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Acting Editor — L. E. Wall

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## ANASPIDES TASMANIAE by A. M. D. Hewer

THE following notes on breeding of *Anaspides tasmaniae* have been extracted from a paper by Emeritus Professor V. V. Hickman, originally published in Papers and Proceedings of the Royal Society of Tasmania for the year 1936.

Following notes on the discovery and distribution of *Anaspides* in Tasmania (Tas. Naturalist No. 8, February 1967) several members have asked a number of questions about the breeding habits of the species. A full description of the embryology of *Anaspides tasmaniae* was published in 1936, as indicated above.

During a four-year period from 1932 to 1936 an exhaustive study of the embryology was made and many interesting facts were discovered. The following extract from Dr. Hickman's paper would seem to answer many of the queries :-

### " Method of Obtaining the Eggs

The eggs of *Anaspides* measure about 1.0 mm. in diameter. They are laid singly, attached to pieces of wood or other debris in the streams and tarns where the shrimp occurs. Sediment and algal growths in the water soon cover the eggs, concealing them from view, and making it almost impossible to find them.

In March, 1932, a small laboratory aquarium was built and stocked with specimens of *Anaspides*. Little success, however, attended the experiment. It was soon realised that the conditions prevailing in the mountain streams could not be reproduced satisfactorily in the laboratory. Adult specimens of the shrimp rarely lived longer than six to eight weeks under artificial conditions, and no eggs were found in the aquarium. Half-grown specimens could be kept alive for a much longer period, but they died before reaching maturity.

In November, 1932, it was decided to keep a number of shrimps under more natural conditions in a stream on the slopes of Mount Wellington. For this purpose a tributary of the New Town Creek was selected. This stream flows down the north-eastern slopes of the mountain, and empties into the River Derwent at New Town Bay. The bed of the stream is composed of large basaltic rocks and boulders intermingled with coarse gravel and sand. Apart from algal slime there is very little aquatic vegetation in the creek.

During bright, sunny days the adult shrimps spend most of the time hiding in dark recesses among the rocks where the water is flowing rapidly, and it is in such places that they usually lay their eggs. In order to obtain the eggs two small wooden boxes, each measuring about 25 x 20 x 15 cm., were prepared. Through the ends of each box eight holes (15 mm. in diameter) were bored. These were covered on the inside with wire gauze to allow water to circulate freely through the boxes. Two or three stones, some vegetable debris from the bed of the creek, and some pieces of fibrous bark were placed in each box. Fifteen to twenty adult specimens of *Anaspides* were then introduced and the lid closed. The boxes were next completely submerged in a swiftly flowing part of the stream, a number of heavy stones being placed on the top of them to keep them from being washed away.

The two boxes were prepared and stocked with shrimps in the above manner on the 9th November, 1932. The creek was not visited again until the 23rd January, 1933.

The boxes had therefore been undisturbed for about ten weeks, but the specimens of Anaspides were still alive, and appeared to be quite healthy. The water circulating freely through the boxes had carried sufficient food for the shrimps, which had not only survived the ten weeks' confinement in almost complete darkness, but had also laid a number of eggs. Seven eggs were found in one box and thirty-five in the other. Most of the eggs had been deposited in cracks and crevices in the wood of the boxes, some were on pieces of bark, but only a single egg was found attached to a stone. It was very difficult to remove the eggs without damaging them, since they adhered firmly to the surface on which they had been laid. The pieces of bark, with eggs attached, were therefore placed in water and taken to the laboratory for examination.

The boxes were restocked with Anaspides on the 23rd February, and examined periodically. It soon became evident, however, that two boxes were not sufficient. The necessity of leaving the boxes undisturbed over long periods in order to obtain eggs at advanced stages of development made it imperative to place a larger number of boxes in the stream. This procedure was also hastened by the fact that heavy rain fell on the 4th and 5th October, 1933; the creek was flooded and my two boxes washed away. On 10th October the flood-water had subsided sufficiently to allow a new box to be stocked and placed in the stream. Other boxes were added at intervals, and by 10th January, 1934, eleven boxes had been stocked with shrimps and placed in the stream at slightly different altitudes on the mountain. A record of the date, when each box was stocked with shrimps and when eggs were found in it, was kept.

