



**SYSTEMATIC STUDIES OF PELAGIC  
HYPERIIDEAN AMPHIPODS OF THE  
INFRAORDER PHYSOCEPHALATA  
(CRUSTACEA: AMPHIPODA:  
HYPERIIDEA)**

by

**Wolfgang Zeidler, B.Sc. (Hons), MSc.**

**A thesis submitted for the degree of Doctor of Philosophy  
within the University of Adelaide**

**Department of Environmental Biology**

**August 2000**

**Volume II: Figures**

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Fig. 109. *Cranocephalus scleroticus*, Indian Ocean, near Ningaloo Reef, Western Australia, SAMA C5927 (male 14.4 mm, G1 & 2); Indian Ocean, off South Africa, SAMA C5814 (female 8.1 mm, male 6.3 mm). Scale bars = 0.1 mm (Mx1, Mxp), 0.2 mm (remainder).

Fig. 110. *Platyscelus ovoides*, Tasman Sea, SAMA C4224 (female 17.5 mm, male 15.2 mm). A, lateral view; B, ventral view of animal when rolled up; C, anterior view of head; all of female. Scale bars = 2.0 mm (A-C), 1.0 mm (G1 & 2), 0.2 mm (remainder).

Fig. 111. *Platyscelus ovoides*, Tasman Sea, SAMA C4224 (female 17.5 mm, male 15.2 mm). A, lateral view of Mx1-m,l; B, medial view of Mx2-m; Scale bars = 1.0 mm (P3-7, Us), 0.2 mm (Md, Mx1 & 2).

Fig. 112. *Hemityphis tenuimanus*, North Pacific, off California, SAMA C5925 (female 7.5 mm); Tasman Sea, SAMA C5362 (female 5.6 mm), SAMA C5363 (male 6.8 mm). A, lateral view of female (C5925); B-D, medial, lateral and ventral view of Mx2-m. A1 & 2-f from C5362. Scale bars = 0.5 mm (A), 0.2 mm (A1 & 2-m), 0.1 mm (remainder).

Fig. 113. *Hemityphis tenuimanus*, Tasman Sea, SAMA C5363. Male 6.8 mm. U1-3 deformed on left. Scale bars = 0.5 mm (G1-P7, Us), 0.1 mm (Mxp).

Fig. 114. *Paratyphis promontorii*, Tasman Sea, SAMA C5387. Male 5.3 mm. A, lateral view. Scale bars = 0.5 mm (A), 0.2 mm (G1 & 2, Us).

Fig. 115. *Paratyphis promontorii*, Tasman Sea, SAMA C5387. Male 5.3 mm. Scale bar = 0.2 mm.

Fig. 116. *Paratyphis promontorii*, Tasman Sea, SAMA C5384 (female 4.1 mm), SAMA C5387 (male 5.3 mm). Scale bars = 0.05 mm (Mx1 & 2), 0.2 mm (remainder).

Fig. 117. *Tetrathyrus forcipatus*, Tasman Sea, SAMA C5402 (male 4.6 mm), SAMA C5043 (female 3.6 mm). A, lateral view of female. Mx2-m, medial view. Scale bars = 0.5 mm (A), 0.2 mm (A2-m), 0.1 mm (remainder).

Fig. 118. *Tetrathyrus forcipatus*, Tasman Sea, SAMA C5402. Male 4.6 mm. Scale bars = 0.2 mm (G1-P7, Us), 0.05 mm (Mxp).

Fig. 119. *Parascelus edwardsi*, Coral Sea, SAMA C3708 (male 4.2 mm, A); Tasman Sea, SAMA C5414 (male 4.7 mm, A1 & 2, Md, Mx1 & 2), C5417 (female 5.2 mm, A1 & 2). A, lateral view. Scale bars = 0.5 mm (A), 0.1 mm (A1 & 2), 0.05 mm (Md, Mx1 & 2).

Fig. 120. *Parascelus edwardsi*, Coral Sea, SAMA C3708 (male 4.2 mm, G1-P7, Us); Tasman Sea, SAMA C5414 (male 4.7 mm, Mxp). Scale bars = 0.2 mm (G1-P7, Us), 0.1 mm (Mxp).

Fig. 121. *Thyropus sphaeroma*, North Atlantic, SAMA C5827 (male 8.4 mm); Bermuda, USNM Cat. No. 253618 (female 7.2 mm). A, lateral view of male. Mx2, medial view. Scale bars = 0.5 mm (A), 0.2 mm (A1 & 2), 0.1 mm (Md, Mx1 & 2).

Fig. 122. *Thyropus sphaeroma*, North Atlantic, SAMA C5827. Male 8.4 mm; P6-l, P6-r, medial view. Scale bars = 0.1 mm (Mxp), 0.2 mm (remainder).

Fig. 123. *Schizoscelus ornatus*, Costa Rica, SAMA C5826 (male 3.5 mm); Gulf of Mexico, USNM Cat. No. 181811 (female 4.0 mm). **A**, lateral view of male; **B**, dorsal view of female A1; **C**, palp of male Md. Scale bars = 0.5 mm (A), 0.2 mm (A2-m, Us); 0.05 mm (Mx1), 0.1 mm (remainder).

Fig. 124. *Schizoscelus ornatus*, Costa Rica, SAMA C5826. Male 3.5 mm. Scale bar = 0.2 mm.

Fig. 125. *Euscelus robustus*, South China Sea, ZMUC (female 8.7 mm); tropical Pacific, near Galapagos Islands, ZMUC (male 6.7 mm). **A**, lateral view and dorsal view of head of female; **B**, head of male. Scale bars = 0.5 mm (A, B, Us), 0.1 mm (Md, Mx1), 0.2 mm (remainder).

Fig. 126. *Euscelus robustus*, South China Sea, ZMUC (female 8.7 mm); tropical Pacific, near Galapagos Islands, ZMUC (male 6.7 mm). Scale bars = 0.2 mm.

Fig. 127. *Euscelus robustus*, South China Sea, ZMUC. Female 8.7 mm. Scale bar = 0.5 mm.



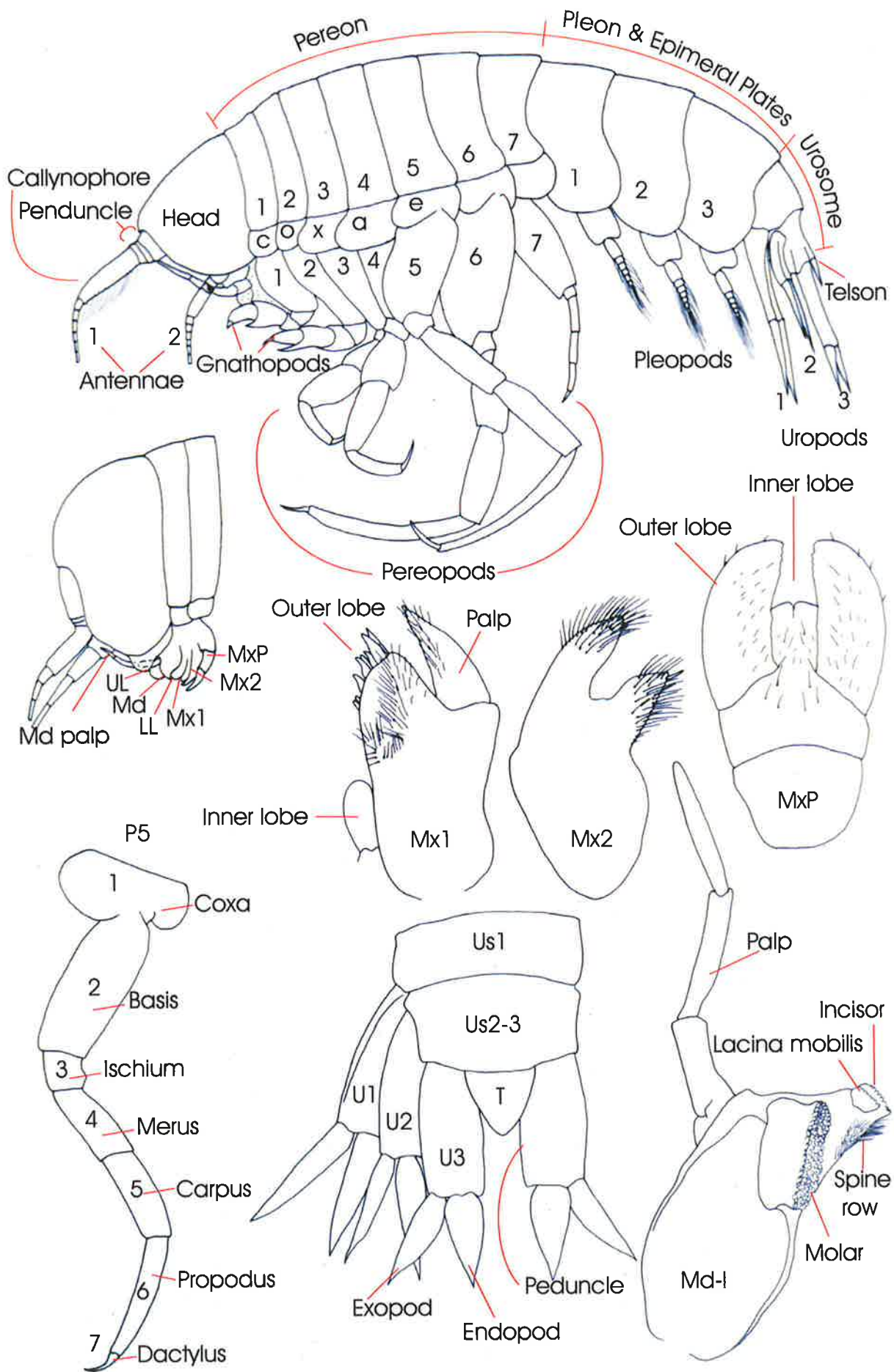


Fig. 1. Generalised hyperiid amphipod and appendages to illustrate terminology used in the text.

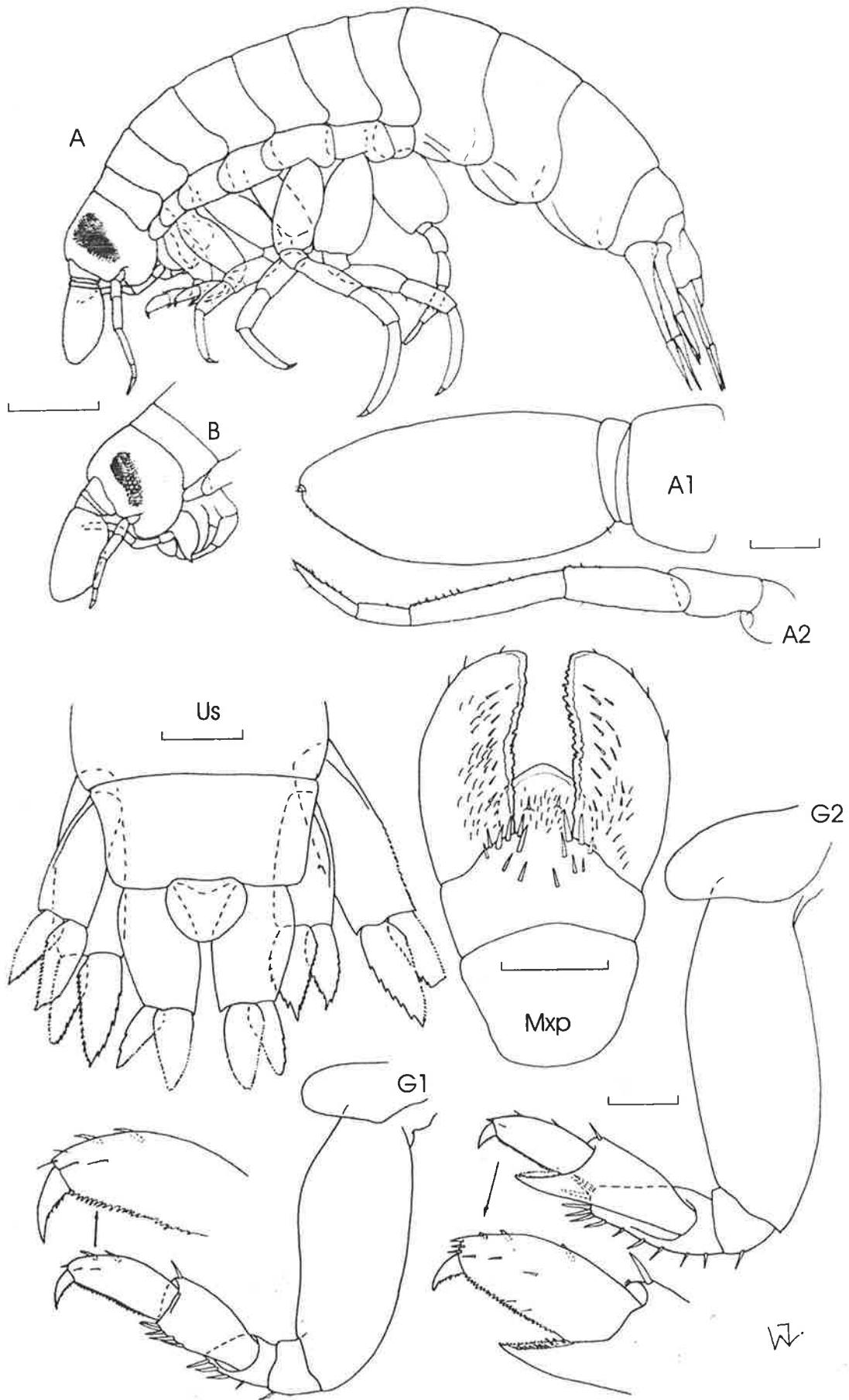


Fig. 2. *Vibia jeangerardi*, Mediterranean, ZMUC CRU2855. A, male 9.0 mm; B, female 12.0 mm; appendages from male. Scale bars = 1 mm (A, B), 0.5 mm (Us), 0.2 mm (remainder).

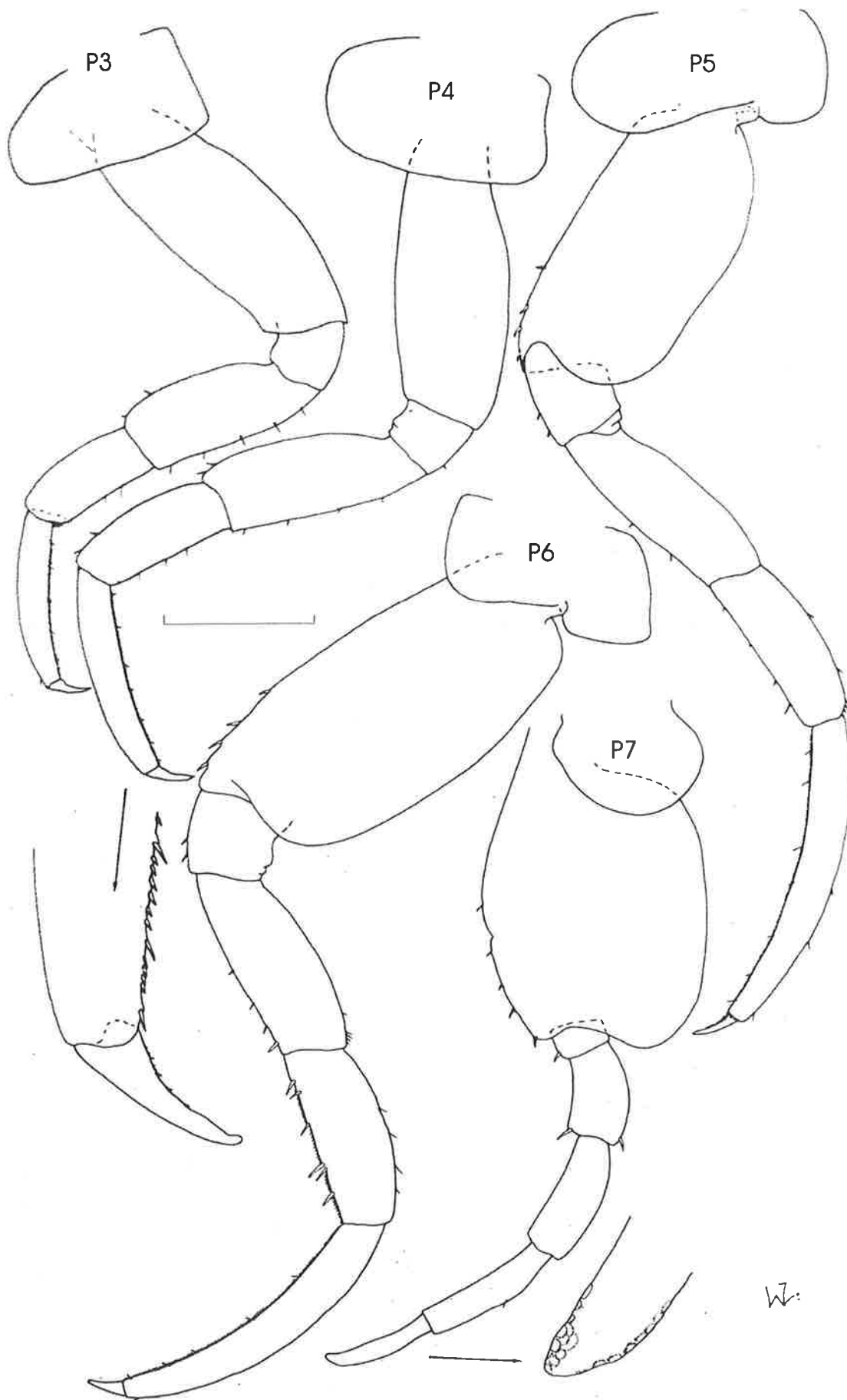


Fig. 3. *Vibia jeangerardi*, Mediterranean, ZMUC CRU2855. Male 9.0 mm.  
Scale bar = 0.5 mm.

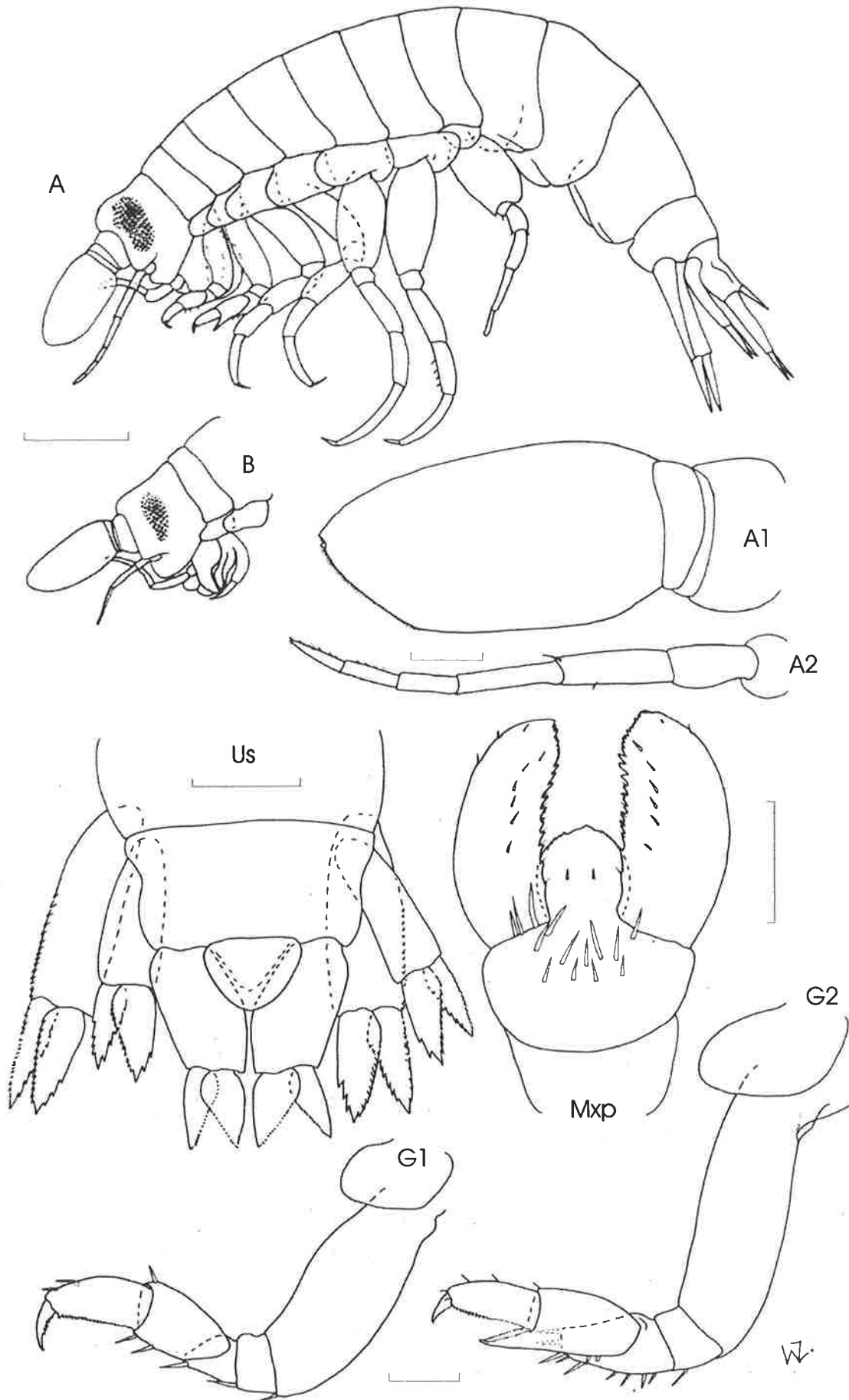


Fig. 4. *Vibia borealis*, North Atlantic, ZMUC CRU2847. A, male 7.6 mm; B, female 8.2 mm; appendages from male. Scale bars = 1 mm (A, B), 0.5 mm (Us); 0.2 mm (remainder).

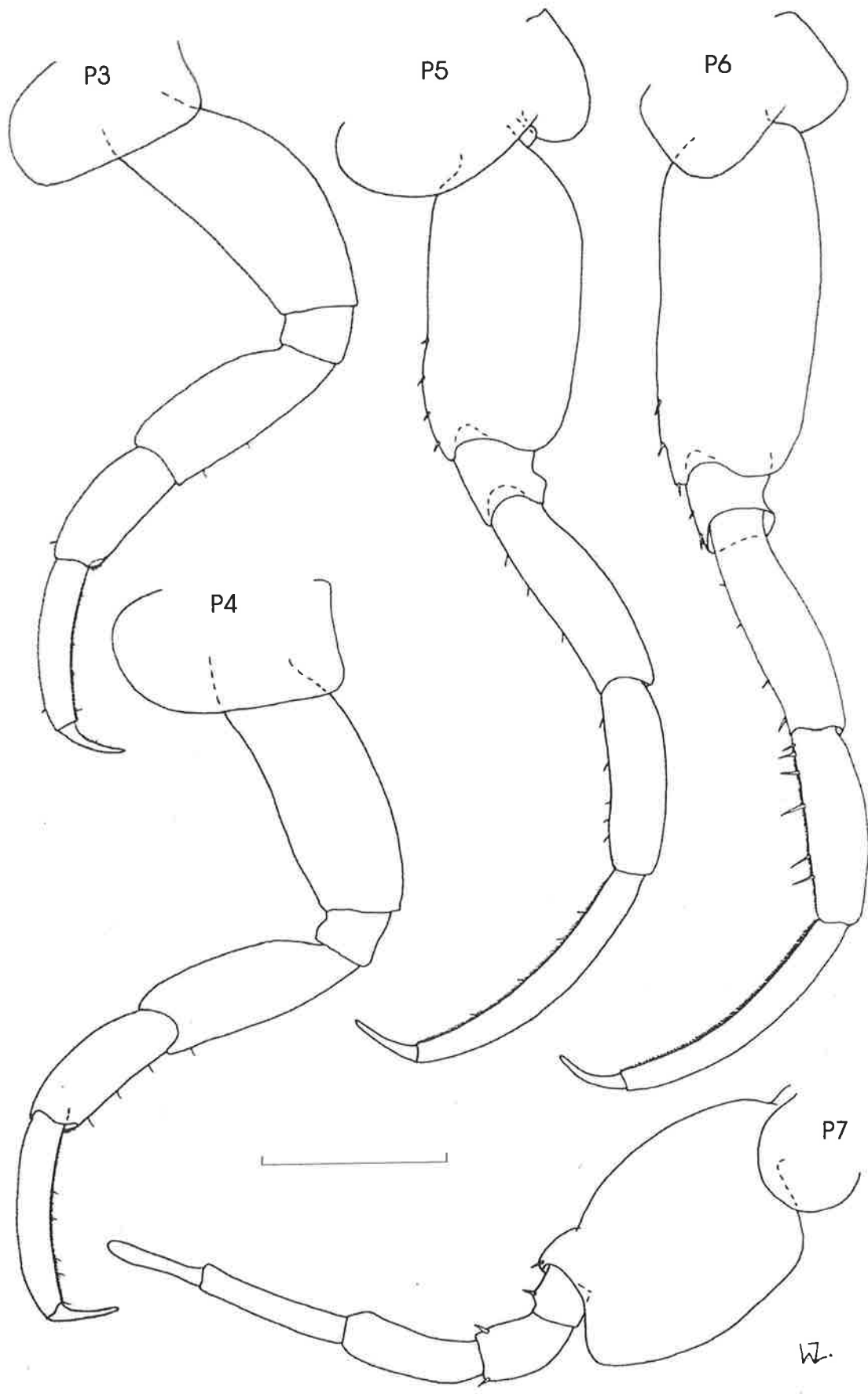


Fig. 5. *Vibia borealis*, North Atlantic, ZMUC CRU2847. Male 7.6 mm.  
Scale bar = 0.5 mm.

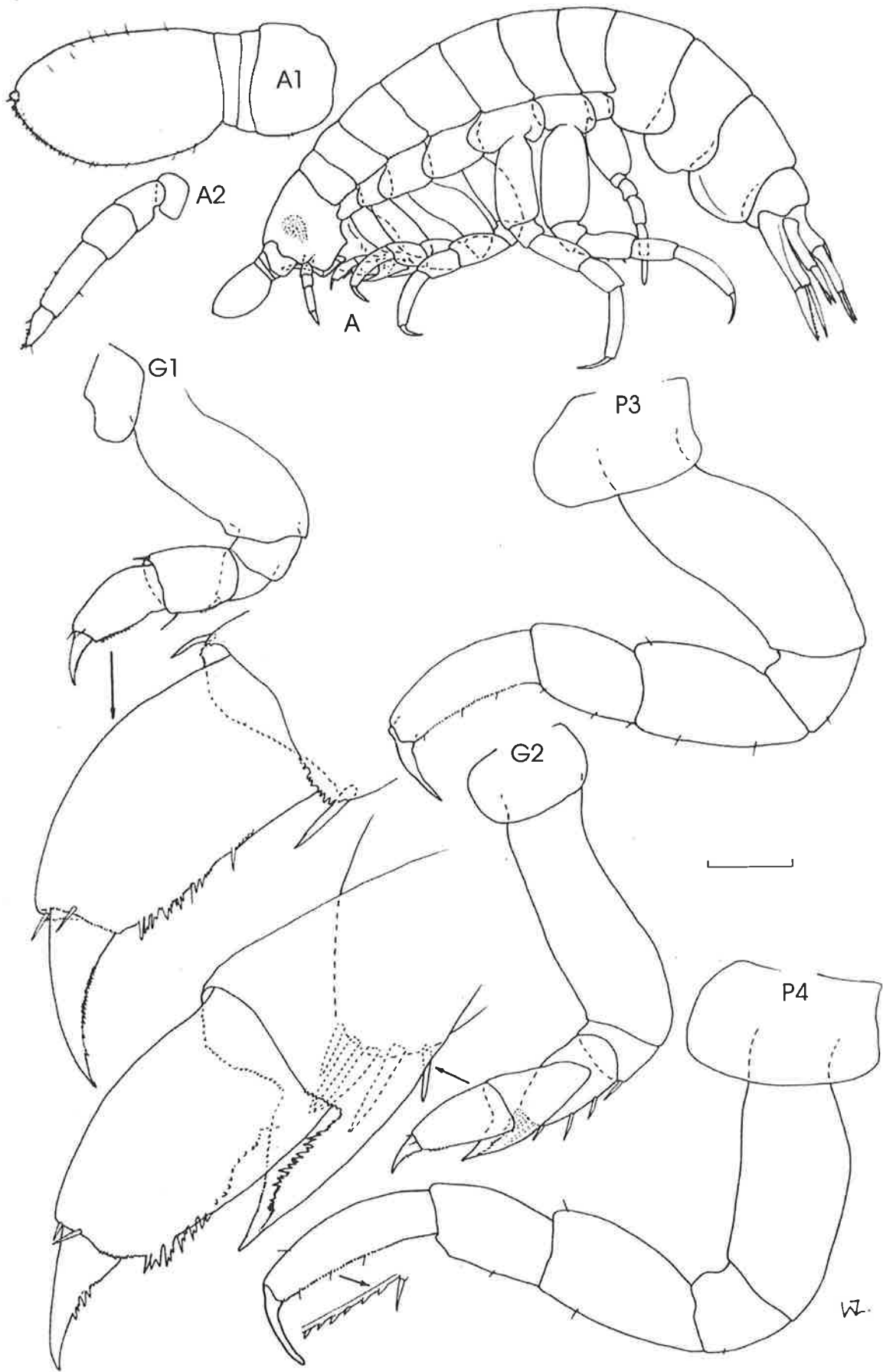


Fig. 6. *Vibia gibbosa*, Tasman Sea, SAMA C4419. Female 5.4 mm. A, lateral view. Scale bars = 0.5 mm (A), 0.2 mm (remainder).

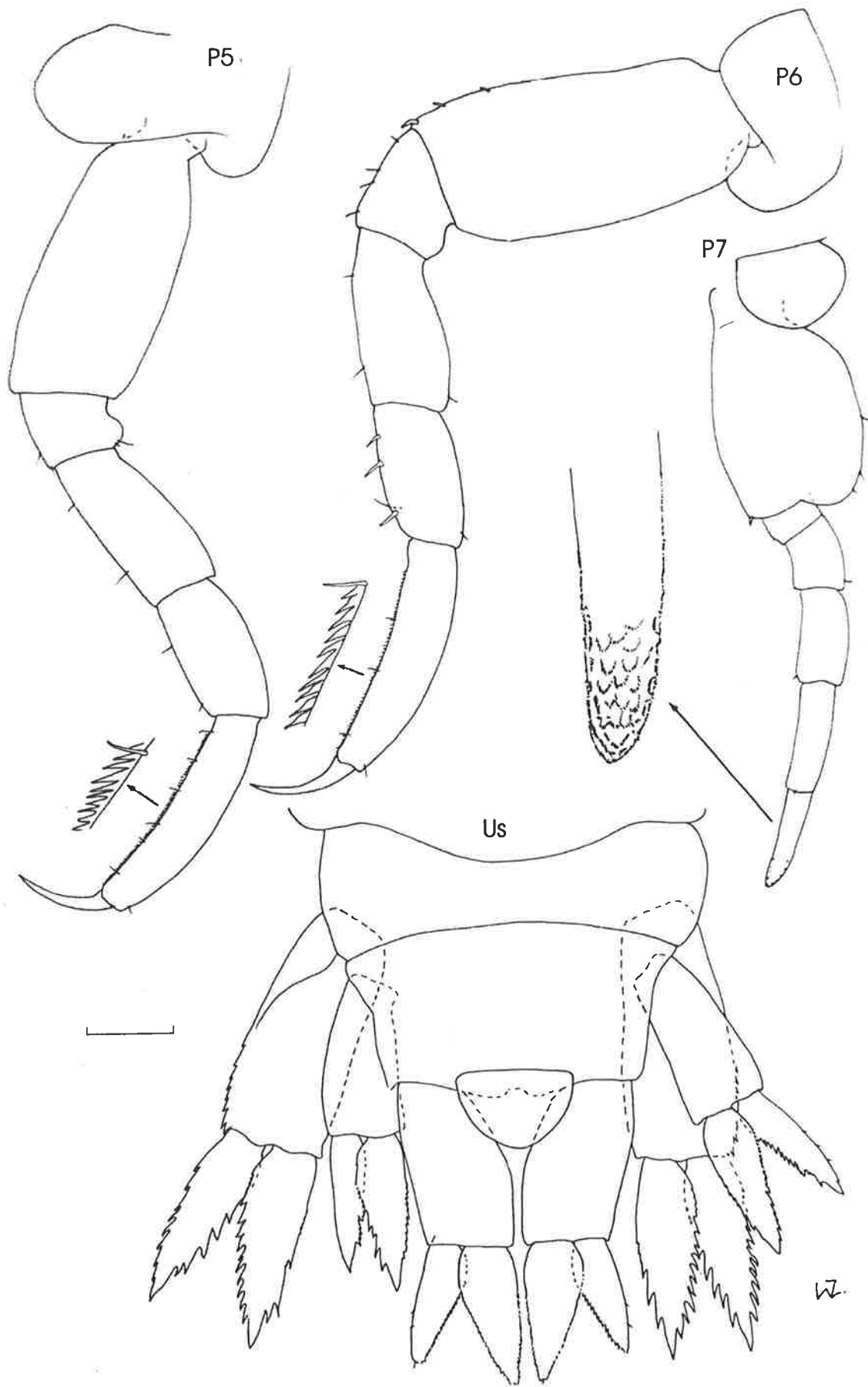


Fig. 7. *Vibilia gibbosa*, Tasman Sea, SAMA C4419. Female 5.4 mm. Scale bar = 0.2 mm.

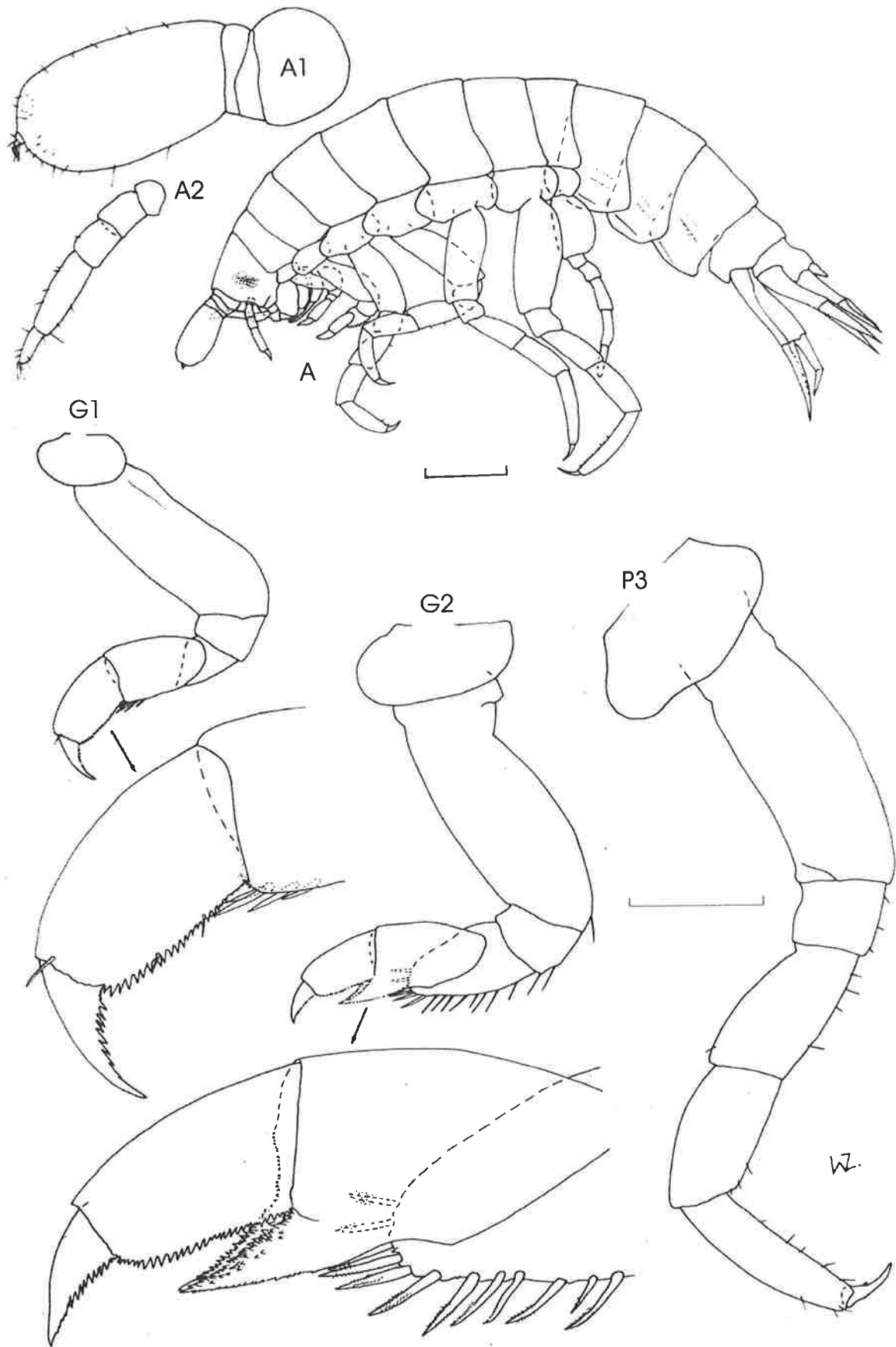


Fig. 8. *Vibilia robusta*, Tasman Sea, SAMA C4425. Female 8.5 mm. A, lateral view. Scale bars = 1.0 mm (A), 0.5 mm (remainder).



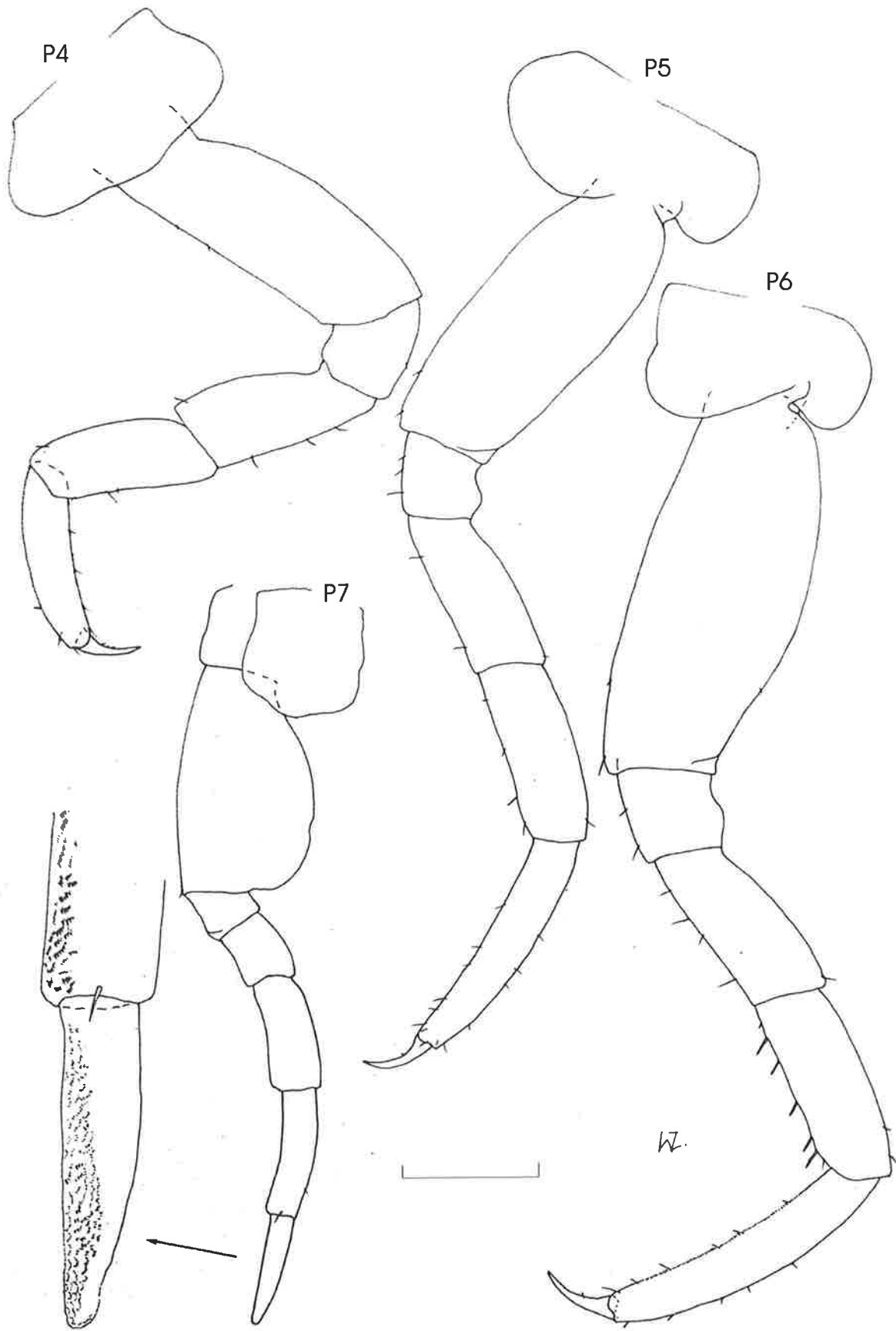


Fig. 9. *Vibia robusta*, Tasman Sea, SAMA C4425. Female 8.5 mm.  
Scale bar = 0.5 mm.

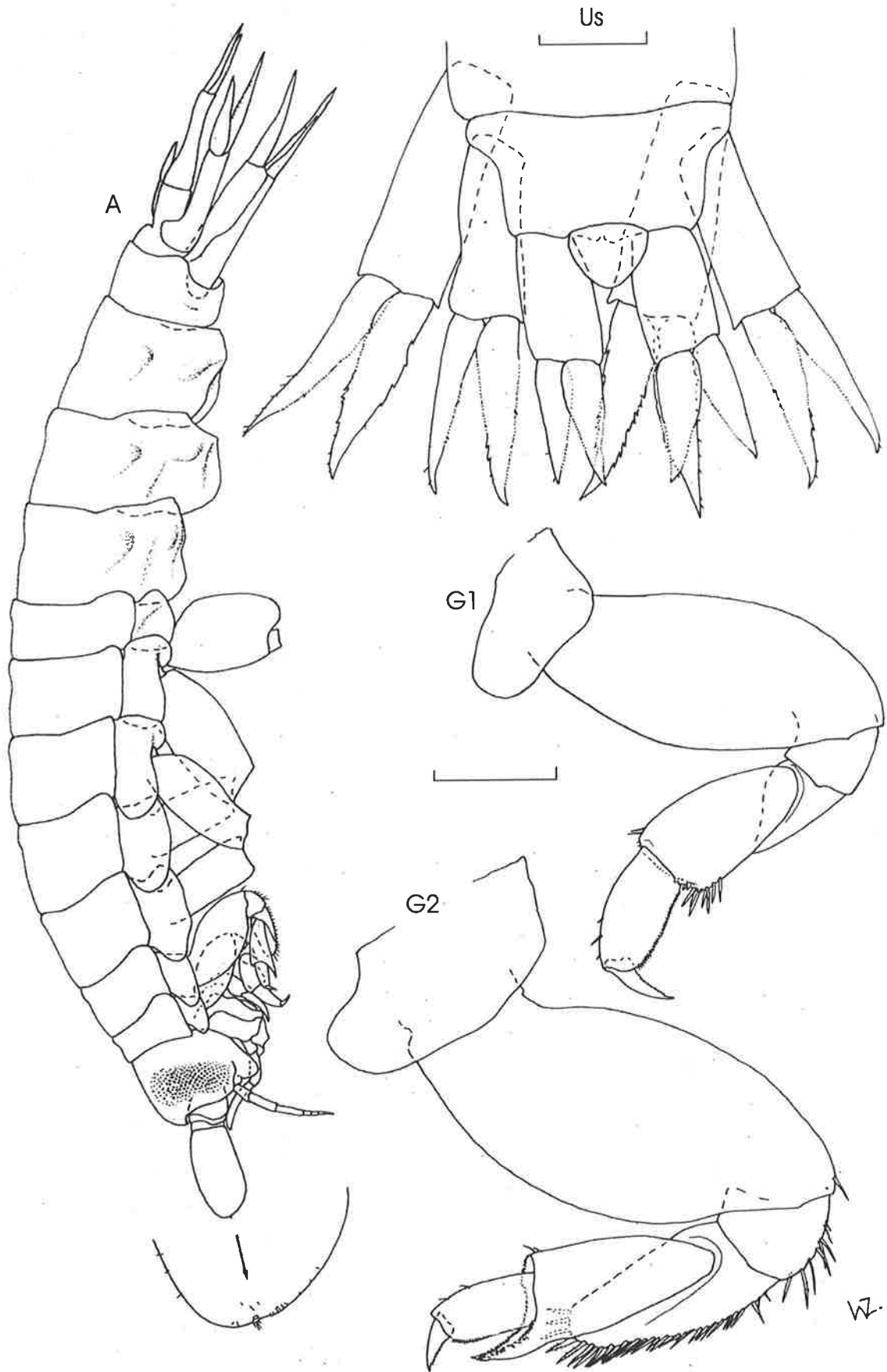


Fig. 10. *Vibilia robusta*, Tasman Sea, SAMA C4424 (m), C4425 (f). A, male 16.4 mm lateral view; G1 & 2 from male; Us from female 8.5 mm. Scale bars = 1.0 mm (A), 0.5 mm (remainder).

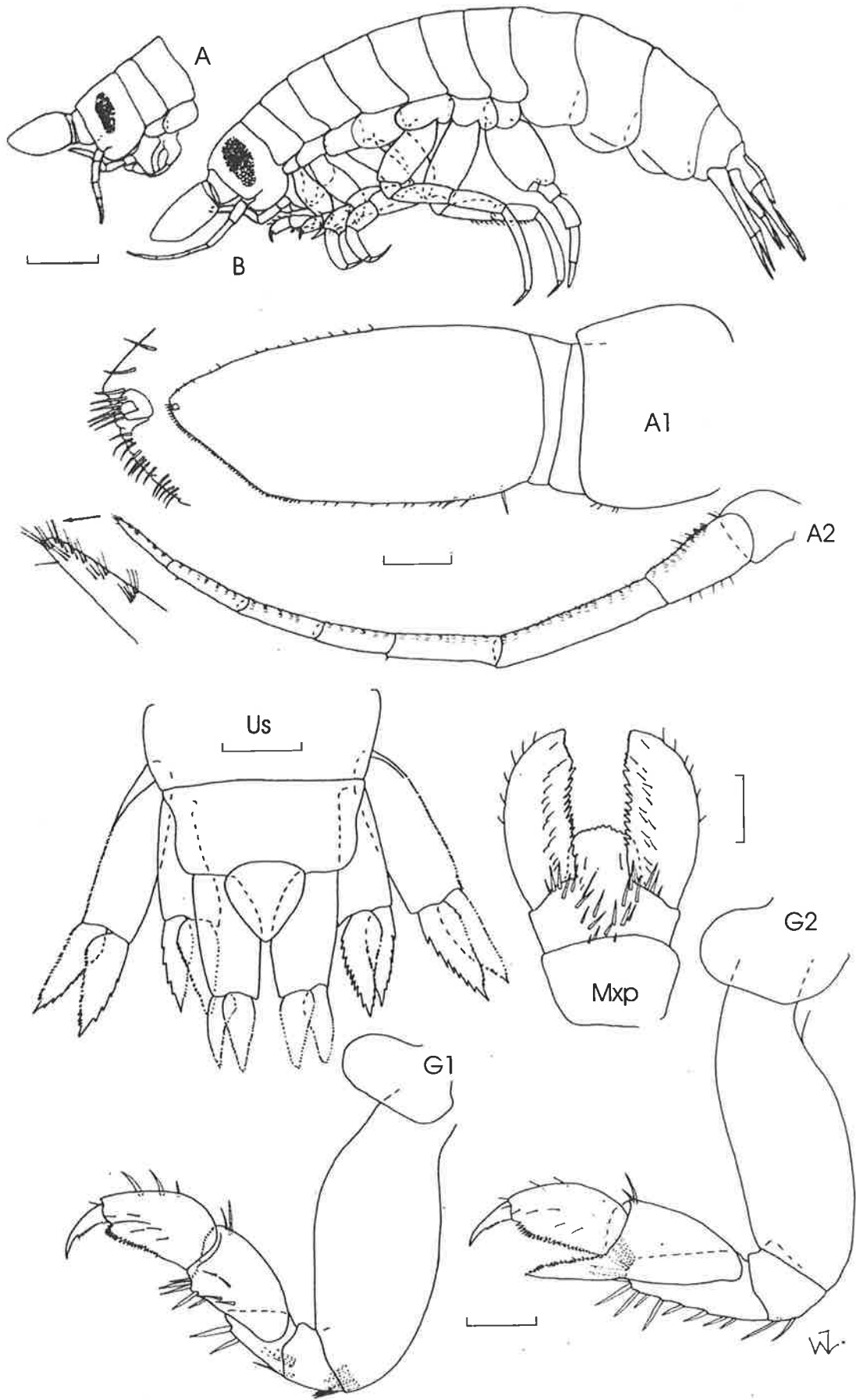


Fig. 11. *Vibia viatrix*, Great Australian Bight, SAMA C5903 (f), C5904 (m). A, female 9.7 mm; B, male 9.0 mm; appendages from male. Scale bars = 1.0 mm (A, B), 0.5 mm (Us), 0.2 mm (remainder).

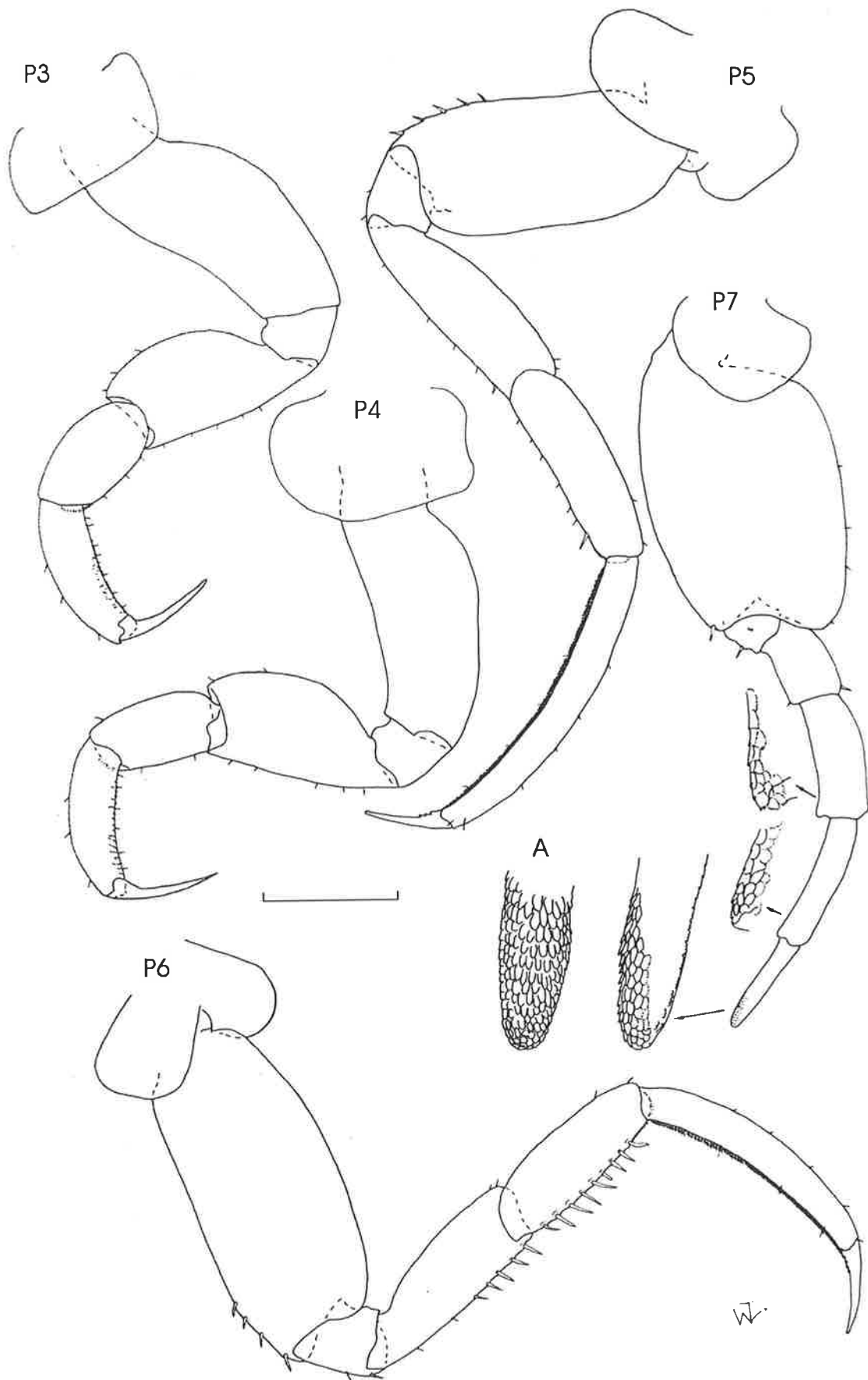


Fig. 12. *Vibilia viatrix*, Great Australian Bight, SAMA C5904. Male 9.0 mm. A, medial view of P7 dactylus. Scale bar = 0.5 mm.

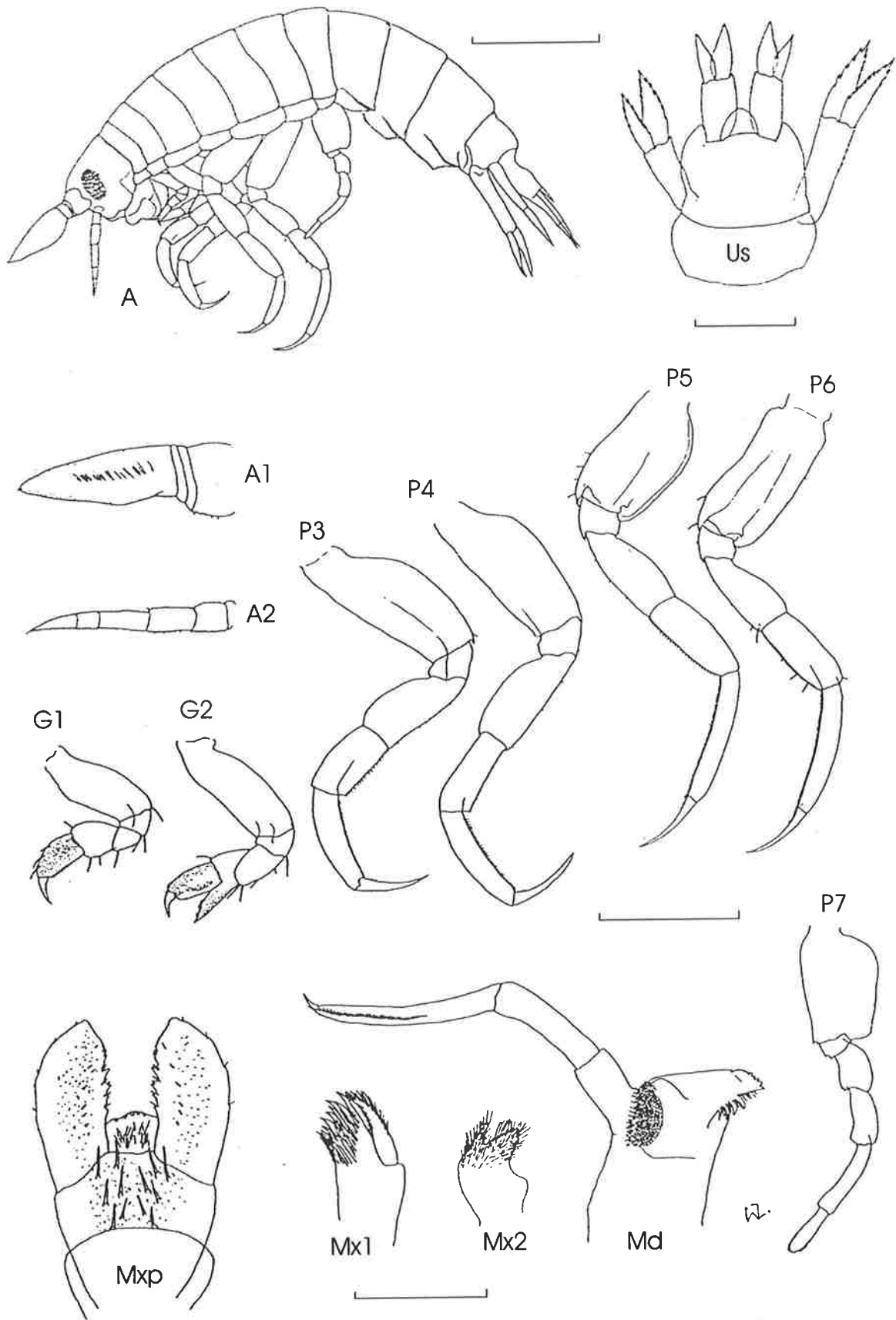


Fig. 13. *Vibilia armata*, Coral Sea, SAMA C3658. Female 5.9 mm. A, lateral view. Scale bars = 1.0 mm (A), 0.5 mm (A1 & 2, G1-P7), 0.2 mm (mthpts).

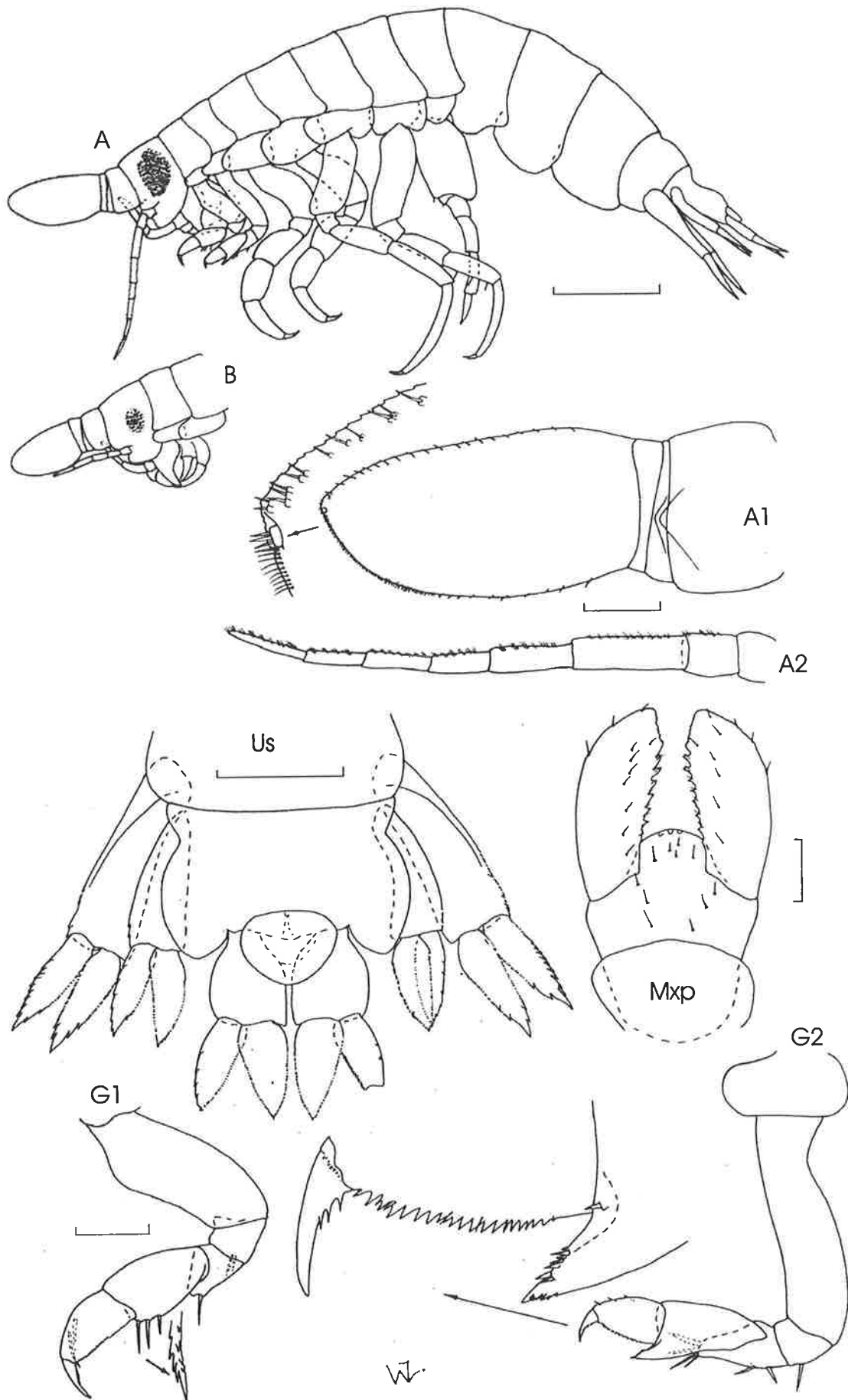


Fig. 14. *Vibilia pyripes*, Tasman Sea, SAMA C5892. A, male 6.6 mm; B, juvenile female 4.4 mm; appendages from male. Scale bars = 1.0 mm (A, B), 0.5 mm (Us), 0.2 mm (A1 & 2, G1 & 2), 0.1 mm (Mxp).

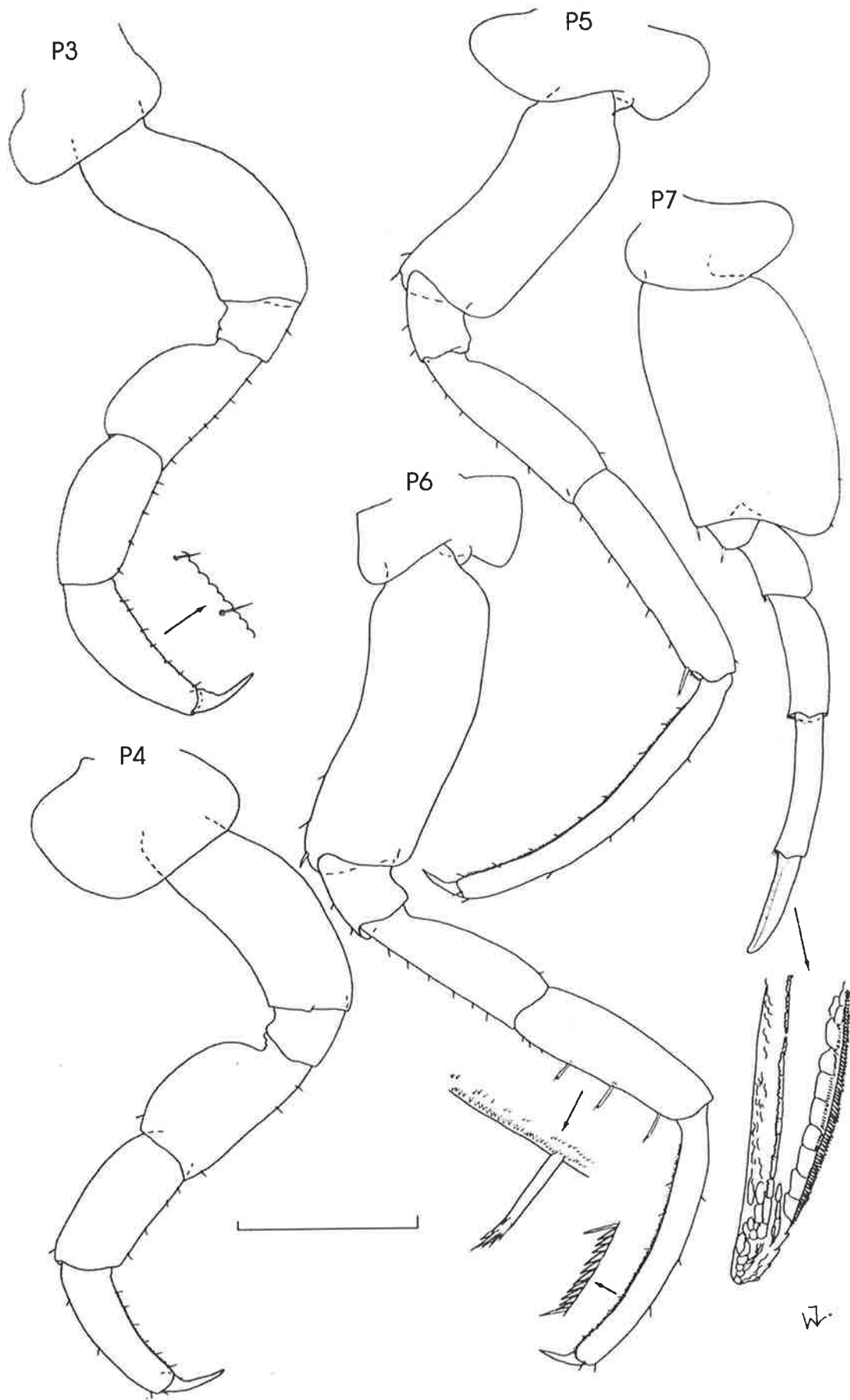


Fig. 15. *Vibilia pyripes*, Tasman Sea, SAMA 5892. Male 6.6 mm. Scale bar = 0.5 mm.

