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WILD BERRIES OF TASMANIA

By Raleigh A. Black.

IT WAS after a recent eight weeks' botanical expedition, commencing at a little-frequented part of Sisters Hills, that I reached The Steppes, the former home of the pioneer, Mr. James Wilson who, in 1858, impelled by the spirit of adventure, sailed for Tasmania from Scotland in the *Percy*, in command of Captain Wrankmore. As there was no mail service at the time of Mr. Wilson's settling down, he conveyed all mail matter at his own expense from the Lower Shannon to The Steppes, where residents, of the district, were able to get their weekly papers and news of the outside world. The name not agreeing with the surrounding country, I inquired of Mr. Archie Wilson the reason why his father had chosen it? Mr. Wilson explained that his father had called his place "The Steps," in allusion to the upgrade from sea-level at Hobart, mounting to 2,900 feet. As all people sounded the name correctly no one seemed to bother how it was spelled!

My first visit to The Steppes was to accept a week's most kind hospitality to enable me to carry out a fairly thorough botanical survey which, in most delightful weather, was highly productive in the direction of making some new "finds" for Rodway's *Tasmanian Flora*, which is undergoing a revision, brought about by essential changes in nomenclature, and in many new plants having been discovered since its publication in 1903.

As my purpose is to refer to the native plants on which berries grow, it becomes advisable to define what a "berry" is from a botanical angle, because many fleshy fruits in the bush are called "berries" when they actally belong to another category.

Technically a berry is a fruit which consists of the ovary and of whatever other parts of the flower which persists at the time the seed is ripe, usually enlarged, and more or less altered in shape and consistence; it encloses or covers the seed or seeds till the period of maturity, when it either opens for the seed to escape or falls to the ground with the seed.

The next step is to define what is a berry in botanical terminology: A berry *(bacca)* is "a fruit in which the whole substance of the *pericarp* is fleshy or pulpy, with the exception of the outer skin or rind, called the *epicarp*. The seeds themselves are usually immersed in the pulp, although in some berries the seeds are separated from the pulp by the walls of the cavity or cells of the ovary, which form, as it were, an inner skin or rind called the *endocarp*."

As some of our succulent coloured fruits have been confused with true berries, particularly some of our drupaceous ones, it will be expedient to give the definition of a drupe, namely; "The pericarp of which when ripe consists of two distinct portions, an outer succulent one, called the *Sarcocarp* (covered like the berry by a skin or epicarp), and an inner dry endocarp called the *putamen*, which is either cartilaginous (of the consistence of parchment) or hard and woody. In the latter case it is commonly called a stone, and the drupe a stone-fruit."

AMONGST the fruits popularly known as berries are two species of plants of Tasmania which belong to the raspberry and blackberry genus namely, Rubus: These succulent fruits are not botanically included in the category of berries because they are a kind of granulated berry, formed by the union of numerous 1-seeded succulent carpels which are formed on a conical or shortly oblong, dry receptacle.

"These fruits are an aggregation of small dupes, the sarcocarp of which is very thin, although very obvious in the strawberry and are placed close together upon a fleshy *gynophorum*, which is more or less developed."

Some readers, not finding any mention, under true berries of that great favourite, the Coral Berry *(Gaultheria)* will conclude that the writer has fallen down on his job, but not so: That fruit not coming within either of the definitions of berry or drupe, must perforce be excluded from the classifications, because it is actually a capsule enclosed in a fleshy calyx, but it does not adhere to it. Under this genus there are two other species which must share in the same fate. This decision, however, in no way detracts from their baccate resemblance, nor their native beauty, which induces the writer to give them a high place in his reference to popular favourites which have passed for so long as berries.

Amongst non-botanists it is customary for them to call all smallish succulent, coloured fruits, "berries," and they will naturally protest against these names being altered when, as they will say; There is no need for a change! We have no grumble with these people in their views, so long as they treat the matter in a truly popular way, but when they enter the realm of science, dealing with botany, then there are certain rules to be observed, necessitating compliance with a system of classification, including terminology, which has been developed by the International Botanical Congress and are accepted as standards for all botanical workers until they are altered or replaced to better represent the facts.

It is correctly held that Natural History can make no progress without a regular system of nomenclature supported by a carefully worked-out terminology, which are recognised and used by the great majority of naturalists in all countries. In conjunction with such systems workers, to be properly understood, must use the same significations, so that amongst them there would be no confusion when the term "bacca" or "berry" is used. It will now be the better understood why the writer has found it necessary to erect two categories—"True Berries, and "Pseudo Berries"—when dealing with the wild berries of Tasmania.

Before closing this discussion on what is, and what is not a berry, attention is directed to that peculiarly small elongated red fruit of the native cherry, *Exocarpus cupressiformis*, Lab. The first observation of it by an Old World traveller induced him to publicly announce that the Antipodes was a kind of topsy-turvy land in which, amongst many enumerated items, some trees produced fruits where the stalks should be! When the fruit of the Native Cherry has matured at first glance it looks as though the traveller was correct in his belief, but closer observation shows the fruit to be in its right place, but that it is small and inconspicuous, whilst its stalk or peduncle has become swollen, red, and full of juice.

Those species of the genera belonging to the family *Epacridaceae*, which normally produce dry, slightly fleshy and unattractive drupes will be omitted from my List, because the idea of this article is to write about those berries, true and false, which charm the eye.

THE idea of my basing the Key upon the colour of the berries and berry-like fruits is to enable the collector with slight knowledge of botany to identify them with litle trouble; should, however, more information be required, the index of Rodway's *Tasmanian Flora* may be consulted.

Of the whole collection of our bush flowers, numbering about 1,050 plants, only 15 bear true berries.

In the formulation of a useful Key, the fruit has to take the place of the flower; because in some cases the appearance of the fruit alone is insufficient, it has become necessary to refer to some, where simple differentiation is difficult, to the number of cells or chambers in the fruit as well as the number and a rough external description of the contained seed, so the collector will be expected for a correct determination to do a little dissecting.

Having collected the coloured fruits the first step is to discover, with the aid of the Key, whether they are true or false berries.

To the inexperienced botanists this first step will probably prove to be a little difficult, but when the idea and terminology are mastered, then the subsequent steps should soon be mounted.

We must be prepared to meet shades or nuances of colour, and in such cases we must do our best to interpret them in such a manner as will satisfy the Key. To ease the position a great deal in those cases that need them, for instance, in the three species of **Dianella**, the five species of **Coprosma**, and the eight species of **Cyathodes**, recourse has been taken to corroborative factors in the direction of shape and size of the fruit, as well as to the number, size, and colour of the seed. From the foregoing it will now be understood that where I have mentioned the primary colours, shades of them are included.

KEY.

TO DISCOVER WHETHER THE BERRIES ARE TRUE OR FALSE.

FRUITS in which the whole substance of the pericarp is fleshy with the exception of the outer skin or rind called the epicarp. Seeds are usually immersed in the pulp but sometimes they are separated from the pulp by the walls of the cavity or cells of the ovary which form, as it were, an inner skin or rind called the endocarp.

A.—TRUE BERRIES.

Fruits not so constructed.

B.—FALSE BERRIES.

A.—TRUE BERRIES.

Colouration.—Berries, black, A (a); blue, A (b); green, A (c); purple, A (d); red, A (e); yellow, A (f).

(Fam. Magnoliaceae.)

A (a). 1.—Berries, one-third inch diam., globular, seeds usually 8, black, shining; strongly aromatic.

Drimys aromatica, F.v. M. (Mountain Pepper).

(Fam. Pittosporaceae.)

A (b) 1. Berries swollen, oblong, about ¾ in. long, epicarp smooth and glossy, becoming 1-celled, containing disc-shaped seed, blackish-brown, rough surface, and usually exceeding 50 in number. Berries sometimes white or red.

Billardieri longiflora, F.v. M. (Climbing Blueberry).

A (b), 2.—Berries about ¼ in. long, a var. of the above; plant stunted; on mountains.

B. longiflora, F.v. M., var. Alpina, Rod. (Alpine Blueberry.)

(Fam. Liliaceae.)

A (b), 3.—Berries globular or ovoid, about ½ in. diam; usually of a torquoise blue and containing 7 or more globular seeds of a light colour, and slightly exceeding a pin's head in size.

Drymophila cyanocarpa, R. Br. (Torquoise Berry.)

A (b). 4.—Berries globular or oblong, 3-celled, of a purplish-blue, about ½ in. long, each berry containing from 2—6 seeds, which in shape are roughly a truncated octahedron whose faces are of a glossy black; in size the seeds are from 3/32—2/16 in. in diameter.

Dianella tasmanica, Hook. f., (Tasman Flax-lily).

A (b). 5.—Berries oblong, blue, 3-celled under ½in. long, containing, in all, 3 glossy black seeds 5/32 in. long by about 1/16 in.; broad, convex on one side and irregularly gabled on the other; leaves flat, plain on margin or nearly so; thickened top of filament short, anthers yellow.

D. longifolia, R. Br. (Smooth Flax-lily).

A (b). 6.—Berries shading into a purplish-blue; globular, 3-celled, containing, in all, 3 seeds of about the same size and shape as those of **D. longifolia.** Leaves with revolute margins, anthers linear-oblong, black or nearly so.

