

The Tasmanian Naturalist

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June, 1928.

The Tasmanian Field Naturalists' Club

Since the last issue of "The Tasmanian Naturalist" there have been several meetings of the Club, and the attendance has been very satisfactory.

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The Easter Camp was held at the Meredith River, East Coast, and was a most successful fixture. A Special Camp Report will be issued as usual.

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Colonel W. W. Giblin, M.R.C.S., has returned from his expedition to the Great Barrier Reef. He kindly delivered an illustrated lecture at the May meeting, and his remarks were enjoyed by a large audience.

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Mr. A. N. Lewis has resigned as the Club's representative on the National Park Board, and Mr. Cyril Taylor has been appointed in Mr. Lewis' place. The Club desires to place on record its appreciation of the work done by Mr. Lewis whilst acting as its representative on the Board.

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Mr. Clive Lord, who has been hon. secretary of this Club since 1911, has been elected vice-president of the Royal Australasian Ornithologists' Union.

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The Club has for years been endeavouring to obtain better protection for our native fauna and the wholesale destruction of our marsupials which has taken place during the past five seasons has aroused public opinion upon the matter, and there is every reason to hope for a more enlightened policy in the future.

Tasmanian Natural History

Some Interesting Aspects

By Dr. W. L. Crowther, D.S.O., M.B.

Our Society has within the last year reached its 21st anniversary, and has, of course, "come of age." An examination of its membership roll shows that many who joined at its inception are still actively working as members of the executive.

There must come a time, however, to every corporate body when it must look to a new set of names to manage its affairs and to contribute to its output of useful work. In our Club we are looking towards our junior members and to schoolboys in any part of Tasmania, who may find interest in nature and its study. It is to such boys and girls that I dedicate this brief article on what may be found on our bush and hills or upon the shores of our bays and rivers.

Tasmania lies remote from old world centres and old world cultures, but it teems with interest to those who have eyes to see and ears to hear. In its small area are plants and animals represented by living forms found nowhere else in the world. There, too, may come an occasional visitor from the remote South, as witness the extraordinary coincidence of Captain Furneaux capturing and describing the rare crested Penguin during his brief stay in Adventure Bay (1788). Perhaps it was the only one of its type ever there. It is of interest to note here that three of the same type of Penguin have been reported on our East Coast during the last two years, at St. Helen's, Eaglehawk Neck and Okehampton. The latter was handled and photographed by the writer. Though immature, it was much larger than our own small Penguins, and with its yellow crest, dull red of its eyes and red beak, it was a very handsome bird. It would be of great interest to know from which of the Sub-Antarctic islands it had worked its way so far North.

Such mammals as the Sea Leopard, Sea Lion and several varieties of Whales still frequently come to the estuaries and Coast. In January, 1927, a Sea Lion worked its way down the East Coast, and was eventually killed at Wedge Bay. Surely such visitors might be protected, as they give untold pleasure to those who wish to observe them, and they do no harm.

Between Hobart and the Derwent Light in the late summer and autumn may be seen large flocks of the Mutton Bird. Few children who see them know of the wonderful breeding habits of this sooty Petrel, and those who visit the rookeries at the

Furneaux Group, the Actaeons, etc., will be richly rewarded. At a given time, almost to the day, the flocks appear in thousands. Just at dusk the birds commence to arrive from the sea, until the air is dark with them, and, wheeling around, drop into their burrows. In the latter a great clearing out takes place, and the birds pair off. At dawn away they go to sea, returning again at dusk; but when the burrows are cleaned they stay at sea for some weeks, and then come in and lay. After the incubation the young are fed until they grow to be the large greasy squab-like birds seen in shops. At this stage the parent birds go off to sea, leaving them to live on their fat.

Now one of two things may happen, either the "birders" arrive to clear out the rookeries for commercial purposes, or gradually exhausting their fat, the young become sufficiently matured, and, driven by hunger find their way to the water, and join the adult birds. Their movements until the next spring are quite unknown. In February, 1927, Mr. A. W. Legge and myself saw from Sandy Cape, on the West Coast, a continual stream of these birds flying north into a hard gale. Their numbers were so immense as to amaze us.

