to alveolus), emerging distally (figs. 382–384).

FEMALE: As in *C. acheron*, except as noted for male. Total length 0.78. Carapace 0.37 long, 0.26 wide, 0.22 high. Abdomen 0.50 long, 0.44 wide, 0.50 high. Spermathecal ducts with several distal coils (fig. 376).

OTHER MATERIAL EXAMINED: AUSTRALIA: Western Australia: Beedelup National Park, 20 km W Pemberton below Beedelup Falls, Marijinup area, Dec. 3, 1976, Berlese, litter at base of black gum tree, litter under shrub (J. Kethley, FMNH), 4♂, 5♀; Bluff Knoll, Stirling Range National Park, Dec. 23, 1976, elev. 500 m, Berlese, litter at edge of waterfall (J. Kethley, FMNH), 1♀; Boranup, 4.2 mi S Caves Road on Boranup Drive, Sept. 28, 1976, Berlese, litter under acacia (J. Kethley, FMNH), 9♂, 10♀; Brockman National Park, 16 km S Pemberton, Dec. 8, 1976, Berlese, leaf litter, mold, debris under canopy of karri trees (J. Kethley, FMNH), 5♂, 2♀; Brockman National Park, Marijinup area, Dec. 3, 1976, Berlese, litter in karri stump (J. Kethley, FMNH), 1♀; S side, Brockman National Park, 14 km S Pemberton, Dec. 6, 1976, Berlese, casurina, chorilaena litter, fungal mat, unburned area (J. Kethley, FMNH), 5♂, 7♀; Castle Rock, Porongurup National Park, 48 km N Albany, Dec. 24, 1976, Berlese, litter in crevice of boulders (J. Kethley, FMNH), 2♂; Flinders Peninsula, near Isthmus Bay, Torndirup National Park, 28 km SE Albany, Berlese, eucalypt litter on slope (J. Kethley,



Figs. 382-384. *Chasmocephalon flinders*, new species, left male palp, prolateral, ventral, and retro-lateral views.

FMNH), 14♂, 8♀, same data as types (J. Kethley, FMNH), 6♂, 2♀; Forestry plot, 19 km S Pemberton, Dec. 4, 1976, Berlese, unburned litter under acacia (J. Kethley, FMNH), 1♀; Giant Tingle Area, Walpole-Nornalup National Park, 8 km NE Walpole, Dec. 19, 1976, Berlese, mixed eucalypt, karri, acacia litter (J. Kethley, FMNH), 2♂; Hilltop Road, Walpole-Nornalup National Park, June 21, 1980, Berlese, litter (S. and J. Peck, AMNH), 1♀; Mt. Frankland, 29 km N Walpole, Dec. 15, 1976, Berlese, unburned litter in burned area (J. Kethley, FMNH), 1♀; SE slope, Mt. Gardner, Two Peoples Bay, 43 km E Albany, Jan. 1, 1977, elev. 200 m, Berlese, litter under marn, oxoglobium shrub at edge of creek in gully (J. Kethley, FMNH), 7♂, 2♀, Jan. 1, 1977, elev. 150 m, Berlese, litter under hibbertia near upper edge of waterfall (J. Kethley, FMNH), 1♀, Jan. 1, 1977, elev. 50 m, Berlese, eucalypt litter in moist depression near stream bed (J. Kethley, FMNH), 1♀; Mt. Toolbrunup, Stirling Range National Park, Dec. 23, 1976, elev. 600 m, Berlese, litter on rocks under chorilaena at edge of stream (J. Kethley, FMNH), 2♂; Ravine Road, Porongurup National Park, 46 km N Albany, Dec. 24, 1976, elev. 1800 ft, Berlese, dry moss on seepage area (J. Kethley, FMNH), 2♂; Shedley Drive, Walpole-Nornalup National Park, June 22, 1980, litter, fungi, bark (S. and J. Peck, WAM), 1♂; Soho, Boronia Road, Mt. Frankland, 29 km N Walpole, Dec. 15, 1976, Berlese, litter under shrub and red tingle (J. Kethley, FMNH), 2♂; Stony Hill, Torndirrup National Park, 10 mi SSE Albany, Dec. 28,

1976, elev. 734 ft, Berlese, peppermint litter in small grove near main road (J. Kethley, FMNH), 3♀; Tingle Tree, Walpole-Nornalup National Park, June 18-July 29, 1980, Berlese, fungus, litter (S. and J. Peck, AMNH), 1♀; S slope, Twin Peaks, Porongurup National Park, 48 km N Albany, Jan. 2, 1977, elev. 500 m, Berlese, karri litter on granite rocks (J. Kethley, FMNH), 2♂, 1♀; Two People Bay Reserve, Albany, June 14, 1980, coastal heath, litter (S. and J. Peck, AMNH), 5♂, 4♀; Walpole-Nornalup National Park, Oct. 6, 1981, Berlese, leaf litter (I. D. Naumann, J. C. Cardale, ANIC), 1♀; Warren National Park, 16 km SW Pemberton, Dec. 12, 1976, Berlese, karri, sequoia, casuarina litter (J. Kethley, FMNH), 17♂, 31♀, July 12, 1980, Berlese, litter on mossy karri base (S. and J. Peck, AMNH), 3♂, 3♀; Walpole-Nornalup National Park, 28 km NE Walpole, Dec. 17, 1976, litter under red tingle, acacia, virgin karri (J. Kethley, FMNH), 6♂, 8♀.