D. revoluta, R. Br. (Spreading Flax-lily).

(Fam. Pittosporaceae)

A (c). 1.—Berries swollen, 2-celled, about ½in. long, cylindrical to ovoid-oblong, epicarp felted to pubescent, containing up to 40 disc-shaped seeds with rough surfaces or wrinkled, dark-brown; berries sometimes yellow or red.

Billardieri scandens, Sm. (Common Apple-Berry).

(Fam. Violaceae).

A (d.) 1.—Berries oblong, about ¼ in. long, less in width, with 1 or 2 glabrous seeds, oblong or football in shape, showing horizontal suture and of the colour of leather.

Hymenanthera banksii, F.v. M. (Wakabut).

(Fam. Tiliaceae.)

A (e). 1.—Berries heart-shaped, about 1/3 inch long, containing 4 to 8 seeds; varying in colour from white to deep brown purple; Seeds elliptical to obliquely truncate-elliptical, apex narrowed to an acute angle, surface scabridulous and deeply brownish or reddish black; with the exception, on the suture side, near the apex and base, there are two pale conspicuous marks.

Aristotelia peduncularis, Hook. (Red Heart-Berry..)

(Fam. Ericaceae).

A. (e) 2.—Berries globose, ¼ in. or more in diam., 5-celled, containing numerous minute brownish seeds up to 80, as many as 8 could rest on the head of an ordinary pin. Berries, red, with white and yellow ones amongst them.

Pernettya tasmanica, Hook. (Pernet Berry).

(Fam. Chenipodiaceae).

A (e). 3.—Berries nearly globular, slightly depressed, about ¼in. long, with their purplish-red perianths below them, or slightly enlarged and folded on the berries; 1-seeded, convex on each face, black and shining, size of the head of an ordinary pin.

Rhagodia billardieri, R. Br. (Sea-berry Saltbush).

A (e). 4.—Berries globose, 1/8in. diam., nearly exceeded by the red perianths which adhere to the berries; 1-seeded, convex on each face, testa a dull black covered with minute weal-like ridges, 1/32 in. diam.

R. Nutans, R. Br. (Nodding Saltbush.)

(Fam. Apocynaceae.)

A (e). 5.—Berries oblong, about ½ in. long by ¼ in wide; bright red to orange. These fruits, in some cases, are lomentatious in character, i.e., they are 1, 2, 3, or more 1-, rarely 2-seeded, joints. The individual articles are berries. The seed, about 3/16 in. long by 2/16 in. wide, has a scurvy surface, which when ruptured by pressure flakes off like dandruff, is of a deep reddish-black colour, and on one side there is a fold or suture, the apical end of the seed tapers to a ragged nipple.

Alyxia buxifolia, R. Br. (Sea-box).

(Fam. Liliaceae).

A (e). 6.—Berries oblong with a narrowing apex, bright red, about ½ in. long by 3/8 in. wide, containing 5-7 glossy black seeds, one face of which is very convex whilst the other is irregularly gabled; size about 2/32 in. by 1/32 in.

Astelia alpina, R. Br. (Perching Lily).

(Fam. Sclanaceae.)

A (f). 1.—Berries 2-celled, ovoid or globular, about ¾ in—1 in. long, containing numerous minute flattish yellowish-brown wrinkled seeds, up to 670. Berries sometimes green, turning to yellow or orange.

Solanum aviculare, Forst. (Kangaroo Apple).

(To be Continued.)

GLOSSARY.

Bacca, a berry, a succulent fruit with seeds immersed in the pulp.

Capsule, a dry, dehescent seed-vessel.

Carpel, a simple pistil, or element of a compound pistil answering to a single leaf.

Drupe, the pericarp, fleshy or leathery, containing a stone with a kernel.

Endocarp, the inner layer of a pericarp.

Epicarp, the external layer of a pericarp.

Gable, the triangular part of an exterior wall of a building between the top of the side-walls and the slopes on the roof.

Gynophorium, the stipe or stalk of a pistil.

Loment, a legume which is contracted between the seeds.

Nomenclature, in botany, restricted to the correct usage of scientific names in taxonomy.

Pericarp, the wall of a fructified ovary.

Primary Colours, violet, indigo, blue, green, yellow, orange, red.

Putamen, the hardened endocarp of a stone fruit.

Receptacle, that part of the axis which bears one or more organs, the torus.

Sarcocarp, the succulent and fleshy part of a drupe.

Scabridulous, slightly rough.

Suture, a junction or seam of union.

Terminology, definition of technical terms.

Testa, the outer coat of the seed, usually hard and brittle.

Torquoise Shade, a greeny-blue appearance.

CLUB BADGE.—Members are reminded that the club badge is available; price 4/6. The emblem of the club, a platypus, is the chief figure in the attractive design.

FOR SALE: *A Guide to Collecting and Preserving Plants, Shells, Seaweeds, Insects, etc.* Useful to all members. Price 3d. A club publication.

TASMANIAN LIZARDS,

By A. M. Hewer.

REPTILES, particularly Lizards, have suffered an undeserved neglect by naturalists, and it is with this in mind that I have been prompted to offer the following descriptions of the Lizards of Tasmania. These are given from the layman's point of view only.

The deciding factor in the identification of all reptiles lies in the shape and distribution of the scales on the head and in the number of scales round the body. However, the following list will, no doubt, be useful, and if it does nothing more than stimulate an interest in the study of Lizards it will have served a useful purpose.

For many years it was believed that all Lizards laid eggs. This has been proved wrong and, in fact, most Tasmanian species are viviparous—that is, they produce their young alive. So far as is known, only four of our Lizards are oviparous, or egg-laying.

Popular names are given where possible

STUMP-TAILED LIZARD *(Trachysaurus rugosus)*. Viviparous; 14 in. when fully grown. Colour similar to "Blue Tongue's," brown on the back with yellowish spots or bands, underneath, yellowish marked with brown. This lizard was introduced some years ago and is occasionally found in the northern part of the State. The scales on the back are very rough and the name sometimes applied to it (Shingle Back), describes it very well.

BLUE-TONGUED LIZARD *(Tiliqua scincoides)*. Viviparous; About 2 ft. when fully grown; the head distinctly diamond-shaped. Yellowish-brown above, with dark-brown cross bands, lower surfaces yellowish or spotted with brown. Usually met with in Northern Tasmania and rarely seen in the southern part of the State; diet, snails, slugs, grubs, etc., also feeds on small fruits and berries.

SOUTHERN BLUE-TONGUED LIZARD *(Tiliqua nigrolutea)*. Viviparous; about 16 in. when mature. Quite common all over Tasmania and usually referred to as "Goanna." This name is quite wrong as the lizard bears no resemblance to the true Goannas of the mainland; it is also known as "Jew" Lizard or "Sleepy Lizard." Colour, similar to the preceding species, but, more distinctly marked; diet, same as *Tiliqua scincoides*. Blue-tongued Lizards prefer open scrub country and are seldom found in heavily-timbered regions.

SMOOTH ROCK LIZARD *(Egernia whitii)*. Viviparous; mature specimens usually about 10 in., although larger specimens are sometimes found. Upper surfaces usually brownish, with two dark bands and a series of light spots on the back, sides are usually spotted, although the spots may be absent; under surfaces vary pinkish to creamy yellow, edges of the eyes and ear lobules always white. This is a very common lizard in rocky country and occurs all over Tasmania from sea level to the mountain tops. It is an extremely fast runner and feeds mostly on insects. It will eat small fruits, such as strawberries, etc.

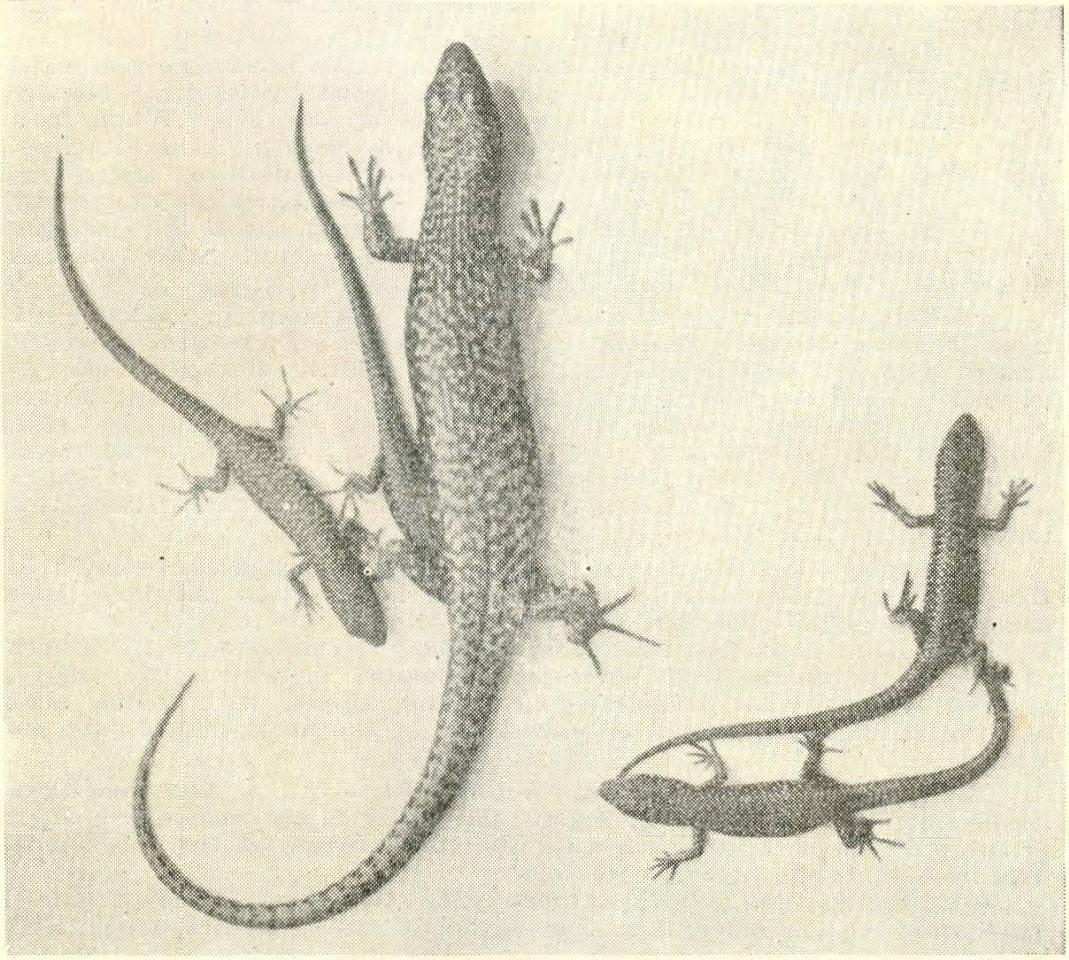
METALLIC SKINK *(Lygosoma metallicum)*. Viviparous; average size about 6 in. Colour extremely variable and includes all shades from greyish-brown to deep sepia, the back usually more or less spotted, sides black, spotted with lighter markings; the colour underneath is also variable, and may be grey or yellowish. In a large number of specimens the underneath is coloured a beautiful coppery red. This is the most common lizard in Tasmania and also occurs over a wide area of Australia and adjacent islands. It invariably drops its tail if handled by that member. Diet, insects, almost exclusively.