A visit to Flinders Island is a glorious experience, and there, in addition to this remarkable bird, one may see the Cape Barron Goose, now completely protected, and innumerable other species, and the miserable remnant of our fur bearing seals, once existing in tens of thousands in the Straits.

Leaving the Coast the inland birds are of the greatest interest, but I leave consideration of them to those who have made of them their particular study. I would urge, however, all to join the Gould League of Bird Observers.

How many know of the Anaspides—the Tasmanian Mountain Shrimp? First noted by Mr. L. Rodway, C.M.G., the leading spirit of our Club, in the streams of Mount Wellington. This sometimes is as much as two inches in length, of a dark brown colour, and walks about on the stones and among the weeds at the bottom of the pools. It rarely swims, but dives forward by flicking its tail. Slight variants of this animal are found in the Great Lake and in Victorian streams. Otherwise it is recognised only in fossil forms of the carboniferous period, and has no living prototype.

Again, the Giant Freshwater Lobster, of Tasmania (*Astacopsis franklinii*) is the largest in the world, and quite a distinct specimen from the small fresh water lobster found in the streams of Southern Tasmania. It may grow to nearly two feet in length, and weigh 8 or 9 pounds. It is found in small

muddy pools, and is of a dark green colour; it is smothered with a parasitic flat worm. The boys of our North-Western and North-Eastern schools must know them well, but do they realise that it is found only in the streams of Northern Tasmania and in a few streams in Gippsland, and nowhere else in the world.

Of Botany I know so little that I shall mention only one instance, the *Fagus Gunni* (Deciduous Beech). This is found only on the Western Mountain, and sheds its leaves each autumn, and puts forth new foliage each spring—the only native Tasmanian tree to do so. I believe its prototype has been found in South America. The Huon Pine, with its enduring, wonderful timber and its slow growth, taking, it is believed, some hundreds of years to reach the massive size when it is felled for commerce, is saved only from practical extermination by the inaccessibility of its habitat. Man is the enemy of our forest country. Some destruction is inevitable when forest land is cleared for cultivation, but the damage that is most irreparable is done by the bush fires. An instance was the holocaust on Mount Wellington, when its S.W. aspect was swept clean some 25 years ago. The rarer forms of plant and fern life in the sheltered gullies will possibly never come back after such a fire. One thing every good Tasmanian can do is to insist that care be taken against bush fires, and deliberate offenders brought to justice.

Luckily one can still find remains of the Stone Culture of the extinct Tasmanian natives. A few lucky youngsters may yet find caves that they have occupied, and in them their stone implements. They are of bluish grey or fawn coloured chert, or white quartzite, or even split pebbles. Sometimes just a piece of fractured stone, but more often showing well marked chipping along the edge. Look for them in the ploughed fields in districts the natives frequented. Find a slope with an aspect towards the sun, with water near, good game country, and a good outlook from a surprise attack, and there you will almost certainly find their flints. Sand blows, where the surface has been blown away, give much the best material. Implements of all kinds, chippings, anvil stones, charcoal, red ochre, and even bones of their feasts may be found on the underlying hard clay "pans." The extent of the sand blows from Mount Cameron to far south of Sandy Cape, on the West Coast, have to be seen to be believed. They simply cover acres of ground, implements (mostly rough) are there in thousands, and matted piles of shells, charcoal and bones (seals, whales, etc.) are found in the more favoured spots. Sand blows, too, are found inland, around Tunbridge and Grimes Lagoon, and they yield much interesting material. Moreover, wherever boys of

country schools may be, on ploughed fields, the best of worked specimens may often be found. Such should be treated reverently as the highest expression of the culture of one of our extinct races. The writer of these notes will feel that they have been of some service if they are instrumental in ever so slight a degree, in turning the thoughts of young Tasmanians towards their own heritage, with its wonderful manifestations. Each school should have its Museum, and some one to encourage those who may show interest, and demonstrate to all the specimens that they bring to it.

