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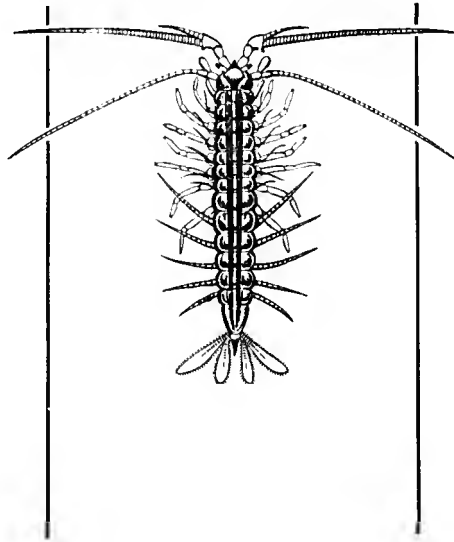


NEW SERIES Nos. 11-20



1959-1965

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Edited by
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RECORDS OF THE QUEEN VICTORIA MUSEUM, LAUNCESTON

THE COASTAL GEOMORPHOLOGY OF KING ISLAND, BASS STRAIT, IN RELATION TO CHANGES IN THE RELATIVE LEVEL OF LAND AND SEA

By

J. N. JENNINGS

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ABSTRACT

The solid geology and general relief of King Island are outlined as a background to a regional presentation of the coastal geomorphology from which conclusions about the physiographic history are derived. From the east coast there are rather slight indications of a 225-ft. sea-level stand and stronger evidence for one at 120-150 ft. from the same area. Whether these emergences affected the whole island uniformly cannot be determined. Later and lesser emergences did so and correlation with N.W. Tasmania suggests they may have been eustatic in character. Widespread constructional and erosional features of the Old Shoreline System give evidence of a falling sequence of levels from 65 feet down to the present level with most marked halts at 40-50 feet and 20-30 feet. They are provisionally inferred to belong to the Last Interglacial. The Old Dunes formed during this time. When the sea level stood at 30-50 feet, the climate was probably slightly warmer, but plant remains from a deltaic deposit indicate that, by the time the sea level had fallen to the present level or below it, the climate was very similar to that of today, perhaps slightly wetter or cooler. In the subsequent Last Glacial Period the former sea cliffs were degraded by subaerial weathering, probably aided by frost action. A few features point to lowered sea levels which may relate to this period. In the Holocene the New Dunes have formed, probably beginning before sea level had risen as high as the present level but continuing to form right down to today. The associated New Shoreline System is considered to relate to a Mid-Recent 10-ft. sea-level stand and the emergence from it. So far no evidence of climatic variations in the Holocene is to hand.

INTRODUCTION

Within an area which permits the whole shoreline to be examined conveniently, King Island possesses a good variety of coastal landforms, both erosion and constructional, though there are the drawbacks of the lack of a topographical survey of the island and the survival of thick scrub over some critical parts. In connection with black sands deposits, S. W. Carey began a study of the north-east coast between Naracoopa and Lavinia Point; in 1954 and 1955, the present writer did further work in this sector and extended it to the rest of the coastline. Certain aspects of the coastal geomorphology have already been discussed (Jennings, 1956, 1957a, 1957b). Incidental comments (Jennings (1955) have been made on the relationship of some of the constructional shorelines to available fetch, wave and wind regimes; it is clear that these need revision in relation to recent work by J. L. Davies (1959). This will not be undertaken here and only such references to these special aspects as are necessary to the present purpose will be made. That purpose is to present a general picture of the coastal physiography whereby changes in the relative level of land and sea can be assessed.

Strip maps of all significant geomorphological detail, prepared under the stereoscope from 1/15,000 vertical air photo cover, were amended in the light of field work when the whole coastline was examined on foot. These strip maps were consolidated into a six-sheet map of the whole island, using a framework of points enlarged from the Lands Department cadastral plan on a scale of two inches to one mile. The various maps illustrating this paper were reduced from this compilation.

The absence of any triangulated heights or bench marks was a serious handicap. Heights were mainly established by aneroid traverses running inland from HWM and returning to it after a short interval to enable corrections to be made. Only with the lower features close to HWM could this method give an accuracy greater than ± 5 feet. A few short traverses with hand level were made and in addition four lines, varying in length from one-third of a mile to seven miles, were levelled with a Kern GK-1 Level at critical localities. Similarly, hand borings were put down at selected important places.

Height observations were related to HWMOST because this is the datum most easily recognized on the shores of King Island; Fairbridge and Gill (1947) have advocated the use of LWMOST but this was not practicable in this study. Tidal data for King Island are meagre. Admiralty Chart 404 gives a spring rise of 3 feet for Seal Bay, Franklin Road and Councillor Island (Sea Elephant Rock); this seems rather low in relation to local observations. Records kept for several years at Currie by Mr. C. Richardson have an average range of spring tides of 5 feet. Mr. J. Skipworth is of the opinion that the same figure is applicable to City of Melbourne Bay. At Naracoopa tidal measurements kept between 15 May and 15 June, 1952, by Mr. W. Lightfoot, ranged from between 2 ft. 6 in. and 5 ft. 9 in. On this basis the tidal range for King Island generally is taken to be 5 feet at springs and 3 feet at neaps.

Collections of mollusca (Appendix II) were identified by Miss J. M. Macpherson (National Museum of Victoria); Mr. A. C. Collins examined a number of samples of foraminifera (Appendix III); Dr. S. Duigan (University of Melbourne) dealt with microflora from a deposit which also yielded wood specimens identified by Mr. H. D. Ingle of C.S.I.R.O. Forest Products Division (Appendix I); Miss I. Crespín examined a Tertiary limestone. The collaboration of these specialists is gratefully acknowledged.

Mr. E. D. Gill (National Museum of Victoria) has kindly arranged for the C-14 dating of the wood mentioned above. Dr. M. D. Garretty placed boring records and other data relating to the black sands at Sea Elephant Bay at our disposal. Many King Islanders, too numerous for all to be mentioned here, gave invaluable help in all sorts of ways. Mr. Jack Skipworth, of City of Melbourne Bay, Mr. O. H. Drake, of Pearshape, and Mr. D. Bowling, of Surprise Bay, and their families, require my particular thanks.

Finally, I must pay a special acknowledgment to Professor S. W. Carey, of the University of Tasmania, who introduced me to King Island and made available to me his mapping of the north-east coast.

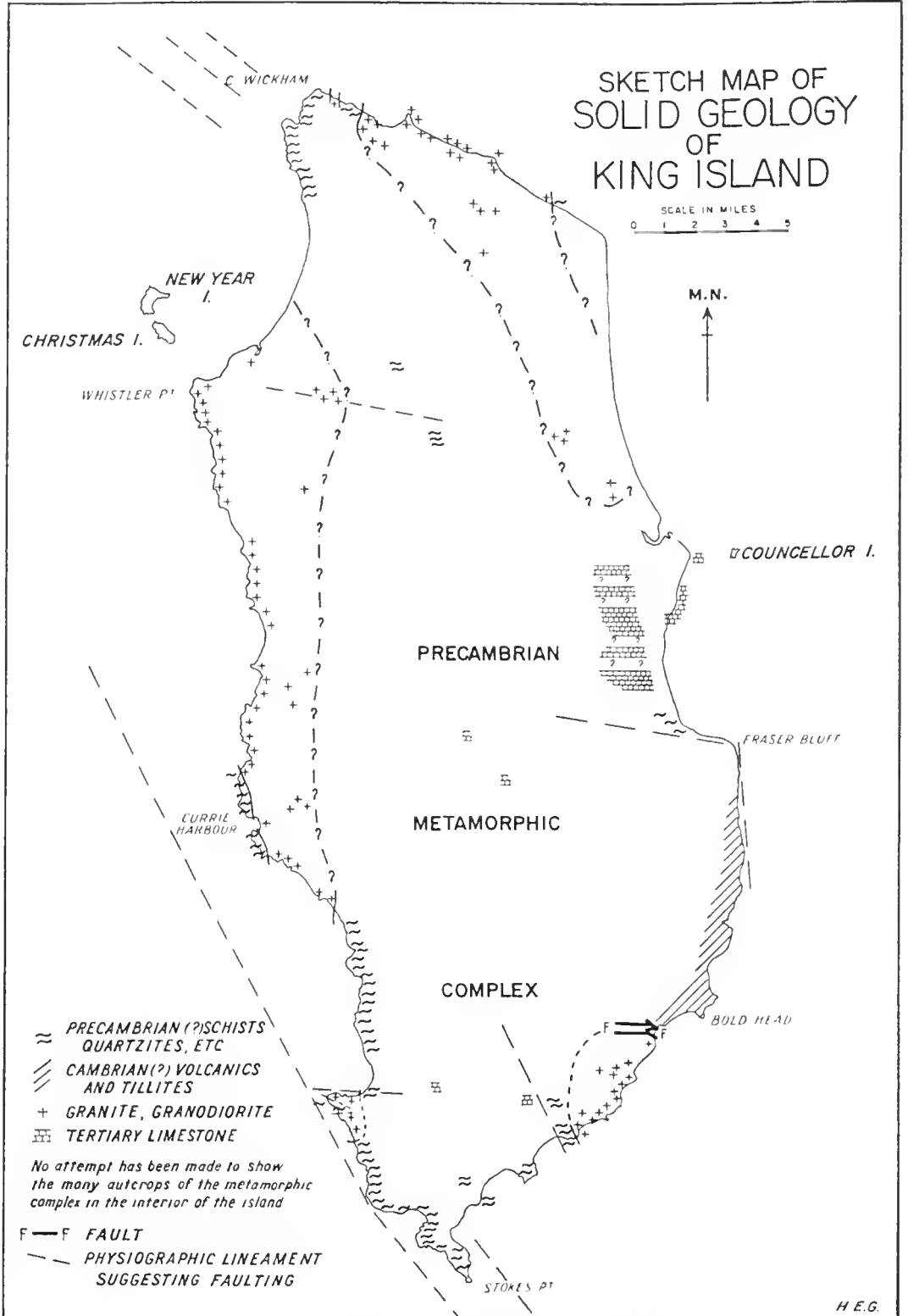


FIG. 1.—Sketch Map of Solid Geology of King Island.

OUTLINE OF THE SOLID GEOLOGY.

Since much of the island is covered by Pleistocene and Recent superficial deposits, the solid geology is not well known. Fig. 1 is based on published material, together with some observations made during this study.

Underlying most of the island and outcropping over the high country of the centre, south-east and south-west is a folded metamorphic complex of uncertain age but generally thought to be late Precambrian (Carbine Group). Debenham (1910) lists the following rocks: quartzites, slates, phyllites, various schists, granulites, porphyroids, and conglomerates. In general the dips are high and the strike never far from N-S.

Between Naracoopa and Grassy the complex passes upward into a series of glacial and volcanic rocks, dipping east at 40°. Tillite and banded dolomite occur at the base of the series and are overlain by a thick suite of lavas, with subsidiary breccia and tuff. The series is late Precambrian-Cambrian in age; Carey (1946) and Scott (1951) have suggested correlation of these volcanics with similar ones of Upper Middle Cambrian age in the Dundas Group at Zeehan. It is these rocks which give rise through contact metamorphism to the Grassy Series of hornfels, calc-flints and marble, in which occur the ore bodies of the Grassy scheelite mine (Edwards, Baker & Callow, 1955). The strike here is W-E and the dip to the south is in association with the local faulting.

Acid plutonic rocks, probably of the Tabberaberan Orogeny, intrude the basement complex. The limits of the Grassy granodiorite with much pink orthoclase and little biotite are the best known (R. Callow, personal communication). On the west coast grey biotite granite is more extensive than has been mapped previously. The Cataraque Point granite is small in area and is interrupted by a septum of metamorphics on the southern flank of the point itself. It is the southern end of a long belt of granite running from Admiral Bay to Whistler Point. Granites in Camp Creek, in bores north of Currie aerodrome, in Porky Creek, in a quarry east of Pearson's Swamp and near the North Road where it drops to the Yellow Rock R. plain, suggest that this belt is a broad one.

On the north coast, though there are gneissic granites in the basement complex farther west, the main mass of granite begins on the western side of Disappointment Bay. All outcrops of solid rock eastwards, both along the coast and in the low hills inland of the dunes are granite until a contact is made with slates at the small headland north of Pennys Lagoon. Since granite outcrops around Mt. Counsel and at the great bend in the Sea Elephant River, it is possible that the north coast granite extends southwards as an important belt as suggested in the map.

Restricted occurrences of Tertiary limestone alone serve to tell something of the long geological history from these old rocks down to the Pleistocene. The chief outcrop known is at The Blowhole, four miles north of Naracoopa, where horizontal bryozoal limestone occurs as a shore platform, riddled by solution to give rise to small blowholes

(B. Spencer, 1888; Chapman, 1912). The rock can be traced a quarter of a mile up to the bed of the Blowhole Creek and half a mile northwards along the shore at LW. Seaweed patterns indicate that the limestone reaches underwater right to Cowper Point.

Superficial deposits obscure the inland extent but, running north from the Fraser River, a little behind the coast, there is a strip of country about one mile wide with a photo pattern dominated by swamp hollows of circular to oval plan. In the field these are seen to have flat peaty or clay floors depressed 2-3 feet beneath the flat sandy plain around. They seem to be sinkholes due to solution of Tertiary limestone below. The belt certainly reaches to the Sea Elephant River but beyond that there are many more dunes and these supposed sinkholes cannot be confidently distinguished in the photos from the axial hollows of old parabolic dunes. The sinkhole strip lies approximately between 50 and 90 feet above the sea.

Some way up the Sea Elephant River valley in the middle of the island, Tertiary limestone has been met in a well in the Avondale property: it has been met again in a Rural Bank Land Settlement bore nearby. Crespin (1944) attributes the first occurrence to the Balcombian (Middle Miocene). The altitudes are unknown but may be as high as 200 feet.

Debenham (1910) and Chapman (1912) reported bryozoal limestone at an unknown altitude along a tributary of Seal River less than a mile north of the Big Swamp; the fossil content did not permit dating within the Tertiary. In a well on Mr. O. H. Drake's property, about half a mile SE of Pearshape Lagoon and approximately at 250 feet, a bryozoal limestone was encountered 4 feet down; Miss I. Crespin (Bureau of Mineral Resources) reported that a sample was of Miocene age.

GENERAL DESCRIPTION OF THE RELIEF

The relief of the island has been described in general terms already by Debenham (1910) and Stephens and Hosking (1932). Aneroid traverses along some of the roads and tracks across the island permit a rather fuller account here, necessary in the absence of a topographical survey.

In essence, King Island (fig. 2) consists of an inclined plateau of subdued relief, surrounded by a rim of coastal sand dunes. The highest part** of the plateau, rising to 550 feet, is in the SE between Mt. Stanley and Naracoopa. Here the surface is gently rolling with low hills of convex profile rising above swamp flats. Its aspect conforms well with the Davisian concept of a peneplain of normal erosion but it cannot be assumed that the surface developed under humid

* B. Spencer confused Pleistocene-Recent aeolianite with Tertiary marine limestone so that not all his localities for the latter can be accepted.

** Mount Stanley, lying near the track running south from the Loop Road to the Red Hut headland, rises little above the surrounding plateau. Though reputedly the highest point in the island, it is (with an approx. altitude of 500 feet) definitely lower than two more pronounced hills rising to approximately 550 feet just north of the Forestry Reserve at the southern junction of the Grassy and Loop Roads.

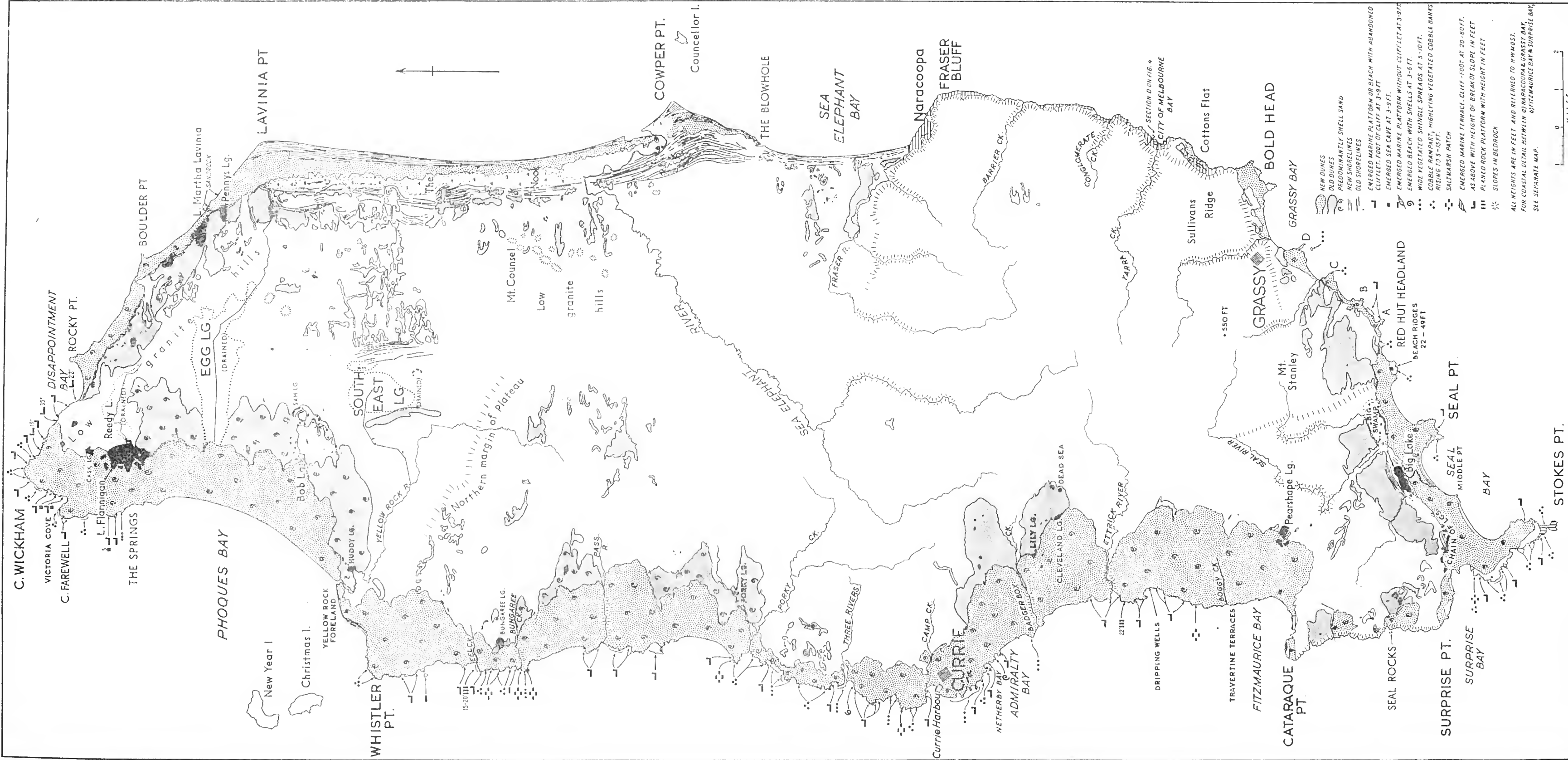


FIG. 2.—Coastal Geomorphology of King Island.

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temperate climatic conditions, since it carries small residual patches of lateritic ironstone (Stephens & Hosking, 1932; Hubble, 1947).

The rolling country runs north to the Pegasus road between Currie and Naracoopa, where the hills hardly reach 400 feet. East of this drainage divide, the plateau remains high right to the coast. Grassy township has a height of 430 feet within half a mile of the shore; Sullivan's Ridge, beyond Grassy Creek, is 450 feet high close to the coast and, even at Fraser Bluff, the plateau lies at 250 feet. Because of this, the creeks here are sharply incised: Grassy and Yarra Creeks for about two miles from the coast, Conglomerate Creek and Barrier Creeks for about a mile.

South of Grassy, the plateau margin runs inland to leave lower country diversified by rounded granite hills between itself and the coastal dunes. A fairly high ridge, however, runs south from the Mt. Stanley area to the granite hills near the Red Hut headland. The steep western scarp of this connecting ridge is continued north towards the northern junction of the Grassy and Loop Roads to form a marked linear western margin to the high plateau. From the northern end of this scarp, high ground at about 250 feet extends SW through Pearshape into the lower plateau behind the Cataraque Point-Surprise Point coast. This small plateau slopes gently eastward to enclose a lowland embayment between itself and the ridge to the Red Hut headland. In descending to this embayment the Seal River develops some incised meanders.

