

A. N. Lewis

Tasmanian Field Naturalists' Club.



EASTER CAMP, 1921.

Adventure Bay, Bruny Island,
TASMANIA.

GENERAL ACCOUNT

By Clive E. Lord, Hon. Sec.

GEOLOGICAL NOTES

By A. N. Lewis.

BOTANICAL NOTES

By I. Rodway, C.M.G., Government
Botanist.

NOTES ON THE MOLLUSCA

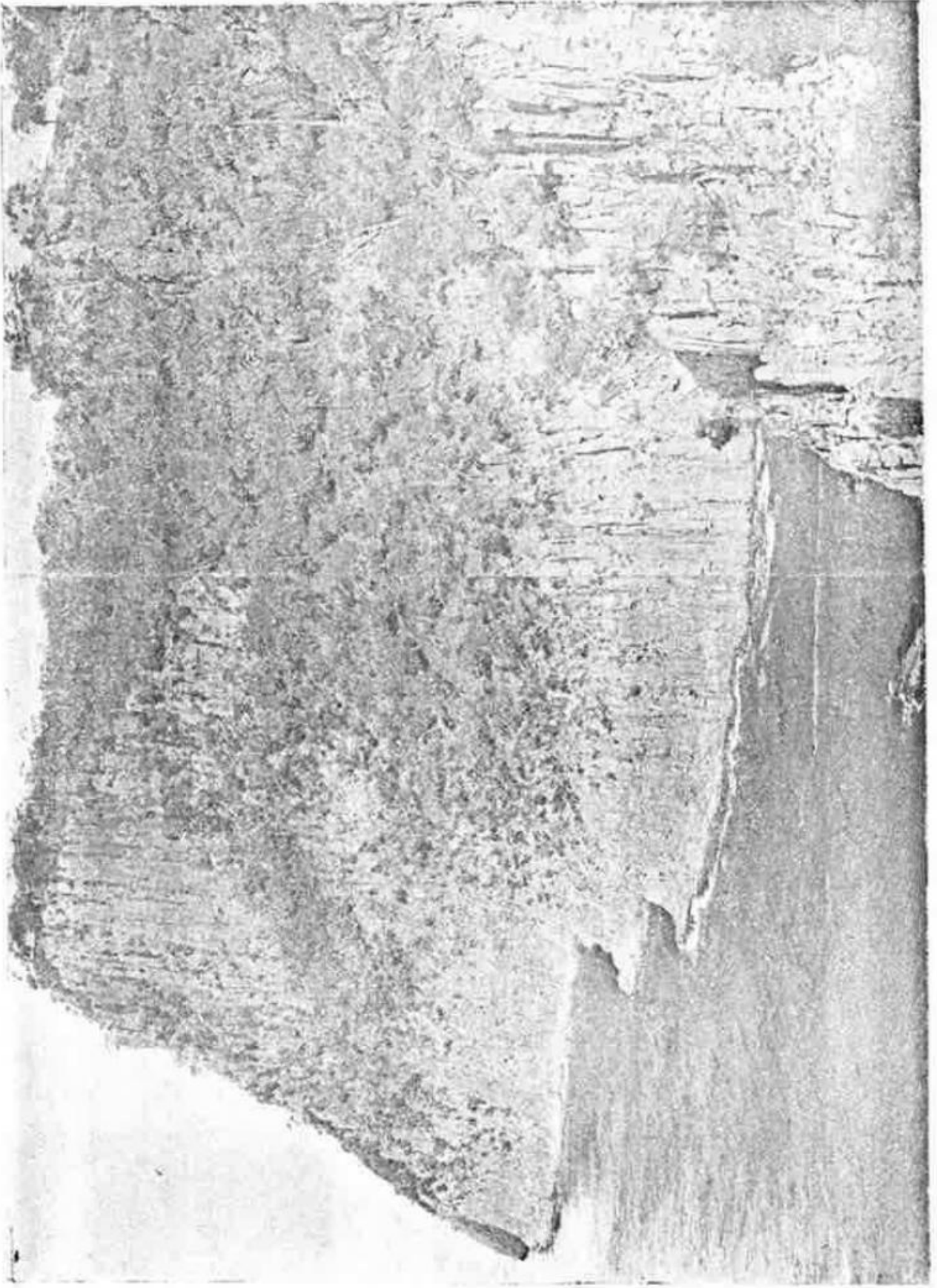
By W. L. May.

ETHNOLOGICAL NOTES

By Dr. George A. Horne.

ZOOLOGICAL NOTES

By Clive E. Lord, Hon. Sec.



FLUTED CAPE.

Tas. Field Naturalists' Club.



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Tasmanian Field Naturalists' Club.



Easter Camp-Out at Adventure Bay, 1921.

By CLIVE E. LORD, Hon. Secretary.

Adventure Bay is exceedingly interesting from the historical standpoint, and this aspect, quite apart from the scenic charms of the locality, made the site for the Tasmanian Field Naturalists' Club Easter camp of 1921 an attractive one. The locality is also a good collecting ground for students of certain branches of natural history. This is of importance because the club always endeavours to arrange the camp sites with a view of allowing lovers of nature to investigate the many problems that are to be found in such localities as this. For the past 17 years regular excursions have been held to various places of interest on the coast, and the following is a brief resume of the places visited and the number of members who attended:—

- 1905—Bream Creek; camping party, 9.
- 1906—Cole's Bay (Freycinet Peninsula); camping party, 40.
- 1907—Little Taylor's Bay (S. Bruny); camping party, 27.
- 1908—Soldier's Point (Maria Island); camping party, 27.
- 1909—Wineglass Bay (Freycinet Peninsula); camping party, 84.
- 1910—Cole's Bay (Freycinet Peninsula); camping party, 97.
- 1911—Southport; camping party, 60.
- 1912—Darlington (Maria Island); camping party, 69.
- 1913—Safety Cove (Port Arthur); camping party, 80.
- 1914—Wineglass Bay; camping party, 80.
- 1915—Darlington (Maria Island); camping party, 30.
- 1916—Eaglehawk Neck; camping party, 36.
- 1917—Wedge Bay; camping party, 33.

1918—Safety Cove; camping party, 38.

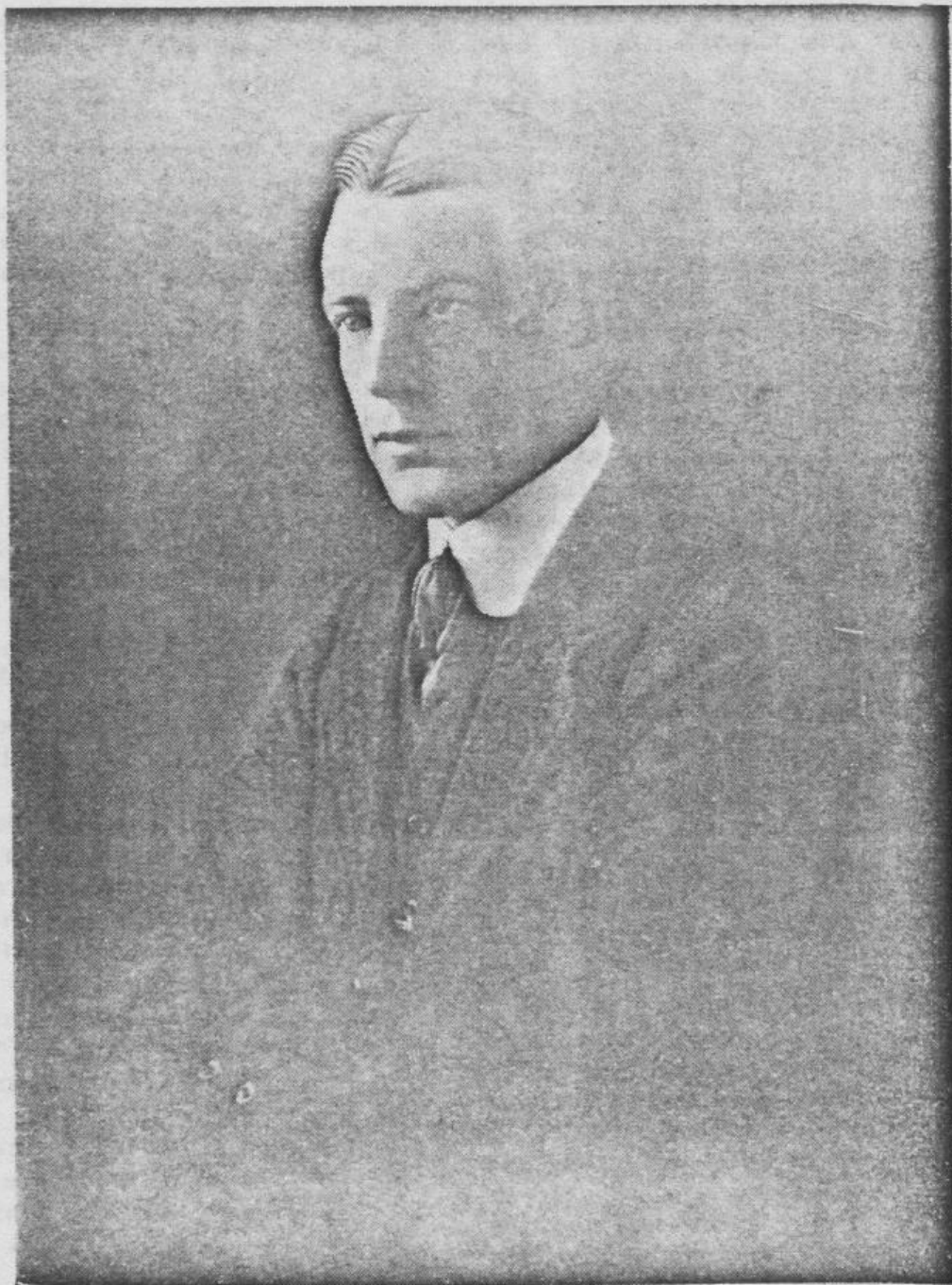
1919—Eaglehawk Neck; camping party, 39.

1920—Safety Cove; camping party, 47.

1921—Adventure Bay (S. Bruny); camping party, 41.

During recent years it has been the custom for an advance party to precede the main body in order to prepare the camp. The same policy was pursued this year, and ten members, who took with them all the camp impedimenta, left Hobart in the s. Togo at 8 a.m. on Wednesday, April 23. After a quiet trip of about three hours we arrived off the camp site, and a landing was effected some distance further down the bay. This necessitated the camp gear being carted to the correct locality, and it was late in the afternoon before all the numerous packages were delivered at the correct destination. In the meanwhile a section of the working bee had been hard at work. Once the initial lay-out of the miniature settlement was decided upon, spaces were cleared for the various tents, and the large dining tent erected. Work proceeded steadily until nightfall, when a welcome meal was partaken and pipes of peace were smoked round the campfire as we discussed plans for the morrow and the succeeding days of the holiday.

The site chosen lent itself admirably to the plan of the camp, and the club is indebted to Mr. Doroff for his kindness in allowing us to camp on his property and for many courtesies extended to us during our stay. Our camp site was at the south-east corner of Adventure Bay—the "East Cove" of Blighs' charts—and a stream of fresh water found its way to the sea at the east



MR. CLIVE E. LORD.

Hon. Secretary.

end of the beach. Beyond this, in a natural hollow in the sand dunes, amidst a clump of banksias and eucalyptus, were pitched the ladies' tents. The flat area at the mouth of the creek, on the eastern bank, was used for the dining tent, store tent, and that very necessary adjunct--the camp kitchen. Stretching along the shore towards the eastern end of the bay were the men's tents, and beyond this again rose a high hill, terminating in Fluted Cape, which afforded shelter from the ocean breezes. It commenced to rain on Wednesday evening and "Blanket Bay" was sought at an early hour, and the rhythm of the surge upon the shore served as an effective lullaby.

Thursday morning broke fine, and the campers were aroused by the call of the wattle birds amidst the honeysuckles surrounding the camp. After breakfast the work of completing the camp was proceeded with, and by lunch time all the tents had been erected, but the day was far advanced before the finishing touches were applied and the whole encampment was ready for the reception of the main party.

Before proceeding further with the general description of camp routine it might prove of interest to note the historical associations of the locality wherein we were camped, for few centres are so closely connected with the early era of exploration as Adventure Bay. The bay itself is enclosed between the headlands of Cape Frederick Henry and Penguin Island, these being about eight miles apart. From both points the shores of the bay curve towards the east, and in the centre the ocean rollers almost meet the waters of D'Entrecasteaux Channel, for a narrow sandy neck is the sole connecting land link between the north and south portion of Bruny Island.

The bay itself is, in all probability, the cove that Tasman was hoping to come to anchor in on November 29, 1642, but a north-west gale drove the high-pooped Dutch vessels to sea again, and the name of Storm Bay will ever recall the experience of the hardy Dutch navigator in this locality. The French explorer Marion du Fresne did not investigate the

south coast to any extent, and it is not until the year 1773 that we have authentic records of any vessels anchoring in Adventure Bay. During Captain Cook's second voyage to the South Seas his two vessels, the Resolution and the Adventure, became separated by a storm soon after leaving the Cape of Good Hope. Cook sailed direct for New Zealand, but the Adventure, a vessel of 336 tons, under the command of Captain Tobias Furneaux, was brought to anchor in Adventure Bay, which Furneaux named after his vessel. The first English explorer of our coasts, upon anchoring, thought that he was close to Tasman's anchorage in Frederick Henry Bay, on the East Coast. Later he thought the bay to be further to the north, and named the northern point of the bay Cape Frederick Henry. Subsequent explorers did not notice the error, and it remained for Baudin's expedition in 1802 to finally locate and chart the correct position of Tasman's anchorage. The waters of D'Entrecasteaux Channel were mistaken by Bligh for the Frederick Henry Bay of Tasman, and later the name was given to a large bay to the east of the mouth of the Derwent. This name appears on modern charts--a locality which Tasman did not even see. Furneaux stayed five days in the bay, the men's time being occupied in obtaining wood and water and overhauling the rigging. Leaving Adventure Bay, Furneaux sailed up the East Coast, and then bore away to New Zealand to rejoin his commander.