DISTRIBUTION: Known only from southwestern Western Australia.

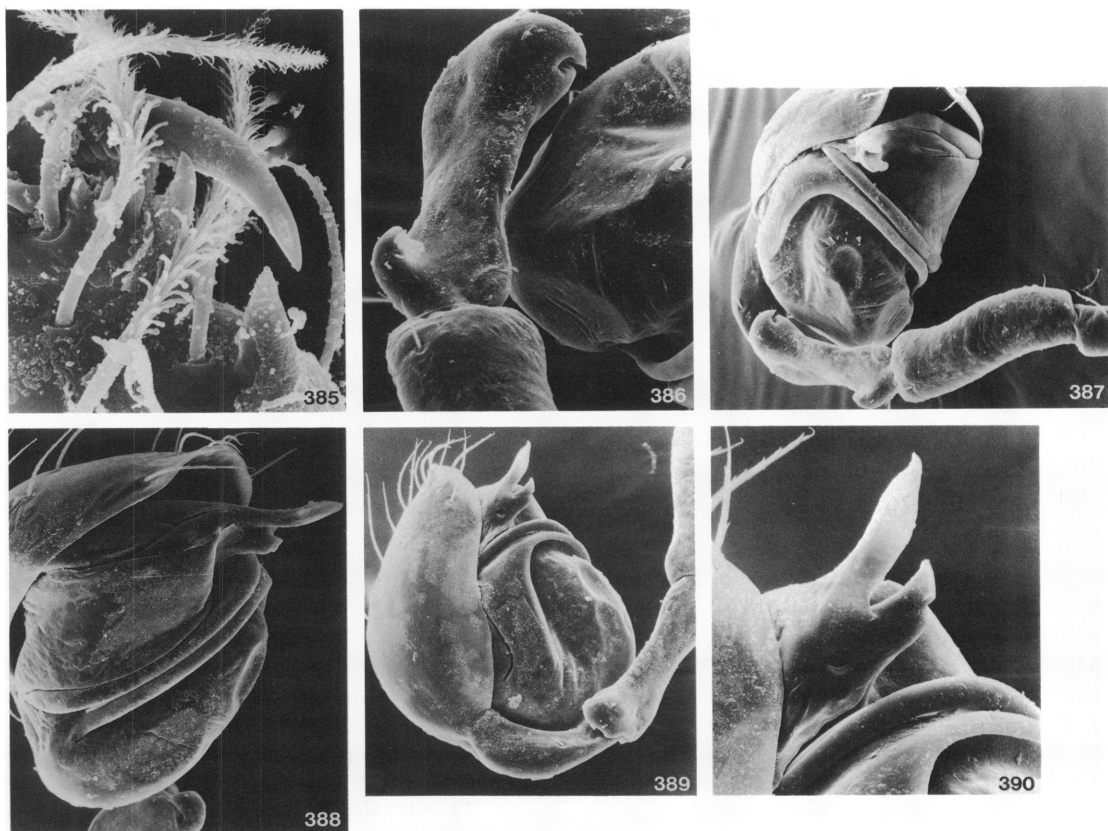
Chasmocephalon iluka, new species

Figures 377, 385-393

TYPES: Male holotype and female allotype from litter taken at an elevation of 3 m at rainforest site 54 at Iluka, northern New South Wales, Australia (Apr.-May 1976; M. R. Gray, C. Horseman), deposited in AMS.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This seems to be the sister



Figs. 385–390. *Chasmocephalon iluka*, new species. 385. Cheliceral tooth plate, posterior view. 386. Male palpal patella, prolateral view. 387–389. Male palp, prolateral, ventral, and retrolateral views. 390. Embolus, retrolateral view.

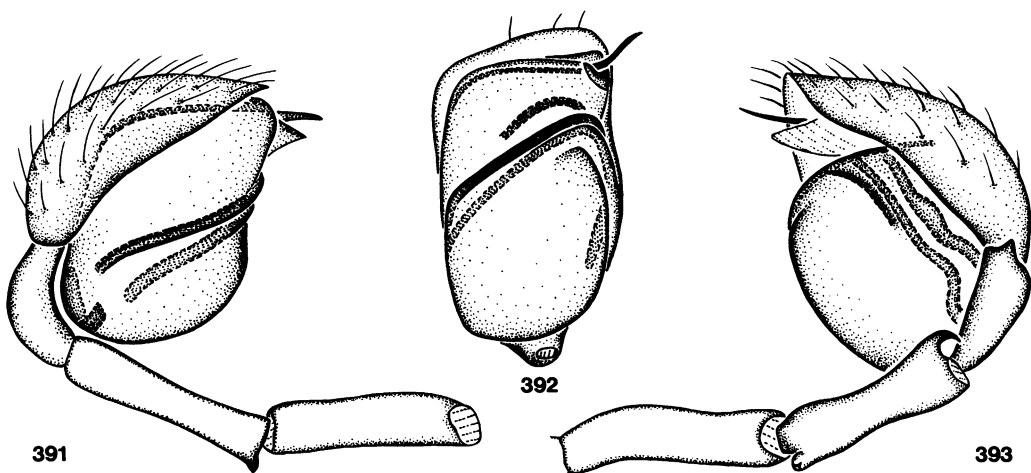
species of *C. flinders*, which it resembles closely in genitalic details of both sexes, but from which it can easily be distinguished by the retention of the anterior median eyes and the presence of a broad median longitudinal pale stripe on the abdominal dorsum in both sexes.