Mussels and Oysters

It will be remembered that on several occasions at Club meetings I have asked members to pay attention to the old aboriginal kitchen middens, owing to some of these showing alternate layers of Oyster and Mussel shells. From this it would appear at first sight that there was some evidence that these species increased and decreased in alternating periods. Further confirmation has been given to this view owing to the great decrease of oysters in Tasmanian waters over half a century ago. For years there has been a great quantity of mussels in many localities, but these in the last few years have certainly decreased in some places, and we know that the oysters are increasing, particularly in New Zealand or "Black Oyster," which has been introduced in Ralph's Bay and other places.

In view of the foregoing, it is of interest to note that in the last annual report of the Fisheries Department of New South Wales it is reported that in Middle Harbour (Sydney) the growth of mussels was increasing to such an extent that they will soon completely oust the oyster growth. Considerable data is needed before any definite conclusions can be reached, and members of the Club can assist in this matter, as any observations will be welcomed.

C.L.

The Birds of Tasmania

The following descriptive list of our native birds has been compiled with the object of assisting the junior members in particular. It embraces the most recent scientific nomenclature as adopted by the Royal Australasian Ornithologists' Union, and gives an outline of the classification of the class. The main characteristics of each sub-class, order, family and genus are given briefly as possible, in addition to the vernacular and scientific name, the reference to the first record and an outline description of each species.

Clive Lord, 1/6/1928.

BIRDS.

Class *AVES* (Latin *avis*, a Bird).

Birds are feathered vertebrates, possessing two wings, two legs, a tail and a horny beak. In Tasmania the topographical features of the island affect to a considerable degree the distribution of the avifauna. Three sub-classes occur, of which the first (Emus) is now extinct in Tasmania.

Ostrich-like Birds.

Sub-class 1 *DROMAEONITHES*.

Swift running birds of large size and elongated necks. Flightless. Differing in many ways from the Ostriches of Africa and the Rheas of S. America, which birds form separate sub-classes.

Emus.

Order *CASURIIFORMES*.

This order embraces the Emus and Cassowaries. Cassowaries never occurred in Tasmania, and Emus are now extinct in the island.

Emus.

Family *DROMAIIDAE*.

Large flightless birds peculiar to the Australian region. Feathers of peculiar form. Hind toe absent.

Genus *DROMAIUS* (Greek *dromein*, to run).

Ex. 1. EMU, *DROMAIUS NOVAE-HOLLANDIAE* (New Holland-Australia), Latham (Index Orn. 1790).

Tasmanian form *D. nh. diemensis*, Le Soeuf, Bull B.O.C. (1907) (of V.D.L., Tasmania).

The Emu has been extinct in Tasmania since about 1850. There are two skins in the British Museum, and possibly some in the European Museums.

Ex. 2. KING ISLAND EMU, *DROMAIUS MINOR* (L. *minor*, smaller), Spencer (Vic. Nat. 1906).

This species has been extinct for many years, and very little is known concerning it, although it was fairly plentiful in the early days of last century.

Penguins.

Sub-class 2 *IMPENNES* (L. *impennis*, without wings).

Swift swimming birds of varied size. Flightless. Confined to Antarctic and Southern Oceans. (Note—Penguins at Galapagos Islands.)

Penguins.

Order SPHENISCIFORMES.

This order is represented in Tasmania by one resident species (*E. minor*) and several visiting forms.

Penguins.

Family *SPHENISCIDAE* (*G. spenicos*, little wedge).

Penguins are marine flightless birds inhabiting the Southern Ocean. Certain smaller species breed in the Australian zone, but the larger forms are only occasional visitors from the Antarctic.

Genus *APTENODYTES* (*G. apten*, wingless).

Penguins of large size, no crest. Bill slender and as long as head. Tail composed of 20 feathers.

1. KING PENGUIN, *APTENODYTES PATAGONICA* (of Patagonia) Miller (1778). Tasmanian form *A.p.halli*, Mathews, Birds of Aust. 1. 272 (1911). Above bluish grey. Head and cheeks black, neck yellow, under white, height 950 mm. Range, Sub-Antarctic regions. Egg 1, white. There is one authentic record (Maria Island) of this bird from Tasmania, but there are in addition three verbal descriptions which undoubtedly relate to this species (Eaglehawk Neck, Adventure Bay, Cox's Bight).