THREE-LINED SKINK *(Lygosoma trilineatum).* Oviparous; average size about 7 in. Bronzy olive above with a dorsal streak of dark brown, sides black, edged above and below with a white line, under-surfaces greenish grey to white. In newly-hatched specimens there is usually a bright salmon pink blotch on each side of the head.

The lower eyelid is transparent, enabling the lizard to see reasonably well even though the eye is closed.

In this species the body is relatively long and slender, and the limbs very small and in this way it differs from its close relative *(Lygosoma entrecasteauxii).* It is a reasonably fast runner and helps itself along by wriggling its body, snakelike, through the grass. It lays eggs about January—4 or 5 in number—and these hatch out in February. An interesting point is that the eggs are laid under stones in a community nest—three of four lizards using the one nest. Feeds almost exclusively on insects and is common in sandy country.

ENTRECASTEAUX'S SKINK *(Lygosoma entrecasteauxii).* Viviparous; About 5 in. Olive-brown above with dark lines running down the centre of the back, sides dark and spotted or with a dark band edged above with a white line. In the male there is often a bright red stripe running from the ear to the hind leg. This varies somewhat in different specimens, and different shades from bronze to salmon-pink may be seen. The female is without this colour streak. Under-surfaces usually yellowish or salmon. It is interesting to note that although this species is closely allied to *L. trilineatum* it produces its young alive. Usually three are born from January to February of each year. The lower eyelid is even more transparent than in *L. trilineatum,* and the eye is quite distinct when the eyelid is closed.



Lygosoma ocellatum and young.
Photo: A. M. D. Hewer.

EYE-SPOTTED SKINK *(Lygosoma ocellatum)*. Viviparous; usually about 6 or 7 in. Usually pale olive with small dark-brown or black spots, although specimens greyish with black spots are not uncommon, sides usually dark-brown with the very distinctive eye-spots; under-surfaces usually greyish, sometimes spotted.

This is one of the two lizards peculiar to Tasmania, and it is extremely common in this State. It occurs from sea level to well over 4,000 feet. The lower eyelid is partly scaly, but is provided with a small transparent disc. It is an extremely active lizard and, despite its small size, is very difficult to capture alive. The young, usually 3 to 4, are born alive about January or February of each year, and are quite active from birth.

I have not, so far, located any specimens of this lizard on any of Tasmania's adjacent islands, and if anyone could offer information regarding their presence on any of the islands around our coast it would be much appreciated. For this purpose a picture of the lizard is reproduced in this magazine.

Lygosoma pretiosum. Viviparous; usually 4½ to 5 in. Olive above with small dark and light spots, sides black, lower surfaces greenish. In general colour and marking it is not unlike *L. ocellatum,* and, like that species, is found only in Tasmania. It is very active and for this reason, it is not often seen, having taken cover before a person arrives.

Logosoma casuarinae. Viviparous; about 12 to 13 in. Colour more variable than the other Tasmanian lizards, anything from near black through the various shades of brown to a brick red. One specimen in my collection shows a distinct slate colour. Lower surfaces are usually yellow lined and marbled with black. The yellow is sometimes replaced with orange. In at least one specimen seen, the black marbling was completely absent.

A most interesting lizard and by far the most handsomely marked of all Tasmanian lizards. It is easily recognised by its long, slender body and small legs, giving it a snake-like appearance. When in a hurry it progresses by wriggling the body as well as using its legs, and when annoyed, it will make a false strike and flick out its tongue in the manner of a snake. It is, however, quite harmless and easily tamed. A peculiar habit of this species is waving the tongue quickly up and down—probably this is more or less bluff when danger threatens. Diet, grubs, slugs, snails, insects, etc.

An interesting variety of this species was sent to me recently from Tasman Island. Similar in many respects, there are, however, one or two distinct variations. Before a definite statement can be made it will be necessary to examine at least a dozen or so specimens. A point of interest is in the size to which they are reported to grow. I am told they reach a length of 15 or 16 in.—a good 3 in. longer than the average. Also, I am told that a number of specimens have short, stubby tails. However, with the confined space of a small island, this may be due to in-breeding.

Lygosoma lesueurii. So far; I have not recognised a specimen of this lizard in Tasmania, so a description is given in the hope that someone may recognise the species:—

Size, about 11 in.; general form, slender; tail over twice the length of the body; limbs well developed. Colour, brownish-olive above, marked with a wide vertebral black band, tipped with white, also, a white, black-edged streak on either side of the back; under surfaces white.

Lygosoma punctatovittatum. Again, I have not, so far, discovered a specimen of this lizard in Tasmania. It is easily recognised, as it is the only Tasmanian lizard with the toes absent on the fore-limbs. The hind limb shows only two toes.

Size, about 7 in.; body rather long. Colour, pale-brown above, each scale with a black dot; the shields of the head are edged with black; lower surfaces yellowish white. Any information regarding the presence in Tasmania of the two preceding species would be appreciated.

SLOW WORM *(Pygopus lepidopodus)*. This is the only member of the genus represented in Tasmania. Fore limbs are completely absent; hind limbs represented by small scaly flaps. It is easily mistaken for a snake, except for the moveable eyelids and ear openings. This species is oviparous in South Australia. In normal specimens the tail is more than twice the length of the body.

Size, up to about 2 ft. Colour, varies somewhat and may be grey or brown. It is usually spotted with 3 or 5 rows of black spots.

Only one specimen has been officially recorded from Tasmania, and any information regarding this species would be appreciated.

PRICKLY, OR TREE-DRAGON *(Amphibolurus muricatus)*. Oviparous; about 12 in. Upper surfaces brown, under surfaces lighter with dark spots; usually a series of dark angular spots down the back; tongue and inside of mouth bright yellow. It is sometimes known as the Common Dragon, although, in Tasmania, the Mountain Dragon is much more common. It is sometimes referred to as "Blood-sucker," but in reality it is quite harmless. This particular lizard will, if in a hurry to escape, run on its hind legs only, holding the head erect. Not often seen but is fairly common in open country. Diet, insects, etc.

MOUNTAIN DRAGON *(Amphibolurus diemensis)*. Oviparous; 7 or 8 in. Brown or grey above, sides darker; a series of dark spots down each side of the back, under surfaces paler, sometimes even pale grey, inside of mouth pale flesh colour, tongue deeper-coloured. The Mountain Dragon is quite a friendly little fellow, despite his fearsome appearance. He is easily tamed and makes a charming pet. Even in the wild state he may be induced to accept a small fly or grasshopper. Diet, insects, etc.

QUEEN ADELAIDE'S DRAGON *(Amphibolurus adelaidensis)*. Oviparous; about 4 in. Grey, with a series of regular dark markings on either side of the back, under-surfaces mottled grey, tongue and inside of mouth more or less yellow. This is the smallest of the genus found in Tasmania, and is not as common as the Mountain Dragon. It is usually found in sandy country. Diet, insects, etc.

EASTER CAMP, 1949.—Suggestions about possible sites for the Easter camp next year will be appreciated by the committee. In considering sites, special attention should be given to the question of water supplies and accessibility for transport.

FRONTISPIECE: Use of a colour block of berries as a frontispiece in this issue was made possible by the generosity of Mr. Raleigh Black, F.R.G.S. (Lon.), the author of the paper which it illustrates. The block was made from a painting by Miss Madge Wilson, The Steppes.

BOTANY OF WILMOT HARBOUR

By F. A. Peterson.

OWING to unsuitable weather at Wilmot Harbour during Easter, plant observations could not be carried out as thoroughly as was hoped, but a general survey was attempted. Few plants were found in flower.