In the north-east, the high plateau ends abruptly in a steep scarp which extends some five miles west-north-west from Fraser Bluff and is markedly incised by north-north-east draining streams.

Towards the north-west and west, however, the plateau declines gently in height. As a monotonously level surface it reaches northwards to a WNW-ESE line about a mile south of the Yellow Roek River; here it is 100-150 feet high and falls off moderately steeply to the plains of Yellow Roek River and South-East Lagoon. Mount Counsel stands out from the general plateau level at its north-east corner; south to the Fraser River there is not a very clear eastern margin to the plateau.

The westerly drainage, such as the Ettrick River and Porky Creek, has not cut down much into the plateau since the latter is in fact falling in that direction.

This western flank of the plateau from Fitzmaurice Bay to Cape Whistler is buried beneath a broad belt of dunes, much of which is two to three miles wide. They are generally higher south of Currie, but this is mainly due to the greater height of the basement there. Thus, a little south of the Kentford Road, a dune was ascertained to have a height of 450 feet, but the sand thickness here was probably only about 100 feet. North of Currie it is unlikely that the dunes anywhere exceed 250 feet in absolute height; the highest ones occur just south of Pass River and at Whistler Point. Beneath the coastal dunes the plateau surface declines in height so that the bedrock is below sea level on the coast or, at

most, 20-30 feet above. There are, however, outcrops at 50-100 feet just south of Whistler Point close to the coast. These suggest that the rather high dunes of Whistler Point may have gathered around granite hills rising above the general basement of country rock. Valleys in this basement also are discernible beneath the obscuring blanket of sand, e.g., east of the Dripping Wells and along Boggy Creek (Jennings, 1956).

North of Whistler Point to Mt. Counsel, the solid rocks are almost everywhere beneath young superficial deposits and are probably below sea level over most of the area. There are the exceptions of the low granite hills arranged WNW-SSE behind the coastal dunes from Disappointment Bay to Lake Martha Lavinia. The lowest country of this northern end of the island is in the centre where there are extensive flat plains underlain by young estuarine sediments, parts of which are covered by the peaty soils of former shallow lakes and swamps—Reedy Lake, Egg Lagoon, and South-East Lagoon. This depressed interior is surrounded by a rim of coastal dunes so that one can look right across the island from the dunes of the one coast to those of the other. The west coast dunes are broader and higher, probably reaching to 250 feet west of Lake Flannigan. Elsewhere the Three Sisters, conspicuous dunes south-east of Roeky Point, are the highest and do not quite reach 200 feet, though they are of sand right down to sea level.

It is only necessary to note in general terms the effects of the coastal dune rim on the drainage of the island (see Jennings, 1957a, for details). Some rivers have maintained their courses through the dunes as these were built up and in this way "gorges of construction" have developed with steep walls of dune sand. Thus, Debenham says the Ettrick Gorge is as much as 250 feet deep. Other rivers have had their mouths deflected, most noticeably in the case of the Sea Elephant River, where it amounts to a deflection of two miles. Damming of drainage by the sand dunes has led to extensive swamps and lakes. Thus, Pearsons Swamp, an area of deep peat now drained, occupied the part of the Bungaree Creek drainage inside the dunes. The Seal River and its major tributary enter the Big Swamp behind the coastal dunes. The drainage is deflected westward into Big Lake from which the river winds deviously through the dunes to the sea. In other places surface drainage has been completely blocked and has been replaced by underground seepage through the dunes. This is best exemplified now by Lake Flannigan, but the more extensive Egg Lagoon formerly drained westward through the high dunes there, though it is now drained artificially to The Nook and Sea Elephant River.

Little can be said of the age of the major relief features of the island. Debenham regarded it as being a horst but there is still no positive evidence of young faulting to hand. However, the physiographic description given does fit in with the conception of an old peneplained surface, fractured along two sets of trends (fig. 1) and tilted down to the north and west. Laterites of various dates are known on the Australian main-

land. Nevertheless, widespread laterization seems to have belonged to the middle or early Tertiary and the ferruginous bauxites of the Launceston district are pre-Miocene (Carey, 1947). Provisionally, the King Island surface, with its lateritic ironstones may be regarded as Mesozoic-lower Tertiary in age. If all the Tertiary limestones belong to the one Miocene formation, the occurrence of thin limestone outcrops on top of the plateau as well as on what seem to be downthrown blocks suggests that the dislocation was later than this transgression. In central Tasmania, although the major Tertiary movements preceded the Miocene lacustrine sedimentation, later faulting is known (Fairbridge, 1948).

THE DUNE SYSTEMS (Fig. 2)

A regional description of the coastal features significant for the purpose of this paper is given below, but it will facilitate that description if the dunes are considered as a whole at this stage, since they exhibit a common general pattern and the emerged shoreline features are intimately and significantly associated with them. The dunes fall clearly into two major systems designated the Old and the New Dunes.

The New Dunes form a more continuous rim around the island. Though for the most part fixed dunes, they retain everywhere a vigour and freshness of relief which betokens little change in their forms since that fixation by vegetation. For the most part they consist of parabolic or U-dunes in all stages of development ("elongate" and "windrift" dunes of Melton (1940); "transgressive" dunes of Gardner (1955)). The parabolic dunes may occur in open pattern or complexly associated, often nested one within another. Simple conical dunes occur occasionally, probably residuals from parabolic dunes. The axial trends of the parabolic dunes have been examined in relation to wind regime elsewhere (Jennings, 1957b). Suffice it to say here that on the west coast the dunes generally advanced WSW-ESE but, in accordance with varying aspects of the shore, ranged from SW-NE to WNW-ESE, whilst the general trend on the east coast was from E-W, again varying with aspect from NE-SW to SE-NW. The inland margin of the New Dunes, often lobate in consonance with parabolic dune pattern, is almost universally such a steep and continuous one that their limit is readily discerned both on the ground and in air photographs.

In constitution they exhibit a simple distribution pattern. The west coast New Dunes are predominantly calcareous, ranging from completely unconsolidated creamy-yellow shell sand with a minor proportion of quartz sand to a typical aeolianite which exhibits its usual variable degree of consolidation by secondary calcite. From Cape Wickham to Lavinia Point the calcareous content remains high most of the way but declines as aeolianite masses cease to be seen in section, only calcareous root incrustations. Aeolianite persists from Stokes Point nearly to Grassy but eastwards the shell sand content falls off rapidly. Stephens and Hosking's Currie Sand soil type, with its poorly-developed profile, apart from some organic addition

to a surface horizon, is characteristic of the calcareous New Dunes; exceptionally, a podsol has developed on New Dunes near Currie, which have a substantial shell sand content (Stephens & Hosking, 1932, p. 26).

The east coast New Dunes are in contrast predominantly of quartz sand, slightly reddish-yellow in colour. Their soils vary from a completely undifferentiated profile to a shallow, weakly-developed podsol, which constitutes one phase of Stephens and Hosking's Naracoopa Sand soil type. Hardpans are not strongly developed and A and B horizons together are rarely deeper than 3 feet. Below is the reddish-yellow unbleached dune sand. Ferns are often dominant on these soils in contrast with the grasses, herbs and rushes of the calcareous New Dunes.

It is possible to divide up the New Dunes of particular coastal sectors into two, sometimes three, separate dune belts, each consisting of parabolic dunes in depth; these belts advanced successively inland, probably with appreciable halts between. But attempts to correlate these belts from one area to another have failed and, therefore, it is not thought that they have any general significance. It is true, however, that active blowouts, the first stage in parabolic dune development, are most common in the most seaward and latest belt immediately behind some of the larger sandy bays of the west and south-east coast. However, active blowouts occur in scattered fashion throughout those New Dunes which are intensively grazed and the detailed distribution of these blowouts in relation to gates, fences, cols, &c., indicates that they are due to grazing animals, aided by burning-off. But the most mobile areas are on the whole the only areas in the calcareous New Dunes still partly in the scrub which almost certainly covered the whole of these dunes before settlement. It seems likely then that these mobile areas were also active before settlement and clearance. In other words, the New Dunes constitute a series which has continued to develop naturally right up to the present.

The Old Dunes are much more sporadically occurring though they are found all around the island and reach farther inland. In the northern part of the island, they are found right in the middle, admittedly in small groups and as individuals there rather than covering large areas. In form they are usually subdued and rather characterless, ranging from low, gentle swells to whaleback mounds and smoothed ridges. Their limits are much less reliably and readily mapped, except, of course, where the New Dunes abut upon them. However, the characteristic parabolic dune plan is quite frequently recognisable in the air photos (less frequently on the ground) and, where clear, the inland limit of these Old Dunes shows the same lobate pattern as the New Dunes. It is evident that most of the Old Dune areas are parabolic dune systems modified by weathering and colluviation over a long time. For the most part the Old Dunes advanced inland with a direction closely comparable to that of the New Dunes of the same coastal sector. The wind regime at the time of formation of the Old Dunes cannot have been very different from the present one.

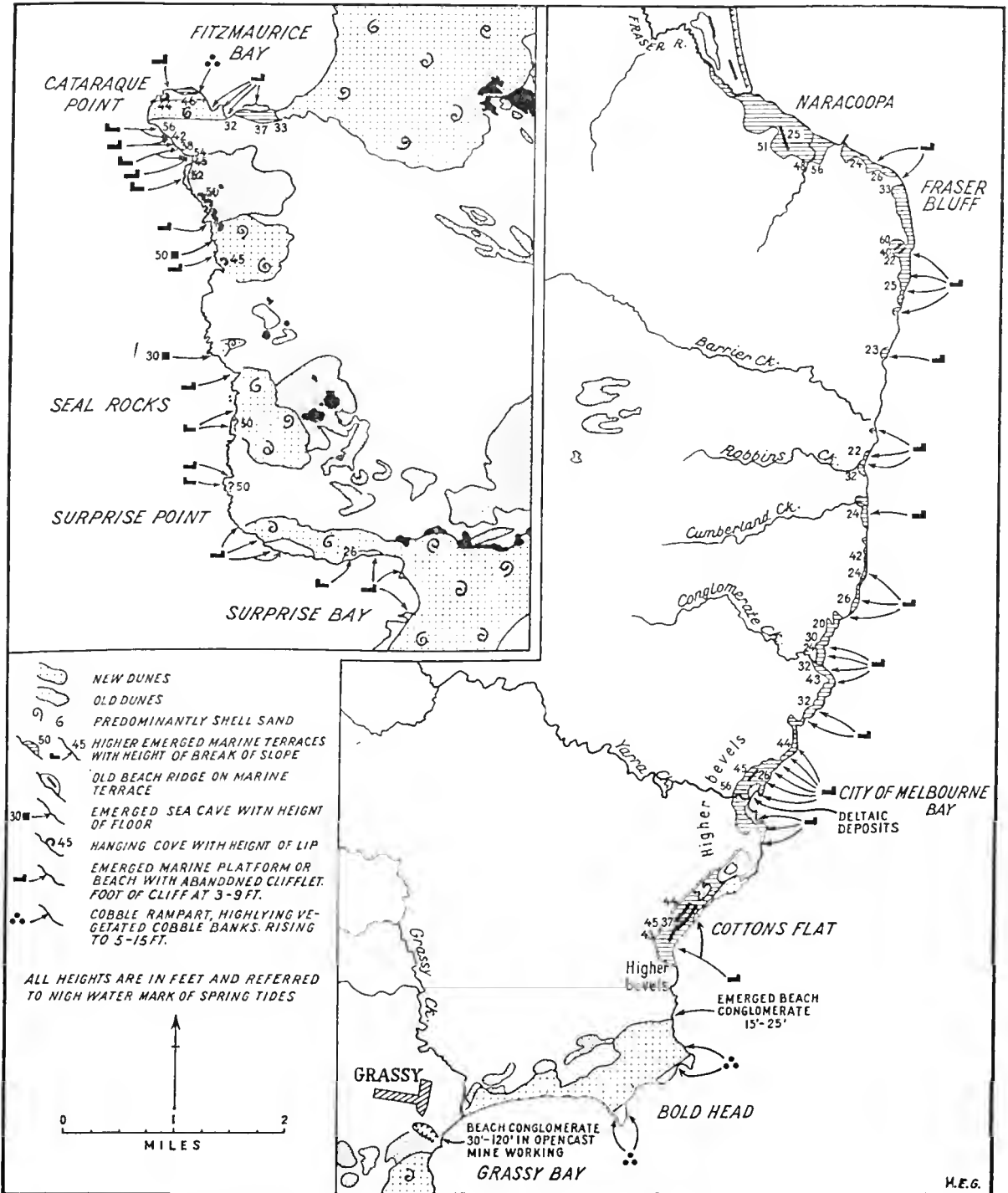


FIG. 3.—Coastal Geomorphology of S.E. and S.W. Coasts of King Island.

The constitution of the Old Dunes does differ from that of the New Dunes and is rather complex in pattern. In the first place siliceous dunes are much more widespread amongst the Old Dunes. Their quartz sands are much more deeply leached; in fact, no unleached yellow quartz sand was seen anywhere in the Old Dunes. In bores and pits dark-brown hardpans were several feet deep beneath grey-white sand and well-developed when encountered at all. In several sections, many feet of white leached sand overlay many feet of "coffee-rock", humus-bound sandrock; both layers were into the tens of feet thick in the southern side of the Grassy schelite mine opencut. In the field these profiles were regarded as the A and B horizons of a giant podsol (cf. G. Hubble in Gill & Banks, 1956, p. 13). Recent publications by Coaldrake (1955) and McGarity (1956) show that not all sandrocks of this general type are of this origin. Further work would be necessary to substantiate this view of the King Island examples, but the rather indistinct cross-bedding seen at certain points and the fact that the Grassy opencut sand section was on a steep slope suggest that a B-horizon may be the correct interpretation of at least some of them. Stephens & Hosking map their Naracoopa Sand soil type over much of the area of the Old Dunes but here it must represent a different phase from that of the New Dune areas.

Calcareous Old Dunes are restricted to the northern half of the west coast from Currie northwards but even here they are interrupted. Near Sam Lagoon a lobate area of siliceous sands is inset between adjacent calcareous lobes and east of South-East Lagoon, some of the leached quartz dunes there have advanced from the west to interlock with others from the east coast. Also between Yellow Rock River and Bungaree Creek the sporadic Old Dunes are of quartz sand and reached inland of calcareous Old Dunes farther south in the Bungaree Creek-Pass River area.

The calcareous Old Dunes carry characteristically the Yambacoona Soil type of Stephens and Hosking; this has a depth of up to 4 feet of red-brown siliceous sand, sometimes with nodular limestone layers, overlying yellow calcareous sand or aeolianite. The most likely origin of this soil type is that it is residual from the calcareous Old Dunes after much more prolonged leaching than the calcareous New Dunes have yet experienced. Despite this leaching, some of the calcareous Old Dunes have retained their original form more than the siliceous Old Dunes and in parts are still quite steep.

There does not seem to be any basis either in topography or in the nature of their sands to recognise any major subdivision of the Old Dunes in terms of successive periods of formation. Inland from Lavinia Point, however, their relationship to emerged shorelines suggests at least two phases of development (p. 16 below) comparable in status with the phases recognised in the New Dunes.

Although in certain parts the Old and the New Dunes are separated by an intervening strip of country, in general the New Dunes overlap the Old and the way in which some lobes of the New Dunes project beyond the local limits of the Old Dunes whilst nearby ones merely reflect that limit

along a more seaward line makes it likely that New Dunes must overlie the Old Dunes in parts. There is some direct evidence of this. Just north of Pennys Lagoon there is a small headland of granite breaking the long sand cliff coast from Boulder Point eastwards. The actively eroded sand cliff, which is as much as 50 feet high on either side of this headland, consists mainly of yellow New Dunes, which appear to have a significant shell sand content from the presence of calcareous root intrusions but which reveal former podsollic soil horizons up to 2 feet thick undulating laterally. But there occur also at the base of the cliff exposures of Old Dune profile 6-15 feet high, with red-brown sandrock overlain and replaced laterally by deep grey-white leached sand. Also in the floors of hollows near the eastern margin of the high calcareous dunes south of the Ettrick River on the west coast there occur patches of grey leached siliceous sand, which suggest the presence of siliceous Old Dune material beneath; eastwards there is only a narrow fringe of Old Dune outside the foot of the New Dune wall.

The Old Dunes do occur right down to present sea level and it is probable that they may underlie the New Dunes quite substantially. Therefore the aeolianites exposed within the calcareous New Dunes may not always belong to that system but as yet no means of distinguishing different aeolianites has been found. This general point finds its importance in relation to fossil finds in the dunes. Bones which do not belong to the animals now living on the island are reported from blowouts in various parts of the island but only from the northern end of Stokes Point have such finds been recorded through the efforts of Mr. J. Bowling. Three collections have been described and are consolidated in the following list:—

Dromaeus minor Spencer (Spencer & Kershaw, 1910; Anderson, 1914). The King Island Emu was alive in the island in 1802.

Vombatus ursinus Shaw (Spencer & Kershaw, 1910; Anderson, 1914). This wombat is still found on Flinders Island.

Dasyurus bowlingi Spencer & Kershaw (Spencer & Kershaw, 1910; Anderson, 1914).

Dasyurus? maculatus Kerr (Anderson, 1914).

Macropus ruficollis Desmarest (Anderson, 1914).

Macropus anak Owen (Scott, 1905).

Sthenurus atlas Owen (Scott, 1906, 1917).

There is some discrepancy about the matrix of the finds. Spencer and Kershaw describe their finds as coming from dune sands set in motion by grazing and burning; winnowing left the bones exposed on the blowout floor and sheep bones were found along with the indigenous species. Scott's account of the matrix "soft, friable shell limestone rock of marine origin" can be safely interpreted as implying aeolianite. Certainly, there is much aeolianite exposed today in the area of the finds, the blowout now being generally fixed. But Anderson maintained that the bones occur mainly in a red-brown sandrock though some few come from overlying aeolianite which he regarded as contemporaneous. This sandrock he thought to be marine but the cross-bedding on which this idea rests could quite well be aeolian. The sandrock

seems more likely to be of Old Dune provenance, perhaps covered by New Dune acolianite. Some of the finds thus seem to belong to the older system; there is, however, a strong likelihood that finds from very different horizons have been brought together by winnowing action in the blowout.

REGIONAL DESCRIPTION OF THE COASTAL GEOMORPHOLOGY

Some of the details of the coastal geomorphology will now be set out in terms of a number of sectors which possess a certain degree of homogeneity. Such a treatment will be longer than to discuss successively features at different altitudes over the island as a whole. But the local distributional relationships of features at different altitudes are significant for their interpretation; a regional treatment will make these relationships more obvious. Moreover, the validity of the interpretative synthesis which follows can be more readily assessed if the data are not presented in the framework of that synthesis. The high coastal sectors are considered before the low coasts and the east coast units before the west coast ones. On the west coast, which is the weather side of the island subject to more violent wind and wave action, features from earlier phases of the physiographic history have been more liable to obliteration by erosion or burial whereas on the leeward east coast there has been both more separation and more survival of coastal features related to different stands in the relative level of land and sea.

A. THE HIGH COASTS

1. From Naracoopa to Grassy (fig. 3).

This is the major sector of high coast in King Island, at one time having the local name of "The Wall" (B. Spencer, 1888). Yet it is high coast only in the sense that high ground varying from 300 feet in the north to 400 feet in the south approaches very close to the shore. It is an actively cliffed coast over one mile alone of the dozen involved. A coastal terrace of varying but generally narrow width today separates the sea from the steep scarp of the plateau. The scarp typically has slopes of 30-35°, whereas the terrace varies from quite a flat surface to slopes of 5°. The terrace consists essentially of emerged marine platforms and the scarp is a degraded emerged sea cliff.

Along a little more than a mile of the coast running south from a point a mile south of Fraser Bluff modern erosion has removed the marine terraces consistently, though there are occasional interruptions of the latter elsewhere. But the modern cliff is generally only 10-20 feet high, rising at points to 30-40 feet. As a result the whole fall from the plateau to the sea here takes on the character of the "two-eye" cliff of Cotton (1951) or the "hog-back" cliffs found in Devon and Cornwall (Balchin, 1946; Arber, 1949).