If small strips of wood about the size of a microscope slide were lightly tacked on to the lid of the box, leaving a space of about 1.2 mm. between the wooden strip and the lid, the shrimps would often lay their eggs in this space. The eggs adhered to the wooden strip, which could then be removed with the eggs attached. Moss, rootlets, bark, and stones were also used as natural substances on which the shrimps might deposit their eggs. Of these materials fibrous bark proved to be the most satisfactory. Eggs were rarely laid on stones. "

Regarding the other questions asked it would appear that egg-laying is continual throughout the year but most active during October and November. In general, eggs hatch in 32 to 35 weeks and hatching usually occurs during the winter and spring months. The young Anaspides is superficially similar to the adult. Professor Hickman writes: "The newly hatched Anaspides differs from the adult in having a rudimentary median eye, sessile paired eyes, no rostrum, a forked telson, no endopodites on any of the appendages of the first five abdominal segments, and no external sex organs."

It would appear that external differences between the sexes do not develop until the shrimp is 5 to 6 months old.

There is much of interest in Professor Hickman's paper which is strongly recommended to all who thirst for more knowledge about Tasmania's unique 'Living Fossil'.

#### MUSEUM NOTES

"Some Common Tasmanian Spiders", by V. V. Hickman, Tasmanian Museum & Art Gallery. 112 pages, 18 plates

Professor Hickman's booklet is a welcome addition to the naturalist's bookshelf and provides an authoritative basis for further research. As the author points out only the larger known species are considered; many smaller forms are awaiting identification and description.

The first section of the booklet describes the external features of spiders in a manner which enables even the non-specialist to use the "Key to families" which then follows.

Selected species are then dealt with in family groups. Photographs, of most of the spiders mentioned, are of high quality and further details are clarified by excellent text figures.

"Some Common Tasmanian Spiders" fills a gap in Tasmanian faunal literature and is a landmark in the history of publications from the Tasmanian Museum.

A FAMILIAR occurrence around the coastline and beaches of Tasmania is the stranding of whales and dolphins. These large marine mammals are frequently washed up in a sick or dying condition or may die at sea following injury and subsequently drift to the shore.

Recently a fifteen-foot whale was reported on a beach at South Bruny Island. The decomposing carcass was examined and photographed and the skull removed for the Museum collections. The whale was identified as a Pygmy Right Whale (*Caperea marginata*). As the examination of such strandings could lead to new scientific records being established, field naturalists are urged to report any such occurrences to the appropriate departments at either the University or Museum.

SHIELD shrimps (*Lepidurus* species) recovered from a pond at Sorell opened up a line of investigation. These freshwater crustaceans are seasonal in occurrence spending most of the year as resistant eggs until conditions are suitable again. Most specimens in the Museum have been collected during the early summer though a few have been taken in February and March.

Information about these shrimps would be welcome at the Museum — many people must have seen them over the years, and dates and localities would enable the Museum to accumulate more details about the distribution and habits of these unusual animals.

#### BIRD NOTES

THE following interesting observations have been reported at meetings of R. A. O. U. and B. O. C. members in Hobart during the last three years. (Reports which have been submitted to other magazines have been omitted).

Glossy Ibis	Longford, 30/10/65 : Lauderdale, 1/12/65
Dominican Gull	Triabunna, 2/1/67
Maned Goose	Bothwell, 22/3/67
Orange-bellied Parrot	Port Davey, 12/66 (12)
Owlet Nightjar	Franklin Square, Hobart, 9/2/67
Reed Warbler	Nesting at Austin's Ferry, 5/11/66
Straw-necked Ibis	Ellenthorpe, 19/5/66
Ground Parrot	Mt. Lloyd, 4/1/65 (5) : Upper Huon River, 12/65 : Port Davey, 12/66
Little Grebe	Seymour, 18/4/65 (12)
Forty-spotted Pardalote	Blackman's Bay, 19/2/66 : Sandy Bay, 7/66, 1/67, 3/67 (4) : Tinderbox, 9/66 (3 nests), 20/11/66, 9/67 (2 pairs using nesting boxes).
Hybrid Brush x Common Bronzewing	Snug, 9/65
Little Falcon	Hobart, 6/67, 3/65 : Bridgewater, 3/65
Nankeen Kestrel	Craycroft Crossing, (in the S. W.) 2/1/66
Marsh Crake	Granton, 27/11/65, 26/12/65
Olive Whistler	Preservation Is. (Furneaux Group) 5/66
Crested Grebe	Sorell, 5/65
Common Sandpiper	Sorell, 29/11/64, 6/12/64, 10/3/65, 19/3/66
Grey Plover	Sorell, 6/12/64, 10/3/65, 24/10/66
Whimbrel	Sorell, 15/4/67
Sanderling	Anson's Bay, 1/1/66 (15), 3/3/67 (32)
Black-tailed Godwit	Sorell, 19/11/66