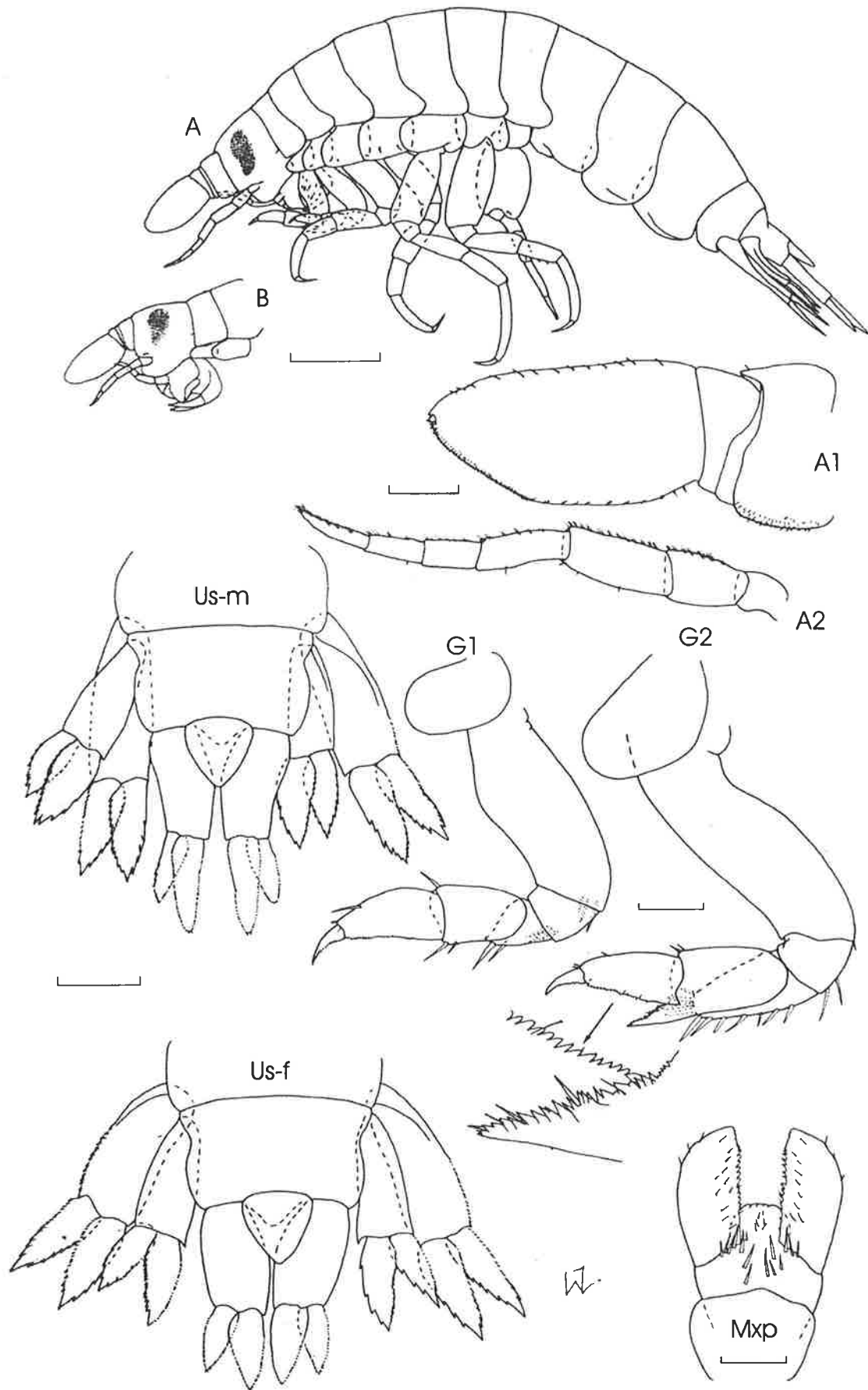


Fig. 16. *Vibia propinqua*, Tasman Sea, SAMA C4439 (m), C4440 (f). A, male 7.7 mm; B, female 8.5 mm; appendages from male except Us-f. Scale bars = 1.0 mm (A, B), 0.5 mm (Us), 0.2 mm (remainder).



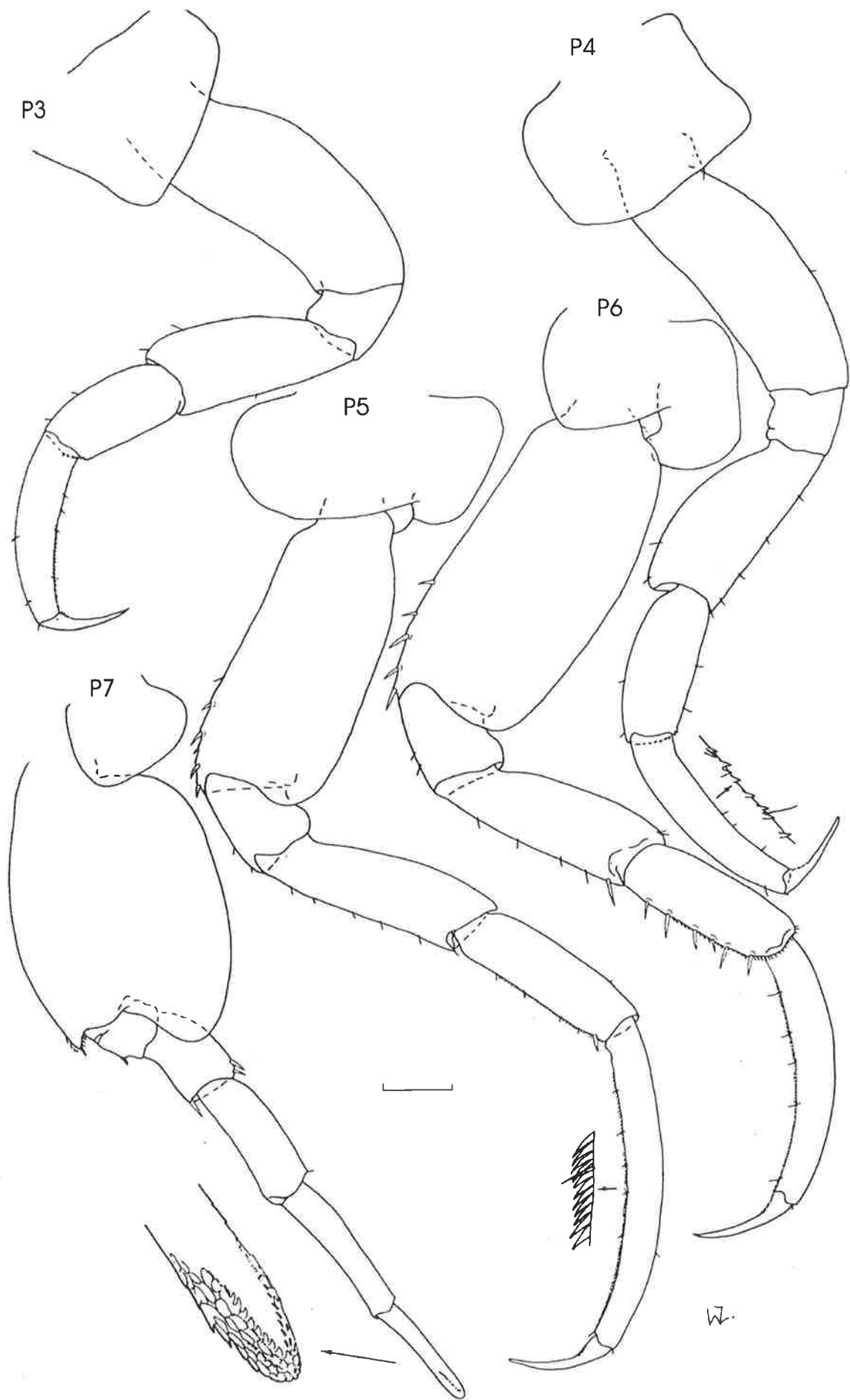


Fig. 17. *Vibia propinqua*, Tasman Sea, SAMA C4439. Male 7.7 mm. Scale bar = 0.2 mm.

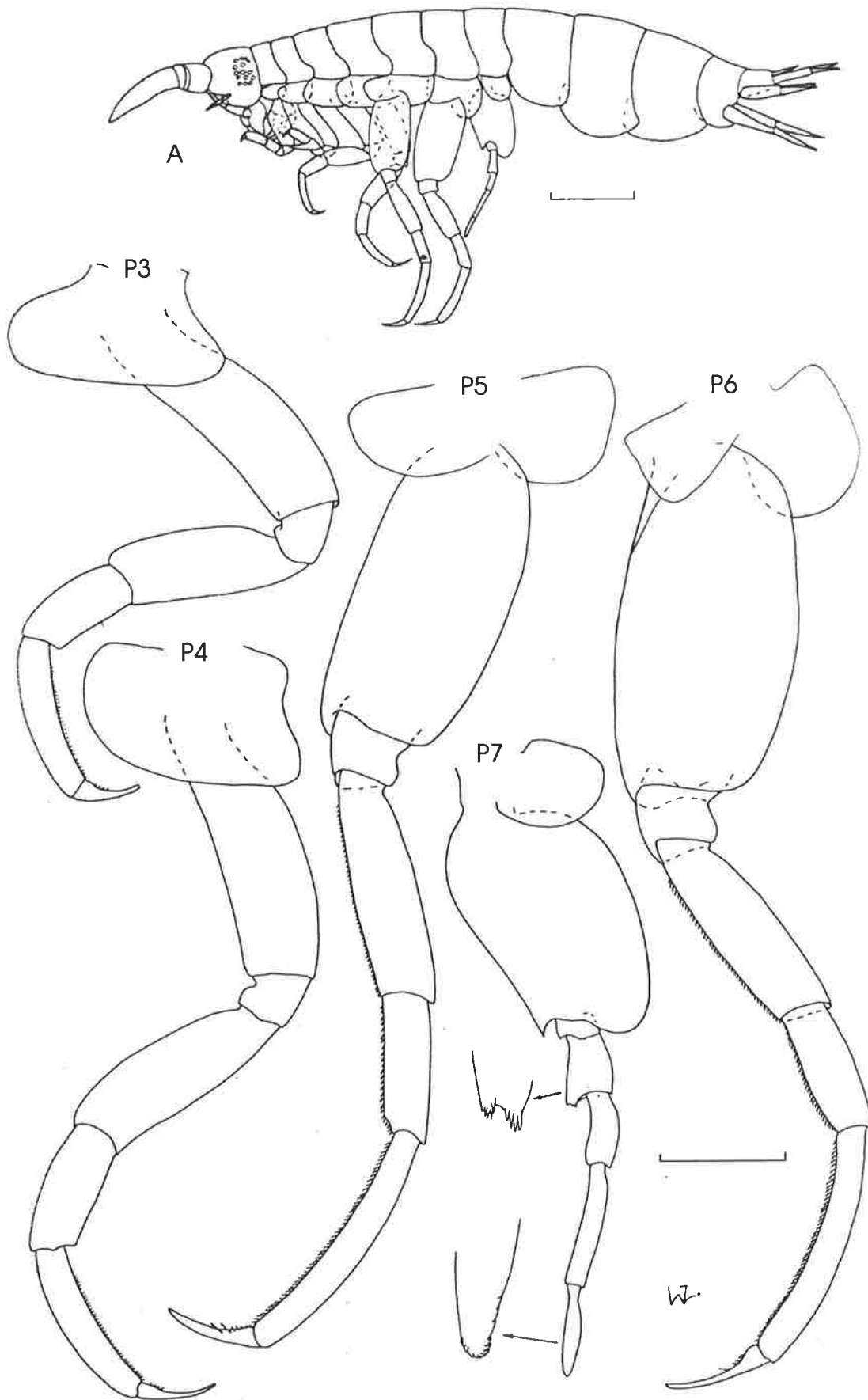


Fig. 18. *Vibia australis*, east of Taiwan, SAMA C5889. Female (?) 3.5 mm. A, lateral view. Scale bars = 0.5 mm (A), 0.2 mm (remainder).

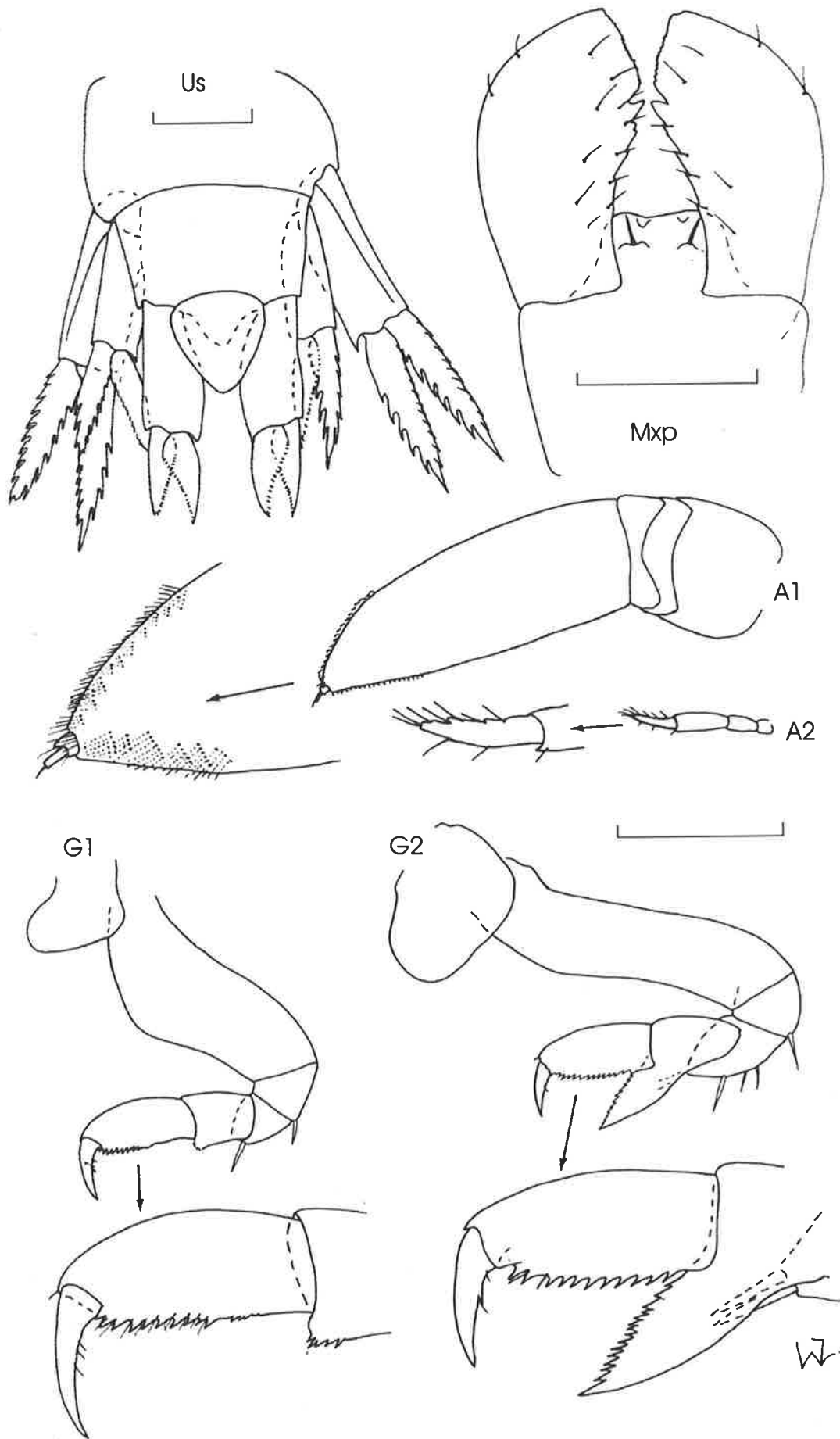


Fig. 19. *Vibia australis*, east of Taiwan, SAMA C5889. Female (?) 3.5 mm. Scale bars = 0.2 mm (Us, A1 & 2, G1 & 2), 0.1mm (Mxp).

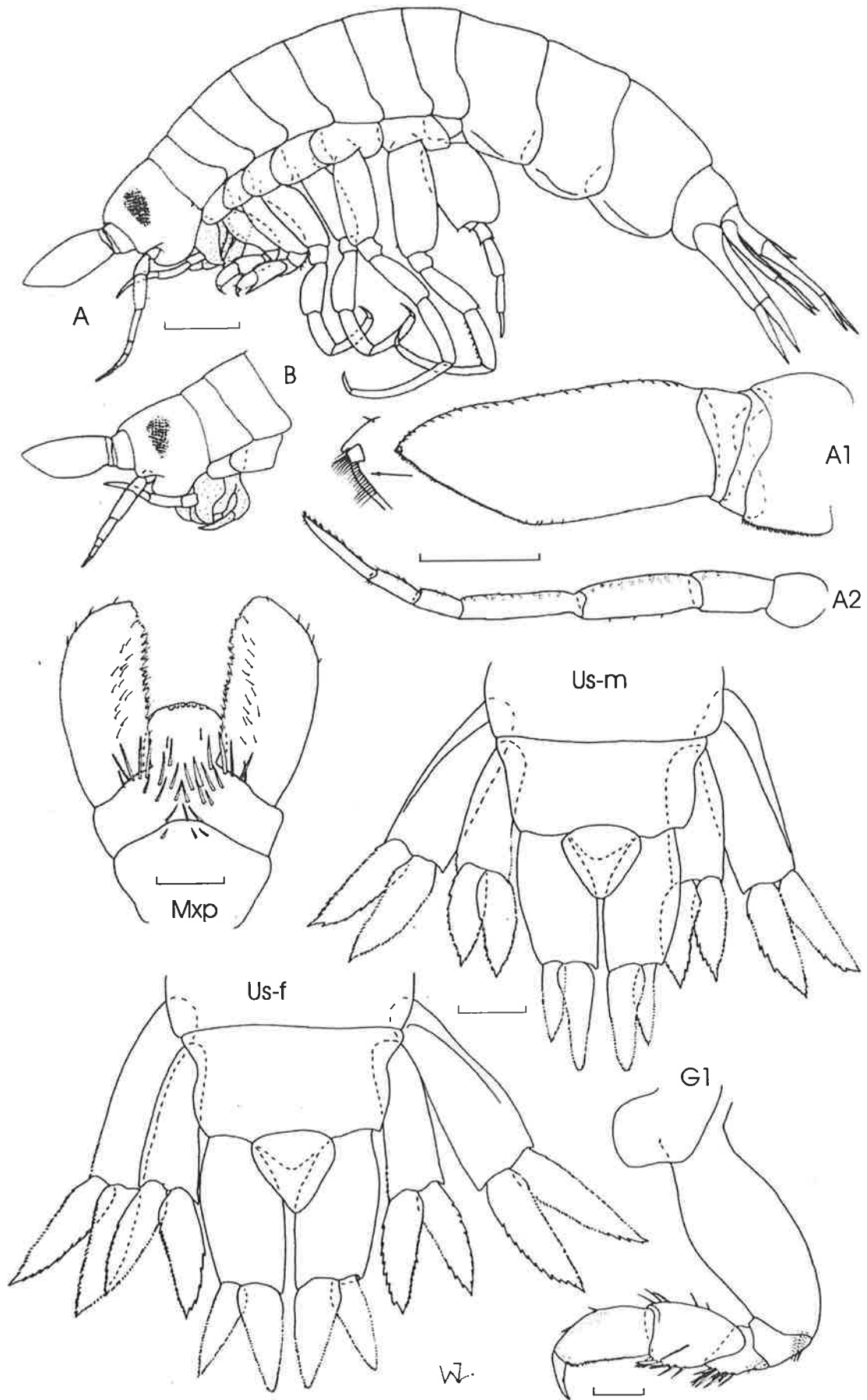


Fig. 20. *Vibia antarctica*, Southern Ocean, SAMA C3744 (m), C5886 (f). **A**, male 10.8 mm; **B**, female 12.1 mm; appendages from male except Us-f. Scale bars = 1.0 mm (A, B), 0.5 mm (A1 & 2, Us), 0.2 mm (Mxp, G1).

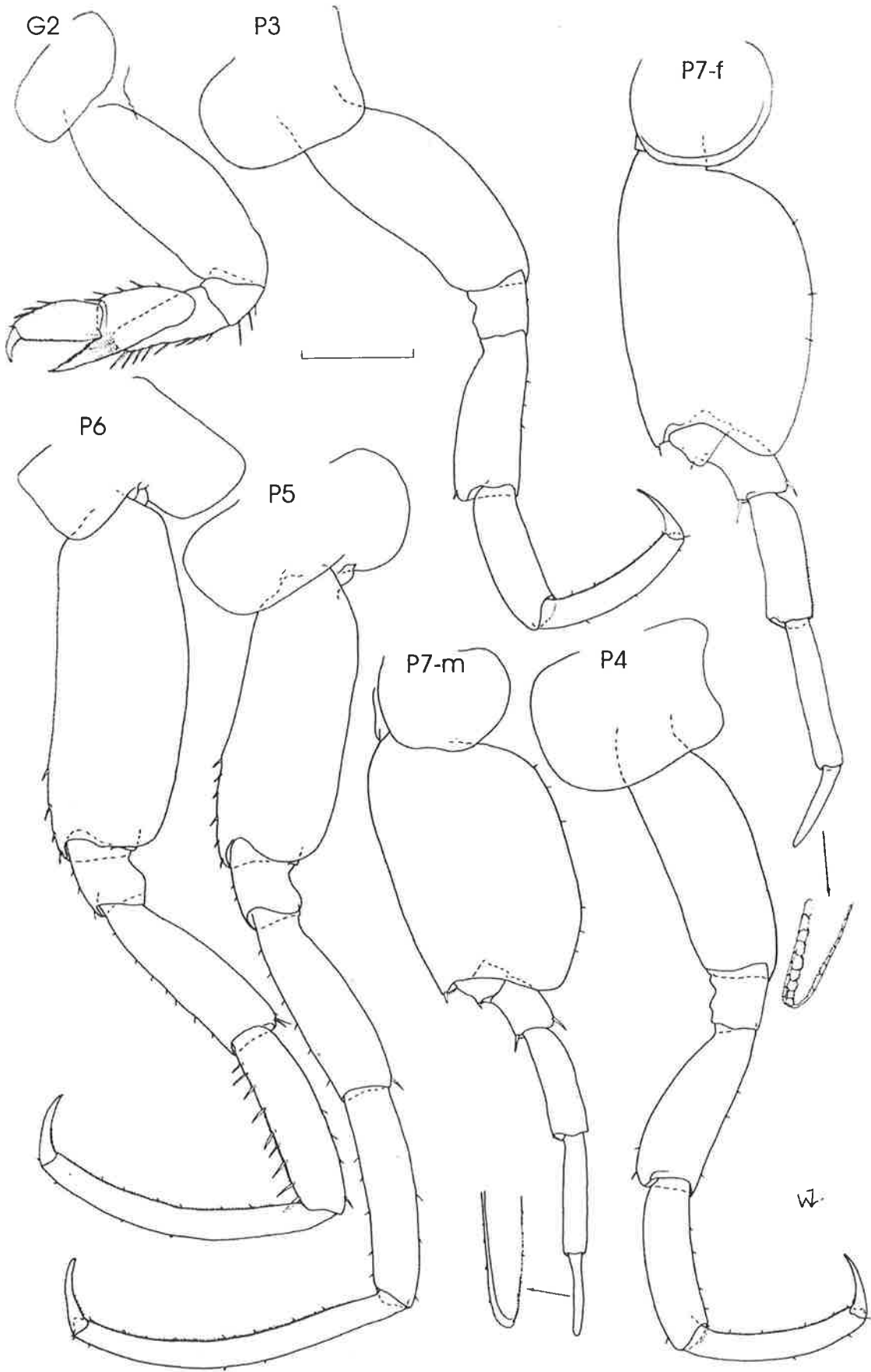


Fig. 21. *Vibia antarctica*, Southern Ocean, SAMA C3744 (m), C5886 (f). Male 10.8 mm; female 12.1 mm; appendages from male except P7-f. Scale bar = 0.5 mm.

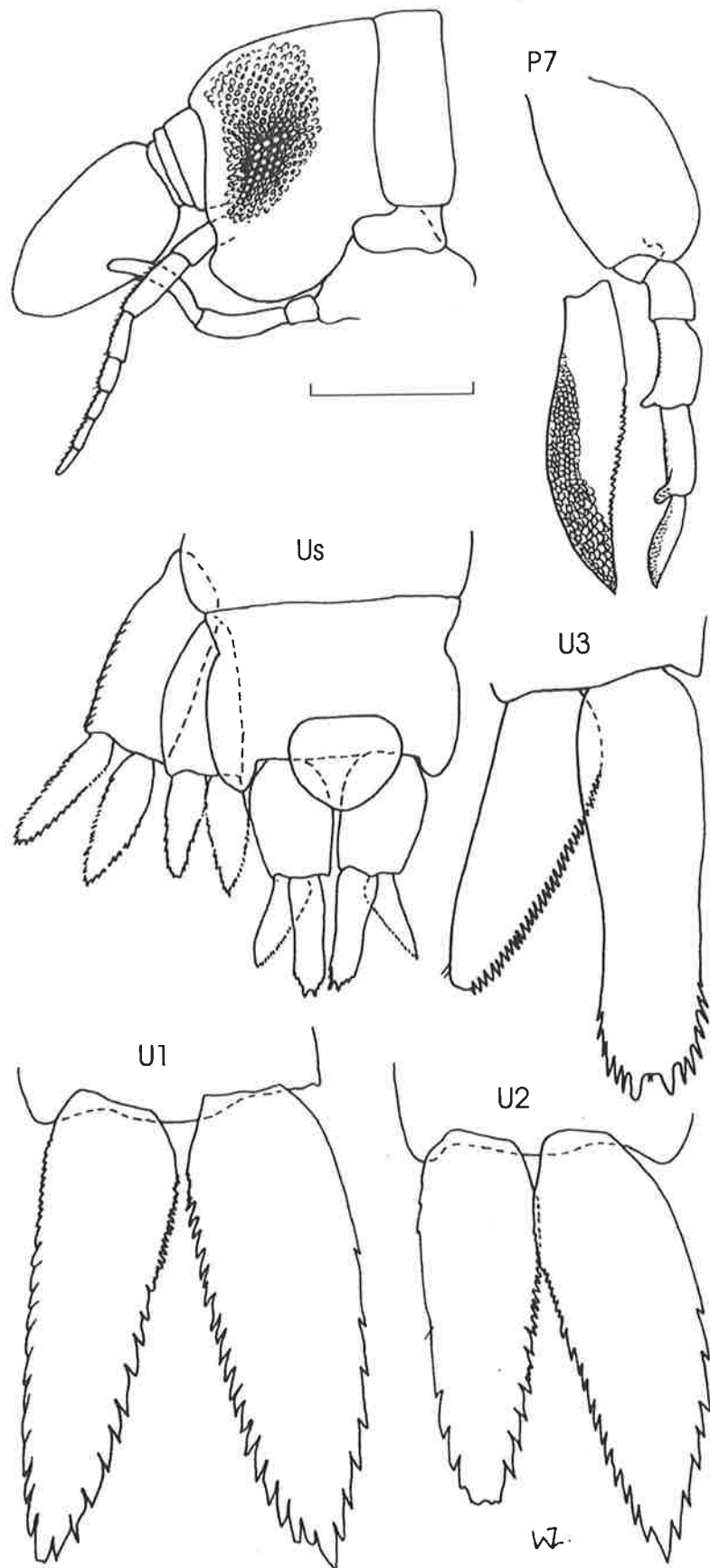


Fig. 22. *Vibia cultripipes*, Tasman Sea, AM P39762. Male 11.4 mm. Scale bar = 1.0 mm.

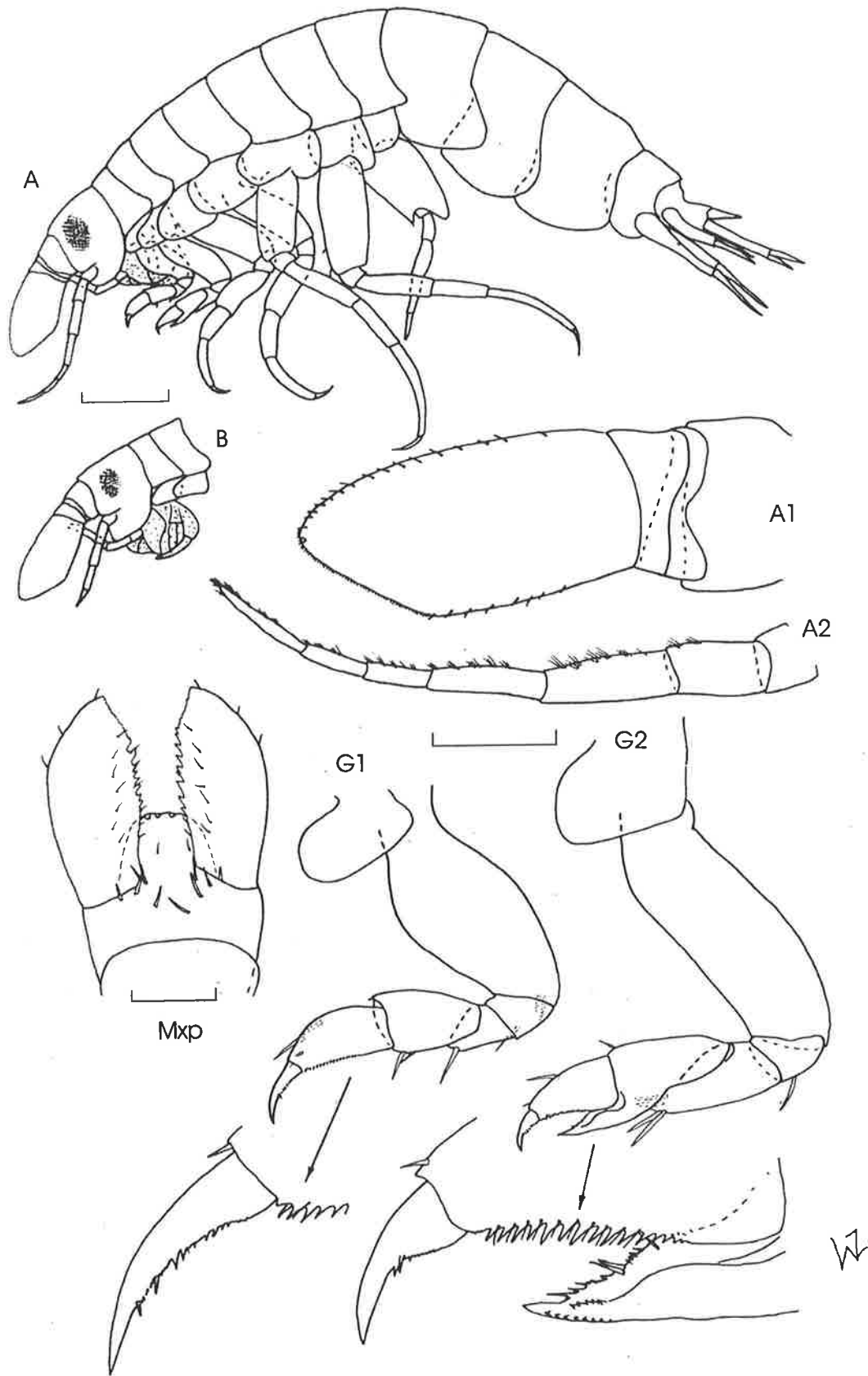


Fig. 23. *Vibia stebbingi*, Tasman Sea, SAMA C4431 (m), C5902 (f). A, male 4.4 mm; B, female 4.2 mm; appendages from male. Scale bars = 0.5 mm (A, B), 0.2 mm (A1 & 2, G1 & 2), 0.1 mm (Mxp).

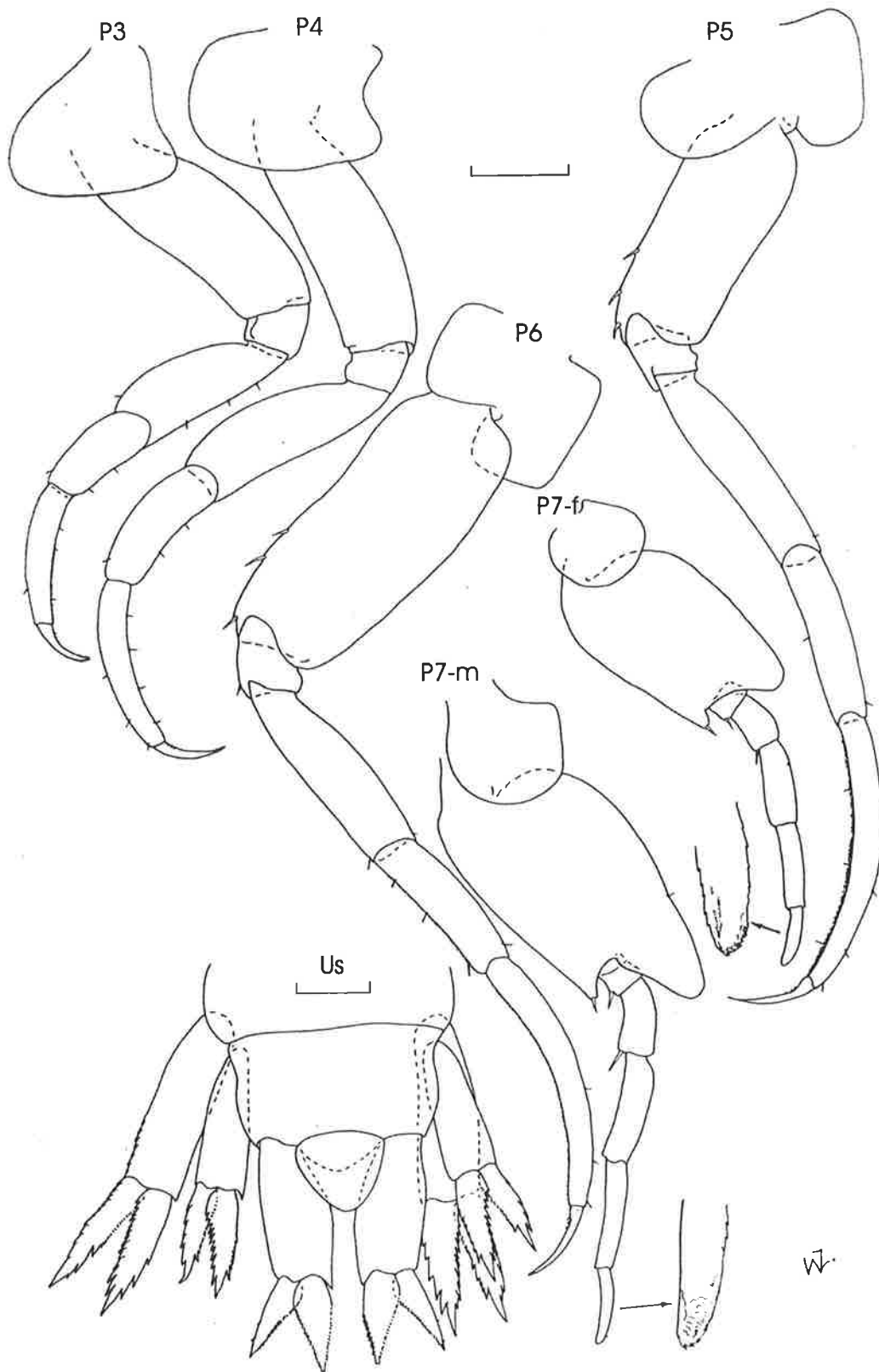


Fig. 24. *Vibilia stebbingi*, Tasman Sea, SAMA C4431 (m), C5902 (f). Male 4.4 mm; female 4.2 mm; appendages from male except Us. Scale bars = 0.2 mm.



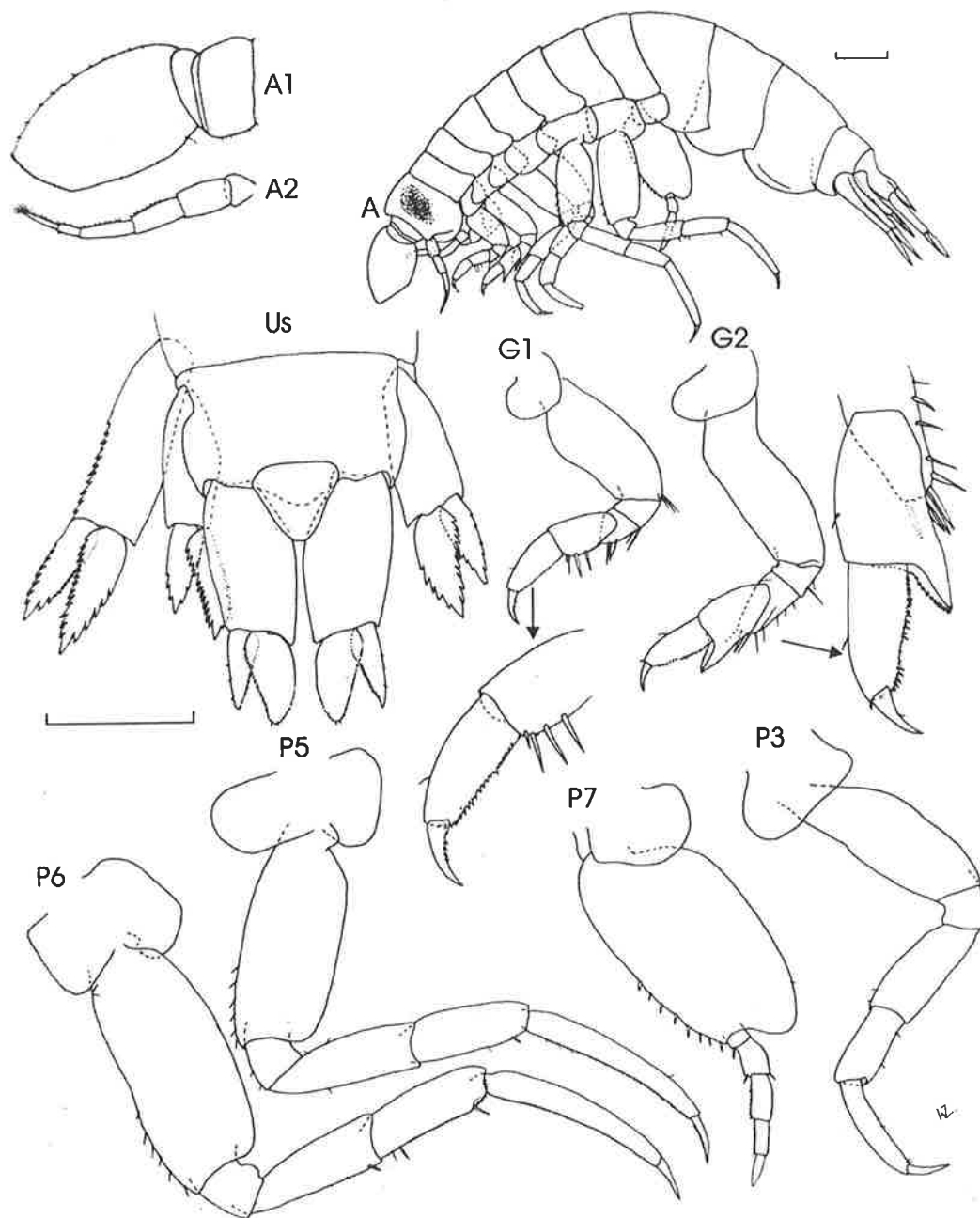


Fig. 25. *Vibia chuni*, Tasman Sea, AM P39761. Male 5.8 mm. A, lateral view. Scale bars = 0.5 mm.

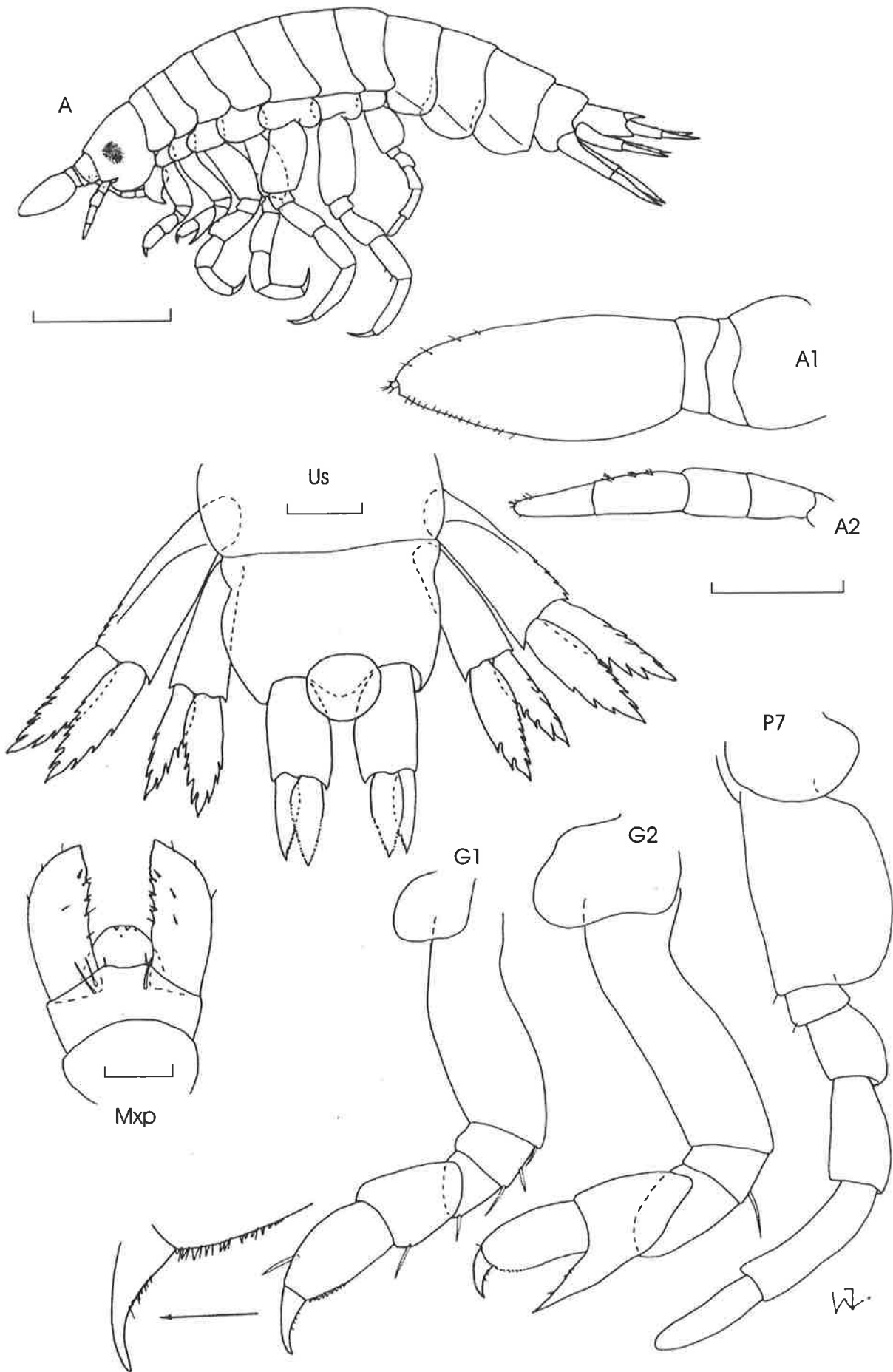


Fig. 26. *Vibilia longicarpus*, Tasman Sea, SAMA C4422. Female (?) 4.2 mm. A, lateral view. Scale bars = 1.0 mm (A), 0.1 mm (Mxp), 0.2 mm (remainder).

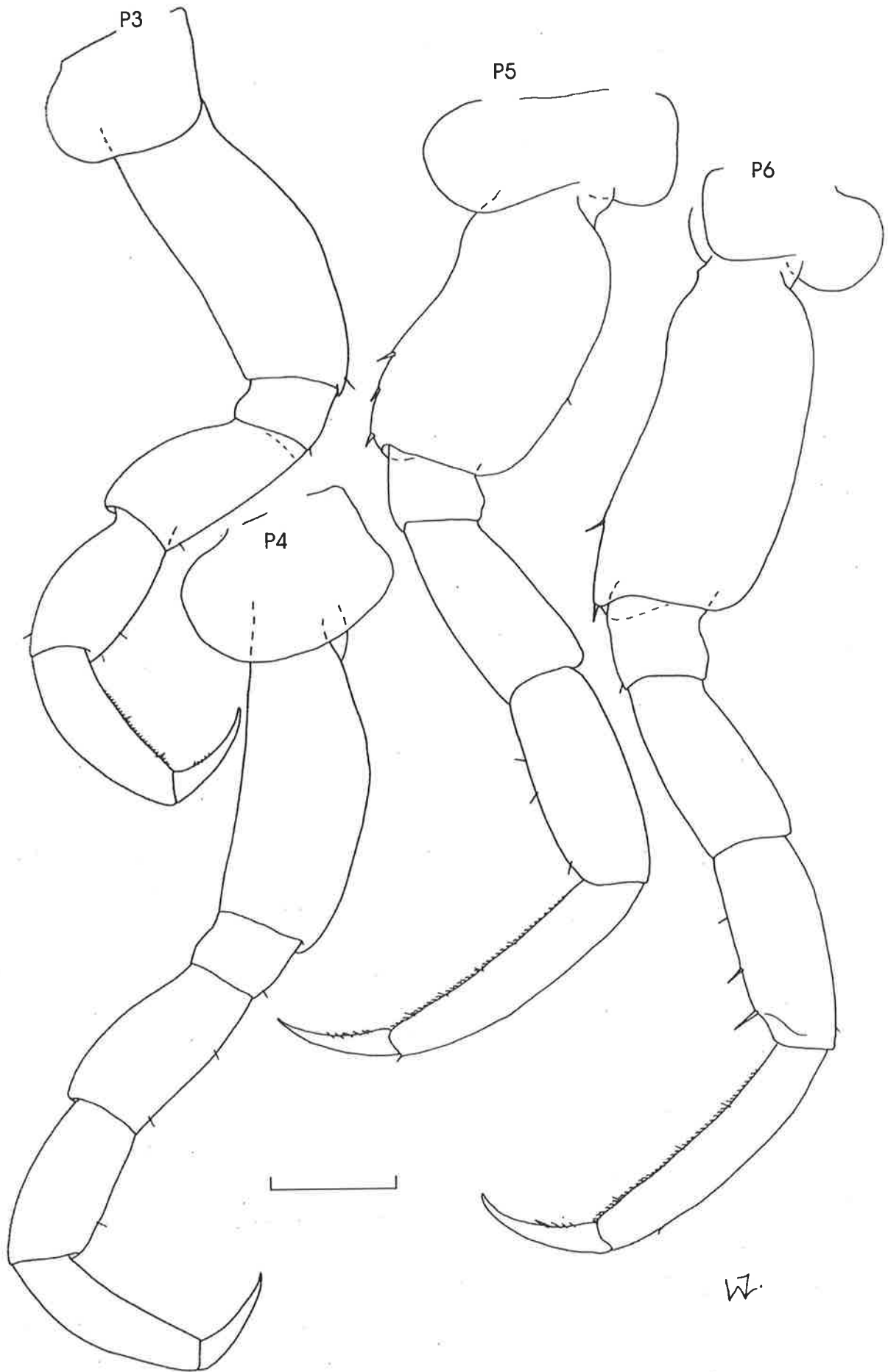


Fig. 27. *Vibia longicarpus*, Tasman Sea, SAMA C4422. Female (?) 4.2 mm.  
Scale bar = 0.2 mm.

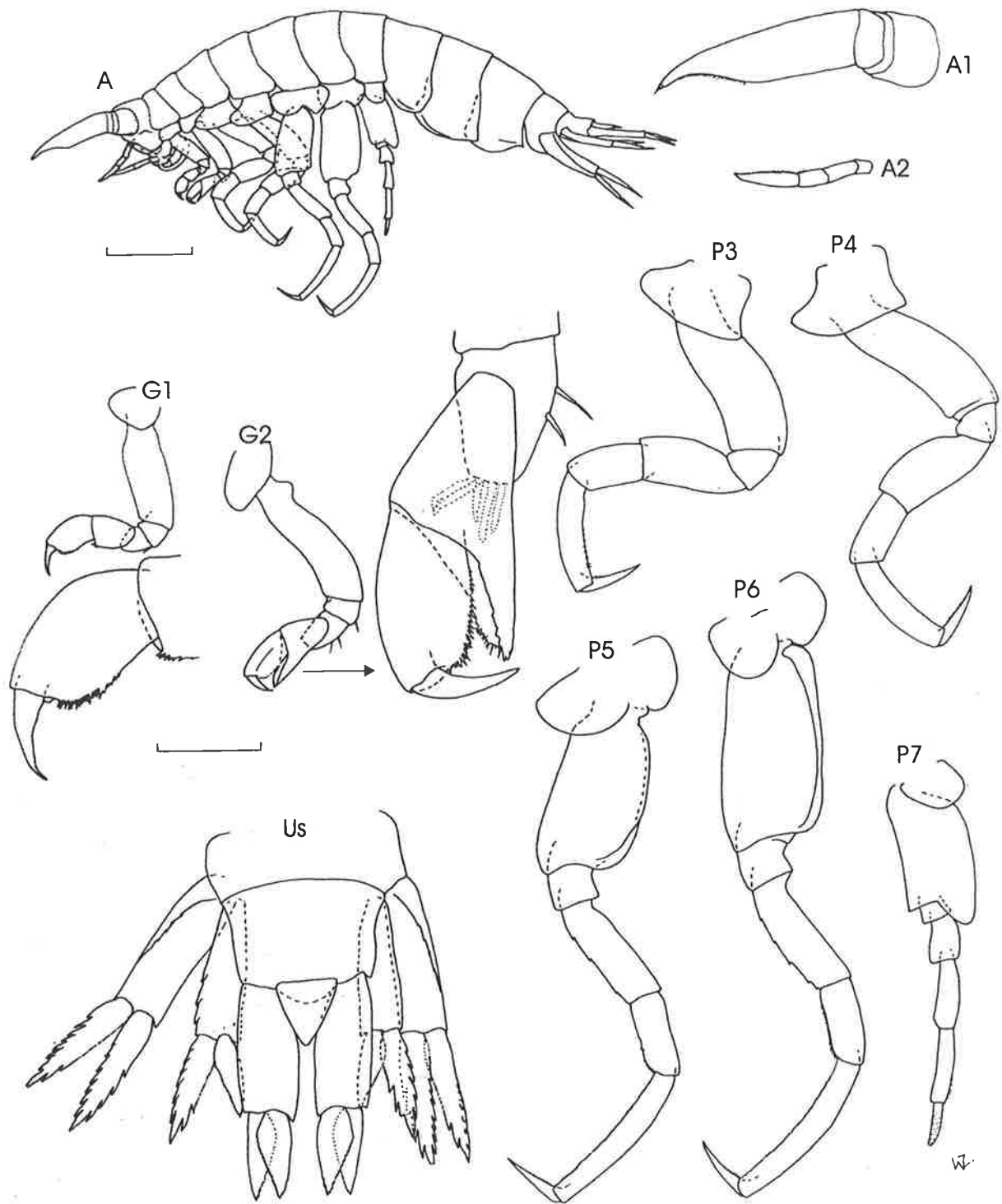


Fig. 28. *Vibia caeca*, Tasman Sea, AM P39760. Female 6.1 mm. A, lateral view. Scale bars = 1.0 mm (A), 0.5 mm (remainder).

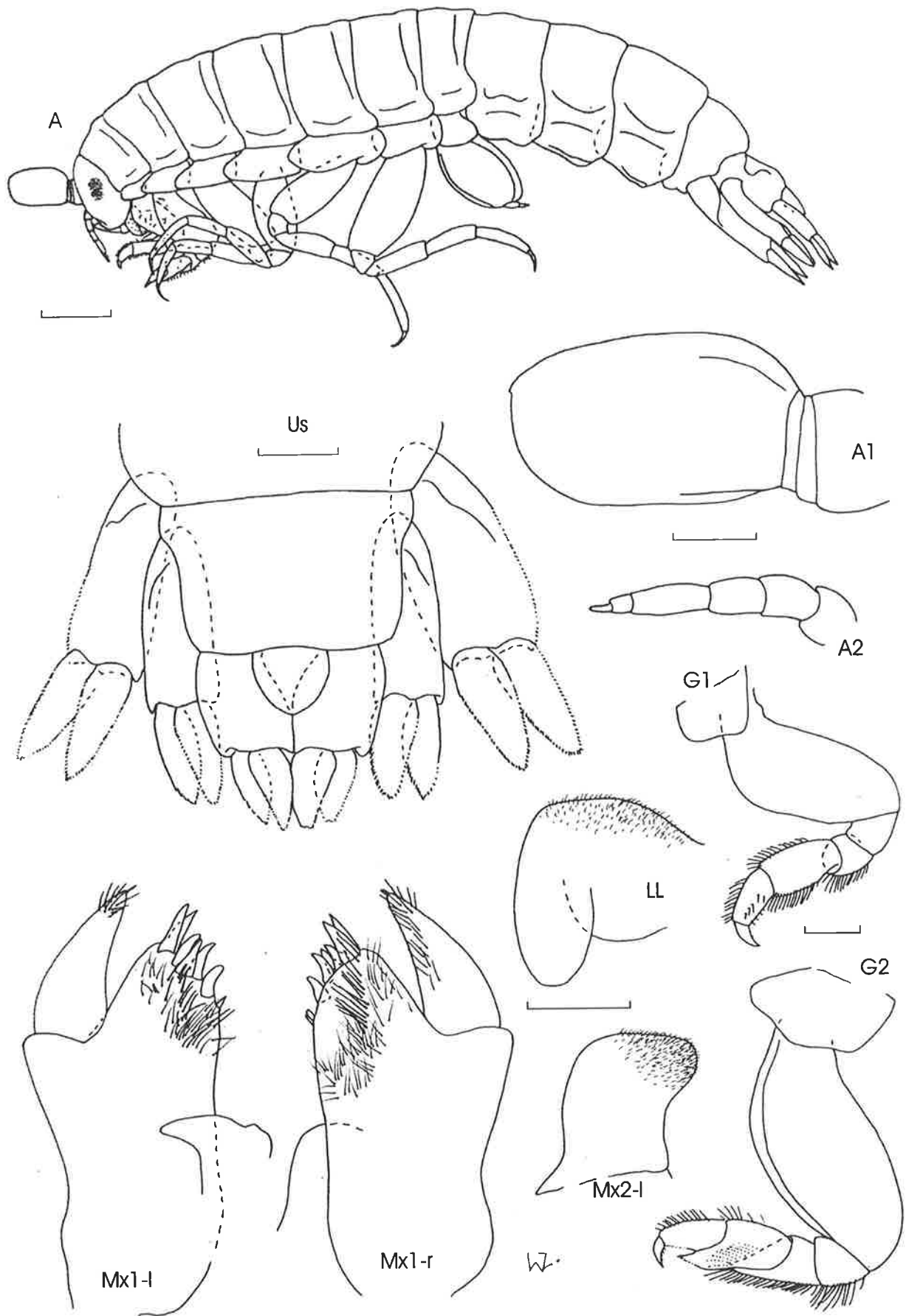


Fig. 29. *Vibilioides alberti*, off Rio de Janeiro, ZMUC CRU2832. Female 21.5 mm. A, lateral view. Scale bars = 2.0 mm (A), 1.0 mm (Us), 0.5 mm (A1 & 2, G1 & 2), 0.2 mm (remainder).

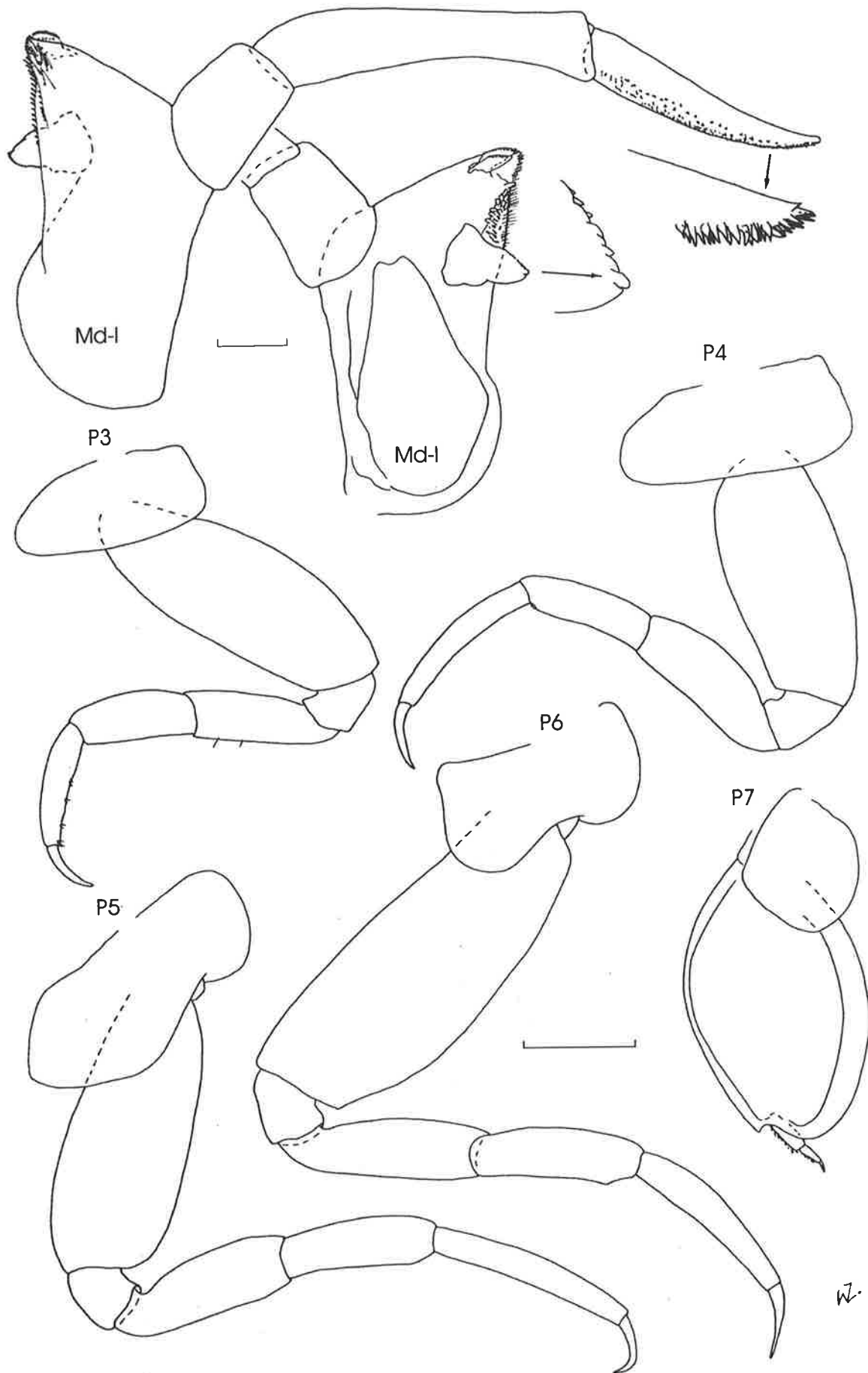


Fig. 30. *Vibilioides alberti*, off Rio de Janeiro, ZMUC CRU2832. Female 21.5 mm.  
 Scale bars = 1.0 mm (P3-7), 0.2 mm (Md).

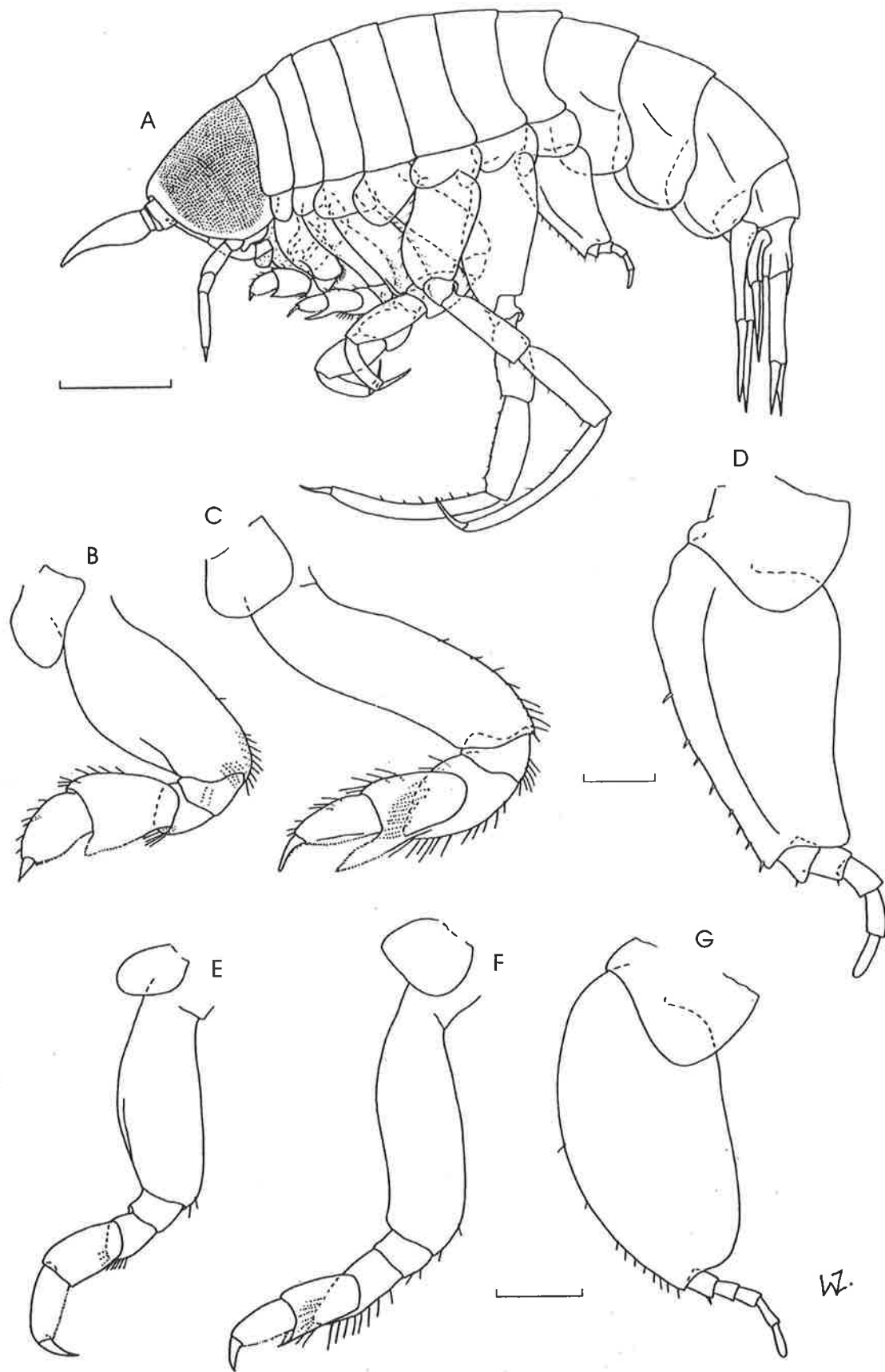


Fig. 31. *Cyllopus lucasii*, Prydz Bay, Antarctica, SAMA C5926 (female 14 mm); *C. magellanicus*, Southern Ocean, SAMA C3761 (male 12.3 mm). A-D, *C. lucasii*, lateral view, G1 & 2, P7; E-G, *C. magellanicus*, G1 & 2, P7.