The first area to be described will be from the camp site, north, to the Prince of Wales Bay.

Along the sandbanks of Wilmot Harbour, Coast Fuchsia was in flower, also the common Nightshade *(Solanum nigrum)* with its attractive white flowers. When the fruit is fully ripe, it can be eaten, or made into jam. Near the camp, a large clump of *Cytisus canariensis*, with its bright yellow flower, sheltered Mr. Propsting's tent. Thriving in the sand, the small bright red leaf Sorel *(Rumex acetosella)*; the kidney-shaped leaf-like plant *Convolvulus soldanella*, the small spreading, somewhat yellow, fleshy leaved plant *Atriplex billardieri*, and the small erect, long feathery oblong-headed flower, *Trifolium arvense* showed that, although introduced, it could grow well in pure sand.

Back from the sandbanks, Prickly Tea-Tree grew thickly with a few mixed gums and acacias. Crossing Cape Frederick Hendrick the predominant trees were Blue Gums and Black Peppermint with Native Cherry, Prickly Mimosa, Box, Native Currant, Cottonwood, Honeysuckle, Bull-oak, Blackwood, Lightwood.

Clinging to the cliffs in almost impossible places, grew She-oak and Dogwood.

On the south side of the cape the ground was draped with Maidenhair Fern *(Adiantum althiopicum)* amongst the rocks and damp places. Arriving at Two Mile Beach, little difficulty was experienced in crossing the outlet from the lagoon, as it had silted up. The sand everywhere was clean yellow. Along the front of the sandbanks the False Boobyalla *(Acacia sophorae)* was spreading everywhere. For easier walking we crossed the sandbanks to a track alongside the lagoon, which revealed a number of small attractive marsh plants in flower, such as the Monkey Plant *(Mimula repens)*, Creeping Brookwood *(Samolus repens)*. the Creeping thistle-like plant Sea Holly *(Eryngium vesciculosum)* with very rigid and sharp-pointed leaves and compact blue flowers, finally, a small white fan-shaped flower *Selliera radicans*.

As we approached the bush again, Yellow Bottlebrush and Native Lingnum Vitae were found.

Crossing the cape to Prince of Wales Bay, Stringy Barks and Black Gums began to predominate, otherwise the trees were much the same as those on Cape Frederick Hendrick. On the return, a few of the party branched off, on the south side of the entrance to the lagoon, and, led by Mr. W. Dunbabin, in a southern direction, passed through some very thick mixed scrub and round several marshy places which, at the right season, showed evidence of being a garden of many water plants.

Only one orchid was found, *Eriochilus autumnalis*. Wild Raspberry, Native Daphne, Heath-Myrtle, Dwarf Musk, and the pine-like *Astroloma pinifolium* were among some of the plants identified.

We were interested to see the old channels cut, possibly a 100 years ago, by convicts, to drain the lagoon at the back of Wilmot Harbour. These were still in use, and here and there old posts remain with only two holes, cut near the top for the rails to keep the cattle in; there were no sheep in those days. The cattle were landed there from New South Wales, fattened up, then passed on for slaughter at the Port Arthur prison station, a few miles away.

The highlight of this walk was a small clump of Oyster Bay Pines, about half a mile west, from the beach.

This was a surprise, as Pine Creek, on the East Coast was considered the most southerly point where they grew. They were in all sizes, up to about 9 feet. The origin is of interest, as about 40 years ago, some sheep were landed in Wilmot Harbour from the East Coast, and it is considered the seed cones were dropped from the wool.

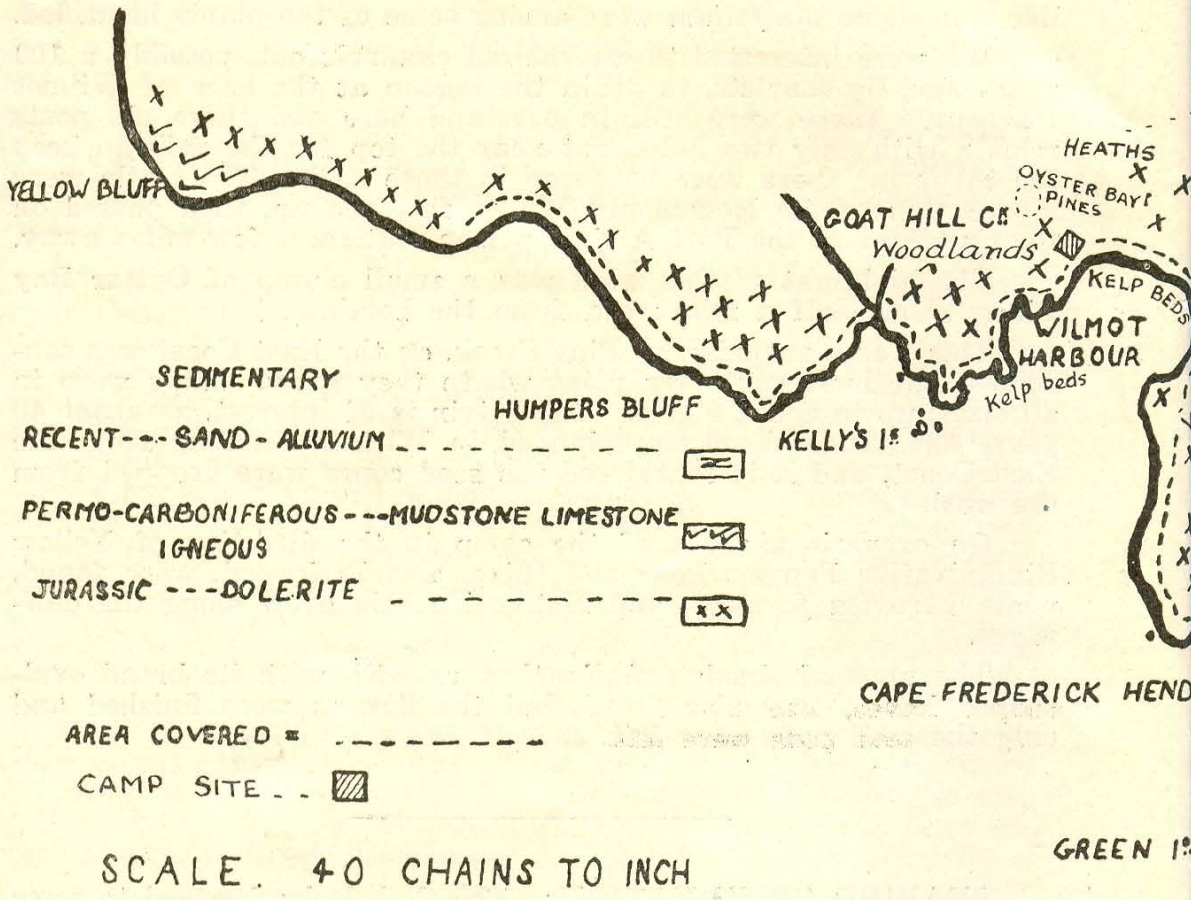
On excursions south of the camp in the direction of Yellow Bluff, Native Pepper, Pear and Olive, also Pinkwood, were found, while *Veronica formosa*, and Native Fuchsia grew along the cliff-edges.

The unusual shrub *(Phyllanthus gunnii)*, with its broad oval-shaped leaves, was also found, but the flowers were finished and only the seed pods were left.

SEABIRD OBSERVATION: The Club looks forward to some valuable observations concerning the occurrence of seabirds off the Tasmanian coast and in Bass Strait, as the outcome of a Seabird Log now being kept by Mr. R. Ainsworth, Master of the *Koranui*, a freighter trading between Hobart and Melbourne. Mr. Ainsworth is a member of the Tasmanian Field Naturalists' Club, and is making a special study of pelagic birds.

LIBRARIAN.—Mr. R. C. Harvey, Richardson Ave., Dynnyrne, is librarian for the Club. He is in charge of the cataloguing of all publications and exchanges. Mr. Harvey is anxious to obtain back numbers of "The Naturalist," particularly copies of the early issues.

FIELD OUTINGS.—Several enjoyable and profitable field outings were conducted by the Club in 1947. The whole of one Saturday a month is usually devoted to these excursions. They are being resumed this year. Notification is given on meeting nights.



GEOLOGY OF A SECTION OF FORESTIER PENINSULA.

By David Sargison.

AN AREA of coastline on Forestier Peninsula from Yellow Bluff to the north-eastern side of Cape Paul Lamanon was traversed during Easter, 1948, when the Field Naturalists' Club camp was held at Wilmot Harbour.

The greater portion of the country was characterised by dolerite of the Jurassic era. Dolerite is an igneous rock which has intruded into and block-faulted a large part of Eastern Tasmania. Dolerite is basic in composition, containing from 45 to 55 per cent. silica. The chief minerals in its composition are plagioclase, usually a soda lime or lime felspar, with augite magnetite, and sometimes olivine.

The intrusions and block-faulting of the area can be dealt with under separate sections.