The next visitor to Adventure Bay was Captain Cook, during the progress of his last voyage in 1777. His ships, the Resolution and Discovery, anchored in Adventure Bay on January 26, and the main occupation of the men was the usual work of replenishing the supplies of wood and water. Several interviews with the aborigines took place, and Cook's remarks concerning their habits are of interest. Various nautical observations were made, but Cook did not notice Furneaux's error, and still concluded Tasman's Frederick Henry Bay to be near at hand, and that the land to the eastward (Tasman and Forrestier Peninsula) to be Maria Island. Cook's ships sailed from the bay on the thirtieth of January.



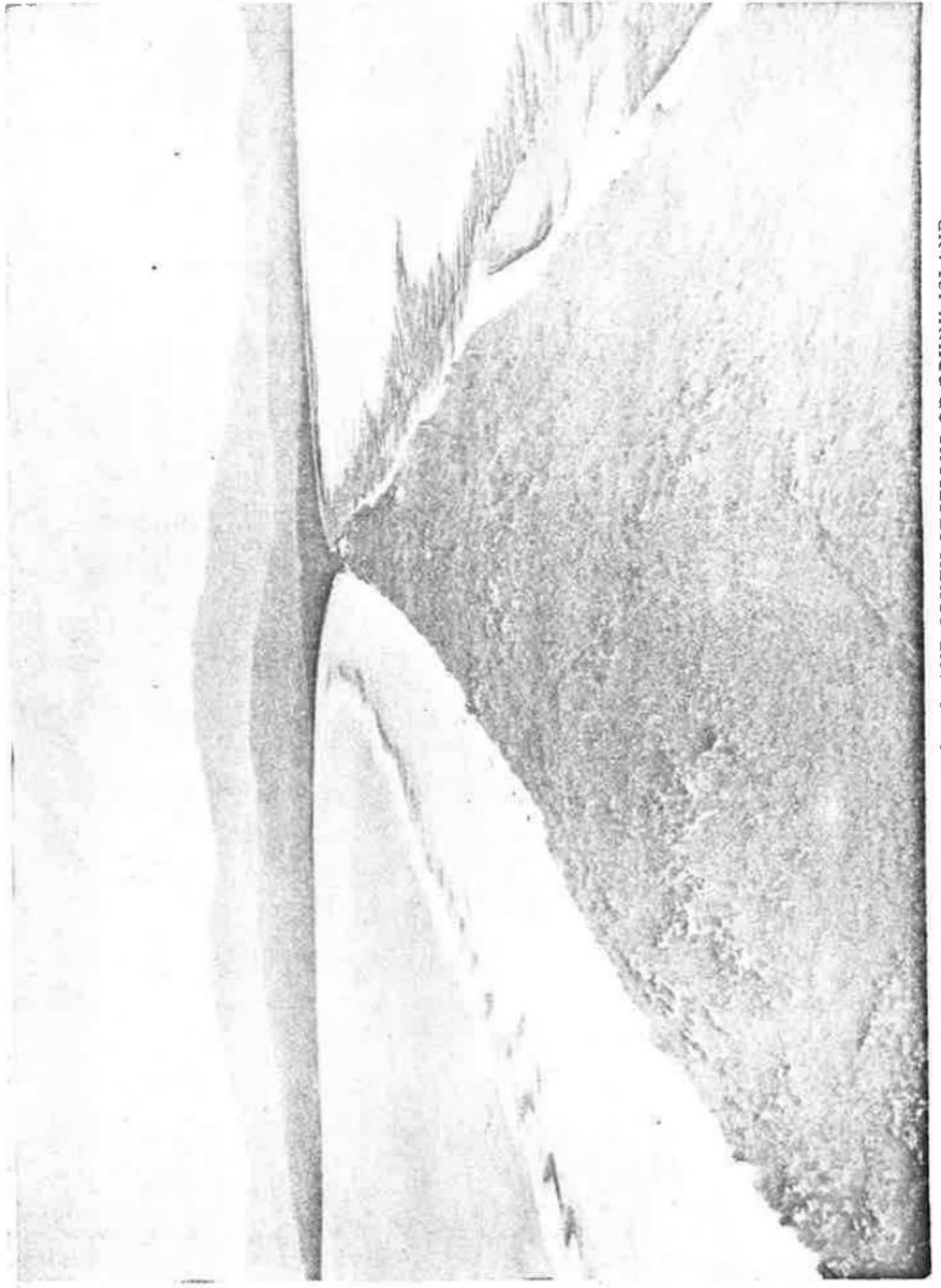
ADVENTURE BAY, SOUTH BRUNY ISLAND.

In order to place the various explorers in their relative position to contemporary history, it might be as well to recall the fact that in January of 1788 the First Fleet passed along the South Coast of Tasmania (Bass Straits being not then known) on the way to form the first settlement in Australia. From now onward there were vessels passing to and fro from the settlement at Port Jackson, and probably some of them, of whom we have no records, anchored for a time in Adventure Bay. Later in the same year (1788) Adventure Bay was visited by Captain Wm. Bligh in the *Bounty*, during the course of his famous voyage which resulted in the mutiny at Tahiti and Bligh's voyage of 3600 miles in an open boat through uncharted seas. Again, in February, 1792, Bligh anchored in the bay. This time he had two vessels, the *Providence* and *Assistant*, with which ships he eventually carried out the initial plan of the *Bounty* voyage, that of transporting the bread fruit tree to the West Indies. Bligh saw the waters of the Channel, but concluded that it was Tasman's Frederick Henry Bay. Had the weather proved finer he would have investigated the locality, and in this case would have anticipated D'Entrecasteaux's discoveries by some months. In 1789 Captain Cox visited Tasmania (or, as it was then known, the south coast of New Holland) in the brig *Mercury*, a vessel of 152 tons. It was his intention to anchor in Adventure Bay, but he worked too far to the eastward, and eventually anchored at Maria Island. Admiral Bruny D'Entrecasteaux, in command of the French ships *Recherche* and *Esperance*, discovered the channel between Bruny Island and the mainland in April, 1792, and spent a month exploring and charting the area. Sailing from Storm Bay, the ships spent eight months in circumnavigating Australia, and when off the south-west coast the ships became short of water, and the French navigator again sailed for Recherche Bay to replenish his supplies. Another month was spent in the channel, and on February 24 the French vessels anchored in Adventure Bay, where they remained until March 4. Neither Hayes (1703) nor Flinders and Bass (1798-99) touched at Adventure Bay, but the French ex-

plorer Baudin anchored there for a few days during May, 1802. With the arrival at Risdon of the *Lady Nelson* on September 8, 1803, and the *Albion* on September 11, the first settlement of Tasmania took place, and when Collins landed at Sullivan Cove on February 20, 1804, and founded Hobart, Adventure Bay was often visited by different ships. Permanent settlement did not take place in this locality for many years after the foundation of the colony, but there were "bay whaling" stations in the bay, and the remains of these can still be seen, particularly along the track towards Penguin Island. The nomenclature of many of the natural features of the district recall the visits of the early navigators, but some of these have got strangely mixed. For instance, Furneaux referred to the cape at the south end of Adventure Bay as Fluted Cape. D'Entrecasteaux accepted this designation, and referred to it as Cap Cannele (i.e., "Cape Fluted"). Changes have appeared in maps from time to time, and the name Fluted Cape now appears on the charts as the point at the south end of Adventure Bay, while a mile or so further south another projecting point has been designated "Cape Connella"—obviously an adaptation from the French Cap Cannele, which was identical with Fluted Cape.

It was whilst watching the Easter moon rise over the rugged background of the cape that we heard the steamer's whistle on the Thursday evening. This event recalled us from thoughts of the past to those of the present, and as the flare of our signal fires showed up the white arc of the sandy beach, due preparations were made to receive the main party of campers. All were soon ashore, and after a welcome supper, duly installed in their holiday canvas homes beneath banksia and eucalypt.

On Friday morning the camp was early astir, and many paid court to Neptune amid the breakers which rolled in upon the shore. After breakfast, plans were made for the day, and different parties set out to visit places of interest. We were fortunate in having with us Dr. Horne, of Melbourne, and Dr. Pulleine, of Adelaide, and their expeditions among the old aboriginal kitchen middens and chipping grounds were followed with in-



THE NECK, WHICH JOINS NORTH AND SOUTH SECTIONS OF BRUNY ISLAND.

terest. Along the shores of Adventure Bay are to be found several places where the dusky natives used to meet and consume their shellfish. In such places to-day we find their rude stone implements of palaeolithic type. It is much to be regretted that so little attention was paid to the Tasmanian aborigines by scientific observers in the short time in which the original type of the race was to be studied in its natural surroundings.

Many of the published notes concerning their customs were made years after their contact with the white race, and on the eve of their extinction. To a very large extent, for a true picture of this primitive race we have to turn to the meagre accounts of the early explorers of our island state. Only an outline idea can be gathered in this manner, and it is to be feared that many details concerning the original inhabitants are entirely lost. It was with added interest, therefore, that we searched the localities near the camp for relics of a lost race, and recalled to mind the fact that a little more than a century ago the sole inhabitants of this area were dusky natives, who spent their days in search of shellfish and opossums, or other game which they could capture.

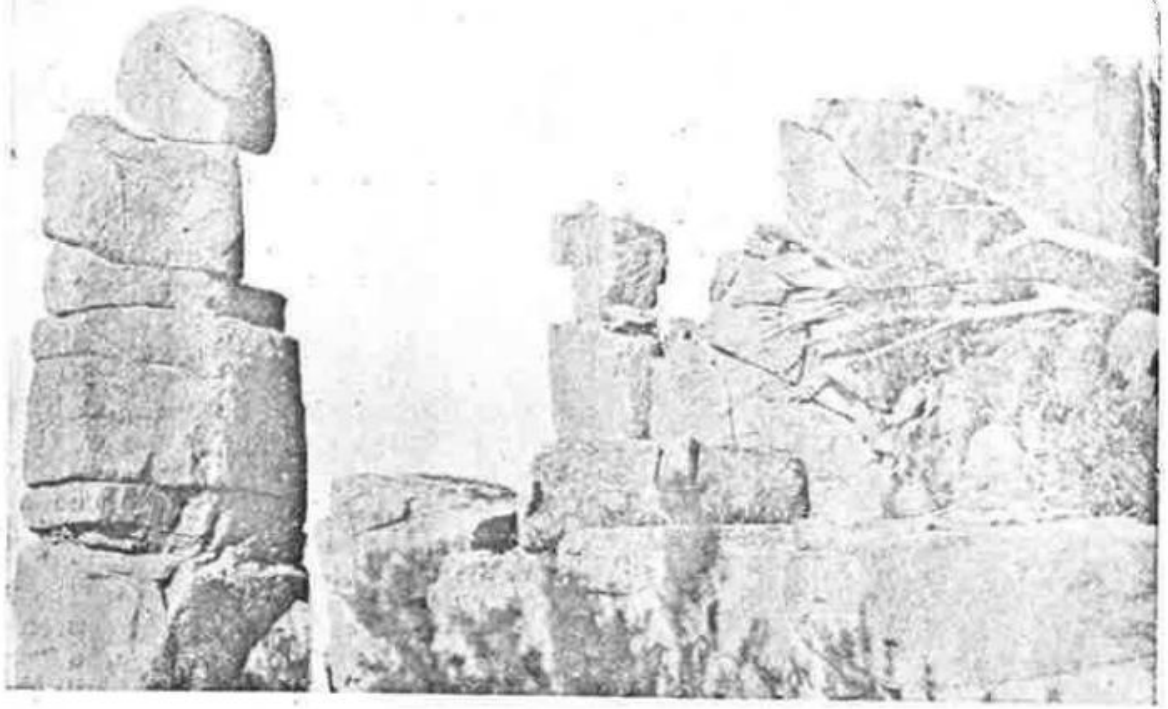
An additional interest was added to our camp site, owing to the fact that it was situated very near to where Bligh had planted a garden in 1792. The beach is shown as East Cove on Bligh's charts, and, as we had with us a photostat copy of his log book, we were able to reconstruct his doings in a fairly exact manner. At the end of the beach there are the remains of a large tree. Only the butt now remains standing, and this is much charred by fire, but it can clearly be seen that this forest giant must have been easily the largest tree near the end of the handy beach known to Bligh as East Cove. Why the tree is referred to as Cook's tree is not perfectly clear, although it has been assumed for many years that the inscription cut there contained the names of Cook's vessels, but it appears that Cook's records would be left further towards the main river, and that this tree probably bore the inscription recorded by Bligh, and referred to by the French explorers after their visit to this locality. Mr. H. W. Knight

stated that for many years his father had in his possession a slab containing an inscription which had been given to him by one of the early whaling skippers, and that the slab was supposed to have come from a tree near the locality where we were camped. Unfortunately, this slab of timber was destroyed by accident, and we have no means of saying with any degree of certainty exactly what inscription it bore.