MALE: As in *C. acheron*, except as follows. Total length 0.63. Carapace 0.30 long, 0.28 wide, 0.24 high. Abdomen 0.48 long, 0.46 wide, 0.46 high. Pars thoracica without paramedian depressions. Clypeal height at middle less than four times that of ALE. Eight eyes in four pairs, AME contiguous, about one-third as large as other eyes; anterior row procurved from front, recurved from above; ALE separated by more than their diameter from AME; MOQ longer than wide in back, almost twice as wide in back as in front. Cheliceral teeth simple (fig. 385). Leg formula

1243. Abdominal dorsum with conspicuous pattern involving wide, median, longitudinal white stripe between dark lateral areas (sometimes divided transversely by white to make four dark lateral patches), pattern visible through scutum. Embolus coiling as in *C. flinders* (figs. 386–393).

FEMALE: As in *C. acheron*, except as follows. Total length 0.83. Carapace 0.35 long, 0.28 wide, 0.22 high. Abdomen 0.56 long, 0.54 wide, 0.56 high. Clypeal height at middle about three times that of ALE. Anterior abdominal scutum not shortened medially behind pedicel, covering full area between pedicel and epigastric furrow. Spermathecae highly coiled (fig. 377).

OTHER MATERIAL EXAMINED: AUSTRALIA: Queensland: Baldy Mountain, SW Atherton, 1969–1970, litter (C. Plowman, QMB), 1♂, Dec. 5, 1977, Berlese, leaf litter (R. I.



Figs. 391-393. *Chasmocephalon iluka*, new species, left male palp, prolateral, ventral, and retrolateral views.

Storey, ANIC), 1♂, Oct. 10, 1980, elev. 1000 m, Berlese, rainforest stick brushings (G. B. Monteith, QMB), 2♀; Binna Burra, Lamington National Park, Mar. 28, 1976, litter (R. J. Raven, V. T. Davies, QMB), 2♂, 1♀; 2 km SE Camp Milo, Cooloolo National Park, Apr. 17-18, 1982, Berlese, sieved rainforest litter (A. A. Calder, ANIC), 1♂; Curtis Farm, Canungra, Mar. 31, 1979, Berlese, stick brushings (G. B. Monteith, QMB), 2♀; Gold Creek Reservoir, Brookfield, Aug. 7-Dec. 16, 1980, litter, closed forest (V. T. Davies, R. J. Raven, QMB), 7♂, 5♀, Apr. 8-Sept. 1, 1981, litter (R. J. Raven, V. T. Davies, QMB), 35♂, 30♀; Kroombit Tops, Dawes Range, 45 km SSW Calliope, Dec. 10-18, 1983, elev. 940 m, Berlese, sieved open forest litter, pitfalls (V. T. Davies, J. Gallon, G. Thompson, QMB), 2♀; Kuranda State Forest, Kuranda, July 27, 1982, elev. 360 m, rainforest litter (S. and J. Peck, AMNH), 1♀; Lake Barrine, Oct. 4-8, 1980, elev. 760 m, Berlese, sieved rainforest litter (G. B. Monteith, QMB), 2♂, 3♀; Lake Eacham, Jan. 28, 1970, Berlese, leaf litter (J. G. Brooks, ANIC), 1♂; Lamington National Park, Feb. 12, 1981, litter (R. J. Raven, V. T. Davies, QMB), 6♂, 9♀; Longlands Gap Road, 27 km S Atherton, Nov. 11, 1969, Berlese, rainforest leafmold (J. G. Brooks, ANIC), 1♂; Malaan State Forest, Apr. 20-24, 1978, litter (R. J. Raven, V. T. Davies, QMB), 3♂, 3♀; Malanda Falls Reserve, Oct. 5, 1980, elev. 750 m, Berlese, sieved rainforest litter