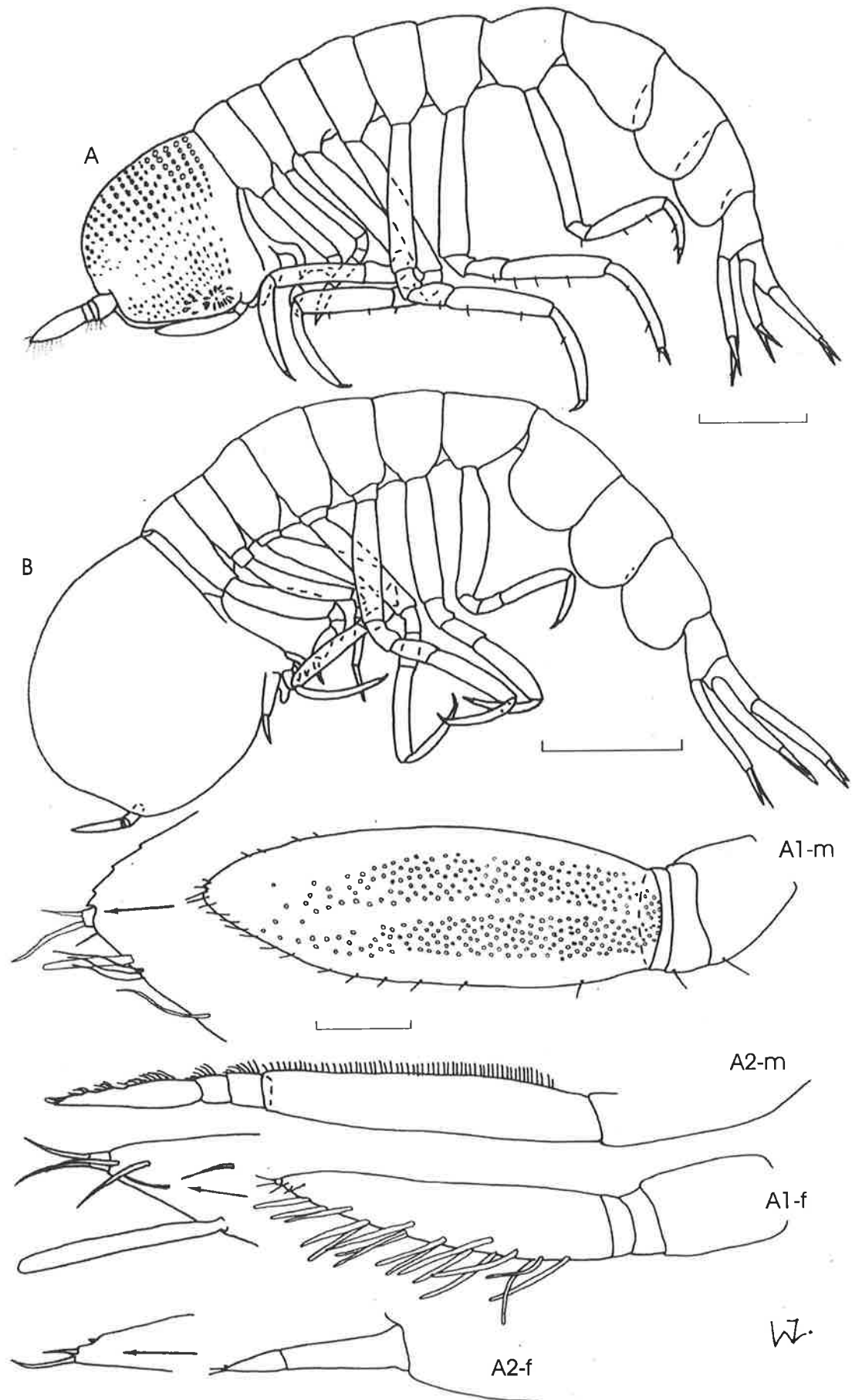


Fig. 32. A, *Paraphronima gracilis*, Tasman Sea, AM P39503, male 3.8 mm; B, *P. crassipes*, San Pedro Basin, California, SAMA C5917, female 14 mm. A1 & 2 from *P. crassipes*, Tasman Sea, SAMA C4449 (female 11.8 mm), C4445 (male 10.6 mm). Scale bars = 2.0 mm (B), 0.5 mm (A), 0.2 mm (A1 & 2).



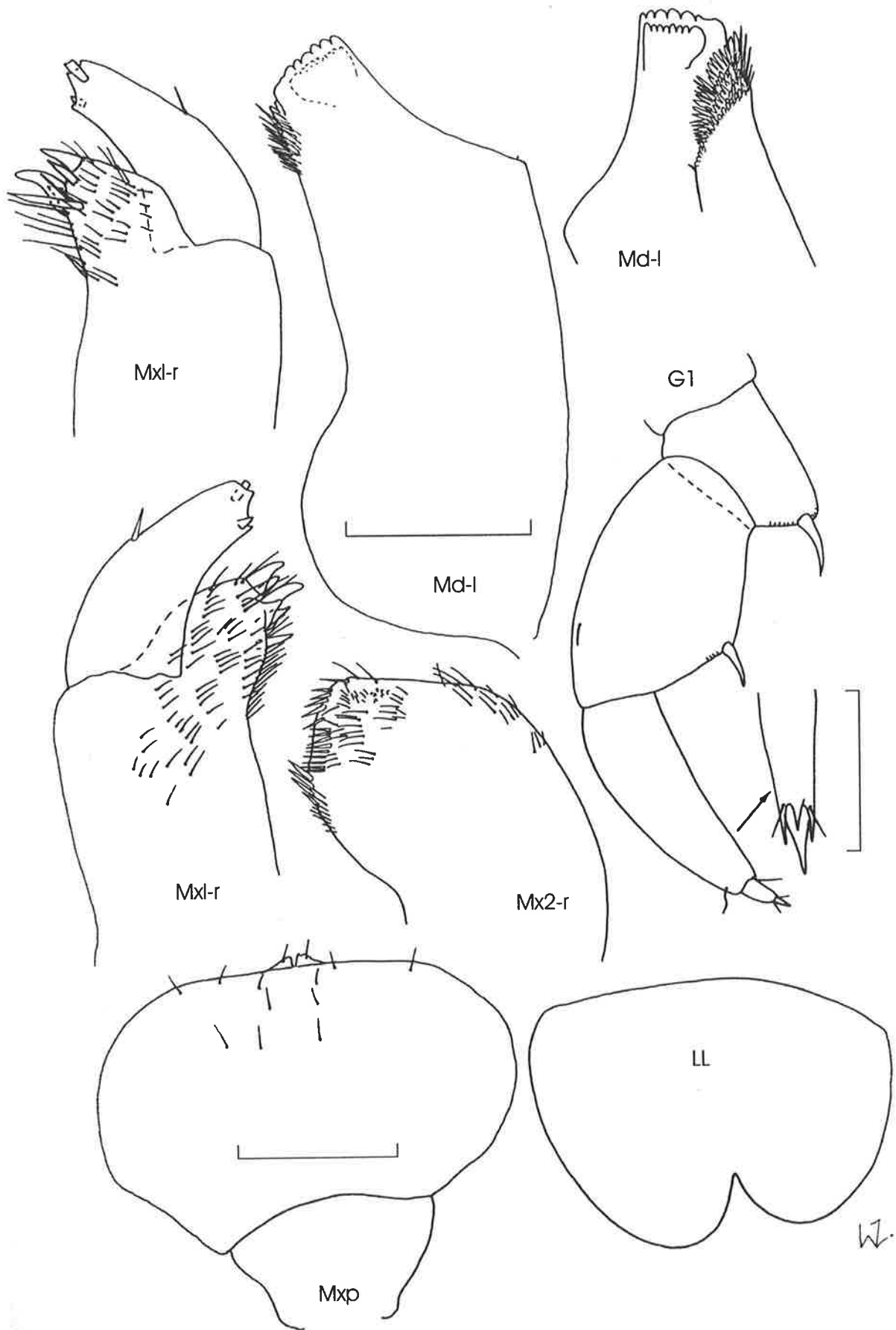


Fig. 33. *Paraphronima crassipes*, Tasman Sea, SAMA C4445. Male 10.6 mm. Scale bars = 0.2 mm (Mxp), 0.1 mm (remainder).

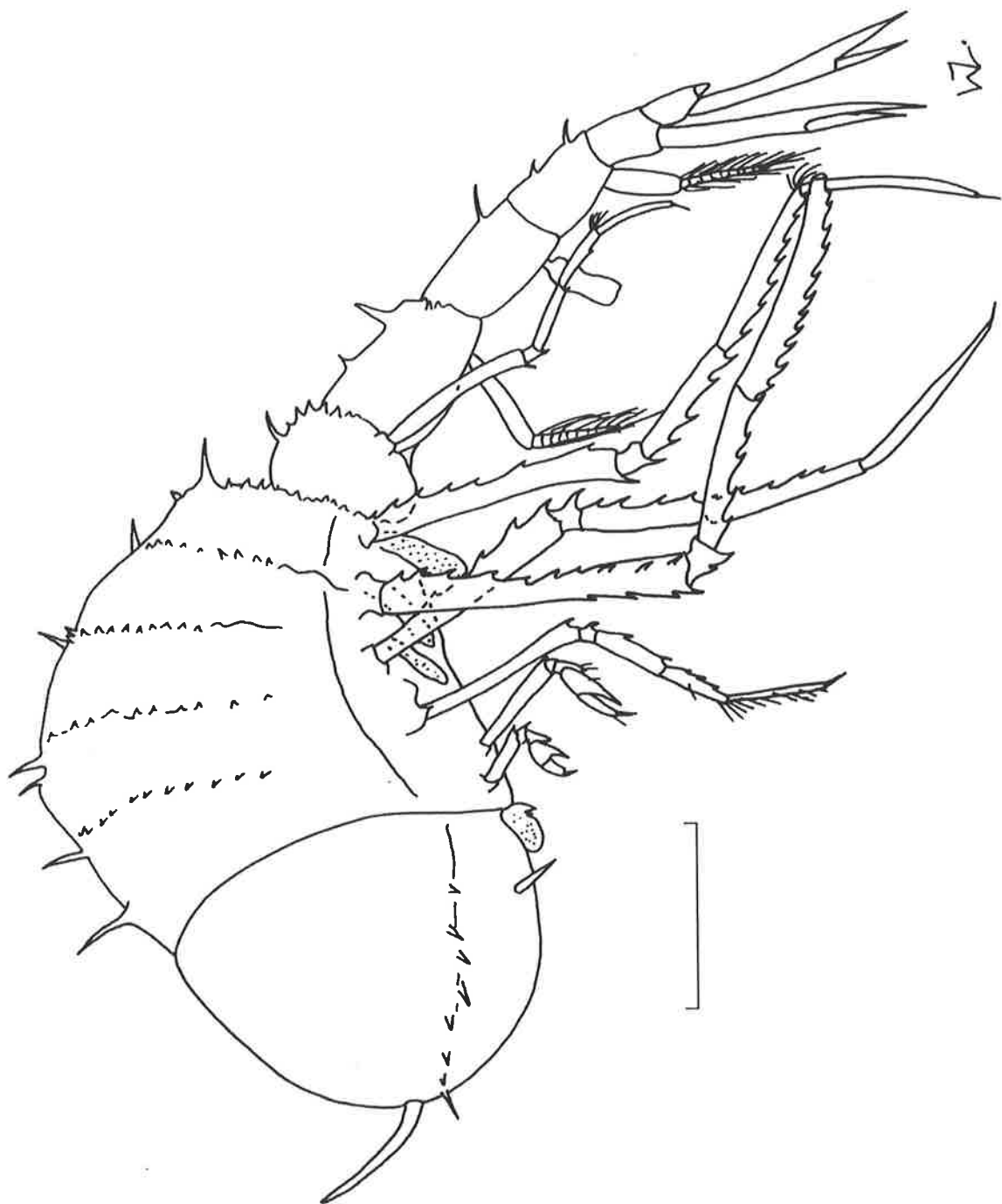


Fig. 34. *Cystisoma* larva, North Atlantic, USNM. Scale bar = 2.0 mm.

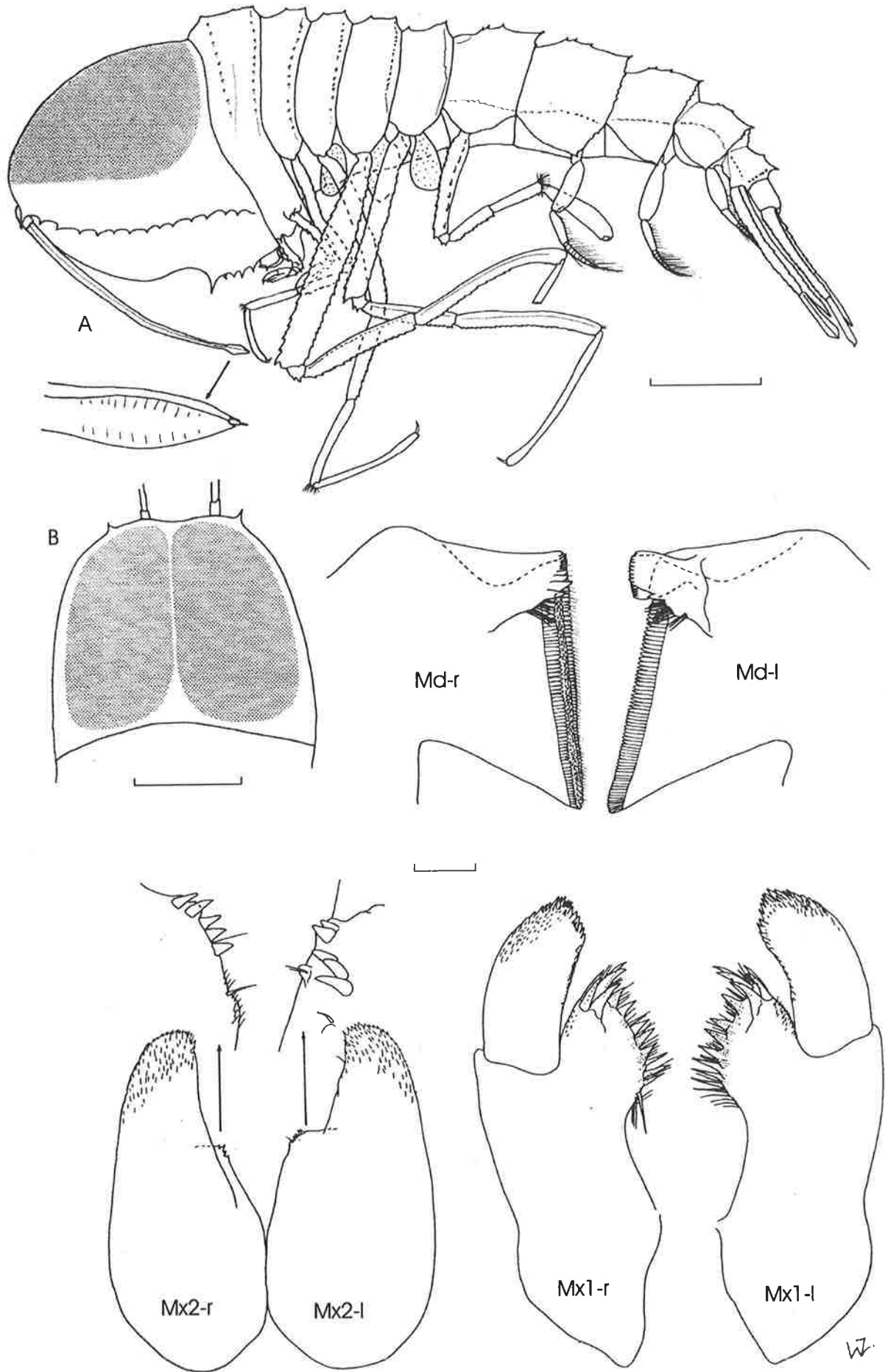


Fig. 35. *Cystisoma pellucida*, Great Australian Bight, SAMA C5541. Female 75 mm. A, lateral view; B, dorsal view of head. Scale bars = 10.0 mm (A, B), 0.2 mm (Md, Mx1 & 2).

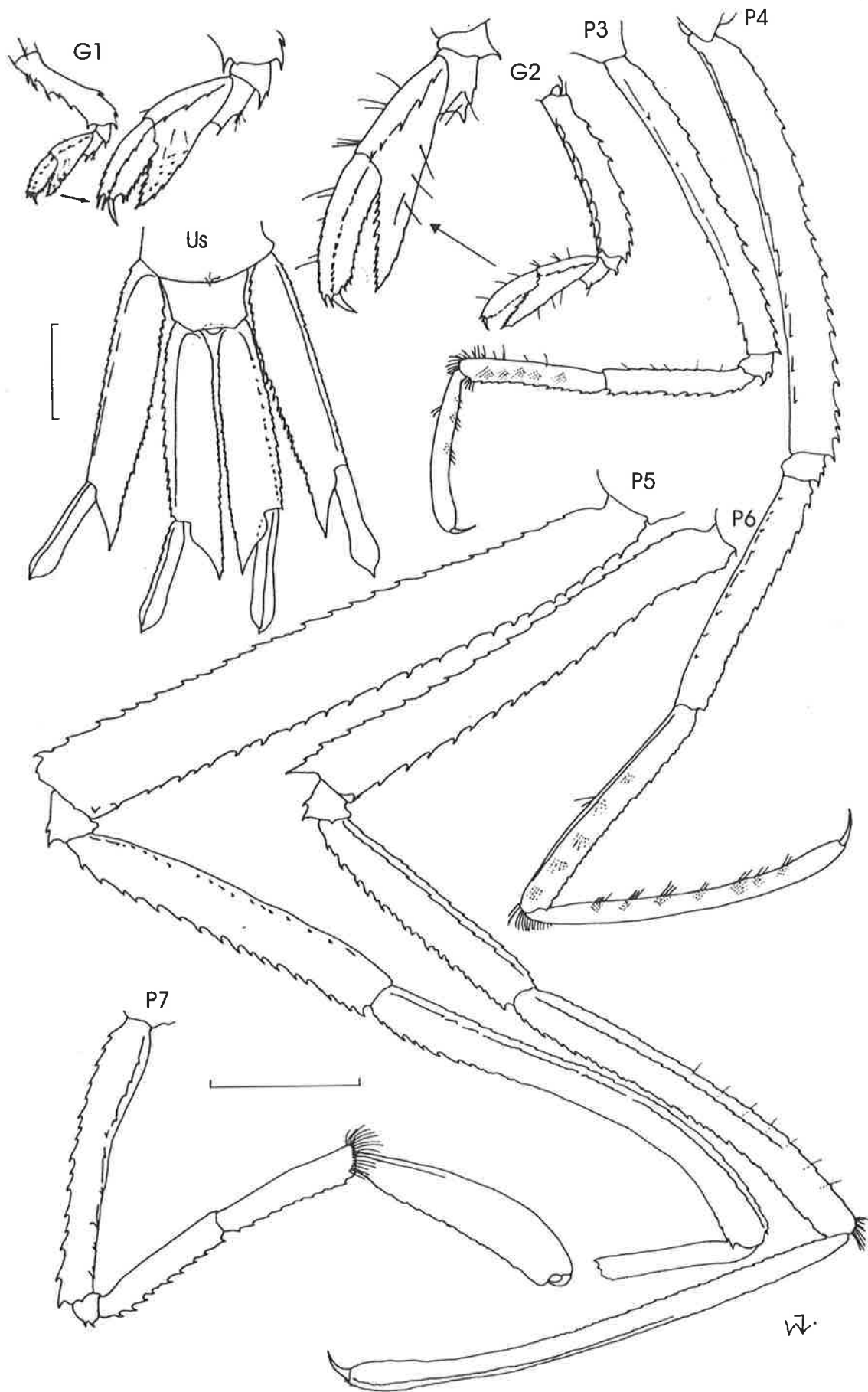


Fig. 36. *Cystisoma pellucida*, Great Australian Bight, SAMA C5541. Female 75 mm. Scale bars = 5.0 mm.

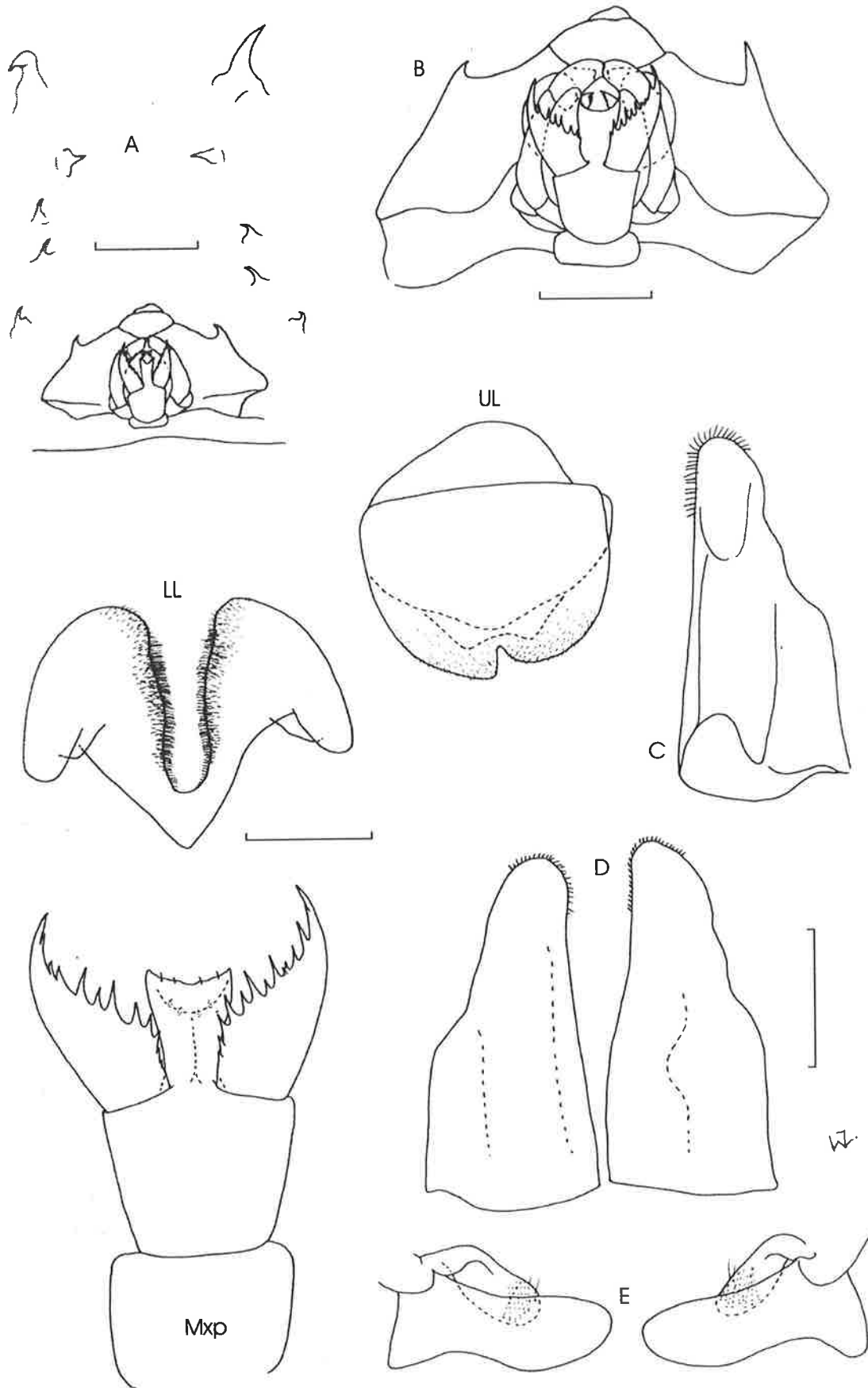


Fig. 37. *Cystisoma pellucida*, Great Australian Bight, SAMA C5541. Female 75 mm. A, oral spines; B, buccal mass; C, second brood plate, medial; D, second brood plates, ventral; E, first brood plates, ventral. Scale bars = 2.0 mm (C-E), 1.0 mm (A, B), 0.5 mm (remainder).

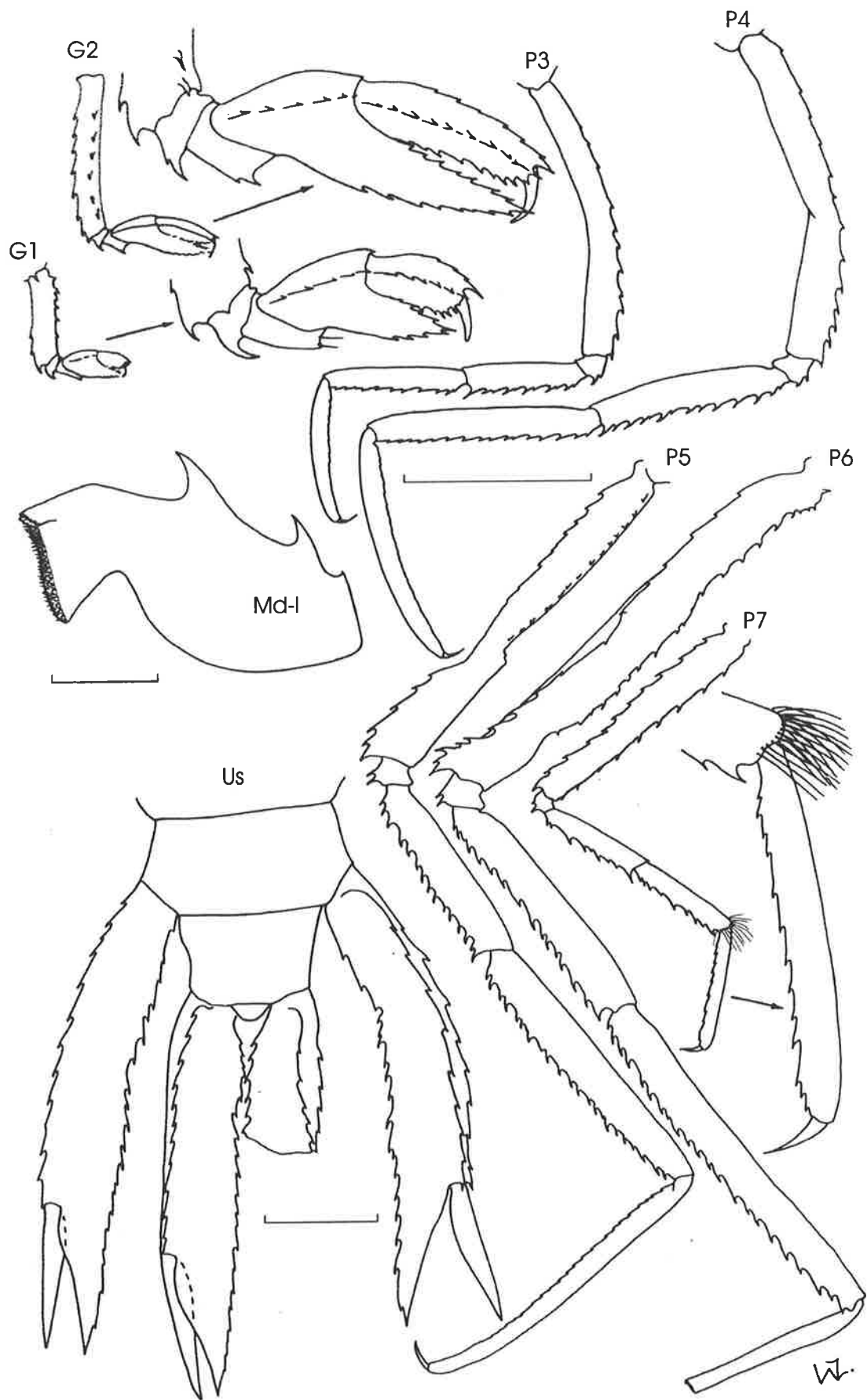


Fig. 38. *Cystisoma longipes*, off Western Australia, ZMUC CRU2829. Holotype female approx. 40 mm. Scale bars = 5.0 mm (G1-P7), 0.5 mm (Md), 0.2 mm (Us).

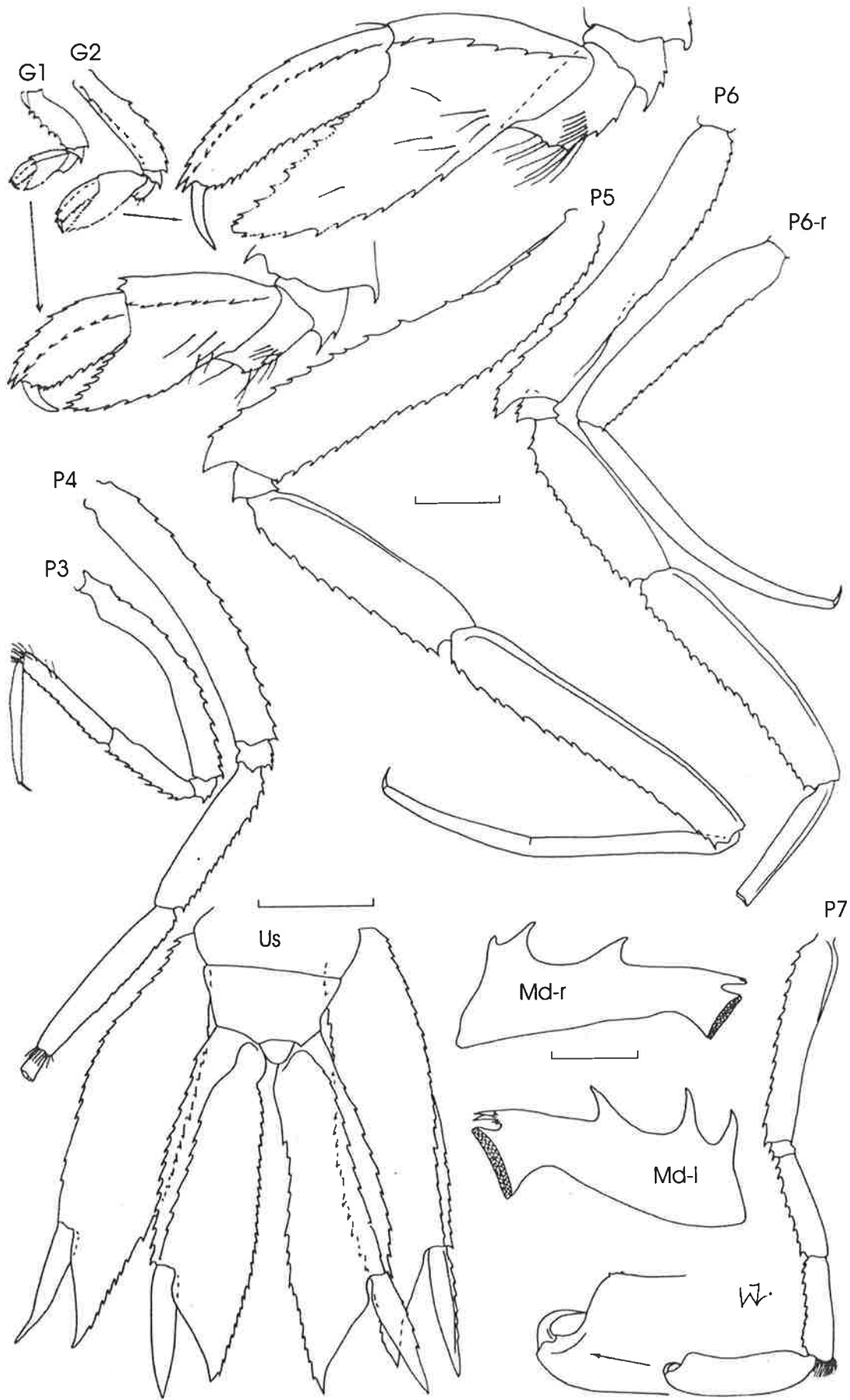


Fig. 39. *Cystisoma longipes*, off South Africa, BMNH 1933.1.25.902. Holotype female of *C. africanum* Barnard, 1916, approx. 90 mm. Scale bars = 5.0 mm (G1-P7, Us), 1.0 mm (Md).



Fig. 40. *Cystisoma longipes*, mandibular teeth and eye shape. **A**, juvenile 26 mm, North Atlantic, USNM; **B**, male 74 mm, North Atlantic, USNM; **C**, male 70 mm, Bermuda, USNM; **D**, female 99 mm, Indian Ocean off South Africa, SAM A42198; **E**, female 55 mm, Southern Ocean, SAMA C3826. Scale bars = 5.0 mm (D, E), 1.0 mm (B, C), 0.5 mm (A).



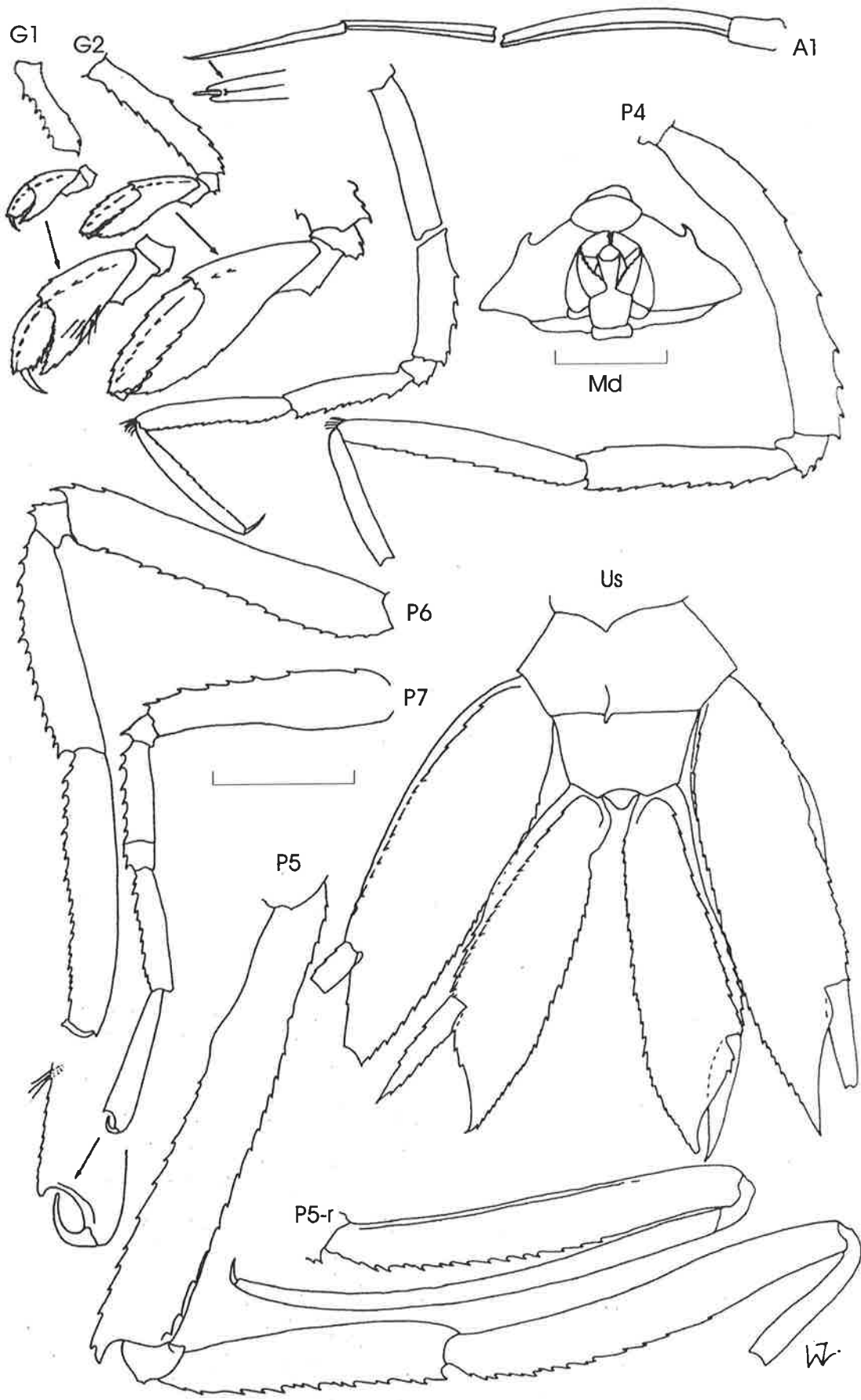


Fig. 41. *Cystisoma fabricii*, equatorial Pacific, BMNH 1889.5.15.199. Holotype female approx. 65 mm. Scale bars = 2.0 mm (Md), 5.0 mm (remainder).

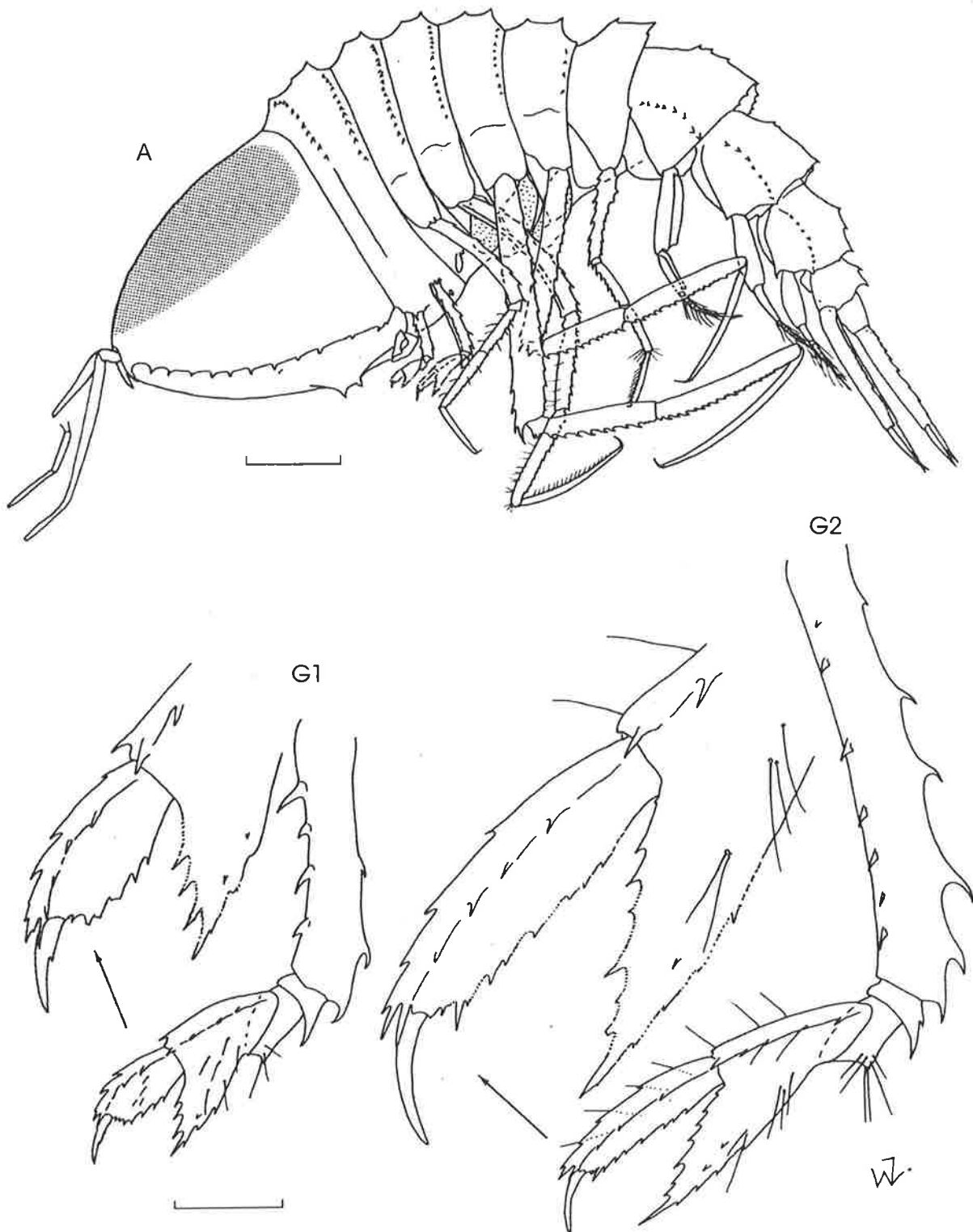


Fig. 42. *Cystisoma fabricii*, North Pacific, USNM. Female 53 mm. A, lateral view. Scale bars = 5.0 mm (A), 1.0 mm (G1 & 2).

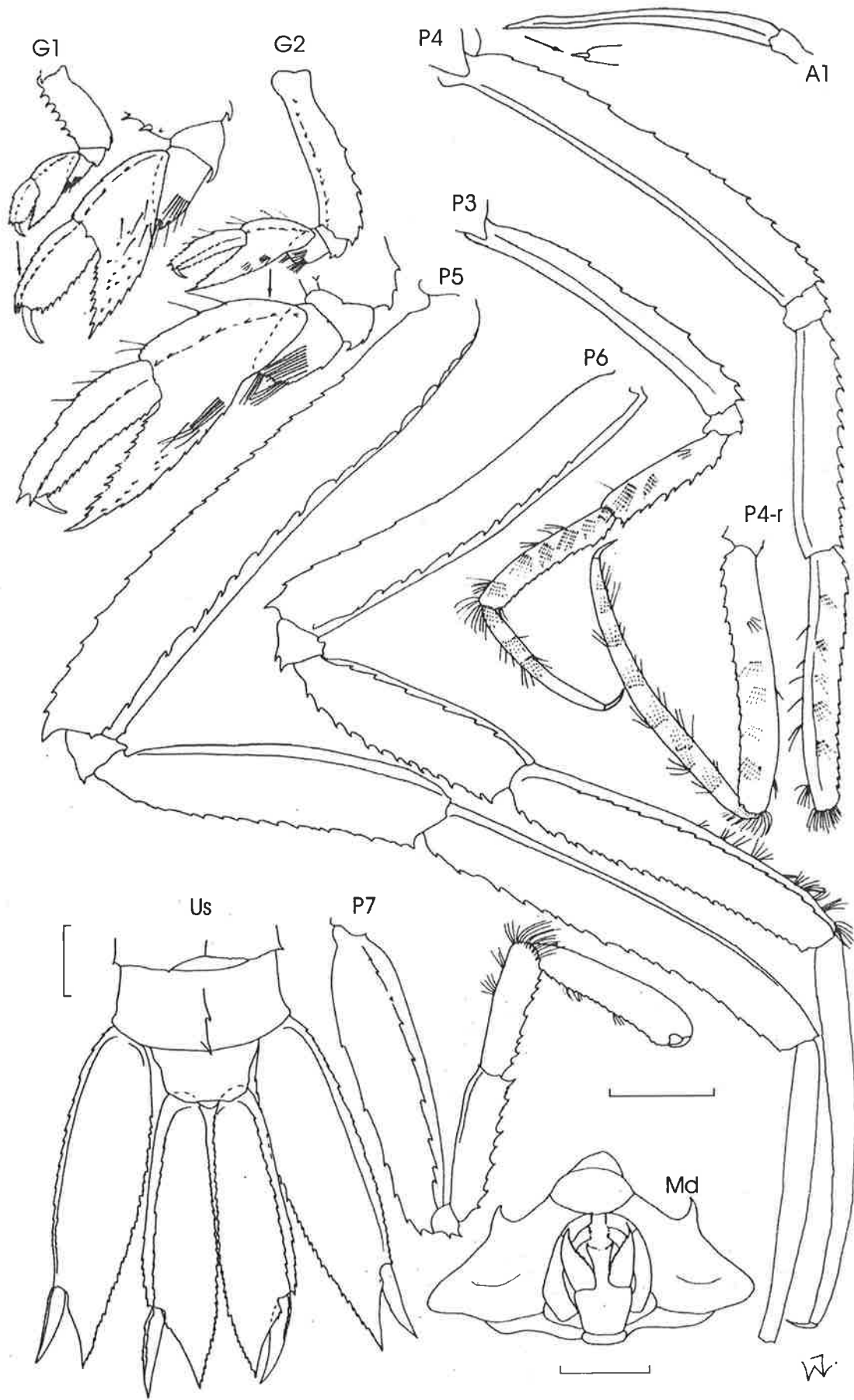


Fig. 43. *Cystisoma magna*, North Pacific, USNM. Female 110 mm. Scale bars = 2.0 mm (Md), 5.0 mm (remainder).

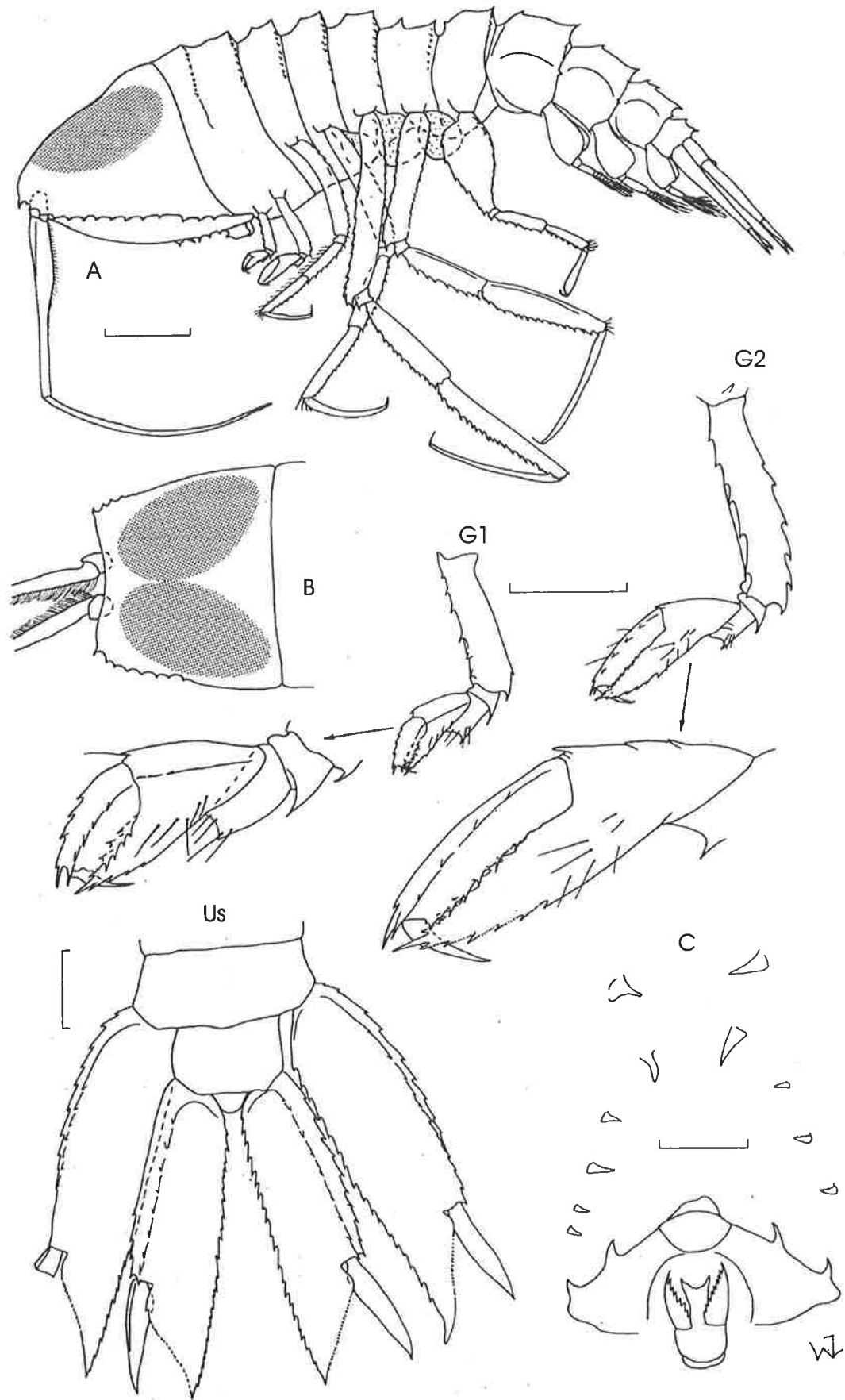


Fig. 44. *Cystisoma latipes*, North Atlantic, ZMUC CRU2828. Holotype male 44 mm. A, lateral view; B, dorsal view of head; C, mandibles and oral spines. Scale bars = 5.0 mm (A, B), 2.0 mm (G1 & 2, Us), 1.0 mm (Md).

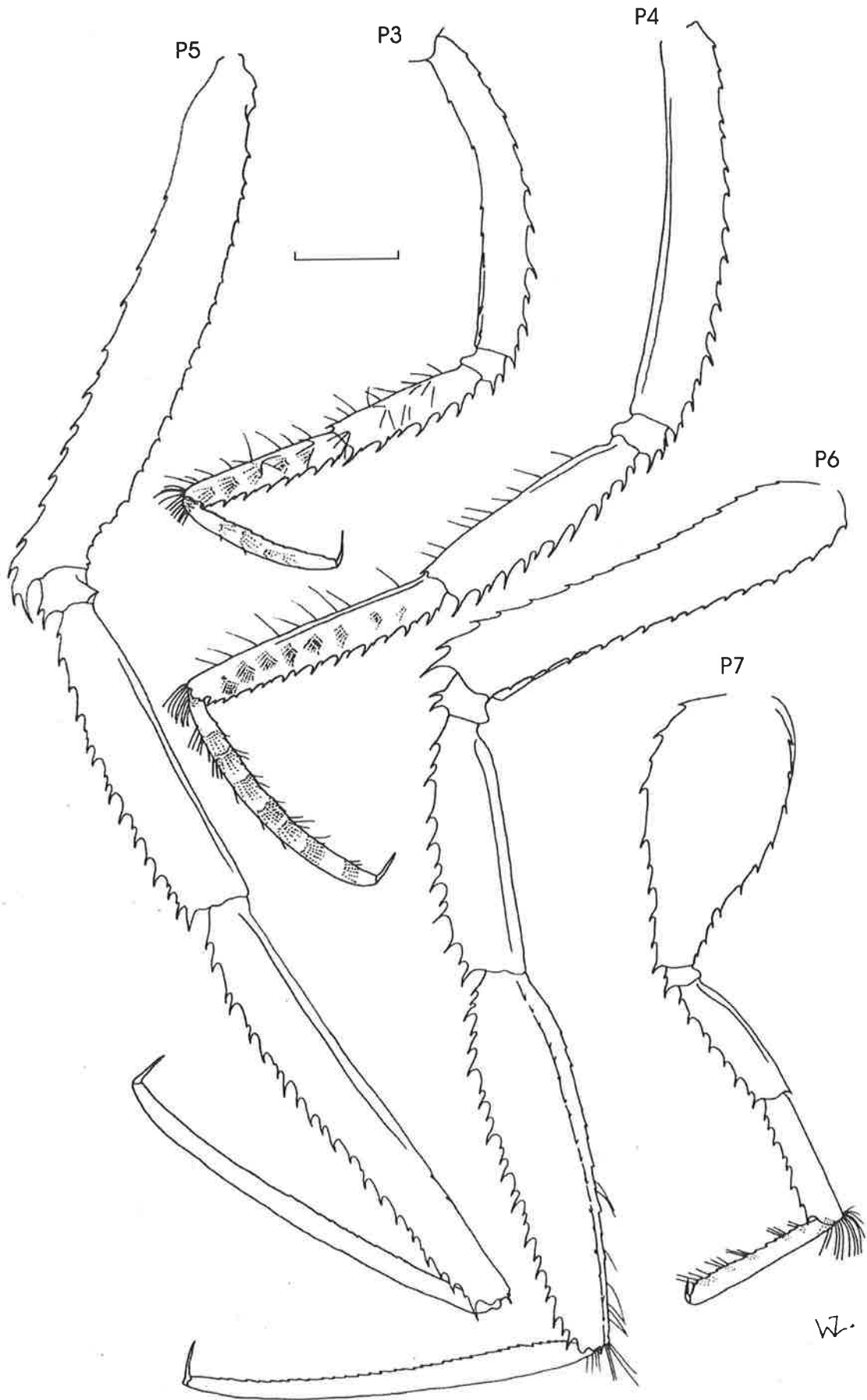


Fig. 45. *Cystisoma latipes*, North Atlantic, ZMUC CRU2828. Holotype male 44 mm. Scale bar = 2.0 mm.

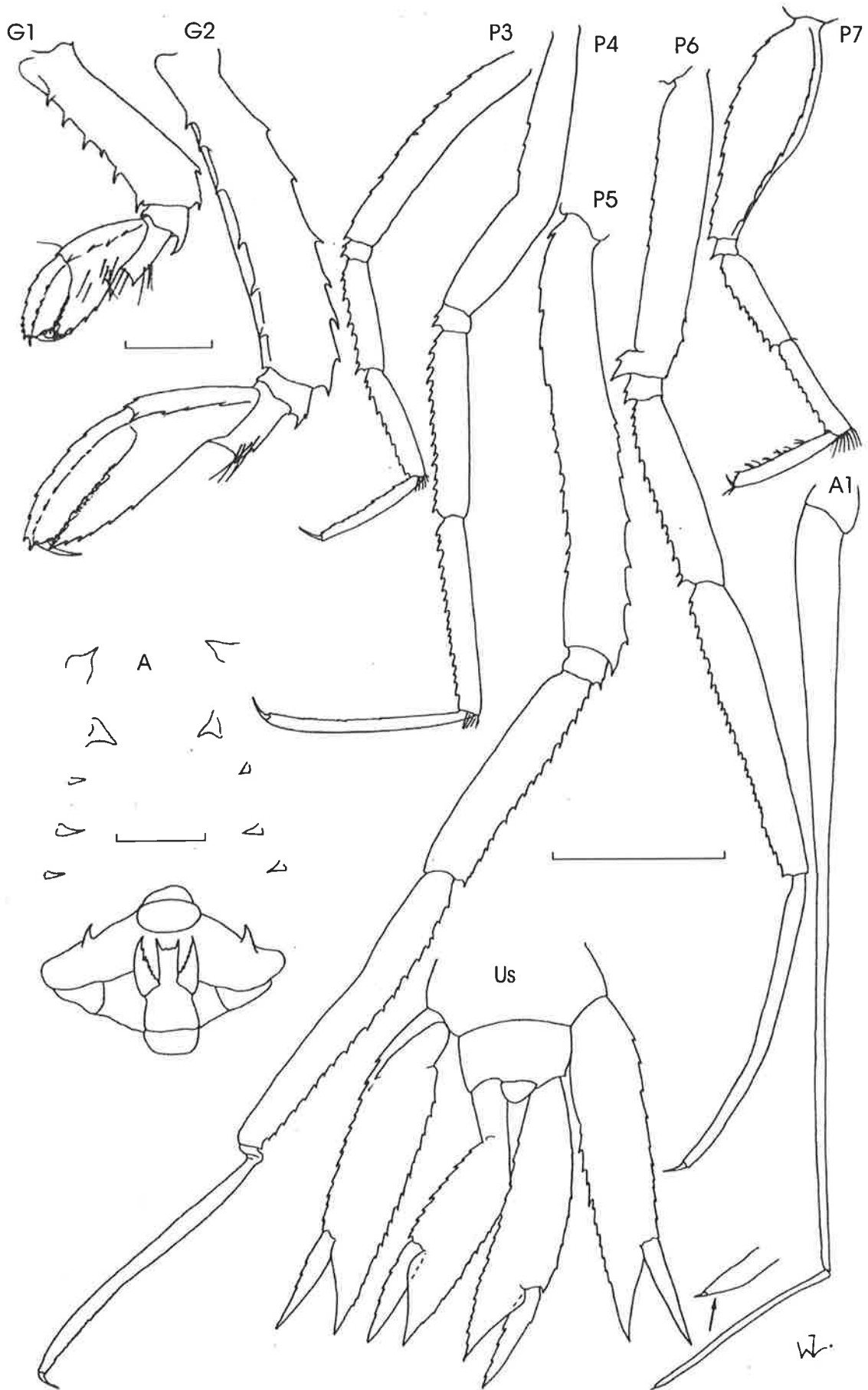


Fig. 46. *Cystisoma latipes*, Philippines, BMNH 1889.5.15.198. Holotype male of *C. parkinsonii* Stebbing, 1888, male approx. 50 mm. A, mandibles and oral spines. Scale bars = 5.0 mm (P3-7, Us), 0.1 mm (G1 & 2, Md).

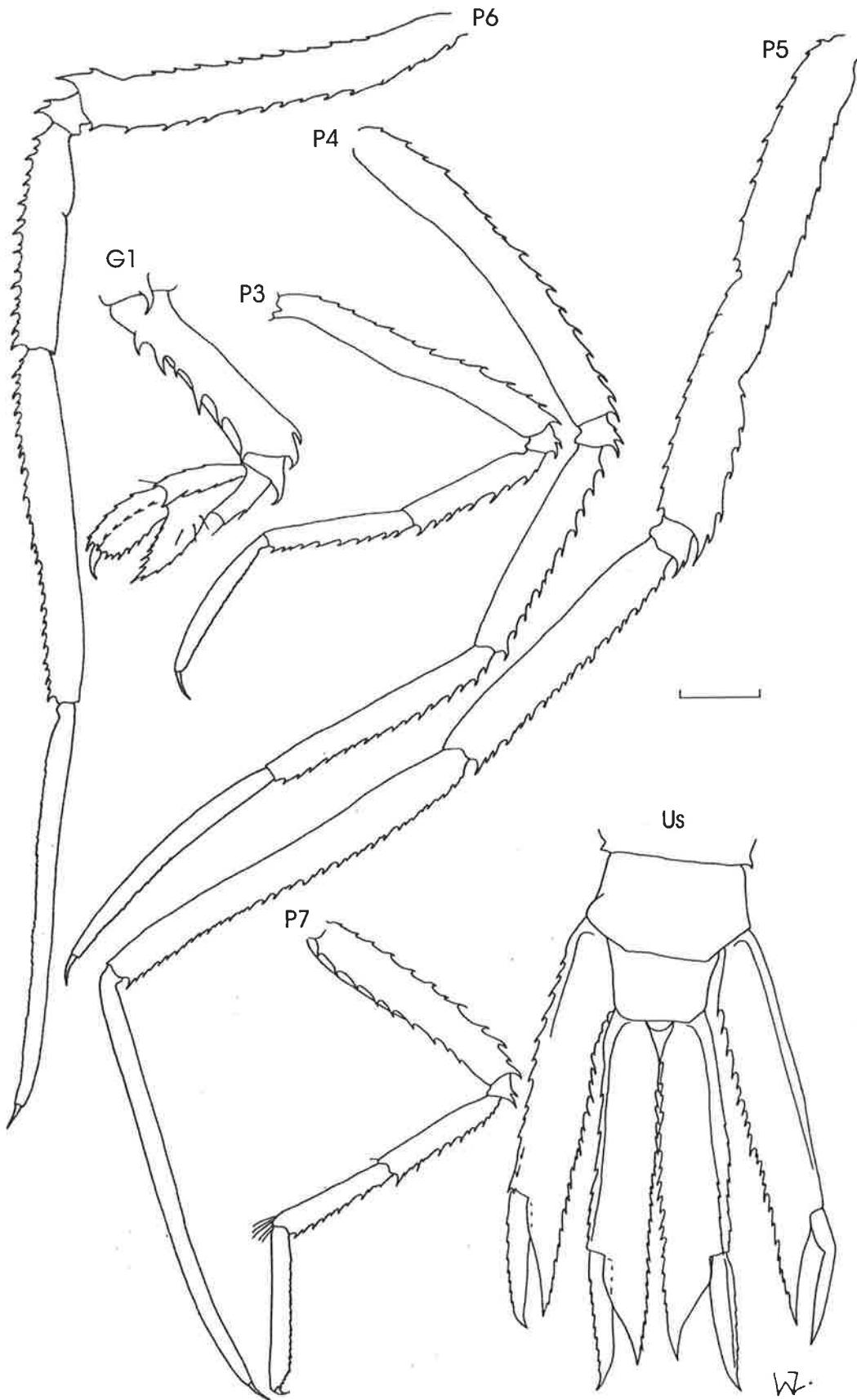


Fig. 47. *Cystisoma latipes*, North Atlantic, ZMUC CRU2834. Female 46 mm.  
Scale bar = 2.0 mm.