Amid such historic surroundings as this the various parties spent their Easter days. On Friday a large party visited Penguin Island and Fluted Cape, whilst others searched the shore for biological or ethnological specimens. Others journeyed far into the thick forest country in search of plants dear to the botanist's heart. The first two days of the camp were slightly overcast and windy, but the remaining period was true autumn weather, which allowed full advantage to be taken of our open-air holidays. Some made long tramps to "The Neck," the sandy connecting link between North and South Bruny; others, under the guidance of Mr. Pybus, explored the local coal mine. The rugged outlines of Cape Connella tempted several members of the party to tramp for some miles down the coast, securing photographs of the cliff scenery, which in this locality stretches for several miles, a jumbled mass of rugged cliffs averaging a thousand feet in altitude, and forming a great strong bastion of unique and awe-inspiring grandeur.

In contrast to this were the low, soft, sandy beaches, and the overgrown fern gullies. In one of the latter the Mavista Waterfall is situated—a silver gleam in a setting of giant dicksonias and other ferns. It is a scenic gem, and well worth preserving in its natural beauty, but it is to be regretted that the hand of the vandal is already to be noticed here. It is to be hoped that action will be taken to prevent further disfigurement of the locality, owing to the reprehensible habit of turning every scenic retreat into a giant autograph book.

Away in the distance the conical shape of Cook's Lookout tempted the moun-



AT CAPE CONNELLA.



A PICNIC PARTY.

taineer members of the party. One day they essayed the ascent, and reached the summit after some rough travelling, through miles of cutting grass, which grew more than 6ft. high. Struggling through such country, laden with knapsack and camera, is rather monotonous work, but the occasional appearance of a tiger snake adds interest to an otherwise tiring and uneventful journey. When the summit is reached, a fine view of the country to the northward is obtained. Needless to say, Captain Cook never ascended the mountain which bears the name of Cook's Look-out.

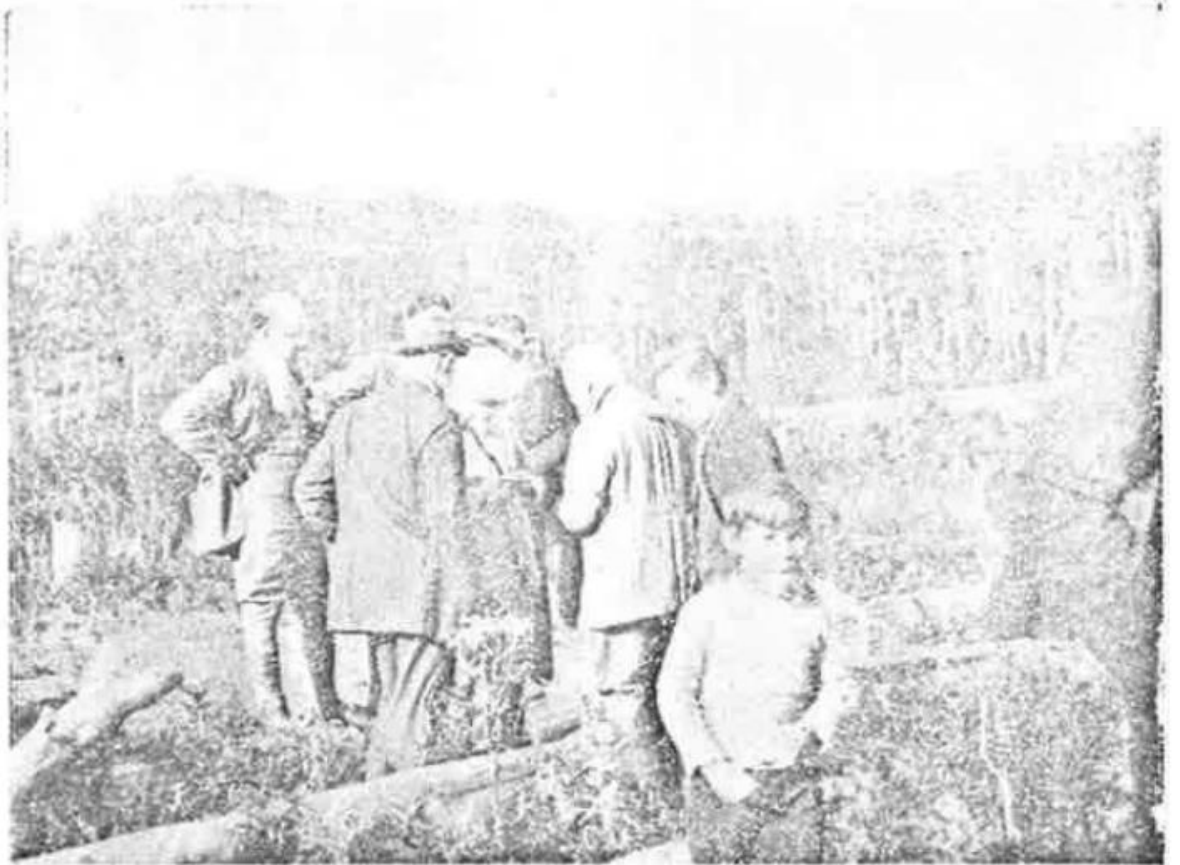
Other parties who desired quieter times spent the days along the shore or fishing in the inland river for bream—most of which had been illegally netted before our arrival—and others found rest and recreation in pursuing their hobbies amid the shell mounds or the rocks fringing the shore. So each day passed, and towards evening the various parties would return to camp to enjoy dinner prepared in Chef Woodward's best style, and later on to adjourn to the beach, where a large camp-fire would be set alight, and the usual camp-fire concerts held. We were fortunate in having with us many able musical performers. Short talks were also given by members on various natural history and historical subjects. Mr. F. Cano had his gramophone in camp, and this was much appreciated, as it was even used as an orchestra for a dance held on the sandy shore near the camp-fire.

The social side of the camp was not neglected, and the evenings around the camp-fire were quite a feature of the outing. We received many invitations from local residents, but the shortness of our stay prevented us from accepting their hospitality. We were indebted to several residents for assistance, and our best thanks are due to all for their endeavours to make our visit as pleasant as possible. Tuesday morning arrived all too soon, and it became necessary to break camp. Shortly after breakfast the work of demolition commenced, and the various packages of camp impedimenta were carried to the beach, to await the

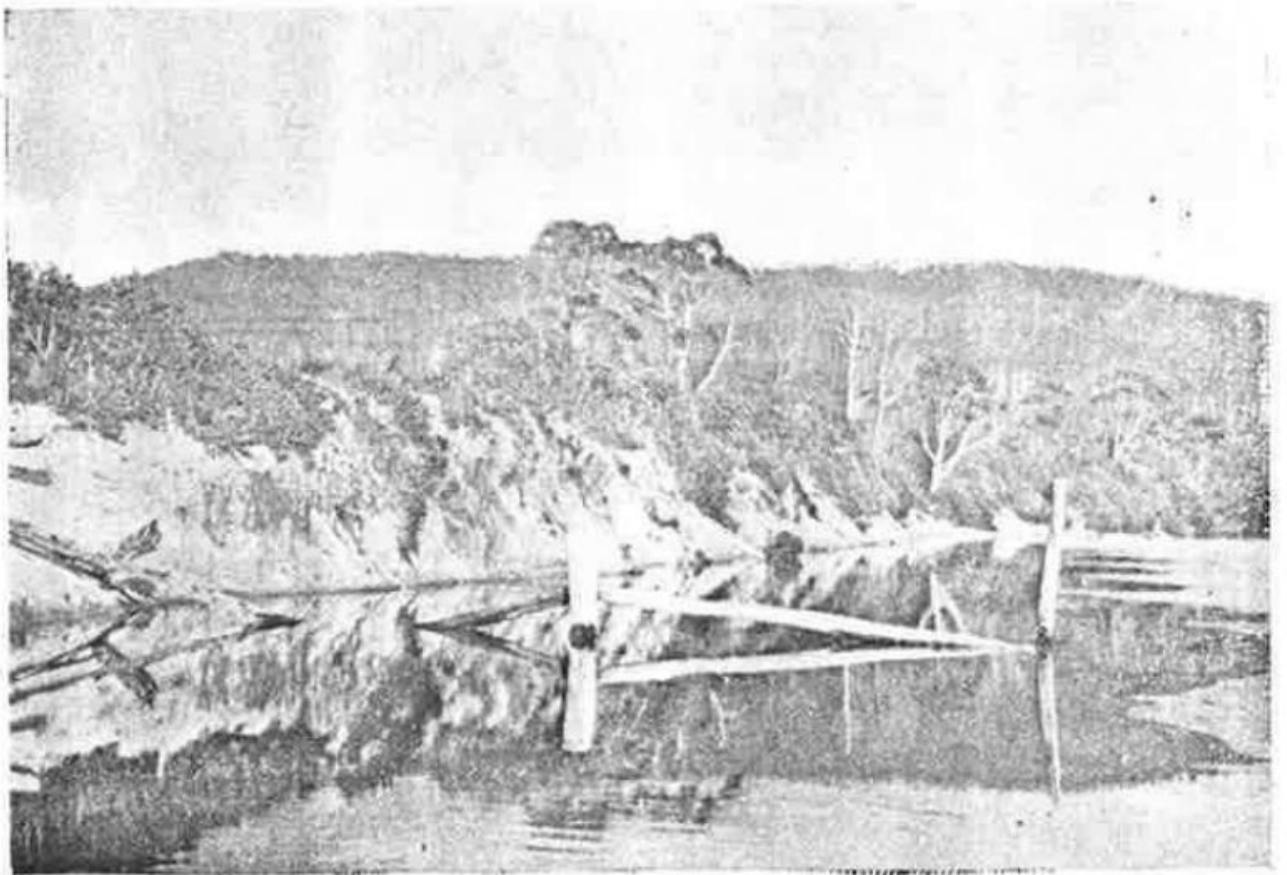
arrival of the steamer. After lunch the Togo's whistle was heard, and we were glad to welcome as a visitor Professor Ernest Wilson, of Harvard, U.S.A., who paid a short visit to our camp site, and accompanied us back to town.

Professor Wilson is visiting Tasmania in connection with forestry matters, and if time had permitted he would have been with us for the whole of the camp, as Adventure Bay is able to show some true timber country. The calm weather prevailing on Tuesday made the work of transporting the camp gear to the steamer a very easy matter, which is in marked contrast to the conditions we have had to overcome on several previous occasions. After a visit to the jetty in Quiet Corner, a course was shaped for home shortly before 5 o'clock, and the outlines of East Cove gradually receded into the distance. As we looked astern our memories were stirred by the events of the past few days which had been spent in such a delightful camping spot. Some time in the future we may return. Should such be the case, we can wish for nothing better than that such a camp may prove as harmonious a gathering as the seventeenth Easter camp of the Field Naturalists' Club proved to be.

The journey back to town was quite a calm trip, which allowed "the choir" to favour us with a few of the camp songs. During the journey Drs. Horne and Palleine, as visiting scientists from the mainland, thanked the members of the club for the welcome extended to them. Officials of the club, in reply, stated that they were always pleased to welcome mainland or other visiting naturalists to their outings, especially if they entered into the true spirit of camp life as our esteemed visitors had done on this occasion. Town was reached at half-past 7, and members were soon among relatives and friends, telling them of their experiences of their Easter outing. In this manner another of the club's annual camps came to a close. The memory still lingers, however, and a year hence we hope to see many familiar faces grouped around the camp-fire at some chosen spot on our Tasmanian coast.



EXAMINING AN INTERESTING SPECIMEN.



ALONG THE SHORE.

BOTANICAL NOTES.

BY L. RODWAY, C.M.G., Government Botanist.

The site of the Easter Camp at Adventure Bay was a good one for the botanist. Perhaps it did not possess a very great variety of flowers, but then it is not usual for flowers to be out at Easter, and there was plenty to be learned especially by those whose studies take a wide range and include the lower forms. The damp gullies were rich with ferns, mosses and fungi; also there were added thereto a numerous brood of small but aggressive leeches which found every weak spot in our clothing.

The forest consists mostly of gum-trees of which the various forms of stringy are present with a generous mixture of blue-gum. Round the shore and on the hills towards Penguin Island the prevailing tree is white peppermint. This tree remains small and is seldom straight, but it is very durable. It is a common thing to see posts of it which have been in the ground for forty years and upwards and are still sound. Most timber men from the Northern Hemisphere smile with a most superior expression of doubt when told that one of our woods will stand between wind and water for 40 years, but there are plenty of fences in old settled districts which demonstrate this. Here is an instance. In 1878 Mr. Counsel cut a track towards the west coast via lakes St. Clair and Petrarch and his mile pegs though weather worn are thoroughly efficient today. Sometime the value of our Eucalypt timber will be understood. In the interval it is going up to heaven in volumes as a sacrifice by the bush fires.

The effect of humidity of atmosphere is very noticeable. Trees such as beech and horizontal, which on Mount Wellington do not occur below a thousand feet altitude are plentiful in the region of our camp at four hundred feet. As you go towards the rain this becomes more apparent. Beech, horizontal, and laurel grow at sea-level at Recherche, while at Macquarie Harbour Gunn's raspberry grows at sea-level, while here

it is never met with much below the plateau of Mount Wellington.

Near the camp a disused tramway went into the bush for miles. In the latter part of its course it went through a beech forest, erroneously called myrtle, with an undergrowth chiefly of horizontal and cutting grass. The first of these is not yet in the list of trees useful to man, but the latter provides a most excellent pulp for paper making, and probably some day when we come to exploit our less apparent resources, we shall cultivate cutting grass in waste places for the purpose of paper making.