(G. B. Monteith, QMB), 2♀; 5 km SW Millaa Millaa, May 15, 1980, Berlese, rainforest litter (I. D. Naumann, J. C. Cardale, ANIC), 3♂, 1♀; Mt. Chinghee, 12 km SE Rathdowney, Dec. 17, 1982, elev. 720 m, Berlese, sieved rainforest litter, stick brushings (G. B. Monteith, D. K. Yeates, G. Thompson, QMB), 3♂, 3♀; Mt. Edith Road, Lamb Range, Oct. 12, 1982, elev. 900 m, Berlese, sieved rainforest litter (G. B. Monteith, D. K. Yeates, G. Thompson, QMB), 1♂; Mt. Father Clancy, 10 km S Millaa Millaa, May 4, 1983, elev. 840 m, Berlese, sieved rainforest litter (G. B. Monteith, D. K. Yeates, QMB), 1♂; Mt. Fisher, 7 km SW Millaa Millaa on Whiteing Road, May 5, 1983, elev. 1200 m, Berlese, sieved rainforest litter, pyrethrum knockdown (G. B. Monteith, D. K. Yeates, QMB), 1♂, 2♀; Mt. Glorious, Oct. 15, 1970, rainforest litter (H. Williams, QMB), 3♂, 4♀, Sept. 20, 1979, Berlese, sieved rainforest litter (G. B. Monteith, QMB), 1♂, 1♀; nr. Mt. Haig, June 30, 1971, elev. 750 m, Berlese, rainforest (Taylor, Feehan, ANIC), 1♂, 2♀; Mt. Hypipamee National Park, Oct. 5, 1982, elev. 950 m, Berlese, sieved rainforest litter, stick brushings (G. B. Monteith, QMB), 7♂, 2♀; O'Reillys, Lamington National Park, Nov. 22-27, 1978, Berlese, rainforest litter (J. F. Lawrence, T. Weir, ANIC), 1♂; Tamborine Mountain, Joalah National Park, July 23, 1979, Berlese, flood debris and leaf litter (J. F. Lawrence, ANIC), 1♀; Upper Brookfield,

Oct. 15, 1980–Mar. 18, 1981, araucarian litter (V. T. Davies, R. J. Raven, QMB), 2♂, 2♀, Aug. 14, 1981, rainforest litter (R. J. Raven, V. T. Davies, QMB), 2♀, Nov. 5–Dec. 4, 1981, rainforest pitfalls (V. T. Davies, R. J. Raven, QMB), 1♀; 1 km S Yarraman, Mar. 30, 1983, Berlese, rainforest (J. Gallon, QMB), 1♂, 1♀. **New South Wales:** Allyn River, Chichester State Forest, Nov. 10–11, 1981, Berlese, rainforest leaf and log litter (T. Weir, A. Calder, ANIC), 40♂, 39♀; Barrington House, June 24, 1987, night (T. Churchill, R. J. Raven, QMB), 2♀; Beaury State Forest, Feb. 15–17, 1983, elev. 700 m, Berlese, closed forest (T. Weir, A. Calder, ANIC), 6♂, 9♀; Brindle Creek, Wiangaree State Forest, Feb. 29–Mar. 3, 1980, elev. 740 m, window trap, Berlese, leaf and log litter, pyrethrin fogging of toona bark, subtropical rainforest (A. Newton, M. Thayer, AMNH), 8♂, 4♀; Cherry Tree North State Forest, W Casino (northern New South Wales), Apr.–May 1976, elev. 400 m, rainforest litter, site 53 (M. R. Gray, C. Horseman, AMS), 4♂, 2♀; Clyde Mountain, May 15, 1984, Berlese, rainforest litter (R. B. Halliday, M. S. Harvey, ANIC), 2♂; Gloucester River, Barrington Tops National Park, Nov. 12–14, 1981, Berlese, rainforest leaf litter, eucalypt base (T. Weir, A. Calder, ANIC), 4♂, 5♀; road to Gosford, Mar. 20, 1976, rainforest (OMD), 2♀; Iluka (northern New South Wales), Apr.–May 1976, elev. 3 m, rainforest litter, site 54 (M. R. Gray, C. Horseman, AMS), 10♂, 10♀; 2 km N Monga, Dec. 26, 1983–Feb. 1984, pitfall, wet sclerophyll (R. J. Moran, ANIC), 43♂, 4♀; Moore Park, Richmond River, 27 km SE Woodenbong, Nov. 21, 1983, Berlese, rainforest litter (M. S. Harvey, D. S. Rentz, ANIC), 1♀; W flank, Mt. Lumeah, Chichester State Forest, nr. Dunggog, Jan. 1976, elev. 1000 m, rainforest litter, site 51 (M. Gray, AMS), 11♂, 9♀; Mt. Keira scout camp, Mar. 4–5, 1981, elev. 320 m, Berlese, rainforest leaf and log litter (J. F. Lawrence, A. Calder, ANIC), 1♀; Red Scrub Flora Reserve, N Lismore (northern New South Wales), Apr.–May, 1976, elev. 210 m, rainforest litter, site 45 (M. R. Gray, C. Horseman, AMS), 9♂, 1♂; Richmond Range State Forest, Feb. 13–14, 1983, elev. 600 m, Berlese, closed forest (T. Weir, A. Calder, ANIC), 1♂, 2♀; Robertson Park, Robertson, Feb. 26, 1969, elev. 2500 ft, Berlese, rain-