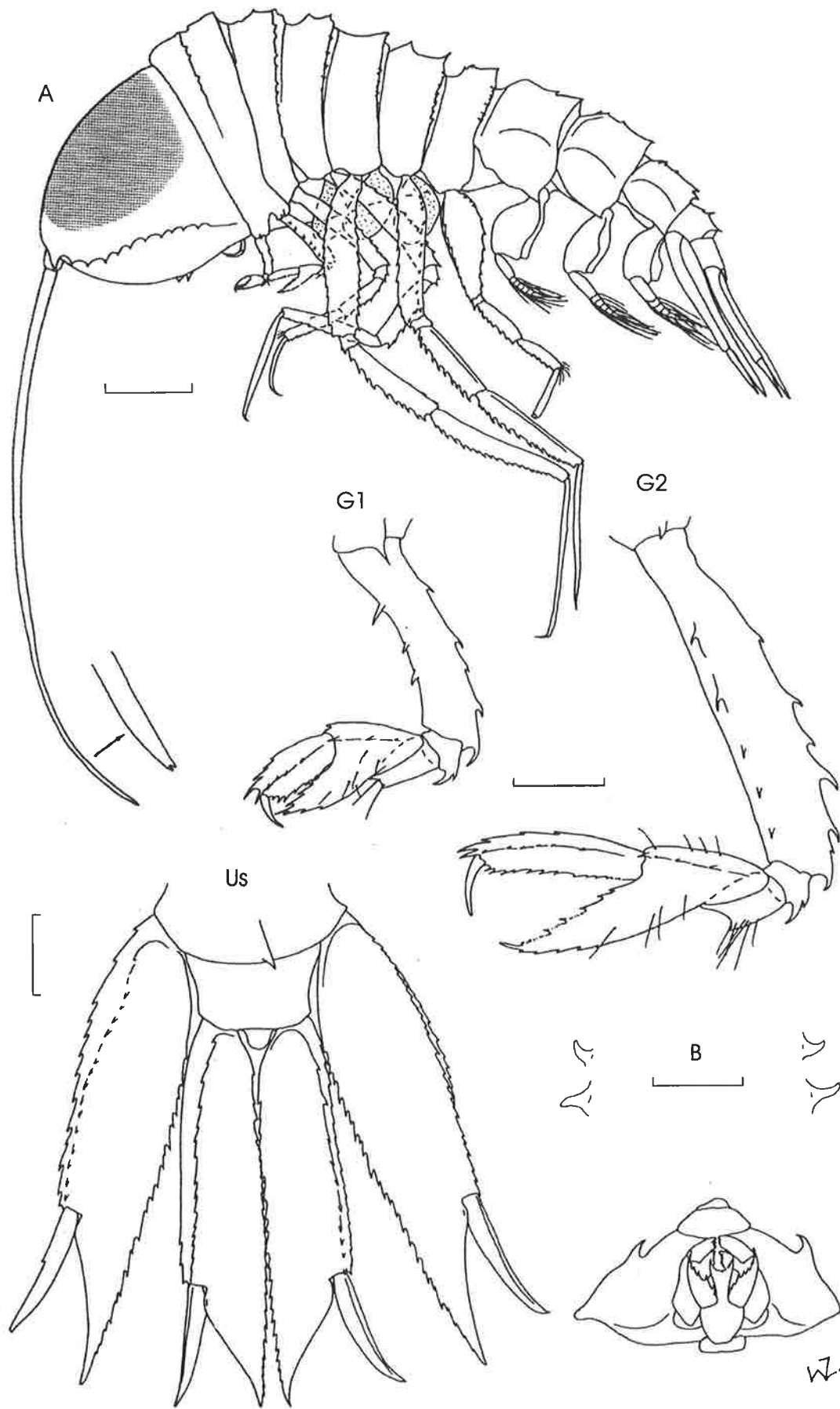


Fig. 48. *Cystisoma gershwiniae* sp. nov., North Pacific, off Queen Charlotte Island, USNM Ac. 18753. Holotype male 43 mm. A, lateral view; B, mandibles and oral spines. Scales = 5.0 mm (A), 2.0 mm (Us), 1.0 mm (B, G1 & 2).



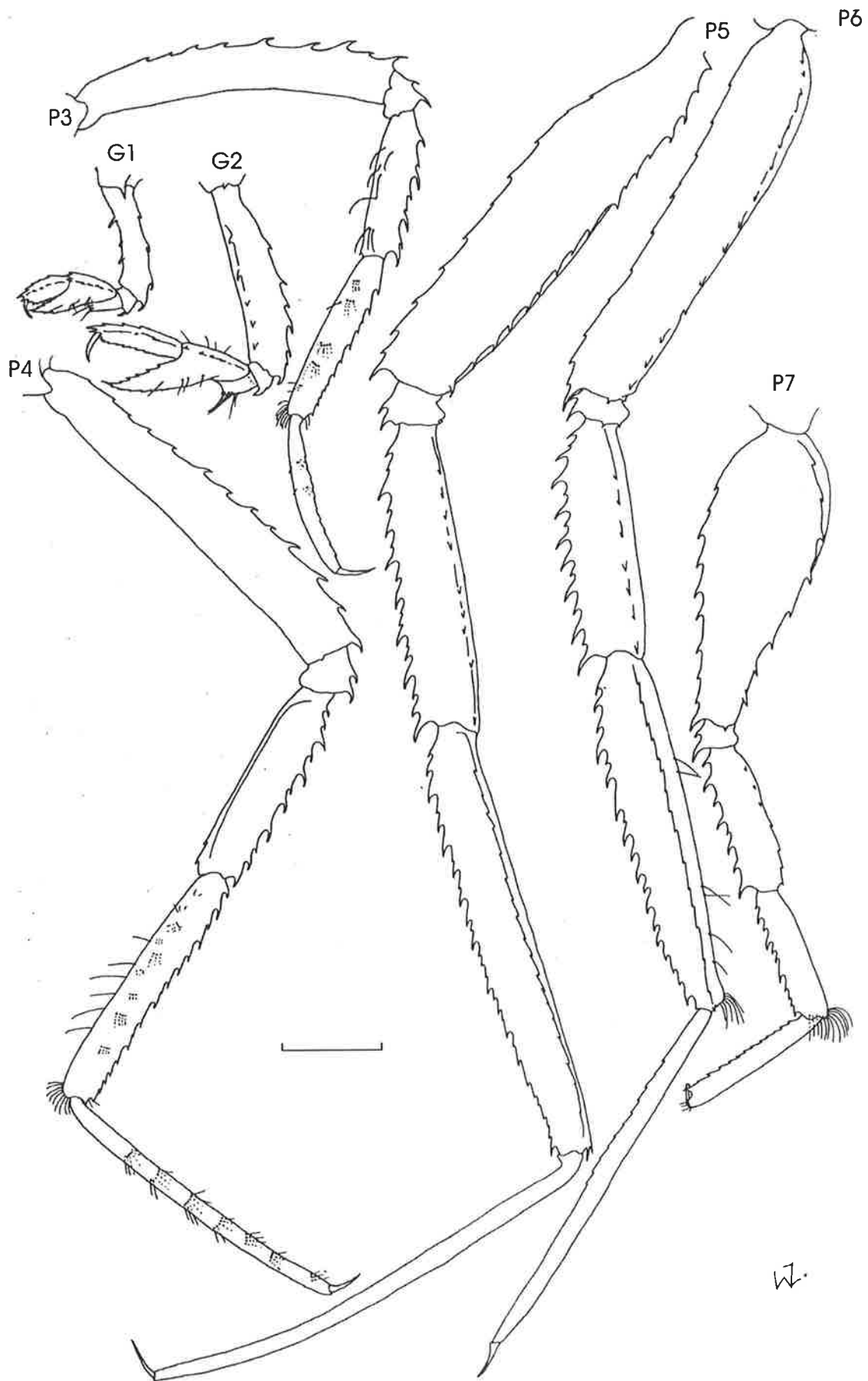


Fig. 49. *Cystisoma gershwiniae* sp. nov., North Pacific, off Queen Charlotte Island, USNM Ac. 18753. Holotype male 43 mm. Scale bar = 2.0 mm.

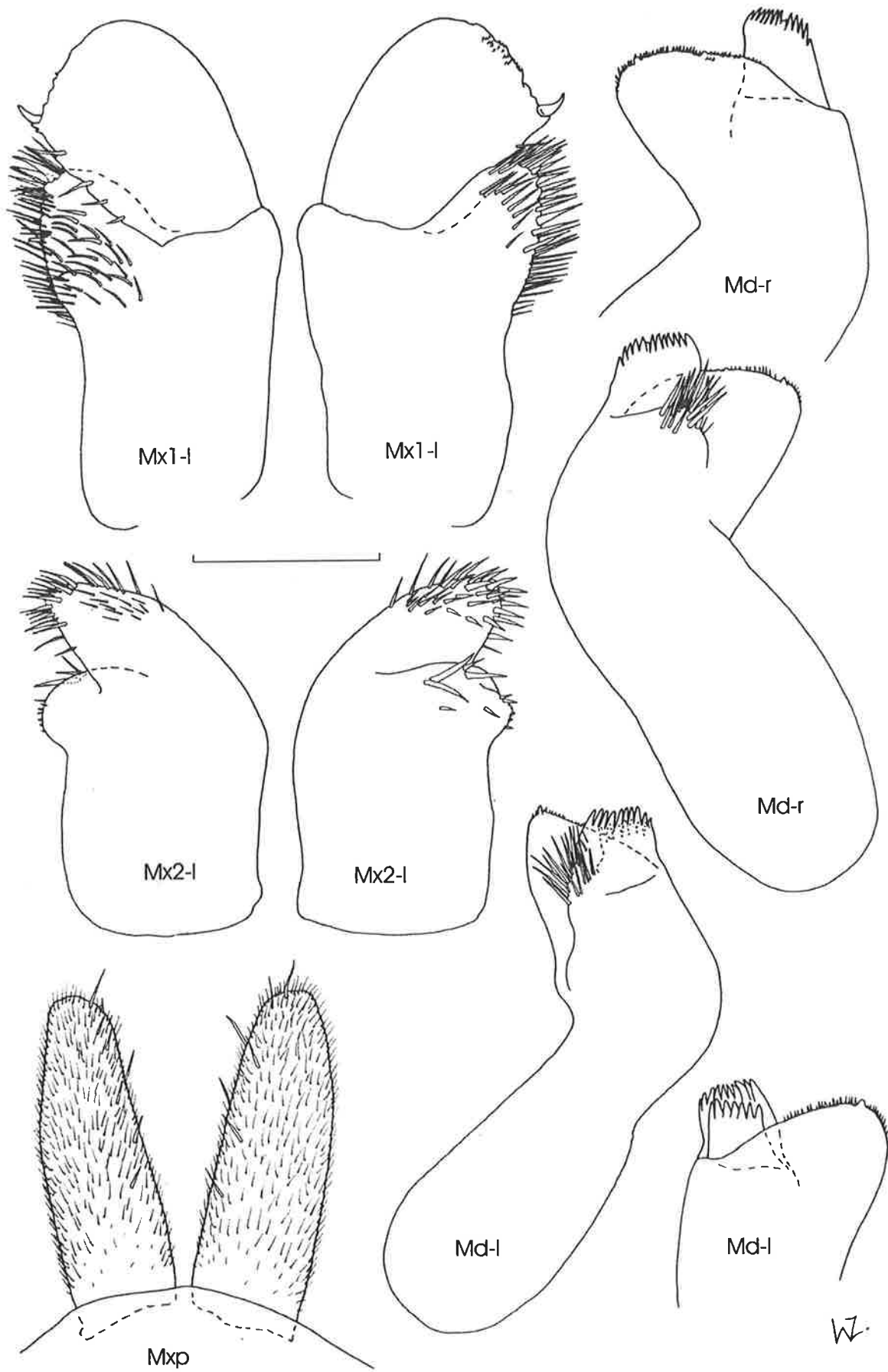


Fig. 50. *Iulopsis loveni*, Mediterranean, ZMUC. Scale bar = 0.1 mm.

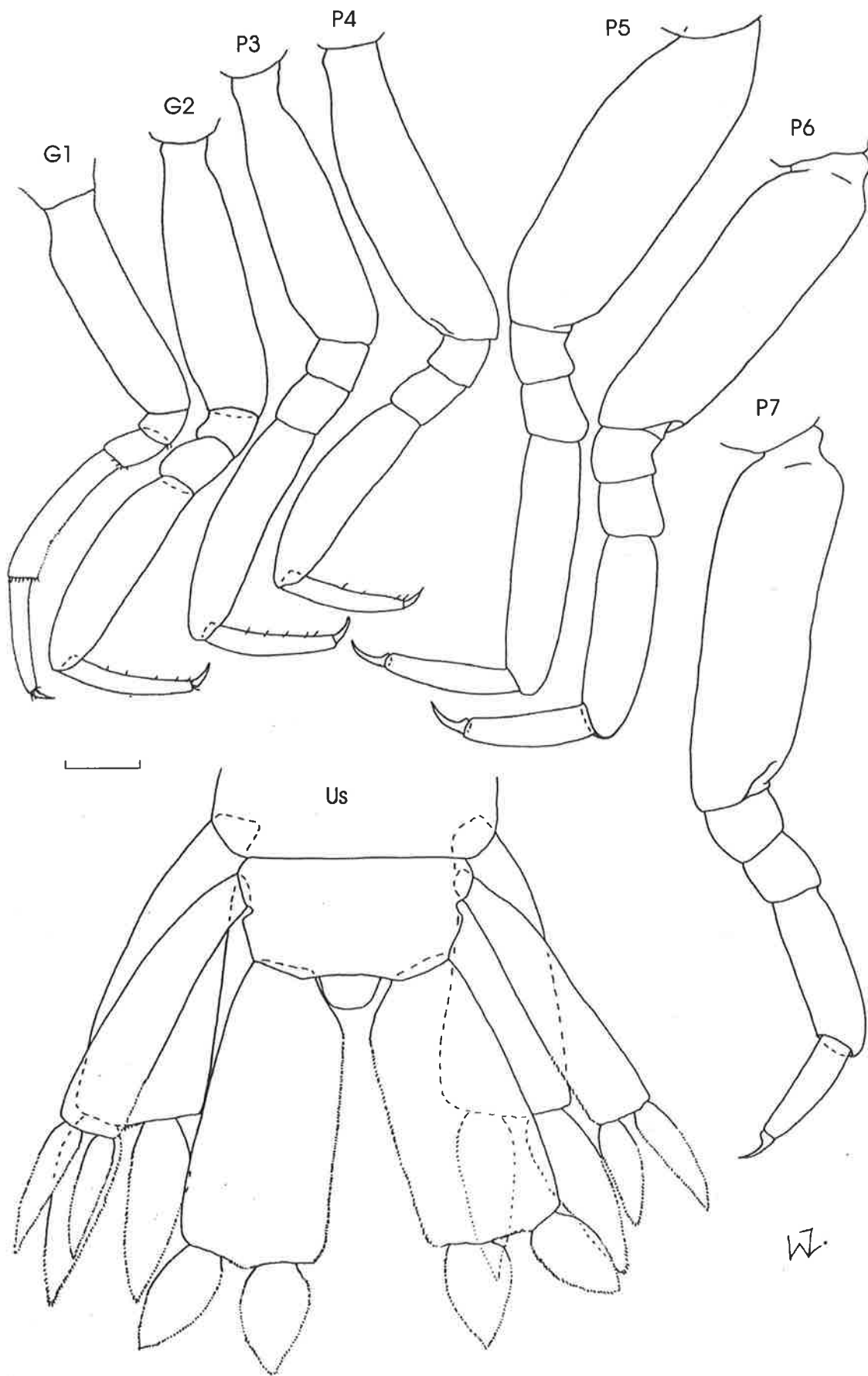


Fig 51. *Dairella californica*, North Pacific, off San Francisco, USNM. Male 6.0 mm. Scale bar = 0.2 mm.

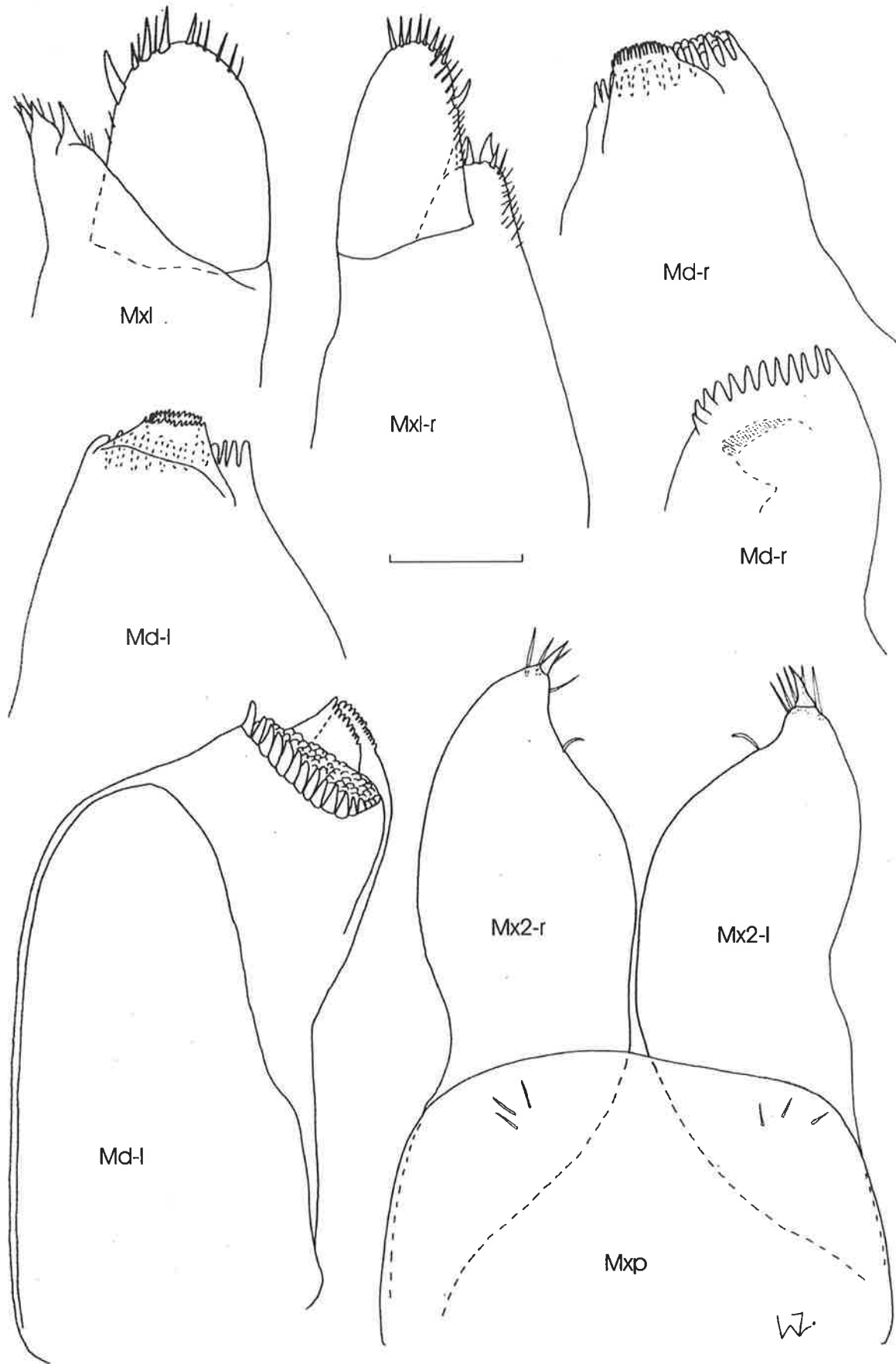


Fig. 52. *Dairella californica*, North Pacific, off San Francisco, USNM. Male 7.2 mm.  
 Scale bar = 0.05 mm.

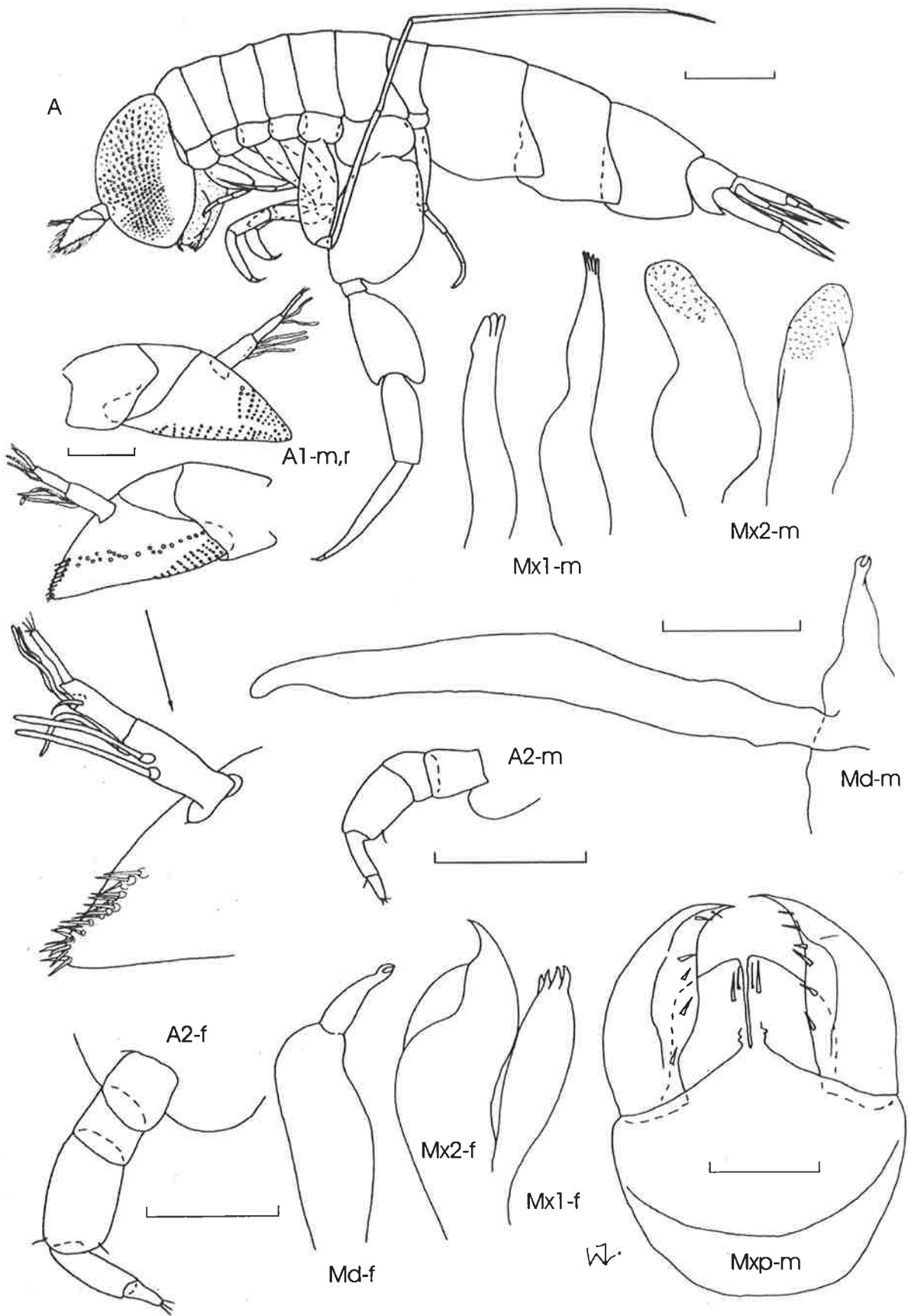


Fig. 53. *Lycaeopsis themistoides*, Tasman Sea, SAMA C5098 (m); Indian Ocean, off South Africa, SAMA C5830 (f). Male 4.4 mm; female (ovigerous) 3.1 mm. A, lateral view of male. Scale bars = 0.5 mm (A), 0.1 mm (A1 & 2-m), 0.05 mm (remainder).

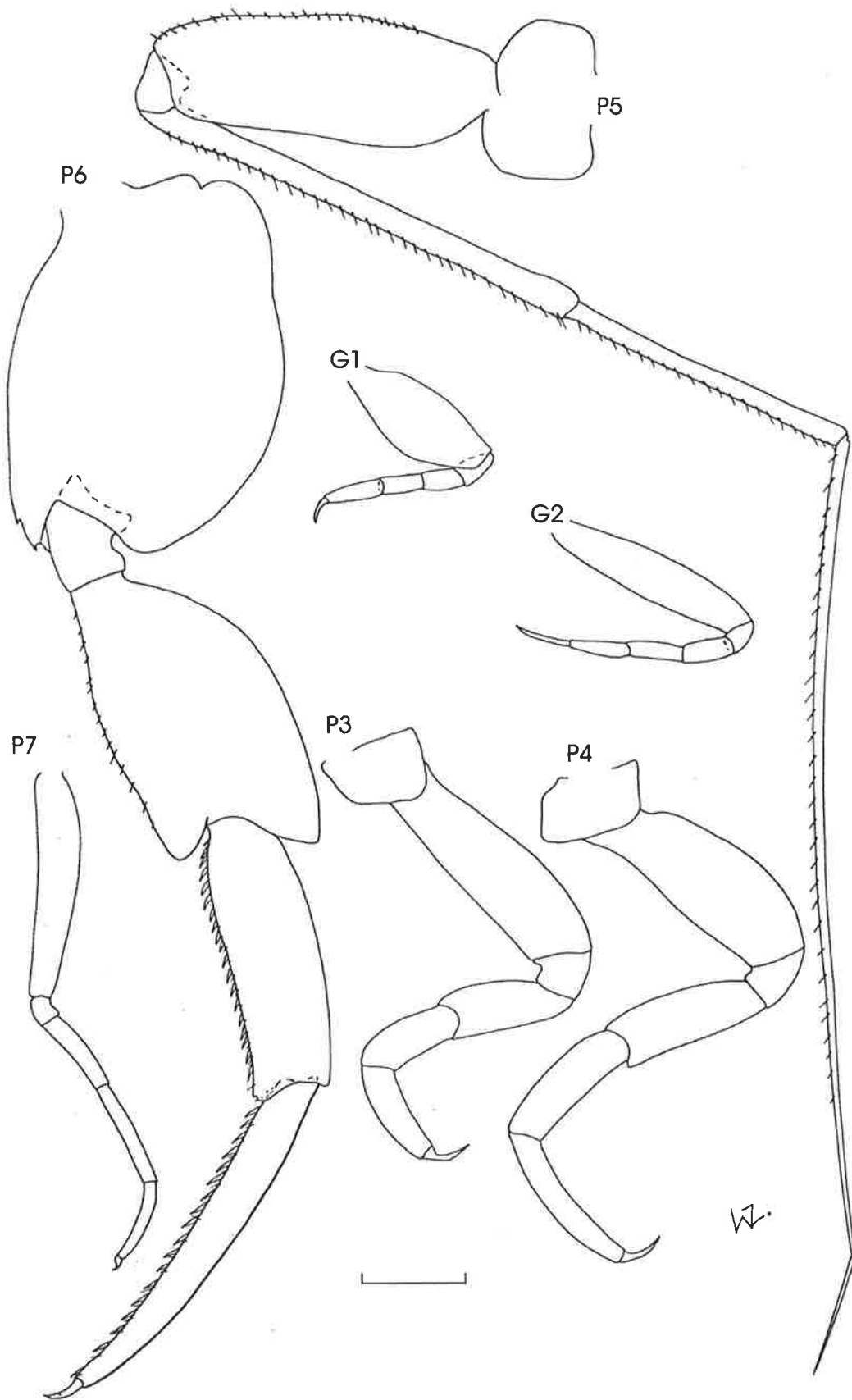


Fig. 54. *Lycaeopsis themistoides*, Tasman Sea, SAMA C5098. Male 4.4 mm. Scale bar = 0.2 mm.

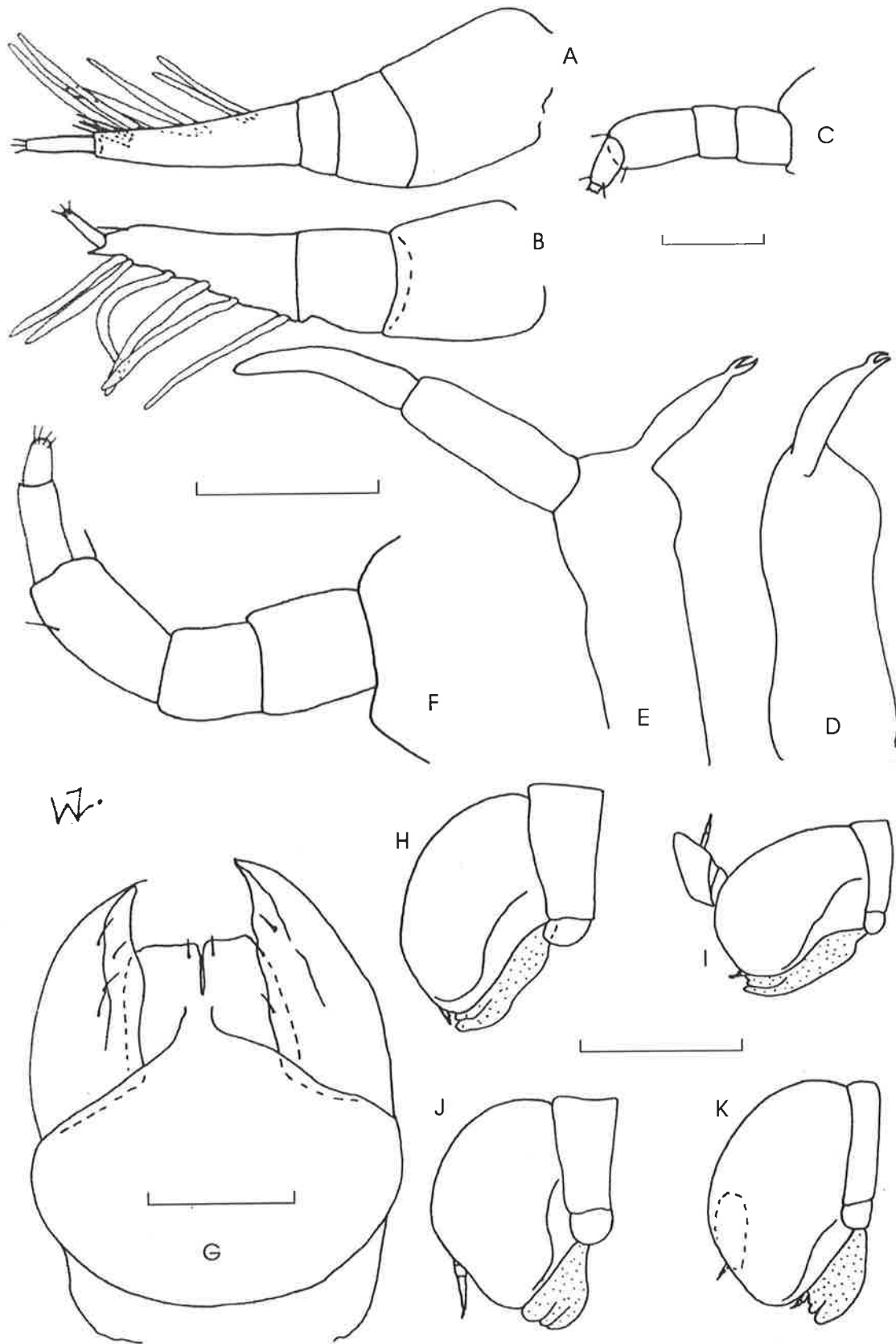


Fig. 55. *Lycaeopsis*, Indian Ocean, off South Africa, SAMA C5830 (A), C5829 (B-K). A, *L. themistoides*, A1, female 3.1 mm; B-D, *L. zamboangae*, A1, A2, Md, female 3.3 mm; E-G, *L. zamboangae*, Md, A2, Mxp, male 4.3 mm; H, I, *L. zamboangae*, head female 3.2 mm, head male 3.7 mm; J, K, *L. themistoides*, head female 2.8 mm, head male 3.4 mm. Scale bars = 0.5 mm (H-K), 0.05 mm (A-G).

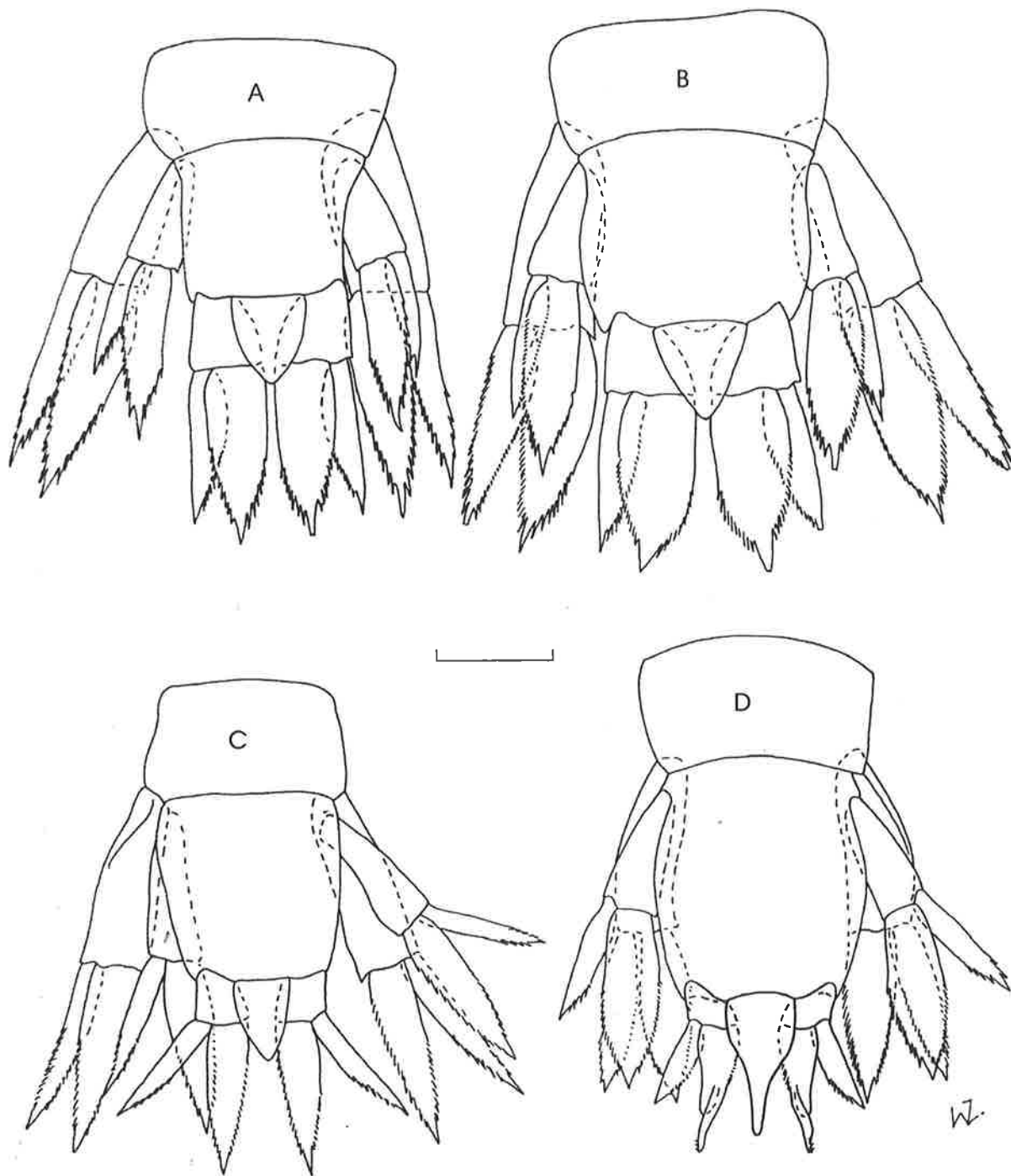


Fig. 56. *Lycaeopsis*, Tasman Sea, SAMA C5096 (A), C5098 (B), C5101 (D); Indian Ocean off South Africa, SAMA C5829 (C). A, B, urosomes of *L. themistoides*, female 3.3 mm, male 4.4 mm; C, D, urosomes of *L. zamboangae*, female 3.2 mm, male 3.4 mm. Scale bar = 0.2 mm.



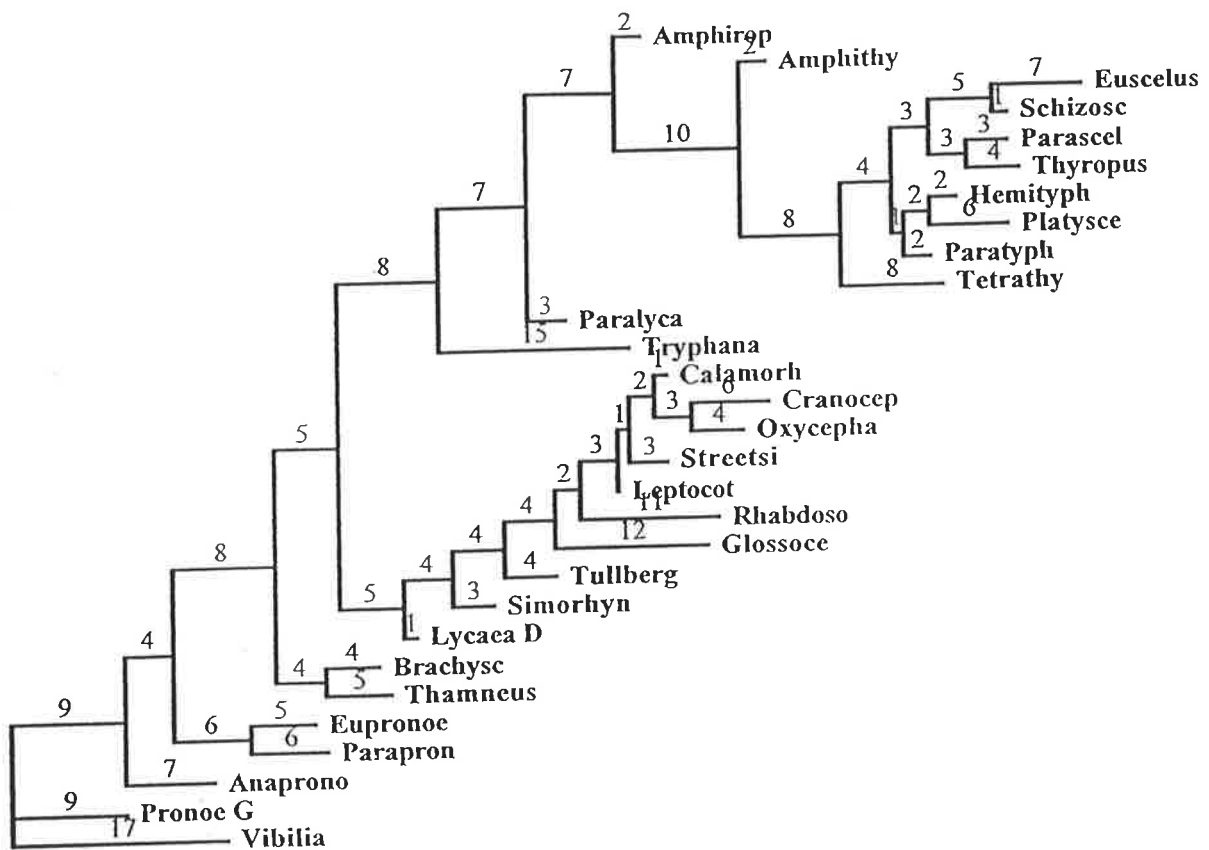


Fig. 57. Phylogenetic analysis of the genera of the superfamily Platysceloidea. One of three equally most parsimonious trees derived from a PAUP 4.0 analysis of the data in Appendix 4; length 275 steps, consistency index = 0.5164, rescaled consistency index = 0.3476. Branches are marked with the number of character changes. *Vibia* is used as the outgroup.

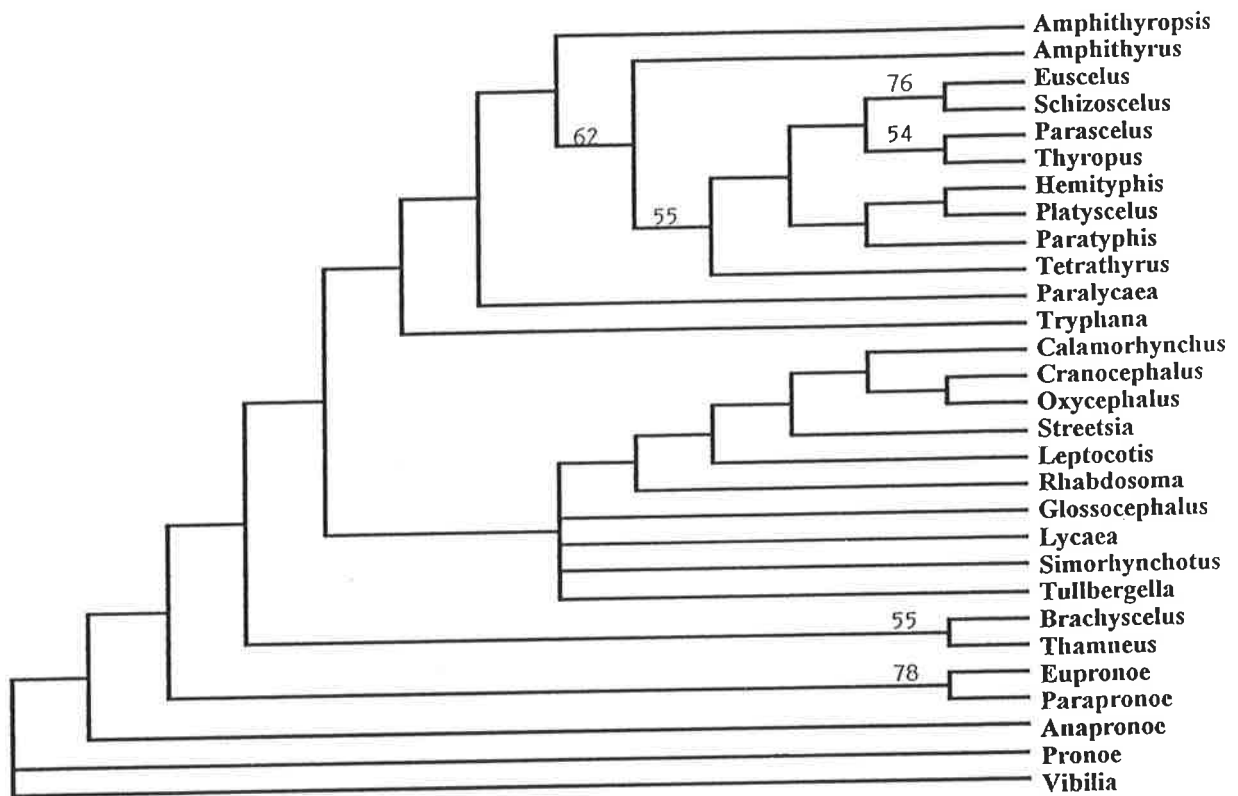


Fig. 58. Phylogenetic analysis of the genera of the superfamily Platysceloidea. Strict Consensus tree derived from a summary of the three equally most parsimonious trees. Bootstrap proportions are indicated to the left of the relevant node. *Vibia* is used as the outgroup.

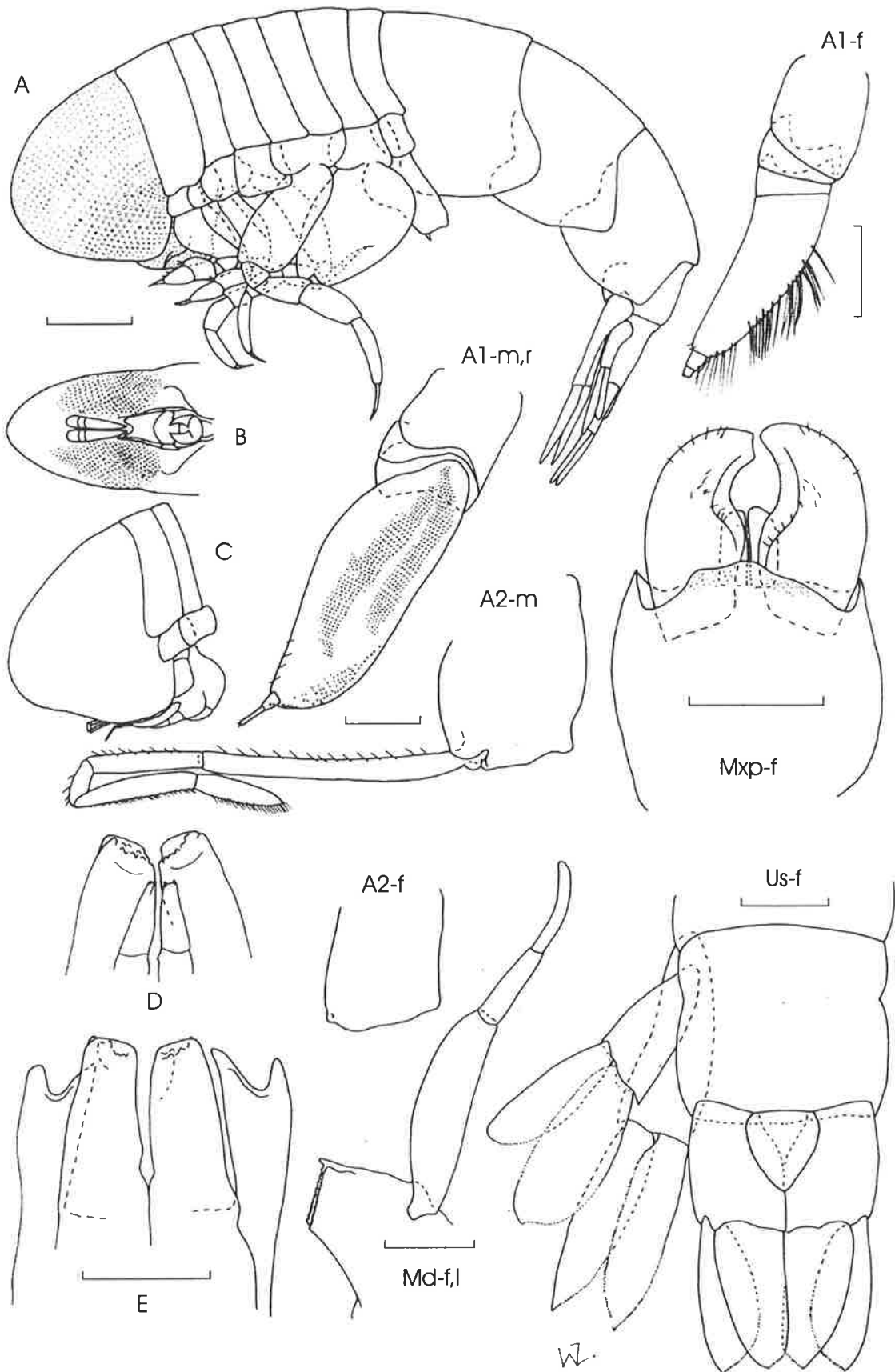


Fig. 59. *Pronoe capito*, Tasman Sea, AM P39849 (female 10.8 mm); Indian Ocean off South Africa, SAMA C5807 (male 11.6 mm). A, lateral view; B, ventral view of head of female; C, head of male; D, medial view of Mx2; E, ventral view of Mx1 & 2 of female. Scale bars = 1.0 mm (A-C), 0.5 mm (Us), 0.2 mm (remainder).

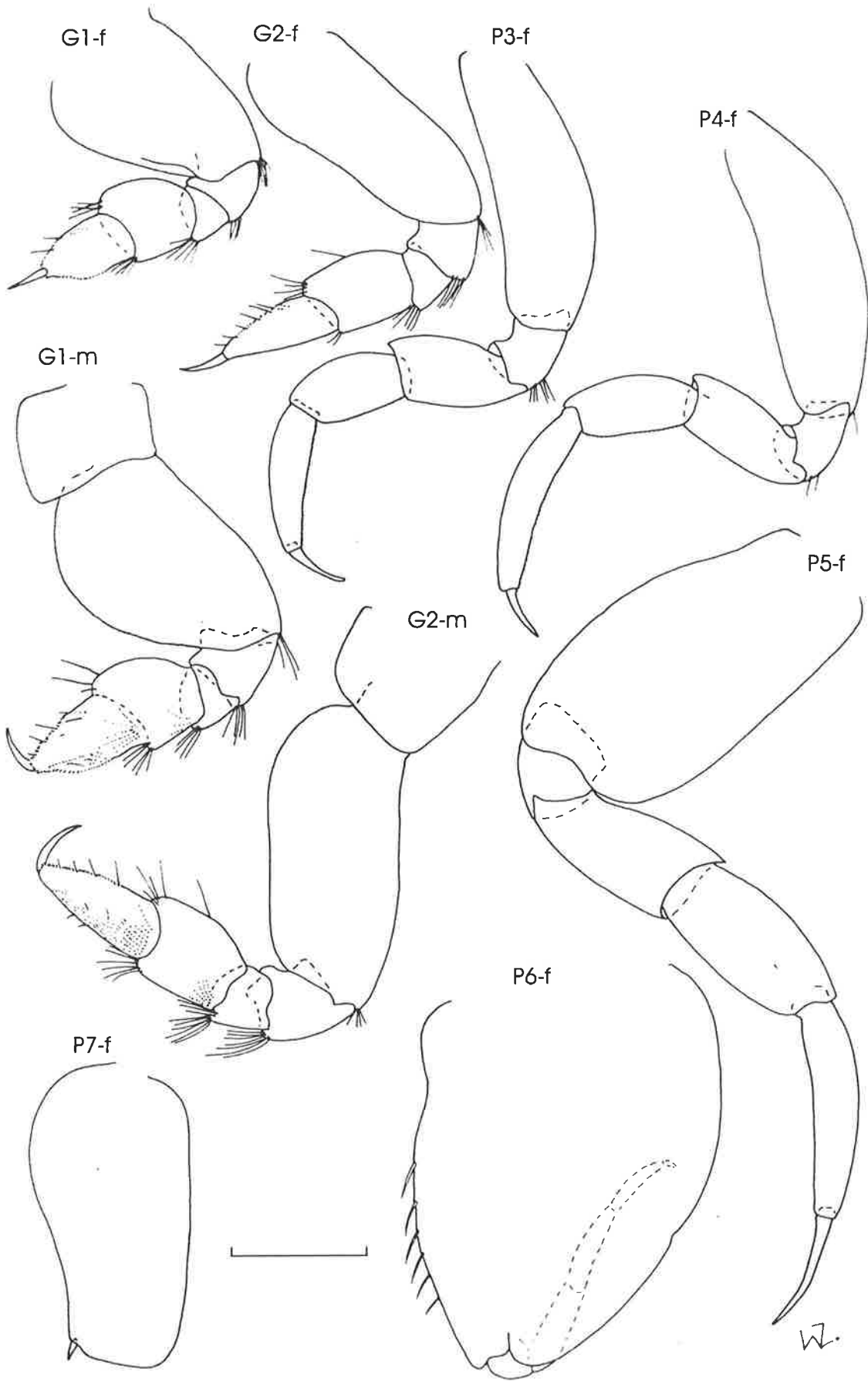


Fig. 60. *Pronoe capito*, Tasman Sea, AM P39849 (female 10.8 mm); Indian Ocean off South Africa, SAMA C5807 (male 11.6 mm). Scale bar = 0.5 mm.

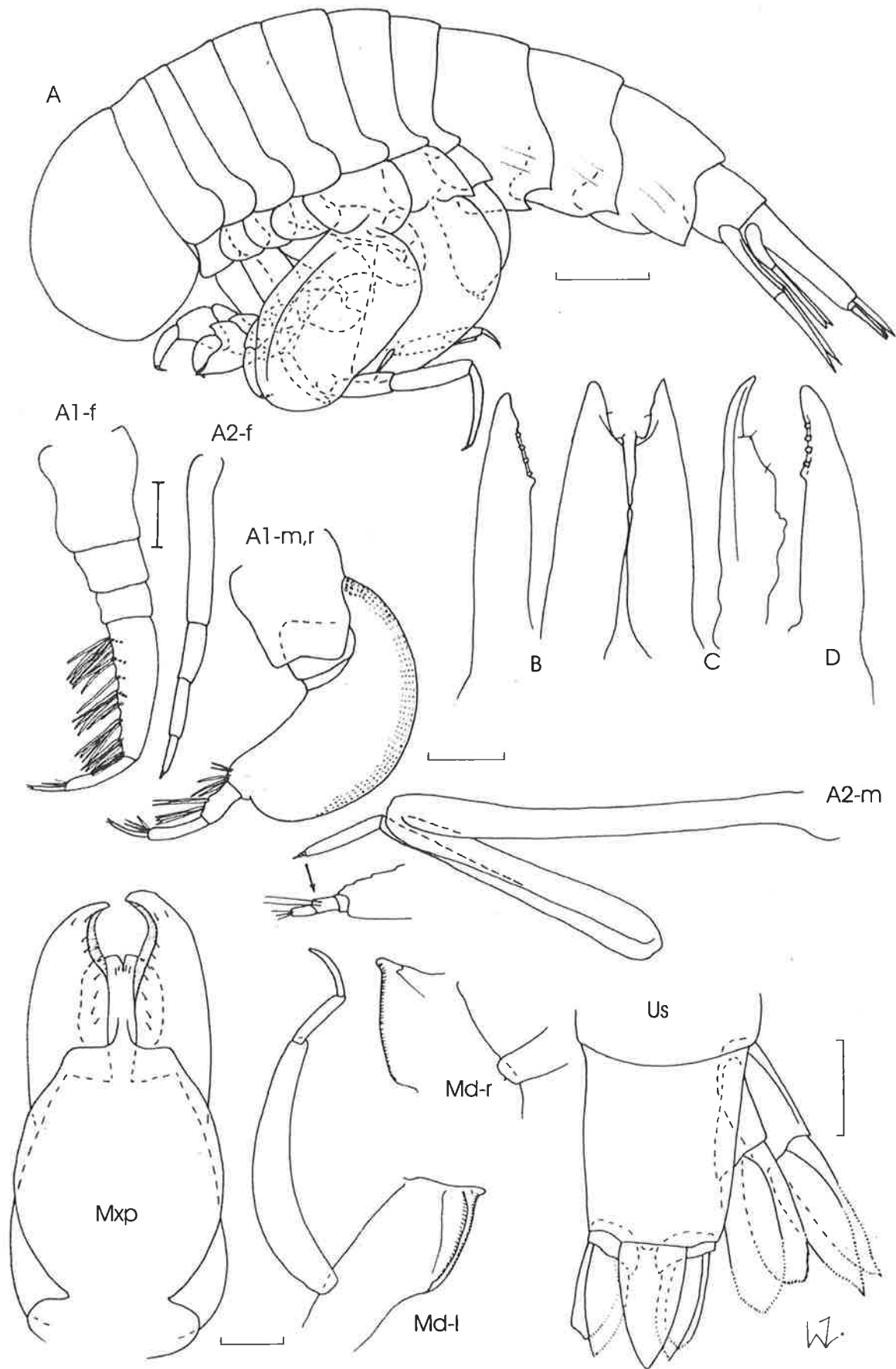


Fig. 61. *Paraprone crustulum*, Tasman Sea, SAMA C4220 (female 21.8 mm); SAMA C5822 (male 16.7 mm). A, lateral view of female; B, Mx1 & 2, right; C, Mx2, left, medial and lateral view; D, Mx1, left. Mxp and mouthparts from male. Scale bars = 2.0 mm (A), 1.0 mm (Us), 0.2 mm (remainder).

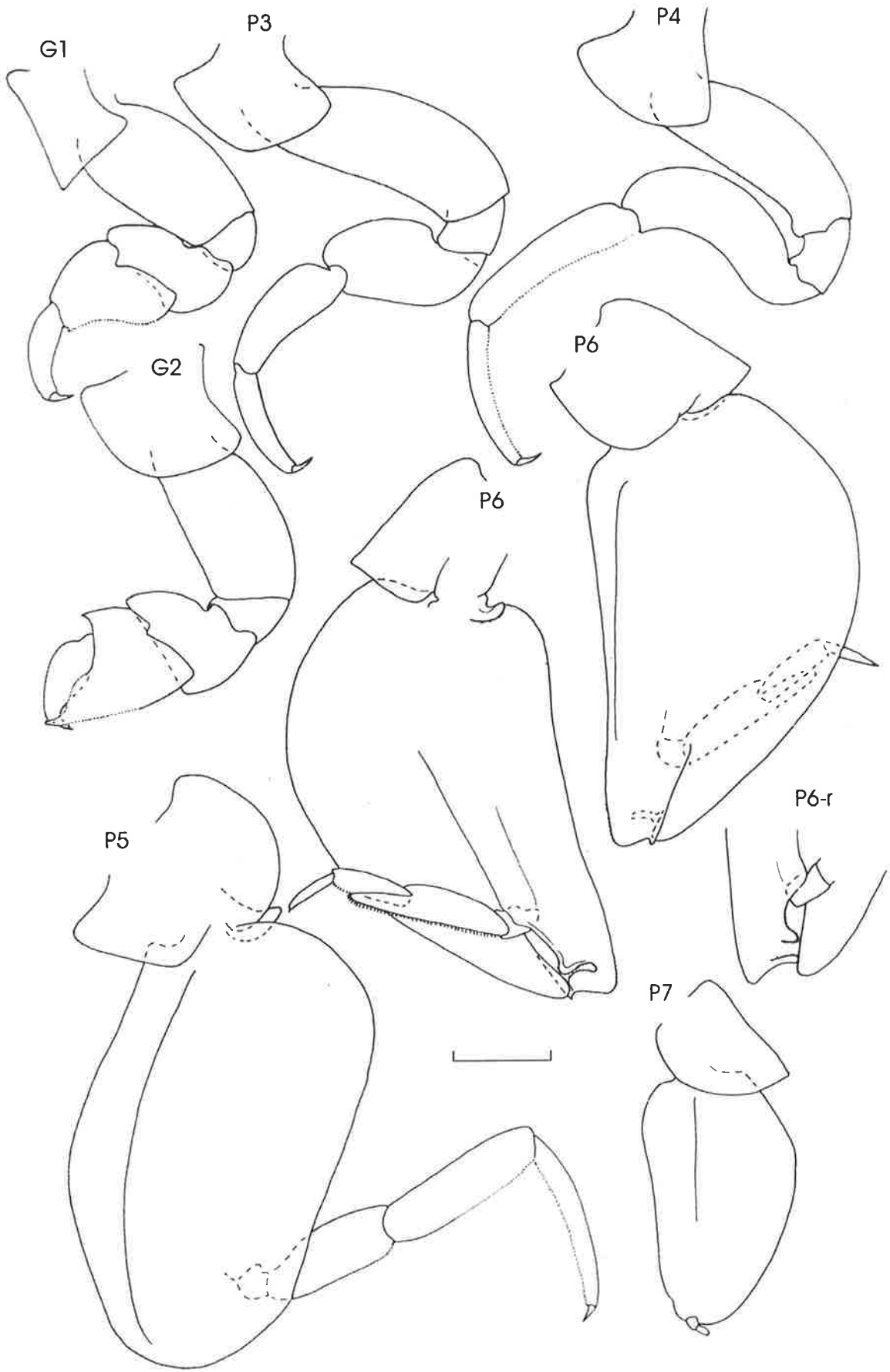


Fig. 62. *Parapronoe crustulum*, Tasman Sea, SAMA C4220. Female 21.8 mm.  
Scale bar = 1.0 mm.

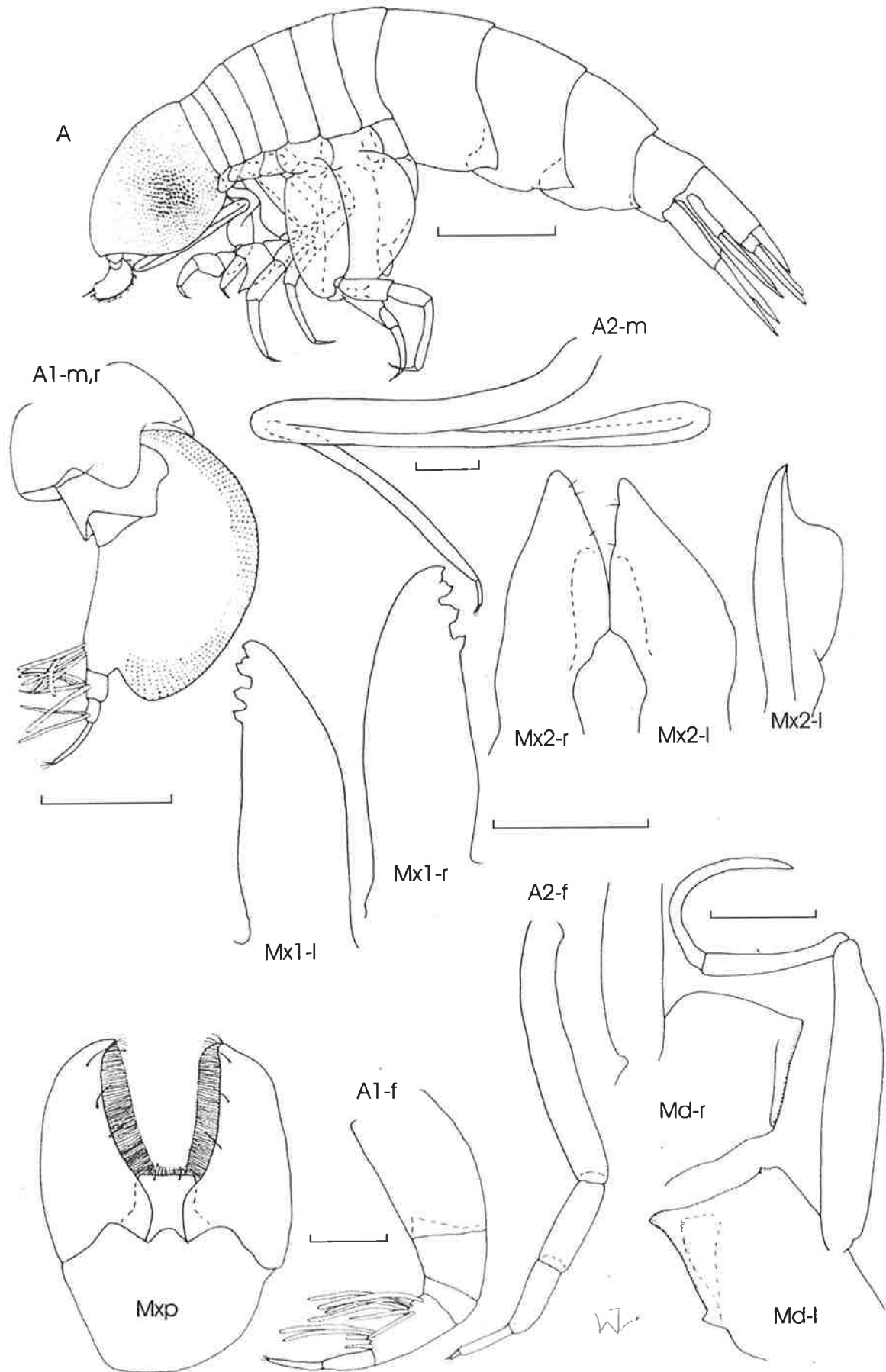


Fig. 63. *Eupronoe maculata*, Indian Ocean, off South Africa, SAMA C5812. Male 7.7 mm, female 8.0 mm (Mxp, A1 & 2). A, lateral view of male. Scale bars = 1.0 mm (A), 0.2 mm (A1 & 2-m), 0.1 mm (remainder).