Genus *PYGOSCELIS* (*G. pype*, tail; *scelos*, leg).

Size medium, bill stout, tail long, 12-16 feathers.

2. ROCK-HOPPER PENGUIN (GENTOO) *PYGOSCELIS PAPUA*, Forster (Comm. Gott. 1781) (*Le manchot Papou*, Sonnerat, Voy. N. Guin, 1776). An occasional visitor to Tasmania. Can be distinguished by the white band which commences above the eye and extends backwards across the crown. Flippers margined with white. Length 600 mm. Range, Southern Seas. Egg 1, white.

(To be Continued.)

The Introduced Trout

Considerable confusion exists, even among anglers, in Tasmania concerning the main specific differences which serve to distinguish the several species of the *SALMONIDAE* which have been introduced into the island. Making due allowance for the various minor changes which are to be met with owing to the effect of local environment, the following outline key may be found to be of service.

Family *SALMONIDAE*.

Active fishes with large mouths and strong teeth. Usually silvery when in the sea. A single dorsal fin, plus a small adipose fin. Pectoral fins low down on side of body.

Outline to Key of Genera.

8—12 rays in anal fin. Spots on side above lateral line black.. .. .	<i>Salmo</i>
12—17 rays in anal fin	<i>Onchorhynchus</i>
8—12 rays in anal fin. Teeth on raised head of Vomer only. Spots on side, red or blue	<i>Salvelinus</i>

Outline Key to Species.

SALMO SALAR, the Salmon (and its varieties).

Black spots on side X or XX shaped. 11-12 scales from adipose fin to lateral line. Teeth in centre of roof of mouth, few and deciduous. Scales along lateral line 120.

SALMO TRUTTA. The Trout (and its varieties).

(Such species as *Salmo fario*, *Salmo laevis*, and *Salmo eryox* are now considered synonymous with *Salmo trutta*).

14-16 scales from the adipose fin to the lateral line. Colour, silvery, back dark. Red spots on and below lateral line, black spots above.

SALMO IRIDEUS. Rainbow Trout

Black spots on side, not X shaped. Teeth in centre of roof of mouth persistent. Red band on side. Tail spotted.

ONCHORHYNCHUS NERKA. Red Salmon.

Body rather slender. Caudal fin much forked. Colour above bright blue, sides shiny, no spots. Scales very small. Scales along lateral line 210-240. Gillrakers short, 28 (13 above). Anal rays 14 (average).

Often referred to in the vernacular as the "Sock-eye" salmon, but this is an error due to the corruption of the American Indian term "Sukkeh," meaning red.

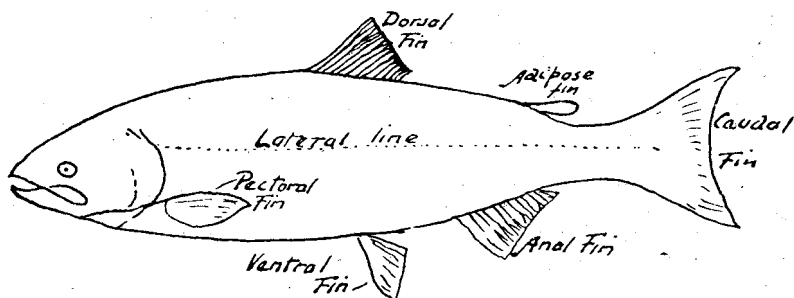
ONCHORNYNCHUS QUINNAT. Quinnat Salmon (quinnat, shining).

Colour above dusky, sometimes bluish or greenish tinge. Sides and under silvery. Head dark, with metallic lustre. Above lateral line, dorsal and caudal fins with numerous round black spots. Scales long, 135-155. Gillrakers short, 23 (9 on top). Rays in anal 16 (average).

SALVERLINUS FONTINALIS. The Char or American Brook Trout.

A smaller species than the foregoing. The spots on the sides, both above and below lateral line, are red. The name "Char" may be traced to the Gaelic "Ceara," meaning red. The Chars are widely distributed in the Northern Hemisphere, and *S. Fontinalis* is one species of the *Salmonidae* which has been introduced into Tasmania.