(a) Intrusions:—

On the slight rise above the Tasman Memorial Monument at

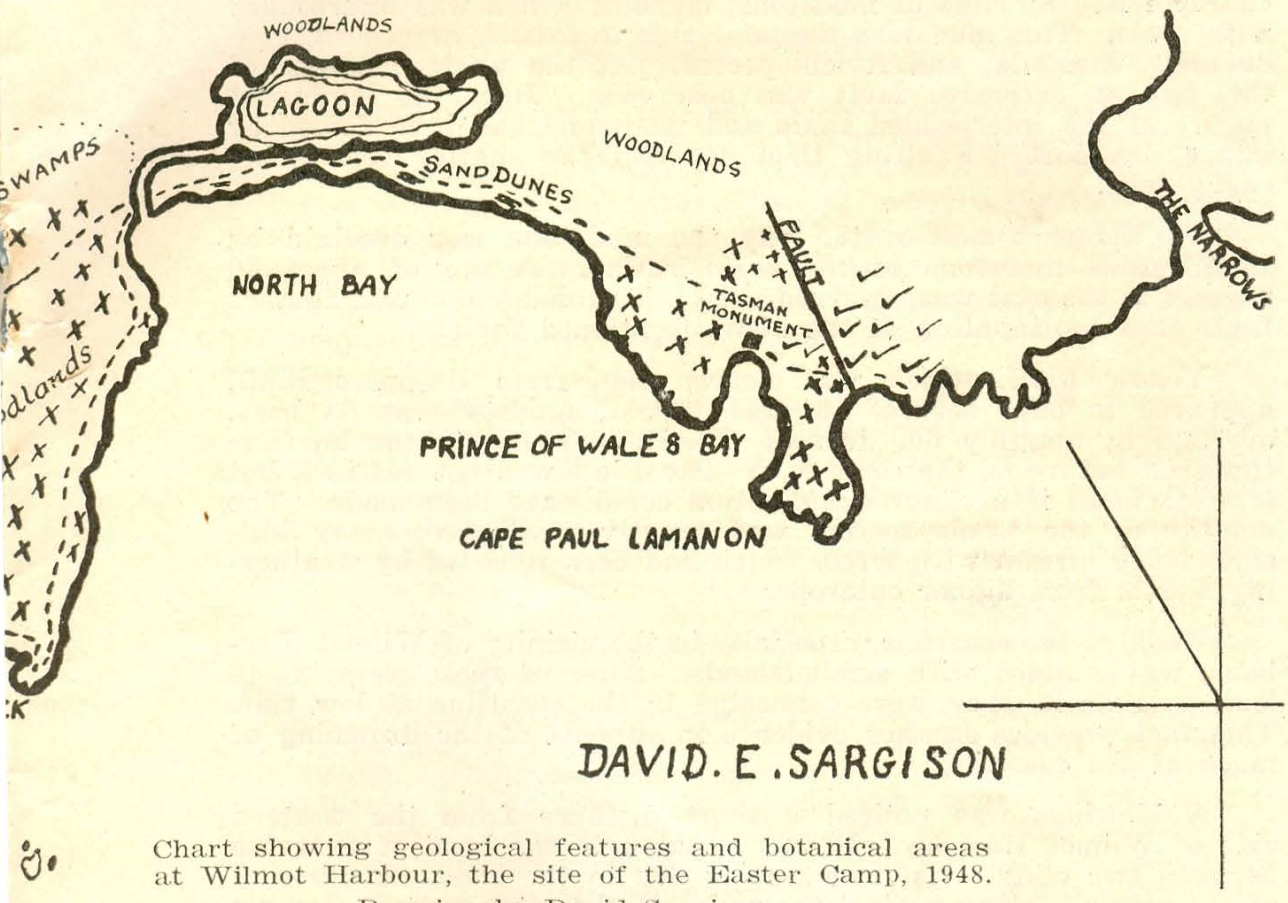


Chart showing geological features and botanical areas at Wilmot Harbour, the site of the Easter Camp, 1948. Drawing by David Sargison.

Prince of Wales Bay, Permo-Carboniferous mudstone was found capping the dolerite. This mudstone was highly fossiliferous, containing many common marine shells of the period, so can, therefore, be classed as Upper Marine Mudstone.

At various points the mudstone had been subject to intense heat which, in some places, completely metamorphised it to quartzite. The mudstone, which is of sedimentary origin, had been intruded by the dolerite. The dolerite forced its way to the surface via sills and covered much of the already laid down mudstone. The terrific heat of the magma, which cooled slowly was sufficient to bake and to metamorphise the mudstone. This magma forced its way to the surface through lines of weakness, cooling slowly, and resulting in the formation of well developed crystals of the minerals in the dolerite.

(b) Block faulting:—

Much of the coastline has been subjected to considerable pressure with consequent faulting of the area. Most of the capes, such as Cape Frederick Hendrick, have probably been block-faulted. These capes, some 700 feet in height, represent the great thickness of the dolerite. Faulting along the coastline has submerged many areas, which have then been drowned. A good example of such subsidence is found at Wilmot Harbour.

The small bay to the east of Cape Paul Lamanon was characterised by cliffs of mudstone, much of which was interbedded with shale. This mudstone was also rich in fossils, Stenopera, Productus, Fenestella, and Aviculopecten. At the western corner of this bay an extensive fault was observed. Here the laminated nature of the interbedded shale and mudstone had been folded by lateral pressure. Faulting then occured, the shatter zone being easily seen.

On the east side of the bay the mudstone was overlain by fossiliferous limestone of the same period. A dip of about 10 degrees to the east was observed, which is probably due to a further fault or a continuation of the above-mentioned fault.

Yellow Bluff, which was clearly seen from Humpers Bluff, appeared to have several hundred feet of mudstone at its base, overlaid by roughly 600 feet of dolerite. Owing to the heavily-timbered nature of the country, Yellow Bluff was not reached, but it is doubtful if a closer examination could have been made. The dolerite of the whole section was greatly weathered, many hillsides being strewn with scree, which had been removed by weathering agents from higher outcrops.

Much of the coastline, especially in the vicinity of Wilmot Harbour, was studded with small islands. Some of these were "tied" islands, that is, they were connected to the coastline at low tide. This fact provides further evidence in support of the drowning of much of the coastline.

A blowhole was noticed a short distance from the western side of Wilmot Harbour. It was situated at the head of a ravine between two cliffs. Its formation is due to the constant pressure of the waves beating against the rock. Rocks often contain fissures or cracks which hold air. When waves find their way into these fissures they force air out, which often exerts a pressure on the landward side. This pressure weakens the stability of the rocks until the air forces a hole in the top and the rock, then falling away, produces a hole. An alternative suggestion is that the waves carve out a hole in the side of the cliff, thus undermining the surface rocks which fall in, a blowhole then being formed.

MUTTON-BIRD BANDING: Dr. D. L. Serventy, C.S.I.R., has banded a considerable number of Mutton-Birds *(Puffinus tenuirostris)* at the research station at Flinders Island, with a view to checking their movements in between and during the breeding seasons. The co-operation of observers is sought in taking full advantage of this research into the life history of the bird, and anyone finding a bird with a band on the leg is asked to notify either the president of the Field Naturalists' Club or the Fauna Board, Agricultural Department, Hobart. It is requested that all remains of Mutton-Birds washed up on beaches be examined to determine if any wear a leg band. The bands are of copper, and bear a serial number as well as the words, "Notify Fauna Board, Hobart, Tasmania, Australia."

BIRDS OF WILMOT HARBOUR.

By Hugh Wilson.

IN December, 1642, Abel Tasman anchored off the east coast of Tasmania, near Blackmans Bay, and several landings were made by parties from the ships. Tasman's visit was made before the era of enthusiasm for natural history, when botanists and zoologists accompanied the expeditions of Cook, Baudin, and D'Entrecasteaux. Tasman's interests were entirely practical. Had his journal contained more references to birds, a comparison with the list compiled during the Easter Camp, 1948, would be of great interest.

Wilmot Harbour is a deep bay with a grey sandy beach, enclosed between rocky headlands, with magnificent cliffs falling sheer into the water. At each headland, but not obscuring the entrance, are several small rocky islands. Across the hills to the north is North Bay, where Tasman anchored; a bay with a mile long beach of creamy-yellow sand. This beach is backed by sand dunes, in the hollows of which are thickets of Banksia. Beyond the dunes is a flat covered with samphire and reeds and a shallow lagoon of brackish water. A small sluggish tidal creek meanders from the lagoon to the southern end of the bay.

Tasman tried to water his ships from this creek, but found the water brackish. In some years a sand bar forms across the mouth of the creek, excluding the sea water, and in these years the waters of the lagoon will be fresh. More rocky headlands separate North Bay from the little bay where Tasman's carpenter, Jacobzoon, swam ashore through heavy surf on December 3, 1642, to plant the Dutch flag. The monument in the bay which commemorates this event was visited by Club members.

A low range of hills separates the lagoon from the large enclosed sheet of water which Tasman named Frederick Henry Bay, but which is now known as Blackmans Bay. The mouth of this bay is almost closed by a long sandy spit, leaving a narrow entrance at the southern end of the spit. This spit is shown on Tasman's map, and has apparently altered little in 300 years.

One of Tasman's parties entered Blackmans Bay on December 2, 1642, and reported, "That at the extremity of the said point they had seen large numbers of gulls, wild ducks, and geese, but had perceived none farther inland though they heard their cries." This is the only reference to birds in Tasman's journal, but it is a problem to name the species seen.

The Dutch words are, "meenichte van meeuwen, wilde endtvogels en ganzen."