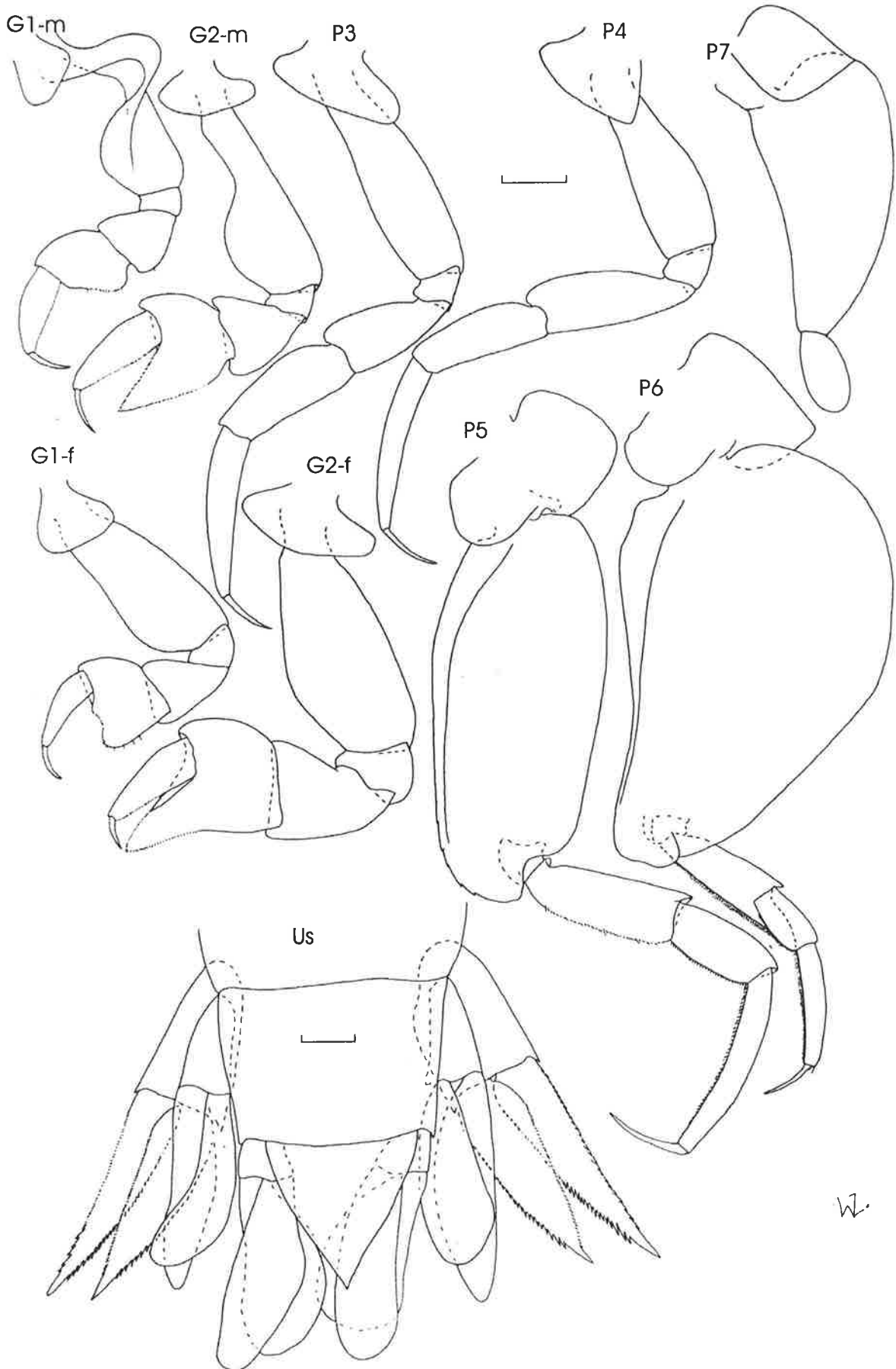


Fig. 64. *Eupronoe maculata*, Indian Ocean, off South Africa, SAMA C5812. Male 7.7 mm, female 8.0 mm (A1 & 2). Scale bars = 0.2 mm.



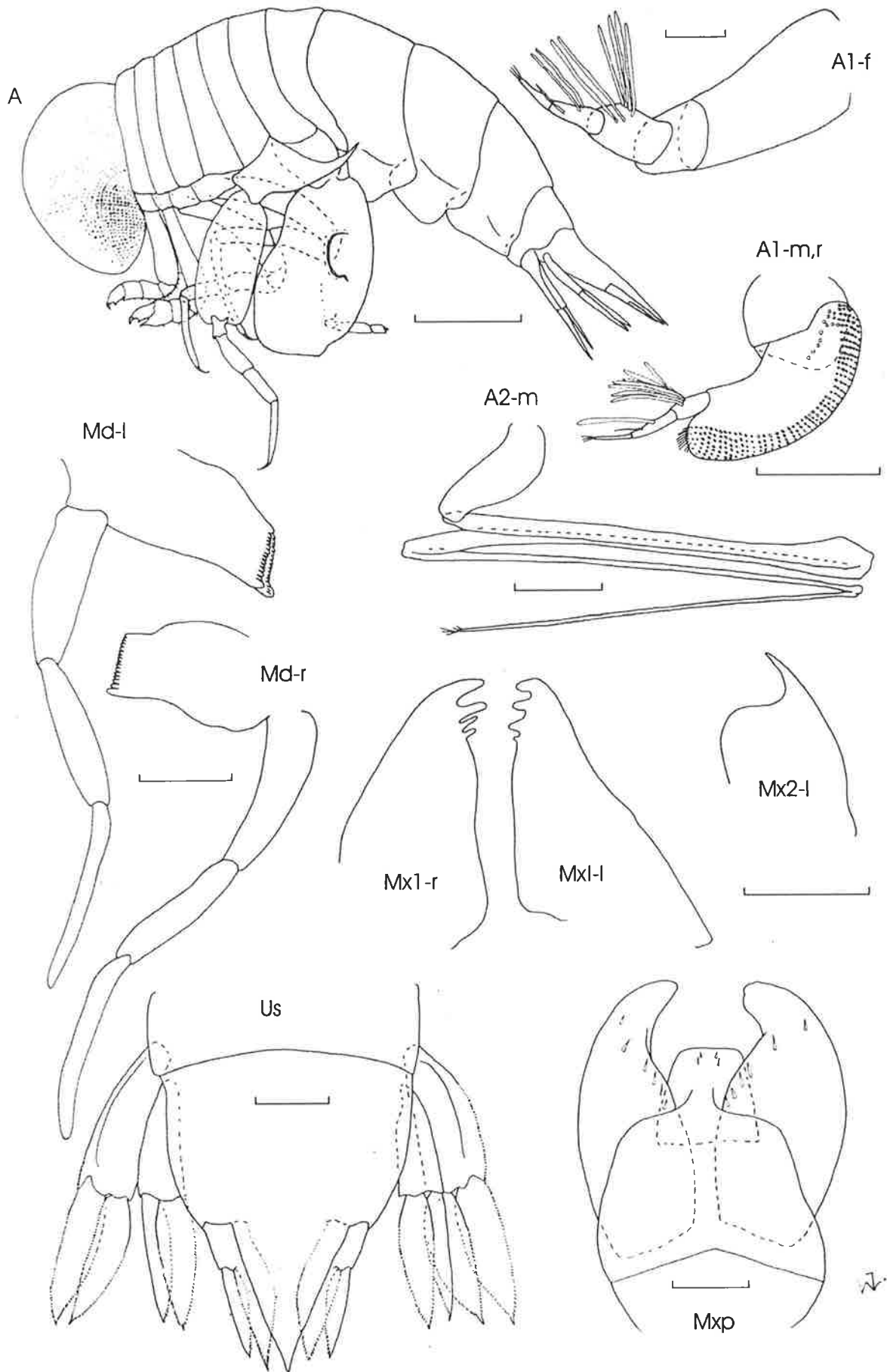


Fig. 65. *Amphithyrus bispinosus*, Coral Sea (C3711) and Tasman Sea (C5341, 5343). A, lateral view of female 3.6 mm, SAMA C3711. A1-f, female 3.7 mm, SAMA C5341. Remainder from male 4.0 mm, SAMA C5343. Scale bars = 0.5 mm (A), 0.2 mm (A1 & 2-m, Us), 0.05 mm (remainder).

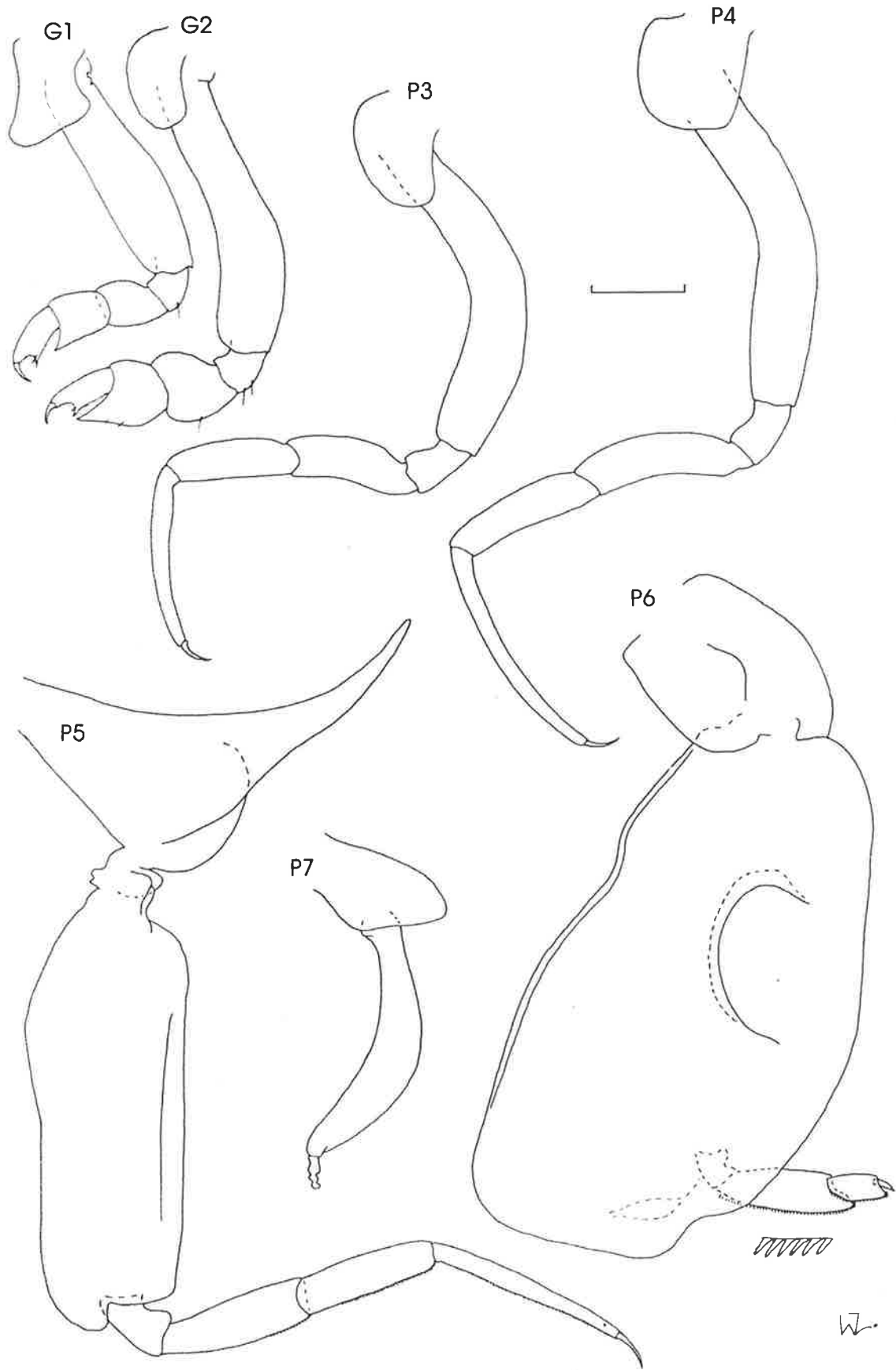


Fig. 66. *Amphithyrus bispinosus*, Tasman Sea, SAMA C5343. Male 4.0 mm. Scale bar = 0.2 mm.

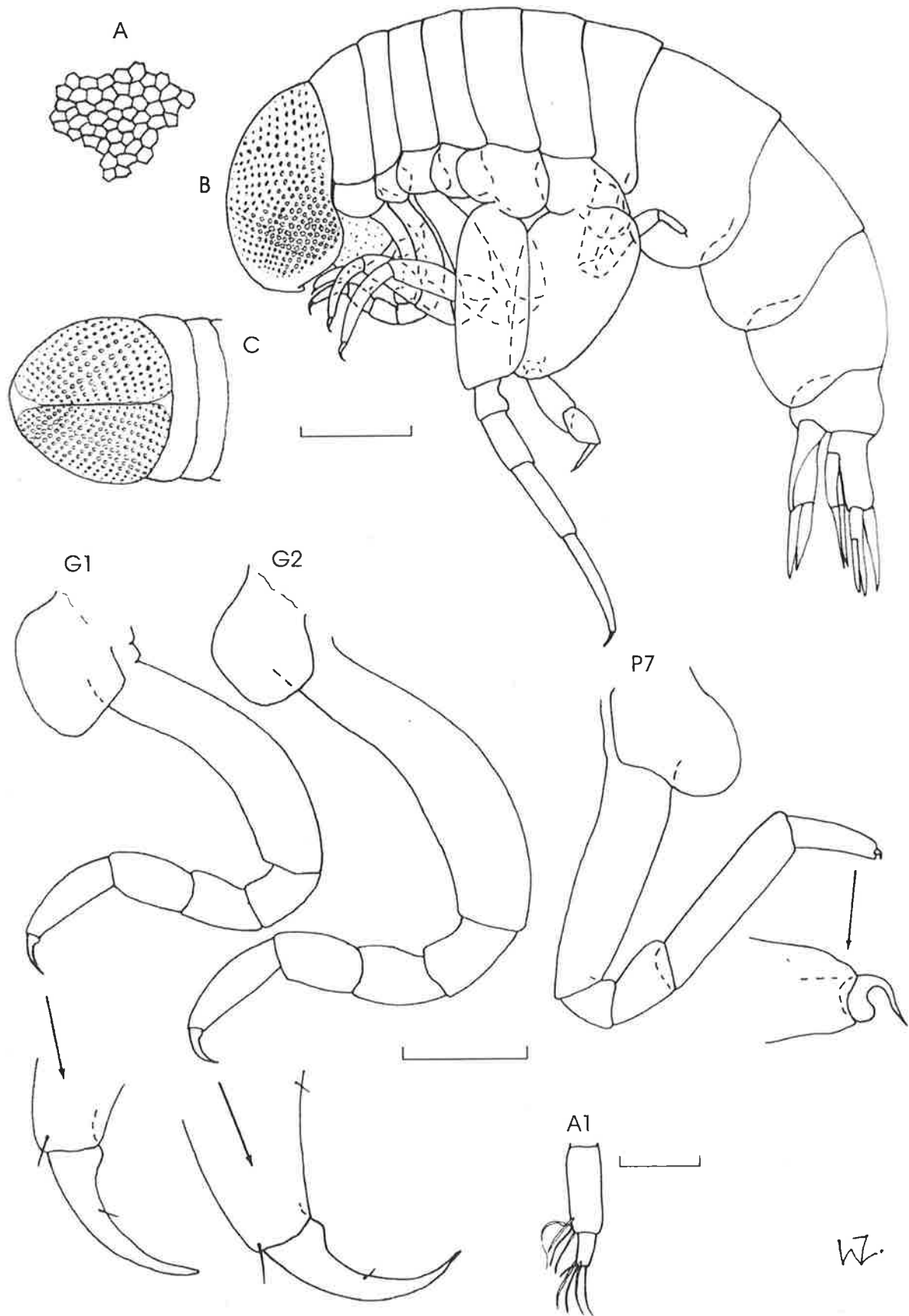


Fig. 67. *Paralycaea gracilis*, Tasman Sea, SAMA C5174. Female 4.6 mm. A, cuticular sculpture; B, lateral view; C, dorsal view of head. Scale bars = 0.5 mm (B, C), 0.2 mm (G1 & 2, P7), 0.1 mm (A1).

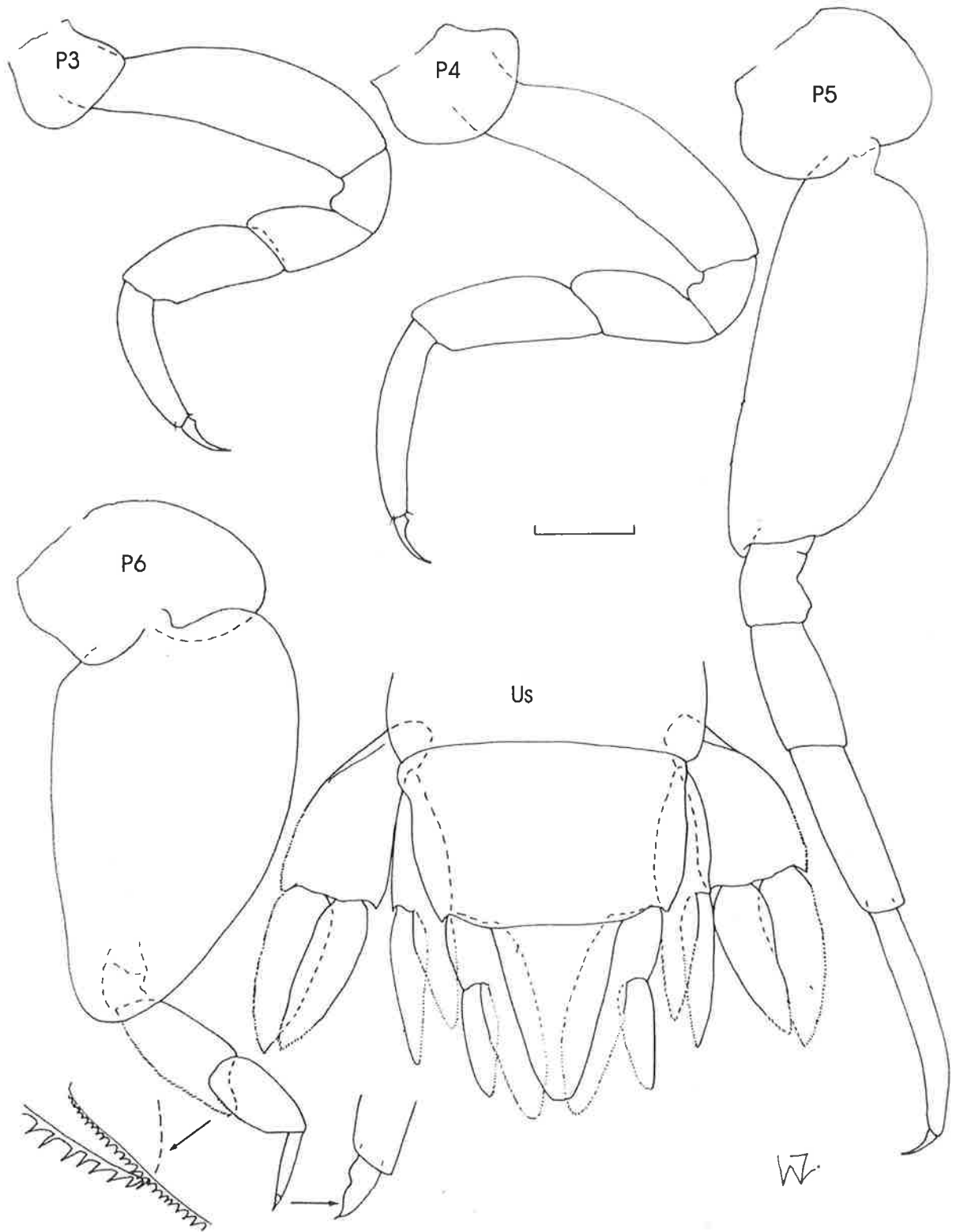


Fig. 68. *Paralycaea gracilis*, Tasman Sea, SAMA C5174. Female 4.6 mm. Scale bar = 0.2 mm.

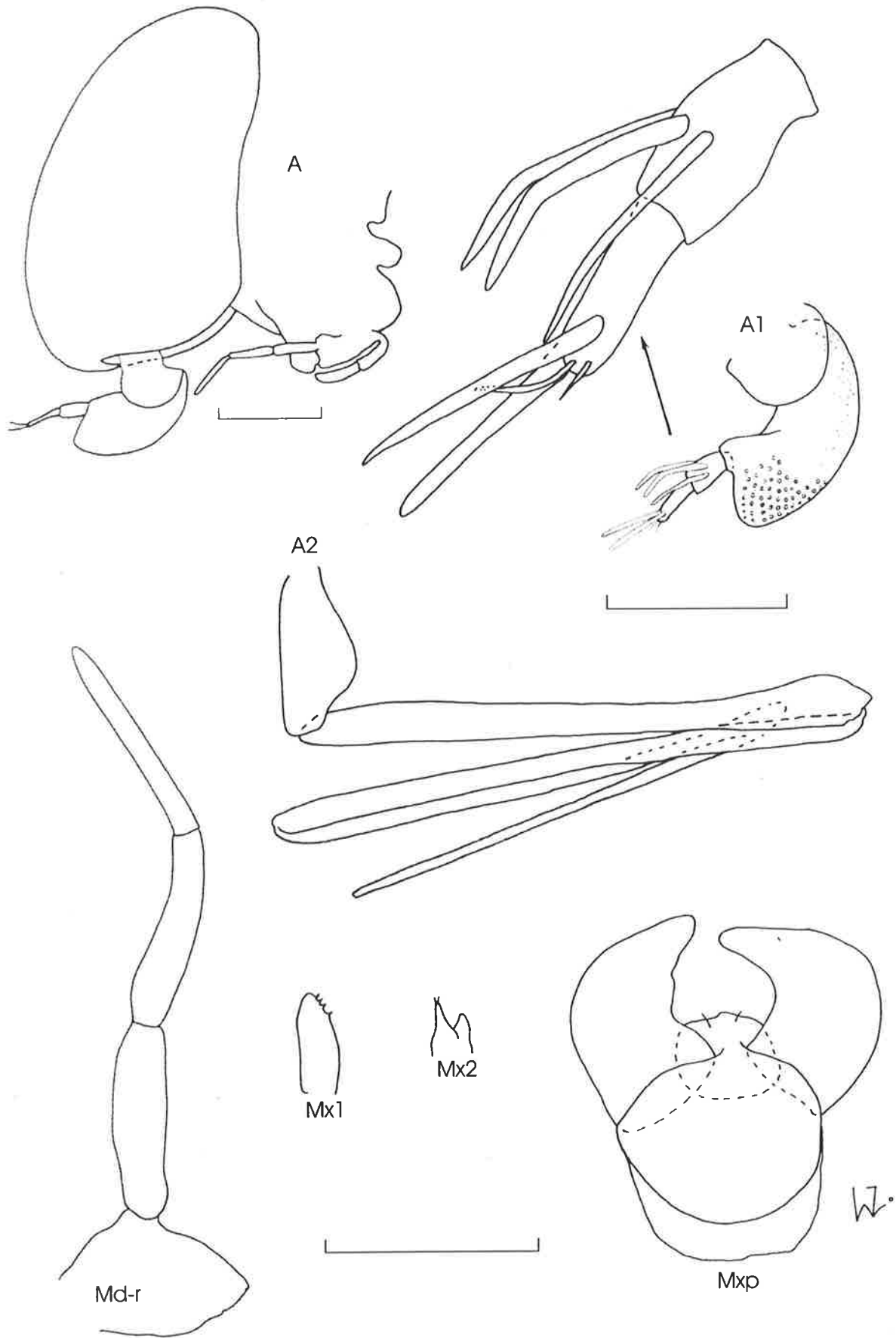


Fig. 69. *Paralycaea gracilis*, Indian Ocean, off South Africa, SAMA C5813. Male 3.2 mm. A, lateral view of head. Scale bars = 0.2 mm (A, A1 & 2), 0.1 mm (Md, Mx1 & 2, Mxp).

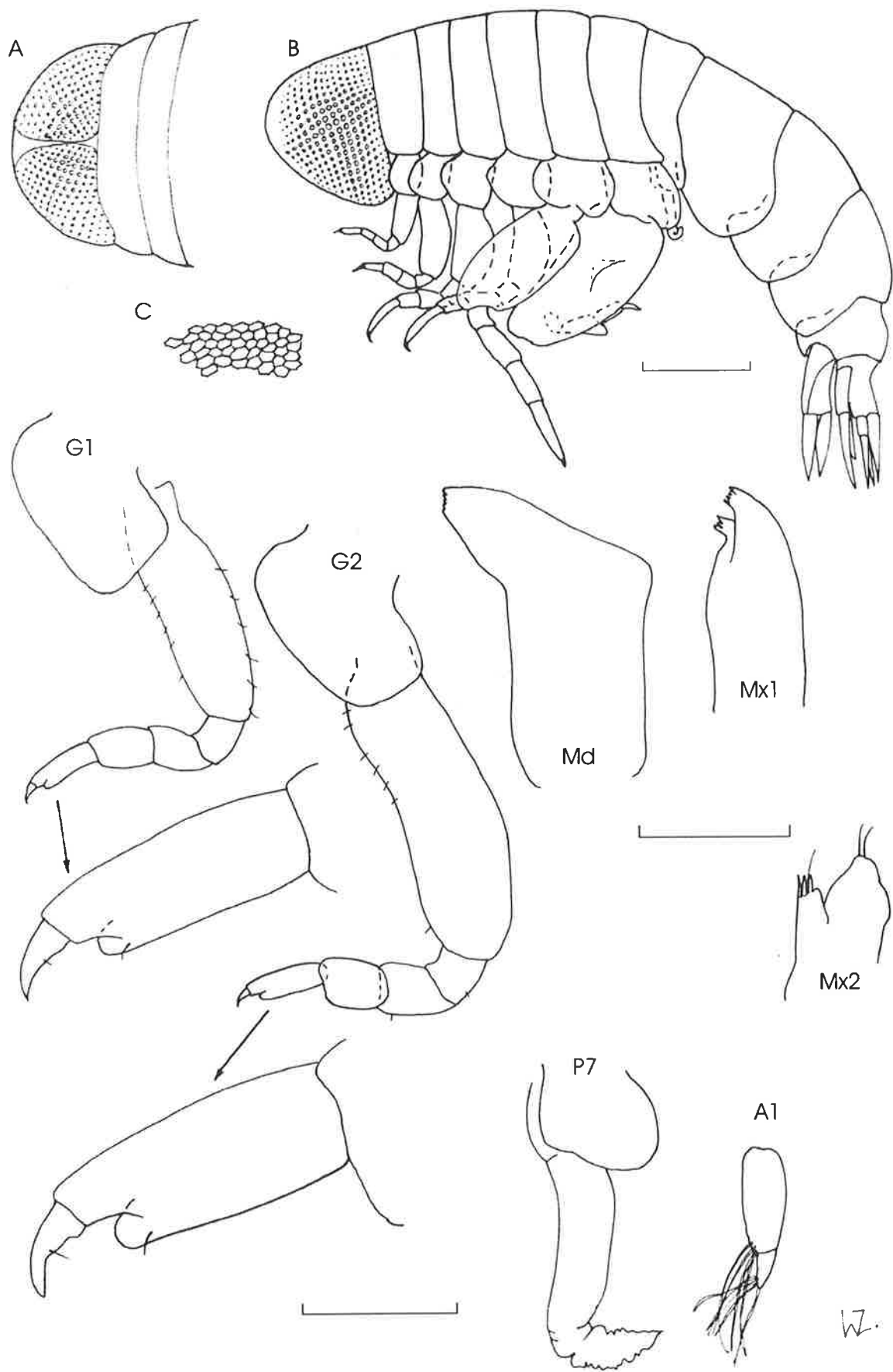


Fig. 70. *Amphithyropsis pulchellus*, Tasman Sea, SAMA C5178. Female 3.8 mm. **A**, dorsal view of head; **B**, lateral view; **C**, cuticular sculpture. Scale bars = 0.5 mm (A, B), 0.2 mm (G1 & 2, P7, A1), 0.05 mm (Md, Mx1 & 2).

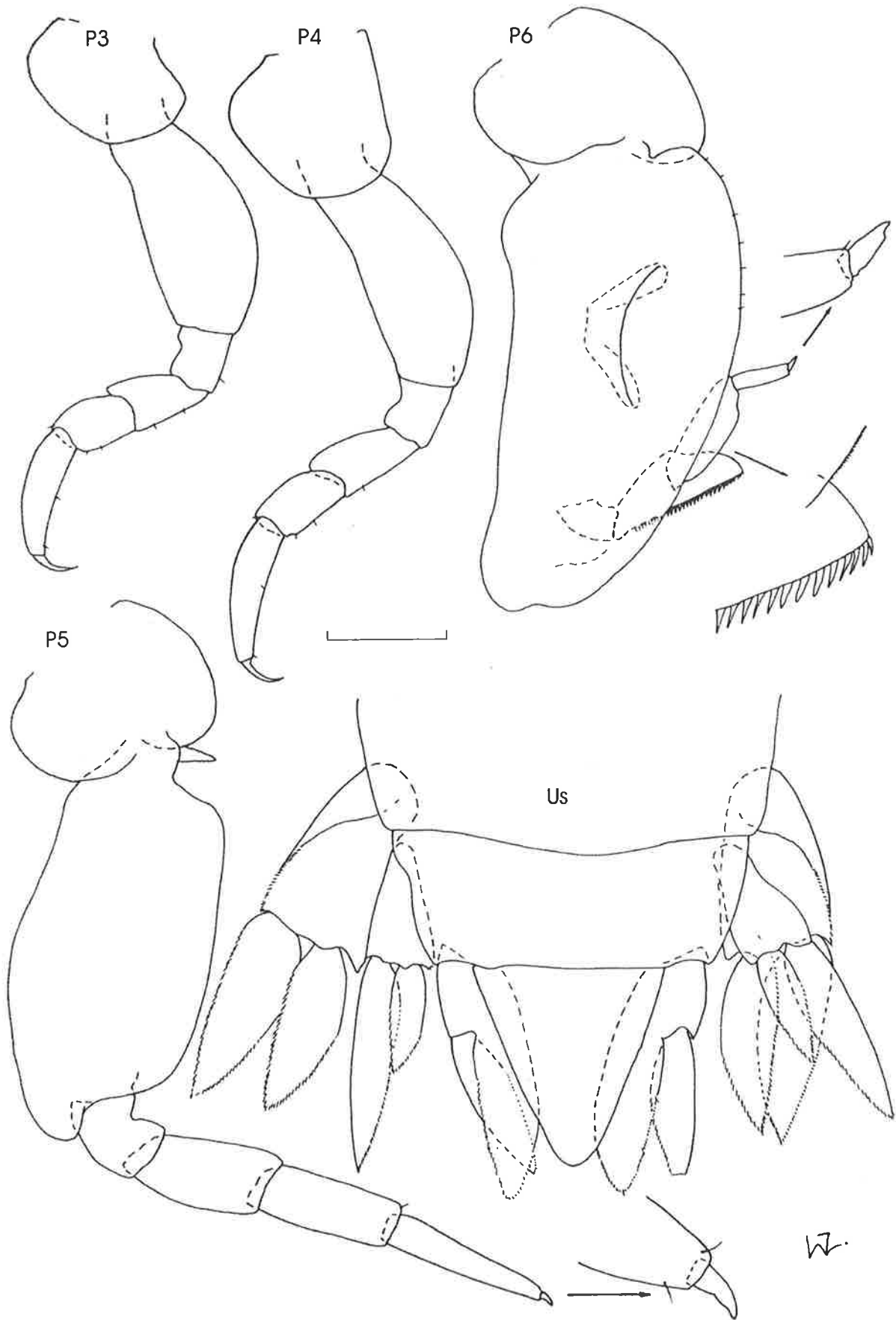


Fig. 71. *Amphithyropsis pulchellus*, Tasman Sea, SAMA C5178. Female 3.8 mm.  
Scale bar = 0.2 mm.

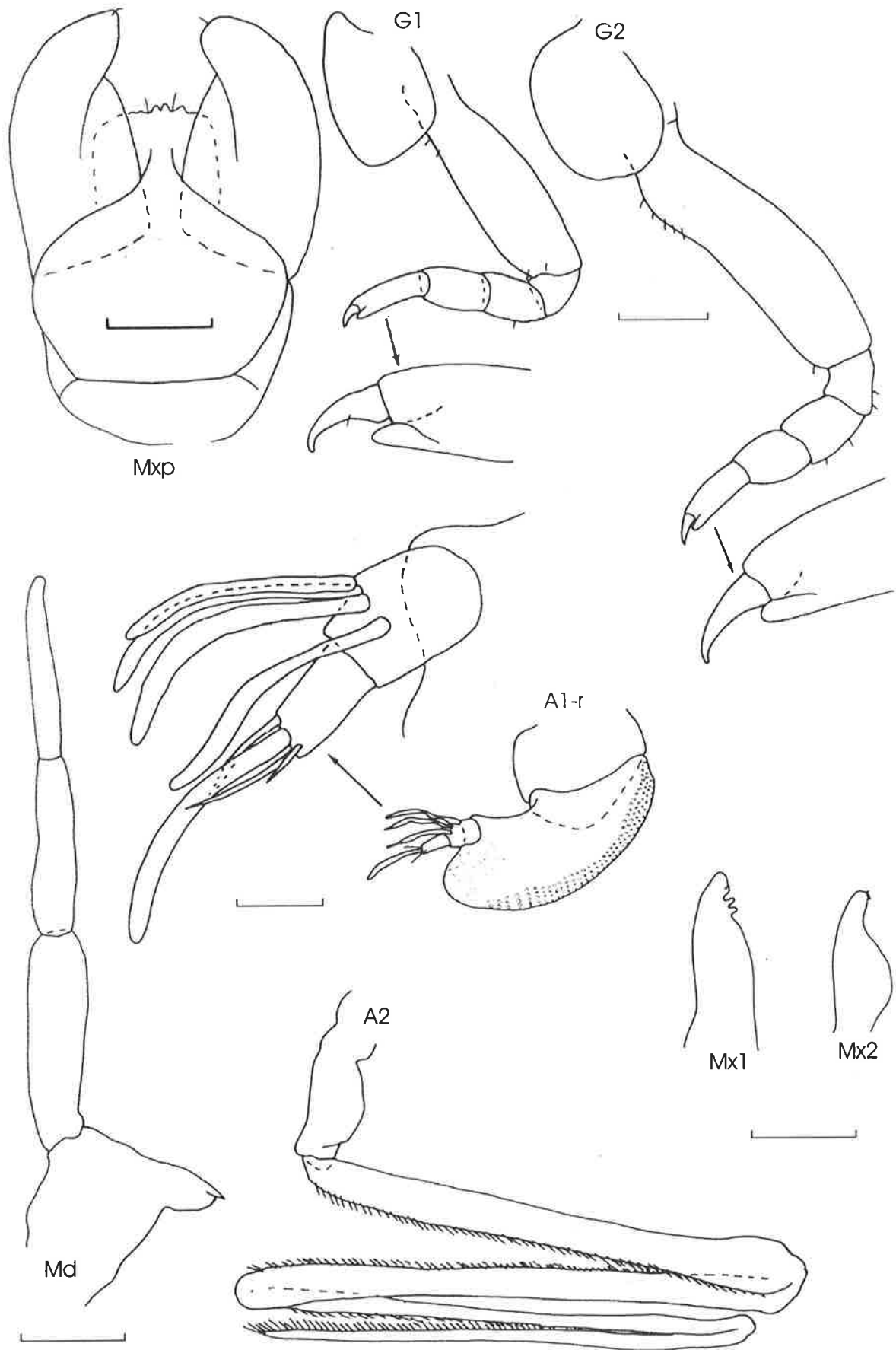


Fig. 72. *Amphithyropsis pulchellas*, Indian Ocean, SAMA C5843. Male 3.0 mm. Scale bars = 0.1 mm (G1 & 2, A1 & 2), 0.05 mm (remainder).



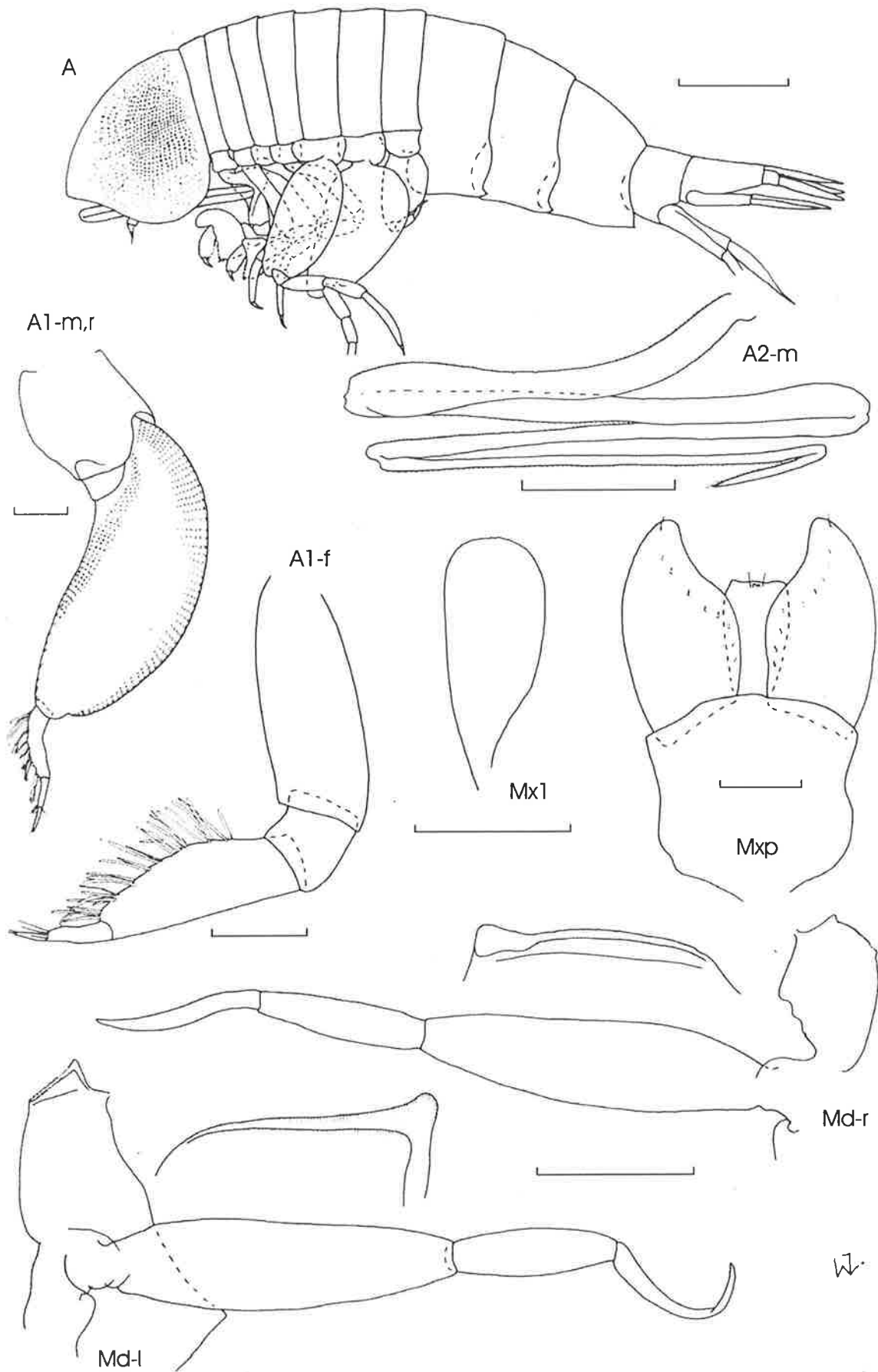


Fig. 73. *Brachyscelus cruscolum*, Coral Sea, SAMA C3691 (male 7.1 mm - A); Tasman Sea, SAMA C5242 (female 19.5 mm - A1, male 25 mm - remainder). A, lateral view. Scale bars = 1.0 mm (A), 0.5 mm (A2-m), 0.2 mm (A1, Mxp), 0.1 mm (Md, Mx1).

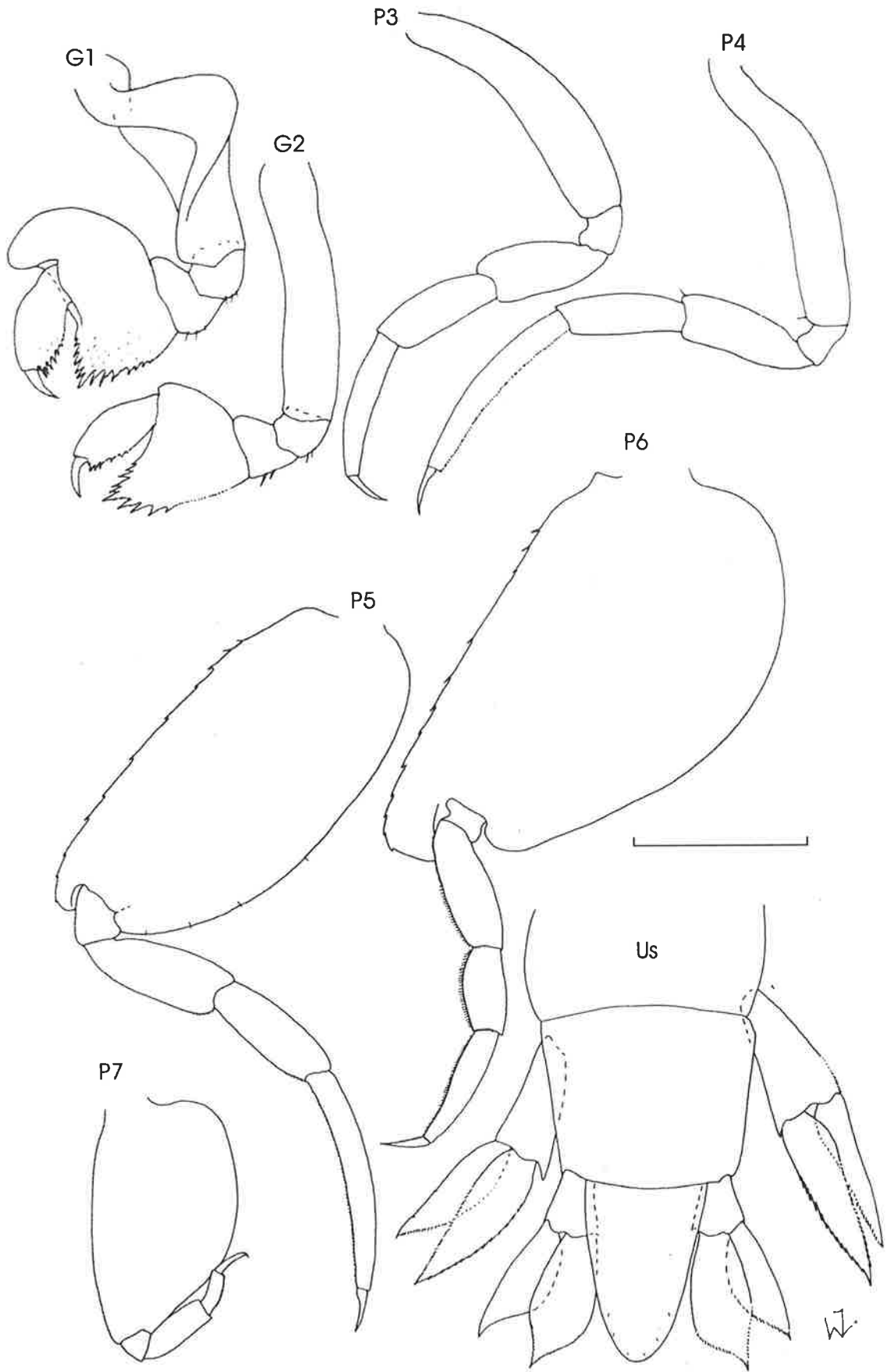


Fig. 74. *Brachyscelus crusculum*, Coral Sea, SAMA C3691. Male 7.1 mm. Scale bar = 0.5 mm.

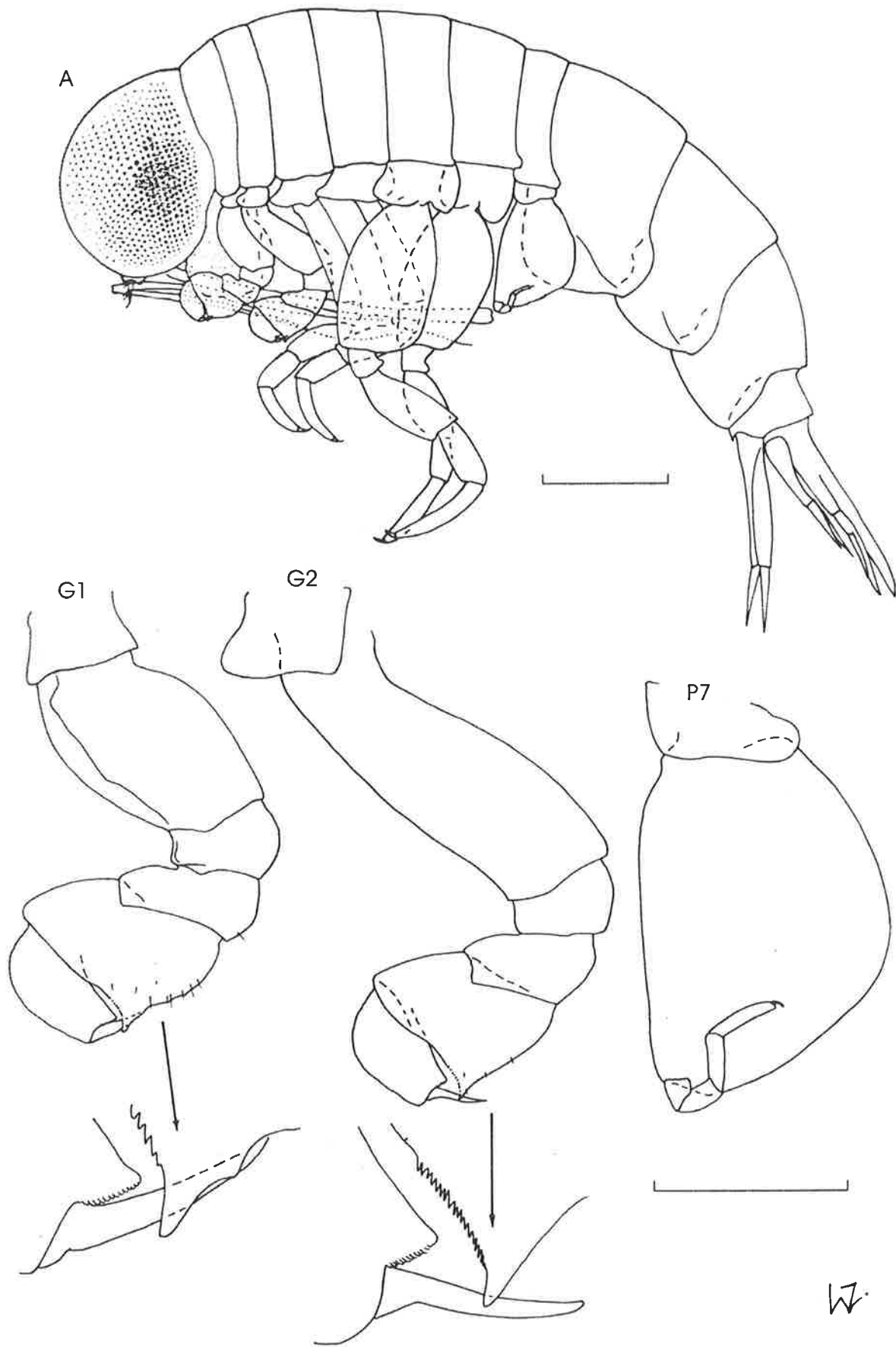


Fig. 75. *Lycaea pulex*, Tasman Sea, SAMA C5282. Male 9.0 mm. A, lateral view. Scale bars = 1.0 mm (A), 0.5 mm (G1 & 2, P7).

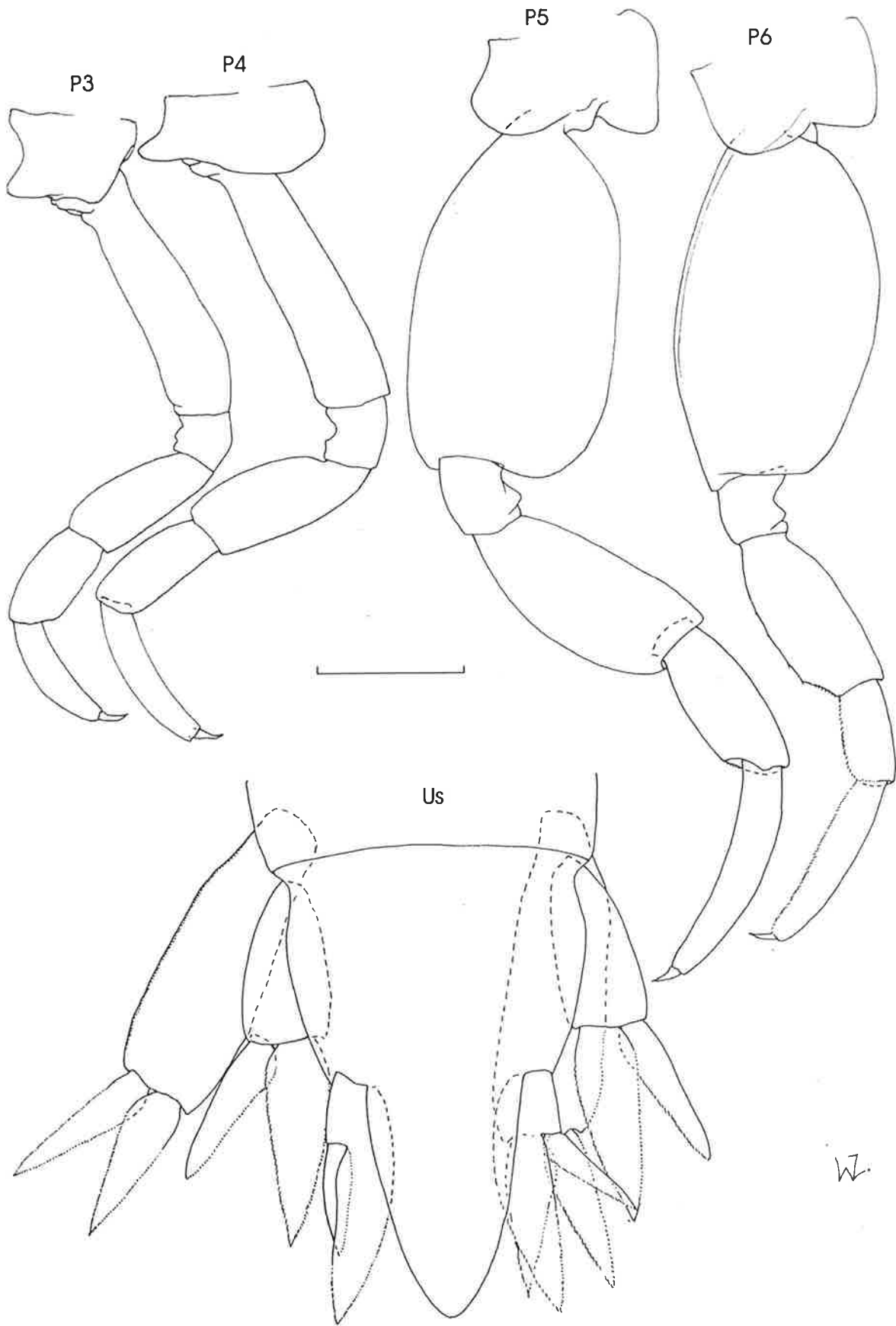


Fig. 76. *Lycaea pulex*, Tasman Sea, SAMA C5282. Male 9.0 mm. Scale bar = 0.5 mm.

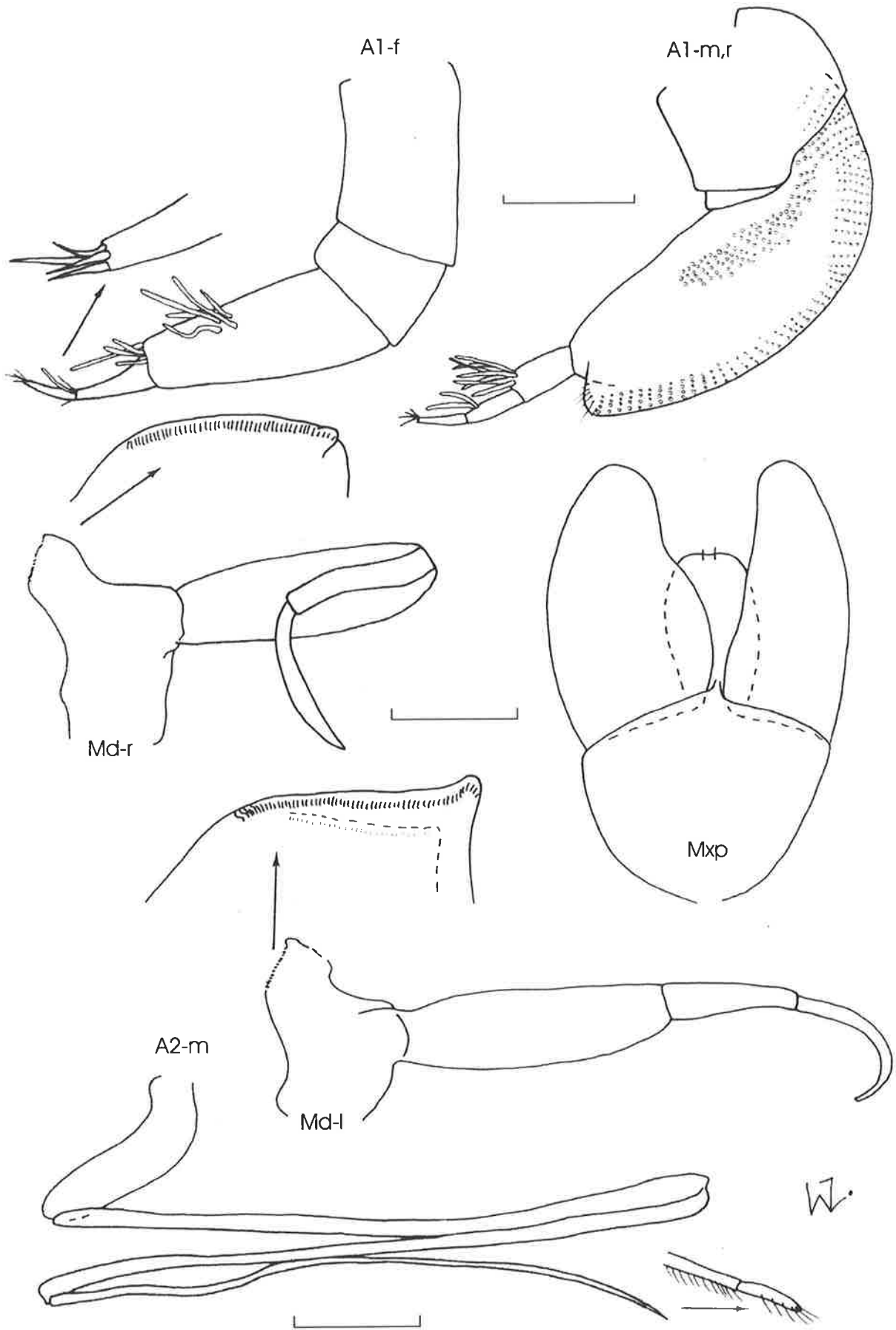


Fig. 77. *Lycaea pulex*, Tasman Sea, SAMA C5281 (female 8.2 mm - A1); SAMA C5282 (male 8.6 mm - remainder). Scale bars = 0.5 mm (A2-m), 0.2 mm (remainder).

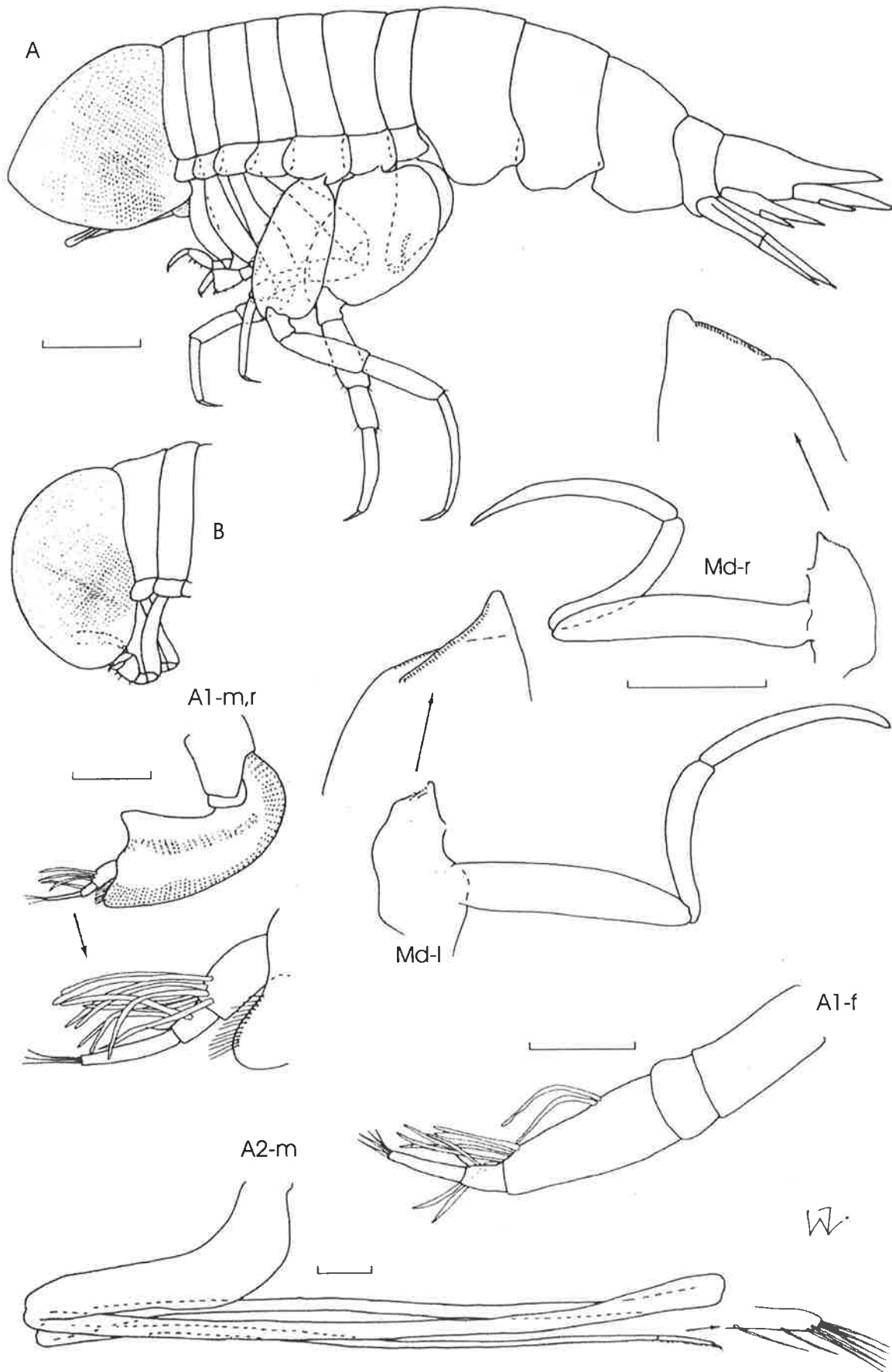


Fig. 78. *Simorhynchotus antennarius*, Coral Sea, SAMA C3694 (male 5.7 mm - A), SAMA C3693 (female 3.9 mm - B); Indian Ocean, off South Africa, SAMA C5817 (female 4.1 mm - A1, male 6.2 mm - remainder). A, lateral view; B, head of female. Scale bars = 1.0 mm (A, B), 0.2 mm (A1 & 2-m, Md), 0.1 mm (A1-f).

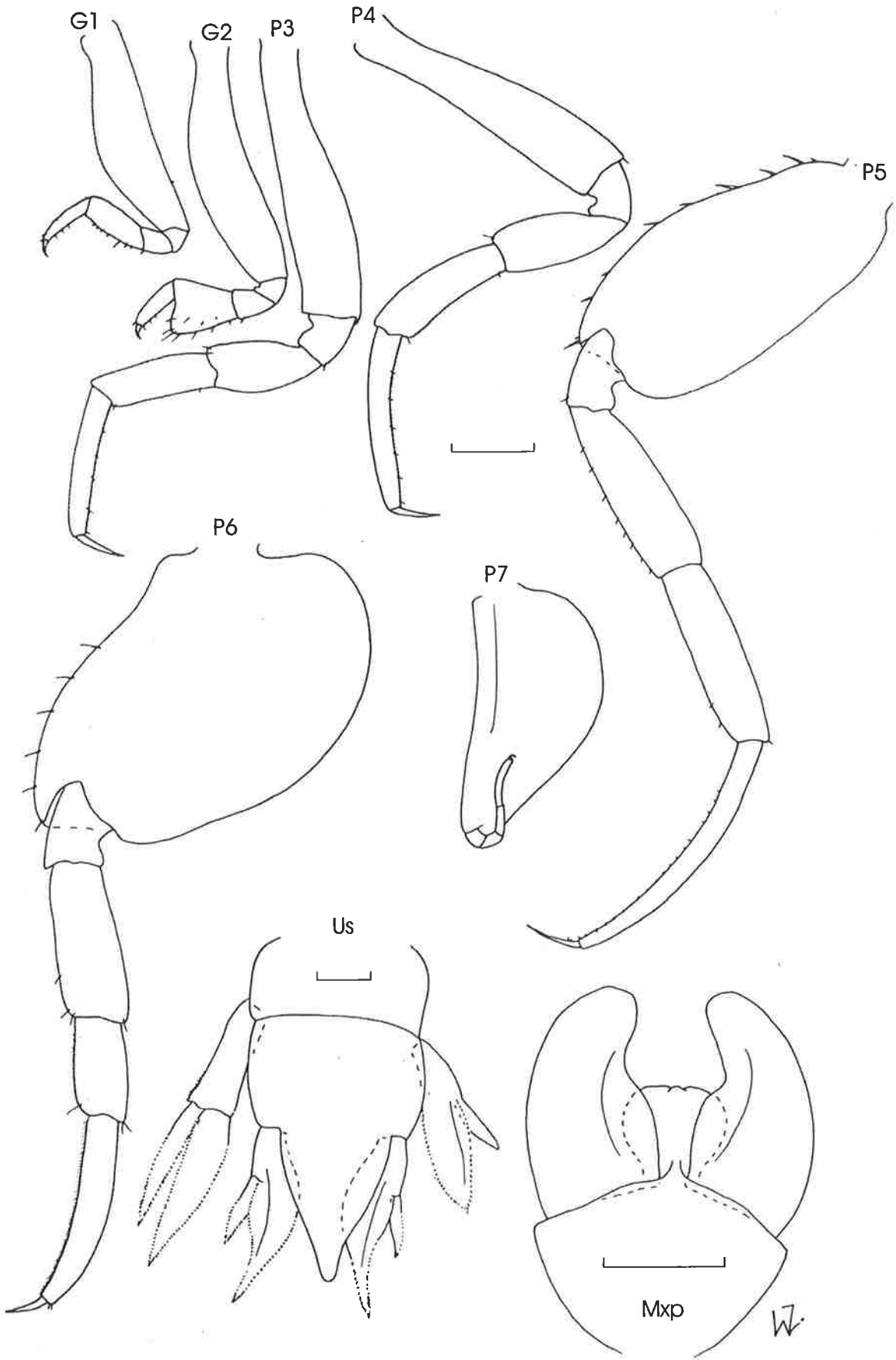


Fig. 79. *Simorhynchotus antennarius*, Coral Sea, SAMA C3694. Male 5.7 mm. Scale bars = 0.5 mm (G1-P7, Us), 0.1 mm (Mxp).