Our beech forests are sadly neglected. The wood is handsome and excellent for flooring boards, furniture, panelling, tool handles and a host of purposes, but there it stands and rots, and apparently it will not be wanted till the bush fires have consumed most of it.

Of lower plants, mosses, lichens, and such, there were quantities for the expert.



DR. G. HORNE, MELBOURNE.



AT FLUTED CAPE.



EAST COVE BEACH, THE SITE OF THE CAMP.
This is the point where D'Entrecasteaux erected an Observatory in 1793.

ETHNOLOGICAL NOTES.

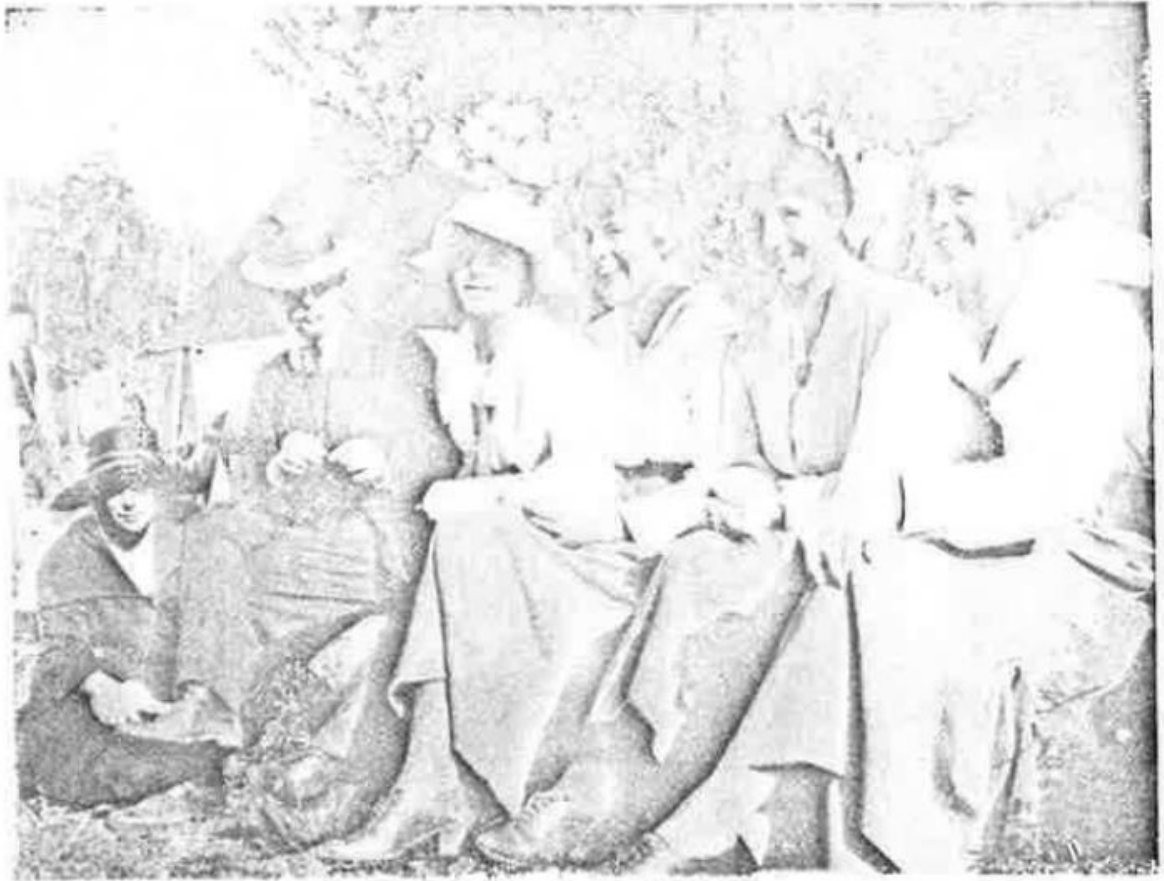
By DR. GEORGE HORNE.

In the early years of last century the whites first encountered the blacks at Risdon Ferry. Thirty years after a very small remnant were segregated on Flinders Island, so rapid was the annihilation. The Bruny tribe was, apparently, not a large one, though it varied in numbers with the nomadic habits of the natives. When examining the ground at Adventure Bay for tracks of the original inhabitants the same thing strikes one as in Victoria, i.e., the vast extent of the shell beds. These were the feeding grounds of the aborigines, and are most marked where the edges of cliffs have been broken down, or where roads have cut into the surface. From six to 12 inches is the limit of the soil above these shell beds, and with the exception of *ostrea edulis*, they are the same as those which abound there to-day.

Just to the north of the beach, where our camp was situated, Dr. Pulletine pointed out that they had evidently accumulated their crayfish debris. Many hundreds of claw-points were found in half a square yard, but none were to be gathered outside the area; nor was any other shell mixed in this magma, although many were strewn around. This peculiarity of placing a particular shell or food remains by itself was noticed near Cape Liptrap, in S.E. Victoria, where small masses of mussel (*mytilus*), mutton fish (*haliotis*), and others are similarly grouped. So thick were the shells opposite Cook's (?) Tree and on the little rise just east of the long white bridge over the creek that the farmers cart them away to use on their orchards and gardens.

But few chips and implements are picked up in the feeding beds, though two well-marked scrapers were found in the

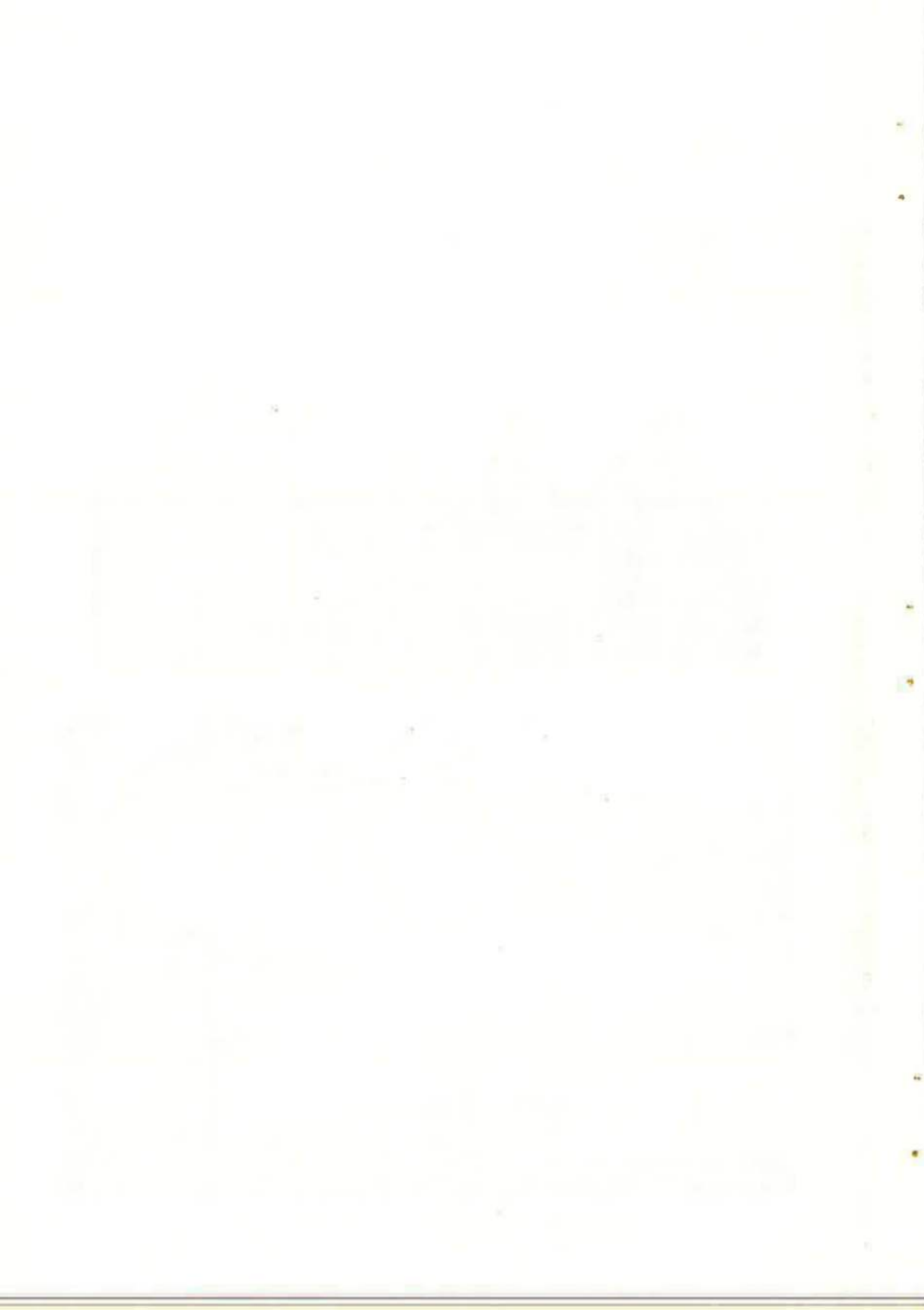
acre of level grass opposite Penguin Island. I, however, dug up a couple of square yards there without any result. The chipping grounds are generally a little back from the feeding places, and all have this point in common. They are all near fresh water. The thick nature of the timber would make it difficult for the unclothed native to penetrate far into the interior, and game would there be captured with difficulty. It was for this reason that frequent fires were lighted, partly from the spread of those used for warmth, but chiefly intentionally lighted to drive out the game. The chipping grounds, or, rather, the camps of the aborigines, were four in number. The first occupied the site of our camp, and extended into the potato patch behind. It was situated on the banks of where the creek then ran, as is shown by the waterhole (now dry) at the end of the mess tent. The chips extend in a triangle into the potato patch, and a search there was always well rewarded, for the cultivation exposed numbers of worked implements. Another spot was found in a rise which showed in the middle of the long, sandy sweep that stretches east from the jetty at the old mill. This was also close to sandy ground, and contained numbers of worked stones, as well as many shells. These two camps were in characteristic spots, being near water, and also near sandy soil. This is more comfortable to camp on than the rocky ground, and the sand is not only warmer, but affords good drainage, and does not get slushy as does the clay soil. Another chipping bed was placed on the high ground at the end of the tramway, a few yards east of that long sandy stretch which forms the southern boundary of Adventure Bay. Here the fragments chipped off in making implements lay scattered about abundantly, as did also the com-



LISTENING TO THE GRAMOPHONE.



A GRAMOPHONE CONCERT AFTER BREAKFAST.



pieted tools. Where a cutting had been made to form a road, not only could the implements be seen sticking out of the bank, but the thrown-down clods of earth, when broken up, yielded a rich harvest. The last camp was on the high ground south of the neck that joins North and South Bruny. Below, just above the sandy beach, shells could be found in plenty. But on the top of the steep rises no shells were available, but numbers of chips and implements were to be found. Apparently they fed below, but camped up in the scattered timber of the ridge above.

Amongst the stone tools scrapers are, of course, much the most common. These follow the rule of all Tasmanian implements, or tronattas, as they are called, in that one side is quite flat or smooth. On this side is placed the thumb. The other side has more or less of a keel. In this keeled side is any chipping of the edge that may be carried out. This holds good also of knives and choppers. The commonest scraper is that which is roughly oval in form. Three perfect specimens were found in the potato patch by Mr. Clive Lord. This form is either quite flat, or it graduates, through thick at one side, up to a distinct pyramid. Exactly similar forms are found all over the world. Those from France, South Africa, Australia, and Tasmania are indistinguishable in form. The Australian small forms are, however, absent in Tasmania, and there the large varieties are most abundant. Another form is the large thin flake, like a six-inch flattened scallop shell. This has the concave, smooth thumb side, and the opposite keeled side chipped along its edge. A beautiful example from Lake Tiberias was given me by Mr. A. N. Lewis. Though these are fairly frequent in Tasmania, the only example that I got in Australia came from the adjacent southeast coast, near Cape Liptrap. A third, and somewhat similar, scraper is the quadrilateral, which has the smooth concave thumb side, and the opposite edge frequently chipped. This variety is quite common, both in Bruny and in S.E. Victoria. In both places, also, is found the miniature, barely half an inch long, instead of being three inches. The

irregular scraper is, of course, that oftenest found. It may be any shape, but always has a flat surface for the thumb and the opposite edge chipped. Sometimes, when there is a flat surface on each side of the stone, both of these surfaces are counted as thumb sides. Then we find opposite chipping on both sides of the stone. Dr. Noetting says, in "Proc. Roy. Soc., Tas." p. 5, that this is an error on the part of the aboriginee, and that it is in less than one per cent. of cases. I, however, found it in 10 per cent. of all Bruny implements, though these have not been sorted out for that purpose. Unhesitatingly, I should say this is a purposeful form, being a good stone, used on both sides, but on opposite edges. Another tronatta, or implement, might be described as the "mountain range," which it resembles on a three or four-inch scale. At one end this runs down into a sharp triangular point. The base is, of course, quite flat, and is often marked for the thumb. It gives a powerful scraper at the point. Its purpose one can only guess at; but, possibly, it was used for digging the much-valued grubs from trees in a manner similar to the cockatoo. Although concave spear scrapers were not common, Dr. Puleine and I gathered half a dozen good samples.

Red ochre is found in abundance, but local quarries of it were not found. The beach pebbles were readily made into pounders, the flat stones serving for anvils for the ochre. This, when mixed with fat, gave a warm covering, as well as a decoration, to the long ringlets of the men. We found also the stones used in cutting the women's hair, for it was chopped short and worked up into string. The nature of the stone throughout is altered sandstone or mudstone. It is formed by the intrusion of molten diabase pushing up from below, and changing the texture of the superimposed sandstones by its intense heat. All along the cliffs of North Bruny the vertical diabase columns, capped by the horizontal sandstone layers, can be plainly seen. With the possible exception of ochre, no tronatta were found, and could not have been locally acquired.