C.L.



The Value of Plover

Plovers are typical representatives of the order Charadriiformes, or Wading Birds. The two resident species of Plover in Tasmania are the Spur-winged (*Lobibyx novæ hollandiæ*) and the Black-breasted (*Zonifer tricolor*). The latter is slightly smaller than the former, and can be distinguished immediately by the black band on the breast. Within recent years Plovers have increased in a marked manner in Tasmania. This is due to two causes. First, they have been totally protected by law, and it is an offence under the Animals and Birds Protection Act to destroy Plovers or take their eggs. Secondly, the agriculturalist has become more aware of the birds' economic worth, and affords the birds protection. One of the main characteristics of the plover is its habit of feeding

on land snails. This snail serves as the home of the Liver Fluke (which is so destructive to sheep) during part of its life, and therefore the more plover the less water snails, with a corresponding falling off in liver fluke and an increased return to the farmer.

The Liver Fluke (*Distomum hepaticum*) has a complicated life history. Commencing with the ovum or egg stage, incubation takes from three to six weeks in the summer. The minute embryo, when it emerges, is covered with small hairs (*cilia*). It is necessary for the embryo to obtain the shelter of a host within thirty hours, or it dies. It therefore seeks out a water snail, and bores into it by means of a curious boring process at the anterior end or base of its elongated triangular form. Within the mantle of the water snail several changes take place, and eventually numerous tadpole-like forms emerge from the snail and spend some time as free living forms in damp situations. They anchor themselves by their tails to blades of grass, and are thus transferred to the stomach of the sheep. Here further changes take place, and the immature fluke in its final form is released, and enters first the duodenum and then the liver, where it grows, and produces countless numbers of eggs, which are shed far and wide by the sheep, which animals in some localities, particularly in wet seasons, suffer severely from fluke. On purely economic grounds alone there is every reason for the protection of the Plover in Tasmania, and what has been proved in the case of the Plover is also true of many other of our native birds. The more our birds are studied the more we learn of their value in the great scheme of Nature, and with wider knowledge will come wider protection for many species.

C.L.

Autumn by the Plains

By Mrs. E. H. Linton, Springfield, N.E. Tas.

The mild, bright days of early autumn are nowhere pleasanter than among the spurs and foothills that intersect the Plains. The warm sunlight genially transforms the long belts of dark-hued trees to inviting groves; the ripening berries and seeds of grass and herbs are a summons to innumerable birds. These, flitting and calling or warbling in the soft undertones of autumn songs, provide life, of animated movements and sound, to the pleasant open scene.

Now is more apparent the presence of other animate life! Wombat and wallaby feed openly in the wild meads, or bask on warm slopes; little wild mice venture boldly from covered runways and dart over the ground or rustle between the drifts of dry leaves. The marsupial mice, hunting their insect prey, take little heed of a quiet and solitary observer. At all times they are more oblivious or pre-occupied than the seed-eating *Muridae*. The bright eyes of the latter are alert for any strange presence or movement, the mere suspicion of which sends them with a jump and long leaps to any cover, although soon they emerge and hunt busily for the ripe seed-head or opening capsule, or it may be for the crumbs or other goodies which drop near their haunts. The small pouched mice shed their seeming indifference if anything of the kind comes their way, and very quickly show an eager and confident expectancy which other little creatures are slow to manifest. Amongst the stones and weather-worn rubble on a slight elevation, my friend *Sminthropsis* has his unlawfully-acquired dwelling, which is being re-furnished and touched-up in readiness for six small tailless babies. As yet the tiny mice are affixed firmly (mouse fashion) to their mother, and are scarcely visible between the pouch openings, for, as in the case with the larger *Dasuridae*, the pouch-young are not deposited in the nesting chamber until late in autumn or early winter. But then, when so deposited, the mother apparently retires with them, becoming torpid, and only occasionally releasing herself from their persistent attentions, or adherence, to find food or to attend to their necessities.