forest (Britton, Upton, Misko, ANIC), 1♂, 2♀; Royal National Park, 20 km S Sydney, July 17, 1970 (R. R. Forster, OMD), 3♂, 2♀, June 5, 1978, elev. 30 m, Berlese, leaf litter, hyphae, gorge rainforest (S. and J. Peck, AMNH), 1♂, 1♀; Sheepstation Creek, Wiangaree State Forest, Feb. 29–Mar. 3, 1980, elev. 600 m, Berlese, leaf and log litter, subtropical rainforest (A. Newton, M. Thayer, AMNH), 2♂, 2♀; Terania Creek, N Lismore (northern New South Wales), Apr.–May 1976, elev. 340 m, rainforest litter, site 52 (M. R. Gray, C. Horseman, AMS), 4♂, 1♀; Tooloom Scrub, Apr. 28, 1983, rainforest litter (G. Thompson, QMB), 1♂, 1♀; Wiangaree State Forest, 33 km NE Wiangaree, Mar. 24, 1982, elev. 1000 m, beech litter (S. and J. Peck, AMNH), 2♂; Upper Allyn Valley, nr. Eccleston, Dec. 11–14, 1967, elev. 2000 ft (Taylor, Brooks, ANIC), 1♀; Wilson Park, 35 km SE Lismore, Aug. 25, 1982, elev. 50 m, dry rainforest litter (S. and J. Peck, AMNH), 1♀. **Australian Capital Territory:** Blundells Creek, 3 km E Piccadilly Circus, Feb. 1984, elev. 850 m (J. F. Lawrence, T. Weir, M.-L. Johnson, ANIC), 1♂.

DISTRIBUTION: Widespread in eastern Australia.

Chasmocephalon tingle, new species

Figure 378

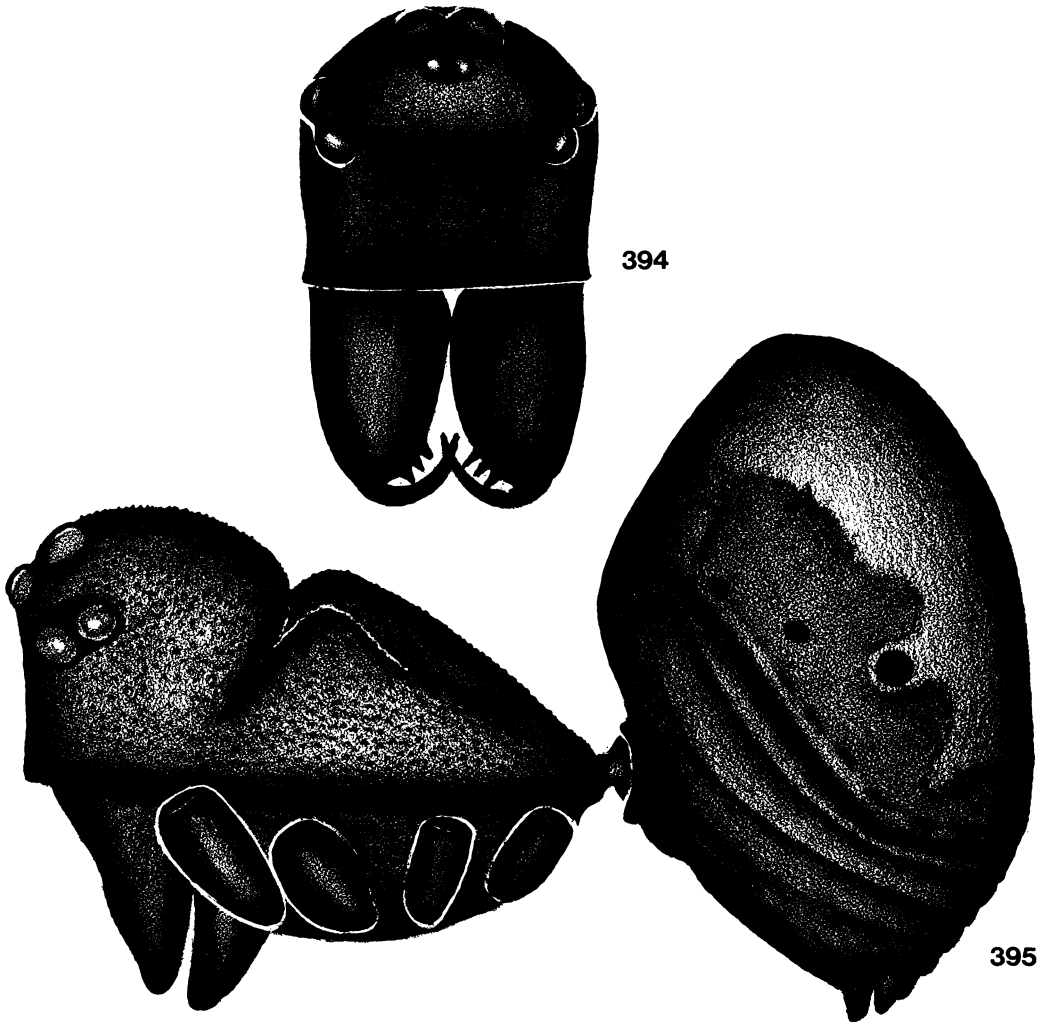
TYPE: Female holotype from Berlese sample of concentrated moss on red tingle log taken at the Red Tingle turn-off in Walpole-Nornalup National Park, 5 km NE Coalbine, Western Australia (Dec. 5, 1976; J. Kethley), deposited in WAM.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Females can be recognized easily by the anteriorly and posteriorly coiled spermathecal ducts (fig. 378).

MALE: Unknown.