LOOKING SOUTH FROM CAPE CONNELLA.



A CREEK SCENE.



GEOLOGICAL NOTES.

By A. N. LEWIS.

The camp site near Quiet Corner, in the extreme south-east of Adventure Bay, was not in the vicinity of any geological formations of outstanding interest. Indeed, it is difficult to find a spot that provides a wide field for every branch of nature study and combines the necessary qualities of a good camp site. But Adventure Bay was new ground for the Field Naturalists' Club, and so provided ample materials for a week of exploring trips.

Our island, however blessed by nature as a reservoir of scientific phenomena, cannot be expected to supply over its whole surface unworked fields of pre-eminent interest. There must be some localities that can only be called ordinary, and we are too fond of labelling such places as uninteresting. But the attitude that only points of unique significance are interesting is the attitude, not of the student, but of the tourist. Geological laws must be proved to be of universal application. Interesting localities must be connected by uninteresting ones. To test your laws and to connect your formations the whole surface of the land must be investigated. Experts study the interesting formations, and only an expert can speak with authority on them. A student can supply information about places of less interest which the experts have no time to study in detail. In this way a student can add his quota to the sum of knowledge, and can give the expert real assistance while raising himself to the status of an expert. This work is most essential, but can only be accomplished by refusing to regard any single area of the earth's surface as uninteresting. Therefore, a student of geology, on arriving at a new locality, should proceed to investigate what he actually finds there. He will be well advised to proceed on the following lines:

(1) Read all available writings on the locality.

(2) Walk over all the country within a day's trip of the camp, and obtain a general idea of its geology, and, if possible, put the distribution of rocks on a chart.

(3) Examine the igneous rocks, and determine—(a) Their nature; (b) their crystallisation and composition as far as it can be superficially observed; (c) the methods and peculiarities of weathering; (d) the nature of soil formed on and from them.

(4) Examine the sedimentary rocks, and determine—(a) Their geological age; (b) component beds and strata; (c) the nature of the sediment of which they were made; (d) the fossils contained, and the strata to which the types are peculiar; (e) the angle and direction of dip and strike.

(5) Examine carefully the junctions of all different types, and determine—(a) Which is geologically the older; (b) whether metamorphism exists, and to what extent it affects either of the adjoining rocks.

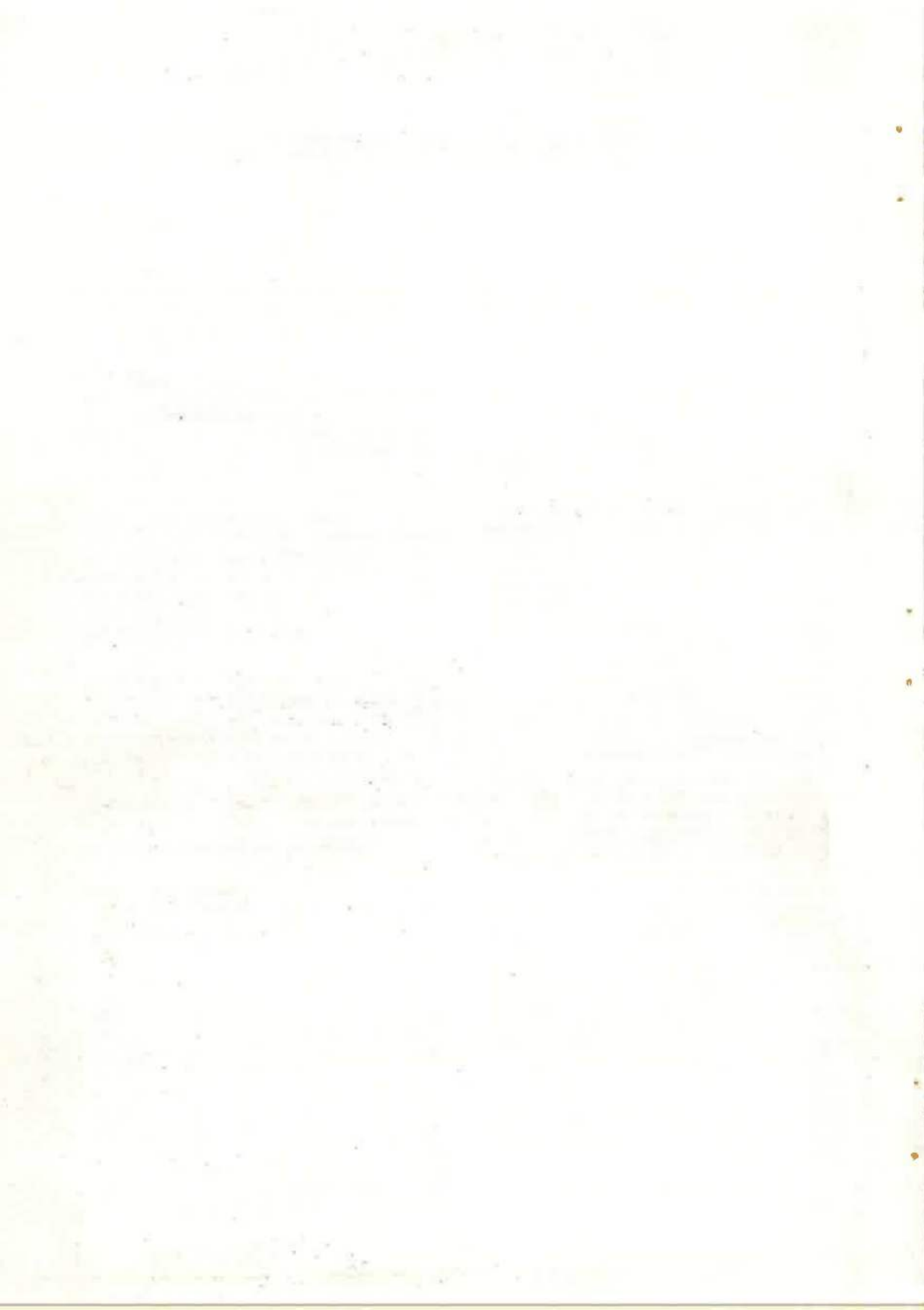
(6) Trace any faults or other structural breaks.

(7) Account for the topography of the region.

(8) Connect the stratigraphy with that of surrounding regions.

(9) Observe any effects of human occupation.

Finally, commit all investigations to writing, and if the locality has been described before, compare your notes with what has been previously written. Then, most important of all, forward your observations to some place where they will be used—to the Geological Survey, or, as a paper to the Royal Society. Many a locality has been investigated by keen observers, whose memory was their only place of record, and many days have been wasted reinvestigating the place years later. The smallest information





THE MOUTH OF THE CREEK.



CAPTAIN COOK'S LOOK-OUT.



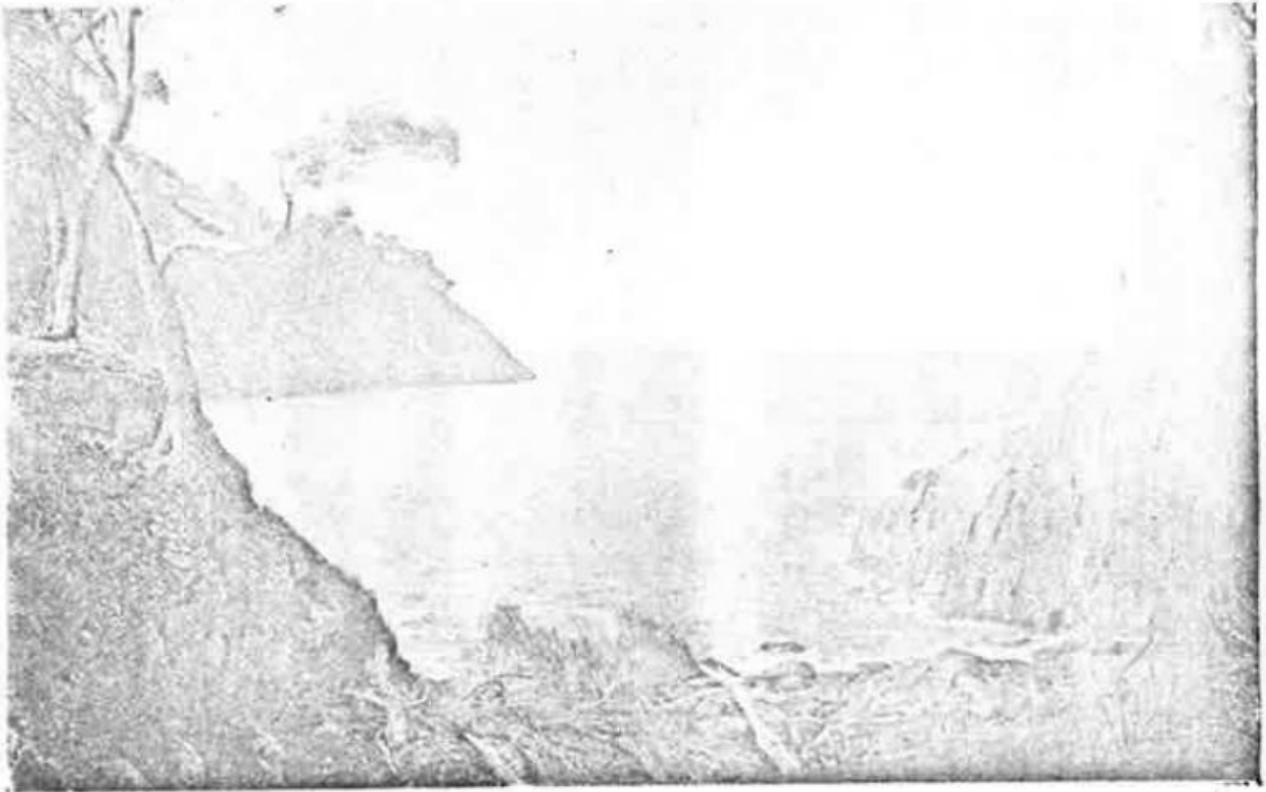
is of use to the man coming later if it is recorded and available. The most elaborate survey is mere waste of time if unrecorded. Of all these observations a geological map is the greatest help to a succeeding observer, and the line in which a student's work will be most readily appreciated.

This locality has been studied in detail in the past, and it was known that a member of the Geological Survey had spent some considerable time on Bruny recently. Further, with only four days for active work, it would be difficult to get beyond heading 2 of my working syllabus above. Nevertheless, members of the club interested in geology had time to observe the general outline of the structure of the country.

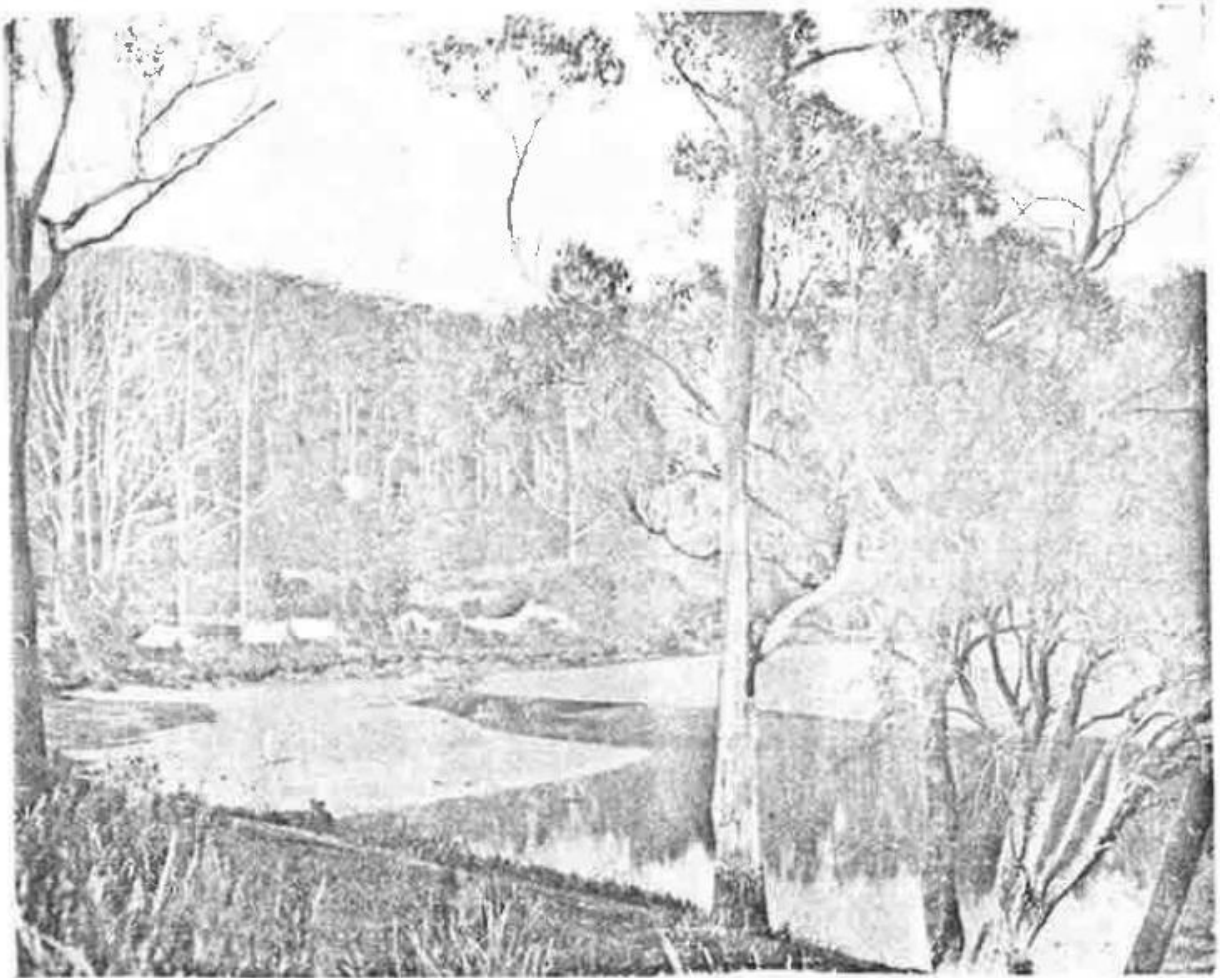
Adventure Bay is terminated at its southern extremity by the bold Fluted Cape. This headland received its name from the roughly columnar formation of the diabase that composes it—a formation exactly corresponding with the well-known diabase outcrops at the Organ Pipes, Mount Wellington, Cape Rabul, and at many spots throughout Southern Tasmania. This diabase belongs to the cretaceous system. It presents the characteristic features of this rock, noticeably the four-sided columnar weathering and deep indentations washed by the sea along joints. This rock stretches south past Cape Conella, along the coast as far as was visited, and underlies the soil of gullies and hills, as far west as Cook's Creek. The diabase also caps the considerable ridge that forms the backbone of South Bruny.