Elsewhere the break of slope between the two features, the terrace and the old cliff, which is the measure of the former stand of the sea in relation to the land, is frequently obscured by mass slumping promoted by the seaward dip of the rocks and by steep, coarse alluvial fans emerging from gullies in the scarp. Even away from these

obscuring features the old cliff-foot is somewhat rounded by vegetated talus and so it is impossible to determine the back of a platform with any degree of precision; values for a given sea level are bound to vary 5-10 feet on this count alone. Nevertheless, the range of height of the former cliff-foot from a little over 20 feet to 60 feet shows that the main terrace is composite. Moreover, subsidiary breaks of slope in the terrace can be seen at some points where fragments of higher platforms survive surrounded by lower ones. Platforms rising to 20-30 feet and 40-50 feet are most common but the marked scatter cannot be overlooked.

The terrace is generally low (20-30 feet) along the most exposed coast between Fraser Bluff and the bluff half a mile north of City of Melbourne Bay. The wider, higher terraces need further comment. Behind Naracoopa the terrace is about a quarter of a mile wide and rises generally to about 50 feet. It carries a good deal of sand arranged in steps or berms trending NW-SE and the foot of the most marked rise at least represents an old shoreline at 27 feet.

From the bluff half a mile north of Yarra Creek, for a mile and a half southwards, the old cliffline recedes a quarter to half a mile from the shore. Around City of Melbourne Bay the main coastal terrace with its back at 45-50 feet is well defined. Section, D, fig. 4, shows a levelled profile across the terrace a little north of Yarra Creek. It crosses a shallow, swampy depression, now drained, at the foot of the main scarp and which is enclosed in part of a low curving sand ridge, in part by subdued Old Dune sand and low rock projections. Here there was a small lagoon on the terrace enclosed by beach ridges. Below the sand ridges a further shoreline is traceable at 26 feet.

City of Melbourne Bay is surrounded by Old Dune ridges which are cliffed on the bayside, revealing 5-10 feet of loose, grey-white quartz sand over 8-12 feet dark-brown sandrock. Beneath this dune material are deposits at HWM to +4 feet, which are very variable, both laterally and vertically. South of the creek there are isolated small outcrops of gravel and of clay with boulders in it. North of the creek the deposit is more continuous and contact with the bedrock was visible at several points. Well rounded boulders and gravel, in parts with ferruginous matrix, lie at the contact. These pass upwards into grey silts, sandy silts or clayey sands. In these occur large timbers, abraded and *non in situ*. Where the timber is most common, the matrix is a laminated sand and peaty clay. At two points, boulders and gravel are intercalated between the driftwood layer and the overlying sandrock. All these materials can be matched in the present bed of the Yarra Creek upstream and there can be no doubt that they represent former deltaic accumulation by the creek. Sea level may well have been lower when they were deposited but could not have been higher because of the lack of any consistent bedding and absence of marine shells. In time they must have been deposited before the close of Old Dune formation and after the erosion of the marine terrace and the building of the constructional features between 38 and 22 feet.

The plant identifications from the deltaic deposit made by Dr. Duigan and Mr. Ingle are listed in Appendix I. The steep walls of the Yarra Creek gorge above are the most likely part of the drainage basin to have provided the material; the present rainfall is about 60 inches annually. The high percentage of the fern spores is not surprising; B. Spencer (1888) describes similar valleys incised into the plateau near Naracoopa as "fern gullies" and in the accompanying floral list, F. v. Mueller records a number of fern species, including the tree fern, *Dicksonia*. Tree ferns still grow on the island today, e.g., in the Seal River valley. The dominance of Celery-top Pine (*Phyllocladus aspleniifolius*) is interesting since it is often regarded as restricted to the main island of Tasmania (Curtis, 1956). It was not recorded in the collections made by Baldwin Spencer's party last century and is not known growing on the island today. Nevertheless, it seems to have been present before the disastrous forest fires of last century. An early description of the island (*Govt. Gazette*, 31 March, 1827, quoted in *Proc. Roy. Soc. Tas.*, 1873, p. 50) mentions "celery-leaved pine" growing there and during the clearance of secondary forest near the Yarra Creek as part of the Rural Bank Land Settlement Scheme a few years ago, celery-top pine logs and stumps were found to be thick on the ground in certain parts (O. H. Drake, *in litt.*). On the other hand, there is no record at all of *Nothofagus cunninghamii* (Tasmanian Beech) and *Drimys lanccolata* (Mountain Pepper) in the island now or last century. The beech is, of course, the dominant of the Tasmanian temperate rain forest and occurs sporadically in humid high altitude localities in the South Eastern Highlands on the mainland; the mountain pepper has much the same sort of discontinuous distribution. The fossil flora is thus not very different from the historical and present-day flora and there is little indication of climatic change. The Yarra Creek gorge is vegetationally near to temperate rain forest now and was then. Perhaps we can infer either slightly wetter or slightly cooler conditions, the cooler conditions making rainfall more effective.

The southern end of the recess in the old cliffline in this neighbourhood is known as Cotton's Flat, an appropriate local name since it consists of an excellent development of the main terrace with a well-defined inner margin at 45-50 feet. The northern part has an Old Dune cover but elsewhere it is gently ribbed by low sand ridges and swampy depressions.

South of Cotton's Flat the old cliff returns to the shore and is actively undercut some 10-15 feet. Here the main terrace is meagrely represented by ill-defined steps in the spurs. In one inlet a coarse conglomerate is exposed with an irregular base visible at 12-15 feet and rises at the surface to 25 feet. It is an unfossiliferous beach boulder bed, with a matrix of iron-cemented sand and seems to belong to a lower phase of the cutting of the main terrace.

The steeply-dipping volcanic rocks of Bold Head have been planed by marine erosion at higher sea levels than the present but the platforms pass under the vigorous development of New Dunes which have here climbed up the south-facing slope

of the plateau. Farther west to Grassy Creek they form a narrow belt and there is a corridor between them and the plateau scarp; the bedrock features are, however, obscured by smaller developments of Old Dune sands.

Above and below the composite main terrace there are features significant for the present purpose. At the southern end of this sector at Grassy the old cliffline runs westward with the present coast diverging southwards. The opening of the scheelite mine runs along the face of the cliffline. Between the thick cover of Old Dunes and the bedrock, a boulder bed 10-15 feet thick has been exposed at various points and has been commented on several times (Nye, 1939; Nye and Knight, 1953; Edwards, Baker, and Callow, 1955). Nye speaks of the deposits as lying at heights of 120-150 feet. In 1953, when examined by R. Callow and J. N. Jennings, they were to be seen in the 90 and 70 feet mine levels and consisted of subangular to well-rounded gravel and boulders, varying from $\frac{1}{2}$ inch to 3 feet in maximum dimension, with greenish-grey, silty clay matrix in parts. Granite, as well as the many metamorphic rocks of the mine itself, was represented. Several mineworkers stated that similar beds had been encountered at various levels as high as 120 feet and as low as 30 feet. The general disposition of these unfossiliferous beds makes it clear they are shoreline and not fluvial deposits; thus they were still visible in 1953 at the eastern end of the backwall of the cut at the 90-ft. level with no gully in the slope and virtually no notchment at all on top of the plateau. All observers agree that they are high sea level beach deposits, though the height of the associated strandline is now not closely determinable. Indeed, from the height range of the deposits, it seems likely that they related to a succession of strandlines.

However, much higher levels than those of the main terrace are involved and around the City of Melbourne Bay-Cotton's Flat recess in the old cliffline, there are certain morphological features, admittedly not well defined, which may relate to the same phase. The broad bulge in the coast between City of Melbourne Bay and Cotton's Flat is backed by ground higher than the main terrace developments north and south. This greater altitude is only partly due to the spreads of Old Dune sand and a narrower belt of sharp new parabolic dunes on the south; the bedrock also rises higher in irregular fashion to a break of slope with the old cliffline at 120-130 feet. This break of slope seems to be represented farther north by a series of flattenings in the spur profiles. These steps, though distinct, are themselves steeply inclined, and determinations of the significant break of slope are very subjective; aneroid values ranged from 144 to 127 feet. South of Cotton's Flat there were some further small steps in the old cliffline at 130-140 feet.

Three other steps at still higher levels are significant (1) on the bluff half a mile north of Yarra Creek (break at 225 feet), (2) just south of the City of Melbourne Bay road (227 feet), (3) on the bluff south of Cotton's Flat (238 feet). The first two carried patches of well-rounded gravel, 1 inch to 1 foot in size and mainly of quartz. These were unrelated to any present stream drainage and may be littoral.

The present shore of the Naracoopa-Grassy sector consists in the main of irregular rock reefs projecting a few feet above HWM. Active cliffs, even low ones as little as ten feet high, and well-developed shore platforms are few. This does not seem to be entirely due to the emergence of the main marine terrace. There are frequent and clear evidence of unattacked clifflets behind equally uneroded rock platforms, often carrying vegetated and undisturbed beach materials. The cliff foot is usually very well defined and lies a few feet above HWM, ranging from 3 to 9 feet but most commonly about 6 feet. One example is shown in Section D, fig. 4. Generally the clifflet just trims the outer edge of the main terrace but at a few points it eliminates that terrace altogether. Thus just south of Barrier Creek, the 6-foot platform is 50 yards wide, with a cover of sand, shingle and boulders, overgrown by bushes and the cliff behind also vegetated rises to a maximum height of 30 feet, pinching out the main platform. There is a similar development at the northern end of the little bay into which Conglomerate Creek debouches. Nevertheless, the general rule is for very narrow platforms and clifflets only a few feet high; they are well scattered along the coast in both exposed and sheltered positions and definitely show no sign of present-day wave attack.

At four points around Bold Head banks of weathered and vegetated beach cobbles, 0 to 20 yards wide, rise to 10-15 feet above HWM. Parts of these banks lie under thick shrubbery and, although they may grade downwards into active cobble and shingle banks, they are interpreted as belonging to the same phase which fashioned the 6-foot platforms and clifflets. The associated constructional features would, of course, rise higher than the cliff foot nip.

A further related feature is the occurrence of vegetated and unattacked shingle and cobble fills at the heads of marine erosion inlets or geos; these occur even where modern cliffing is most active, e.g., north of Barrier Creek.

Sandy shores backed by sand dunes are of restricted occurrence in this sector but do occur over short stretches. Active sand cliffs are common here but there are also some occurrences of fixed dune clifflet with vegetated sand platform in front, e.g., half a mile south of Fraser Bluff and along the shore of Cotton's Flat. These are in New Dunes but similar features in Old Dunes occur at the north-east corner of City of Melbourne Bay and just south of it. These again give a cliff-foot height within the range of the 6-foot platforms and are regarded as contemporaneous with them.

Barrier Creek leaves its gorge by a small waterfall of a few feet to enter the sand-barred lagoon at HWM. Similarly, Conglomerate Creek hangs 5-6 feet in rapids above HWM at its mouth on the shore. This lack of adjustment could be due to the small recent emergence. Grassy Creek is very different although the dam for water storage for the scheelite mine obscures the situation. Over its last quarter of a mile the steep valley walls appear to converge in a thalweg which is below the present sea level. This suggests downcutting when sea level was lower, followed by a positive movement and some aggradation.

2. From Surprise Bay to Fitzmaurice Bay (Fig. 3).

Though its adjoining plateau (100-190 feet) is much lower than in the case of the coast just described, the Surprise Point-Cataraque Point sector is more truly a high coast. It is broadly similar in character but the marine terraces have been largely removed and the old cliff is much more under modern attack. Active cliffing 30-60 feet in height is common and at a number of points the hogback cliff is being eroded right to the top (100-170 feet). This is particularly true of the middle section north of Seal Rocks where inlets and geos are under violent modification right to their heads which in some cases consist of vertical cliffs 150 feet high. This greater amount of present-day cliffing is readily understandable in terms of exposure to the west from which the storms mainly come. At the same time the coast has something of the character of a "plunging cliffline" for the real break of slope is not at sea level, but some 20-35 fathoms down (Jennings, 1959, in press). A plunging cliffline is usually regarded as under weakened attack because of wave reflection (Cotton, 1951).

At a number of points the old hogback cliff is not only vegetated but carries a thin skin of breccia. The angular rock fragments are cemented by a matrix of ferruginous sand, but elsewhere the consolidation is due to calcium carbonate derived from the cliff-top dunes. This would appear to be the product of subaerial weathering in different climatic conditions from the present ones, possibly periglacial (cryergic) conditions of a Pleistocene glacial period.

Evidence of former shoreline levels is not entirely lacking through more fragmentary and less clear-cut than on the high east coast. Inclined steps or "bevels" in the cliffline, very imperfect remnants of emerged marine platforms, are most frequent in the north near to Cataraque Point but some occur south of Seal Rocks. Some of these carry dune sand and thick, nearly level spreads of the breccia mentioned above. This may have been mistaken for the raised beaches, which Stephens & Hosking (1932) cite; in fact it has much more the character of periglacial "head". The backs of these "bevels" are far from clearly defined and the values given them vary from 23 feet to 59 feet, most being at 40-50 feet. To be correlated with these bevels are certain "hanging coves", small recesses in the cliffline with their lips and floors at 45-50 feet. Most do not receive any appreciable drainage from the plateau nor have they the nature of landslip scars (cf. "erosion amphitheatres" of Baker (1950); see also Edwards (1945)). The most likely origin seems to be marine erosion at a higher sea level stand. Further indication of these stands is to be seen in the high-lying sea eaves in the most exposed parts of this sector. There is one square-cut, shallow cave with its floor at 50 feet in the southernmost granite headland; there are also two much deeper fissure caves, with floors at approximately 30 feet, in the strike of the schists at an extremely exposed salient north of Seal Rocks (Jennings, 1956). The details show they are unattacked and must be relict features from higher sea levels.

The short west-east reaches from Surprise Point to Surprise Bay and from Cataraque Point to Fitzmaurice Bay are less exposed than the coast between the two headlands. In consequence, the old cliffline is still set back from the modern shore. But, in the southern case, New Dunes have extended up onto the plateau from WSW and W and largely obscured the relief in the country rock. Thus, towards the west there is an irregular shelf in the rock in front of the dunes but this disappears beneath the sand with no possibility of determining the height of any former shoreline. Nearer to Surprise Bay there is a small rock shelf with part of the old degraded bedrock cliff unobscured by sand and the break of slope is about 26 feet. There are more vestiges of the lower shelf with a back at approximately 6 feet and the related vegetated clifflet is found in the solid, in aeolianite and in New Dune sand.

The Cataraque Point-Fitzmaurice Bay stretch is much less obscured, though around the two bays indenting it sand has blown over from the windward side to obscure any high terraces. But to the west and east these are preserved quite clearly; to the west the back is at 45 feet, whereas to the east 35 feet was the usual figure; the terrace here carries a very fine granite stack. Along a great deal of this northward-facing coast there are relief narrow platforms of the 6-foot level, with boulder beds and small clifflets. At two points active erosion has exposed cemented boulder beds at 10-15 feet; these must belong to the main terrace.

The evidence of this western high coast is less well preserved and on its own much less decisive than that of the Naracoopa-Grassy coast. But it reveals essentially the same story and argues against any east-west tilting during the time to which the emerged coastal features relate.

B. THE LOW COASTS.

1. From Naracoopa to Lavinia Point (fig. 2).

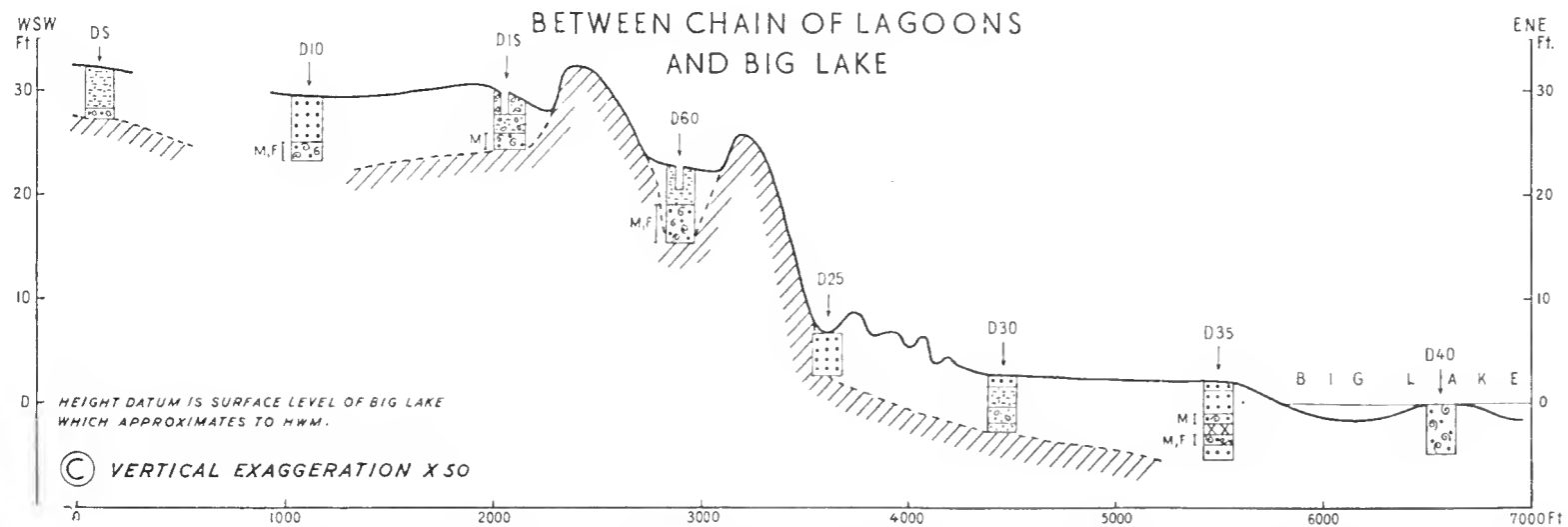
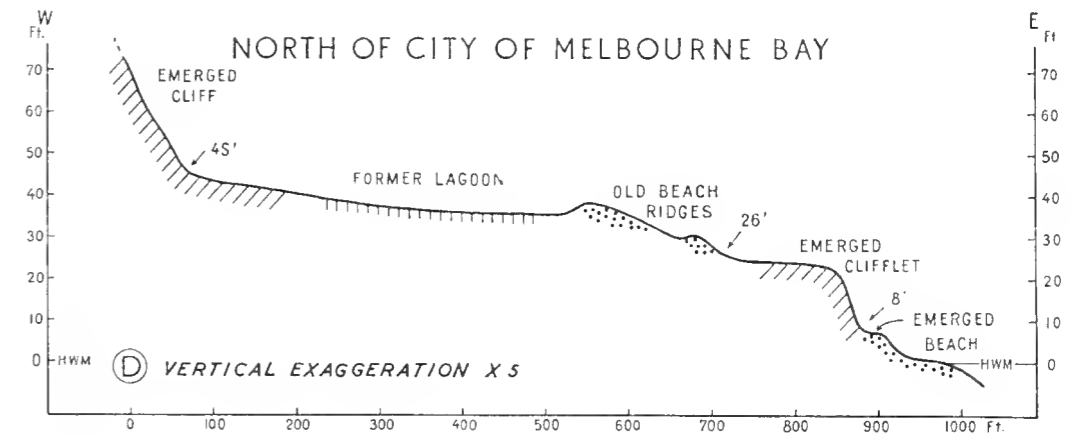
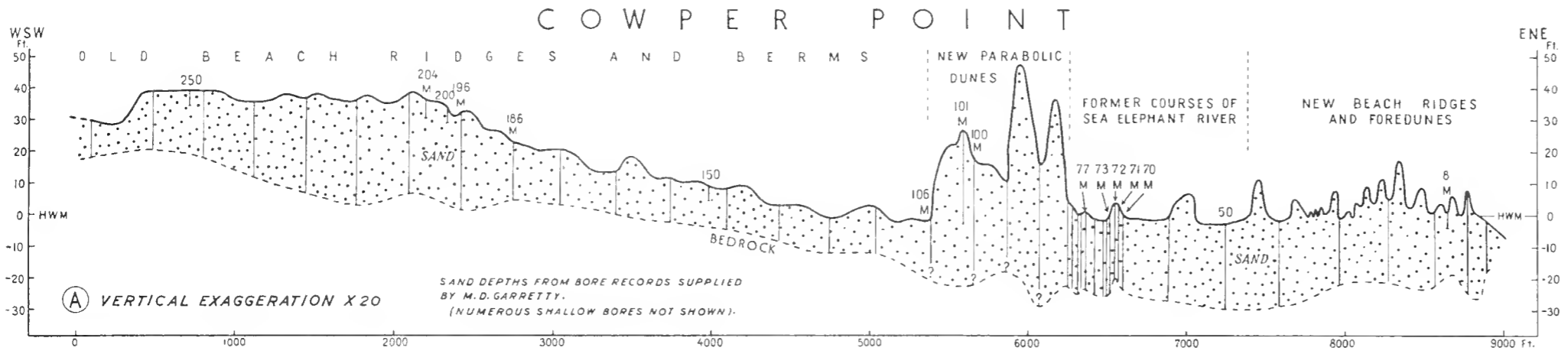
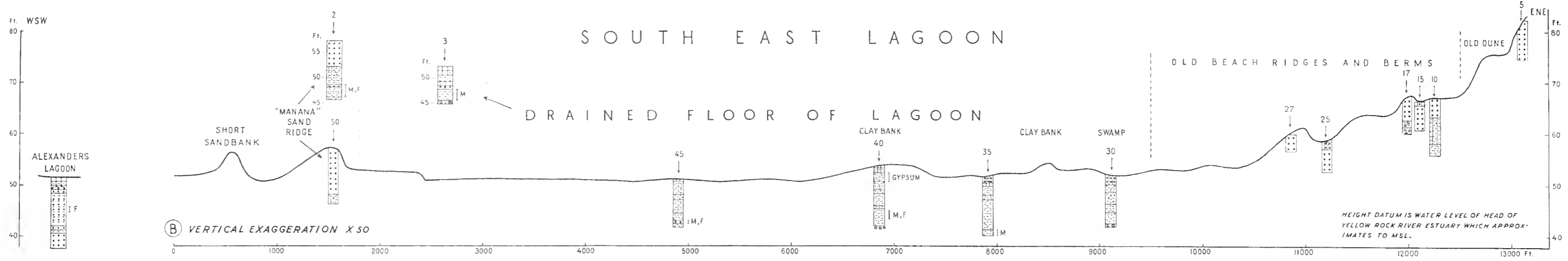
This long low coastal sector is almost entirely a sandy constructional one, with the brief exception of the Tertiary limestone of The Blowhole. It is also almost everywhere prograding at the present time. The exception is the southern side of Cowper Point where there is an active sandcliff; possibly also there is a balance between accumulation and erosion about three miles north of Cowper Point. Overall, there is an accentuation of the Sea Elephant Bay and the bay north of Cowper Point. Two sets of strandlines can be traced in almost unbroken continuity over the whole sector; the Old Shorelines are associated with the Old Dune system and the New Shorelines with the New Dunes. The relationships of the different features vary along the coast and it is necessary to discuss the sector in three parts—(a) Sea Elephant Bay, (b) Cowper Point, (c) Sea Elephant River to Lavinia Point.