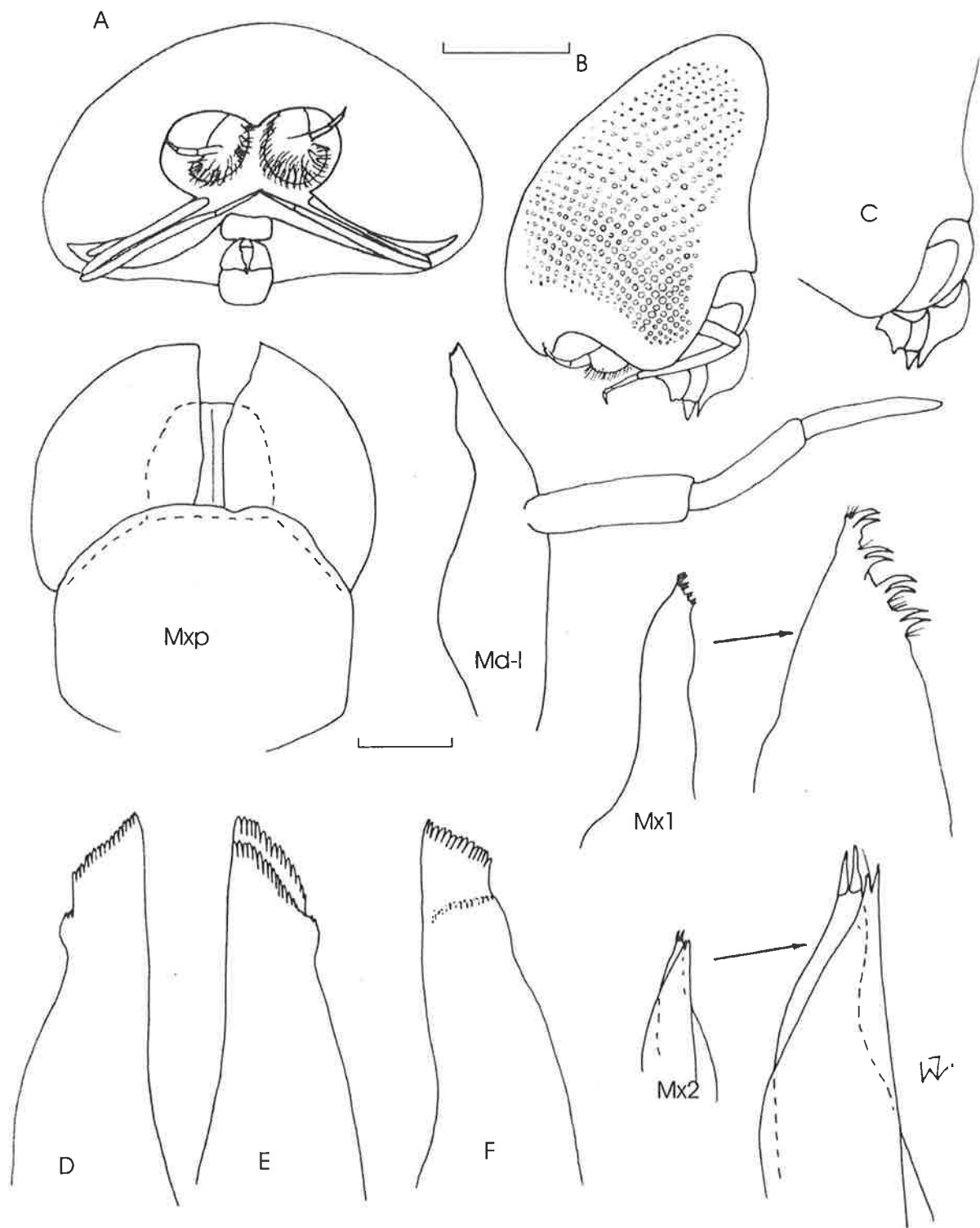


Fig. 80. *Anapronoe reinhardti*, North Pacific, off California, USNM cat. 278107. Male 7.9 mm. A, ventral view of head showing antennal grooves; B, lateral view of head; C, lateral view of head showing buccal mass and antennal groove (antennae removed); D, Md-l; E, Md-l, medial view; F, Md-r. Scale bars = 0.5 mm (A-C), 0.1 mm (remainder).



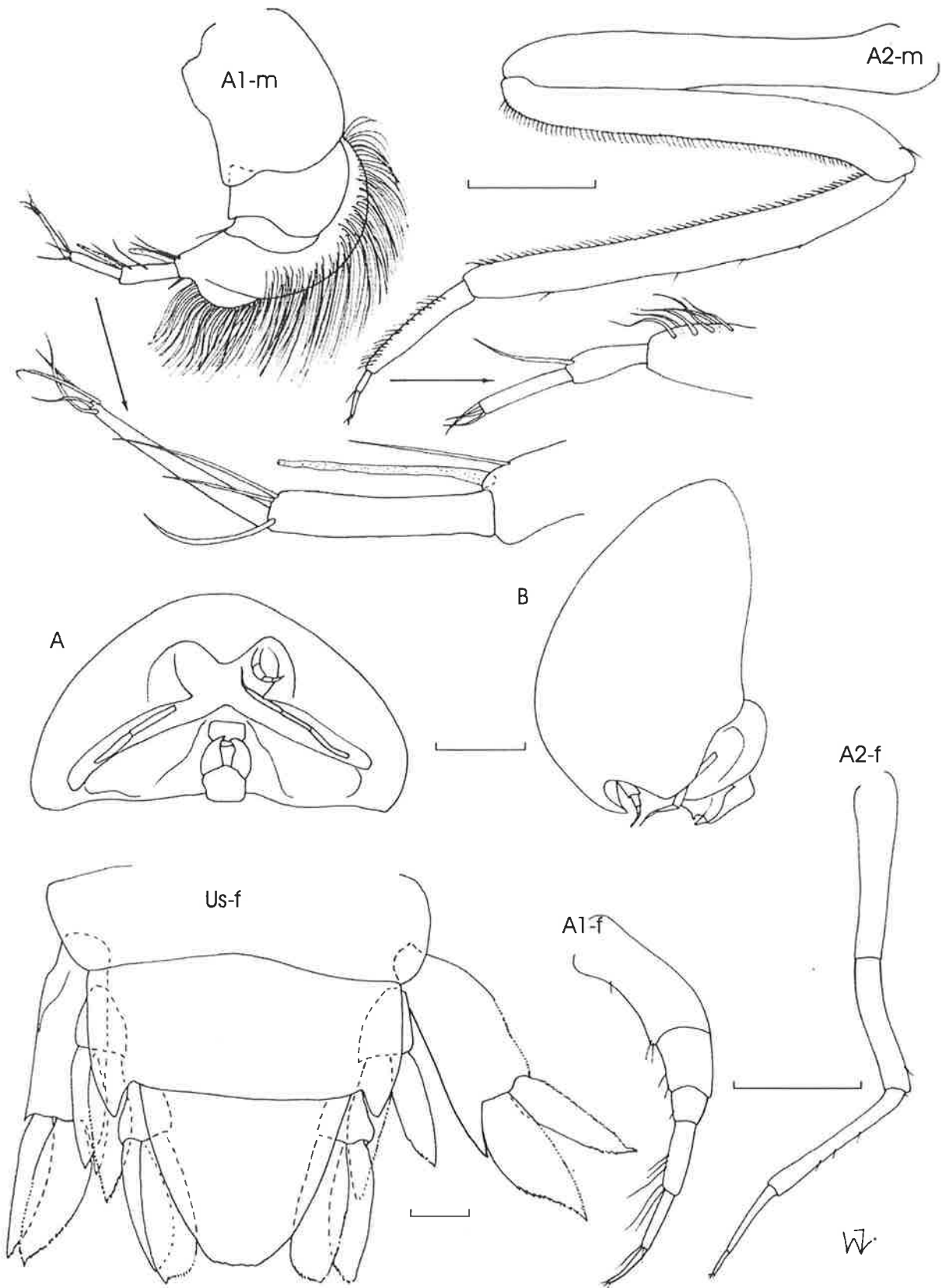


Fig. 81. *Anapronoe reinhardtii*, North Pacific, off California, USNM cat. 278107 (male 7.9 mm); Caribbean, USNM cat. 278108 (female 7.4 mm). **A**, **B**, ventral and lateral view of head of female. Scale bars = 0.5 mm (A, B, Us), 0.2 mm (A1 & 2).

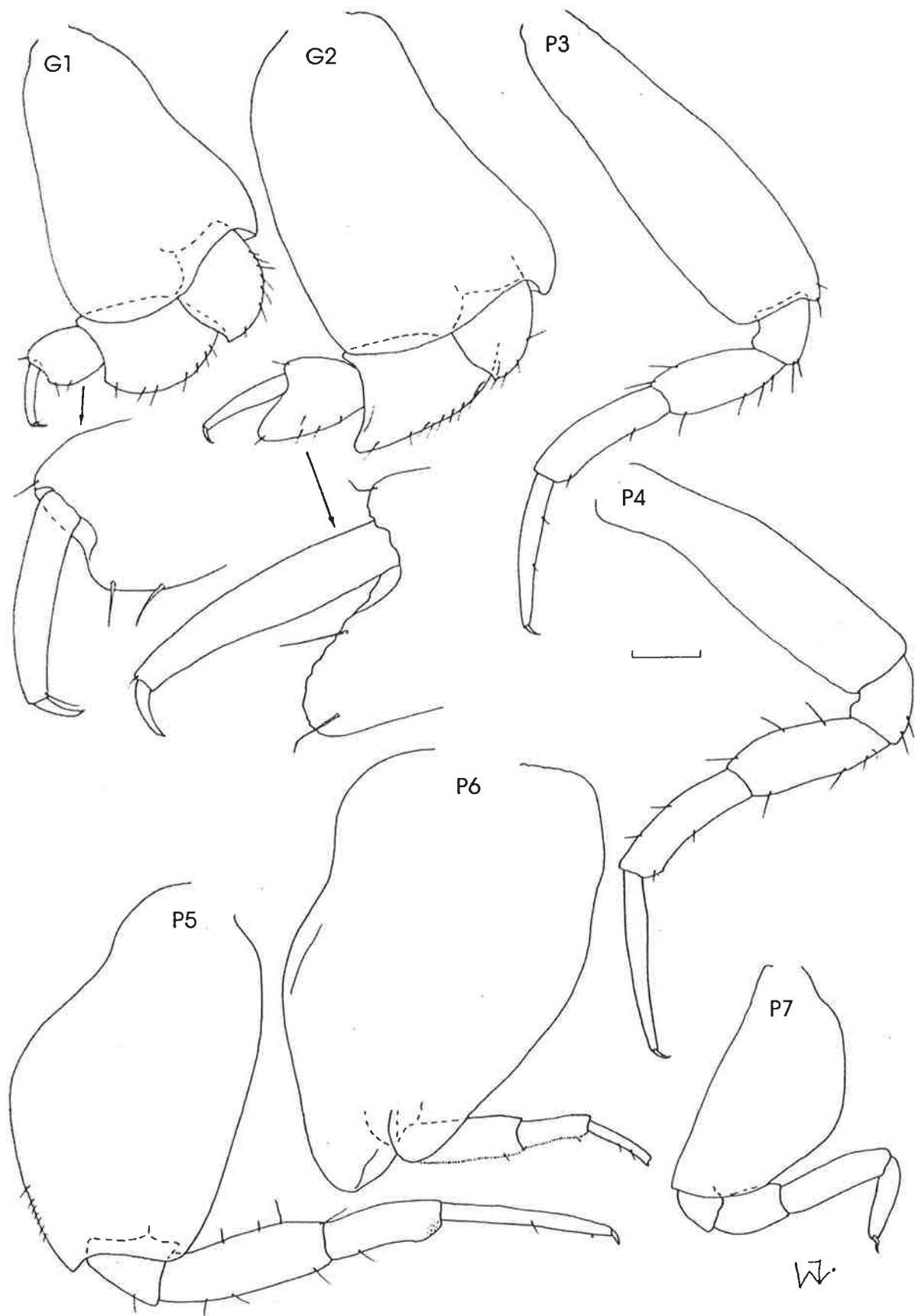


Fig. 82. *Anapronoe reinhardti*, Caribbean, USNM cat. 278108. Female 7.4 mm. Scale bar = 0.2 mm.

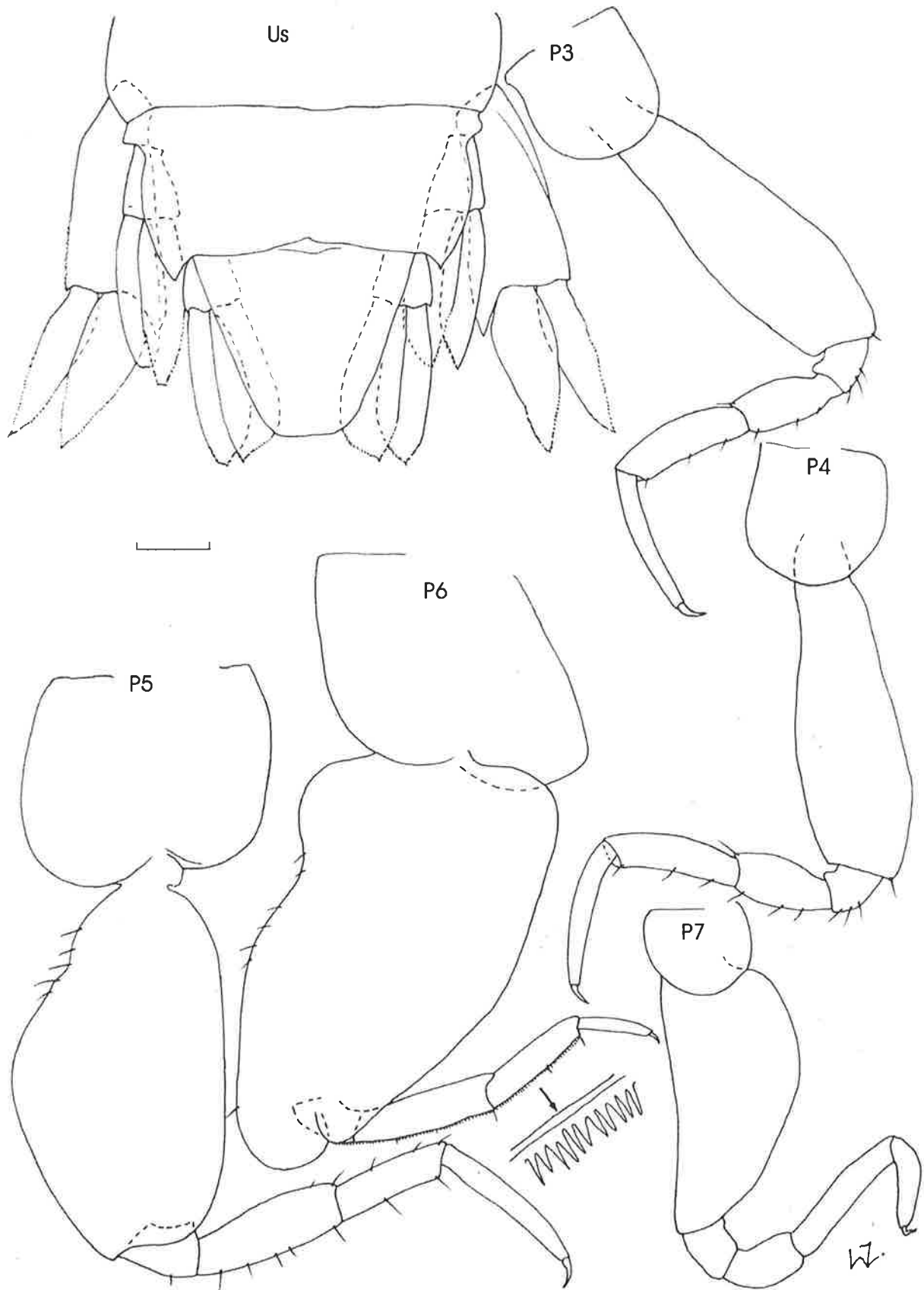


Fig. 83. *Anapronoe reinhardti*, mid-Atlantic Ocean, ZMUC CRU439. Holotype male, approx 7.0 mm. Scale bar = 0.2 mm.

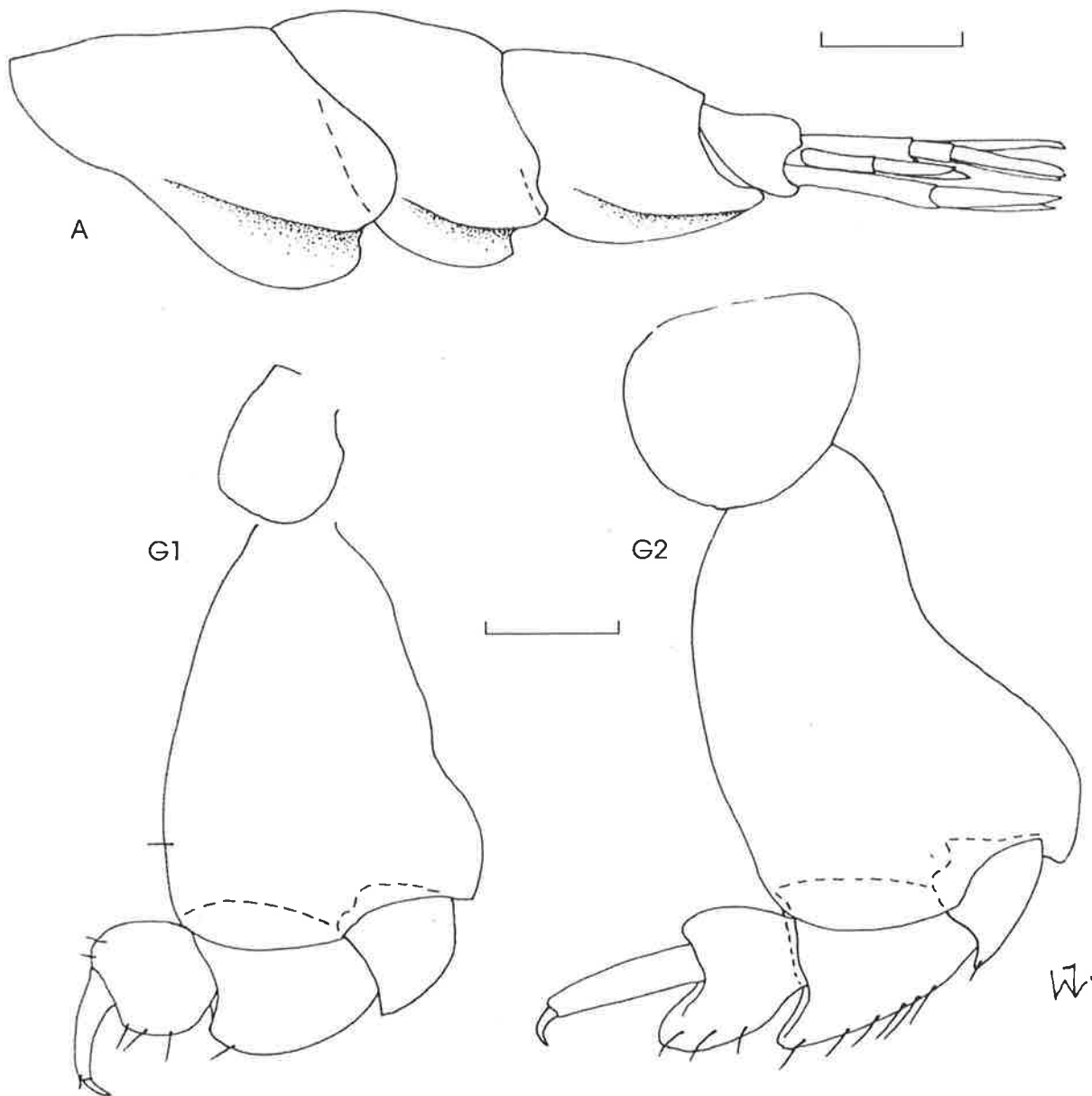


Fig. 84. *Anapronoe reinhardti*, mid-Atlantic Ocean, ZMUC CRU439. Holotype male, approx 7.0 mm. A, lateral view of pleonites and urosome. Scale bars = 0.5 mm (A), 0.2 mm (G1 & 2).

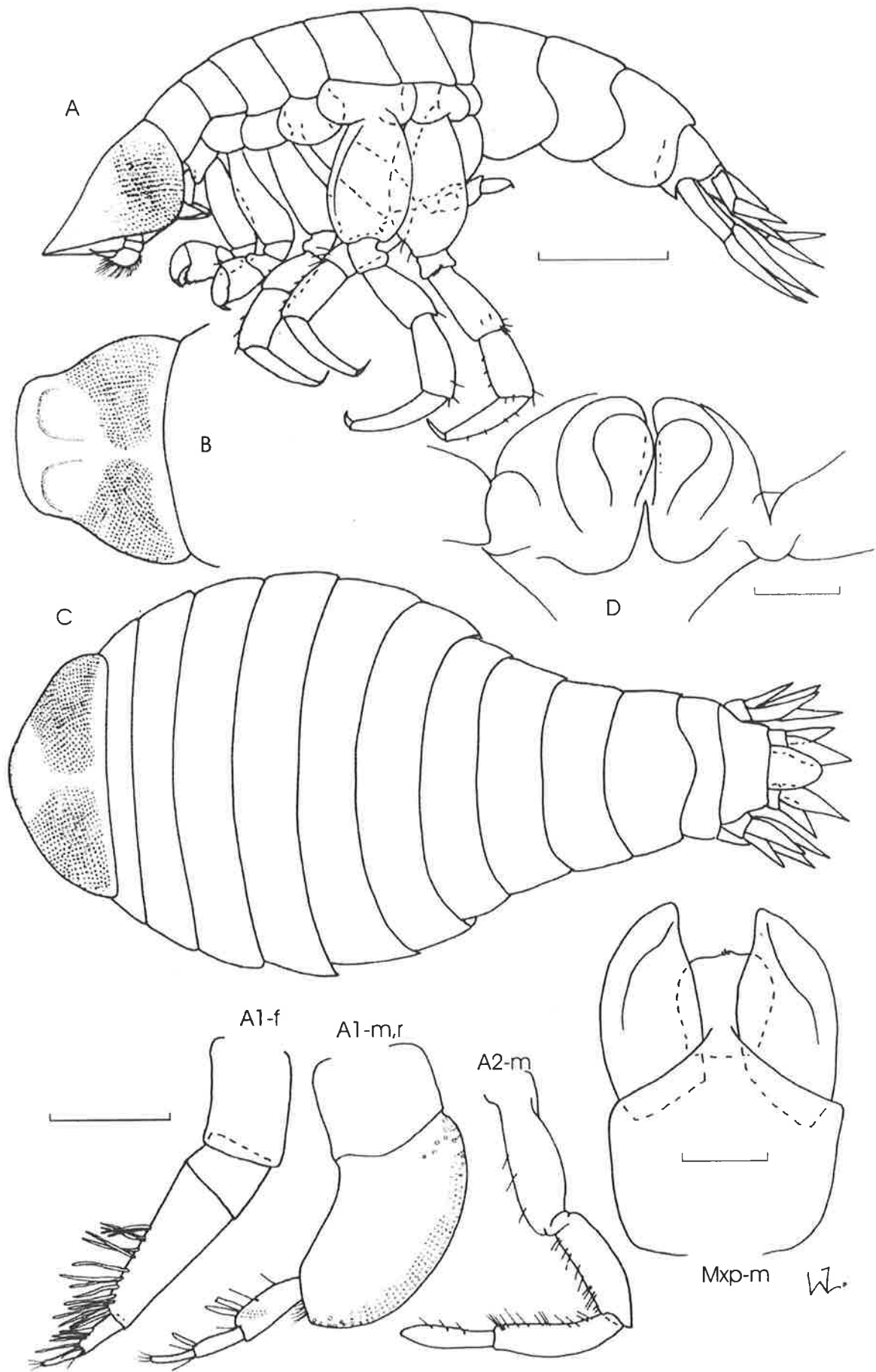


Fig. 85. *Thamneus rostratus*, Philippines, SAMA C5805 (male 6.8 mm, female 6.2 mm). A, lateral view of male; B, dorsal view of head of male; C, dorsal view of female; D, ventral view of Mx1 & 2 lying on top of mandibles. Scale bars = 1.0 mm (A-C), 0.2 mm (A1 & 2), 0.1 mm (D, Mxp).

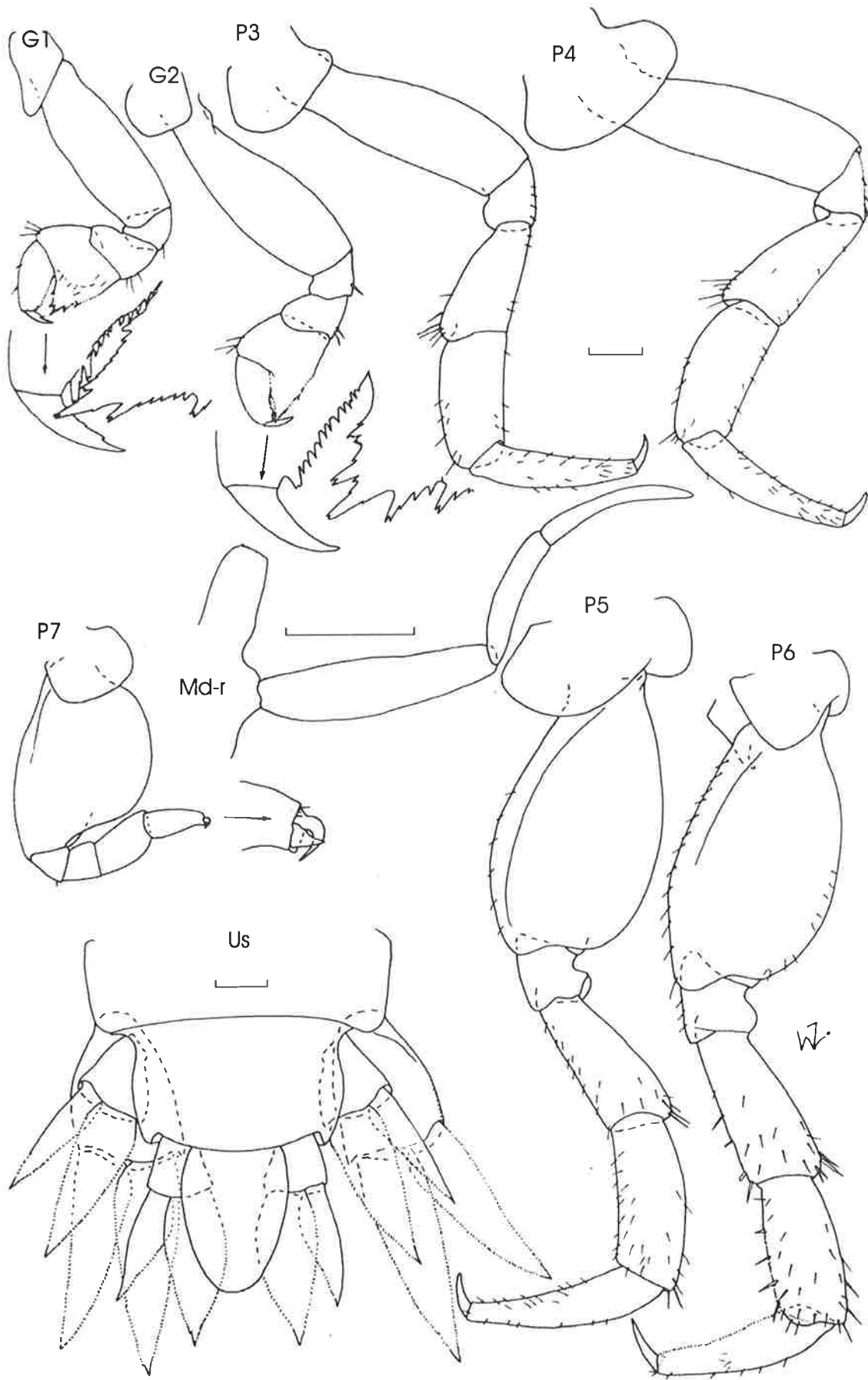


Fig. 86. *Thamneus rostratus*, Philippines, SAMA C5805. Male 6.8 mm. Scale bars = 0.2 mm.

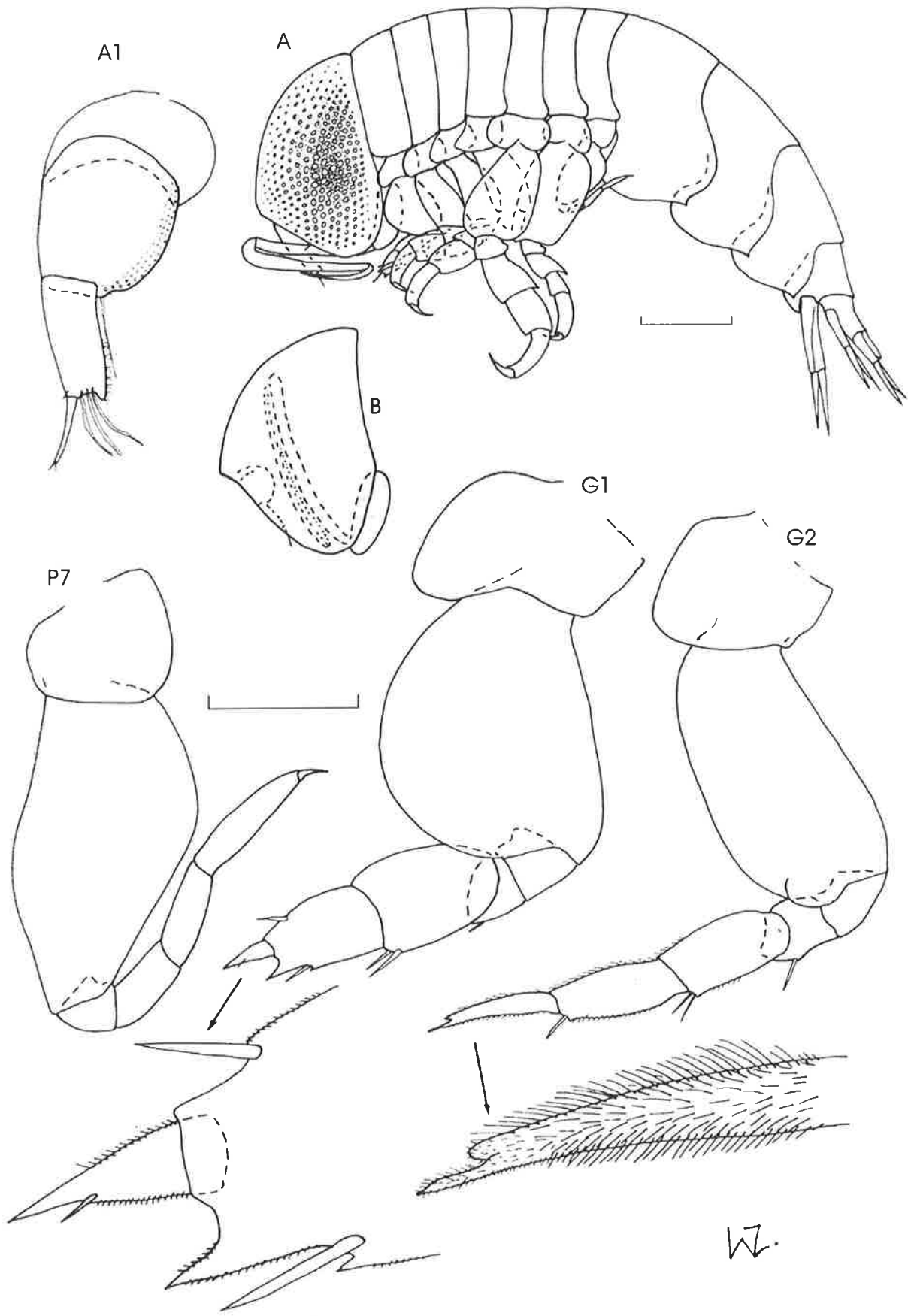


Fig. 87. *Tryphana malmi*, Tasman Sea, SAMA C5250. Male 4.4 mm. A, lateral view; B, lateral view of head showing normal position for A2. Scale bars = 0.5 mm (A, B), 0.2 mm (remainder).

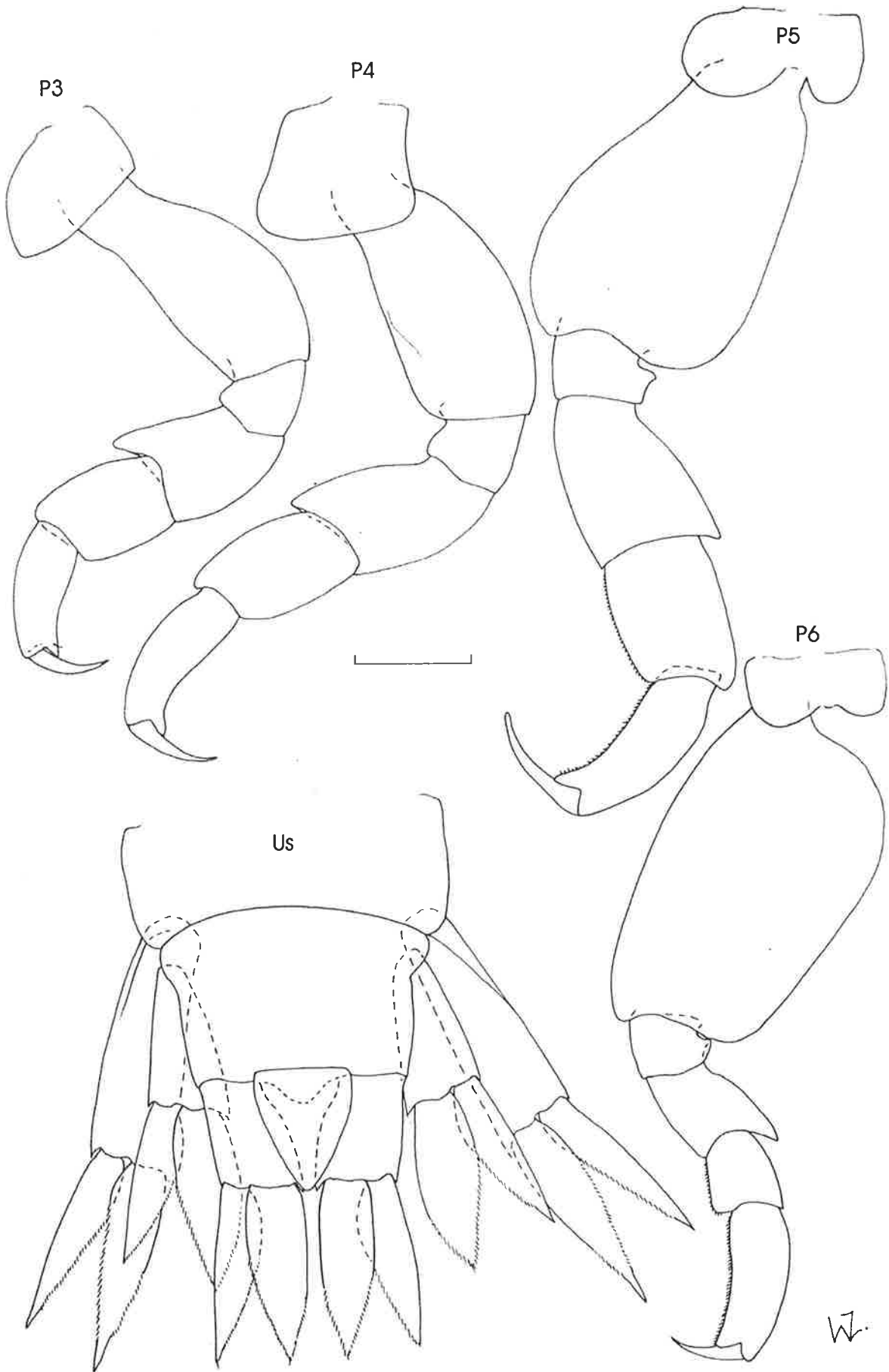


Fig. 88. *Tryphana malmi*, Tasman Sea, SAMA C5250. Male 4.4 mm. Scale bar = 0.2 mm.



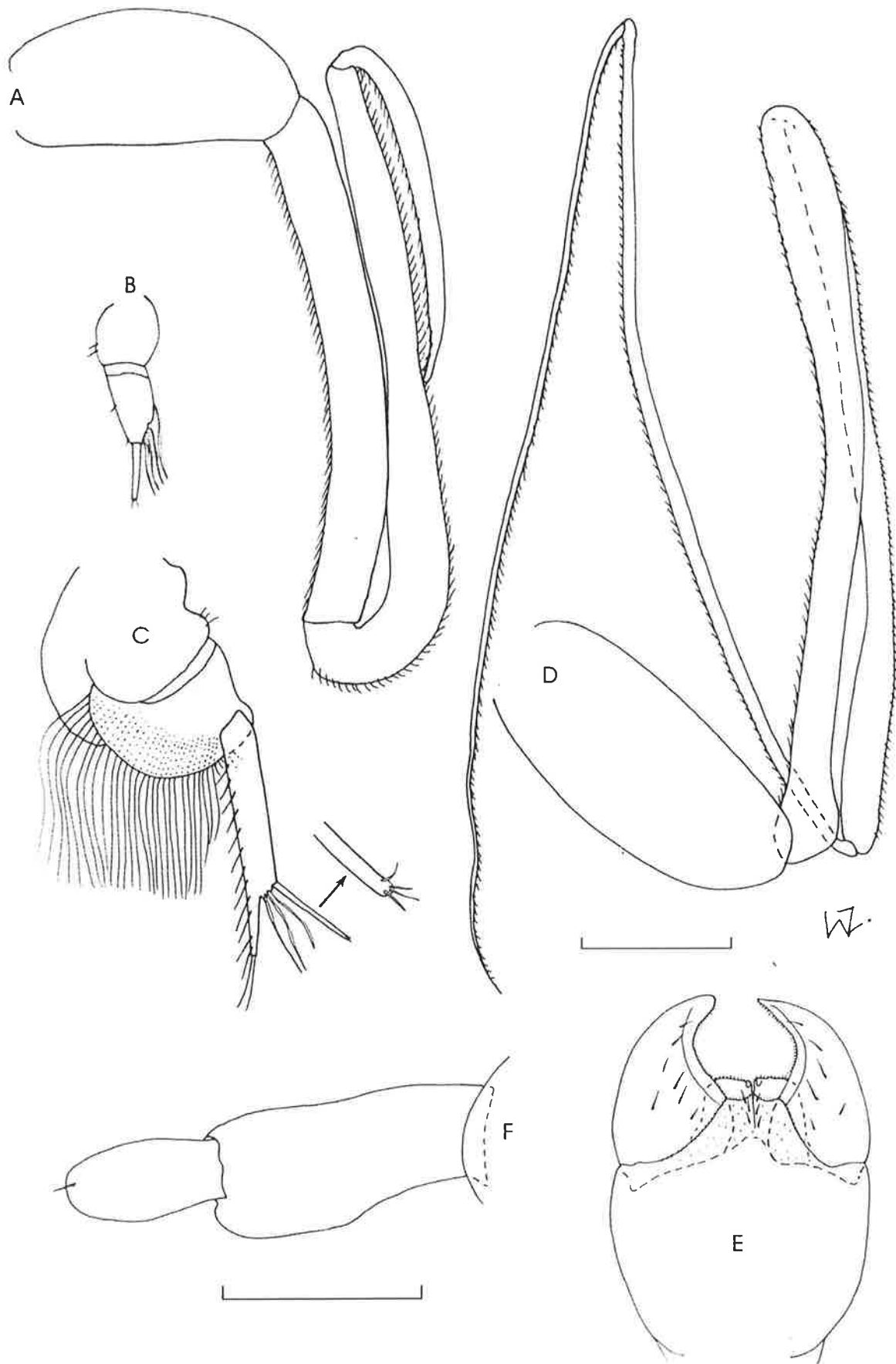


Fig. 89. *Tryphana malmi*, Tasman Sea, SAMA C5259 (A); C5260 (B, F); C5261 (C, D, E). A, A2 from male 4.4 mm (recently moulted); B, F, A1 & 2 from female 2.9 mm; C, D, E, A1 & 2, Mxp from male 4.7 mm. Scale bars = 0.2 mm (A-E), 0.1 mm (F).

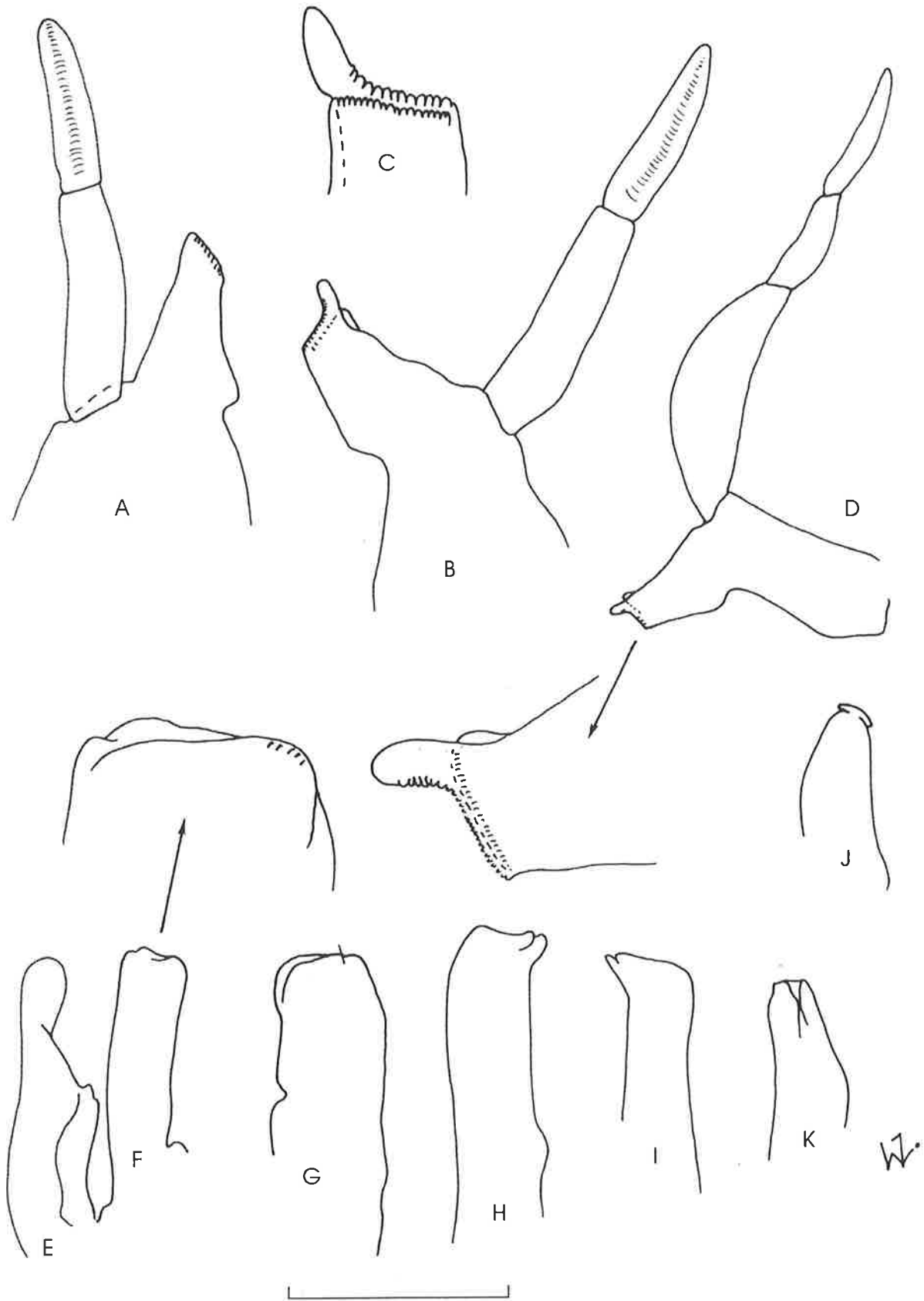


Fig. 90. *Tryphana malmi*, Tasman Sea, SAMA C5260 (female 2.9 mm, A-C, G-K); C5261 (male 4.7 mm, D-F). A, right Md; B, left Md; C, left Md medial view; D, left Md; E, Mx2; F, Mx1; G, H, left Mx1; I, right Mx1; J, right Mx2; K, left Mx2.

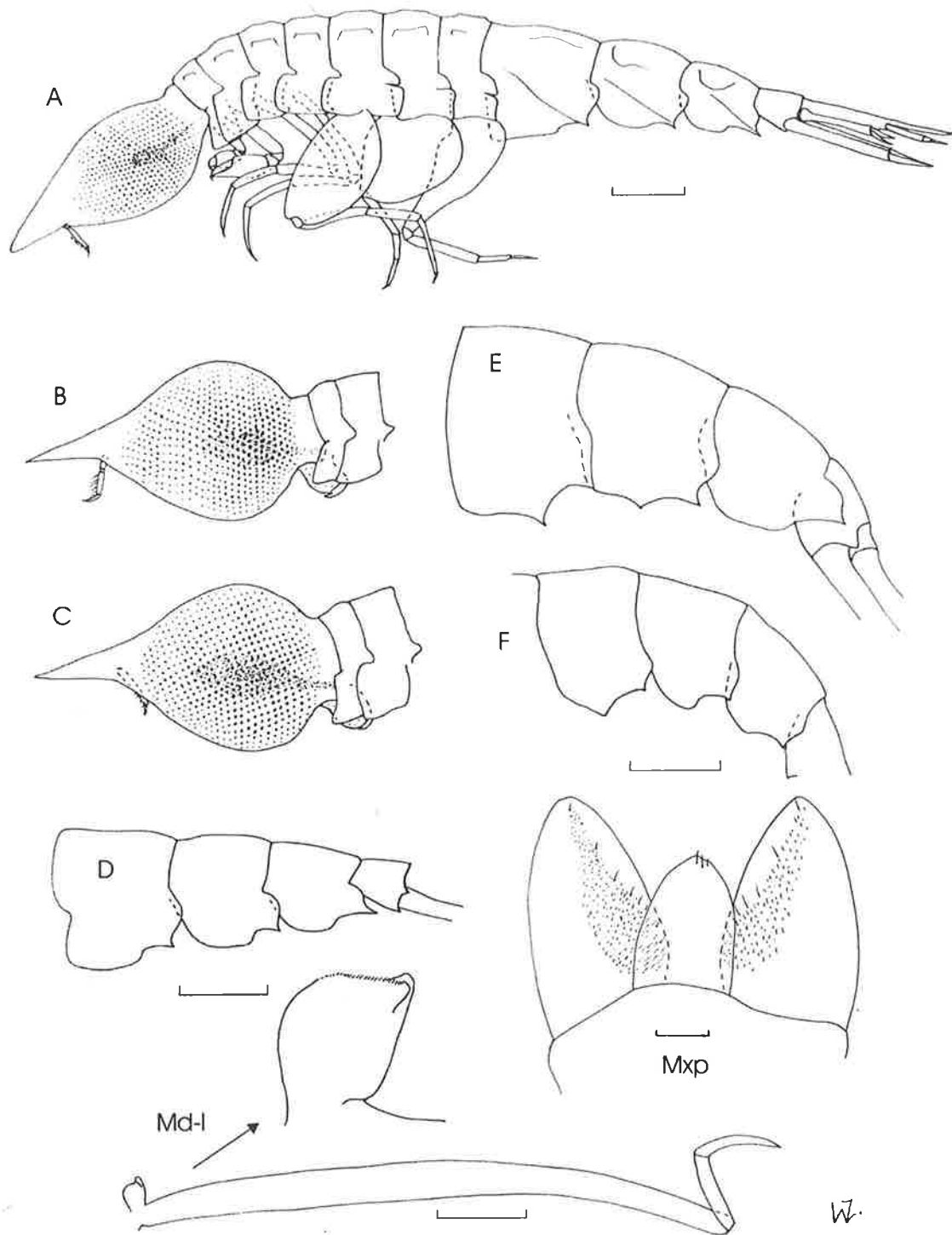


Fig. 91. *Oxycephalus piscator* (A-F); *O. clausi* (Md, Mxp). A, lateral view of female 27.6 mm, Mediterranean, ZMUC CRU455. B, head of 'bulbous' form, female 12.8 mm, North Atlantic, ZMUC CRU453. C, D, head and Pl of 'bulbous' form, female 13.3 mm, North Atlantic, USNM cat. 264130. E, Pl of female 8.5 mm, North Atlantic, ZMUC CRU453. F, Pl of female 6.8 mm, North Atlantic, MOM 372467. Md from male 24.5 mm, Coral Sea, SAMA C3696. Mxp from female 34.0 mm, Tasman Sea, SAMA C4222. Scale bars = 2.0 mm (A), 1.0 mm (B-D), 0.5 mm (E, F, Md), 0.1 mm (Mxp).

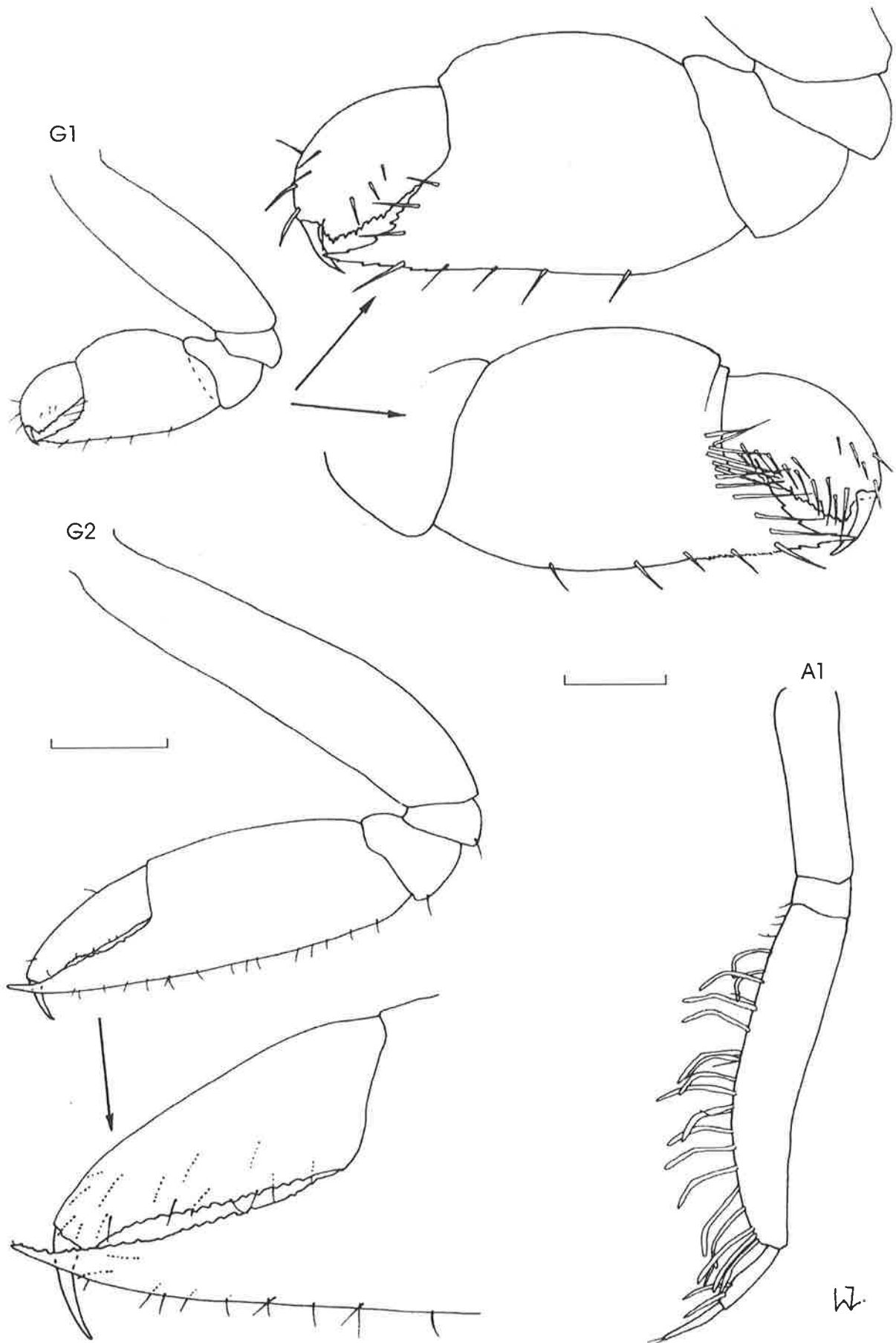


Fig. 92. *Oxycephalus piscator*, Mediterranean, ZMUC CRU455. Female 27.6 mm. Scale bars = 0.5 mm (G1 & 2), 0.2 mm (A1).

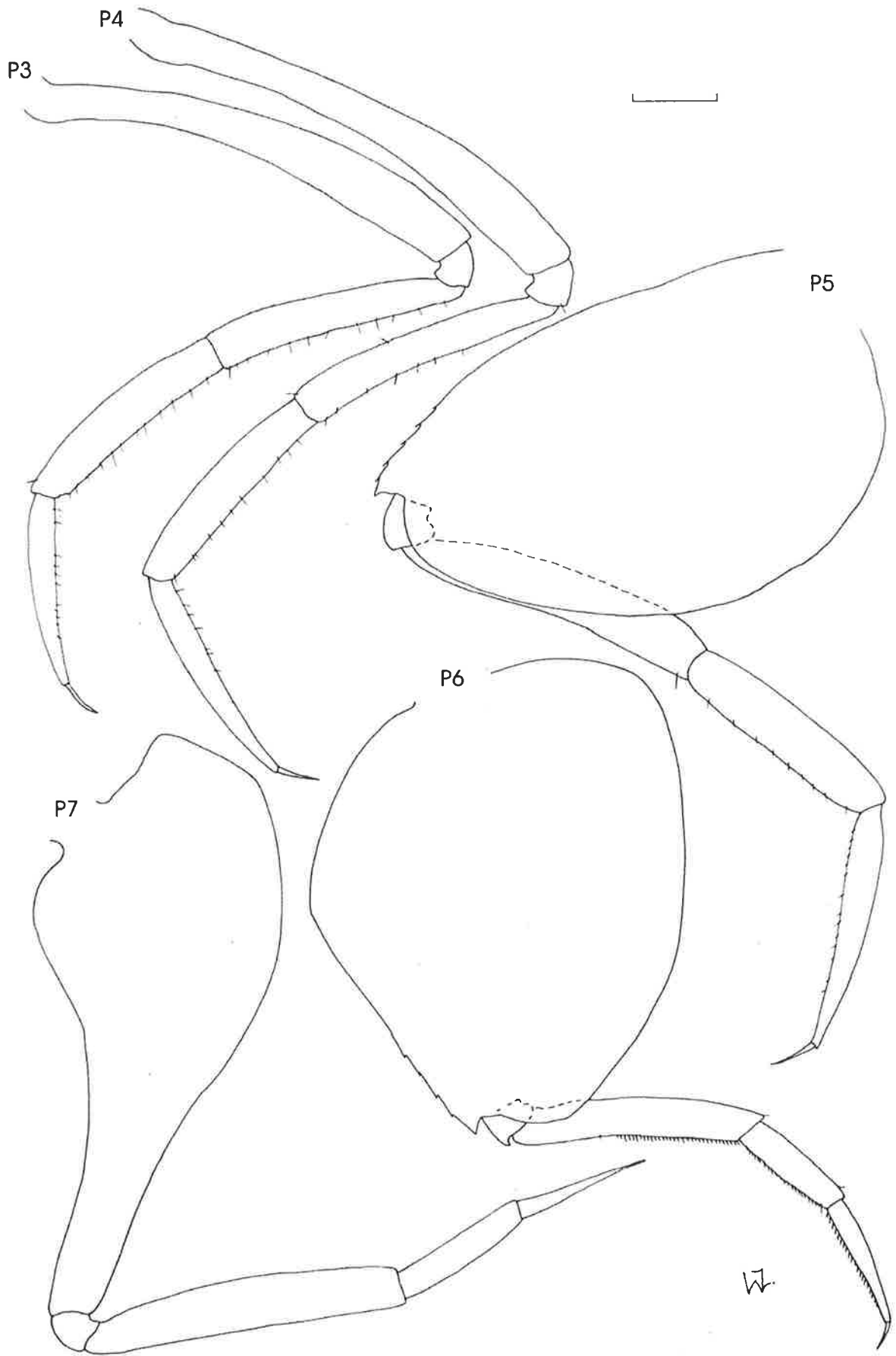


Fig. 93. *Oxycephalus piscator*, Mediterranean, ZMUC CRU455. Female 27.6 mm. Scale bar = 0.5 mm.

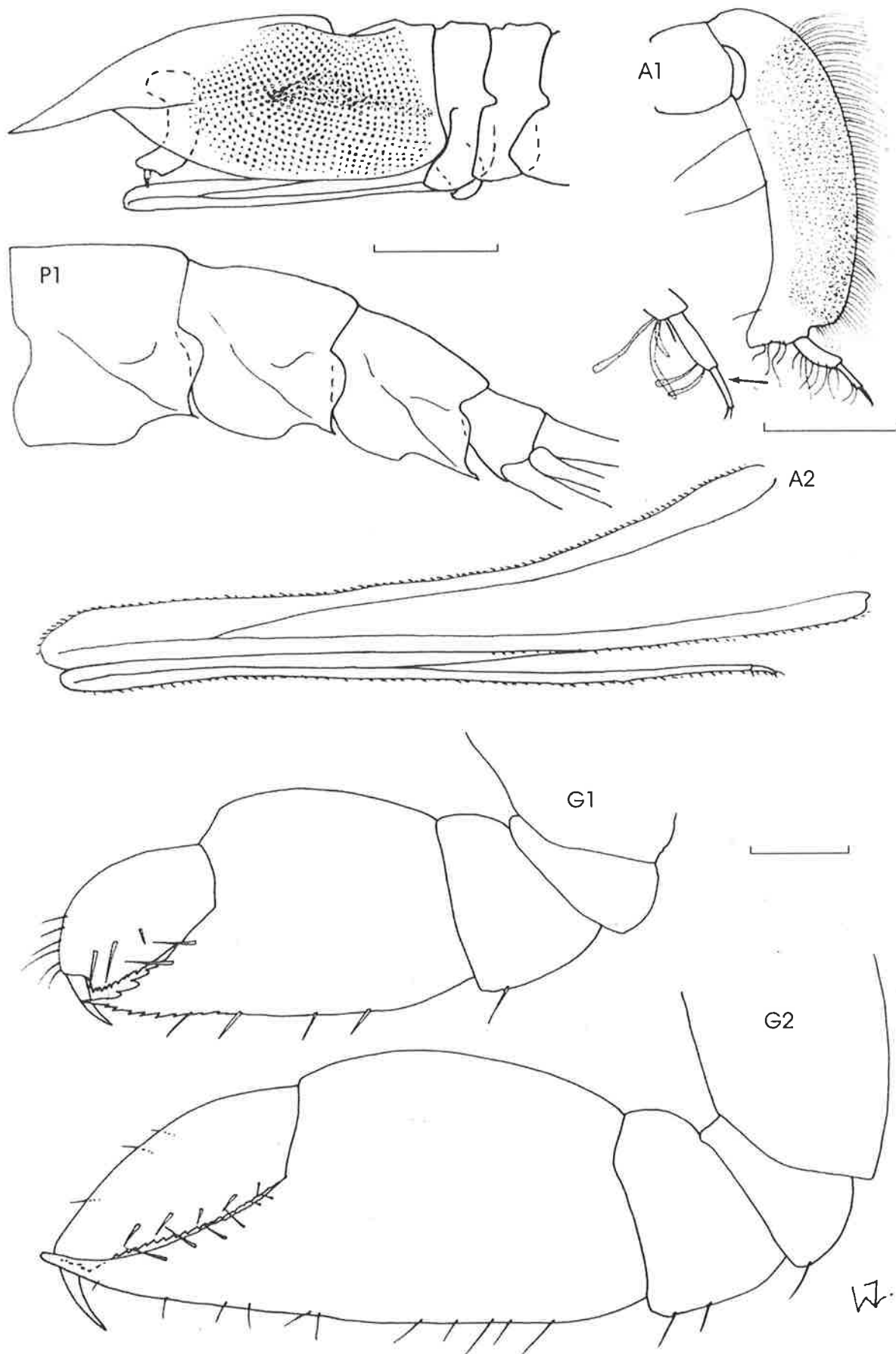


Fig. 94. *Oxycephalus piscator*, off New Zealand, BMNH 1930.8.1.780 (male 29.4 mm, head, P1, A1 & 2); South Pacific, ZMUC CRU457 (male 28 mm, G1 & 2). Scale bars = 2.0 mm (head, P1), 1.0 mm (G1 & 2).

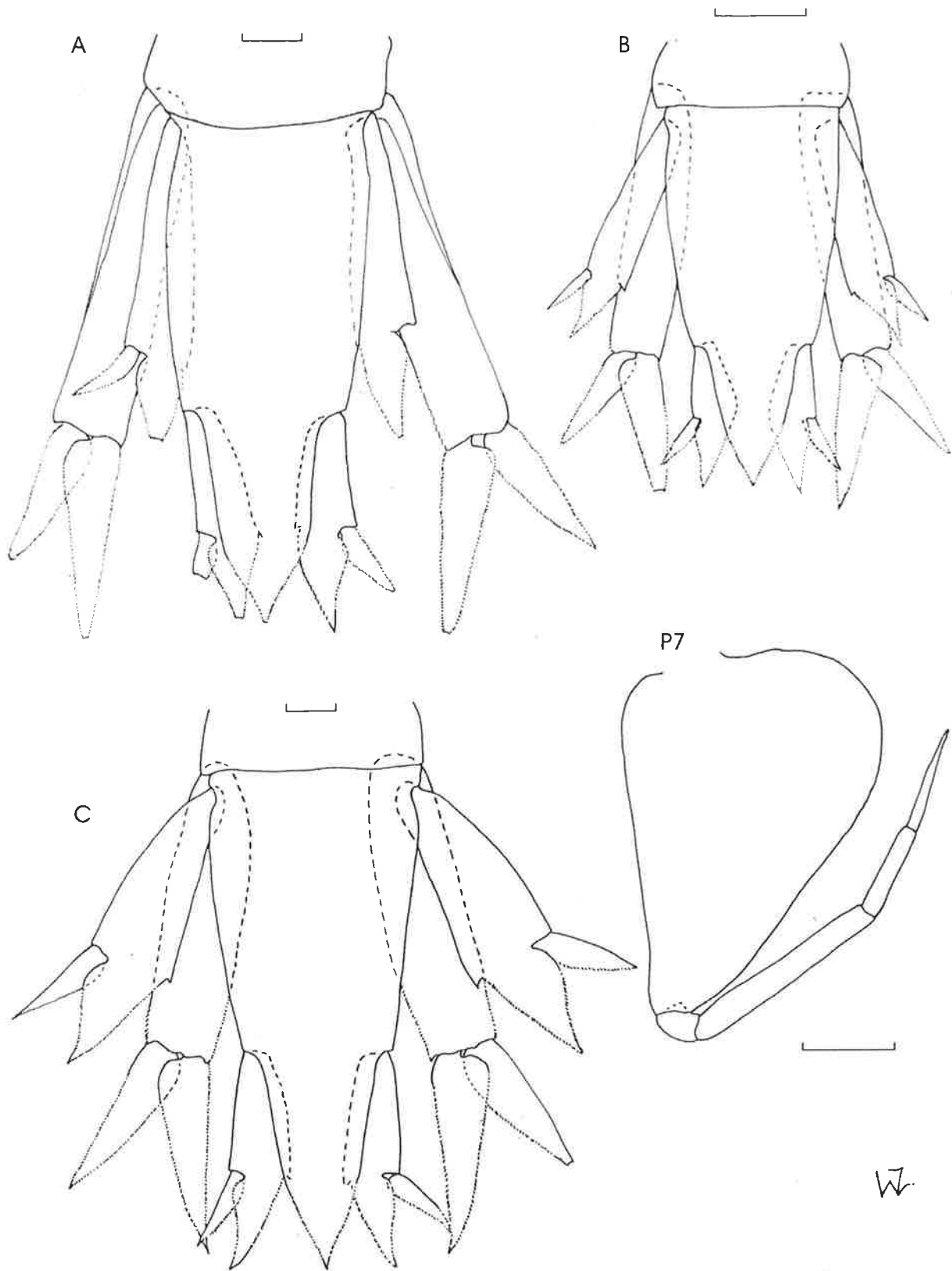


Fig. 95. *Oxycephalus piscator*, **A**, Us of female 27.6 mm, Mediterranean, ZMUC CRU455. **B**, Us of female 13.3 mm, 'bulbous' form, North Atlantic USNM cat. 264130. **C**, Us of male 29.4 mm, off New Zealand, BMNH 1930.8.1.780; also P7. Scale bars = 0.5 mm.