Running along the coast from the neck south to about the jetty at Quiet Corner, then continuing inland in a southerly direction, approximately following Cook's Creek, lies the other formation of the locality, namely, the sandstones and shales of the lower coal measures. These beds run for some distance up the hills to the westward, and probably continue under the capping diabase. They outcrop at a height of 500ft. above sea level, but whether this was due to faulting or represents the actual thickness of the beds the party had no time

to discover. These beds are placed in the Permo-carboniferous system by Mr. R. M. Johnston, who reports the discovery of typical marine shell fossils of this period. None of these fossils could be found by the party. These sandstones have been much eaten away by the sea, and form a series of more or less rugged points, separating small bays stretching from Quiet Corner to the neck. The soft sandstone wears away too evenly to form the more rugged sea features frequently found with the harder gneisses and diabase. But there are some considerable cliffs, and at least one "blowhole" of interest. The cliffs show many line sections of cross bedding and iron markings, and have frequently weathered into fantastic shapes. The material of the sandstone is usually gritty and much coarser than the beds of the Knocklofty series. It resembles closely the prominent band of sandstone that runs through the limestone cliffs at Eaglehawk Neck. At the waterfall a creek has, in running over the bed of sandstone, cut a small gorge about half a mile long and 50 yards wide, and with walls ranging from 50 to 75 feet above the bed of the creek. This miniature canyon now ends in a sandstone cliff, over which the creek falls, and where it is still cutting back into the hills. About half-way between the Neck and Quiet Corner there occurs a bed of shale varying from 50 to 100 feet in thickness, containing the Adventure Bay coal measures. This stretches for about half a mile along the coast, and then is lost owing to the dip of the strata. In the centre of these beds is the coal seam. It is about two feet wide, and of a fair quality. It was worked for about 20 years, ceasing 34 years ago. Three horizontal tunnels were pushed in from the beach, one of which is still discernible. A further shaft was sunk about a quarter of a mile inland. The bed is badly broken by small faults, and the coal has the high proportion of ash only too common amongst the beds of Southern Tasmania. In the shales immediately above and below the coal seam were found masses of fossil leaves and pieces of fossil wood. The species *Gangamopteris* and *Glossopteris* were noticed, but the layers are so full of impressions that it is impossible



A GLIMPSE OF PENGUIN ISLAND.



THE MEN'S TENT AT THE CAMP.

to obtain specimens worthy of exhibit. These beds are only of interest now as an example of the lower (Permo-carboniferous) coal measures, a formation rare in Tasmania. It is associated with the Tasmanite and Mersey coal beds at La-trobe, and the marine mudstones and limestone common through Southern Tasmania.

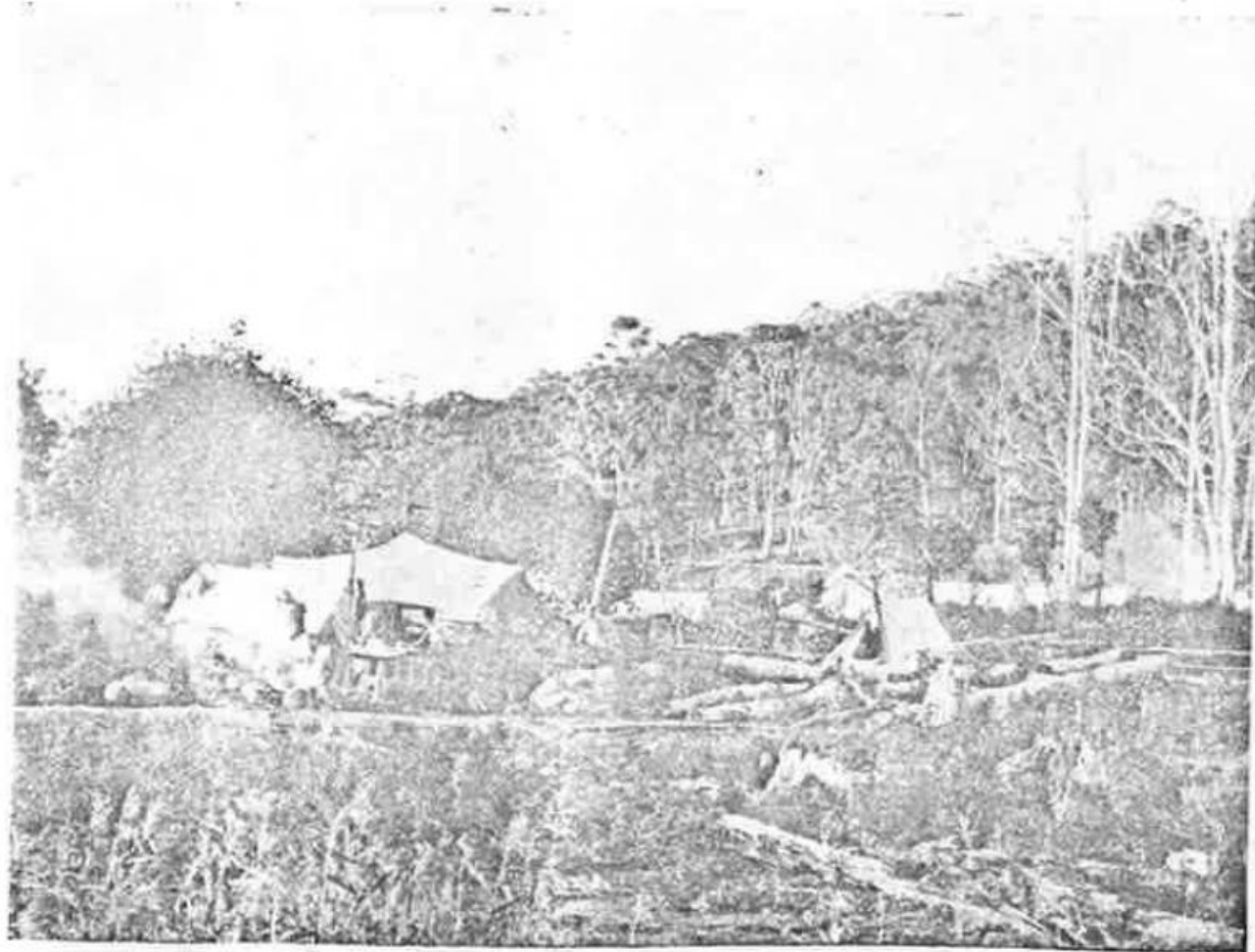
As is usual round our coasts there was ample evidence of camping grounds of the aborigines. Members spent considerable time examining shell mounds, chipping places, and other traces of our extinct Tasmanians. The club was fortunate in having the assistance of Dr. Horne and Dr. Pullen, whose painstaking expositions of various evidences

of aboriginal occupation provided members with great pleasure as well as practical help in their studies. The observations of these gentlemen, although we in no way surrender them from the field of geology, will be recorded elsewhere.

For further information on this locality, including accurate measurements of strata, analysis of coal, and description of the old mine, students are referred to the following works:—

R. M. Johnstone: "Geology of Adventure Bay. Pap. and Proc., Royal Society of Tasmania, 1886."

R. M. Johnstone: "Geology of Tasmania," pages 120-121, and pp. 142-143.

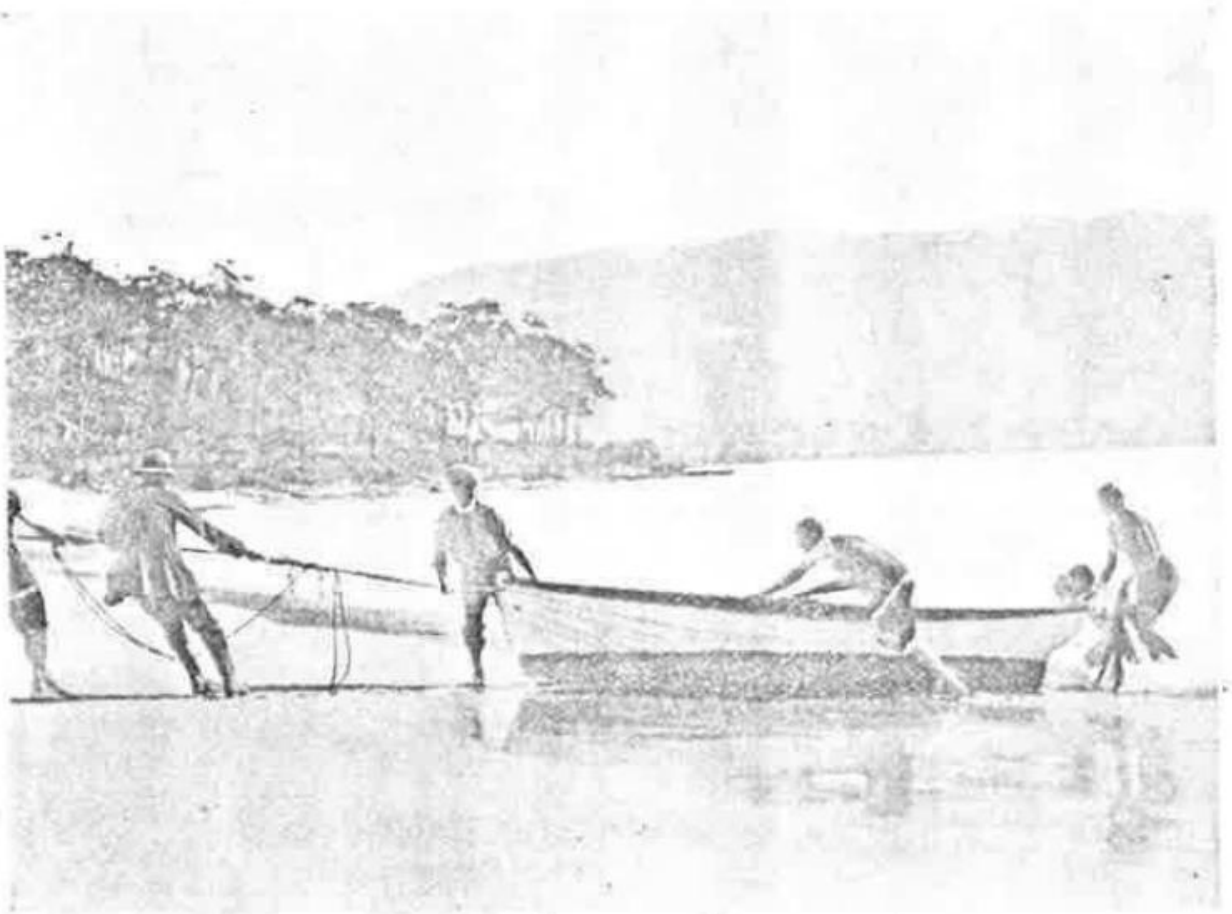


DINING TENTS AND CAMP KITCHEN.





A MIDDAY REST.



BEACHING THE BOAT.

NOTES ON THE MOLLUSCA.