(a) *Sea Elephant Bay* (fig. 2, fig. 3). Behind the symmetrical arc of sand beach is a low vegetated sand terrace, some 50 yards wide, in front of a fixed sand cliff 20-30 feet high. The cliff-foot is usually at 3-6 feet above HWM. Long low sand ridges, 3-5 feet high and as many as 4 in number,

diversify the low terrace over most of its length. Each represents a very early stage in the development of a foredune on top of a beach or berm. Davies (1957) has recently provided the most satisfactory account of Tasmanian sand ridges of this type. Together with the cliffing, these constitute the New Shorelines here and the fact that progradation succeeded retrogradation over the full length of the bay in a uniform manner is indicative of an important general change in coastal conditions such as a small emergence.

Inland from the cliff which is cut in older, deeply leached sands, there is a belt some 300 yards wide where the air photographs reveal linear patterns suggestive of further strandlines parallel to the lower features. They are clearest and most continuous behind the middle of the bay. On the ground they are seen to be low ridges or berms of leached quartz sand, separated by wetter depressions; the height difference is only a few feet and the surface rises gently as a whole inland. Where the first stream north of Fraser River cuts across this belt, the ridges bend backwards into the mouth of the valley as might be expected of shoreline features and on its southern side develop into subdued dune forms. These sand ridges appear to be degraded older equivalents of the sand ridges of the New Shoreline system. The rear margin of this higher belt of Old Shorelines was generally not well defined; it takes the form of a steeper rise, particularly where there are Old Dunes. At one of the sharpest of these breaks an aneroid height of 45 feet was obtained. Farther inland is the zone of sinkholes on Tertiary limestone with a scatter of sporadic Old Dunes, some of which exhibit parabolic form.

(b) *Cowper Point* (fig. 5). Between Blowhole Creek and Sea Elephant River, the strandline features confined farther south to a narrow belt broaden out to a depth of two miles in a fine cusped foreland. North of The Blowhole a broad swamp flat not much above mean sea level intervenes between the Old Shorelines and the New. Seaward of this flat there is a narrow New Dune belt, 50-60 feet at its highest, which broadens northwards to a big mass of parabolic dunes rising to heights of over 100 feet behind Cowper Point. Within this mass linear patterns in the air photos prove to be former clifflines frequently interrupted by later parabolic dunes advancing across them. Along the southern part of the shore from The Blowhole to Cowper Point, the front of the New Dune belt is a fixed cliff equivalent to the fixed cliff in older sands behind Sea Elephant Bay, and below this cliff are one or two low sandridges. These change northwards into a well-developed foredune with an active sandcliff. This sandcliff rises higher northwards and erosion supervenes to pinch out this last foredune. The coast is retreating and local residents report the complete disappearance of quite high dunes in the last 30 years. The other flank of Cowper Point is prograding and here is a series of narrow foredune ridges, 5-10 feet high, running NW-SE. On the southern flank of Cowper Creek, these foredunes are being truncated by erosion but on the northern flank they are successively reaching farther north-west to form a spit deflecting Sea Elephant River northwards. Between 1946, when the air photo



- BEACH COBBLES
- GRAVEL
- SAND
- SHELL SAND
- SILT
- CLAY
- PEAT
- ORGANIC MUD
- BEDROCK
- M MARINE SHELLS
- F FORAMINIFERA SAMPLES
- BOREHOLES

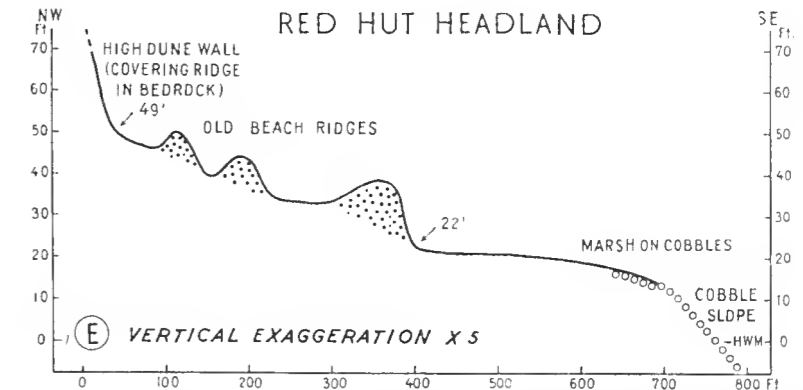


FIG. 4 (A, B, C, D) BY KERN GKI LEVEL, (E) BY ANEROID

FIG. 4.—Sections and Profiles from King Island.



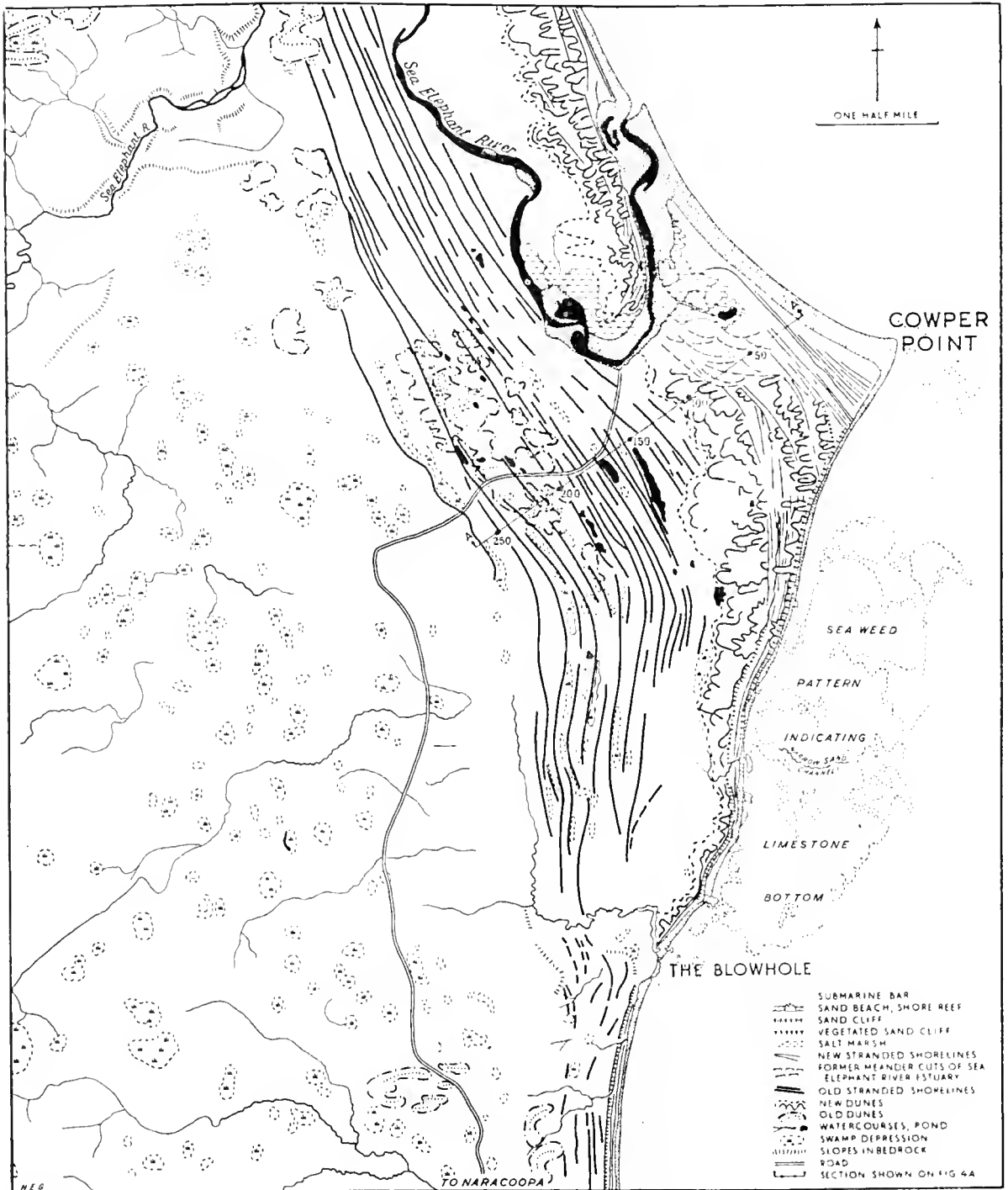


FIG. 5.—The Cuspate Foreland of Cowper Point.

cover was taken, and 1954, this spit has grown and caused the river to debouch even further to the north. Behind the spit is a protected area of salt and freshwater marsh and also a complex pattern of former meanders of the Sea Elephant River.

The New Dunes of Cowper Point encroach onto the Old Shorelines, which here reach a maximum width of a mile. These also form a blunt foreland with a nose about a mile south of Cowper Point. Section A, fig. 4, shows the general nature of the Old Shorelines here. This section was compiled from details of borings for a black sand investigation in 1952, which were kindly provided by Dr. M. D. Garretty; the levelling was done as part of the present study and shell fragments were collected from the bore spoil (see App. II.). This section crosses some of the new foredunes, former estuarine channels of the Sea Elephant River and the main new parabolic dune complex at a fairly narrow point. Behind these dunes there is a ti-tree swamp below HWM in which appears the first of the old strandlines. These consist of very low sand ridges and berms; they generally rise 2-3 feet with a maximum amplitude of 7 feet and in width vary from 10 to 65 yards. Seventeen of these features were crossed in the section line, rising steadily from just below HWM to about 40 feet above; then they remain level for the last third of a mile. Behind the last ridge there is a depression (bottom at 29 feet) which is readily traced laterally; inland there is a gradual rise into the belt of sinkholes or solution hollows. The ridges and berms consist of grey-white quartz sand, which underlies the area for 15-30 feet. The intervening hollows carry some sandy peat, at most three feet deep. They are generally swampy and may have intermittent shallow ponds, some of which are clearly due to combustion of peat at a result of burning-off practices. Very subdued, fixed Old Dunes obscure the ridge pattern in parts and a parabolic pattern is discernible in some of these low dune mounds.

From the boreline, most of the samples of mollusca (Appendix II.) came from the New Shorelines and comparatively few from the Old, but no significant differences in the assemblages are apparent. Quite a large proportion of the finds are of sandy and sandy-mud bottom dwellers but a number of intertidal rock species are present, together with submerged weed inhabitants. This suggests open beach conditions with a mixture of forms transported from different habitats, and confirms the conception of a continuously developing sand foreland with varying exposures of limestone reefs. All the species were marine with the exception of a *Salinator* species from a swale bore in the New Shorelines; again this is consonant with the present conditions.

(c) *Sea Elephant River to Lavinia Point* (fig. 2, fig. 6).—Northwards from the estuary of the Sea Elephant River a flat depression separates the older and the newer systems of coastal features.

The New Dunes broaden and grow higher northwards and so does the belt of low foredunes, which constitute the New Shorelines here. The one or two ridges of the southern end multiply to over 20 towards Lavinia Point where they reach

half a mile inland. The seaward three are here only partly colonised by shrubs and grasses, but the others are completely fixed either by bracken or open gum woodland in accordance with the incidence of burning-off. The ridges are only a few feet higher than the hollows, though both rise gradually inland so that the innermost depressions lie at 10-15 feet above HWM.

Near Lavinia Point the New Dunes fall into three sets. Behind the full set of New Shorelines there are comparatively low parabolic dunes about half a mile wide. Then a later and higher group, reaching well over 100 feet, cut across at least eight of the New Shorelines. They eventually overlap the first set of parabolic dunes completely and cut across the head of the intervening depression to advance onto the Old Dune system. This set constitutes the main body of the New Dunes and significantly postdate the oldest of the New Shorelines. Lastly, at Lavinia Point itself, a very young and small group of parabolic dunes cuts across the ends of nearly all the remaining New Shorelines.

At their southern end the New Dunes and Shorelines have deflected the Sea Elephant River southwards and many meandering river channels, some still used at flood time, can be traced in the flat corridor behind them. In this corridor, salt marsh near the estuary gives way to freshwater marsh and north of the Sea Elephant River it becomes an elongated belt of ti-tree swamp and small lagoons known as The Nook. A bore in the dry bed of a lagoon about 1½ miles from the northern end showed grey quartz sand extremely rich in marine mollusca beneath 70 cm. of structureless dark-brown peat and organic mud. A much smaller assemblage of mollusca than at Cowper Point still ranges from intertidal rock to sandy-mud bottom forms but a high proportion of small weed-living forms are indicative of a sheltered inlet. The presence of *Salinator* and *Assimineca* also points to the transition to estuarine conditions. These sands must have been deposited after the development of the spit and New Dunes on the seaward side.

From the Cowper Point foreland the Old Shorelines reach north to the outfall of Egg Lagoon where they are cut across by Old Dunes. They decline in number and width though retaining the same character. The Sea Elephant River cuts through them down to underlying granite. They are also interrupted at several places by dune-covered projections of higher ground from the west; the recurved pattern of some of the Old Shorelines suggests shallow bays between these dune-covered headlands. At the northern end the strandlines are divided into two groups separated by a broad swampy depression; the seaward group is accompanied by Old Dune formation. On the line of "The Cords" crossing of The Nook, the mean of two aneroid traverses gave a rather unreliable height of 27 feet for the back of the highest berm of the Old Shoreline series.

The Old Dune development behind the coastal sector is meagre from Mt. Counsel southwards, but, farther north, Old Dunes reach in a broad belt right across towards South East Lagoon, where they meet other parabolic dunes blowing from the west and give rise to some special dune forms.

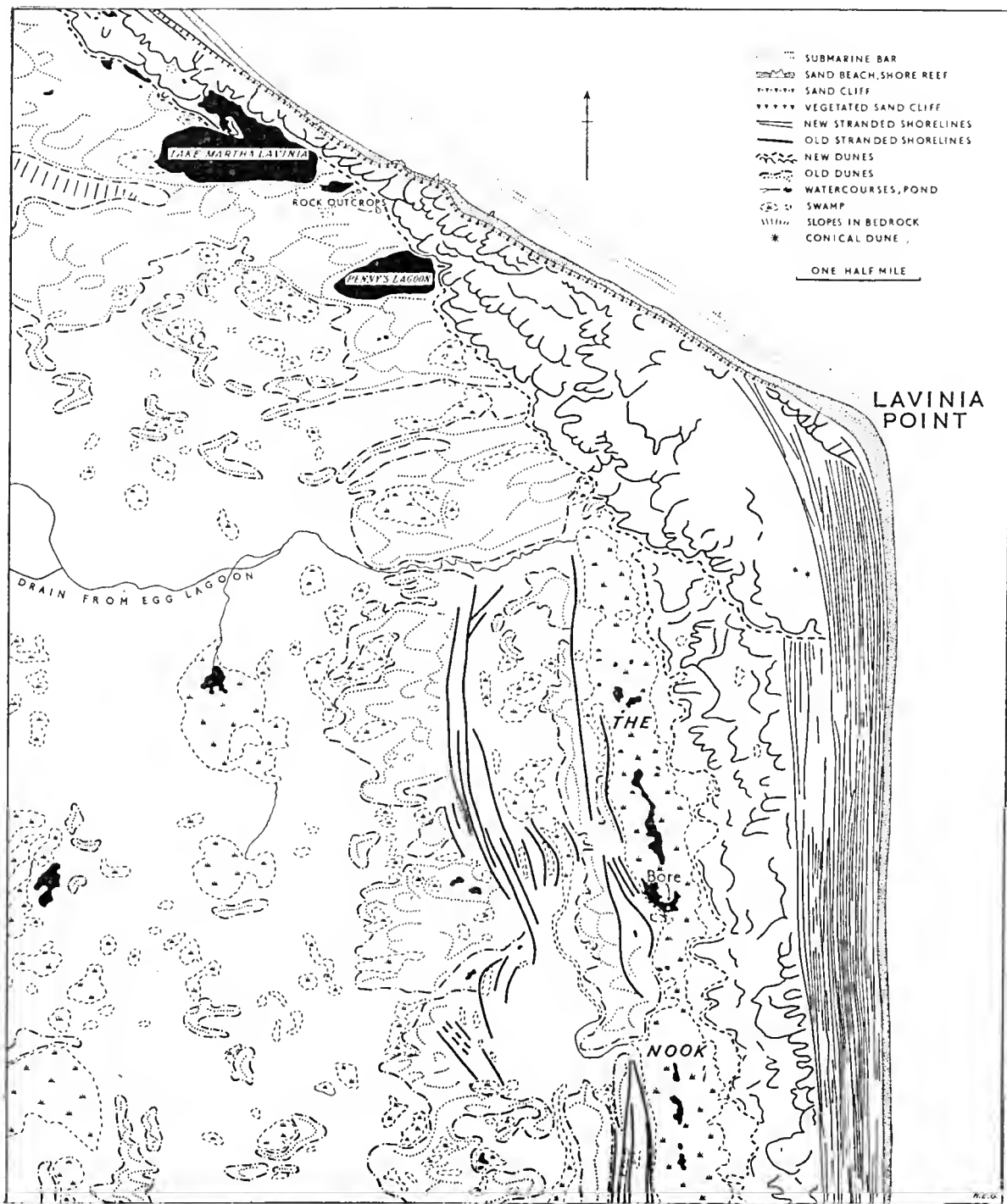


FIG. 6.—Coastal Geomorphology of Lavinia Point.

2. From Lavinia Point to Whistler Point (fig. 2).

This is a sandy constructional coast for the most part. The north coast is interrupted by the low rock headlands of Rocky Point, Boulder Point, and of a small outcrop north of Pennys Lagoon; then there is the longer section of low rock coast from the western side of Disappointment Bay around to the northern end of Phoques Bay.