FEMALE: As in *C. acheron*, except as follows. Total length 0.85. Carapace 0.46 long, 0.31 wide, 0.24 high. Abdomen 0.44 long, 0.50 wide, 0.63 high. Pars thoracica without paramedian depressions; clypeal height at middle three times that of ALE. Eight eyes, AME about half as large as others, separated by less than their radius; ALE separated by more than their diameter from AME; MOQ



Figs. 394, 395. *Chasmocephalon neglectum* O. P.-Cambridge. 394. Cephalothorax, anterior view. 395. Body, lateral view.

longer than wide in front, 1.5 times as wide in back as in front. Abdominal dorsum with numerous setae originating from tiny, circular sclerotizations; anterior scutum covering entire epigastric region. Spermathecal ducts coiled anteriorly and posteriorly (fig. 378).

OTHER MATERIAL EXAMINED: AUSTRALIA: **Western Australia:** Ficafofia Road, Conspicuous Point, 7 km SE Wornalup, Dec. 14, 1976, Berlese, litter under peppermint trees (J. Kethley, FMNH), 1♀; Soho, Boronia Road, Mt. Frankland, 29 km N Walpole, Dec. 15, 1976, Berlese, litter under shrub and red tingle (J. Kethley, FMNH), 1♀.

DISTRIBUTION: Known only from southwestern Western Australia.

Chasmocephalon neglectum

O. P.-Cambridge

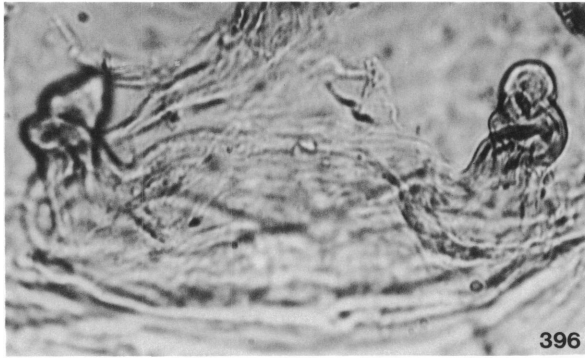
Figures 394–397

Chasmocephalon neglectum O. P.-Cambridge, 1889: 45, figs. 6a–k (female holotype from Swan River, Western Australia, in HDO, examined).

DIAGNOSIS: Females can be recognized easily by the anteriorly twisted spermathecal ducts (figs. 396, 397).

MALE: Unknown.

FEMALE: As in *C. acheron*, except as fol-



Figs. 396, 397. *Chasmocephalon neglectum* O. P.-Cambridge, internal female genitalia, dorsal views.

lows. Total length 1.31. Carapace 0.56 long, 0.50 wide, 0.31 high. Abdomen 0.81 long, 0.65 wide, 0.89 high. Pars cephalica with about seven scattered seta-bearing tubercles; pars thoracica without paramedian depressions. Eight eyes, arranged as in *C. tingle* (fig. 394). Abdominal dorsum smooth, shiny, with U-shaped dark marking posteriorly, traces of three elevated longitudinal ridges on anterior surface (fig. 395); anterior scutum covering entire epigastric region. Spermathecal ducts anteriorly twisted (figs. 396, 397).

MATERIAL EXAMINED: AUSTRALIA: **Western Australia:** Swan River (HDEO), 1♀ (holotype, found on leg of a mygalomorph, *Idiommata blackwalli* O. P.-Cambridge, 1870, from Swan River long after that mygalomorph was described, and assumed to have the same origin); Windy Harbor, 27 km S Northcliffe, July 8, 1980, coastal shrub litter (S. and J. Peck, AMNH), 1♀.

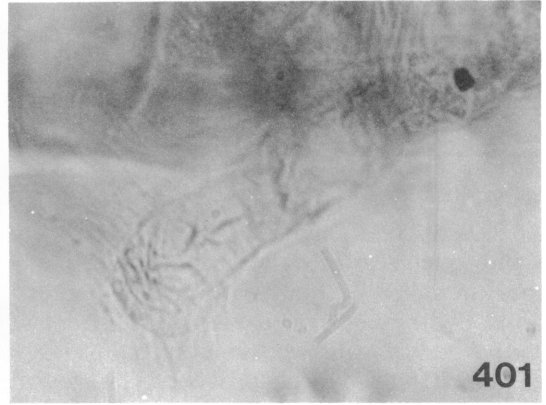
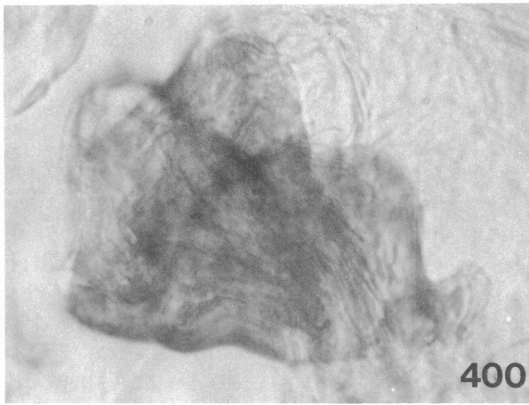
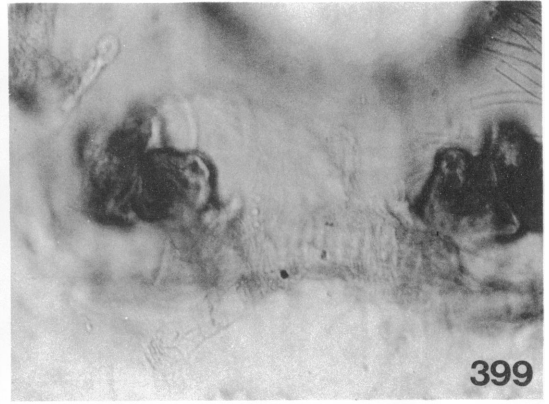
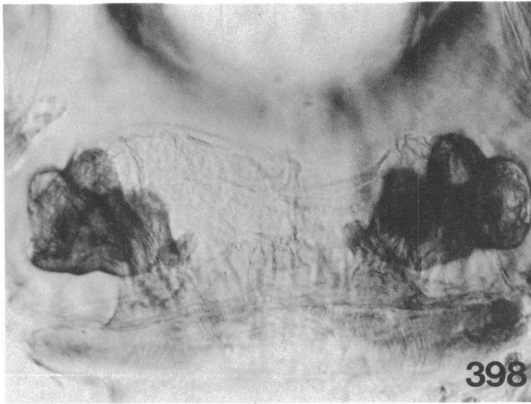
DISTRIBUTION: Known only from southwestern Western Australia.