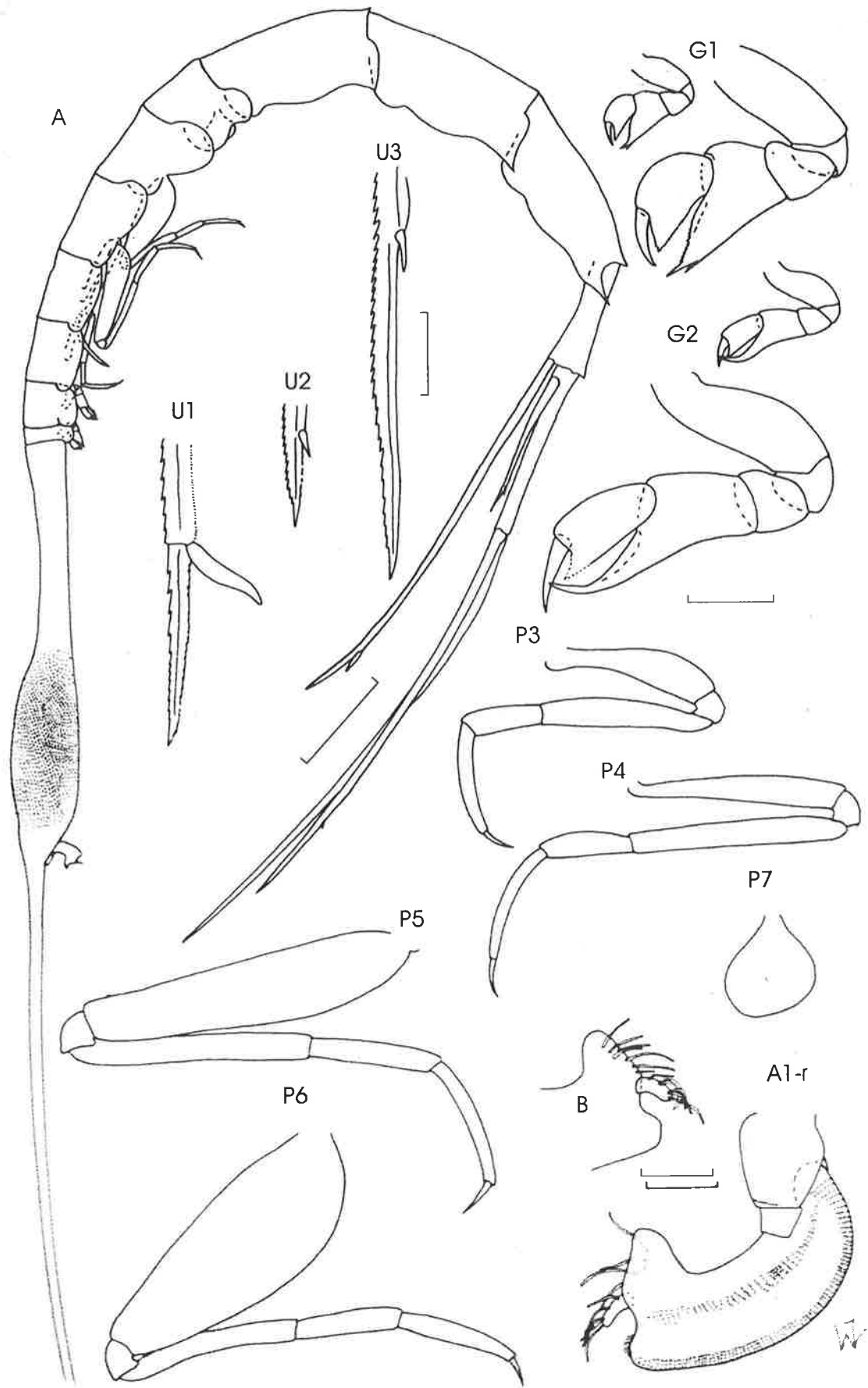


Fig. 96. *Rhabdosoma armatum*, Indian Ocean, off South Africa, SAMA C5808, Male approx. 110 mm. A, lateral view; B, A1 lateral view. Scale bars = 2.0 mm (A), 0.5 mm (G1-P7, U1-3), 0.2 mm (A1).



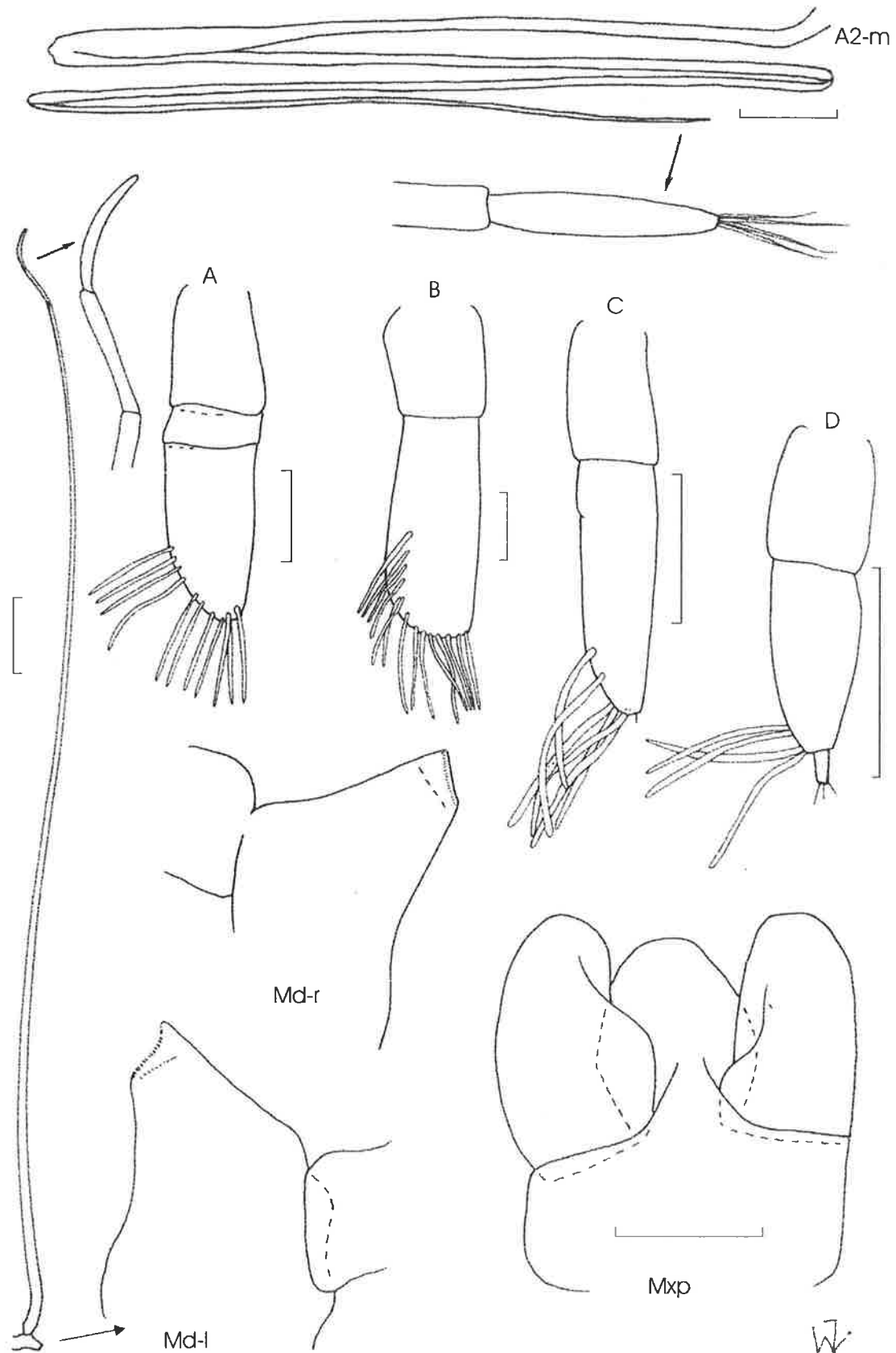


Fig. 97. *Rhabdosoma*, Indian Ocean, off South Africa. Md, Mxp, *R. armatum*, male approx. 110 mm (SAMA C5808). A2-m, *R. whitei*, male approx. 60 mm (SAMA C5811). A, *R. armatum*, A1, female approx. 34 mm (SAMA C5809); B, *R. whitei*, A1, female 62 mm (SAMA C5810); C, *R. minor*, A1, female approx. 17 mm (SAMA C5819); D, *R. brevicaudatum*, A1, female 8.9 mm (SAMA C5820). Scale bars = 5.0 mm (A2, Md), 0.1 mm (remainder).

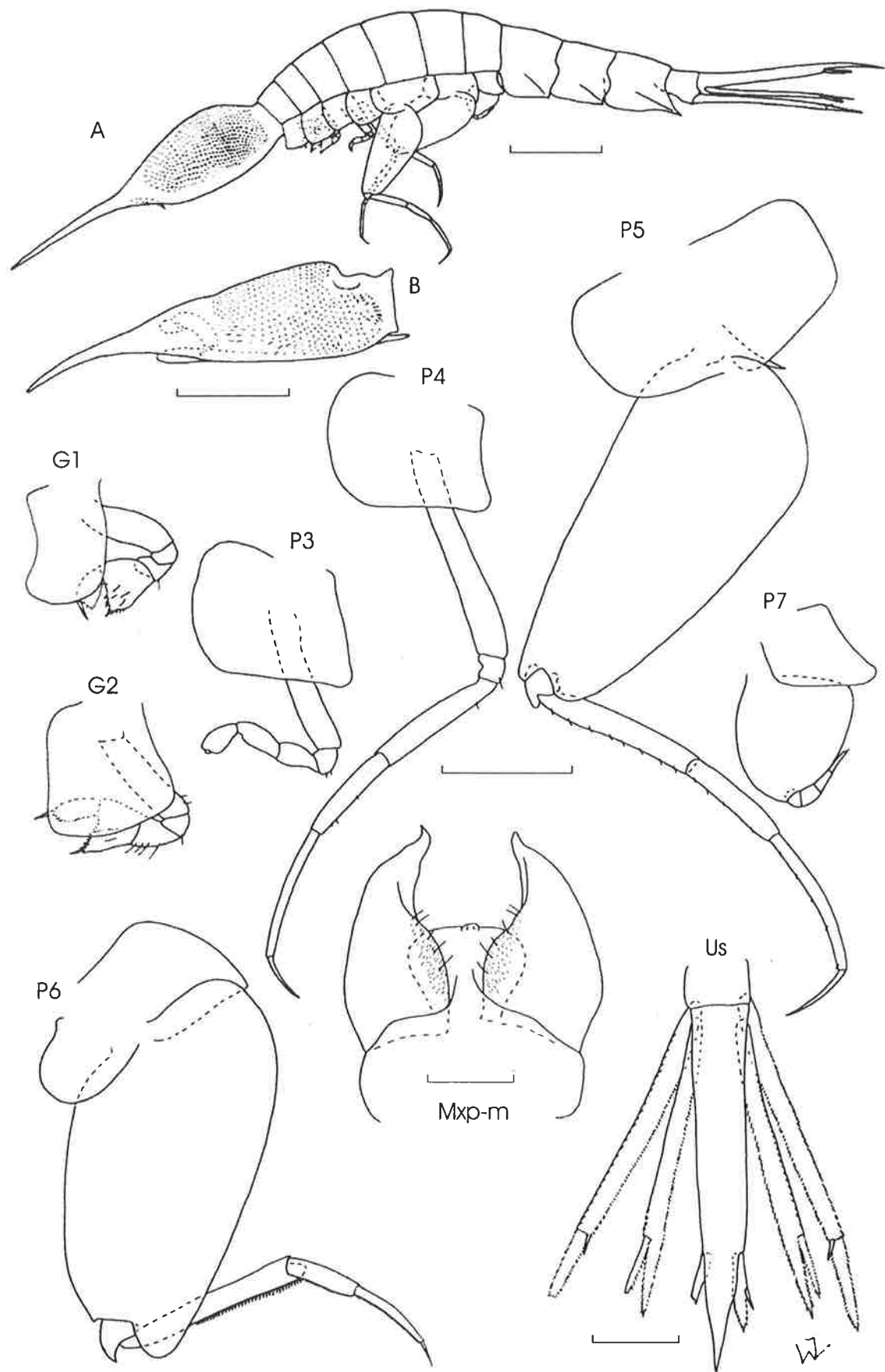


Fig. 98. *Leptocotis tenuirostris*, Tasman Sea, SAMA C5308 (female 10.3 mm), C5310 (male 10.6 mm). **A**, lateral view of female; **B**, head of male. All appendages except Mxp from female (P3 deformed). Scale bars = 1.0 mm (A, B), 0.5 mm (Us), 0.2 mm (G1-P7), 0.05 mm (Mxp).

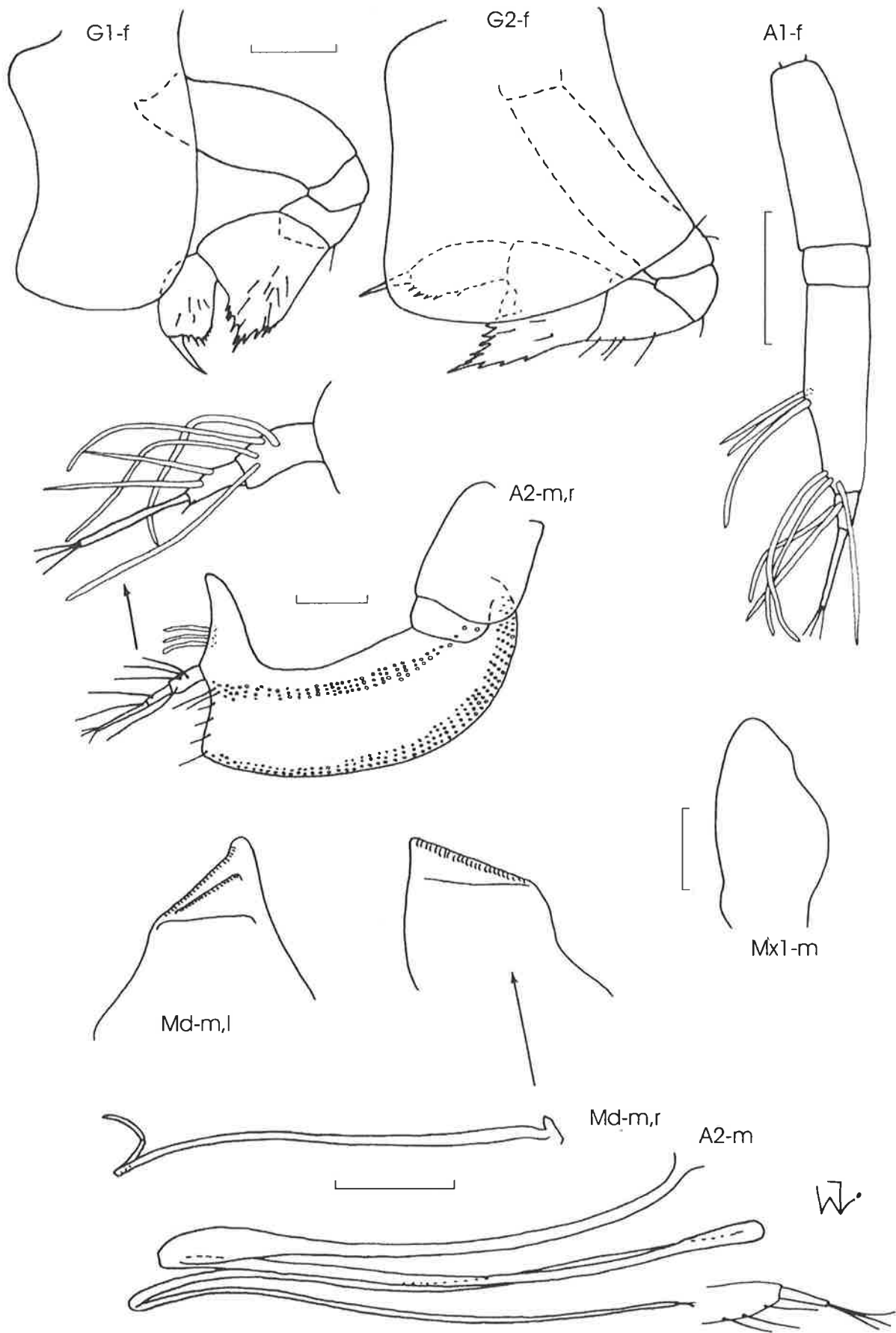


Fig. 99. *Leptocotis tenuirostris*, Tasman Sea, SAMA C5308 (female 10.3 mm), C5310 (male 10.6 mm). Scale bars = 0.5 mm (A2, Md), 0.1 mm (A1, G1 & 2), 0.025 mm (Mx1).

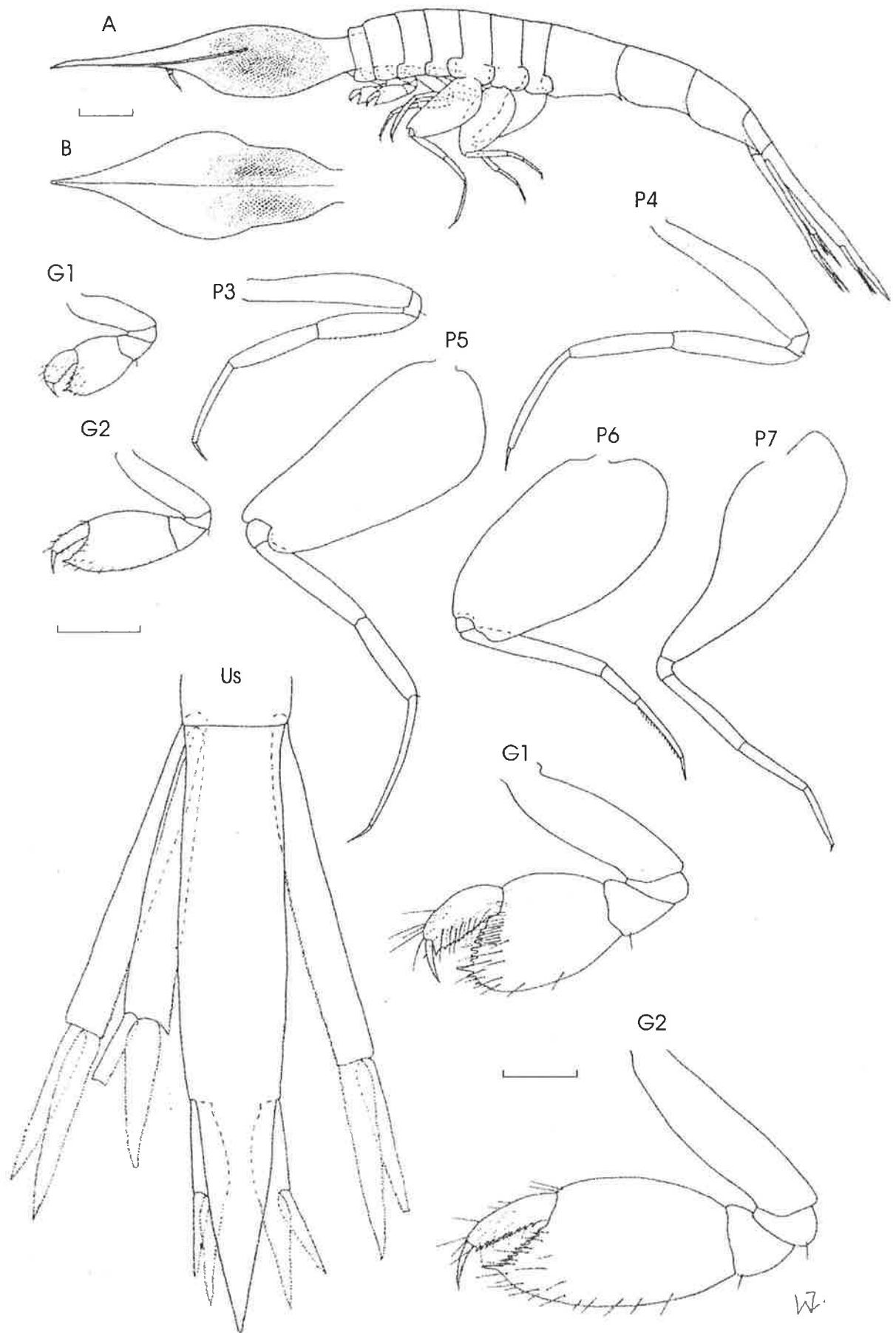


Fig. 100. *Calamorhynchus pellucidus*, Tasman Sea, SAMA C5306. Female 17.2 mm. A, lateral view; B, dorsal view of head. Scale bars = 1.0 mm (A), 0.5 mm (G1-P7, Us), 0.2 mm (G1 & 2).

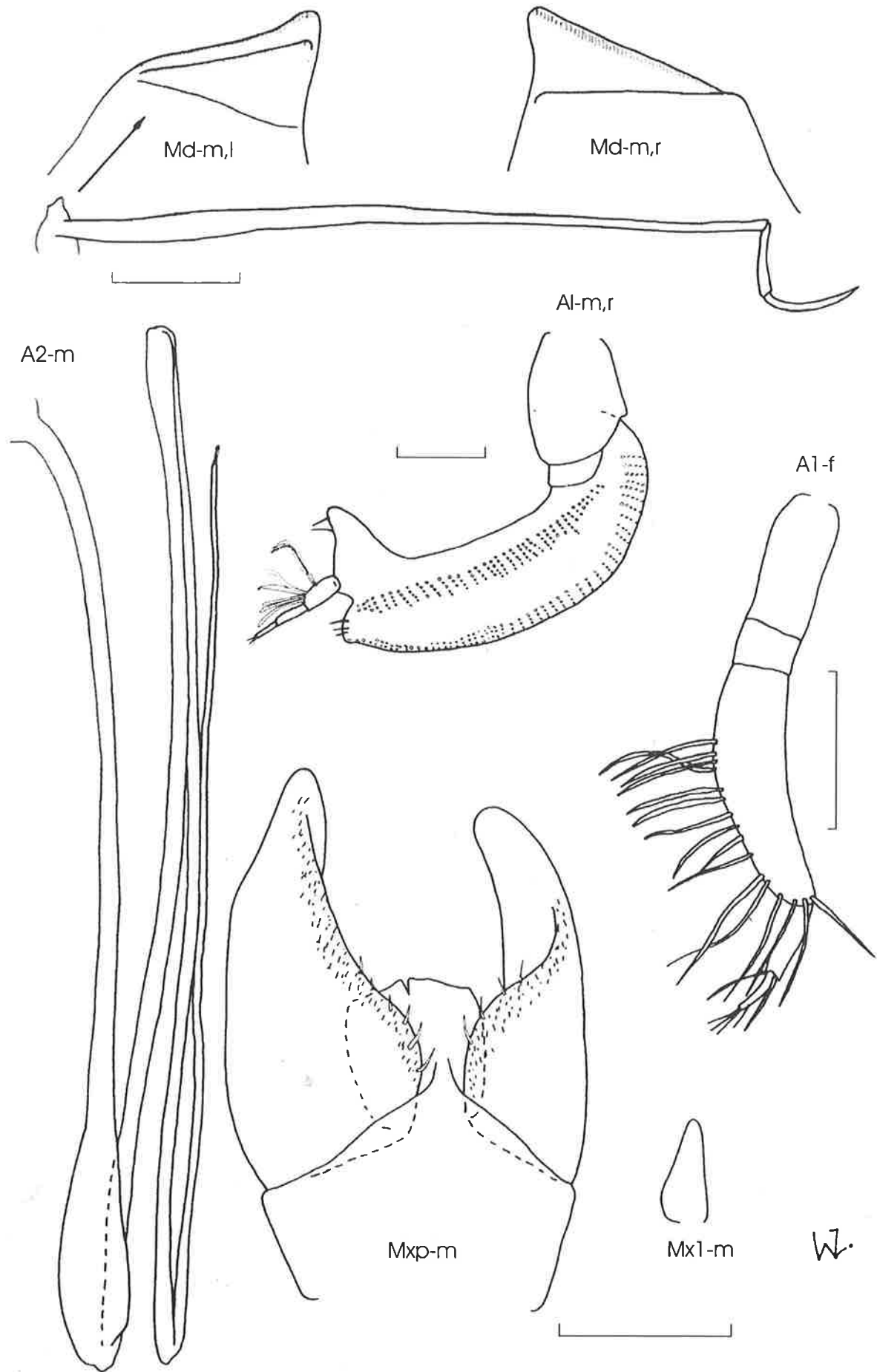


Fig. 101. *Calamorhynchus pellucidus*, Tasman Sea, SAMA C5306 (female 17.2 mm), C5307 (male 16.8 mm). Scale bars = 0.5 mm (A2, Md), 0.2 mm (A1), 0.1 mm (Mxp, Mx1).

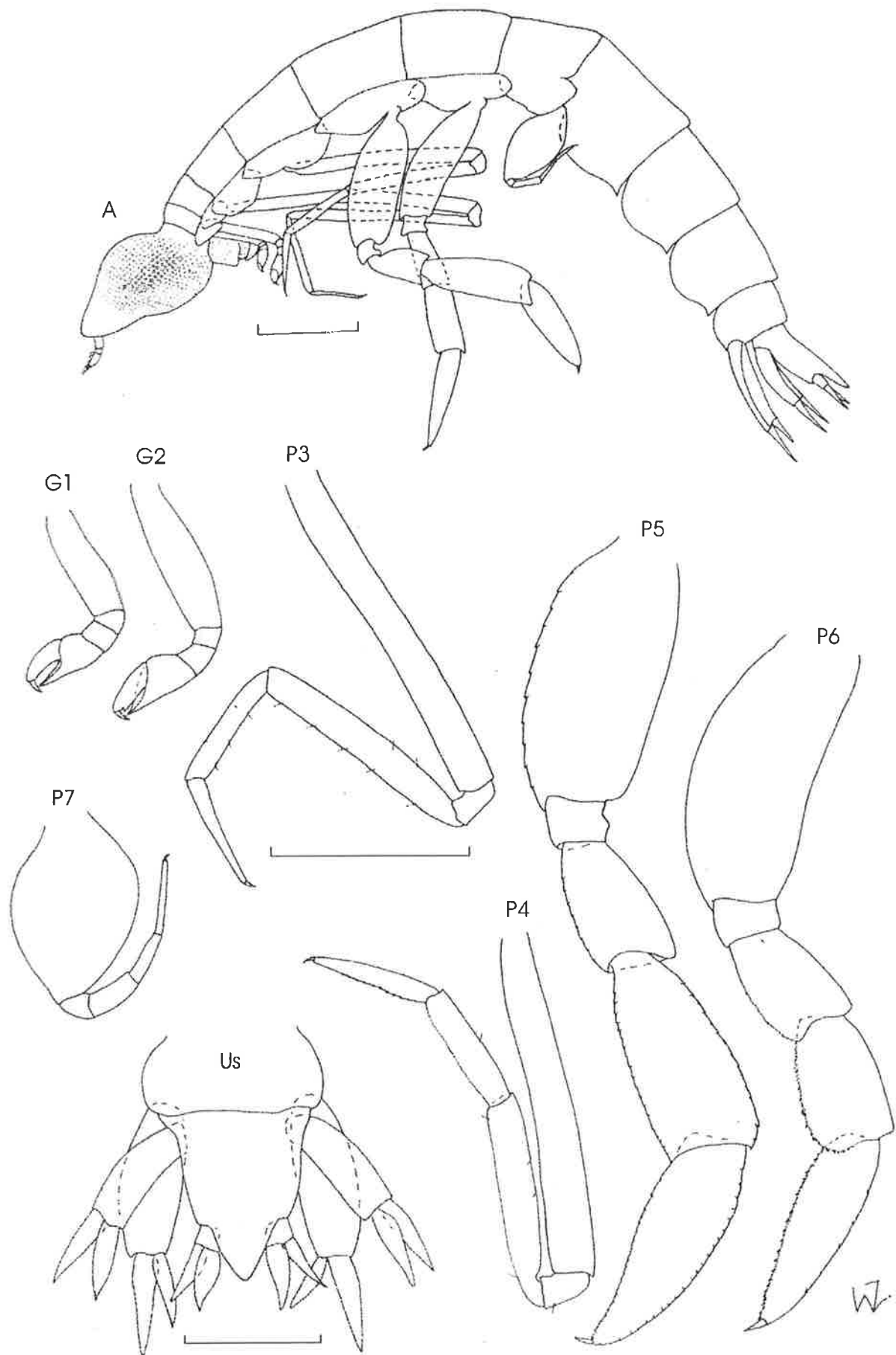


Fig. 102. *Glossocephalus milneedwardsi*, North Pacific, off California, SAMA C5816. Female 10.2 mm. A, lateral view. Scale bars = 1.0 mm.(A), 0.5 mm (remainder).

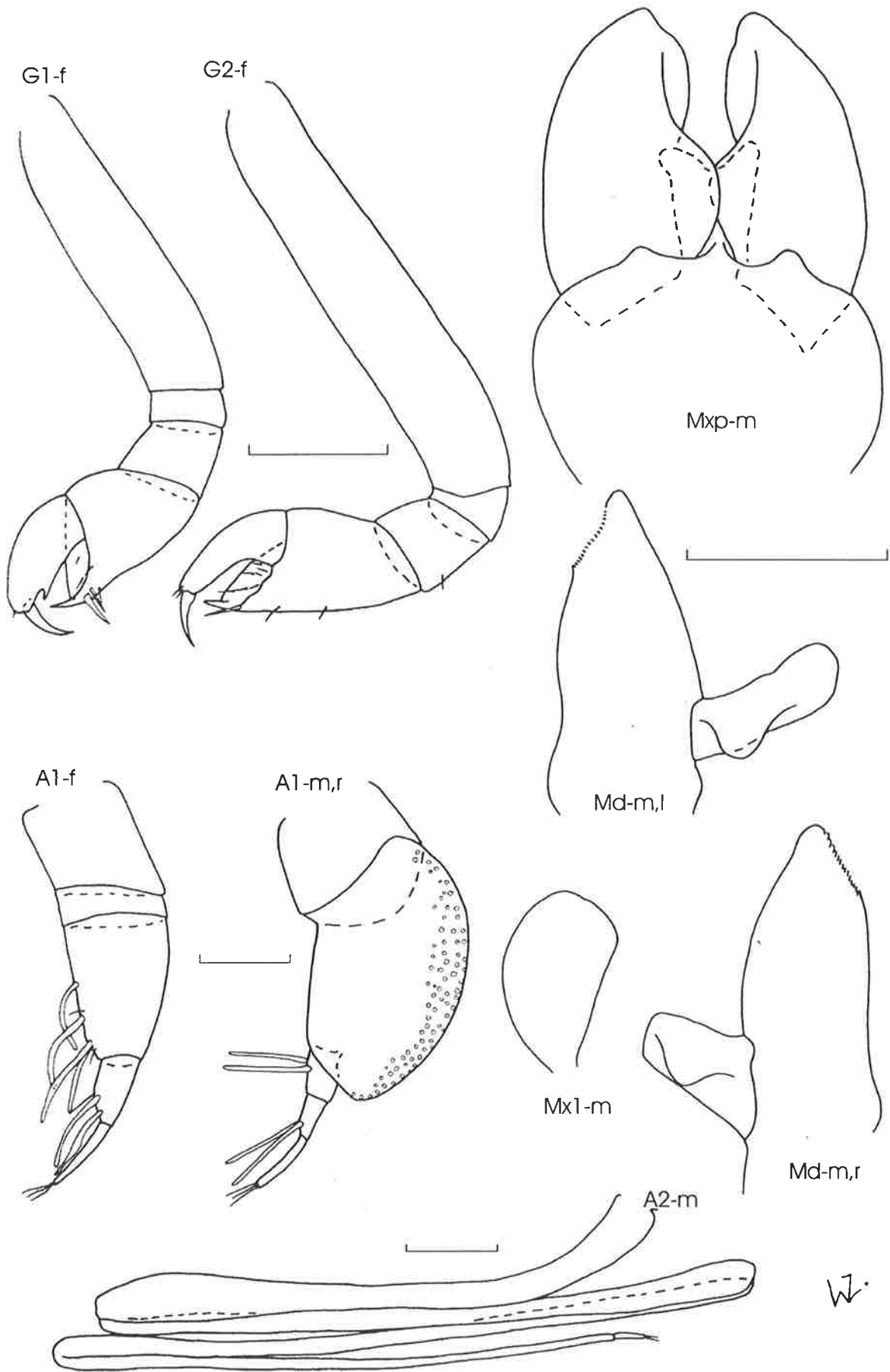


Fig. 103. *Glossocephalus milneedwardsi*, North Atlantic, SAMA C5815 (male 8.0 mm): North Pacific, off California, SAMA C5816 (female 10.2 mm). Scale bars = 1.2 mm (G1 & 2, A2), 0.1 mm (remainder).

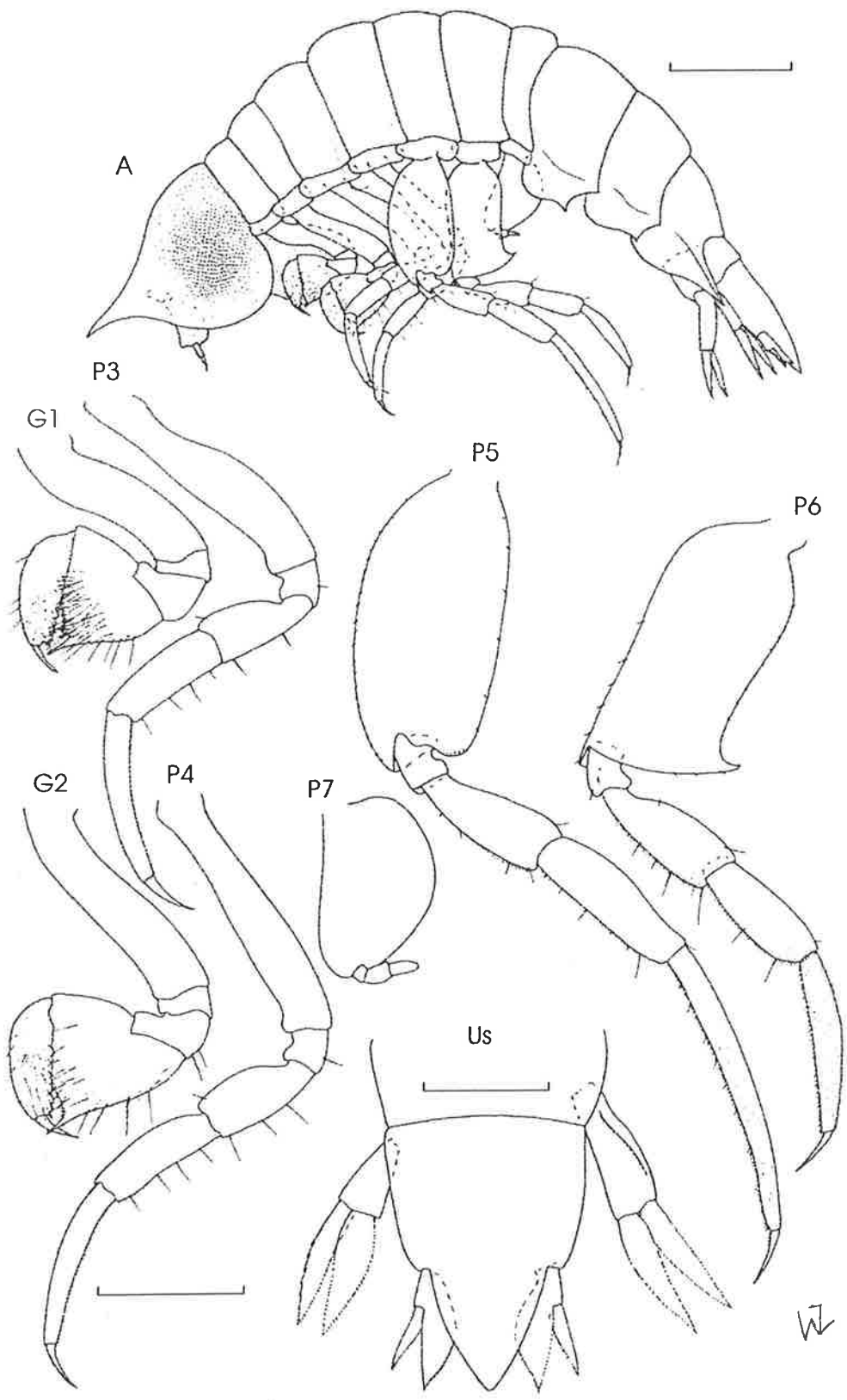


Fig. 104. *Tullbergella cuspidata*, Coral Sea, SAMA C3698. Male 8.0 mm. Scale bars = 1.0 mm (A), 0.5 mm (G1-P7, Us).



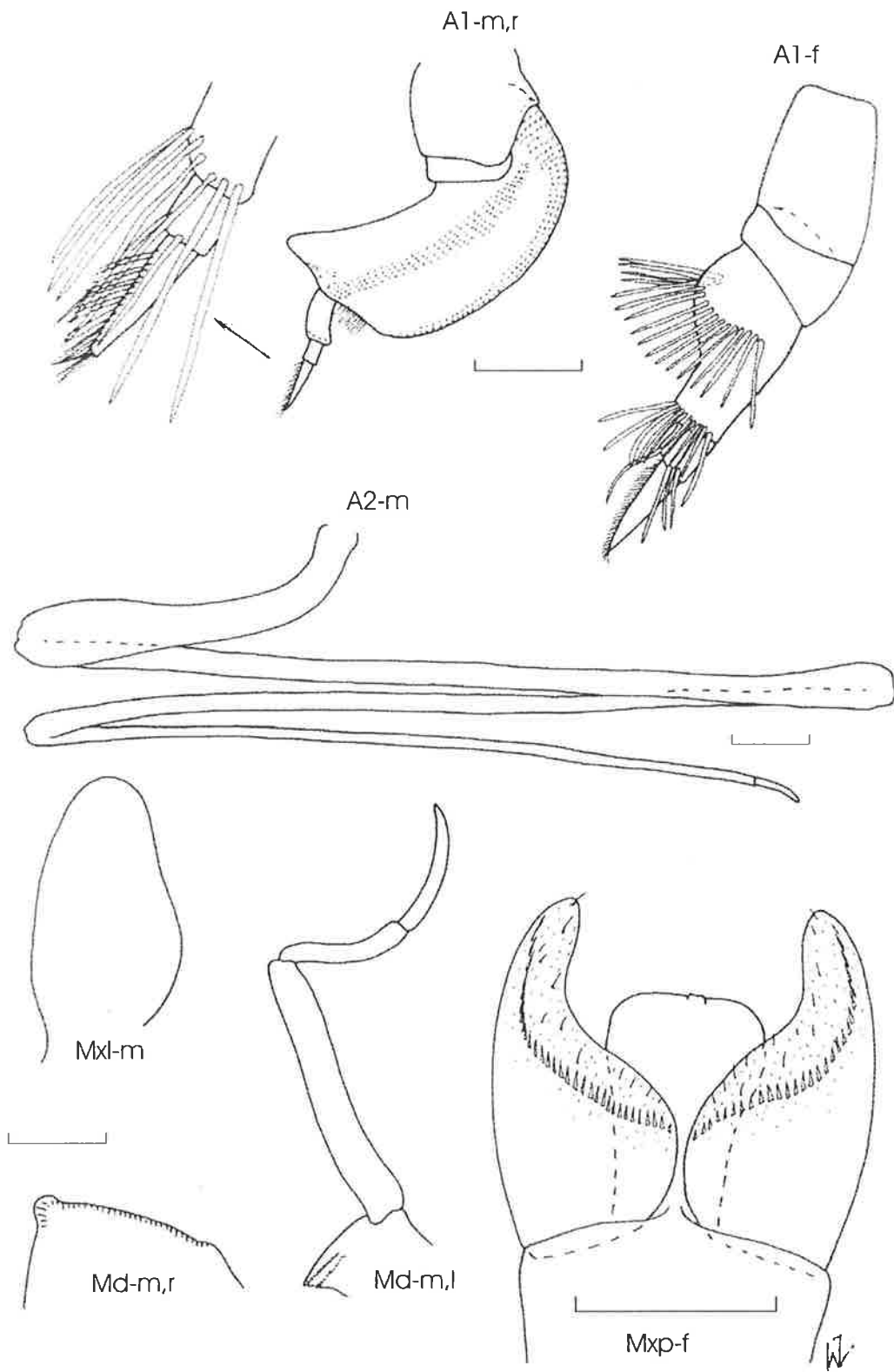


Fig. 105. *Tullbergella cuspidata*, Coral Sea, SAMA C564. Male 7.0 mm, female 11.5 mm. Scale bars = 0.2 mm (A1 & 2, Md, Mxp), 0.05 mm (Mx1, Md-r).

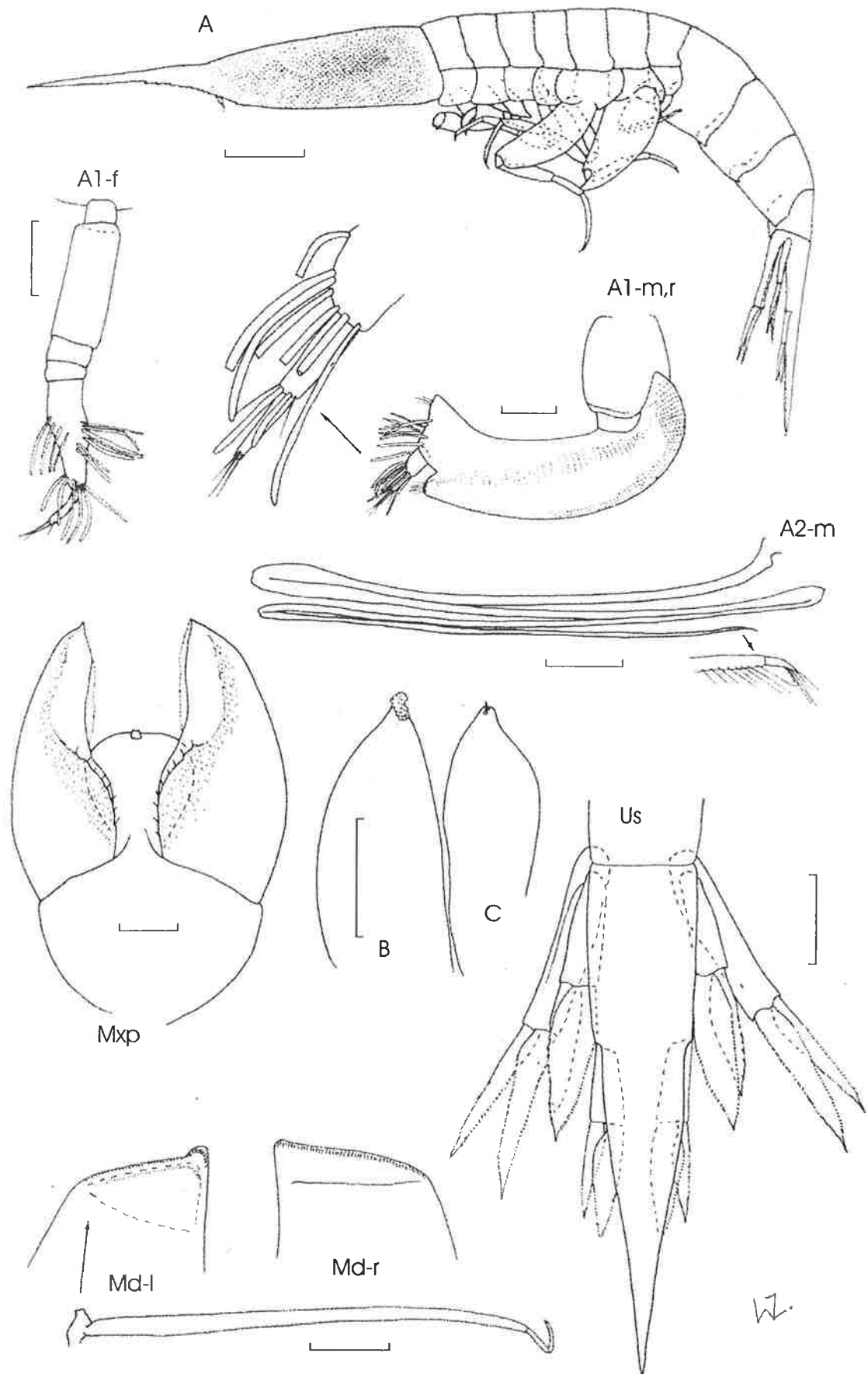


Fig. 106. *Streetsia challengerii*, North Pacific, off California, SAMA C5924 (female 29.5 mm, A, Us); Tasman Sea, SAMA C4223 (female 40 mm, A1; male 32 mm, A2), C5818 (male 32 mm, A1, Md, Mx1, Mxp). A, lateral view; B, Mx1-r; C, Mx1-l. Scale bars = 2.0 mm (A), 1.0 mm (A2, Md, Us), 0.2 mm (A1), 0.1 mm (Mx1, Mxp).

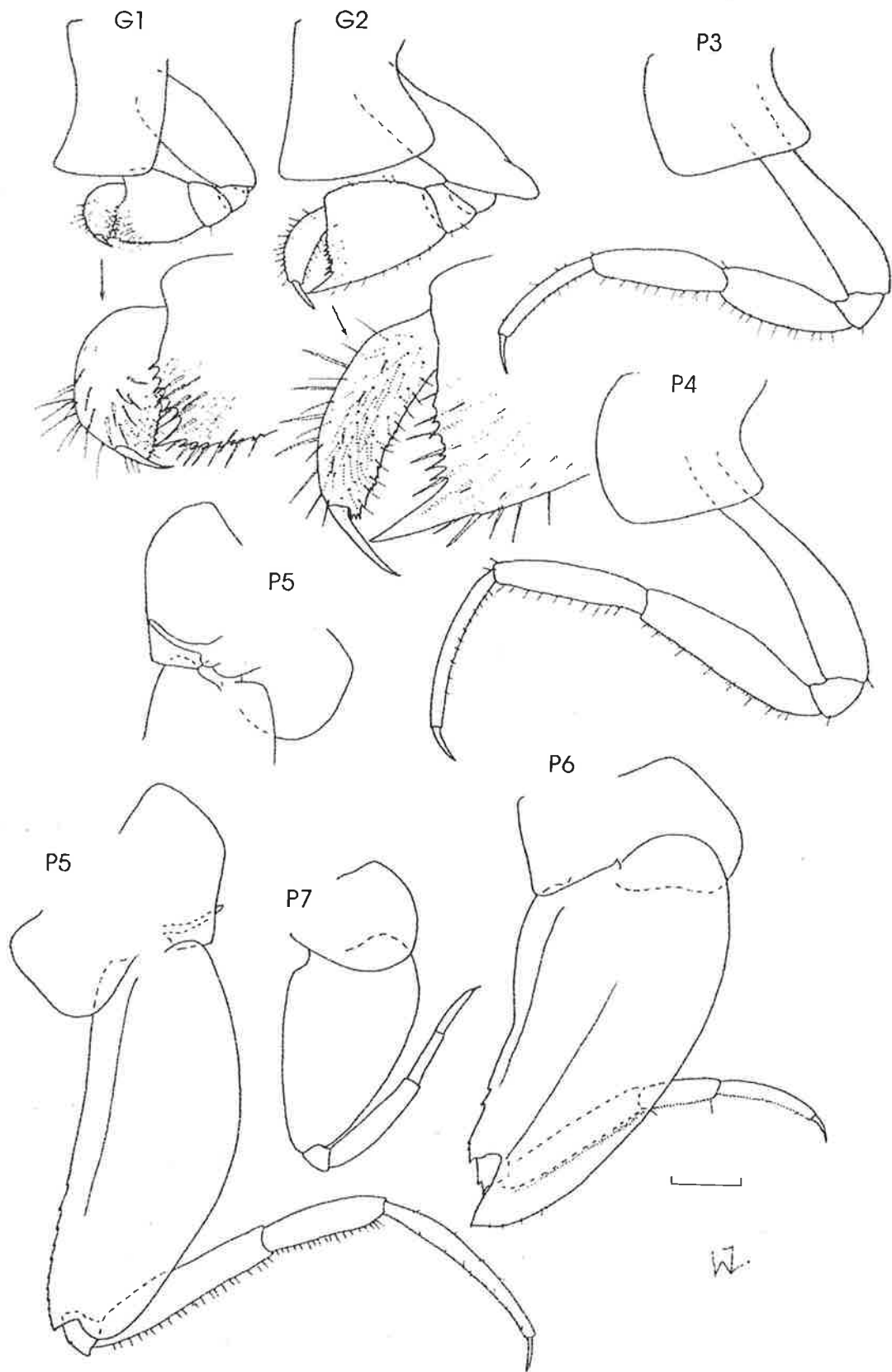


Fig. 107. *Streetsia challengeri*, North Pacific, off California, SAMA C5924. Female 29.5 mm. Scale bar = 0.5 mm.

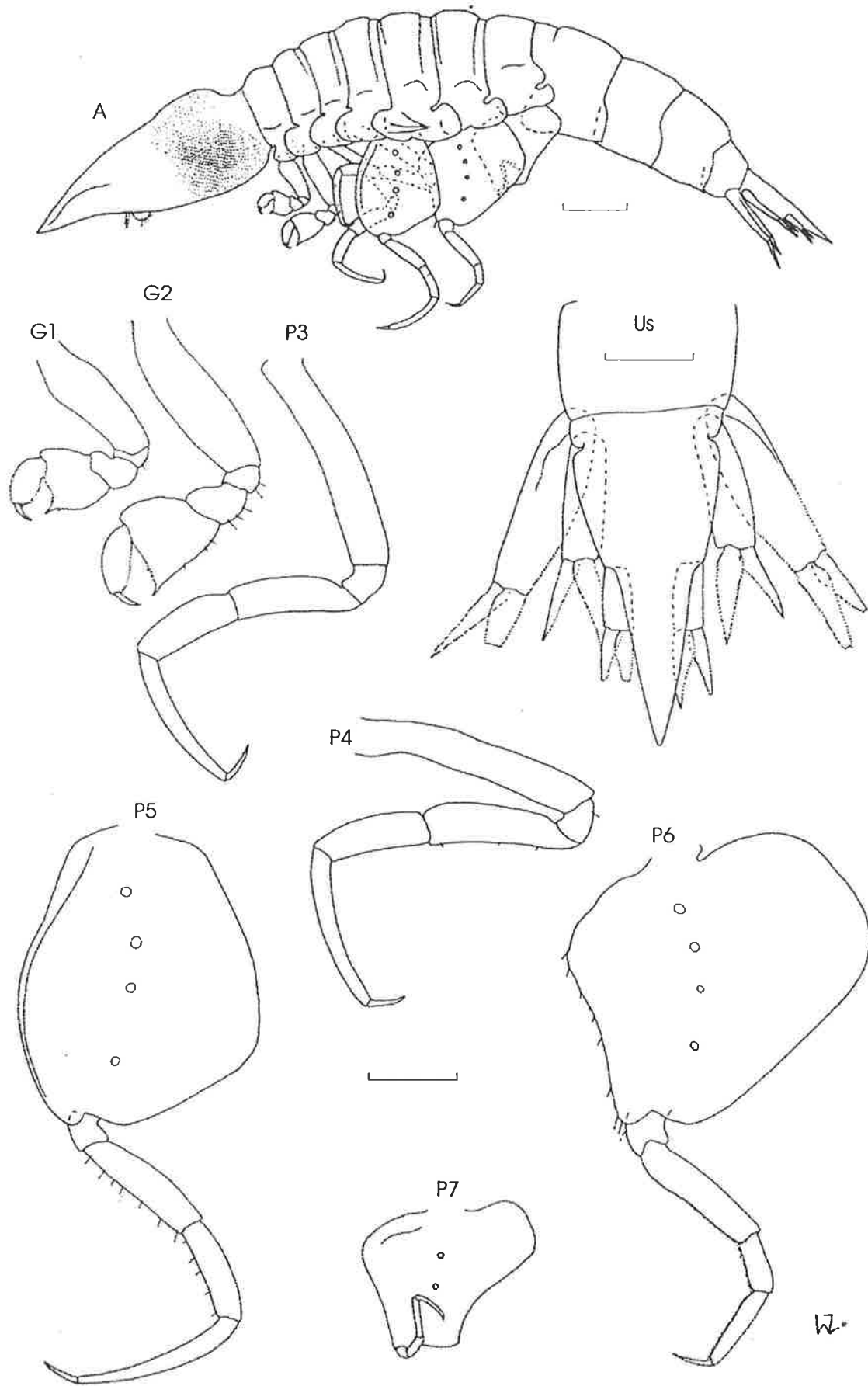


Fig. 108. *Cranocephalus scleroticus*, Indian Ocean, near Ningaloo Reef, Western Australia, SAMA C5927. Male 14.4 mm. Scale bars = 1.0 mm (A), 0.5 mm (G1-P7, Us).

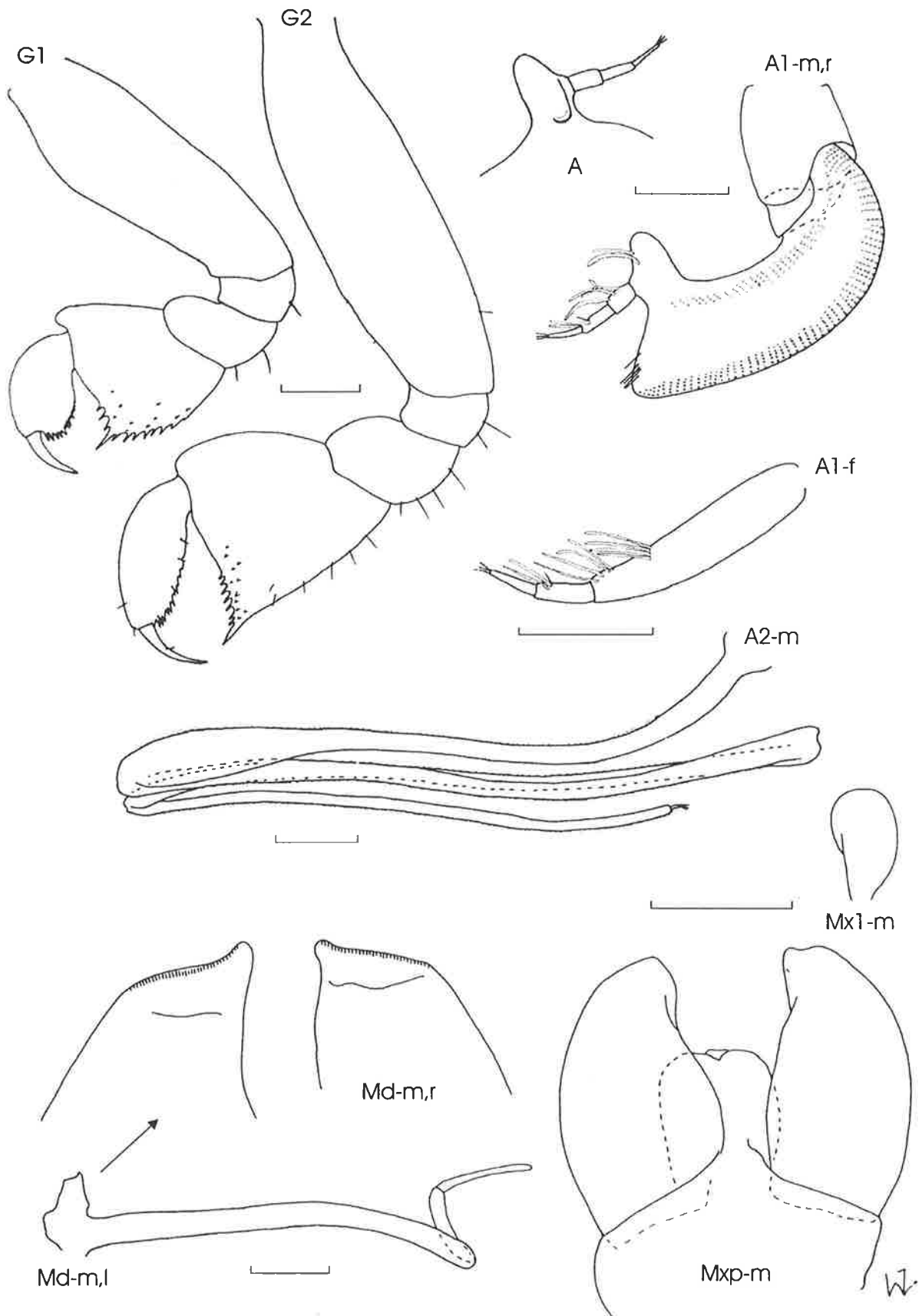


Fig. 109. *Cranocephalus scleroticus*, Indian Ocean, near Ningaloo Reef, Western Australia, SAMA C5927 (male 14.4 mm, G1 & 2); Indian Ocean, off South Africa, SAMA C5814 (female 8.1 mm, male 6.3 mm). A, lateral view of anterodistal corner of A1-m. Scale bars = 0.1 mm (Mx1, Mxp), 0.2 mm (remainder).

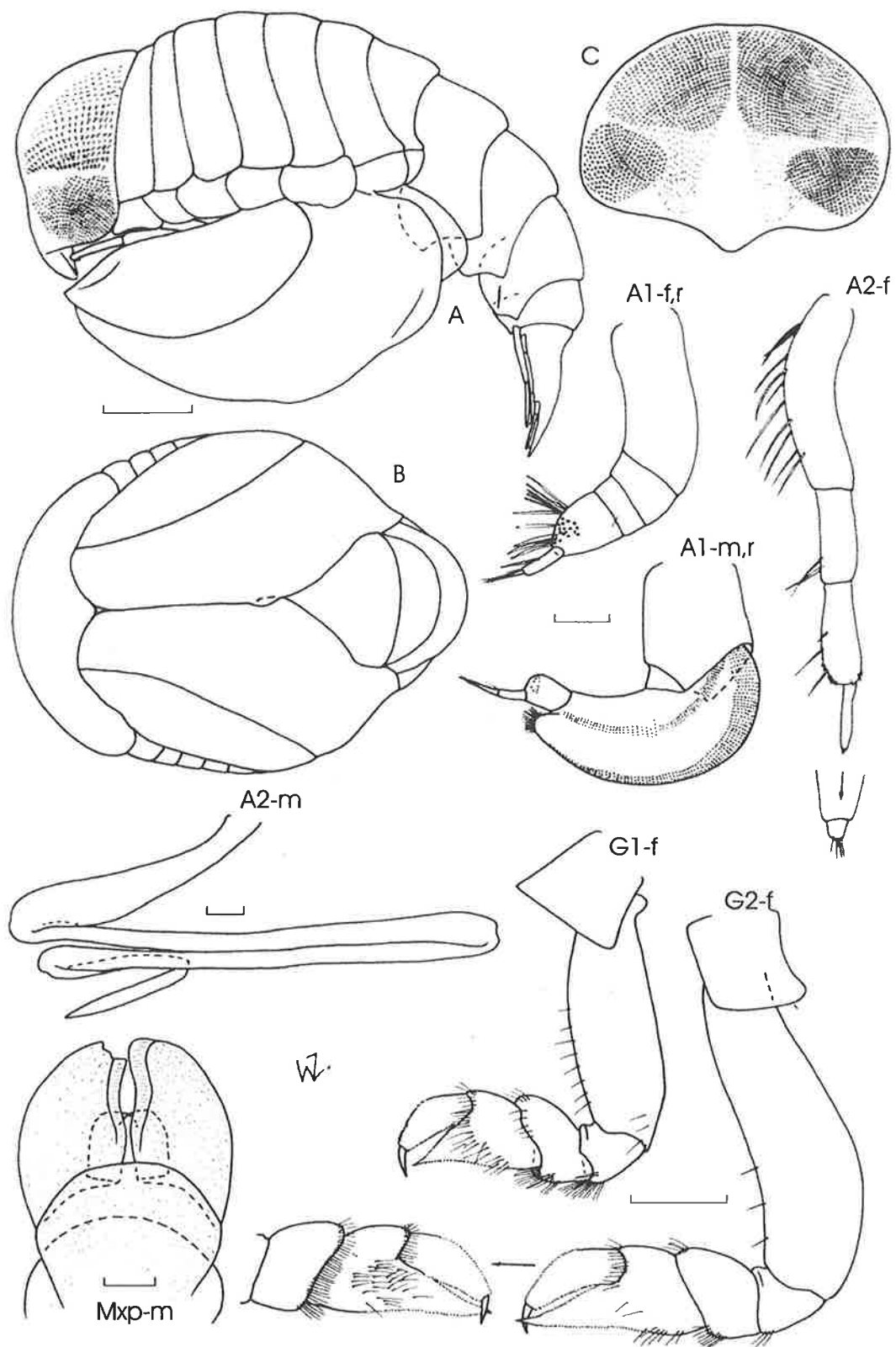


Fig. 110. *Platyscelus ovoides*, Tasman Sea, SAMA C4224 (female 17.5 mm, male 15.2 mm). **A**, lateral view; **B**, ventral view of animal when rolled up; **C**, anterior view of head; all of female. Scale bars = 2.0 mm (A-C), 1.0 mm (G1 & 2), 0.2 mm (remainder).