Along the western side of Disappointment Bay, dunes are absent for half a mile, the granite hill sloping gradually down to the shore. This coast is only exposed to the north-east where the length of fetch is short and so an absence of cliffing is to be expected. Consequently, although there are some small emerged marine platforms, they are not well defined. In three places the lowest level is represented by breaks of slope at 4, 7, and 8 feet above HWM, whilst higher platforms have their backs at 22, 29 and 39 feet. A narrow foredune of deeply leached quartz sand rests on the forward part of the last one, which occupies a recess in the hill slope close to the steep wall of unclashed New Dunes which has swept over from the west coast. Farther west the New Dunes reach to the rock reefs in parts; in others a fixed dune cliff leaves a rock platform in front but the cliff here cannot be surely interpreted as belonging to the 6-foot stand. Great banks of vegetated cobbles showing no sign of present-day disturbance, e.g., at Cape Wickham itself, do belong to that stand, however. Between Cape Wickham and Phoques Bay there is more active erosion, with small cliffs rising to 15 feet at a maximum to be found in places. The dunes, generally, rise immediately behind the reefs here but at a number of points the abandoned clifflet and rock platform or beach of the 6-foot level are to be seen. At one point the clifflet can be traced laterally from metamorphic basement rocks, through old spring tufa deposits into aeolianite. At three points, small sea caves, a few feet above HWM and developed at the contact of the metamorphics and tufacememented breccia, are no longer attacked by the sea. Beach shingle in the caves confirms marine origin; unabraded roof fall, earth, plant growth and burrows show their relict character at the present time. They are quite distinct from hollowings in the aeolianite, which are due to wind action.

The remainder of this sector needs little comment, since it consists for the most part of active sand cliff and sand beach, apart from three sections—a stretch of about one mile between Lake Martha Lavinia and Boulder Point, nearly two miles of the coast lying symmetrically between Boulder Point and Rocky Point and the projecting sand foreland west of the Yellow Rock River mouth. The first two are very similar. Grassy or shrub-covered dune cliffs, which rise to a maximum of about 100 feet, are separated from the shore by a low terrace with simple sand ridges or low shrubby foredunes. These are more numerous at the wider western end of the terrace, where active accretion and new sand ridge formation has been going on since 1946, as the air photos reveal by comparison with the 1954 position. Where the innermost foredune or ridge is not banked against the abandoned cliff, the swale bottom lies only a few feet above HWM. The Yellow Rock Foreland

also has an old fixed cliff, though much lower one, separating the main mass of parabolic dunes from low sand ridges which represent a phase of sand accumulation under different shoreline conditions. On the north of the foreland there is one low foredune in front of the cliff, whereas on the west there are four very low simple sand ridges. The features of these three localities clearly correlate with the Newer Shorelines of the Naracoopa-Lavinia Point sector.

New and Old Dune Belts almost completely ring this sector of the coast advancing from both west and east. The one break is found in the granite hills between Lake Flannigan and Disappointment Bay. Similar low granite hills lie between Egg Lagoon and the north coast, though these also are partly covered by Old Dunes. Numerous lakes occur at the contact of the dunes with the granite rises or along the boundary between the two dune systems or within the dune systems, particularly the Old Dunes; some of them have been discussed elsewhere (Jennings, 1957a) and the others belong to similar types. It is necessary, however, to consider rather more fully here certain aspects of the major drained lakes of the area. The former Reddy Lake, Egg Lagoon and South-East Lagoon all form part of a plain of young sediments enclosed by the granite rises on the north, by the west and east coast dunes to those flanks and by the northern margin of the metamorphic plateau of the island on the south. The inner part of this plain from Egg Lagoon to South-East Lagoon lies just about 50 feet above HWM; a levelled line from South-East Lagoon to the Yellow Rock River estuary shows that the plain declines gradually westward. It is still at 45 feet where it is crossed by the North Road, but it loses height rather more rapidly farther west to a level of 30-30 feet where the Yellow Rock River has incised 10-15 below it. As will be seen from evidence to be presented, this plain consists mainly of young estuarine-marine sediments overlain in parts by freshwater and swamp deposits.

Though the former relative proportions of open water and tree swamp cannot now be determined, Egg Lagoon, prior to its drainage, was certainly the largest extent of lagoon and swamp in King Island. No geological records survive from the draining but Mr. H. Graves, of Three Rivers, who worked on the draining and bore-sinking, states that generally over the Lagoon floor there was about 8 feet of black clay above 8-12 feet of sand with sea shells. Mr. W. A. Steele, who, in recent years has put down fresh bores for the Rural Bank Land Settlement scheme, confirms the general occurrence of marine sands. His log on No. 1 Block, "Koreen", is typical:—

0- 2 feet	Top soil
2- 5 feet	Brown sand
5- 8 feet	Brown pug
8-24 feet	Sand
24-60 feet	Grey sand; abundant sea shells, including oyster at 40 feet
60 feet	Granite.

From a recent bore less than half a mile south of Egg Lagoon, Mr. H. Lot, the owner of the property, preserved shells from a depth of 50-60 feet; four marine specimens were identified (App. II.).

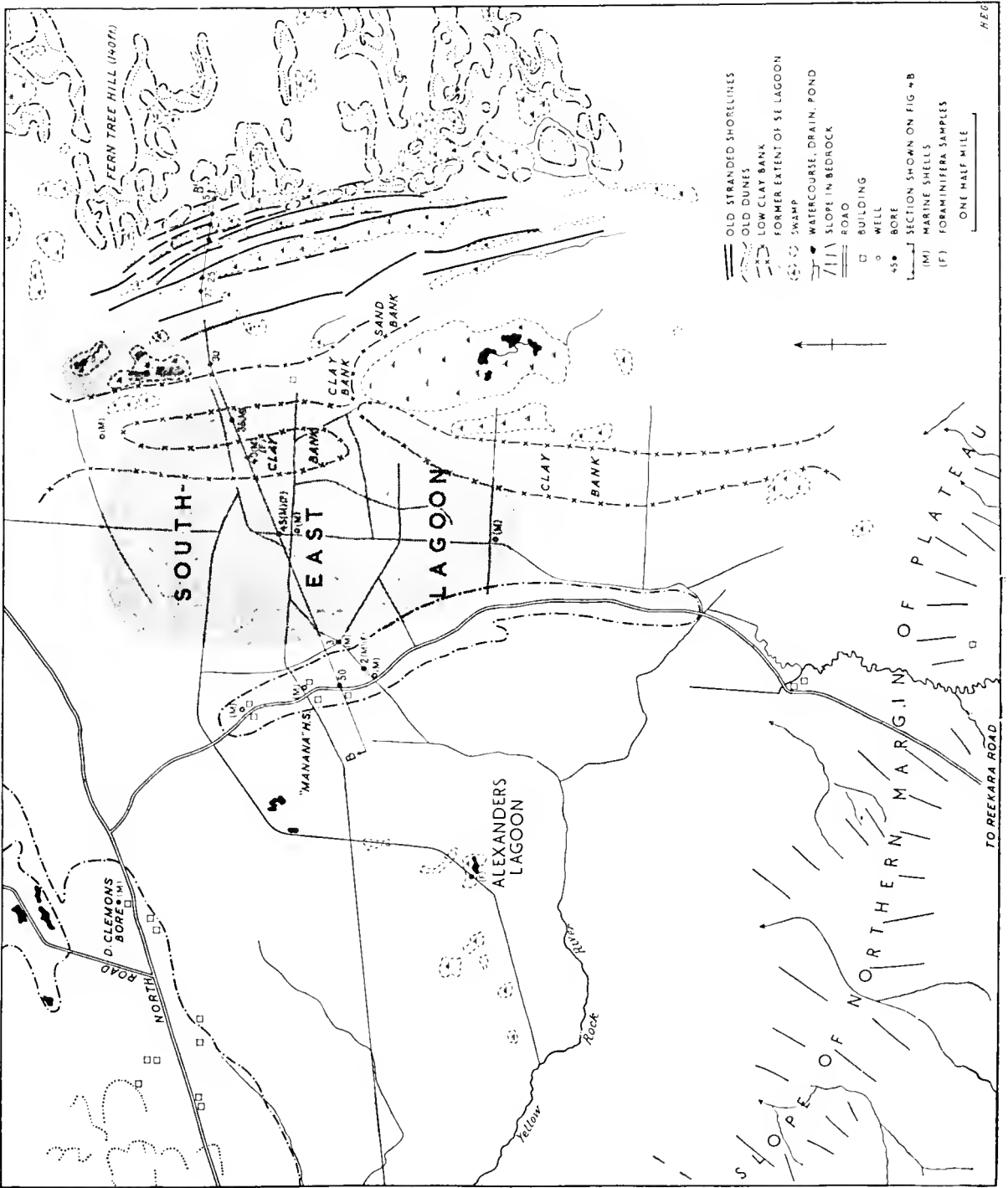


FIG. 7.—Geomorphological Features of S.E. Lagoon Neighbourhood.

Two finds of giant marsupials have been made in Egg Lagoon. Scott (1912) identified *Nototherium tasmanicum* Scott bones which he received from Mr. F. H. Stephenson, of "Yambacoona" Station. Mr. H. Graves informs me that this find was actually made in 1911 by his brother on a slightly higher islet on Plot No. 12 at the western end of Egg Lagoon. This islet is readily identifiable today and a bore was put down giving the following record:—

0- 13 cm.	Highly humified black peat
13-110 cm.	Mottled grey and buff silty clay
110-125 cm.	Brown silty clay
125-155 cm.	Black silty clay
155-180 cm.	Dark-brown silty clay with fine gravel
197-280 cm.	White gritty shell sand.

In the field the bottom deposit was estimated as an aeolianite ground up in the borcr. This is confirmed by the foraminiferal report (App. III.). Amongst the foraminifera were specimens of a *Calcarina* sp., a tropical genus not known in Bass Strait today.

The second find is recorded in detail by Keble (1945) and was made by Mr. J. G. Haynes in 1927. Teeth and jawbones of *Diprotodon australis* Owen were found scattered over a quarter of a mile of drain at the centre of Egg Lagoon in clay underlying black swamp soil. A hand bore was made within the site area during the present field work:—

0- 10 cm.	Clayey peat
10- 30 cm.	Black peaty clay
30- 70 cm.	Grey clay with fine gypsum crystals
70-125 cm.	Brown and grey silty clay with rootlets
125-340 cm.	Variably grey silty clay and green-grey clay silt, with an increasing content of fine gravel downwards.

The giant marsupials belong to the freshwater phase succeeding the previous estuarine-marine conditions. Although the modern lagoon appears to be dammed at the extreme western end by New Dunes, it cannot be assumed that the freshwater conditions did not develop till New Dune times, since the New Dunes may well overlie Old Dunes at this point. Old Dunes enclose the western part of this lagoon fairly completely otherwise, and it will be seen later that South-East Lagoon to the south must date back to Old Dune times. All that can be said, therefore, as to the age of the Egg Lagoon finds is that they may reach back to Old Dune times, but could relate to a considerably later date on present evidence.

Between Egg Lagoon and South-East Lagoon, there is flat ground a few feet higher than the lagoon floors with Old Dunes to the west and the east. This is part of the same plain of estuarine-marine sedimentation. A bore on Mr. D. Clemons' property lies close to the margin of the plain just inside the Old Dunes on the west and reached down into these sediments; only two marine mollusc species were identifiable from the bore spoil, however (Appendix II.).

The drained floor of South-East Lagoon (fig. 7) lies mainly within the "Manana" Estate, and on

the evidence of deep drains and a number of wells. Mr. J. Lewis, the manager, reports that the general sequence of deposits is as follows:—

Surface	Black Peat
	Black clay
	Fine grey sand, with cockles and mussels
— 20 feet	Grey clay, with sea shells, including oysters.

The levelled line of bores in Section B, fig. 4, confirms and elaborates this for the shallower horizons.

Between the former lagoon floor and the Old Dunes, to the east, there is interposed a series of berms and low ridges, trending NNW-SSE, but with a tendency to concavity towards the west. There are as many as seven such features with a total range in height of 51-65 feet above HWM. They are fully comparable with the Old Shorelines of the east coast, except, of course, that their gradual slopes face west and their steep slopes east. The intervening swales vary from 1-3 feet in depression and may have a couple of feet of sandy peat on top of the leached quartz sand and well-rounded fine gravel which make up the bulk of the series. In bore 10, 120 cm. of sand overly 160 cm. of highly-humified black silty peat on top of silty clay. In this case the sand ridge has been rolled back over a previous swale swamp. Well developed podsolis occur on the ridges. There can be no doubt that these are shoreline features and their significance will be discussed later.

In front of these sand ridges are certain low broad clay banks which rise 2-3 feet above the former lagoon floor, with very gradual western slopes and steeper eastern ones. There is a good deal of gypsum in the clay. There are two such banks in the north and one in the south; the inner bank on the north runs into the outermost sand ridge of the series just described. These banks appear to define the eastern margin of the former South-East Lagoon, whereas on the west the old lake floor is bordered by a long sand ridge, some two miles long and 200-400 yards across in the form of a flat arc concave to WSW. It rises 5-6 feet above the lagoon floor and is markedly asymmetrical in cross-section, gradually sloping westwards and steeply to the east. Two bores show it to be of well-rounded, coarse sand, deeply podsolised, resting on deposits flooring the lagoon generally. This ridge reaches neither to the plateau slope on the south nor the Old Dunes on the north.

Very little peat remains on the lagoon floor, though the thicknesses of ash testify to a considerable depth in the past. Below there is generally black clay up to 3-4 feet in thickness, which includes a fair amount of plant debris. It seems likely that some at least of the finds of the surveyor, K. M. Harrison, from "a drained swamp on King Island" (Scott, 1920, 1923) came from these horizons of South-East Lagoon. The species of Harrison's interesting, but ill-documented, collection include:—

<i>Nototherium mitchelli</i> Owen
<i>N. victoriae</i> Owen
<i>Macropus anak</i> Owen
<i>Zaglossus Harrisoni</i> Scott.

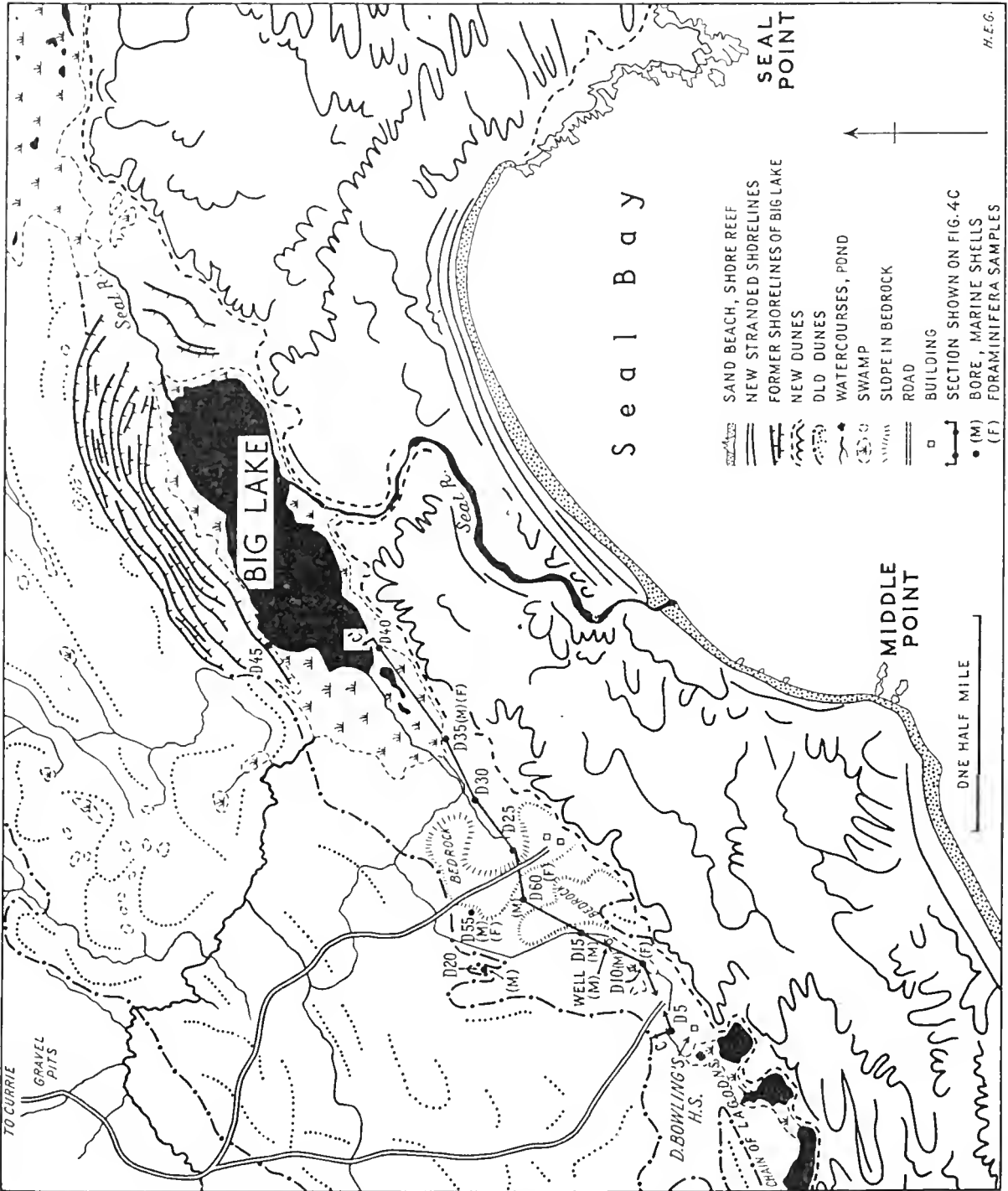


FIG. 8.—Geomorphological Features of Neighbourhood of Big Lake.

Beneath the clay to the full depth of the hand bores, there was an alternation of grey silty clay and grey or brown micaceous silt. The lamination varies from less than a cm. to tens of cm. in scale. The coarser layers become preponderant downwards. Thin horizons of shell marl and organic muds were also encountered. Several bores ended in sand and fine gravel when water prevented further penetration with the available equipment.

Four foraminiferal samples (App. III) from these silts and clays were indicative of three types of conditions:—

- (a) Fully marine, with open-sea forms swept in to mingle with local quiet water species;
- (b) Brackish water, but with open sea access to allow for certain forms. A tidal estuary;
- (c) Brackish water, with only occasional incursions of salt water. A brackish lake.

Two of these samples were adjacent in the same bore, with the more marine one on top of the estuarine one. The alternations in the sediments would then seem to reflect variation in width and depth of entry from the sea into this partially enclosed bay with the physiographic vicissitudes of the spits, bars and dunes protecting it.

The marine mollusca (Appendix II.) from the hand borings and well spoil form a mixed assemblage pointing to transport of forms from different habitats as at Cowper Point. However, here there are proportionately fewer rock reef species and more small species which favour weedy areas in sheltered inlets. This agrees with the geomorphological and foraminiferal evidence, yet there is little indication of the intermittent brackish water conditions shown by the foraminifera.

West of the "Manana" sand ridge the plain was still almost entirely scrub-covered and not closely examined. Examination of two drains, one E-W and one NE-SW, showed that it consisted of clays and silts, with a few short sand ridges rising a few feet above its surface. A bore in the drained bed of Alexander's Lagoon was sampled in clays at 8 feet; few foraminifera were found in it (App. III.) and freshwater conditions probably persisted for a long time over the lagoon site.

The interpretation placed on the South-East Lagoon data can now be presented. The sand ridges east of the lagoon cannot be lacustrine, since they rise higher than anything between themselves and the sea to the west. Therefore, they are regarded as littoral features at the head of an estuary when the clays, silts and sands of estuarine-marine nature beneath the lagoon floor were being laid down. The fact that these ridges do not extend farther north than they do implies that when they were forming Old Dunes already extended some way south from the Cape Wickham granite hills, although the gap in the Old Dunes north of the main plateau was probably broader than at present.

In the middle of this estuary, the "Manana" sand ridge was built up by wave and wind action as an offshore bar (or barrier island). On emer-

gence the plain behind this ridge became a freshwater swamp and lake. Possibly the clay banks belong to an early phase of this lacustrine phase and aeolian action on the intermittently dry floor may be involved in their construction.