They appear to be correctly translated as "gulls, wild ducks, and geese." The gulls were doubtless Silver Gulls, which are plentiful around the shores to-day. The wild ducks could hardly have been seen at the entrance to the bay, but may have been at the mouth of the creek, where the party obtained water. It has been suggested that the geese were Black Swans. Black swans were a sensation when they were discovered by Vlamming on the Swan River in Western Australia. Tasman's men would not be likely to call them geese. The large water birds in the area to-day are the Pelican and the Gannet, but it is more likely that the geese were Cape Barren Geese, which to-day do not occur so far south, but which may have done so in Tasman's day before

the early sealers took toll of them. Now they occur in Bass Strait and on the north coast of Tasmania.

During the Club camp the four bird observers, Miss H. Mosey, L. Wall, M. Sharland, and H. Wilson, compiled a list of 50 species. Their records have been combined in this account. Where a record rests on a single observer the name of the observer is given, but in other cases observers names are omitted.

LITTLE BLUE PENGUIN *(Eudyptula minor)*. Miss H. Lake reported finding a dead specimen, otherwise they were not seen.

NATIVE HEN *(Tribonyx mortierii)*. Miss H. Mosey reported one in the swamp behind farm clearing at Wilmot Harbour.

PETRELS. No Petrels were seen though they should have been visible at sea with the aid of binoculars.

SHY ALBATROSS *(Diomedea cauta)*. These were the only Albatrosses seen. Many were soaring effortlessly over the waves at some distance from the shore, and were the most numerous birds on the open ocean.

WHITE-BREASTED CORMORANT *(Phalacrocorax fuscescens)*. A party of Cormorants were seen on the rocks at North Bay, and several birds were seen on the sea.

LITTLE PIED CORMORANT *(Microcarbo melanoleucus)*. In great numbers on the estuary at Blackmans Bay.

GANNET *(Sula serrator)*. Nearly as numerous at sea as the Albatross, but stayed closer to shore. None seen to dive for food.

PELICAN *(Pelecanus conspicillatus)*. Eight were seen resting on a bank in Blackmans Bay.

TERNS. A surprising absence, none seen at any of the beaches.

SILVER GULL *(Larus novae-hollandiae)*. Numerous as in Tasman's day, on all shores in Blackmans Bay.

PACIFIC GULL *(Gabianus pacificus)*. The one Pacific Gull seen was soaring so well over the waves that at first it was taken for an Albatross.

DOUBLE-BANDED DOTTEREL *(Charadrius bicinctus)*. The only migratory wader seen was a Double-banded Dotterel, which had remained behind when the others of its kind migrated to New Zealand to breed. The breeding plumage and the urge to migrate are both associated with the development of the gonads and when these remain inactive the bird may not migrate. This Double-banded Dotterel was in non-breeding plumage and spent its days with a party of Hooded Dotterel *(C. cucullatus)* or Red Capped Dotterel *(C. ruficapillus)*.

SPUR-WINGED PLOVER *(Lobibyx novae-hollandiae)* was the most widely distributed bird in the district, and all told, one of the most numerous. It seemed as much at home wading in the waves at North Beach as on the farm clearing, and wading leg-deep in the lagoon behind North Bay Beach.

Both the Pied Oyster-catcher *(Hæmatopus ostralegus)*, and the Sooty Oyster- catcher *(H. unicolor)* were seen on the sandy beaches, although the latter is more frequently seen on rocky shores.

WHITE-FACED HERON *(Notophoyx novae-hollandiae)*. One was seen by Miss A. Wall on the creek flowing from the lagoon and one on an arm of Blackmans Bay. A Heron, which was seen at a distance flying across Wilmot Harbour was probably a Reef Heron *(Demigretta sacra)*.

SEA EAGLE *(Haliaeetus leucogaster)*. Nests in a gully on the north side of Wilmot Harbour. There were two old nests and one which Mr. W. Dunbabin said was used last September. It was a massive platform of sticks set in the main fork of a high gum tree. One bird was seen at North Bay and Blackmans Bay.

BLACK-CHEEKED FALCON *(Falco peregrinus)*. Mr. Sharland saw one flying along one of the cliffs.

OWLS. One Owl was seen at night, but not identified.

BLACK COCKATOO *(Calyptorhynchus funereus)* was reported by Miss A. Wall.

THE most widespread association in the district is a savanah forest in which Blue Gum and Peppermint are the dominant trees, with a ground cover of sedges, grass, and low shrubs. On the low lying ground there are thickets which provide cover for shy birds, and Banksia forms an under storey. As the Banksias were in flower, they provided nectar for honeyeaters. This forest contains most of the birds of the district, and in the following list the more common birds are placed first:—

Yellow-throated Honeyeater *(Meliphaga flavicollis)*, Striated Pardalote *(Pardalotus striatus)*, Brown Thornbill *(Acanthiza pusilla)*, Grey Fantail *(Rhipidura flabellifera)*, Scarlet Robin *(Petrocia multicolor)*.

Less numerous were the following:—

Green Rosella *(Platycercus caledonicus)*, Fantail Cuckoo *(Cacomantis flabelliformis)*, Tree-martin *(Hylochelidon nigricans)*. Flame Robin *(Petrocia Phoenicea)*, Dusky Robin *(Amaurodryas vittata)*, Golden Whistler *(Pachycephala pectoralis)*, Grey Thrush *(Colluricincla harmonica)*, Cuckoo-shrike *(Coracina novae-hollandiae)*, Spotted Quail-thrush (Ground Bird), *(Cinclosoma punctatum)*, Brown scrub-wren *(Sericornis humilis)*, Blue Wren *(Malurus cyaneus)*, Wood Swallow *(Artamus cyanopterus)*, Spotted Pardalote *(Pardalotus punctatus)*, Black-headed Honeyeater *(Melithreptus affinis)*, Spinebill *(Acanthorhynchus tenuirostris)*, Noisy Miner *(Myzantha melanocephala)*, Brush Wattle Bird *(Anthochaera chrysoptera)*, Yellow Wattle Bird *(Anthochaera paradoxa)*, Black Magpie *(Strepera arguta)*, Butcher Bird *(Cracticus torquatus)*, White-backed Magpie *(Gymnorhina hypoleuca)*, Black Jay *(Strepera fuliginosa)*, (Miss Mosey). The Brown Scrub Wren was seen in a deeply shaded gully south of Wilmot Harbour, and in the Banksia thickets at North Bay.

At Wilmot Harbour there is an old farm clearing in which the camp was located. For the most part the birds were visitors from the seashore or the surrounding forests. A long stay would have added many birds to this list of casual visitors. However, a few birds were seen here and were not reported elsewhere, except on the flats around the lagoon.

Welcome Swallow *(Hirundo neoxena)*, were occasionally over the camp. Chat *(Epthianura albifrons)*, were to be found on the farm clearing and the reed beds, and frequently visited the beach. Field Wren *(Calamanthus fuliginosis)* were flushed from the cover of low scrub close to the camp.

Crescent Honeyeater *(Phylidonyris pyrrhoptera)* were among the flowering Banksias at the back of North Bay beach, together with Yellow-Winged Honeyeaters *(Meliornis novae-hollandiae)* and Spinebills and both Wattle Birds. A Pipit *(Anthus australis)* was seen near the lagoon. Raven *(Corvus coronoides)* were seen in flight, and ranged all over the district.

Introduced birds were not many. A flock of Goldfinch *(Carduelis carduelis)* were among the sand dunes at Wilmot Harbour, and a flock of Starlings *(Sternus vulgaris)* were seen in flight near the lagoon. Both species undoubtedly lived mostly around the farm clearing.

FIELD NATURALISTS' CAMP, 1948.

General Account of the Annual Camp, Wilmot Harbour, Easter, 1948.

By M. S. R. Sharland.

THE Field Naturalists' Club held its annual Easter camp for 1948 at Wilmot Harbour, where a snug little bay flanked by high wooded hills reaching down to a smooth grey beach, forms a sheltered and picturesque enclosure on the eastern coast of Forestier Peninsula, noted for its bold headlands and broken islets that bear witness to the power of the sea when the south-easterly gales reach their full momentum.

Forestier Peninsula, at its northern end, is joined to the mainland by a bridge spanning the Dunalley Canal, used by small trading vessels as a short cut from Norfolk Bay to the East Coast, and its southern end is marked by the narrow isthmus of Eaglehawk Neck joining it to Tasman Peninsula, some 12 miles from Dunalley.

The eight miles of road—for the most part an apology for a road—from Dunalley to Wilmot Harbour, leads over a ford on Blackmans River and then through light forest, with many undulations, rocks, water-worn gutters, and a whole variety of obstacles which put it in the nature of a bullock track and impart to driving a spice of adventure. Some members preferred walking part of the way to suffering the jolting to which even the heavy lorries conveying the camp gear were subjected; at least one member, missing his transport connections, was compelled to walk the full eight miles, burdened with case and first-aid kit, and from all accounts, the day was hot. There was an appreciable fall in the level of the drinking water in the tank after he laboured into camp!

A clear sky and full moon, however, illuminated the track, softened its irregularities, and ornamented the forest when the main party of campers, packed tightly in a lorry adapted for passengers, drove in on the night before Good Friday, and they made light of the stones and potholes, the bucking and swaying, and with throats made husky with singing, arrived full of good cheer, and with no internal organs unduly displaced.

The advance party, after four days' work, had the camp in shape and received the members with hot supper and helped carry luggage over the last short stretch which the lorry failed to negotiate.