As yet they are only very lightly clad on the upper surface with exceedingly short and very fine hair. Beneath they appear to be naked, but not unblushingly so. As there is a rosy flush on the small bodies, that may be due to embarrassment. Until the snow-white hair thickly clothes the under parts, the mother carries them on her back, a phalangeristic method of transportation not often resorted to by their larger congeners, the *Phascogales*. It appears that Mr. *Sminthropsis* is not allowed now inside the nest-chamber; the tables are turned since he would not allow Mrs. *Sminthropsis* to even look outside. Sometimes he is hustled and hurried ignominiously out of the general dwelling. Mrs. *Sminthropsis* is presuming on his lately acquired meekness, and she is not even gracious when he returns carrying a large grasshopper, but snatches it rudely and whisks inside. The poor little gentleman rather forlornly makes his careful toilet. Sitting lonely on the roof, he cheerfully runs over to his human friend to see what there may be for him, and takes it, but not for himself; but it is borne to the importunate housekeeper.

Farther back on the Plains on the sunny slope of a higher elevation, and also among stones, is the dwelling of the Long-tailed Rat (*Pseudomys higginsii*), who perhaps is the architect and mechanic of the castle now held by the small brigand, *Sminthopsis*. The latter's nest, when built by his own hands, is a very different affair to that fashioned by *Pseudomys*, whose sagacious and skilful engineering we have watched with much admiration. He is so painstaking and resourceful, especially over the removal or transference of stones. If they are in the way he burrows or scrapes nearby, until the stone slides, or rolls, or is pushed into the depression. Small stones, if loose, are scratched or shouldered away, or if near the entrance are arranged on the edge of the orifice, perhaps to prevent its breaking down, or the loose earth from falling in. Larger ones, which he uses to give stability to the rustic-work are built up to stay the spreading of the roof. He carries them between chin and chest and forelegs, either pushing laboriously forward or slewing round, proceeding backward as the jumping ant does. And more than once, when struggling with an awkwardly round or smooth stone, we have seen the mouse drop the stone and coil about it, clasping it with limbs and curved body. In this hold, in which claws, digits and limbs all take part, they involuntarily revert to the infantine habit of so clinging to the mother? We have noticed it with the swamp rats when carrying sticks. It seems the remembrance recurs to the little animals when trying to convey a large substance into which its teeth cannot penetrate. Instinctively, the limbs twine and the body coils about it. Of course, in this position self-locomotion is not possible, and, if the other mouse does not perceive the situation, the struggling navigator, after some desperate rotary movements, abandons his hold and sits up with an amusingly bewildered air. But if the mate sees the prostrate one, it races over, and after trying to take the same attitude, or fussing about for another hold, it, as an after thought, grips the recumbent holder in the most convenient place, and summarily proceeds to drag it and stone away. Sometimes it is by the tail, sometimes by the skin of the neck, back, or limb that the tug grapples. If pulled by the tail the tug proceeds backward with little jerking pulls, but if by the neck he marches eyes front, with head upraised, as a cat with heavy game, the loaded one bumping along between the wide-stepping forelegs. Occasionally an amusing altercation takes place if the grip is a painful one; on a tender ear perhaps, or a too decided meeting of teeth through a delicate surface. An expostulating squeak warns him to release it and take a fresh hold on another part. If that also is too tender the carried squeaks again, and may either kick convulsively or, sitting up in a passion, retort in kind. Then if

the female is the rolling stock the conveyer bounds away; but if it is she who has tried to drag her recumbent mate, a slight passage of arms ensues; she is not going to run as if she was to blame! and evidently she upbraids him for noticing such a trifle as a mere nip! During that period he goes through a hasty toilet operation, violently performed, until she departs. But as a rule the martyred one stoically clings to the stone, and endures the painful hold in uncomplaining silence.

These pretty and harmless little creatures sing and twitter together in the same manner as the rats and mice in our walls, when their family cares begin. They talk together and exchange endearments such as always succeed to the scurrings and frightened squeaks of *Mus musculus* and *Rattus decumanus* in courtship. In the same way Mr. and Mrs. *Pseudomys* at slack moments sit under cover outside, affectionately assisting each other at their toilette, and twitter incessant squeaky trills in subdued key. The lady is as trustful and tame as is her little spouse to their human friend. Both are very fond of a nice plump raisin, and sit up most prettily on their haunches to eat, holding it opossum fashion between their hands, and finish the seeds and skin with great enjoyment.