ANAPID MORPHOLOGY, MONOPHYLY, AND RELATIONSHIPS

Anapid Monophyly. The Anapidae, as currently delimited, have generally been united by only one putative synapomorphy, the presence of a labral spur (Platnick and Shadab, 1978: fig. 1; Platnick and Forster, 1986: fig. 1). The spur is usually a prominent, erect protuberance extending anteriorly between the chelicerae, but may be recumbent (as in figs. 7, 111, 112) or, particularly in very small species, reduced to a small crest. It does, however, seem to be present in some form in all genera, and is unknown, to date, in other taxa.

A second synapomorphy for the family may be provided by the presence, in both sexes, of glandular openings at the anterolateral corners of the carapace. The openings are typi-

cally situated in an excavated pit on the edge of the carapace, just above the endites (Platnick and Shadab, 1978: fig. 1; Platnick and Forster, 1986: figs. 1-4). In at least the Chilean genus *Minanapis*, however, there is no pit, and the pores open directly onto the surface of the carapace (figs. 68-70), whereas in a group of Australasian genera, the pit has shifted onto a partially or entirely separate sclerite that is reflexed under the lateral margin of the carapace (as in figs. 271, 272). It has not been possible to confirm the presence of the pores in the rare Chilean genus *Pecanapis*, where they are presumed to open directly on the carapace surface (as in *Minanapis*). The most similar modification



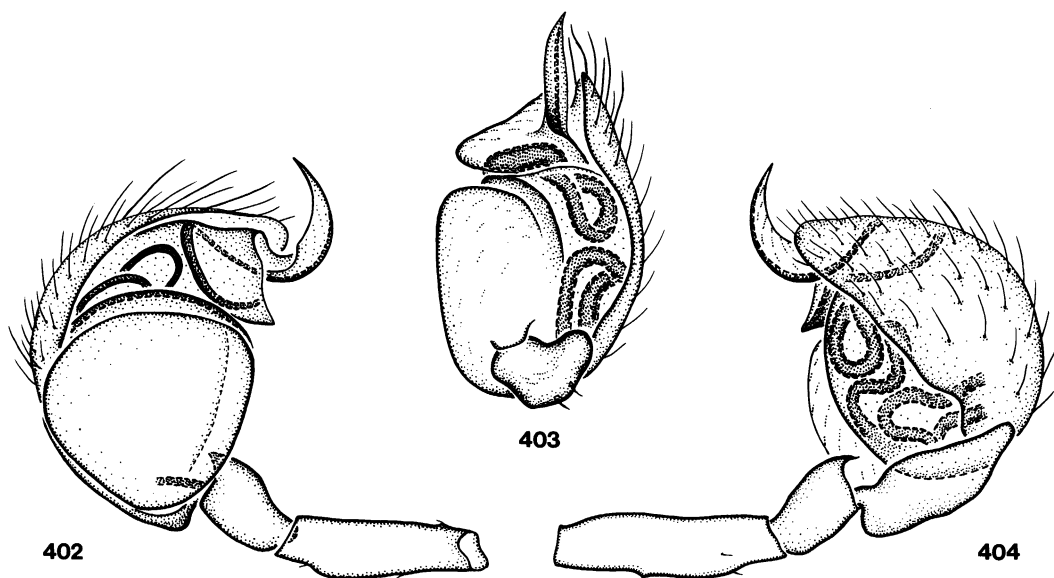
Figs. 398-401. *Caledanapis sera*, new species, internal female genitalia, dorsal views.

documented in other taxa to date is found in the family Malkaridae (see Platnick and Forster, 1987: figs. 1, 12, 13), where the porepits are more posteriorly situated and seem to be independent developments from similar but smaller pore-bearing depressions scattered elsewhere on the carapace.