Old Dune formation continued after the emergence of the estuarine-marine plain at 40-50 feet because some of them lie entirely below that level. At this point it is appropriate to mention the only marine layer found interbedded in the Old Dunes of King Island. This was in the right bank of the Yellow Rock River where it is incised in the Old Dunes immediately above the disused Yellow Rock River Cheese Factory. It is a horizontal layer predominantly of shells with some sand, 1-2 feet thick, only a few feet above the contact of the dune with the underlying granite and lying at about 15 feet above sea level. This bed must register a point in the descent of sea level from the high South-East Lagoon littoral features, a descent more fully recorded by the Old Shorelines of the east coast. The mollusc assemblage (App. II.) is similar to that from South-East Lagoon, with a rather higher proportion of littoral rock species and without the small weed dwellers.

3. From Grassy to Surprise Bay (fig. 2, fig. 8).

This coastal sector consists of sandy bays alternating with low rocky headlands. East of the asymmetrical ridge running south from Mt. Stanley to the Red Hut headland, the plateau slopes gradually down to the coast but is diversified by granite hills well forward of it. Along here rock coast preponderates over the constructional sections; New Dune development is exiguous. West of the ridge the south-eastward slope of the plateau lies well back from the coast, much more of which consists of sandy bays; there is a broad and continuous belt of New Dunes. Old Dunes are found extensively behind the whole sector though not without interruption. Both dune systems show more pronounced variation in the direction of advance of the parabolic dunes than elsewhere; this is partly due to the more varied bedrock relief of the sector. The main characteristic is that the parabolic dunes curve in from the sandy bays laterally behind the bases of the rocky headlands. The features close to the shore will be dealt with first, from east to west and later those behind the New Dune belt will be discussed. Because of the lack of local placenames a number of the lesser headlands have been lettered on fig. 2 for convenience.

In the bay between headlands C and D there is an island which consists entirely of cobbles above HWM and these are vegetated in their central parts. On headland C there are two high-lying cobble banks completely vegetated at the rear. All these are considered relict features unadjusted to present sea level.

From headland B most of the way to headland A, there is an inactive vegetated aeolianite cliff cut in the front of the New Dune belt. Behind headland B there is a very recent low foredune in front of this cliff, but farther west this is replaced by an emerged platform in granite, with beach boulders, in various stages of overgrowth by vegetation. At one part this is 20 yards wide with

dense scrub on it. The sharp nick at the cliff-foot was determined at two points as 6 and 7 feet above HWM. The peninsula of headland A carries a detached mass of aeolianite largely bereft of any loose sand; its seaward face is abruptly cliffed above bevelled granite. Shrub-covered cobbles are banked at its foot to 10 feet above HWM. Farther seaward on the peninsula is a stack of granite with a well-marked and partly shrubbed erosional shelf on its southern side. These various features are attributed to the 6-foot sea-level stand.

The bay between headland A and the Red Hut headland has a rocky shore and is backed by the steep slope of a high granite hill. Along its middle portion the New Dunes are absent and Old Dune sand covers the granite slope. This gullied sheet of Old Dune is overlapped on the west by new parabolic dunes which have advanced from the next bay right over the top of the bedrock hills behind the Red Hut headland. A large mutton-bird rookery extends over the junction of the dune systems and the contrast in colour of the sand thrown out of the burrows, grey-white on the east and yellow on the west, is very marked. This arrangement of the New and Old Dunes here side by side in relation to the coast, is important in relation to the features of the Red Hut headland itself.

The New Dunes have an abrupt margin overlooking this low broad headland but numerous rock outcrops in this slope show that here there is a partly buried cliff in the metamorphic and granite basement (Section, E. fig. 4). The low rock platform seaward of this feature has a very low new duneline on its western side and a low granite ridge at its eastern end. Between these two extend three parallel sand ridges in rising sequence from 22 feet of the lowest to 49 feet in the swale behind the highest. These ridges are similar in character to the Old Shoreline features of the east coast north of Naracoopa but their position in relation to the New Dunes will need discussion later (p. 28). Above the present-day shore reefs of much of this headland, great banks of cobbles, up to 1-2 feet in diameter, reach to 10-15 feet above HWM. On the seaward slope they are still actively abraded, above they are first covered in lichens and obviously undisturbed, then they pass under marsh vegetation and soil for as much as 30-40 yards. These banks are thought to belong to the 6-foot sea-level stand.

Seal Point is largely dune-covered; it is necessary to note, however, several broad vegetated cobble banks on the west, a small example of unattacked rock shelf and clifflet at 6 feet on the south and certain geos with vegetated cobble banks at their heads on the east.

Behind Seal Bay east of the mouth of Seal River, there is a fixed dune cliff in the New Dunes, with up to three foredunes in front. These are comparable in general nature and age to the New Shorelines of the east coast between Naracoopa and Lavinia Point, but since they are partly telescoped one against another, the swales between are very irregular in height.

Stokes Point has sand dunes right down to the shore reefs on most of its eastern side, whereas on the west there is a belt of rock exposed in front

of the dunes. This is of varying width and consists generally of rocky hummocks rising irregularly to the middle of the peninsula, with some very flat areas near the shore. The shore consists of low reefs for the most part and shows occasional small 6-foot benches and clifflets. There is a more extensive planed rock platform at the southern tip of the peninsula which includes a flat islet cut off at high tide; this emerged platform is only backed by a recognisable clifflet at its north-west corner where the break of slope is at 9 feet above HWM. More striking than these erosional features are the broad shingle ridges and cobble ramparts which line much of this western shore of the promontory. Their crests lie between 6 and 15 feet above HWM and they are generally vegetated; some of them embank ephemeral lagoons. The coarsest material is often angular and unabraded as if quite quickly thrown into the ridge and thereafter left undisturbed.

East of the Red Hut headland, the New Dunes generally abut on the Old Dunes which, in the main, advanced WNW up to the bedrock slopes. But behind the bay between headlands C and D there is a swampy depression in the rear of the New Dunes; this rises gradually to a sharp break of slope at 20-25 feet against low granite hills and Old Dunes; this appears to be an old shoreline.

West of the Red Hut headland there is a broad depression between the New Dunes and the Old Dunes. These latter take on a different character from the usual dominant pattern of subdued parabolic dunes. Here they rise from approximately sea level to between 50 and 100 feet up the south-eastern slope of the plateau in a series of SW-NE ridges, which appear to be degraded but formerly quite substantial foredunes. The depressions between are often swampy and are occupied by a number of streams which join the Seal River and its major tributaries at right angles (see fig. 7, Jennings, 1957a). Parabolic dunes are subordinate in this area. Gravel in pits by the road south of the Black Forest lie at about 50 feet behind most of these Old Dunes; they may be marine.

The Big Swamp occupies the eastern end of the depression between the two dune systems. Low sand ridges at its eastern face face its full length and relate to a phase of open water over the extent of Big Swamp which now has only small patches of open water amongst the ti-tree swamp. There is practically no gradient in Seal River between the Big Swamp and Big Lake (fig. 7). The latter is approximately at HWM since local residents relate that kelp is carried up into the lake along the Seal River from Seal Bay at very high tides. Around the northern side and eastern end of Big Lake are arranged a series of very low sand ridges, a few inches to at most 2-3 feet in height and 5-10 yards across. There is no general rise in ground level across the belt of ridges. Their disposition makes it clear that they relate to the lake and are not seashore features of the time of Old Dune formation. The assemblage registers a contraction of the lake by progradation at its present level under the influence of south and west winds. They have ceased to form since freshwater marsh vegetation now surrounds the open water. Behind the sheltered western shore there is a deeper belt of ti-tree swamp.

West of this ti-tree swamp there is gently rising cleared ground to the foot of a group of roek ridges which rise to 20-35 feet above the lake level (see Section C, fig. 4). Between these ridges and to the west as far as Mr. D. Bowling's homestead, there is level and in parts swampy ground. Beyond is the Chain of Lagoons, a series of small lakes which rise in level westwards and lie between the New Dunes on one side and on the other the plateau slopes, here partly covered by Old Dunes.

A line of bores from the Big Lake to Mr. D. Bowling's homestead, together with other scattered bores, reveals thin young sediments on the bedrock floor at levels of 15-30 feet above HWM; they are mainly sands and fine gravels, though some silty elays occur near the surface. Near the surface the sand is quartzose but lower down the proportion of shell sand increases markedly. These sands were extremely rich in marine mollusca, furnishing over 70 species (App. II.). Forms from many different habitats occur. However, intertidal roek species are much higher in proportion, sandy and sandy-mud bottom dwellers much lower than at South-East Lagoon and Cowper Point, suggesting more roek in the vicinity of this beach deposit. This corresponds closely with the geomorphological evidence. Foraminiferal samples from D10, D15 and D60 indicate open beach sands (App. III.) In D55 similar species show by their state of preservation that they accumulated in a stagnant lagoon: this site is in fact more protected from a sea to the south-east. The fossil remains, therefore, point to an open coast of rocky reefs and pocket beaches when sea level reached up to 30 feet higher than at present. The fauna is in general typical of Bass Strait today with the significant exceptions of two warmer water foraminiferal species from D60 and one further one from D55.

Below the roek ridges the sediments close to sea level have fewer mollusca (three small marine species) and the one foraminiferal sample from D35 is indicative of a marine swamp. No sea level changes are indicated but the seaward dune barrier must have been less complete than now and Big Lake must have been a salt lagoon.

4. From Whistler Point to Fitzmaurice Bay.

Though this is the longest coastal sector, it has least interest for our present purpose because the massive New Dune development has covered up most evidence of earlier physiographic events. Over most of the sector these dunes abut directly on the shoreline, which mainly consists of low roek reefs, long strike ribs in the metamorphic complex, more rounded joint-controlled blocks in the granite. There are also numerous open sandy bays of varying size.

In this context of a dune cover resting on a roek basement of slight relief, which declines gently westwards to intersect with the sea at a low angle, certain types of shore profile occur which can be regarded as normal to it in the first analysis.

(a) In the sandy bays, sand beaches front active dune cliffs, where any vegetation cover suffers constant modification with the vicissitudes of wind and wave.

(b) Behind low roek reefs, an actively worked beach of sand and shingle leads to a gradual dune slope fixed or partially fixed by vegetation.

(c) At the most exposed points, the reefs are replaced by active low cliffs in the solid, 10-15 feet high, on which the dunes rest, e.g., just north of Currie Harbour and near Whistler Point.

(d) A further common coastal profile is due to the intervention of lime-rich water seepage from the dune foot at the contact with the roek. This gives rise to a strip of tufa-marsh between beach and dunes; this densely vegetated slope builds up and becomes convex through precipitation of tufa.

But, additionally, there are certain features which clearly do not relate to the present shoreline dynamics. Thus on several of the short projecting headlands small areas of exposed roek are planed off at levels 10-25 feet above HWM; similar areas occur south of Eel Creek and south of Ettrick River. They pass under gently-rising dune slopes behind. These appear to be the lower parts of marine erosional platforms, mainly still buried by the later New Dune development. At only one point is it possible to recognise a high former shoreline on this west coast sector. This is about three quarters of a mile south of the mouth of Porky Creek on Block 49/3/39 and neighbouring blocks where the very narrow New Dune belt lies in front of or banked up against an old cliffline with its foot at 35-40 feet. Behind this degraded cliff there are scattered Old Dunes.

There are also small fragments of 6-foot roek shelf and associated clifflet, colonised by plants in various degrees and showing no signs of erosion today. They are less frequent and less clearcut than those of the Naracoopa-Grassy coast. Associated with these are stretches of unattacked aeolianite cliff with narrow vegetated beach in front of them. These are very well developed south of Pass River where they are as much as 20-30 feet high. At the Dripping Wells, a mile south of the Ettrick River, a portion of such cliff has been covered by an overhanging apron of spring tufa, which creates shallow caves with stalactites and stalagmites immediately behind the beach (Jennings, 1955). In addition, the Boggy Creek tufa terraces or rimstone dams must be mentioned. These are forming between tidemarks and above HWM behind the protection of low roek reefs.

Similarly protected are a number of small patches and strips of salt marsh, e.g., near the mouth of Bungaree Creek.

A prominent feature of certain sections of this coast, e.g., on Blocks 49/3/39 and 201/3/24 south of Pork Creek and for a mile south from Currie Harbour are the wide vegetated shingle platforms at 3-10 feet above HWM. At many points these have been extensively quarried for road metal over several decades. Yet there is no evidence of refill by modern wave action; they are, indeed, colonised by various herbs and bushes, even where the pits reached right to the active beach. There are also many cobble and shingle ramparts rising to 10-15 feet above HWM; these in some cases have bushes several feet high on them. In two instances only was fresh shingle seen thrown up onto such ramparts.

At two points emerged beach deposits were seen in section. At the north-west corner of the enclosed semi-circular bay immediately south of Netherby Bay, active erosion has provided an excellent section. An exposure 25 feet long reveals a beach platform cut into and backed by semi-consolidated New Dune. The cliff-foot lies sharply at 5-6 feet above HWM. On the platform rests the beach deposit; the lower 6 inches consists of fine gravel, sand and shell fragments, above is 18-24 inches of shingle and cobbles, with some shells and sand. The mollusca numbered ten marine species, all rock reef and rock pool inhabitants (App. II.). The second occurrence is on the south side of the bay into which Three Rivers Creek flows. Below a steep dune there is a bank of beach shingle resting on a granitic platform; in front are an active shingle beach and low rock reefs. Along the front of the bank erosion is exposing the stranded beach deposit at 3-5 feet above HWM over an interrupted exposure of 30-40 feet. The pebbles and occasional shells had a sandy matrix, cemented in parts by secondary calcite and in parts by iron oxide. The mollusc collection (App. II.) yielded only four species, three of which live on rocky shores between tide-marks. At both sites, the mollusca are all species of the present-day shores and no change in climatic conditions is implied: they are taken to indicate a small negative movement in the relative level of land sea.

The most striking point about this whole sector lies in the high proportion of it where there is no marked feature of erosional activity either in the form of a low rock cliff or active dune cliff. Much of the actual beach is protected by a wide belt of low rock reefs. In view of the storminess of the sea to the west, this is hard to understand except in terms of this recent small shift in the relative level of land and sea. The presence of such features as the Dripping Wells, the Boggy Creek tufa terraces and the fragments of salt marsh underlines particularly this dichotomy between the character of this shoreline and its exposure to marine attack.

South of Currie there are a number of well-enclosed, semi-circular bays; most of these seem to be due to the partial removal of a fill of beach shingle in hollows in the rock basement, protected by a slightly higher seaward rib of rock which now forms the "hammer-headed" promontories between the bays. Netherby Bay and particularly the bay immediately to its south are rather different. Their semi-circular beaches lie partly below 10-15 feet cliffs in semiconsolidated calcareous dunes; these dune cliffs have the appearance of descending below the sea level in the inner part of the bay and in these cases it seems to be the removal of calcareous dune material from hollows in the bedrock which has given rise to the bays. If this is so, a lower sea level than the present one is implied at the time of formation of the dunes.

DISCUSSION

The evidence for changes in the relative level of land and sea from the island can now be considered as a whole and internal difficulties considered prior to a comparison with similar data

from other parts of Australia when the question of dating can also be taken up.

1. *The 225-foot Sea Level Stand.*

Waterhouse (1915) has suggested that the lower parts of the King Island plateau, usually extremely well planed, have been smoothed by marine erosion. It is true that quartz pebble gravels can be found on flat divides well away from modern stream courses; there is, for instance such an occurrence at 220 feet on the plateau top west of Fraser Bluff. In support of this idea the present study can only point to rather indecisive spur profile steps, with inner breaks of slope at about 225 feet, at three points around the City of Melbourne Bay-Cotton's Flat coastal embayment.

2. *The 120-150-foot Sea Level Stand.*

Similar spur flattenings in this area suggest a sea level stand at 120-150 feet and this finds stronger support in the Grassy schelcite mine beach boulder bed, which in the earlier stages of the open cut were observed at 120-150 feet. Burial of this boulder bed by Old Dunes makes this still-stand earlier than the time of formation of this dune system.

When a topographical survey has provided a framework of fixed heights and contours, close morphological analysis of the plateau and rivers can be brought to bear on these possible stands of base level; at the present time further discussion is not warranted.

3. *The Old Shorelines, 65 feet to Present Sea Level.*

From 65 feet above HWM downwards, evidence for former high sea level stands is extensive, varied and indubitable. But difficulties remain because the relevant features—emerged shell beds, estuarine-marine sediments, sand ridges and berms, marine terraces, sea cliffs and sea caves—occur at nearly every height below that figure. Some of this variation is, of course, due simply to inaccuracy of height determination, especially where the aneroid is used. Also when it is a question of estimating the level of a degraded cliff-foot, rounded by weathering and obscured by colluvium, the same shoreline at different places may be allocated several heights. Constructional littoral features can be built to varying heights above a given shoreline making estimation of the related sea level imprecise. These and many other difficulties which have been set out by D. W. Johnson (1932) make marine level correlation hazardous.

The relationship of the emerged shoreline features in this height range to the two major dune systems of the island provides the basis for an initial division.

The Old Shorelines from Naracoopa to Lavinia Point are intimately associated with the formation of the Old Dunes. The latter may have begun to form before the innermost shoreline of this series developed but they certainly continued to form during the period of falling base level registered by the sequence which here occurs continuously from about 40 feet down to present sea level. Though lying higher than this series, the Old Shorelines east of South-East Lagoon, together with the associated wide plain of estuarine-marine

sediments at 50 feet, must be correlated with them since the two series abut onto the one intervening dune system. Subsequent discussion below suggests that the difference in height of the two series is not due to subsequent tilting. Differences of tidal range between the open shore of the east and the partially enclosed waters of the west seem hardly likely to explain it and the discrepancy must await more detailed work to account for it. The marine shell bed at 15 feet in the Old Dunes at the Yellow Rock Cheese Factory corresponds to some lower point in the east coast sequence. At the southern end of the island the Old Dunes behind the Big Lake-Big Swamp depression, although of the nature of foredunes and do not allow of any precise formulation of the associated sea levels, yet do indicate once more that sea level in Old Dune times has fallen from something of the order of 50 feet down to present sea level. The shelly beach deposits on Mr. D. Bowling's farm west of Big Lake register fairly accurately sea level stands at 20-30 feet in part of this fall.

All these constructional features so far discussed and attributed to the Old Shoreline sequence lie landward of the New Dunes. There is, however, the sand ridge sequence at 22-49 feet on the Red Hut headland lying in front of the New Dunes. Nowhere else are such high sand ridges found in front of the New Dunes on the island. They cannot be features younger than the New Dunes and elevated to this abnormal altitude by local uplift, since there is no evidence for faulting in the bedrock ridge or in the New Dune system behind the headland. Moreover, New Shoreline features at their normal height also occur on the headland and as will be seen later there can be little time interval, if any, between the formation of the New Dunes and such features. The explanation already given that the New Dunes advanced from west to east across the base of the headland but failed to cross the headland itself to remove or bury these older sand ridges is regarded as the correct one, though it seems a lucky chance that the features in question survived in this way. In support of it the air photos do show a rocky bottom with little sand around this and many other headlands; the bays are the chief source of sand for dune development and this plays a large part in the directions of parabolic dune advance along this coastal sector (Jennings, 1957b).

The marine terraces in the bedrock can now be considered, first where best developed between Grassy and Naracoopa. The breaks of slope at the back of these terraces are scattered over a range from 60 feet down to 3 feet above HWM; nevertheless, they do fall into three predominant classes: (1) at 40-50 feet; (2) at 20-30 feet; (3) at 3-9 feet. The last class is very much fresher in appearance, never carries deeply leached sand either as sand ridges or true dunes but does occur quite often in front of New Dunes. All the higher terraces have a much older and degraded aspect; in certain cases they carry Old Dunes and low sand ridges and berms similar to those of the Old Shorelines of the Naracoopa-Lavinia Point sector. They are therefore correlated with the constructional Old Shorelines though the possibility that the highest

terraces, at least, may be older cannot be ruled out altogether.

Between Grassy and Little Grassy Creek a terrace at 20-25 feet occurs between the New Dunes and the Old Dunes and these higher marine terraces (22-39 feet) are also represented west of Disappointment Bay, one example carrying an Old Dune on its lower part.