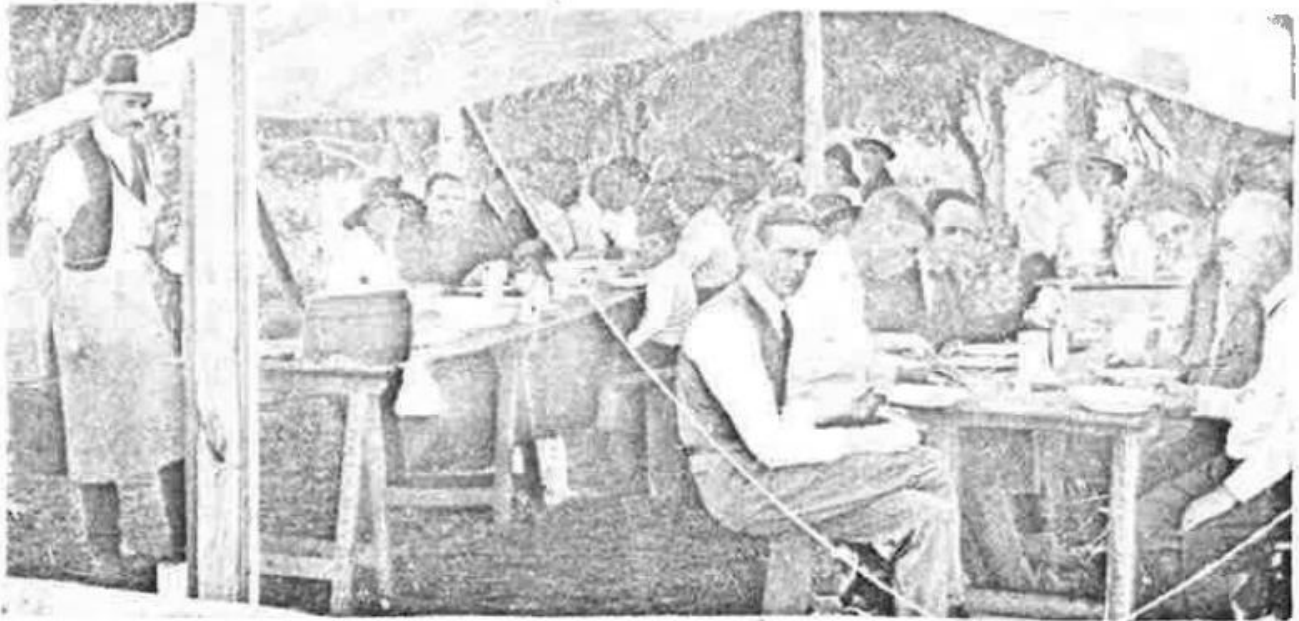
By W. L. MAY.

Considering the reputation that Adventure Bay has as a collecting ground for shells, the result of my research in the vicinity of the camp was somewhat meagre and disappointing. The sandy beaches were especially bare, but this defect would be largely remedied after a heavy storm, when the well-known *Trigonia* is occasionally washed ashore in great profusion, but this is more in the vicinity of the "Neck." Better results were obtained on the rocky shores, but even there were somewhat limited. The *Chiton* family, so largely developed in Port Arthur and other bays, is here reduced to 10 species, and some of them are represented by very few and poor specimens.

The ubiquitous *Chiton pel'is-serpentis*, with its strongly-sealed girdle, was plentiful and well developed, whilst the little black *C. mayii* was not uncommon; *C. subviridis*, and *C. mawlei*, also occurred in some numbers at one spot. The omissions were of more note than the occurrences. For instance the almost universally distributed *C. evanidus* was totally absent, and the common *C. lineolatus* only represented by a few small specimens. As this was an unworked field, and one of the most southerly localities examined for this family in the Common-

wealth, hopes were entertained of new or remarkable forms, which were not realised. The Limpets were more numerous and interesting, particularly two forms which may be new species. These occurred on the smooth dialase boulders to the north of the camp, the most striking being a pure white shell, very flat in shape. It appeared very local in habitat, but may be an extreme variety of the common *Patelloida flammea*. The other form is a conical dark greenish black shell, with a very characteristic interior, possibly another variety of *P. flammea* in the opposite direction.

The three species of *Siphonaria* were also found living together at this spot. As the result of the outing I am able to add one described species to our fauna, viz., *Triphora gemmigena* Verco, taken from a dead kelp root that lay on the beach. Previously this was only known from South Australia. It may be recorded that residents of the locality possessed several fine specimens of our largest Tasmanian shell, *Voluta Mamilla*, taken on the adjacent beaches. Some were upwards of a foot long. There was also a specimen of our fine Cowrie *C. armenaica verco*—*C. umbilicatus*, which is, I believe, the most southern record, as is also the case with the *Volutes*.



THE DINING TENT.



AFTER BREAKFAST AT THE CAMP.



PREPARING TO DEPART.

ZOOLOGICAL NOTES.

By CLIVE E. LORD, (Curator of the Tasmanian Museum.)

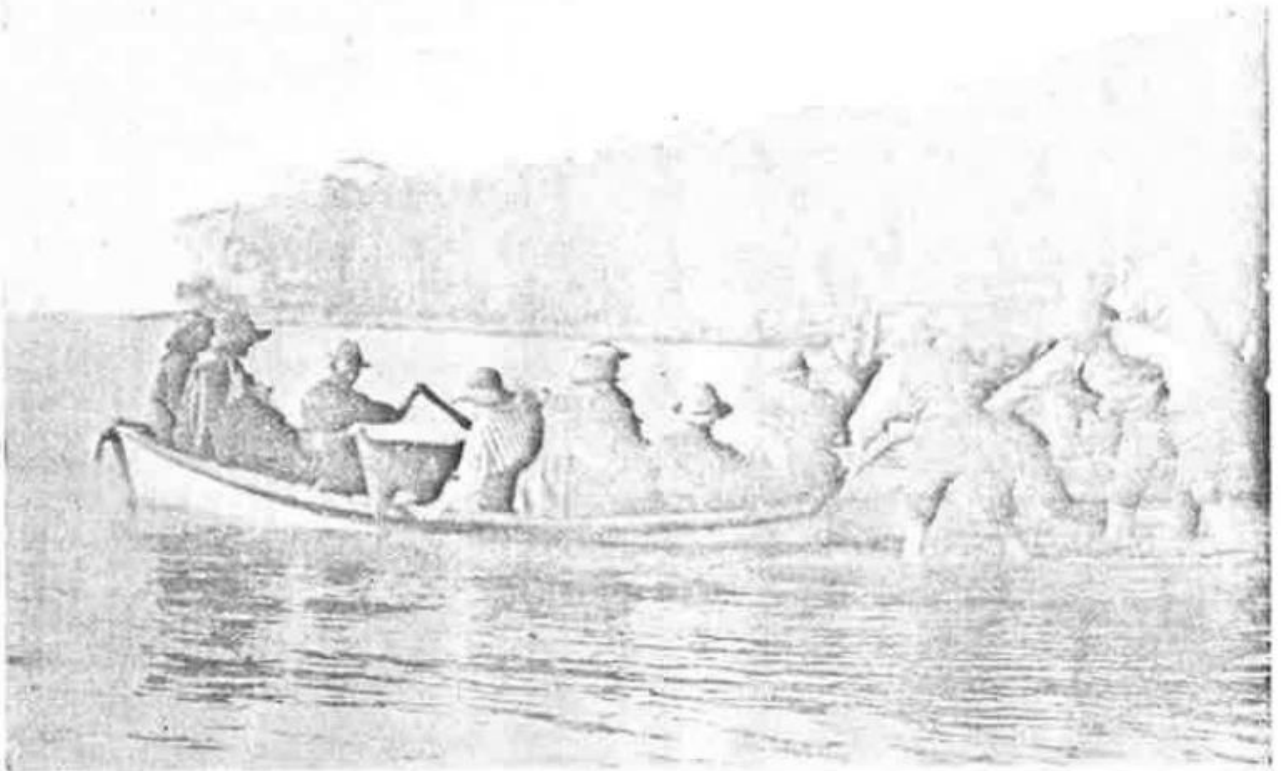
The near vicinity of the camp to areas that had become cleared for settlement served to decrease the variety of species that were available for observation. The historical associations of the locality, however, served to make up for any deficiency in this respect, as it was in Adventure Bay that many of the first observations covering the peculiar fauna of our island were made. It must be remembered, however, that at the time when the naturalists of the early expeditions of discovery were doing their collecting. Tasmania, or, as it was then called, Van Diemen's Land, was considered part of the mainland of New Holland. The name Australia was not given until many years after the first settlement. This explains why so many of our animals have the specific scientific designation of *Novae-hollandiae*.

As we roamed in search of specimens, therefore, one could not but recall to mind the fact that we were searching amid the early hunting grounds of some of the pioneers of Tasmanian zoology. In this same locality, almost a century and a half ago, such naturalists as Forster and Peron had come ashore from the staunch old sailing vessels that were anchored in the bay, and had spent days collecting the peculiar animals of the great south land. Their collecting work was often carried out under difficulties. Apart from the initial difficulty of collecting in rough, virgin country, clothed for the most part in thick scrub, the naturalists experienced much trouble in the work of preparing and preserving their specimens. In the old exploring ships of three or four hundred tons, there were none of the convenient appliances for scientific research, with which modern vessels of this class are fitted, and the wonder is that these enthusiastic collectors of the early days were able to do the extent of research and collecting work that they did. Certain of the specimens collected in the early days are of great interest. As an example, it might be mentioned that Furneaux's expedition, among other

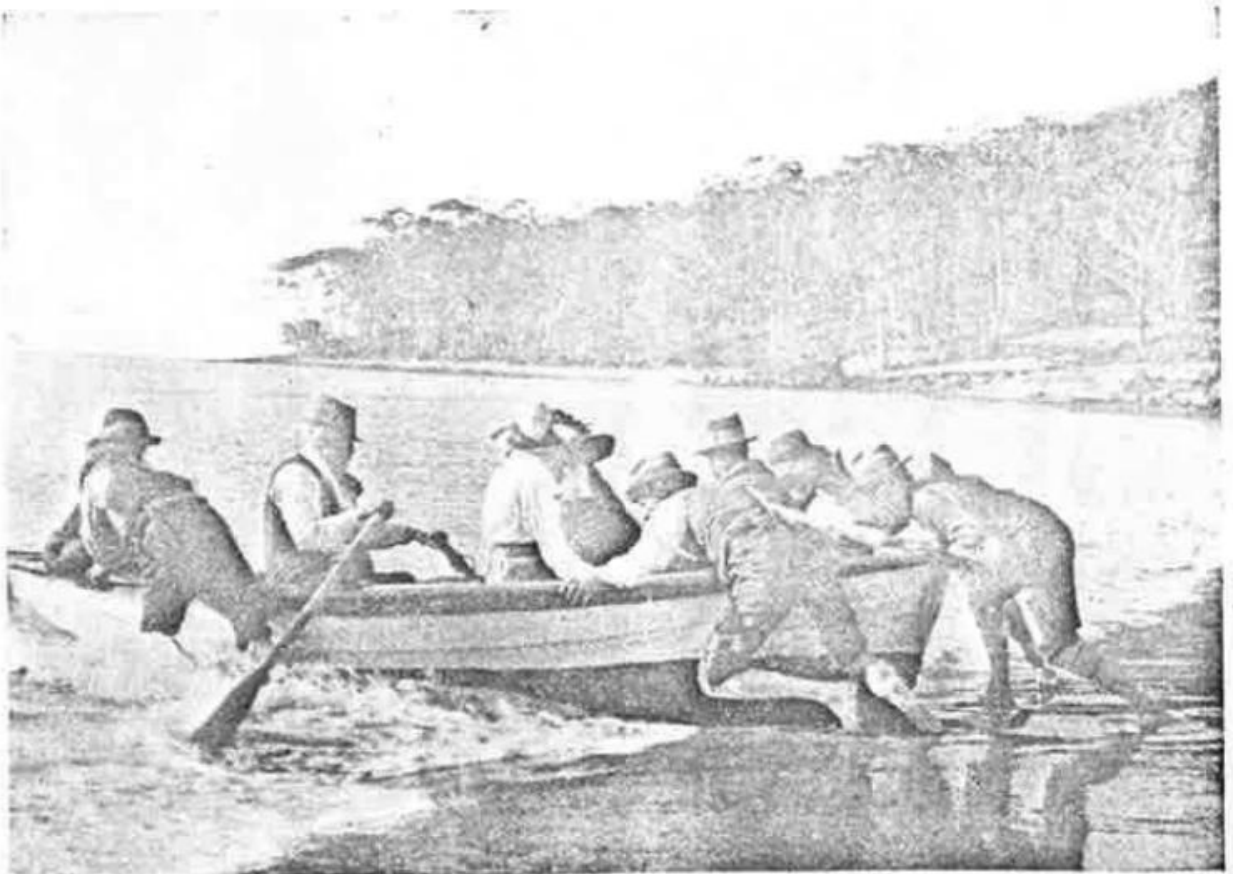
things, secured a specimen of a Crested Penguin at the island which still retains the name Penguin Island, as a result of the zoological researches of the British visit in 1773. Four years later, during Captain Cook's visit, specimens of the ring-tailed opossum were secured. It might be mentioned here that the term opossum, like so many of the names given to examples of our fauna and flora, is in reality a misnomer. The true opossums (*Didelphyidae*) are inhabitants of America, and only bear a superficial resemblance to the Australian animal, for which the term phalanger is more correct than opossum, though it is extremely doubtful if the latter term will ever be replaced. The early investigators of our southern land had the habit of calling our animals and plants—as far as vernacular names go—by the same names as had been given to somewhat similar species in the Old World. The difficulty, however, lies in the fact that the similarity is superficial only, as the fauna of the Notogaean realm is very distinct in character. So much so that Australia had been termed the "Fossil Continent" owing to the fact that in this realm are found living species which, in the Old World have long since become extinct and now provide matter for geological research.

In Bligh's log, under the date February 7, 1792, appears a reference to the capture of an *Phidna* or Porcupine Ant-eater. This animal evidently interested the ship's company, as a detailed description is given as follows:—"Lieutenant Guthrie, in an excursion to-day, killed an animal of a very odd form. It was 17in. long and the same size round the shoulders, to which a small flat head is connected so close that it can scarcely be said to have a neck. It has no mouth like any other animal, but a kind of a duck bill 2in. long, which opens at the extremity, where it will not admit above the size of a small pistol ball. The tongue is very small. It has four legs which carry the belly about an inch or two from the ground,





THE DEPARTURE.