Familial Relationships. Current analyses agree that the closest relatives of the Anapidae are the Symphytognathidae and Mysmenidae, which share a similarly modified carapace with the ocular area greatly elevated. Coddington (1986) placed anapids and mysmenids as sister groups, united by out-of-plane radii in their webs and a habit of suspending their egg sac above the web hub. He considered symphytognathids the sister group of those two families together, based on the presence of lengthened and accessory radii in the webs, and theridiosomatids as the sister group of all three families, based on the

addition of hub loops after sticky spiral construction during web building. Eberhard (1987) reached similar conclusions from his studies of web-building behavior. Of course, the details of web construction have actually been observed in representatives of only a few New World genera, and it is by no means certain even that all anapids actually construct orb webs. Wunderlich (1986) preferred a different resolution, with anapids as the sister group of symphytognathids plus mysmenids, but his putative synapomorphies for uniting the latter pair of taxa (only one dorsal tibial bristle, and a flattened male palpal tibia) are present in many anapids.

Generic Relationships. A thorough analysis of generic-level relationships within the Anapidae must await revisionary studies of the largely undescribed South African and Old World tropical faunas, but some observations can be made on the genera considered



Figs. 402-404. *Caledanapis sera*, new species, left male palp, prolateral, ventral, and retrolateral views.

here. A group of Australasian genera can be recognized by at least two seemingly synapomorphic features. The New Zealand genera *Paranapis* and *Novanapis* (but not *Zealanapis*), all three New Caledonian genera (*Caledanapis*, *Montanapis*, and *Mandanapis*), and the Australian genera *Maxanapis*, *Octanapis*, *Spinanapis*, *Chasmocephalon*, *Hickmanapis*, and probably the tiny and rare *Nortanapis*, have the cephalic porepit shifted onto a reflexed sclerite situated between the carapace margin and the dorsal edge of the endites. Those (and only those) genera also have the anterior spiracles incorporated into the anterior abdominal scutum and advanced anteriorly to at least half the distance between the epigastric furrow and the pedicel. In *Maxanapis*, *Spinanapis*, and *Nortanapis*, the anterior spiracles are situated even farther forward, almost reaching the level of the pedicel. The anterior shift of the spiracles is presumably correlated with increasing penetration of the anterior tracheae into the cephalothorax, and is typically accompanied by loss of the posterior tracheae. Two other unusual features, a dorsal fusion of the endites (as in fig. 174) and the association of a complex of small denticles with the most distal cheliceral teeth (as in fig. 176) are commonly found among these highly modified Australasian genera, al-

though similar cheliceral modifications occur in at least some New World *Anapis* (Forster, 1958: fig. 6).

The remaining five Australasian genera seem less derived than this assemblage; they all retain anterior booklungs rather than tracheae (although the booklung lamellae may be elongated), as do four of the Chilean genera (*Crassanapis*, *Elanapis*, *Minanapis*, and *Sheranapis*). Among those five Australasian genera, there may be a sister-group relationship between the New Zealand *Zealanapis* and the Australian *Queenslanapis*, which share a similar female genitalic organization, with small, spherical lateral receptacula in addition to a membranous median receptaculum. Whereas in all the known Australasian genera the segments of the female pedipalp beyond the coxa are represented at most by a tiny lobe on the endite, in four of the Chilean genera (*Crassanapis*, *Elanapis*, *Sofanapis*, and *Sheranapis*) the female pedipalp segments are all still present (as they are, for example, in *Anapis* itself). The latter three Chilean genera differ from all others discussed here in lacking extensions of the sternum between the coxae.

Some other obvious features are unlikely to provide much phylogenetic information. The anterior median eyes are often lost, but

the loss can happen within a genus. For example, *Maxanapis* and *Chasmocephalon* each contain both six- and eight-eyed species, even though both genera appear to be monophyletic: *Maxanapis* males share a unique pair of projections extending from the posterior margin of the sternum, and *Chasmocephalon* males share a characteristic pair of proximal and distal apophyses on the palpal patella. Similarly, the dorsal abdominal scutum typical of males occurs in females of only three of the austral genera (*Minanapis* in Chile, and *Octanapis* and *Victanapis* in Australia), but they do not appear to form a monophyletic group (and the character varies even among species of *Anapis*).

Anapid Morphology. The most unexpected result of this revision concerns the nature of the female genitalia. In all previous studies of anapids, those genitalia have been assumed to be of typical entelegyne form. In all genera examined here (with the possible exception of the New Caledonian *Mandanapis*), there seems to be no basis for this as-

sumption; no external epigynal openings (or other copulatory modifications, save perhaps in *Mandanapis*) have been detected on the anterior abdominal scutum, and no separate fertilization ducts have been found in our examinations of the internal genitalia with compound microscopy. Although haplogyne female genitalia are unusual among araneoids, they are found in some tetragnathids (and also in primitive uloborids), and the haplogyne condition could well be a secondary modification.

Of interest also are the openings of the cheliceral glands, which seem typically to be associated with a proximal cheliceral protuberance (as in fig. 11). Although it is conceivable that these structures are homologous with the cheliceral gland mounds typical of palpimanoids, the position and angular appearance of those cheliceral protuberances make it seem more likely that the cheliceral gland openings have simply become associated with the most proximal of the normal cheliceral teeth.

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