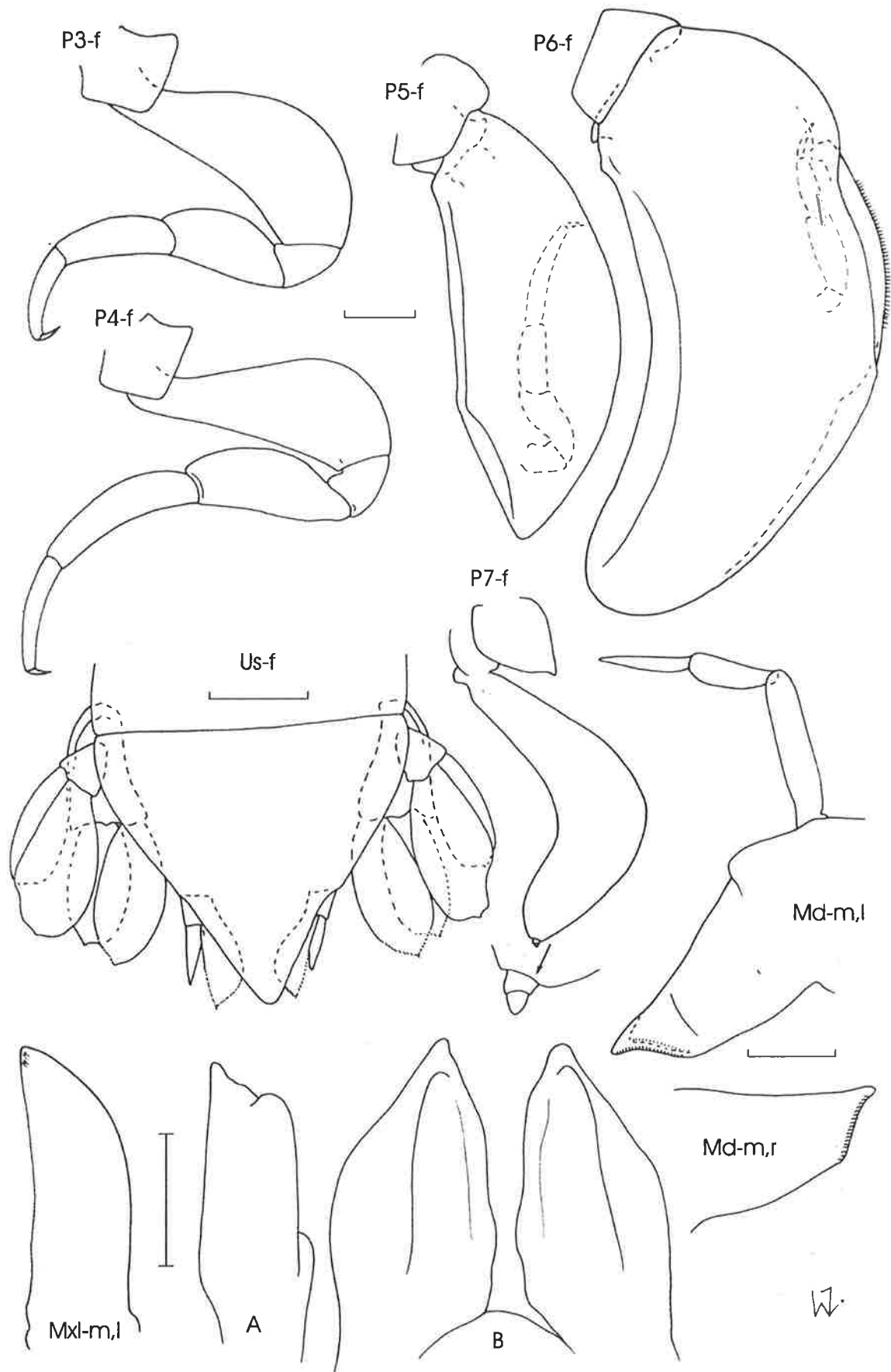


Fig. 111. *Platyscelus ovoides*, Tasman Sea, SAMA C4224 (female 17.5 mm, male 15.2 mm). A, lateral view of Mx1-m,l; B, medial view of Mx2-m. Scale bars = 1.0 mm (P3-7, Us), 0.2 mm (Md, Mx1 & 2).

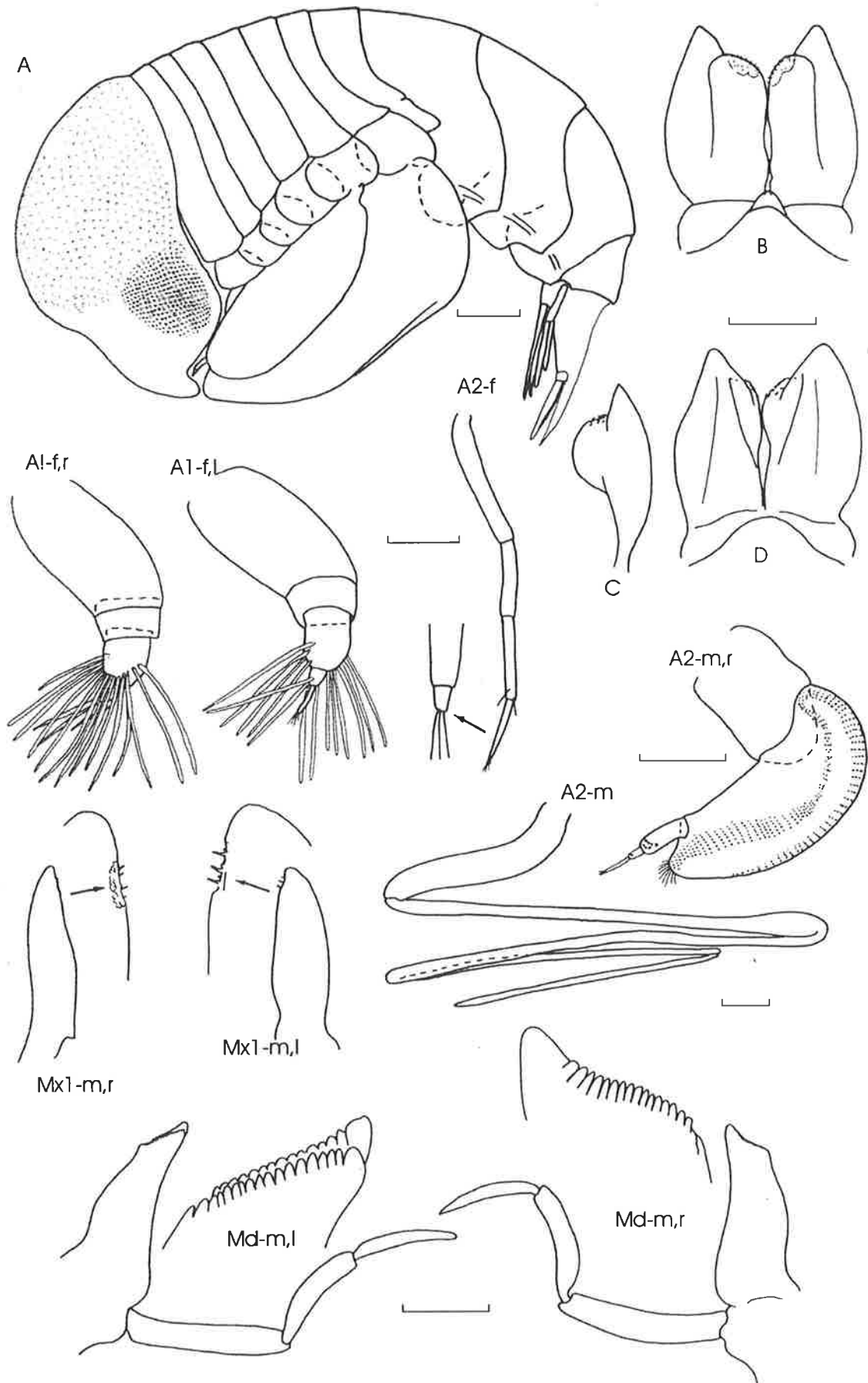


Fig. 112. *Hemityphis tenuimanus*, North Pacific, off California, SAMA C5925 (female 7.5 mm); Tasman Sea, SAMA C5362 (female 5.6 mm), SAMA C5363 (male 6.8 mm). A, lateral view of female (C5925); B-D, medial, lateral and ventral view of Mx2-m. A1 & 2-f from C5362. Scale bars = 0.5 mm (A), 0.2 mm (A1 & 2-m), 0.1 mm (remainder).



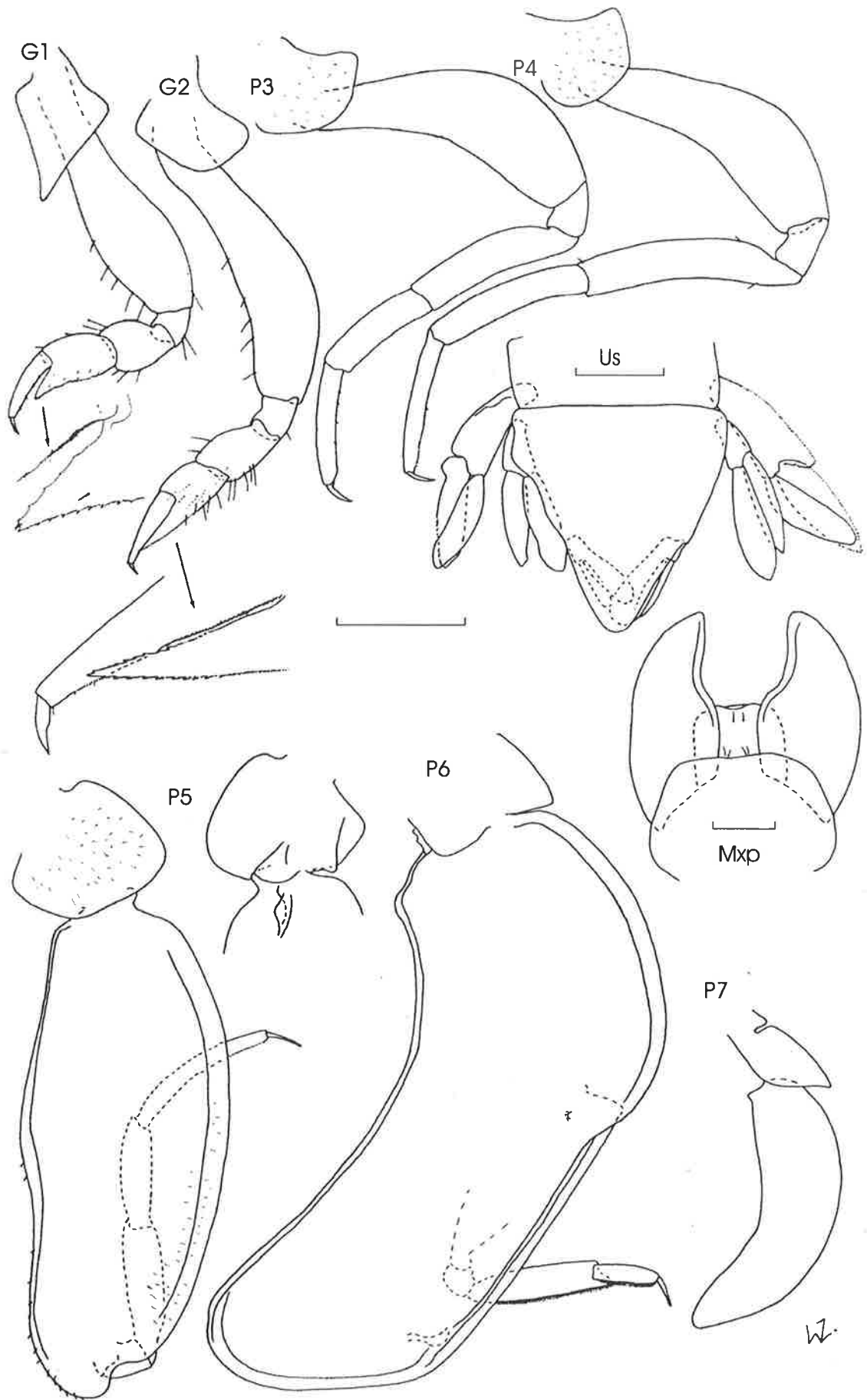


Fig. 113. *Hemityphis tenuimanus*, Tasman Sea, SAMA C5363. Male 6.8 mm. U1-3 deformed on left. Scale bars = 0.5 mm (G1-P7, Us), 0.1 mm (Mxp).

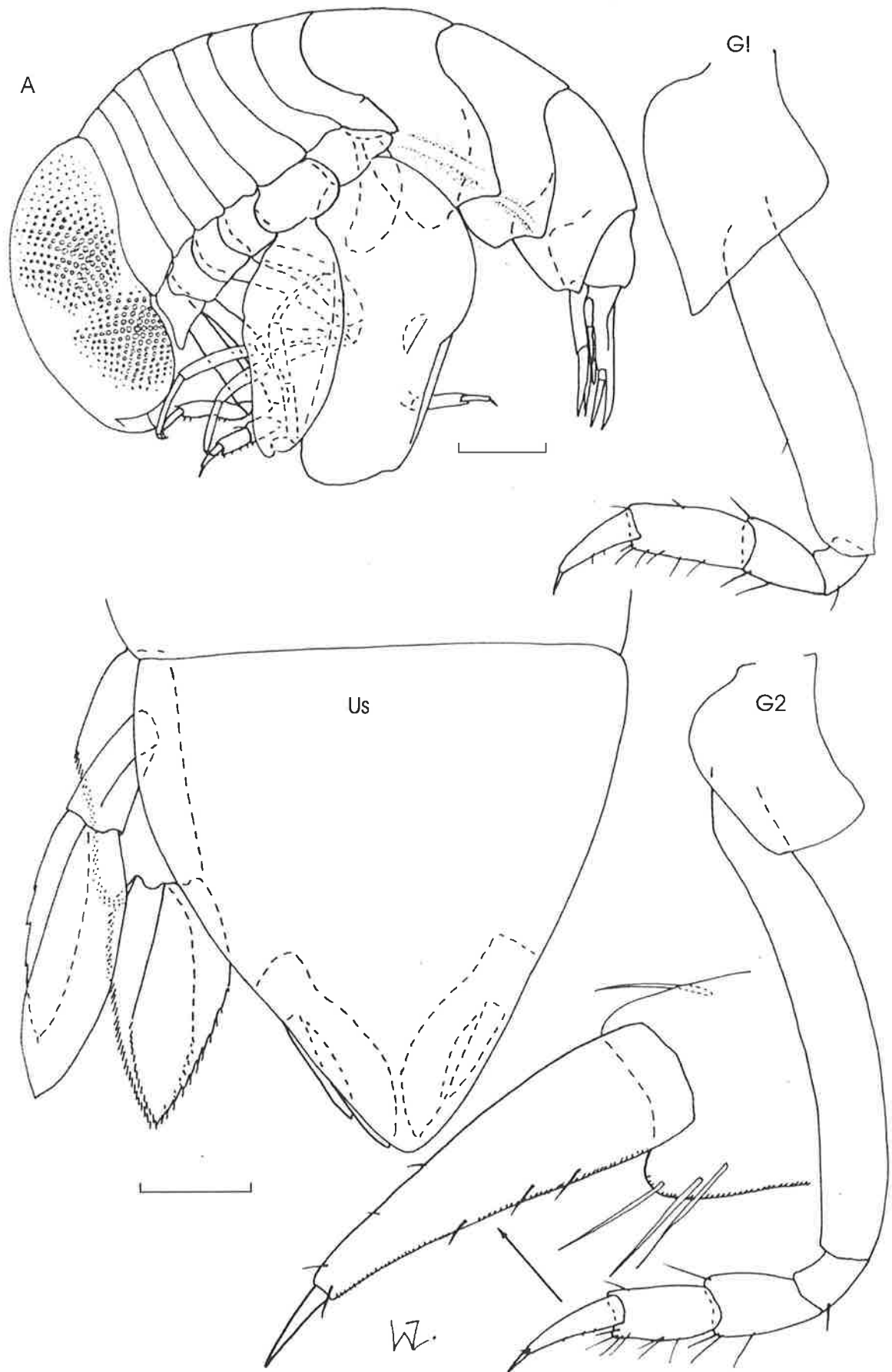


Fig. 114. *Paratyphis promontorii*, Tasman Sea, SAMA C5387. Male 5.3 mm. A, lateral view. Scale bars = 0.5 mm (A), 0.2 mm (G1 & 2, Us).

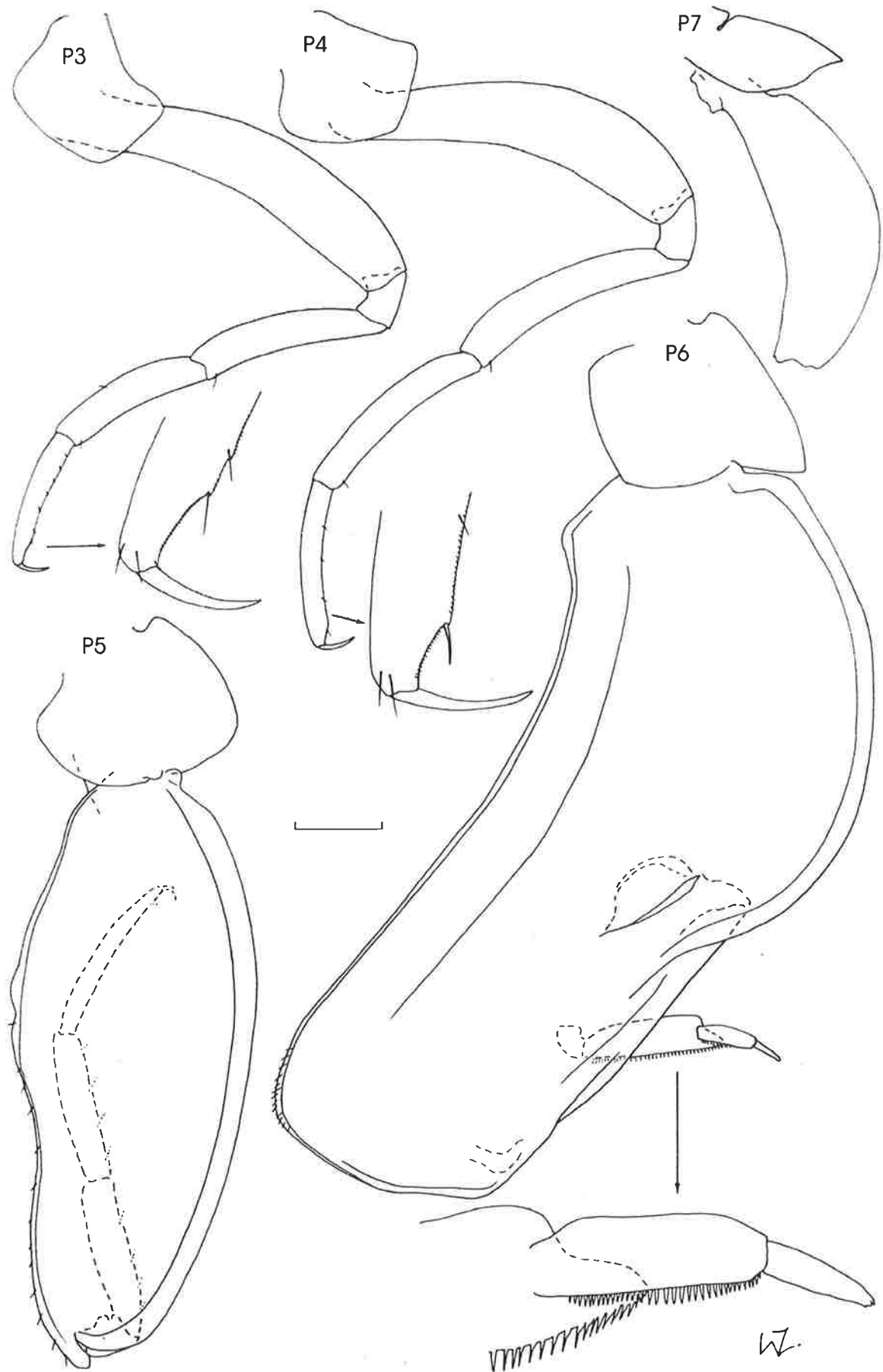


Fig. 115. *Paratyphis promontorii*, Tasman Sea, SAMA C5387. Male 5.3 mm. Scale bar = 0.2 mm.

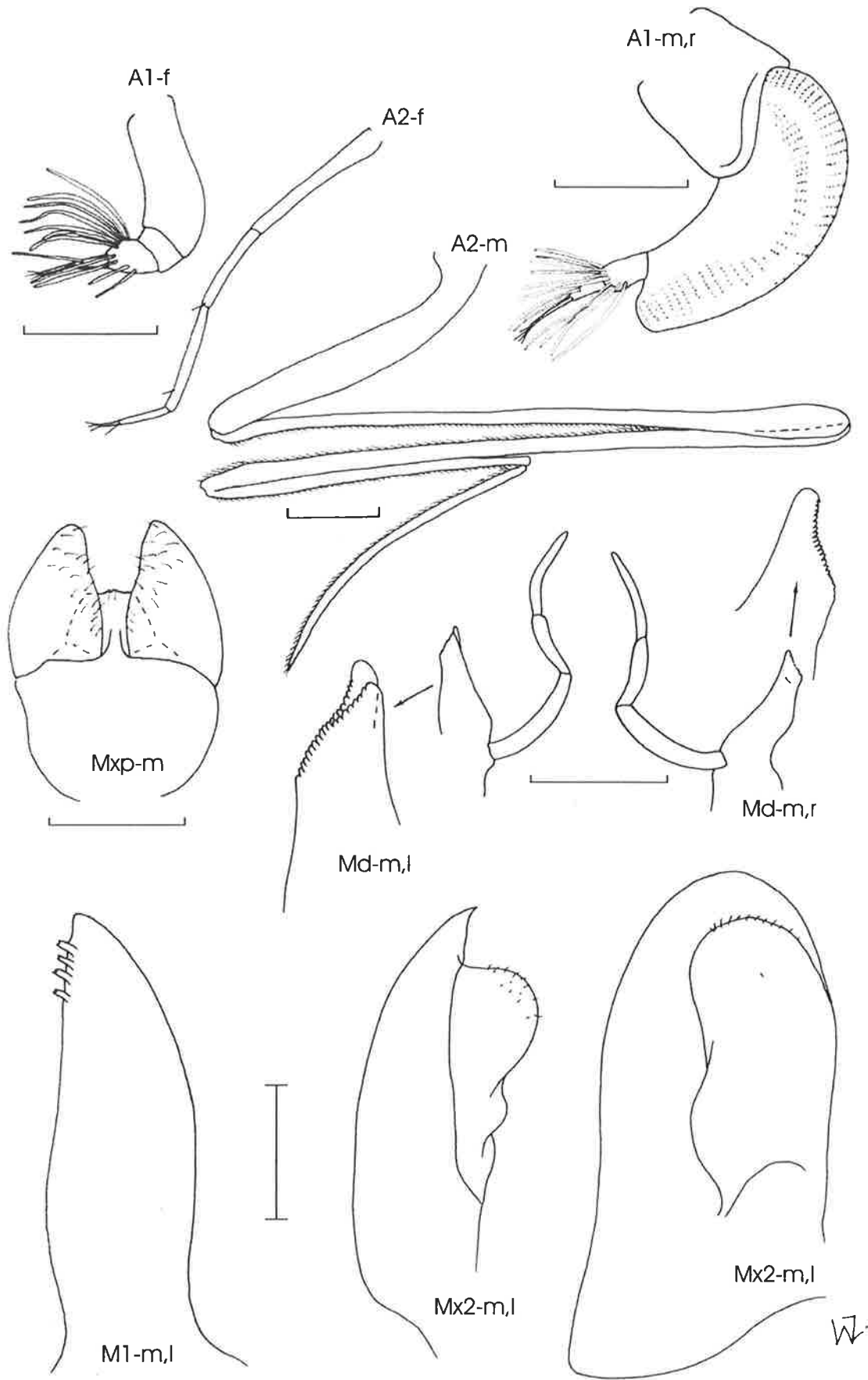


Fig. 116. *Paratyphis promontorii*, Tasman Sea, SAMA C5384 (female 4.1 mm), SAMA C5387 (male 5.3 mm). Scale bars = 0.05 mm (Mx1 & 2), 0.2 mm (remainder).

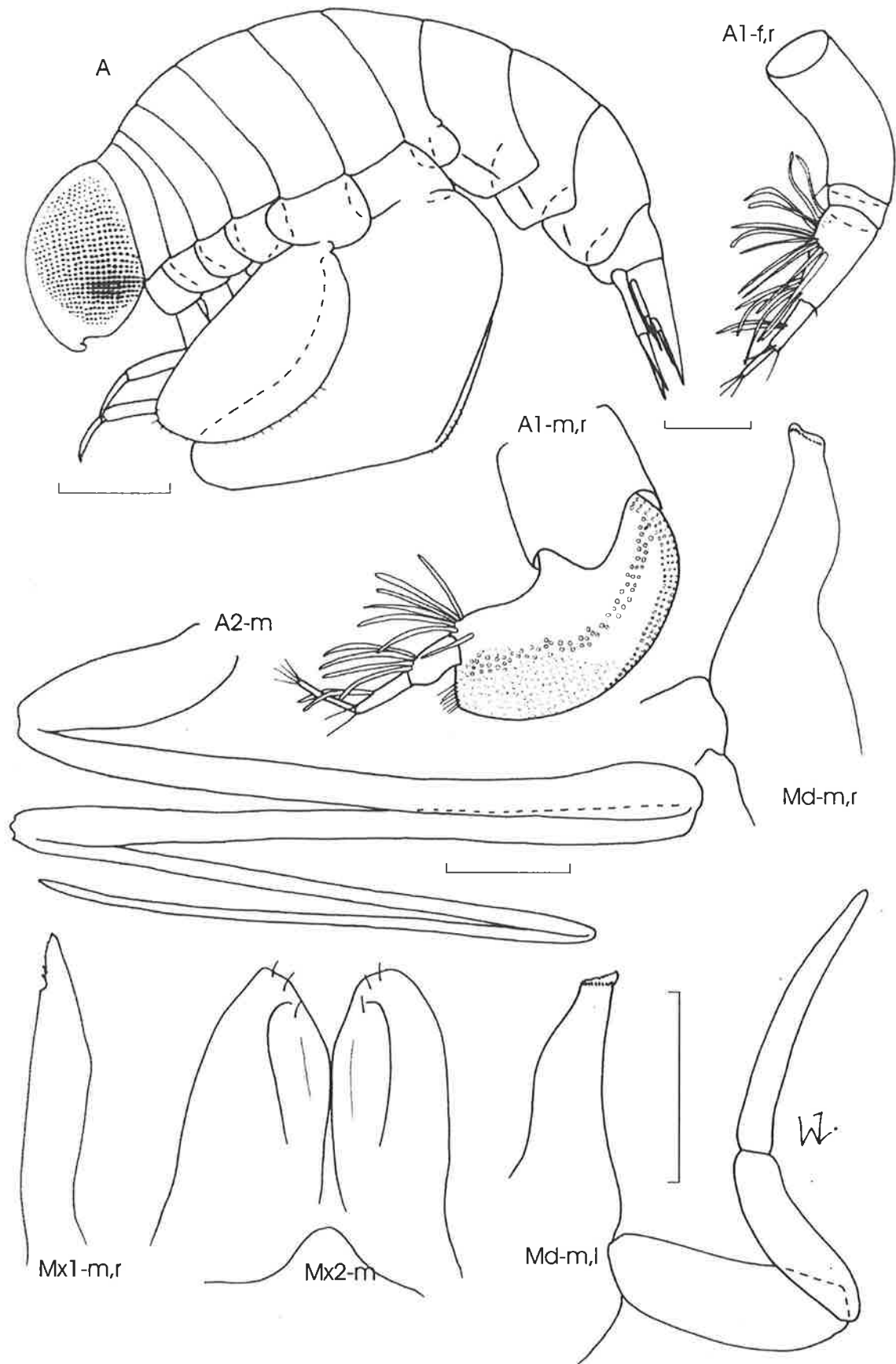


Fig. 117. *Tetrathyrus forcipatus*, Tasman Sea, SAMA C5402 (male 4.6 mm), SAMA C5043 (female 3.6 mm). A, lateral view of female. Mx2-m, medial view. Scale bars = 0.5 mm (A), 0.2 mm (A2-m), 0.1 mm (remainder).



Fig. 118. *Tetrathyrus forcipatus*, Tasman Sea, SAMA C5402. Male 4.6 mm. Scale bars = 0.2 mm (G1-P7, Us), 0.05 mm (Mxp).

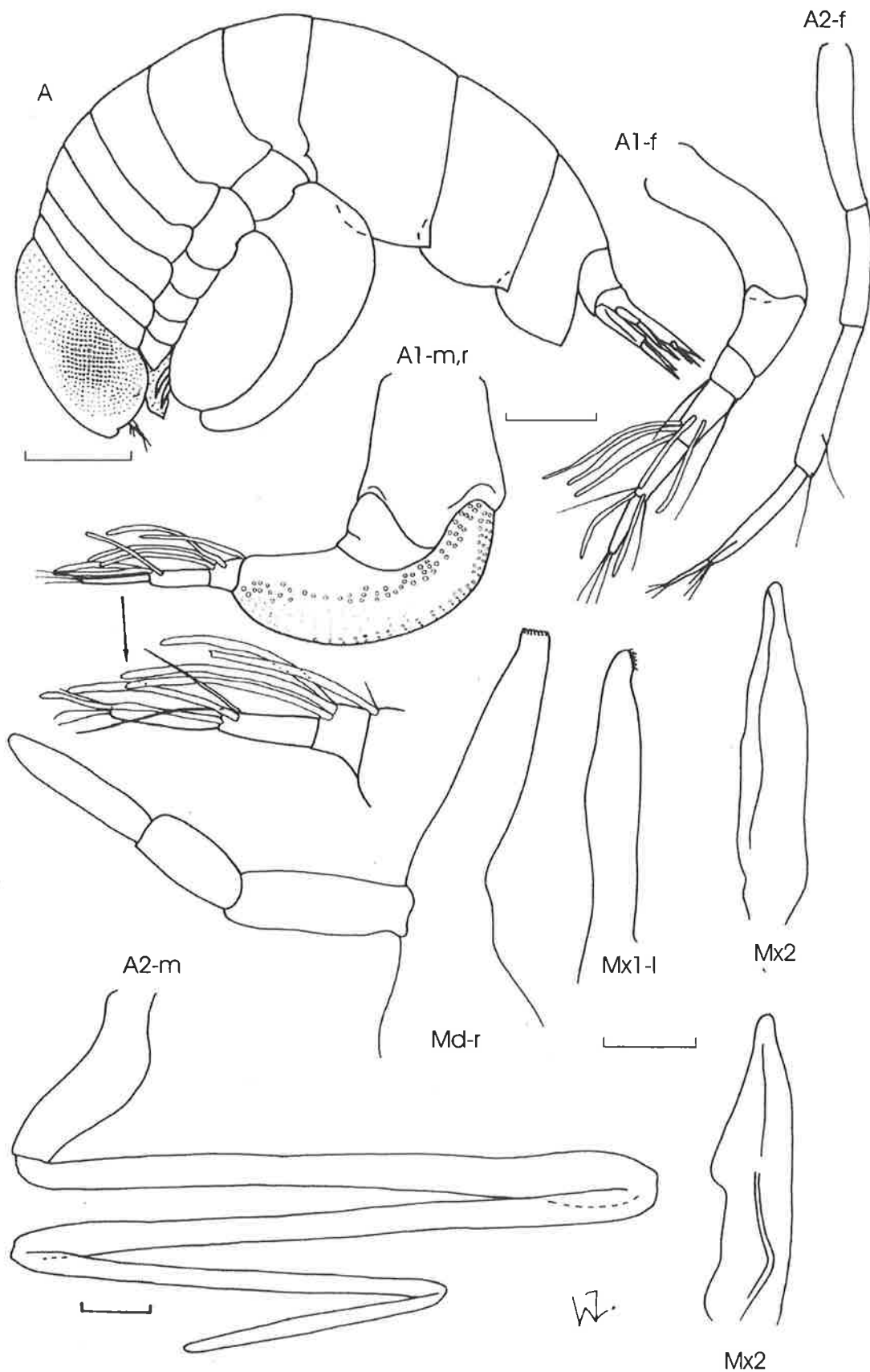


Fig. 119. *Parascelus edwardsi*, Coral Sea, SAMA C3708 (male 4.2 mm, A); Tasman Sea, SAMA C5414 (male 4.7 mm, A1 & 2, Md, Mx1 & 2), C5417 (female 5.2 mm, A1 & 2). A, lateral view. Scale bars = 0.5 mm (A), 0.1 mm (A1 & 2), 0.05 mm (Md, Mx1 & 2).

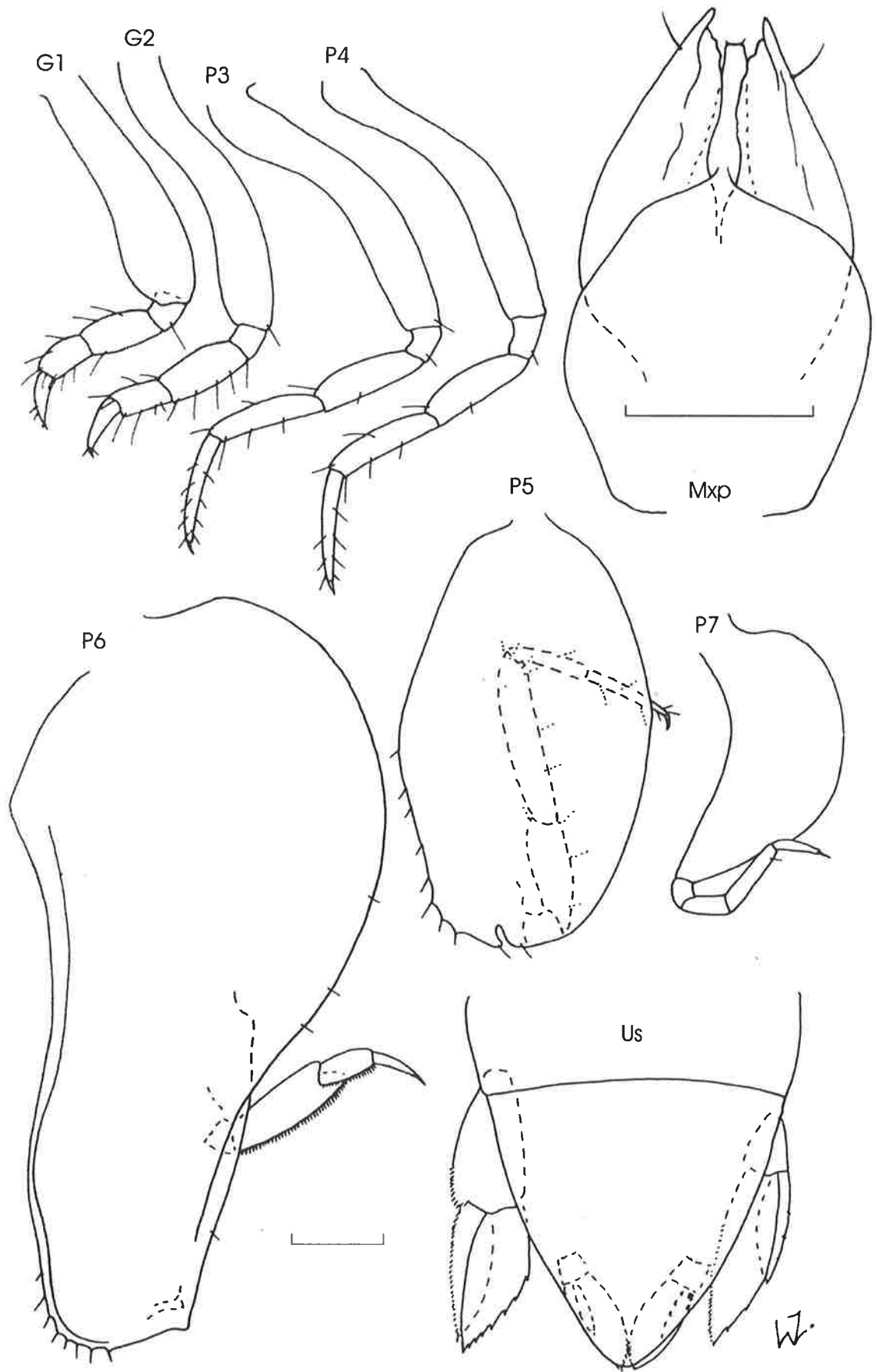


Fig. 120. *Parascelus edwardsi*, Coral Sea, SAMA C3708 (male 4.2 mm, G1-P7, Us); Tasman Sea, SAMA C5414 (male 4.7 mm, Mxp). Scale bars = 0.2 mm (G1-P7, Us), 0.1 mm (Mxp).



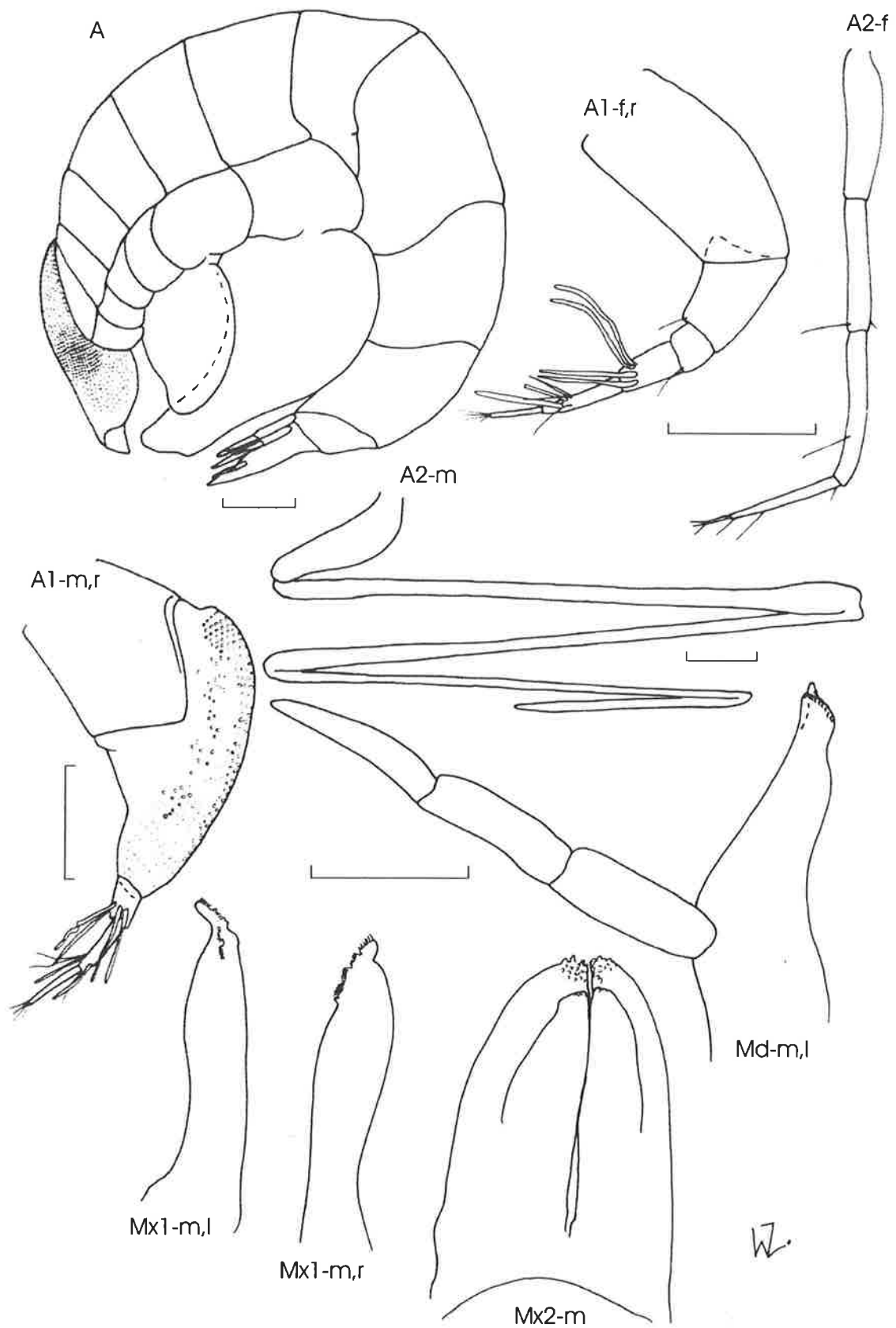


Fig. 121. *Thyropus sphaeroma*, North Atlantic, SAMA C5827 (male 8.4 mm); Bermuda, USNM Cat. No. 253618 (female 7.2 mm). **A**, lateral view of male. **Mx2**, medial view. Scale bars = 0.5 mm (**A**), 0.2 mm (**A1** & **2**), 0.1 mm (**Md**, **Mx1** & **2**).

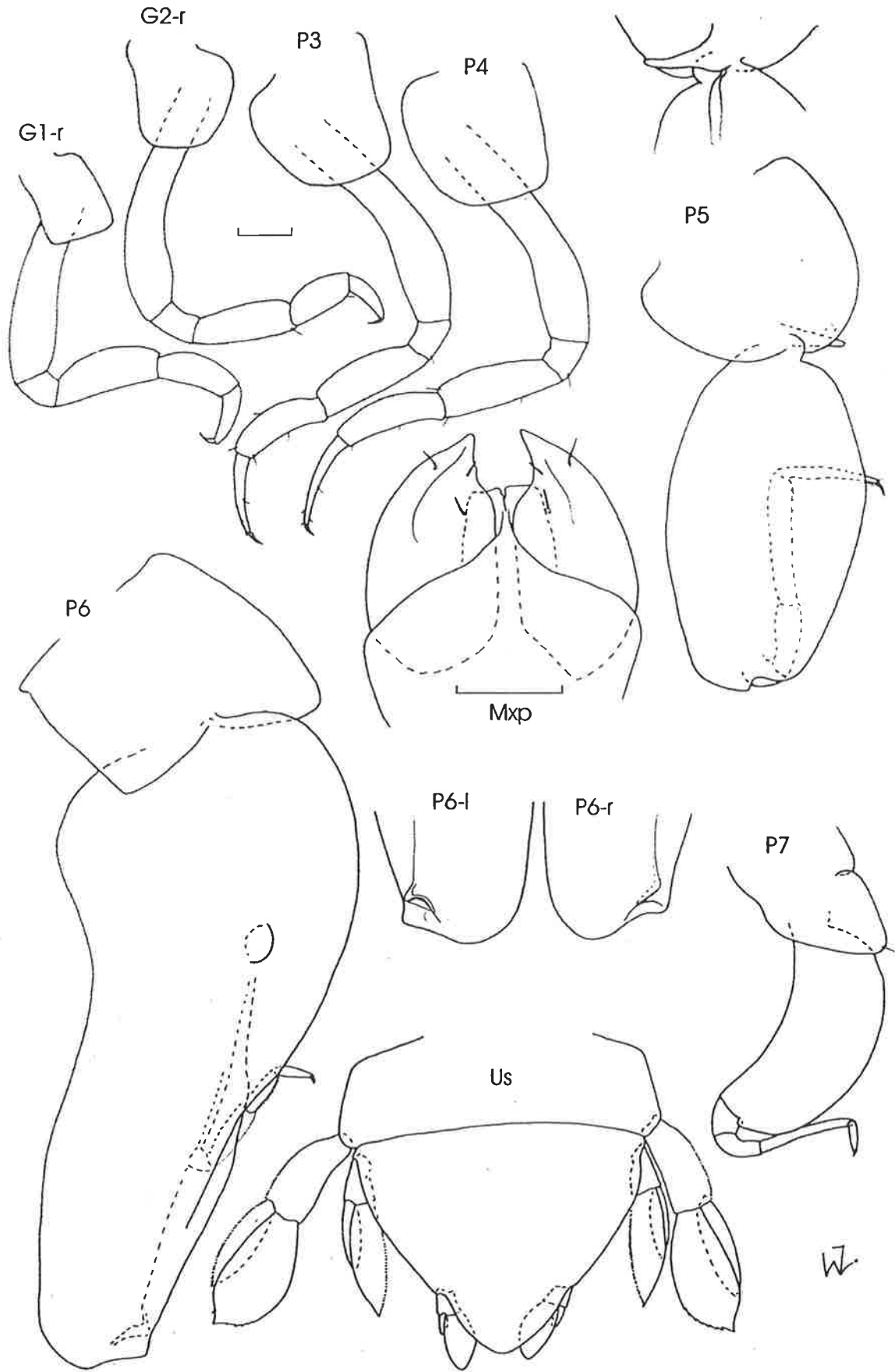


Fig. 122. *Thyropus sphaeroma*, North Atlantic, SAMA C5827. Male 8.4 mm; P6-l, P6-r, medial view. Scale bars = 0.1 mm (Mxp), 0.2 mm (remainder).

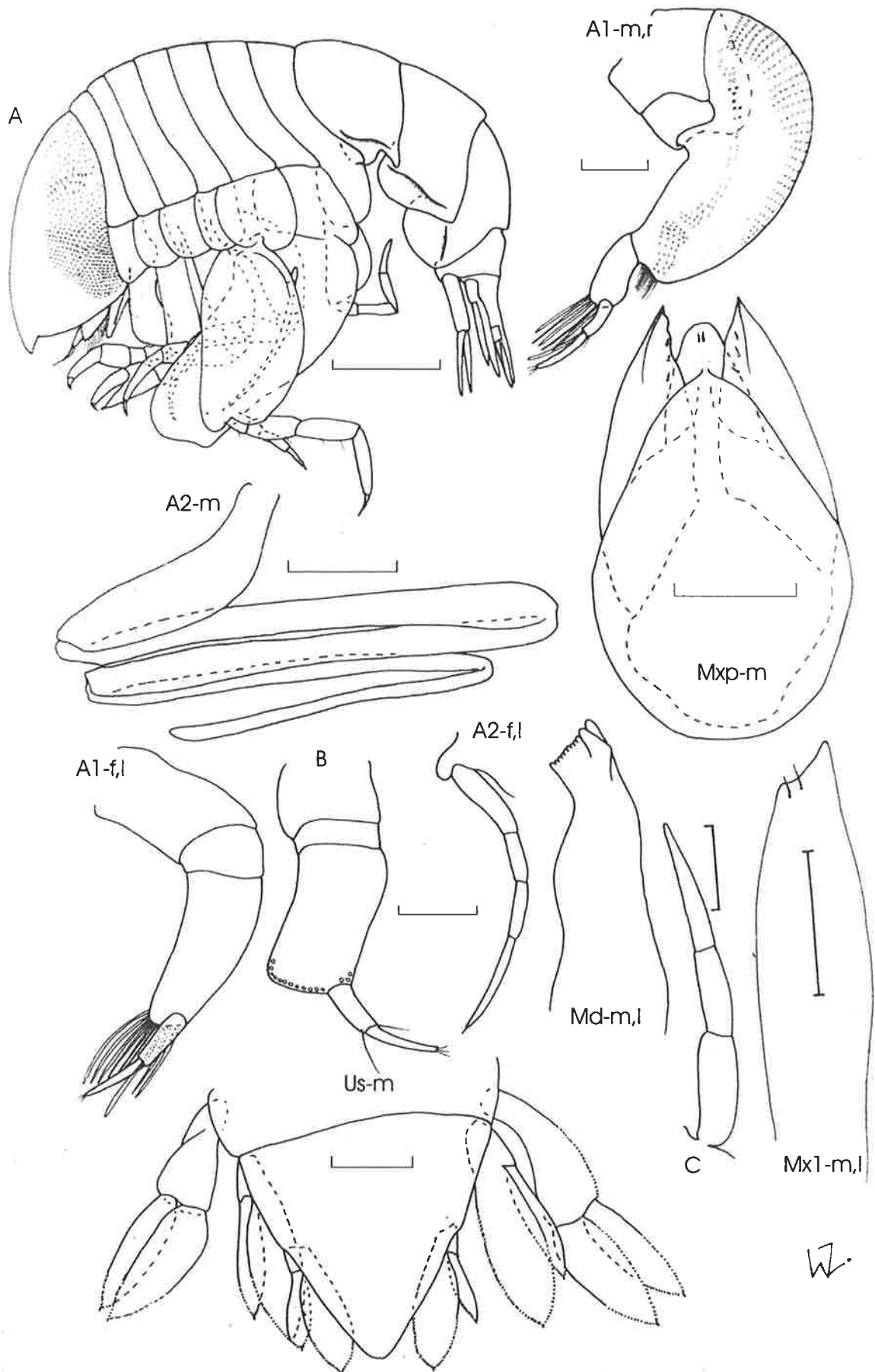


Fig. 123. *Schizoscelus ornatus*, Costa Rica, SAMA C5826 (male 3.5 mm); Gulf of Mexico, USNM Cat. No. 181811 (female 4.0 mm). **A**, lateral view of male; **B**, dorsal view of female A1; **C**, palp of male Md. Scale bars = 0.5 mm (A), 0.2 mm (A2-m, Us); 0.05 mm (Mx1), 0.1 mm (remainder).

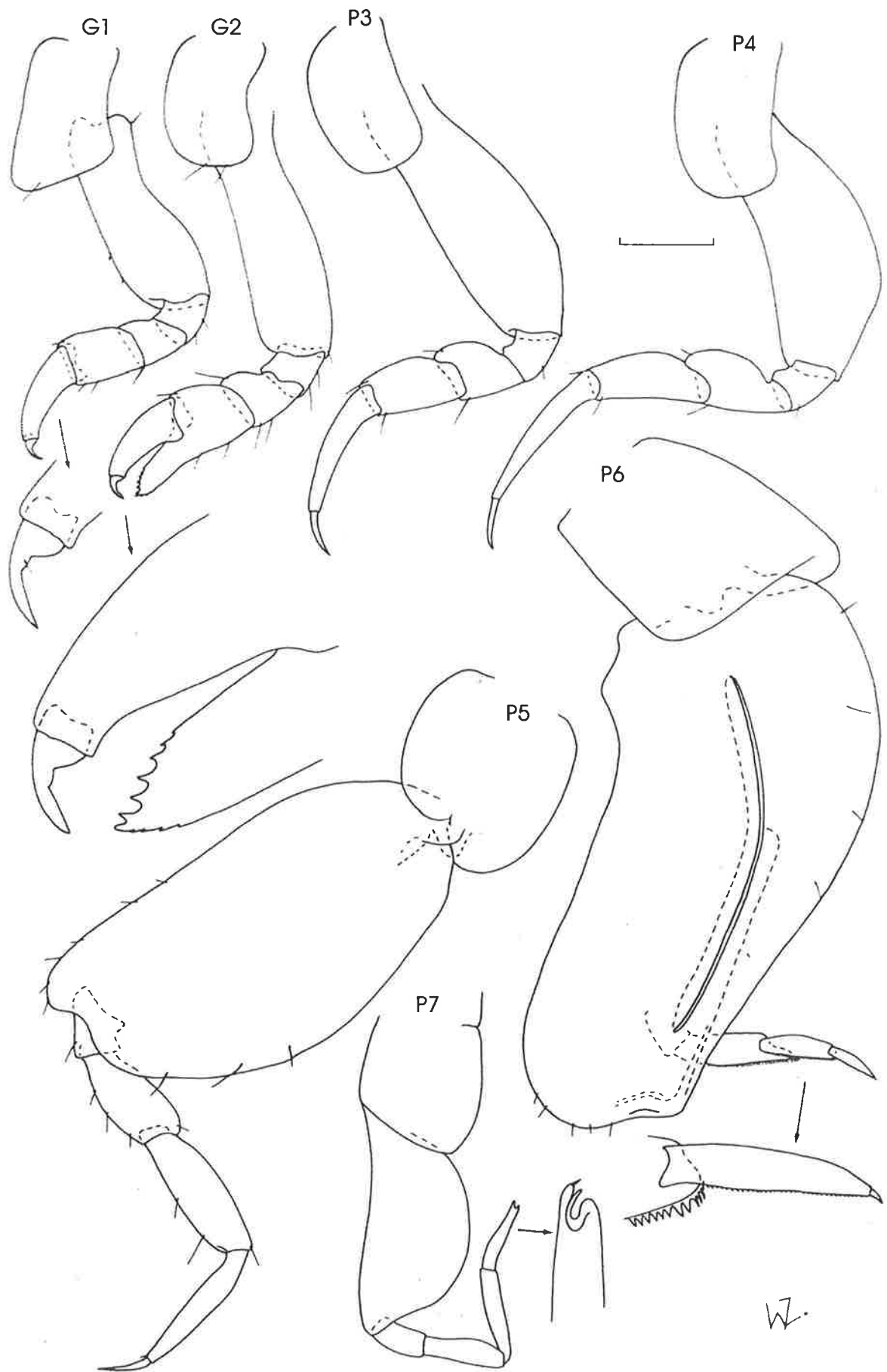


Fig. 124. *Schizoscelus ornatus*, Costa Rica, SAMA C5826. Male 3.5 mm. Scale bar = 0.2 mm.

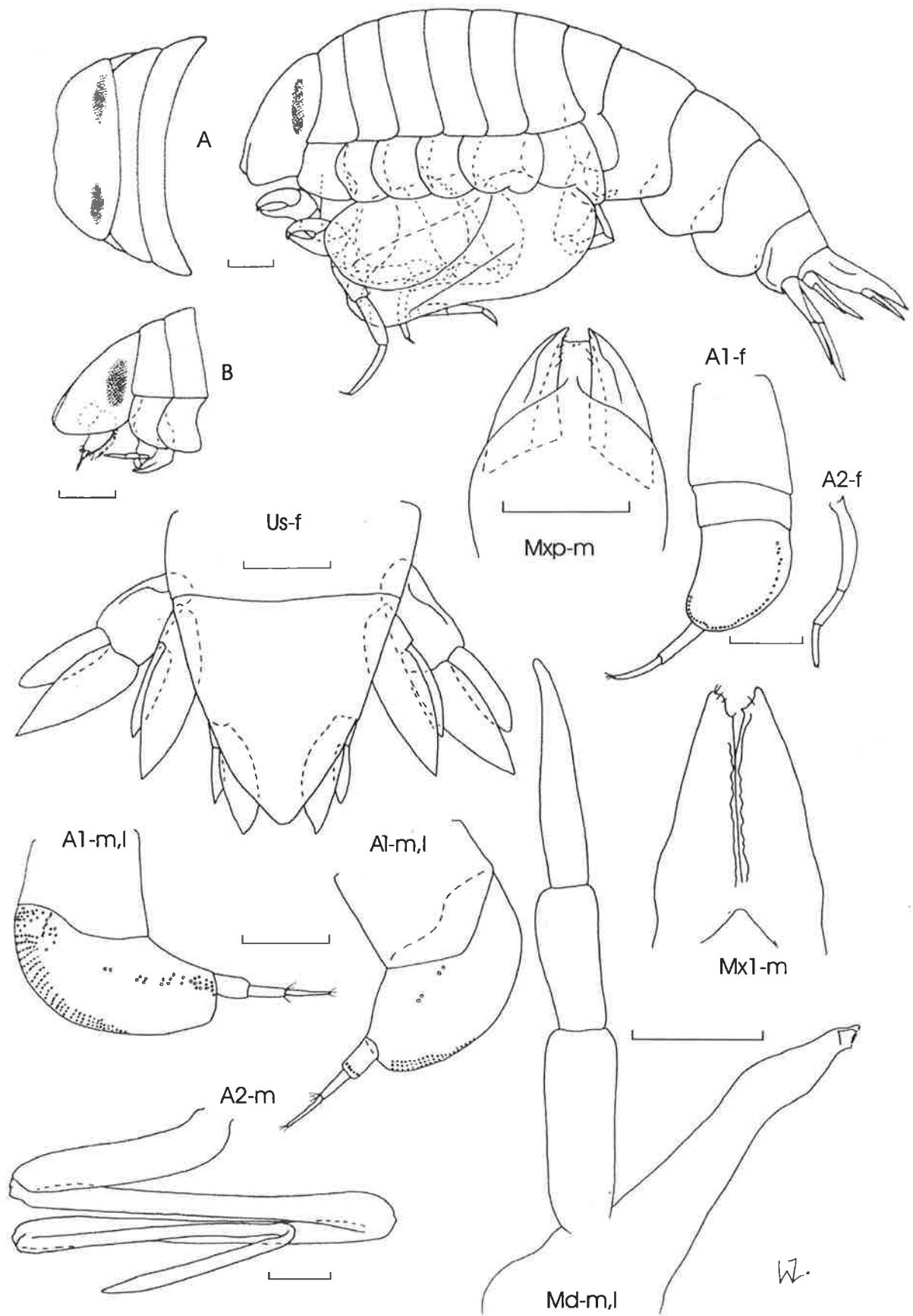


Fig. 125. *Euscelus robustus*, South China Sea, ZMUC (female 8.7 mm); tropical Pacific, near Galapagos Islands, ZMUC (male 6.7 mm). A, lateral view and dorsal view of head of female; B, head of male. Scale bars = 0.5 mm (A, B, Us), 0.1 mm (Md, Mx1), 0.2 mm (remainder).

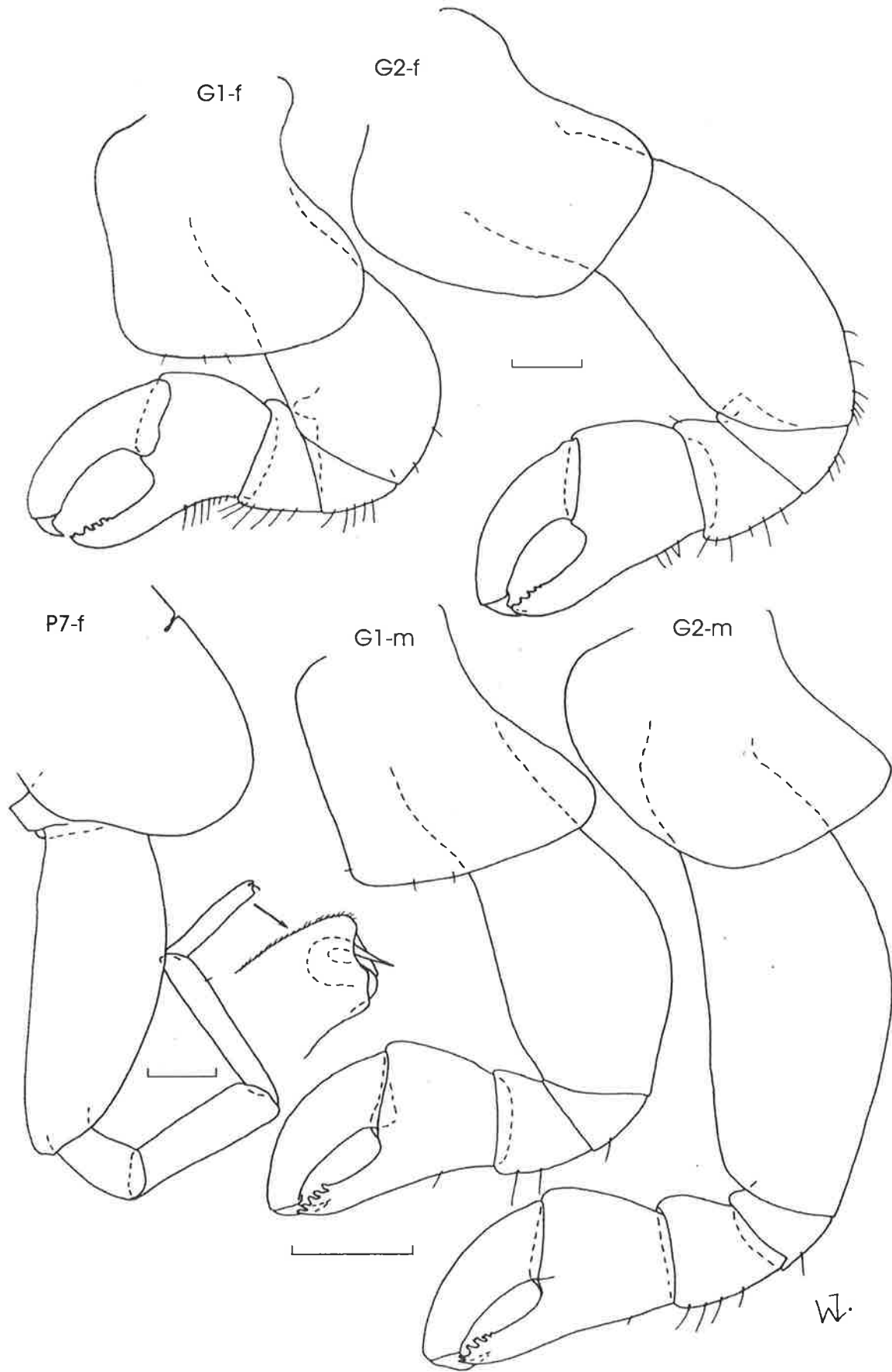


Fig. 126. *Euscelus robustus*, South China Sea, ZMUC (female 8.7 mm); tropical Pacific, near Galapagos Islands, ZMUC (male 6.7 mm). Scale bars = 0.2 mm.

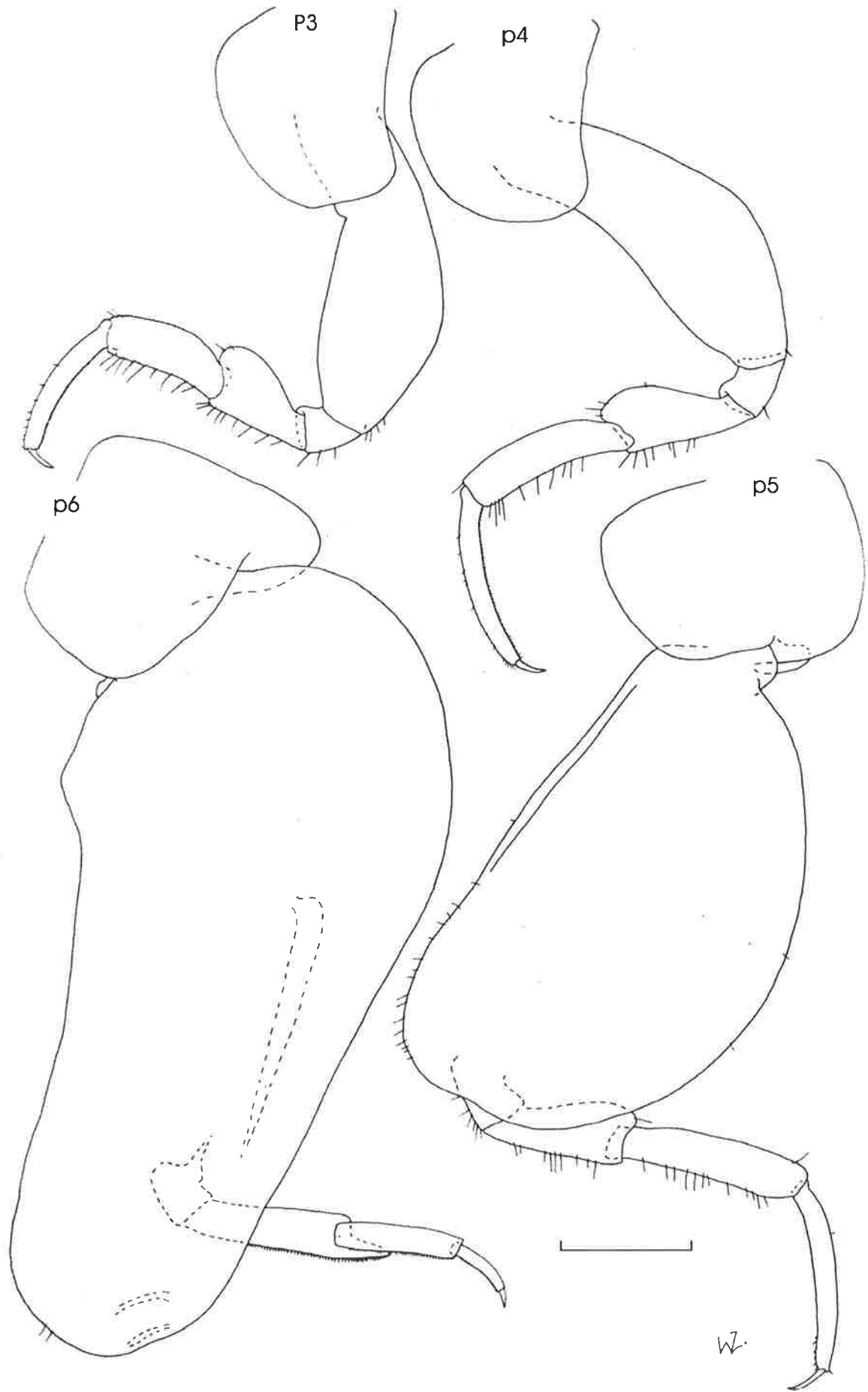


Fig. 127. *Euscelus robustus*, South China Sea, ZMUC. Female 8.7 mm. Scale bar = 0.5 mm.