The road indeed was an adventure! And a test it proved for the patience and ingenuity of a water-carrying party who were set the task of conveying this in a tank over the worst of it, from Blackmans River to the camp site, the tank perched on a four-wheeled dray with Bill Dunbabin at the wheel of his tractor towing it. Never did a road seem rougher to the anxious concentration of the crew. Those bumps, those dips, and sudden rises! Yes, the worst happened . . . . Under the pounding and swaying the walls of the tank gave way, cracks developed in a dozen places, the precious water gushed from the rents.

The leaks were stemmed, one after another, with wood and clothing, and it was a tribute to the day-long efforts of the crew

that when the dray and tractor finally crawled into camp, very little water was found to be lost. Here it was emptied into every utensil available while Hon. Organiser Sargison, always ready for an emergency, fished through his inexhaustible kit and produced solder and iron, and with a little remedial treatment the tank continued to do good service for the duration, being acquired at the end by Bill Dunbabin, more or less as a souvenir.

The advance party did not loaf on the job getting the camp ready for the main party's arrival on Thursday night. The work, always an important prelude to successful camps, was shared by two women, Mrs. Widdicombe and Miss Mary Washington, who, amongst other things, acquired attacks of hay fever through filling sacks with straw for beds, the straw being dusty. They worked well.

While on the subject of tributes, which perhaps should be left until last, one should mention the names of several members in the advance party and otherwise; but not only may it be individious to specify any individual, it would also be the last thing that individual would prefer to see said about him, since what was done was part of the camp routine and the spirit of camping. Yet one cannot overlook the service rendered by the Hon. Organiser's chief lieutenant, Burn. Widdicombe, who was a tower of strength, physically and morally, and quite untiring in his pursuit of work.

Chief Cook Theobald, who has been invited to accept the position of "official cook" to the Club, was the most unruffled occupant of that important office the Club probably has ever experienced. Rain and wind, and even a wrecked kitchen, did not disturb his equanimity and his culinary service was appreciated. He had two efficient assistants in George Miller and Denis Andrews.

From these tributes and the description of the camp so far as it has gone, one may gather that, in spite of a little rough weather and a few flattened tents, the camp was a success—a success both as a happy and informal union of members out of doors and as a field event in which natural history observation and collecting were part of the procedure. And the person chiefly responsible for this, for whom full credit will be denied by none, was the indefatigable, indespensable Harold Sargison, whose organisation of this and previous camps, with the aid of Messrs. E. Cruickshank and G. L. Propsting, has helped to put the Club on a new plane and gained for it a substantial membership.

Personalities finished, it is well that one should state some of the activities of the camp.

These consisted largely of excursions to places of interest. Of such places there was quite a variety. Southwards, along the coast, was Humper's Bluff, where was afforded a fine view across the harbour and numerous islets lying below precipitous cliffs, with a pleasant walk through light forest past a very good blowhole. The northern point of the harbour, Cape Frederick Hendrick, yielded a good view of Marion Bay, up the East Coast and over to Maria Island, and there were three nests of the Sea Eagle *(Haliaeetus leucogaster)*, only one comparatively new, to be seen on the way.

There was thick scrub and forest behind North Bay, and a lagoon, where several interesting plants and birds were noted. Notes under these headings will be found elsewhere in this issue. Parties roamed through these localities, studying natural history.

There was also a full day excursion to Prince of Wales Bay, some five or six miles northward, beyond North Bay. This is an historic spot, yet seldom visited. A little distance above high water mark, on the grass at the edge of the forest, stands a monument erected by the Royal Society of Tasmania to mark the landing on Tasmanian soil of the first white man, which took place in 1642, when Tasman sent from his ship anchored nearby a small party to get water and search the adjacent "woods." Tasman's carpenter, who swam ashore from a small boat, is supposed to have touched land on this stony shore and planted a flag where the monument stands.

There has been a great deal of controversy as to whether this was the actual site of the landing; but one does not need to do more than merely gloss over it here and say the argument becomes revived from time to time, and was even the subject of a little satire in the camp itself when a camp-fire "pageant" in fancy dress produced three characters symbolic of the confusion in the public mind—three members in costume who seemed to have stepped out of the pages of a history book, each bearing an appropriate sign, "It was Here," "It was There," "Where the Sand was Grey."

At the monument, while members reclined on the ground or sat upon bush seats formed by fallen trees, eating their lunch, Professor C. S. King, of the University of Tasmania, read aloud extracts from Tasman's Log, and as the story of the landing was unfolded, no one could fail to visualise the actual happening itself, regardless of whether it was here, there, or where the sand was grey, three centuries before. The quiet sunlit bay, a trim yacht resting on its calm waters, the breaking of light surf over a reef, and a background of forest in which the presence of giant men was once suspected because of the wide spacing of footholds cut in trees—the lovely picture so dwelt in the mind that one felt this was the real setting for a landing even if the monument were not actually on the spot.

PORPOISES provided a remarkable display for some of the party returning along North Bay beach. About 10 or 12 of the animals were first seen behind the surf near the centre of the bay. They approached closer, and, when opposite the party, swam into the surf and all together "caught" a big wave and came in on its crest, their bodies revealed in the clear window-like head of the wave as it rose four or five feet to curl and break upon the beach. Just before the wave actually broke, they turned and darted through it, to await the coming of the next one. Subsequent waves they caught in the same fashion, coming in at great speed like a surfer on the crest, turning at the last moment to avoid being spilled out on to the beach. It was a most spectacular display. They moved round the beach catching every big wave, diving through its plume, and evidently enjoying the fun, which, one thinks, was staged for the party's special benefit, since they ultimately turned and followed us to the other end of the beach, though out beyond the surf.

Bad weather set in after this. Local opinion was that when porpoises come close to the land like that rain usually follows. And in this instance it did, and the wind was strong and cold, and it blew down the tents, making a decided mess of the kitchen, which presented a dreary sight with bread and fruit scattered amongst crockery and the odds and ends that cooks always use in a camp.

But no one was really dispirited. Through the courtesy of the Dunbabins, on whose land we were camped, members were able to take advantage of the shelter afforded by an old cottage close by, and a big fire inside soon dried out wet clothing and restored good moods.

This unkind weather marred nature study discussions and camp fire concerts in the open under the trees. Nevertheless, it cleared towards the end, and on the last night there was ample compensation in the success of the concert and fancy dress parade round a big fire in the bush behind camp.

Strange things came into the circle of light to parade round the fire that night.

Witches from the Woods, with mysterious words,
Stirring a potion of snake juice and herbs;
Dormouse, Hatter, whimsical March Hare
And dainty young Alice with long blonde hair;
Little Bo-Peep and her rustic Boy Blue
With flotsam trumpet too good to be true;
Jacob and Isaac and Abraham too, and—
Out of the dark—a quite indescribable Thing with a Harp,
A curious and most diversified line
Of New Look, Cook, and Old Father Time:
The Little Lamb and Fair Lady in Robes,
The Tasman Triplets of "Goodness Knows":
The Boy so fat (or not so thin), and
That bright little character, Huckleberry Finn.
The Kitchen, the Naturalist all Compleat,
Puss in Boots so spruce and neat;
The Headless Woman, the Headless Man,
Mermaid, Pirate, and pretty Mary (Ann);
Goliath and David with sling and all,
A Haystack towering exceedingly tall;
Pied Piper and Rat with Dick and his Cat, and
An Eastern Maid and a great many more.

A strange and motley company of apparitions and figures of fable, legend, and fairy tale, the like of which no camp ever had seen.

One must, of course, not overlook making some reference, slight, or slighting, as the case may be, to yet another of the outstanding characters of camp and camp fire, namely, The Hat. A dignified relic of many years' service, battered and shapeless, but none the less strictly utilitarian, The Hat . . . . What a Hat! May be it was not the Hat that mattered so much as its wearer with frayed pipe to match, who possessed also in full measure cheerfulness and friendly aid when it came to solving camp problems. That cherished Hat, obviously of an age which dated it of the period when white men first put their feet on Tasmania, hereabouts was a Dunbabin copyright, and only the man of the name, whose assistance in many ways was so keenly appreciated, could it suitably have adorned.

Those who attended the camp were:—

Messrs. M. S. R. Sharland, Harold F. Sargison, E. W. Cruickshank, G. L. Propsting, B. H. Edgell, E. C. Forsyth, K. Aves, C. B. Widdicombe, A. Brownell, A. M. Hewer, D. Sargison, F. D. Green, H. Wilson, L. Wall, D. Brink, J. A. Simson, E. Hall, W. Dunbabin, F. A. Peterson, Professor C. S. King.

Mesdames Widdicombe, M. Goldfinch, A. Brownell.

Misses H. Dresdner, H. Mosey, M. S. Washington, Miriam Fraser, M. L. Fraser, M. Ibbott. M. Scott, E. Vaughan, G. Vaughan, H. Lake, S. Sargison, M. Goddard, J. Butler, R. Featherstone, A. Wall, P. Batt, F. Elliott, D. Potter, H. Robb, J. King, I. Raftery, E. Sharland, M. Westbrook, M. Chandler, G. Norris, P. Atkins, F. Moorehouse, F. Peterson, L. K. M. Goldfinch, and E. Widdicombe.

Masters D. Widdicombe, J., R., and G. Brownell.

Staff: Official cook, Mr. C. A. Theobald; assistants, Messrs. G. A. Miller and Denis Andrews.