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A lecture entitled "Conservation — the Tasmanian Scene" will be delivered by Mr. J. H. Hemsley, Curator of Wild Life, Animals & Birds Protection Board at 8.00 p. m. on Wednesday 6th March, 1968, in the Reception Room, Town Hall, Hobart.

## REGROWTH ON MT. WELLINGTON

by M. H. Hurburgh

A year has now elapsed since the disastrous bushfires which swept Mt. Wellington and other areas in the south of the State. A recent survey has been made of the moorland at an altitude of about 3,700 feet on Mt. Wellington, along the foot track to Collinsvale. This area, which prior to the bushfires contained a glorious and varied moorland flora, is now, a year later, still blackened and presenting few species for ground cover.

The Tasmanian Snow Gum (*Eucalyptus coccifera*) and to a lesser extent the Urn Gum (*E. urnigera*) are showing a remarkable recovery. In both species healthy new growth from adventitious centres at the base of their trunks is evident, as compared with a species such as the Stringy Bark (*E. obliqua*) where one would find after fire damage new outgrowth arising from centres along the greater part of trunk and branches.

The understorey of shrubs in this area is very scattered. The most abundant in recovery is that of Pineapple Grass or Artichoke Plant (*Astelia alpina*) which is present in dense tufts in many places. The cushion plant (*Abrotanella forsterioides*), which was once common, has suffered badly, only one specimen being seen to be recovering in the form of an open mat instead of the usual round formation where several such plants coalesce to give the typical round or cushion shape.

Three of the Compositae family show healthy signs of regeneration. The silver-leaved Snow Daisy (*Celmisia longifolia*) is fairly common, followed by the purple-flowered *Erigeron pappochroma*. The most prominent herbaceous plant is the everlasting, (*Helichrysum scorpioides*) which forms dense patches along the rocky foot track.

The last-mentioned species is so abundant and hardy that it may lend itself to replanting along roadside cuttings and eroded banks instead of *Mesembryanthemum* which is earning for Tasmania the name 'Pigface' State because it is used so much in these situations. What could be better for an 'Everlasting Memory' than *H. scorpioides* planted along some sections of the road leading to the summit of Mt. Wellington?

## WHITE-WINGED BLACK TERN — a second Tasmanian Record

ON 20th January 1968 at Orielson Lagoon I saw a small tern, obviously not a Fairy Tern, but was unable to obtain a close enough view to record a full description. However, I re-visited the lagoon next day and found the bird resting on a small reef among about 20 Fairy Terns.

This bird had darker upper parts and longer legs than the others, the bill was black and slender and shorter than the skull, the forehead wholly white, the crown streaked black, a complete white collar, and the rump was paler than the tail. In length it was less than the Fairy Terns. When it was flushed the pale rump was very noticeable and the tail did not appear to be forked.

Its manner of flight and its feeding habits were quite different from the Fairy Terns; it flew steadily along the shore dipping to the surface of the water to gather its food, but not plunging into the water.

This bird had apparently been seen at the lagoon a few weeks previously by D. G. Thomas, but not at close enough range to allow a positive identification.

On 4th February another visit was made, this time in the company of M. S. R. Sharland. Three birds were seen on this occasion, two birds much lighter in colour on the upper surface (more nearly approaching the grey of the Fairy Terns) but showing all the other characteristics of the bird described above.

— L. E. Wall