The Long Tailed Rat (Mouse) harvests his winter stores as do all our native *Muridae* by gathering heads of seeds and berries to take to his winter domicile. A nest, unroofed by some marauder, had a round chamber cosily lined for a nursery, and in various alleys were neat heaps of berries strangely plump and unwithered: *Cyathiodes*, *Aristotelia*, *Acacia* and *Muenhelbeckia*, a few capsules of the white-topped gum, together with nearly a pint of pieces of "Native Bread" (*Polyporos mylitti*) bitten and gnawed into roughly-shaped cubes of half an inch or so in size. To procure these the little harvesters must have travelled quite two hundred yards, as the fungus was down in a creek hollow. There were also a few tubers of *Gastrodia sesamoides*, still adhering to the roots on which they had parasitically subsisted, neatly stacked, finger-like tubers, quite an inch through, and nearly three in length. Seeing them we wondered had the mouse taken possession of some other creature's store. We do not know what animal other than a wombat could dig out such long, firmly embedded roots, and we do not think it stores them. To eat all as he finds is *Phascolomys*' way, whether it is roots or herbage, the Native Bee's nest, or the "Native Bread's" root (sclerotinm). We suspect the eroding and drilling of the striped bandicoot in its search for larvae, may disclose these tubers to the mouse's benefit.

Leaving the open outskirts of the Plains we pass on, always ascending until we reach that part of the hill where the stone becomes shale. Every foot of ground here is familiar, and so is the forest-filled gully below. In this locality we have hunted for weeks, diligently exploring, and narrowly searching for the various "horse-hair" fungus, of which Captain Lowther told us. He found it on a Musk tree, and so we have intently scanned every *Olearia* of various species we have come across, and all other likely trees too, for that matter, and have made many most interesting finds, and, to us, new discoveries, but the *Mycocna* is put down at last among the unfindables, and we surmise that some day when not hunting for it we shall stumble on it. For in such fashion most of our discoveries are accomplished. Many of them, too, until so found, were unknown and unheard of by us, and they had to be despatched to, or information obtained, from scientific friends. The hill of shaley rock is thinly clothed with growths of plants, peculiar to such soil-formation, as they will grow here where others fail, for there is not apparently much nutriment in the soil, which is grey in colour, and poor and dusty. The rock and broken stone are what the bush man calls "rotten." It is of splitting tendency, brittle in texture, light and thin, the "exo skeleton" of stone, so to say, without its solidity of inner filling. Perhaps it is an indication of oil below the surface, because sometimes a scum, as of kerosene or petrol, gives to seeped water that has collected a greasy iridescence that gleams prismatically on the dark surface.

Small slender rods of *Horizontal* are here, the real *Aristoteleia pedunculatus*, of the unspotted flowers, with large black berries full of purple juicy pulp. There are one or two bushes of a coprosma with light green crinkled leaves, having waved margins and spine-pointed apices; having also bright almost transparent red berries, large as a small morello. And there are long, lank bushes of *Zieria*, the vernacular appellation of which we utterly refuse to use, although acknowledging its justice. By-the-way, the pretty boronia-shaped blossoms—which are dark purple on outside and of pale lavender on the inner face of the petals. They have no appreciable perfume, except towards noon or when the sun has shone fully on them, when they have an agreeable fragrance. In strong distinction leaves, bark, wood and roots have, if touched or stirred by wind, a powerful and lasting odour. It is most unpleasant, and it soon becomes overpowering. In these respects, i.e., the flowers of sweet but evanescent fragrance, and the strong and horrible odour of all other parts, there is a resemblance to some other shrubs exotics totally unallied, as *Choisya*, *Melianthus*, *Habrothamuns*, etc., etc.

