

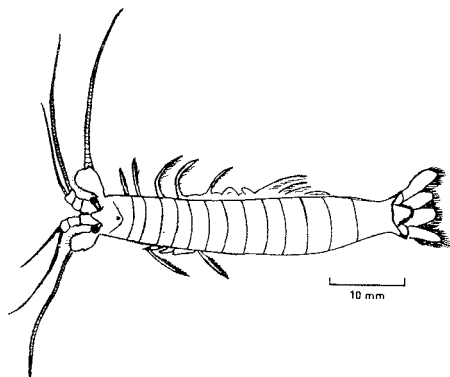
## ON THE FRESHWATER CRUSTACEANS OF THE CENTRAL PLATEAU

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Although the waters of the Central Plateau harbour a number of interesting planktonic crustaceans, in these notes we are primarily concerned with the large macroscopic crustaceans. Among the non-malacostracan crustaceans, the orders Anostraca, Notostraca, Conchostraca and sub-class Branchiura are not present on the Central Plateau.

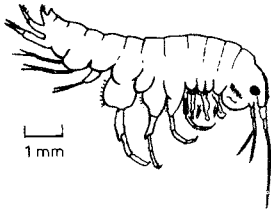
Ever since the first report by the New Zealander, G.M. Thomson in 1892, of the occurrence in Tasmania of a number of freshwater crustaceans of ancient lineage, study of these species has been sporadic and it is only within the last decade that zoologists have begun to study the state-wide distribution of these species. Thomson (1892) described the fresh-water shrimp *Anaspis tasmaniae*, later called *Anaspides tasmaniae*. This represented the first description of a living syncarid, a super-order which prior to this time had been known only as marine Carboniferous fossils with a world-wide distribution. *Anaspides tasmaniae* has a wide distribution in the elevated regions of Tasmania, being found in permanent cool streams and tarns. The life cycle and embryology of *Anaspides tasmaniae* has been studied by Hickman (1937) while the general ecology of *Anaspides* has been reviewed by Williams (1965).



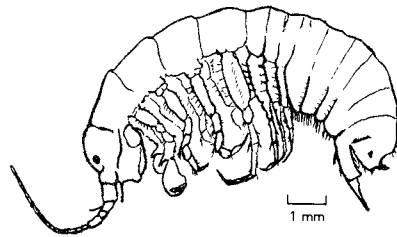
24. Dorsal view of *Anaspides tasmaniae* (Thomson), x1; a syncarid.

The English zoologist, G.W. Smith, in 1909 described a new species of Syncarida, *Paranaspides lacustris*. This species was collected only from Great Lake. It has since been positively recorded as being also present in Shannon Lagoon and Penstock Lagoon. The animal is not found in open water but associated with patches of aquatic vegetation. In recent times the animal has been sporadic in its abundance. It is now difficult to collect *Paranaspides* in Great Lake and Penstock Lagoon and it appears that Shannon Lagoon harbours the only accessible, abundant population.

A very significant portion of the biomass of crustaceans of the Central Plateau consists of species of the order Amphipoda. These animals are notable for their lateral compression and their incessant movement. In the family Hyalellidae, the very widespread species *Austrochiltonia australia* is found in many lakes and tarns especially in areas rich in aquatic or submerged vegetation. The major family of freshwater amphipods of the world, the Gammaridae, is represented by members of the genus *Neoniphargus*. The taxonomy of the neoniphargids is largely unknown, but it does appear that Tasmania possesses a rich neoniphargid fauna.



25. Lateral view of *Austrochiltonia australia*, x5; an amphipod.



26. Lateral view of *Colubotelson* sp., x5; an isopod.

Although some representatives of the neoniphargids occur in standing waters, the more evident, larger neoniphargids are confined to cool, flowing streams often in association with *Anaspides tasmaniae*. In spite of their abundance and the importance in the productivity of elevated waters of Tasmania virtually nothing is known of the biology of the neoniphargids.

The order Isopoda is marked by dorso-ventrally compression. Two major groups of freshwater isopods occur in the waters

of the Central Plateau. The sub-order Asellota is represented by an undescribed species found in lakes of the eastern portion of the Central Plateau, notably Lakes Crescent and Sorell. This species is very similar to the endemic genus *Pseudasellus* which is found in the tributaries of the Cam River. The sub-order Phreatoicoidea is notable in that members of this sub-order are cylindrical in cross-section rather than being dorso-ventrally flattened. This sub-order is first found in fossils of the Mid-Pennsylvanian Carboniferous deposits of Illinois, North America. Permian fossils of this sub-order have been found in Russia, Germany and England, and Triassic fossils in Australia. However, at present this sub-order has a Gondwanaland distribution being found in Southern Australia, New Zealand, South Africa and the Deccan region of India. It is in Tasmania that this sub-order displays its greatest radiation of forms, with both families of this sub-order, the Amphisopidae, and the Phreatoicidae being present. The present understanding of this sub-order is largely due to the works of G.E. Nicholls published in 1943 and 1944. The taxonomic status and distribution of Australian phreatoicids is at present being investigated in the Department of Zoology, University of Tasmania. On the Central Plateau, the phreatoicids occupy a wide range of freshwater habitats and utilize a broad spectrum of living and decaying plant material as food. Mating occurs throughout the winter months with the female being firmly clasped from above by the male. Eggs are shed into the marsupium in early spring and the young are released from the marsupium in late November. The animals live for two years on an average.

The order Decapoda, the members of which form the general image people have of crustaceans, is poorly represented in the Central Plateau. The endemic species of atyid shrimp *Paratya tasmaniensis* whose distribution is widespread in the eastern half of this state, is only found in Lake Sorell and Lake Crescent on the Central Plateau. The family of crayfish or yabbies, the Parastacidae, which are so well represented in the western half of the island have so far only been found on the western edge of the Central Plateau. The species in the area of Lake Adelaide and the Cathedral Plateau is probably *Parastacooides leptomerus*.

The activities of man have probably affected the abundance and distribution of the crustacean fauna of the Central Plateau in three detrimental ways. The construction

of extensive hydro-electric works and the consequent rapid changes in shore level has impaired the development of a permanent littoral habitat in many areas. This loss of an established littoral habitat has undoubtedly reduced the fauna of the shores. Smith (1909) in Great Lake recorded a rich fauna of shore-dwelling crustaceans which is at the time of writing not evident. The introduction of trout to the waters of the Central Plateau has led in the case of particular species, for example *Anaspides tasmaniae*, to restriction in their distribution to regions where trout do not occur. The influence of grazing and fire have caused a reduction in the bog areas of the Central Plateau. The drainage from these areas in the past would have maintained a summer flow in creeks which are now semi-permanent. The conditions created by unsustained flow of many creeks leading to the impermanent flow has created unfavourable conditions for stream-dwelling crustaceans.

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