OFF TO THE STEAMER.

and on each foot it has three very strong claws an inch long, and two about a quarter of an inch. On the hind feet it has the same number, but they resemble more the thumb and fingers of a hand, except that the fore claw is the longest and curved. The eyes are remarkably small and lie just above the beak. It has no tail, but a rump not unlike that of a penguin, on which are some quills about an inch long, as strong, and as like those of a porcupine. These quills, or prickles, are all over its back amidst a thick coat of rusty brown hair; but the belly is of a light greyish colour. The skin is remarkably white." The description is of interest, because it is the first record we have of the capture in Tasmania of a specimen of the Monotremata, the strange class of egg-laying mammals found only in the Australian zoogeographical province.

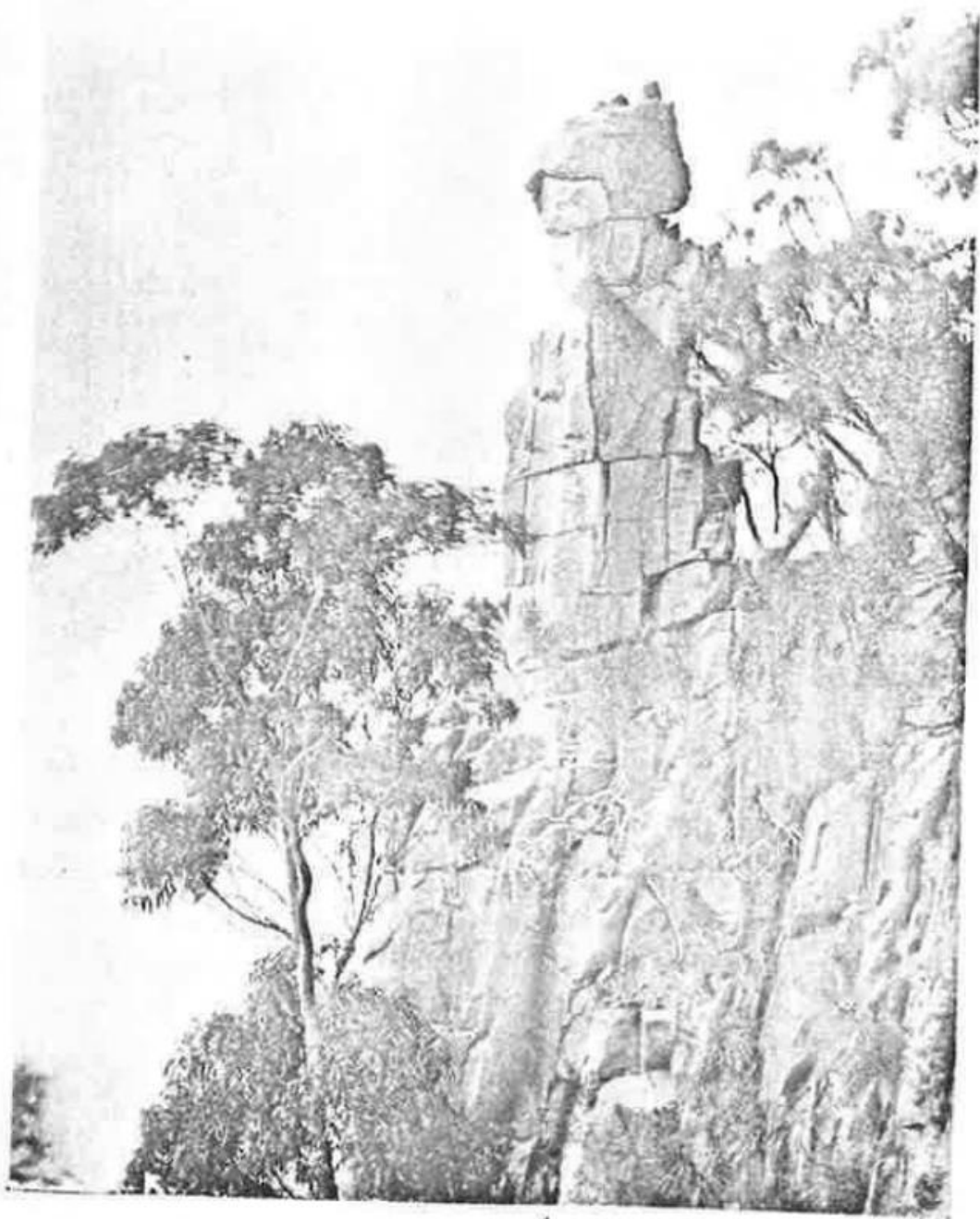
Owing to the settlement which has taken place in the locality, many species have become rare, or have departed altogether for less frequented portions of the island. Hardly any of the large marsupials were seen. As regards the reptilian fauna, the most noticed member was the tiger snake (*Notechis scutatus*), a species which always has attention paid to it, even from those who are not interested from the biological standpoint. Numbers of small lizards (*Lygosoma*) were also observed.

The bird life was not noted for its variety. Honeyeaters (*Meliphagidae*) were common, and the notes of the wattle-birds were always heard amid the ankias around the camp. Apart from oral evidence, the most common representative of the above-mentioned family, appeared to be the crescent honey-eater (*L. australasiana*). Occasionally small flocks of the green parrot (*P. flaviventris*) were also seen, as well as other members of the *Psittacidae*. The homely robins (*Petroica*) were in evidence as usual, as well as the blue wrens (*Malurus*). Around the shores, the ever present silver gull (*L. novae-hollandiae*) was to be seen in flocks, together with a few Pacific gulls (*G. pacificus*). Either resting on the rocks or fishing in the bay, several species of cormorants (*Phalacrocoracidae*) could always be observed, whilst overhead a pair of sea eagles (*H. leucogaster*) patrolled the arc of the bay in search of such food as had been thrown up on the shore. Further out the gannets (*S. australis*) wheeled aloft and dived with great force in pursuit of fish, and the small penguins (*Edyptula*) swam about in search of minor fly.

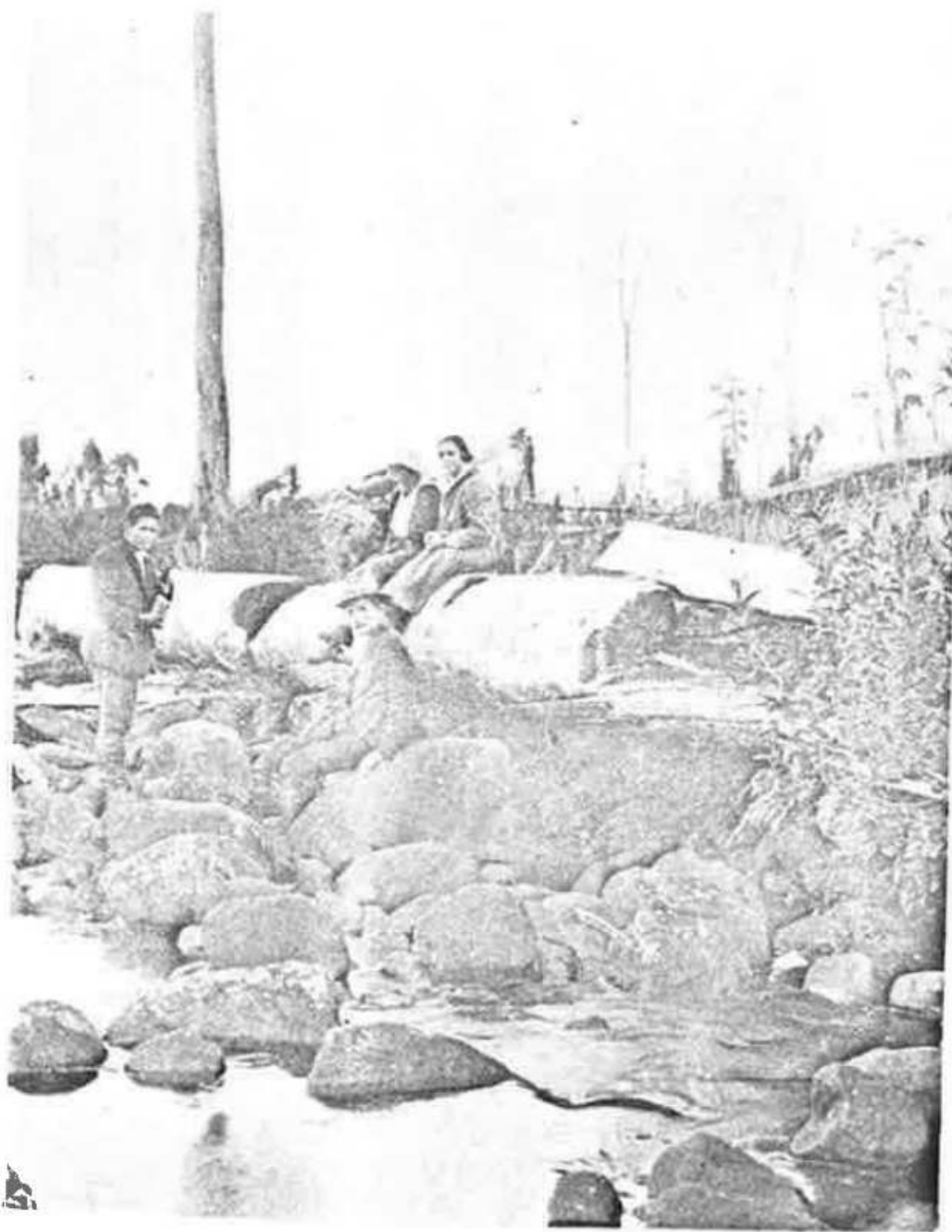
Many other forms were seen, and specimens were secured of some interesting examples of the lower orders, but in an outline account such as this space prohibits a detailed description.



THE REMAINS OF "CAPTAIN COOK'S TREE" AT ADVENTURE BAY.



NEAR CAPE CONNELLA.



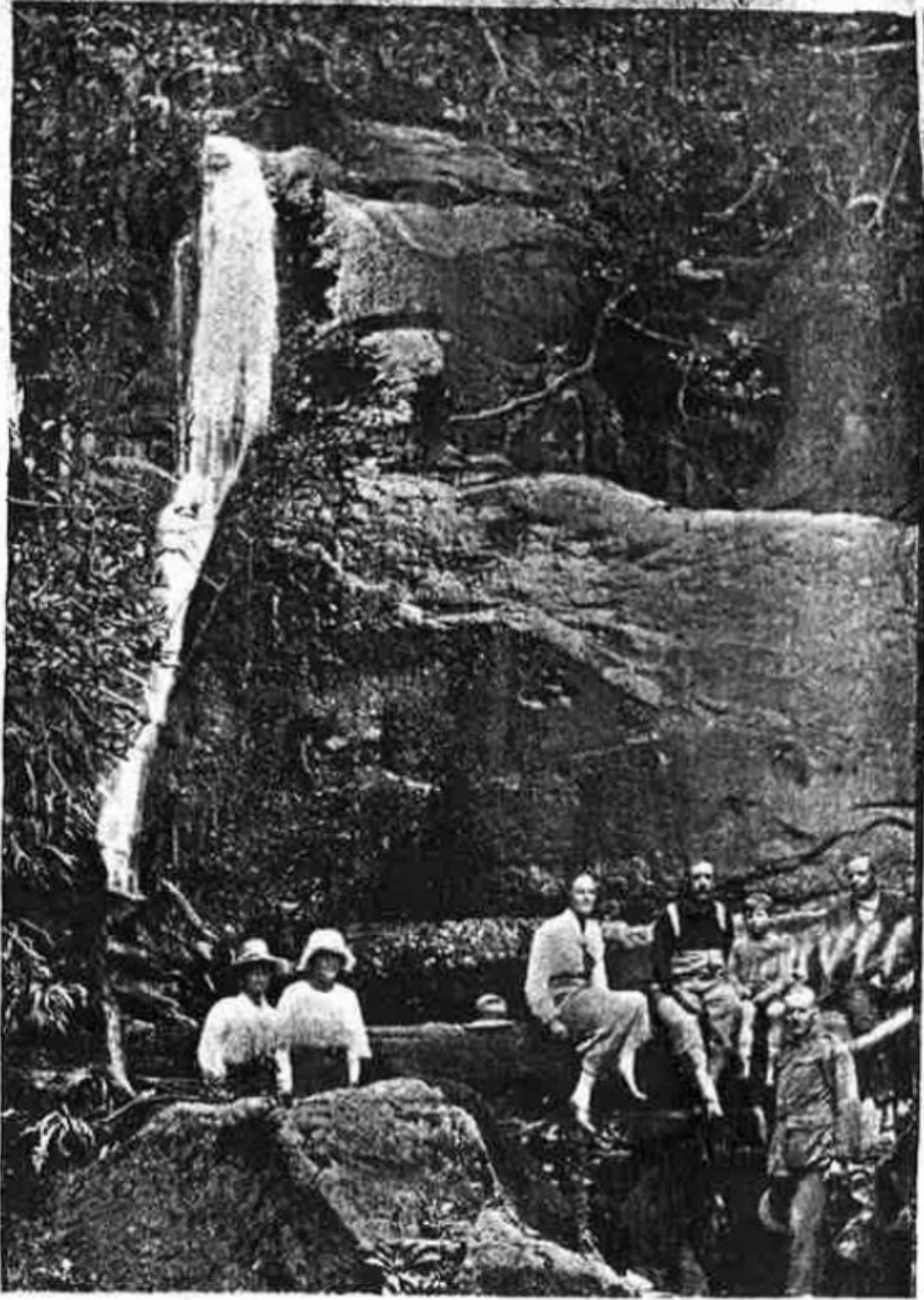
A REST BY THE WAY.



LUNCH AT PENGUIN ISLAND.



DR. R. H. PULLEINE, ADELAIDE.



AT THE MAVISTA WATERFALL.