On the west coast similar high terraces must generally have suffered burial because of massive dune development there. Between Cataraque Point and Surprise Point, however, the dunes are on top of the cliffs and here the terrace remnants, chiefly at 40-50 feet, associated "hanging coves" and abandoned sea caves, must also belong to the Old Shoreline system. So also does the better preserved terrace at the less frequent altitude of 35 feet east of Cataraque Point in the shelter of Fitzmaurice Bay. On the north side of Surprise Bay there is the small 26-foot terrace remnant in front of the New Dunes, the assumption being that the latter have passed right over it. This again is an exceptional case; more such cases would cast doubt on the standpoint taken here that the marine terraces from 20 feet upwards antedate the formation on the New Dunes.

It will be evident that the different levels in this older emerged shoreline sequence occur in an unsystematic fashion at the northern and southern ends of the island and on the western and eastern sides, though for reasons given they are less well represented on the western side. This unsystematic scatter at various levels argues against any tilting or other tectonic deformation of the island during or since the formation of the Older Shorelines. On the present evidence the features are regarded therefore, as belonging to a single progressive emergence which affected the island uniformly.

Climatically the evidence testifies to conditions not very different from today's. The marine fauna is close to that of the present Bass Strait, the plant remains at City of Melbourne Bay on the whole correspond with the historical Yarra Creek flora and the axial direction of the Old Dunes agree closely with those of the New Dunes and both can be shown to have close relation to the present wind regime (Jennings, 1957b). Two qualifications have to be made. The warmer water foraminifera from the 15-30 feet beds west of Big Lake indicate a slightly warmer climate, whereas the *Nothofagus* and *Drimys* from the City of Melbourne Bay deltaic deposit, which relates to a sea level at least as low as the present one and yet is covered by Old Dunes, indicate, if anything, slightly wetter or cooler conditions. Thus some climatic deterioration seems to have accompanied the fall of the sea relative to the land.

The breezia, resembling periglacial "head", on the hogback cliffs of the south-west coast may be the product of subsequent colder conditions.

4. *The New Shorelines.*

The New Shorelines are best expressed between Naracoopa and Lavinia Point where, in geographical continuity, they are represented by fixed and abandoned clifflines in both New Dunes and Old Shoreline sands, by definite, though modest, fore-dunes and by low sand ridges and berms which

at best are incipient foredunes. Contemporaneity with the New Dunes is demonstrated by the relationships of the shorelines and the dunes at Lavinia Point and at Cowper Point. Moreover, the absence of New Dunes from Sea Elephant Bay south of the Blowhole is most readily explained by regarding the cutting of the cliff into the emerged slope of Old Shorelines as simultaneous with the development of New Dunes elsewhere. Only where the New Shorelines are represented by low sand ridges do the intervening swales give a good idea of the associated sea level; the innermost depression in these circumstances is usually between 3 and 9 feet above HWM.

Similar features are found in the constructional coasts of the eastern part of Seal Bay, at the Yellow Rock Foreland and to the east and west of Boulder Point.

All these occurrences could be the result of simple progradation of the coast without any change of sea level, particularly as most of them relate to the more sheltered aspects of the island's coast. But against this possibility are numerous other features all around the island which must be correlated with them. On all the rocky shores, both low and high, and on all aspects of the coast, are low clifflets a few feet high, steep and fresh, but vegetated and giving no evidence of present-day marine attack. Occasionally, they become cliffs 20-30 feet high. Bedrock, aeolianite and tufa are cliffed in this way. They lie behind narrow rock platforms or beaches, which apparently are equally inactive. In a few localities small sea caves, no longer reached by waves, are found. The cliff-foot lies between 3 and 9 feet above HWM. Though occurring sometimes in quite exposed positions, these unattacked platforms, beaches and clifflets are more frequent in protected localities, particularly so where they occur in the most exposed south-west coast.

It is clear from the facts given that these features do not fall into the category of storm-wave platforms recorded, for example, from Victoria and New South Wales, where they have occasioned vigorous discussion as to whether they are relict features of a higher sea level stand or the product of the present wave regime.

Additional in the present connection there are to be noted:—

(a) Cobble ramparts and high-lying shingle banks, between 6 and 15 feet above HWM, on some of the low rocky coasts. They show no signs of movement and are in various degrees of vegetative colonisation.

(b) Wide shingle platforms of the west coast, with old quarries unmodified by wave action.

(c) Small patches of salt marsh amongst the low reefs of the exposed west coast.

(d) The Dripping Wells tufa cliffs with their stalagmites and stalactites facing the open ocean and the Boggy Creek rimstone dams reaching below HWM.

(e) Vegetated cobble packs at the heads of geos and erosional inlets on some of the most exposed parts of the coast.

The most surprising characteristic of the King Island coast is that so much of it does not show the signs of strong marine attack; yet the storminess of its waters is well known and many of its

placenames commemorate shipwrecks. Two explanations offer—a small negative movement or a marked reduction in storminess of the surrounding seas. The fact that the phenomena concerned are very generally distributed around the whole island seems to favour the former explanation rather than the latter. A small emergence of the order of 10 feet affecting the island uniformly is the interpretation preferred here.

4. Low Sea Level Stands.

A small island, liable to strong marine erosion at times of high sea level and lacking major river valleys where aggradation may bury low sea level deposits, is not favourable to determining positive movements of sea level; this is true of King Island. Four points only need to be mentioned:—

(a) The disposition of cliffed dune sand and aeolianite around two small bays on the west coast suggest that these terrestrial deposits reach below sea level.

(b) A submerged stream channel can be seen in air photos crossing the Tertiary limestone sea floor between The Blowhole and Cowper Point.

(c) The lowermost part of Grassy Creek valley seems to be incised slightly below sea level.

(d) On the southern part of the west coast there is a submarine cliff with its basal break of slope at 30-35 fathoms, which David (1923) interpreted as a Pleistocene low sea level marine cliff. It seems likely that this is a tectonic feature. However, there are offshore reefs and islets which also rise steeply from the sea floor at that level and the general evidence from Bass Strait (Jennings, 1959, in press) suggests that David's view is acceptable and not incompatible with the feature being a fault scarp also.

Where this submergence evidence fits into the emergence already discussed is not as yet determinable, but clearly the low sea level or levels must precede the formation of the New Shorelines.

CORRELATION AND DATING.

No direct evidence of the timing of the physiographic events described is as yet available; and attempt to date them must be based on inference and comparison with other Australian coasts.

The early work of Johnston (1877, 188) remains the best account of the Furneaux Group. Emerged beach shell beds underlie aeolianite ("Helicidae Sandstone") at 40 feet on Badger and Green Islands; similar beds at undesignated but lower heights lie beneath more recent dunes on Badger and Flinders Islands; from Arthur River valley on Flinders there is separate mention of an oyster bed at 30 feet. All these can be correlated with the Old Shorelines of King Island. Edwards (1941) quotes Johnston (1888) as recording a raised beach deposit at 100 feet on Mt. Chappel Island. This is a misreading; only aeolianite is described at this level by Johnston.

From a study of a great length of the coast of N.W. Tasmania, Edwards (1941) concludes that there are three emerged levels at 100 feet, 45-50 feet and 5-15 feet. He also mentions some coastal terraces at 30 feet. The altitudinal correlations with the King Island data are obvious.

Within this area the more detailed results of Gill and Banks (1956) come from the Duck Bay-

Mowbray Swamp area. Inland of the swamp are the Christmas Hills, old dunes with deeply leached quartz sand above sandrock; Gill and Banks regard these as two separate deposits but quote Hubble's opinion that they may constitute a giant podsol. Beneath the Mowbray Swamp peats, from the base of which come important nototherian and other vertebrate remains, there is the marine Mella Sand rising to 50 feet. Gill and Banks correlate this sand with the Rocky Cape emerged sea caves which, in their view, were formed by a 70-foot sea level. But Edwards maintains that it is necessary to allow for a very thick midden fill in the caves and that the relevant sea level lay at 50-60 feet. Gill and Banks attribute the Mella Sand to the Upper Pleistocene since a C14 date from the overlying peat is $>33,760$ years.

The Mella Sand plain declines seawards where it carries an "Ancient Series of Sand Ridges", which, from their description, are very similar to the Old Shorelines of Cowper Point. The mapped ridges lie between 30 and 15 feet but apparently before drainage of the swamp they occurred at higher levels still. Farther seaward is a "Holocene Series of Sand Ridges" to be compared with the New Shorelines of Cowper Point. These are regarded as forming during the emergence from a Mid-Recent 10-foot sea level. The similarity of this sequence with the evidence from the north of King Island is striking and not solely altitudinal.

The correspondence between the data from the substantial area comprising King Island, Furneaux Group and N.W. Tasmania, in particular the close comparability between King Island and the Mowbray Swamp area, makes a provisional case for regarding the emergences of the Old and New Shorelines as eustatic. This is, of course, the interpretation which Edwards, Gill and Banks put on their own data.

Differing views on the origins of successive coastal dune systems have been held in Australia. Previously, following the work of Sayles on Bermudan dunes, the view was held that the coastal dune systems were formed at the time of Pleistocene glacial low sea levels when the retreating sea exposed the marine sands of the shelf floor to aeolian attack (Coulson, 1940; Gill, 1943; Fairbridge, 1947; Teichert, 1947). But, from their independent studies of the coastal dune ridges of the S.E. Province of South Australia, both Hossfeld (1950) and Sprigg (1952) came to regard these dunes as forming at the high sea level stands of Pleistocene interglacials or interstadials. Sprigg related each dune ridge to a single maximum sea level, whereas Hossfeld thought some related to maxima and others to halts in the falls from these maxima. Moreover, Teichert and Fairbridge (1952) revised their earlier views in the light of studies of soil horizons within the West Australian aeolian dunes. They also came to the conclusion that beach conditions similar to present ones were sufficient for dune formation and that dune belts could form during any halt in the Pleistocene glacioeustatic oscillations. Unless tectonic movements are involved, the dunes on the land surface will belong to interglacials or interstadials, whereas any dunes of glacial periods will be found submerged on the continental shelf.

The King Island evidence shows clearly the association of the dune systems with high sea level shorelines and supports the second standpoint.

The immaturity of soil profile development on the New Dunes of King Island and their freshness of form precludes their having survived a glacial low sea level period even if that were only the final advance of the Last Glaciation. They belong to the Holocene. The pronounced degradation of form and greater maturity of soil profile presumes a much greater age on the part of the Old Dunes and the intervention of a glaciation or a glacial stadium between the formation of the two systems. It is logical, therefore, to attribute the Old Dunes to either the last interstadial or the Last Interglacial. Reasons will follow for preferring the latter alternative.

Claims for a 10-foot Mid-Holocene eustatic high sea level come from such widely-scattered localities around Australia and are based on such diverse shoreline features that they are not easily set aside. From West Australia there are Teichert's and Fairbridge's studies of benches in aeolianite and coral reefs; from Victoria, Coulson and Gill have employed emerged shell beds; from the black sand seams of the coasts of New South Wales and Queensland, Beasley and Gardner independently derived a 10-foot Recent level. The New Shoreline features of King Island are therefore regarded as a further expression of this Recent 10-foot stillstand and of the succeeding emergence.

According to Gill (1956) evidence for a 25-foot level stand is the most widespread higher level in Victoria. Through Carbon-14 dating this is attributed to the Last Interglacial; mollusca and foraminifera suggest a warmer climate. Baker (1950) mentions briefly marine terraces and notches at 40 feet and 60-70 feet from W. Victoria.

Teichert and Fairbridge (1952) ascribe the Cowaramup Bay Conglomerate and other deposits in West Australia at 5-15 feet to the last Wurm II/III interstadial. The Peppermint Grove Formation of Perth is regarded as indicating a 25-foot sea level stand of the earlier Wurm I/II interstadial. These attributions are based mainly on the unsatisfactory basis of altitude correlation with England and N. Africa. Moreover, the Guildford Clay is correlated with the Peppermint Grove Formation and as the former is described as rising to 50 feet, it upsets the altitude correlation in any case. Gardner (1955) finds evidence for high sea levels of 20 feet and 45 feet along the north N.S.W. coast; the former belongs in his view to the last Wurm interstadial and the latter to the Riss-Wurm Interglacial, with the earlier Wurm interstadial unrepresented.

In this context any correlation of the King Island Old Shorelines is uncertain but the closest correspondence is with the Mowbray Swamp sequence. This sequence has the advantage of a C-14 dating. On this basis, the Old Shoreline sequence of King Island with its range of erosional and constructional features from over 60 feet down to sea level, but with more important halts at 40-50 feet and 20-30 feet is provisionally attributed as a whole to the Last Interglacial. A Carbon-14 dating of the wood from the City of Melbourne Bay deltaic deposit will provide a useful test of this correlation.

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APPENDIX I.—PLANT REMAINS FROM DELTAIC DEPOSIT EXPOSED IN CLIFF OF CITY OF MELBOURNE BAY

Fossil Wood (Identified by Mr. H. D. Ingle, C.S.I.R.O. Division of Forest Products)

- Eucalyptus* sp.
- Nothofagus* sp.
- Hardwood, not either of the above.

Fossil Pollen and Spores (Identified by Dr. S. Duigan, University of Melbourne)

POLLEN		
<i>Phyllocladus aspleniifolius</i>	91.5 %	Expressed as % of total pollen count
<i>Drimys lanceolata</i>	4.5 %	Expressed as % of total pollen count
<i>Nothofagus cunninghamii</i>	1.0 %	Expressed as % of total pollen count
Myrtaceae	0.5 %	Expressed as % of total pollen count
Unknown dicotyledons	2.5 %	Expressed as % of total pollen count
SPORES		
Unknown ferns including <i>Dicksonia</i> ? sp. & <i>Todea</i> ? sp.)	17.5 %	Expressed as % of total pollen count
<i>Cyathca</i> sp.	2.5 %	Expressed as % of total pollen count
<i>Polypodium</i> sp.	1.0 %	Expressed as % of total pollen count

APPENDIX II.—MOLLUSCA FROM KING ISLAND.

J. Hope Macpherson
(National Museum of Victoria)

+ denotes species present.
J denotes juveniles only of species present.
? denotes uncertain identification.

COWPER POINT:

Bore No.	Sample No. 15	New Shorelines and Dunes										Old Shorelines		
		8	70	71	72	73	77	100	101	106	186	196	204	
		A	B	C	D	E	F	G	H	J	K	L	M	
<i>Clanculus floridus</i> Philippi	+	
<i>Austrocochlea adelaidae</i> Philippi		+	+	+	+	..	
<i>A. constricta</i> Lamarek		+	
<i>A. odontis</i> Wood	+	+	
<i>Cantharidus ramburi</i> Crosse	+	..	
<i>Subnitella undulata</i> Solander		+	+	+	..	+	+	+	..	+	
<i>Micrastraea aurea</i> Jonas		+	
<i>Phasianella</i> sp.	?	..	
<i>P. ventricosa</i> Swainson	+	+	
<i>Sigapatella calyptraeformis</i> Lamarek	?	
<i>Hipponix</i> sp.	
<i>H. conica</i> Schumacher		+	+	+	..	
<i>Zeacumantus cerithium</i> Q. and G.		+	..	+	..	+	+	..	+	
<i>Turritella</i> sp.	+	
<i>Turbonilla mariae</i> T. Woods	+	..	
<i>Ellatrinia merces</i> Hedale. . . .		+	
<i>Zemitrella semiconvexa</i> Lamarek	+	..	
<i>Cominella lincolata</i> Lamarek		+	?	
<i>Alocospira marginata</i> Lamarek	?	
<i>A. petterdi</i> Tate	+	..	
<i>Marginella</i> sp.	+	
<i>M. formicula</i> Lamarek	+	..	
<i>Marita metralis</i> Adams and Angus	+	..	
<i>Floraconus anemone</i> Lamarek	+	
<i>Salinator fragilis</i> Lamarek		+	
<i>Glycymeris</i> sp.	?	?	?	
<i>G. radians</i> Lamarek		?	?	?	+	..	?	
<i>G. striatularis</i> Lamarek	+	
<i>Ostrea angasi</i> Sowerby	+	
<i>Venericardia calva</i> Tate	?	
<i>Codakia crassilirata</i> Tate	+	
<i>C. tatei</i> Angas	+	
<i>Cardium</i> sp.	?	?	
<i>Gomphina undulosa</i> Lamarek		+	+	..	+	+	+	?	?	
<i>Katelysia</i> sp.	?	
<i>K. peroni</i> Lamarek	?	
<i>K. scalarina</i> Lamarek		+	+	+	+	+	+	..	+	
<i>K. rhytiphora</i> Lamy		+	+	+	+	+	+	+	+	+	..	
<i>Tawera golinula</i> Lamarek	+	+	+	..	+	..	+	+	..	
<i>T. spissa</i> Deshayes	+	..	
<i>Notospisula trigonella</i> Lamarek	+	
<i>Mesodesma angusta</i> Reeve	+	+	

THE NOOK: 100-290 cm. Samples Nos., 42, 45, 59 and 61

<i>Clanculus aloysii</i> T. Woods .. .. .	..	..	..	..	+	<i>Zeacumantus erithium</i> Q. and G. .. .. .	..	..	..	+
<i>Astraea</i> sp. .. .. .	..	..	..	..	J	<i>Retusa amphizosta</i> Watson .. .. .	..	..	..	+
<i>Elachorbis</i> cf. <i>caperatum</i> .. .. .	..	..	..	..	+	<i>Caminella eburnea</i> Reeve .. .. .	..	..	..	+
<i>Laevilitorina mariae</i> T. Woods .. .. .	..	..	..	..	+	<i>Cylichnina iredaleana</i> Hedley .. .. .	..	..	..	+
<i>Diala lauta</i> A. Adams .. .. .	..	..	..	..	+	<i>Salinator</i> sp. .. .. .	..	..	..	+
<i>D. pulchra</i> A. Adams .. .. .	..	..	..	..	+	<i>Melliteryx helmsi</i> Hedley .. .. .	..	..	..	+
<i>Assimineca brazieri</i> T. Woods .. .. .	..	..	..	..	+	<i>Katelysia peroni</i> Lamarek .. .. .	..	..	..	+

SOUTH EAST LAGOON AND NEIGHBOURING BORES:

Bore No.	2	2	2	3	35	40	Well in middle lagoon	Old mill well	D. Clemens's Bore	H. Lot's Bore
Depth		44-48"	48-52"	60-66"	3-3.5m	2.7-3.1m				
Sample No.	63	64	35	65	66	50	68	70	56	13
<i>Clanculus plebejus</i> Philippi	+	..	+
<i>Hypotrochus monachus</i> Crosse and Fischer	+
<i>Subinella undulata</i> Solander	+
<i>Etea tasmanica</i> T. Woods	+	+
<i>Laevilitorina mariae</i> T. Woods	+	+
<i>Diala pagodula</i> A. Adams	+	+	+
<i>D. pulchra</i> A. Adams	+	+
<i>Assimineca brazieri</i> T. Woods	+	+
<i>Cithna angulata</i> Hedley	+
<i>Rissoa</i> sp.	+
<i>Cerithium</i> sp.	+
<i>Eubittium insculptum</i> (Reeve)	+
<i>Odostomia metcalfei</i> P and Gat.	+
<i>Zemitrella</i> sp.	J	..	..	..	..	..	..	..
<i>Z. semiconvexa</i> Lamarek	?
<i>Nassarius</i> sp.	?
<i>Parcanassa</i> sp.	?
<i>P. pauperata</i> Lamarek	+
<i>Microvoluta</i> sp.	J	..	..	..	..	..	..	+
<i>Marginella</i> sp.	?	+
<i>Ostrea angasi</i> Sowerby
<i>Notomytilus rubra</i> Hedley	+
<i>Venericardia</i> sp.	J	..	..	..	..	..	..	..	..
<i>Melliteryx helmsi</i> Hedley	+	?	..
<i>Cardium</i> sp.
<i>Katelysia</i> sp.	?
<i>K. peroni</i> Lamarek	+
<i>K. scalarina</i> Lamarek	+
<i>K. rhytiphora</i> Lamy	+	+	?	+

YELLOW ROCK CHEESE FACTORY: Sample No. 56.