There are a few of the species of White-topped Stringybark, called Bastard Gum, and one or two Red-leafed gums (*Eucalyptus acervula*), the reddish-brown bark and thin, shining-surfaced leaves having a red light, or reflection, on the outer masses of foliage in dark-hued contrast to the other gums. Even more scattered, in scanty numbers, are the White Peppermints (*E. linearis*), their young leaves glaucous, almost white, with powdery bloom. How strange it is that these leaves that are rank with the bitter essential oil, and most scarifying, if bitten, to our lips and tongues, are the leaves preferred as food above all others by the Phalangers? The Ringtail devours such quantities that the odour permeates his flesh and mingles most unpleasantly with his own furry and mossy animal odour; the "Flying-possum" also passes all others to eat these strongly perfumed, burning-flavoured leaves, which apparently have no more unpleasant effect than have the jitty berries of the *Drimys* to the Jays.

And this brings us to another kind of mouse, for lower down the slopes, where a water course nourishes fuller vegetation, we found the Little Dormouse Phalanger (*Dromicea lepida*), entering on his winter slumber, the hibernaculum being merely a fissure, concealed by the bark in a weather-worn old Blackwood. We caught the gleam of fur tips standing out like filaments of mould, and prised the bark back a little, enough to see the surprised occupant who blinked his prominent eyes—such large and pretty eyes! as he gazed sleepily; the large mouse-like ears moving and quivering enquiringly.

The offer of a piece of apple was met by a contemptuous hiss as the little fellow curled himself more snugly and tightly, seemingly oblivious to a gently stroking finger. We noticed the tail was not incrassated, as in *Dromicia nana*, and that the head was narrower, comparatively, although its smaller appearance may have been caused by the immensely large ears. These ears—so thinly covered with fine, short and whitish hairs as to appear naked and pinkly transparent, have the appearance of being too large, and the extra fulness pleated on to the base. In coiling himself the Dormouse (of either kind) tucks in feet, nose and tail, and so curls into a ball with all extremities defended. It is tightly wedged in narrow quarters that perhaps help to preserve the vital heat that must dwell in his small frame. Both sexes retire in this solitary winter seclusion into exceedingly narrow cells. Quite different are the small and at first shallow nests where Mrs. *Dromicia* deposits her small brood when they can relinquish the teats. They are in evidence before building begins, and so are born, we suppose, in winter, as are most of the Marsupial infants.

Nature Study in Schools

Practically everybody is more or less a lover of Nature in some form or the other, as witness the crowds that flock to sea-side, mountain top, or shady gully whenever opportunity offers. Those who cannot leave the home take delight in either growing flowers or decorating their houses with them. Nevertheless this inherent love of Nature is of a general character; there is nothing specific about it. The sights and sounds of the bush, the colour and scent of the flowers, habits and songs of the birds, appeal to this inborn sense, and the person is quite content to leave it at that. He does not bother to probe and delve into the wonders that surround him, but accepts them as part of the general scheme of things, without wishing to trouble his mind as to the reason for it all.

Now one of the main objects of a Naturalists' Club, I take it, is to awaken such a keen desire to learn and observe natural facts, that the learner will be glad to continue his enquiries for the pure love of the thing.

It is astonishing to notice the very keen interest that is taken by the ordinary person when some student of Nature study explains some of the wonders that surround us. Seeing that the desire to learn is there, the amazing part of it is that so little is actually done. In looking round for the reason for this it is probably to be found in the immense diversity and scope of enquiry that is open to us.

The beginner sees so much to do, so many things to take his attention that he decides he has not time for any, thereby depriving himself unwittingly of much enjoyment, and the obtaining of no little knowledge.

Teachers would do well to choose one particular subject, rather than spread their energies over too wide a field. Shells, insects, botany, geology, etc., present a wide choice, and having selected one, say botany, which is so easy to obtain a first-hand knowledge of, take a small part of that to specialise upon. Take, for instance, the order Epacridaceae, of which Tasmania has about sixteen genera, with many species. Taking the common pink or white heath as guide, a close study should be made of the flower, fruit, leaves and branching habits. Several varieties might be painted upon a loose-leaf album, with a description of its growth, locality and date.

The object of each walk would be to continually add to the members of this order until a fairly comprehensive knowledge was obtained. Once started, the quest begins in earnest, and long journeys are often undertaken to add even one specimen to the collection.

(To be Continued.)