LIBRARY.—The following additions to the Library are acknowledged:—

The Western Australian Naturalist, Vol. 1, No. 3, December, 1947.

Memoirs of the National Museum, Melbourne, No. 14, Part 2, June, 1946.

Abstract of Proceedings, Linnean Society of New South Wales, Nos. 582, 583, 584.

South Australian Naturalist, Vol. 24, No. 2, January, 1947; Vol. 24, No. 3, April, 1947.

South Australian Ornithologist, Vol. 18, No. 7, October, 1947.

New Zealand Bird Notes, No. 2, No. 3, January, 1947.

Reports of the Great Barrier Reef Committee, Vol. 6, Part 1, December, 1947.

Proceedings of the Royal Society of Queensland, Vol. 59, Part 1, 1947.

SPECIMENS FOR EXHIBITION: Members are invited to exhibit interesting natural history specimens at monthly Club meetings. Members displaying specimens are expected to describe them and indicate where they came from, for record purposes.

Mt. FIELD NATIONAL PARK.

The Christmas "Camp."

By Kelsey Aves.

AN UNOFFICIAL "Camp" was held at Christmas at Mt. Field National Park. A dozen members attended and the fact that they hope to repeat the experience speaks for itself. The wild grandeur of lake, mountain, and moor in the Mt. Field area was a change from the coastal scenery that has been chosen for most of the Easter Camps and the district is a paradise for botanist, zoologist and geologist.

Christmas, 1947, was not blessed with good weather in most parts of Tasmania and the party which descended from the bus at the Lake Dobson huts on Boxing Day was greeted with an icy wind which blew for most of the week.

The first major excursion was a trip over the Tarn Shelf, returning by Twilight Tarn and Lake Webster. We climbed the Golden Stairs above Lake Dobson and skirted the northern slopes of Mt. Mawson where the curious Tarn Shelf was gained, a ledge about two miles long and mostly 200 or 300 yards wide, containing six tarns and a fairly large lake, Lake Newdegate. This shelf has a precipitous drop of some 600 feet to Lake Seal, a beautiful curved lake of glacial origin, of which a magnificent view was obtained. After lunch on the shore of Lake Newdegate, we descended via Twilight Tarn to Lake Webster, another lovely stretch of water, once the bed of a glacier.

The other "big day" was the climb to the summit of Mt. Field West (4,721 ft., with a sheer drop of 1,500 ft. from the cairn). Although there was a high wind, the weather was kind otherwise, and we enjoyed a view which must surely be unequalled in Australia. The whole of the view, north, west, and south, is of jagged mountain peaks, and among those identified were Mt. Anne, the Arthur Range, the Snowies, Federation Peak, and the peaks of the Lake St. Clair park. Since everything for a good time is provided by Nature in National Park we indulged in glissading and tobogganing races on a snowfield, and, needless to say, snowballing !

At 12 o'clock on New Year's Eve the New Year was greeted with traditional ceremony and toasts. It is probable that Lake Dobson's wild denizens have never before heard such yodels ,whoopees and other high-spirited tom-fooleries as were emitted by some of the more irresponsible members of the party in the first hour or so of 1948.

But to come to nature notes—there were plenty of wildflowers for the botanists. As the bus climbed from the Park gates we saw Native Laurel *(Anopterus glandulosus)*, and Waratah *(Telopea truncata)*. Around the huts were Lemon-thyme *(Boronia pinnata*, var. *citrodora)*, *Richea sprengelioides*, *Orites revoluta and Bauera rubioides*, also the pretty little orchid, *Caladenia angustata*. Another orchid, *Pterostylis cucullata*, was found by one of the ladies. Amongst the cushion plants on K Col we noticed only *Dracophyllum minimum* in flower. Flowers of Pineapple Grass *(Astelia alpina)* were also observed. A pretty pink *Epacrid*, an *Archeria* not yet officially named, was collected on the Rodway Range. The Gentians were late, and although flower buds were seen, unfortunately no actual

blooms were observed. The Conifers were "flowering" with a vengeance, great clouds of pollen rising as we tramped through Pherosphaera and Fitroya (so named in Rodway's "Flora," now called Diselma).

As to the fauna, Mr. Hewer's lizards were generally to be seen on the table or clinging affectionately to someone's arm. He also collected several species of grasshoppers and centipedes as well as planarians. The Brush Opossums visited us at night and we regretted that we had brought no flash light equipment. The Black Jays also frequently reminded us of their presence, their raucous voices echoing from the hillsides. One in particular, christened Charlie, visited us on our window-sill many times. A pair of Eagles was seen soaring over Field West.

Geologically, most of the conversation was on glaciers. As one stands at the door of the hut the whole sweep of the upper reach of the Broad River valley lies at one's feet and it is liberally strewn with erratics of all sizes. U-shaped valleys with cirques at their heads and lateral, terminal and medial moraines, are all abundant.

All the larger lakes and tarns were also formed by glacial action, including the remarkable Tarn Shelf with its huge erratics perched on the edge of the precipice. Mr. F. A. Peterson gave us a short informal talk one evening on "Glaciation in the Park," and this was of great help in fitting our observations together.

MEMBER HONOURED: Informality is the keynote of Field Naturalist Club camps; but at Easter, 1948, a more or less official speech was made by the President on the occasion of a presentation to Mr. G. L. Propsting, a senior member and a good camper. He was given a souvenir to mark his long association with the club in the field. The speech extolled the virtues and the value of this Honorary Life Member, and the assembled company demonstrated its acclaim in a positive manner. The article presented was a neatly fashioned tobacco "jar," produced from an ostrich egg by the craftsmanship of Mr. Harold Sargison. The top of the egg cut off, was fitted with a handle, and there was an attractive base, while on one side, surmounted by the Club's badge, were engraved the words, "'Proppie,' Wilmot Harbour, Easter, 1948." Mr. Propsting ("Proppie"), responded by saying a "low down trick had been played upon him by Mr. Sargison;" but he would treasure the gift, nevertheless.

TASMANIAN FIELD NATURALISTS' CLUB,

Annual Report for 1947.

Financial membership of the Tasmanian Field Naturalists' Club is now 121.

With regret we record the death during the year of Dr. C. F. Hodgkinson, who had been a member since 1931.

In addition to the Annual Meeting, nine ordinary monthly meetings were held, the approximate average attendance being 65.

Lecturers assisting at these meetings were:—Professors Hickman and Carey, Captain Colbron Pearse, Messrs. M. S. R. Sharland, A. M. Hewer, N. Laird, J. B. Thwaites, A. T. Caines, C. G. Elliott, and Miss Wall. Subjects covered were, Garden Spider's Web, Evolution of Tasmanian Landscape, Eyes and other Features of Deep Sea Fishes, The Pelican, Nature Rambles, Plants from the Past, Early Tasmanian Naturalists, Broken Hill, Vegetation of Tasmania's Central Plateau, Maria Island.

The Easter Camp was held at Adventure Bay, and was again honoured by a visit from His Excellency, the Governor and Lady Binney. A small unofficial camp was held during the Christmas-New Year holidays, at Lake Dobson, National Park.

Museum Classes in Botany were held under the guidance of Miss J. Somerville, and field outings, including a visit to Chauncy Vale Sanctuary, were held in May, July, August, September, and October.

The Club's Journal, *The Tasmanian Naturalist* (No. 2 of Vol. 1, New Series), was published in May.

The committee held two meetings to discuss the location of the Easter Camp, 1948, and recommended that it be held at Wilmot Harbour.

The statements of receipts and expenditure indicates that revenue exceeded expenditure by £56 3s.. The year closed with a balance in hand of £112 18s. 11d.

OBSERVATIONS: Members are invited to give an account at monthly Club meetings of interesting observations they may have made in any aspect of natural history during the immediate preceding month. These will be recorded in the minutes for reference purposes. Many useful observations, in the realm of bird life and other forms of life, probably now go unannounced. Even what appear to be trivial observations sometimes yield valuable information. So relate your observations at future meetings.

TASMANIAN FIELD NATURALISTS' CLUB.

(Founded 1904.)

MEETINGS are held at the Royal Society's room, Tasmanian Museum, Hobart, on the third Thursday in each month, except December and January. The annual meeting is held in February.

Annual Subscription: Adults 5/-; juniors (under 18) 2/6.

Anyone interested in Nature Study is welcomed to membership.

Application for election should be made to the Hon. Secretary, c/o Sargison's, Jeweller, 21 Elizabeth St., Hobart, or direct to Mr. H. G. Vaughan on meeting nights. Subscriptions may be paid to Mr. H. F. Sargison, 21 Elizabeth St., or to Secretary.

Lectures, field outings, and nature study camps, are the chief activities of the Club.

PUBLICATION FUND.—Members are asked to contribute towards the cost of publishing *The Tasmanian Naturalist*, which now circulates to all Australian States, New Zealand, and U.S.A., and England.

ANNUAL SUBSCRIPTION: Members are informed that club subscriptions for the current year are now due.

MEMBERS ABSENT: Charles Elliott and L. Crawford, two enthusiastic members of the Club, have left to continue studies on the Mainland. They are missed from the ranks, especially on field outings. The Club wishes them well in their new spheres.

Group of members of the Tasmanian Field Naturalists' Club who attended the Camp, Wilmot Harbour, Easter, 1948.

Photo: M. S. R. Sharland.

An attractive group of Tasmanian Wild Berries, from a painting by Miss M. E. Wilson.