<i>Amblychilepas javanicensis</i> Lamarek .. .. .	..	+	<i>Glycymeris radians</i> Lamarek .. .. .	..	..	+
<i>Sophismalepas oblonga</i> Menke .. .. .	..	..	<i>G. striatularis</i> Lamarek .. .. .	..	..	+
<i>Haliotis</i> sp. .. .. .	..	?	<i>Ostrea angasi</i> Sowerby .. .. .	..	..	+
<i>Cellana tramoserica</i> Sowerby .. .. .	..	+	<i>Cardium</i> sp. .. .. .	..	..	?
<i>Micrastraea aurea</i> Jonas .. .. .	..	+	<i>Gomphina undulosa</i> Lamarek .. .. .	..	..	+
<i>Hipponix conica</i> Schumacher .. .. .	..	+	<i>Tawera gallinula</i> Lamarek .. .. .	..	..	+
<i>Pleuroploca australasiae</i> Perry .. .. .	..	+	<i>Notispisula trigonella</i> Lamarek .. .. .	..	..	+
<i>Floraconus anemone</i> Lamarek .. .. .	..	+	<i>Mesodesma angusta</i> Reeve .. .. .	..	..	+

D. BOWLING'S FARM (between Chain of Lagoons and Big Lake).

Bore No.	Higher Sediments							Lower Sediments		
	well	D10 1.5- 1.9m.	D15	D15 1.45- 1.6m.	D20 1.75- 2.45m.	D55 1.15- 1.36m.	D55	D60 1.05- 1.6m.	D35 1.55- 1.65m.	D35 1.7- 1.8m.
Sample No.	40	47	49	52	58	41	55	38	44	37
<i>Sophismalepas crucis</i> Beddome	+
<i>S. oblonga</i> Menke	+
<i>Macrochisma tasmaniae</i> Sowerby	+
<i>Haliotis roei</i> Gray	+
<i>H. ruber</i> Leach	+	+
<i>Clanculus aloysii</i> T. Wood	+	..	+
<i>C. plebejus</i> Philippi	+	+	..	+
<i>Gibbula</i> sp.	+
<i>Herpetopoma aspersa</i> Philippi	+
<i>Phasianotrochus</i> sp.	?	?
<i>P. crinitus</i> Perry	+	?
<i>Bankia fasciata</i> Menke	+
<i>Cantharidus ramburi</i> Crosse	+	+
<i>Austrocochlea adelaidae</i> Philippi	+
<i>A. constricta</i> Lamarek	+	+	+	+
<i>A. olontis</i> Wood	+	+
<i>Hypotrochus monachus</i> C. and F.	+	+	..	+	+	+
<i>Calliotrochus</i> sp.	?	+
<i>Subminella undulata</i> Solander	+
<i>Micrastraea aurea</i> Jonas	+
<i>Phasianella</i> sp.	+	+	+
<i>P. ventricosa</i> Swainson	+	+
<i>Munditia subquadrata</i> T. Woods	+	+
<i>Elachorbis harriettae</i> Petterd	+
<i>Actinoleuca calamus</i> C. and F.	?
<i>Cellana solida</i> Blainville	+	+
<i>Chiazaemaea</i> sp.
<i>Patelloida alticostata</i> Angas	?	..	?
<i>Laevilitorina mariae</i> T. Woods	+
<i>Pseudorissoina tasmanica</i> T. Woods	+	+
<i>Sigapatella calyptraeformis</i> Lamarek	+
<i>Antisabia foliacea</i> Q. and G.	+	+
<i>Hipponix conica</i> Schumacher	+	..	+	?	..	+
<i>Ataxocerithium serotinum</i> A. Adams	+	+
<i>Zeacumantus cerithium</i> Q. and G.	+
<i>Triphora angasi</i> Crosse and Fischer	+
<i>Fossarina petterdi</i> Crosse	?
<i>Turbonilla hofmani</i> Angas	+
<i>T. mariae</i> T. Woods	+
<i>Eulima cozi</i> Pilsbry	+
<i>Cymatiella lescuri</i> Iredale	+	+
<i>C. verrucosa</i> Reeve	+	+
<i>Notocypraea angustata</i> Gmelin	+	..	+	..	+
<i>Ellatrvia merces</i> Iredale	+

D. BOWLING'S FARM: *continued*—

Bore No.	Higher Sediments								Lower Sediments	
	well	D10 1.5- 1.9m.	D15	D15 1.45- 1.6m.	D20 1.75- 2.45m.	D55 1.15- 1.36m.	D55	D60	D35 1.55- 1.65m.	D35 1.7- 1.8m.
Depth										
Sample No.	40	47	49	52	58	41	55	38	44	37
<i>Litozamia brazieri</i> T. Woods	+	..	+
<i>Lepsiella reticulata</i> Blainville	+	?
<i>Zemitrella austrina</i> Gaskoin	+
<i>Z. semiconvexa</i> Lamarek	+	+	+	+	+	+
<i>Z. tenebrica</i> Reeve	+
<i>Retiwanassa mobilis</i> Hedley and May	+
<i>Tarantoltha tosmatica</i> T. Woods	+	+
<i>Cominella eburnea</i> Reeve	+
<i>C. lineolata</i> Lamarek	+	+
<i>Alocospira lineata</i> Kiener	+
<i>A. marginata</i> Lamarek	+	..	+	?
<i>A. petterdi</i> Tate	+
<i>Marginella</i> sp.	?	..	?
<i>M. formicula</i> Lamarek	+	+	+
<i>M. inconspicua</i> Sowerby	+
<i>M. ovatum</i> Sowerby	+
<i>M. pygmaea</i> Sowerby	?	..	+	..	+
<i>Austromitra angasi</i> Brazier	+
<i>Floraconus</i> sp.	?
<i>P. anemone</i> Lamarek	+
<i>Pseudodaphnella modesta</i> Angas	?
<i>Terebra ustulata</i> Deshayes	+
<i>Siptonaria diemensis</i> Q. and G.	+	..	+
<i>Glycymeris</i> sp.	?
<i>Arca pistachia</i> Lamarek	+
<i>Mytilus</i> sp.	?
<i>Modiolus pullex</i> Lamarek	+
<i>Cardita calyculata</i> Linne	+
<i>Meliteryx helmsi</i> Hedley	+	..
<i>Mysella donaciformis</i> Angas	+
<i>Tawera gallinula</i> Lamarek	+	+
<i>T. spissa</i> Deshayes	+
<i>Hiatella australis</i> Lamarek	+

THREE RIVERS: Sample 31.

<i>Austrocochlea</i> sp. ?	<i>Micrastraea aurea</i> Jonas +
<i>Cellana solida</i> Blainville +	<i>Pleuroploca australasiae</i> Perry +

BAY SOUTH OF NETHERBY BAY: Sample 16.

<i>Austrocochlea adelaidae</i> Philippi +	<i>P. victoriana</i> (Singleton) +
<i>A. constricta</i> Lamarek +	<i>Patellanax peroni</i> Blainville +
<i>A. odontis</i> Wood +	<i>Dicathais testitosa</i> Lamarek +
<i>Subinnella undulata</i> Solander +	<i>Zemitrella semiconvexa</i> Lamarek ?
<i>Patelloida alticostata</i> Ongas +	<i>Cominella lineolata</i> Lamarek +

APPENDIX III.—REPORT ON FORAMINIFERAL SAMPLES FROM KING ISLAND, TASMANIA

A. C. Collins

Bowling's Farm, Surprise Bay.

Sample 38, Bore D60. Dark-grey shell and quartz sand, 105-160 cm.

Residue after washing is almost entirely calcareous; bryozoan fragments are dominant; there are also small mollusca, echinoid spines, sponge spicules, worm tubes, ostracoda. Many foraminifera are present, over 100 spp. Some small sharp-edged quartz grains occur.

Floatingly mostly consist of the lighter bryozoan fragments with foraminifera, ostracoda and gastropod molluscs. The foraminiferal assemblage is that of an open-sea beach sand as found on the mainland at places like Torquay with the exception of two species. *Quinqueloculina monynensis* has so far been recorded only from the warm-water Pleistocene shell-beds of Port Fairy. *Poroeponides lateralis* is a tropical species. One specimen only was found, poorly developed, but otherwise typical.

Sample 41, Bore D55. Grey shell sand, 115-136 cm.

Residue after washing and floating similar to those of sample 38. The foraminiferal assemblage of about 70 spp. is that of an open-sea beach sand in composition but not in preservation. Many of the miliolid tests are stained grey or black, in some cases the whole test being a polished jet-black. This suggests deposition under reducing conditions, e.g., material derived from adjacent shallow-water being carried by waves or high tides into a stagnant lagoon.

Two specimens of the foraminifera, *Fabularia* sp. e.f. *lata* Collins were found in this material, both black-stained like other miliolids. The only previous record for *F. lata* is from warm-water Pleistocene shell beds at Port Fairy, Vic., while a closely-similar, if not identical, form has been recorded from shallow water off Kingston, South Australia. The genus has in general been recorded from warm-water deposits from the Eocene onward. This record suggests rather warmer climatic conditions at the time of deposition than at present.

Sample 47, Bore D10. Shell and quartz sand, 150-190 cm.

Residue after washing consists of clear quartz sand, grains well rounded, with a good deal of shell debris, echinoid spines, bryozoan fragments, foraminifera, &c.

Floatingly consist mainly of foraminifera, about 80 spp., of recent shallow-water Bass Strait faeces; also there are the lighter fragments of bryozoa, ostracoda and small mollusca. The material is a typical open-sea beach sand.

Sample 38, Bore D35. Grey quartz sand and gravel with occasional shell fragments, 170-180 cm.

Residue after washing consists mainly of quartz sand, larger grains rounded, smaller angular, also some larger fragments of greenish fine-grained rock. A good deal of carbonaceous matter is present, adhering to the sand grains and giving the material its dark colour.

Floatingly contain a fair number of foraminifera, of about 55 spp. and a normal shallow-water Bass Strait faeces. Specimens are mostly rather small, with surfaces dulled or eroded and in some cases dark-stained. Other organisms include discoidal diatom tests, sponge spicules, ostracoda and coxiellid gastropods.

Foraminiferal and other evidence suggests conditions of normal salinity but somewhat sapropelic bottom conditions, not very favourable to the growth or preservation of foraminifera, e.g., a marine swamp.

South-East Lagoon.

Sample 34, Alexander's Lagoon. Grey clay, 92-96 in.

Residue is mostly sharp clear quartz grains. Floatingly consist mainly of a matted accumulation of a bright-green stellate desmid alga. One specimen of a foraminifera was found—*Fissurina* sp., in poor condition, possibly adventitious.

Evidence is negative only; the deposit is presumably freshwater.

Sample 35, Bore 2. Dark-grey silty clay, with shells, 58-52 in.

Residue after washing is mostly shell debris with fibrous carbonaceous matter; there are some fine quartz grains and a good deal of mica.

Floatingly include small mollusca, with many coxiellids, ostracoda, and very many specimens of a species of the foraminiferal genus *Streblus*, so common as to make up about a quarter of the entire float. Five spp. of the genus *Elphidium* were present, the remaining 19 spp. being all such as are found in the shallow waters of Bass Strait, with no arenaceous miliolid forms.

The preponderance in numbers of the species of *Streblus* and *Elphidium*, genera known to have species tolerant of low salinities, combined with the paucity of other species, suggests brackish-water tidal conditions, as in an estuary.

Sample 36, Bore 2. Green-yellow clay-gyttja, with shells, 44-48 in.

Residue after washing consist mainly of molluscan shell-fragments, clean and well preserved, with ostracoda, echinoid spines, &c., and a good deal of mica. Some fairly large quartz grains are subangular or sharply faceted.

Floatingly consist largely of small foraminifera, well preserved and unstained, with a strong element of large specimens of *Elphidium* sp. sf.

crispum (L.). There are also some large specimens of *Streblus* sp., but they are not common. The smaller species are of similar facies to sample 35.

This is an assemblage which almost suggests two separate provenances—a local quiet-water marine element consisting of the larger species, and a current-transported assemblage of the smaller and lighter forms from an open-sea source. Corio Bay, Vic., has shore-sand assemblages dominated by this species of *Elphidium*. There does not seem to be any strong evidence of low salinity. Mineral contents suggest short travel of the quartz and mica fraction. The development and good preservation of the larger foraminiferal and molluscan shells seems to be at variance with sapropelic bottom conditions as suggested by the identification of the deposit as clay-gyttja.

Sample 50, Bore 40. Grey clay-silt, with shells, 270-310 cm.

Residue after washing is a fine-grained calcareous sand, with shell debris, foraminifera, ostracoda, small mollusca, echinoid spines, sponge spicules and some clear quartz grains.

Streblus sp. is dominant in the floatings, which also contained coxiellid gastropods. Other foraminifera, about 50 spp., were of shallow-water open sea facies, with some grey-staining and erosion. The foraminiferal and other evidence suggests brackish-water conditions with open sea access, e.g., tidal estuaries.

Sample 53, Bore 45. Grey silt with shells, 255-268 cm.

Residue after washing is mostly of angular quartz grains with mica flakes.

Floatings consist almost entirely of coxiellid shells, with a few foraminifera dominated by

Streblus sp., grey-stained and eroded. The evidence suggests brackish-water lake conditions with occasional access by the sea.

Egg Lagoon.

Sample 54. White shell sand, 197-260 cm. Bore at *Nototherium* site (whereas all above are estuarine-marine sediments, this may be an aeolianite mashed up in the auger).

The material consists mostly of calcareous fragments with some quartz grains, rather angular. Shell fragments and foraminifera have a rather "frosted" appearance, including those which are naturally glassy and translucent. The material compares rather closely with an aeolianite from Cape Grim, Tas. (coll. E. D. Gill), and is probably of similar provenance. There are about 60 spp. of foraminifera, all Bass Strait forms, with the exception of *Calcarina* sp. cf. *calcar* d'Orb. *Calcarina* as a genus is tropical in distribution. Specimens found are not well preserved but are rather like a form found in Western Australian and Barrier Reef waters. Genus was recorded also from the Pleistocene of Port Fairy. It is not known as recent in Bass Strait.

The ecological indications vary from probable fresh-water deposits to marine beach-sand. The only evidence of climatic difference is given in the occurrence of *Quinqueloculina moynensis* and *Poroponides lateralis* in Sample 38, of *Fabularia* sp. cf. *lata* in Sample 41, and of *Calcarina* sp. in Sample 54. These invite comparisons with the climate of the last Pleistocene warm period. They also, indirectly, give some age evidence, since to the best of my knowledge these species do not occur in the Bass Strait area in the recent state. Otherwise all species appear to be of recent Bass Strait facies.

LIST OF SPECIES IDENTIFIED

NOTE—"Discorbis" s.l has recently been subdivided into a number of genera by Bermudez. These records are however kept under the names recorded in the literature for convenience in reference. All are well-known species.

+ denotes species present.

≈ denotes dominant species.

	SAMPLES								
	38	41	47	37	35	36	50	53	54
<i>Tertularia agglutinans</i> d'Orb.	+
<i>T. pseudogramen</i> Chapman and Parr	+	+	+	+
<i>T. sagittula</i> DeFrancee	+	+
<i>Gaudryina</i> (<i>Pseudogaudryina</i>) <i>hastata</i> Parr	+	+	+	+
<i>Clavulina difformis</i> Brady	+	+
<i>Quinqueloculina costata</i> d'Orb.	+
<i>Q. baragwanathi</i> Parr	+	+	+
<i>Q. bradyana</i> Cushman	+
<i>Q. lamarekiana</i> d'Orb.	+
<i>Q. moyneensis</i> Collins	+
<i>Q. subpolygona</i> Parr	+	+
<i>Spiroloculina angustearalis</i> Parr	+
<i>S. scita</i> Cushman and Todd	+	..	+
<i>Sigmulina australis</i> (Parr)	+	..	+
<i>Triloculina labiosa</i> d'Orb.	+
<i>T. cf. oblonga</i> (Montagu)	+	+	+
<i>T. tricarinata</i> d'Orb.	+
<i>T. trigonula</i> (Lamarek)	+	+	+	+
<i>T. striatotrigonula</i> (P. and J.)	+	+
<i>Pyrgo depressa</i> (d'Orb.)	+	+	+	+
<i>P. subglobulus</i> Parr	+
<i>Biloculinella glabula</i> (Born.)	+	+	+	+
<i>Fabularia</i> sp. aff. <i>lata</i> Collins	+
<i>Nevillina coronata</i> (Millett)	+
<i>Tubinella funalis</i> (Brady)	+
<i>Lenticulina crepidula</i> (F. and M.)	+
<i>L. gibba</i> (d'Orb.)	+	+	+
<i>L. (Robulus) suborbicularis</i> Parr	+
<i>Planularia australis</i> Chapman	+
<i>Faginulina vertebralis</i> Parr	+
<i>F. bassensis</i> Parr	+	+	+
<i>F. patens</i> Brady	+
<i>Amphicoryne scalaris</i> (Batsch)	+	+	+	+
<i>Lagena laevis</i> (Montagu)	+
<i>L. distoma-margaritifera</i> P. and J.	+	+	+
<i>L. distoma-margaritifera</i> var. <i>victariensis</i> Parr	+	+
<i>L. ramulosa</i> Chapman	+	+	+
<i>L. sulcata</i> (Walker and Jacob)	+	+	+	..	+	+	..	+
<i>L. perlucida</i> (Montagu)	+	..
<i>L. subacuticosta</i> Parr	+
<i>Oolina ampulla-distoma</i> (R. Jones)	+	+
<i>O. costata</i> (Williamson)	+	+	+
<i>O. globosa</i> (Montagu)	+
<i>O. hexagona</i> (Williamson)	+	+	+
<i>O. squamosa</i> (Montagu)	+	+	+	+	+	+
<i>O. variata</i> (Brady)	+
<i>Fissurina clathrata</i> (Brady)	+	..	+
<i>F. lacunata</i> (Burrows and Holland)	+	+	+	..	+
<i>F. marginato-perforata</i> Seguenza	+	+	+	+
<i>F. arbignyana</i> (Seguenza) var.	+	+	+
<i>F. lagenoides</i> (Williamson)	+	+	+
<i>F. subquadrata</i> Parr	+
<i>F. lucida</i> (Williamson)	+
<i>F. marginata</i> (Walker and Boys)	+	+	..	+	+	..
<i>Parafissurina quadrata</i> Parr	+	+	..	+
<i>Gattulina lactea</i> (W. and J.)	+
<i>G. problema</i> d'Orbigny	+	+

	SAMPLES									
	38	41	47	37	35	36	50	53	54	
<i>G. regina</i> (Brady, Parker and Jones)	+	+	+	+	
<i>Globulina gibba</i> d'Orbigny	+	..	+	
<i>Polymorphina lowchini</i> Cushman and Ozawa	+	
<i>Sigmoidella kagaensis</i> C. and O.	+	
<i>S. elegantissima</i> Parker and Jones	+	+	+	
<i>Bolivina folium</i> (P. and J.)	+	
<i>Bulinina madagascariensis</i> d'Orbigny	+	+	+	
<i>Bulinina marginata</i> d'Orbigny	+	+	+	+	+	
<i>B. sp. aff. elongata</i> d'Orb.	+	+	
<i>Virgulina sp. aff. pauciloculata</i> Brady	+	+	
<i>Reussella sp. aff. simplex</i> Cushman	+	+	+	+	
<i>Bolivina compacta</i> Sidebottom	+	..	+	+	+	
<i>B. pseudoplicata</i> Heron-Allen and Earland	+	..	+	+	+	+	+	..	+	
<i>Urigerina bassensis</i> Parr	+	+	+	+	..	+	
<i>Siphogenerina raphanus</i> (P. and J.)	+	+	+	
<i>Angulogenerina angulosa</i> (Will.)	+	..	+	
<i>Trifarina bradyi</i> Cushman	+	
<i>Cassidulina delicata</i> Cushman	+	
<i>Spirillina inaequalis</i> Brady	+	
<i>S. denticulata</i> Brady	+	+	..	
<i>Patellina corrugata</i> Williamson	+	
<i>Patellinella inconspicua</i> (Brady)	+	+	
"Discorbis" <i>williamsoni</i> Chapm. and Parr	+	+	
"D." <i>raresecns</i> (Brady)	+	+	
"D." <i>globularis</i> (d'Orbigny)	+	..	+	+	
"D." <i>australensis</i> H.-A. and E.	+	+	+	+	..	+	
"D." <i>pulvinatus</i> (Brady)	+	+	+	
"D." <i>patelliformis</i> (Brady)	+	
"D." <i>dimidiatus</i> Parker and Jones	+	+	+	+	..	+	
<i>Discorbinella biconcava</i> (P. and J.)	+	+	+	+	..	+	
<i>D. disparilis</i> (Sidebottom)	+	+	+	+	
<i>Heronallenia lingulata</i> (B. and H.)	+	..	+	
<i>H. translucens</i> Parr	+	+	
<i>Porocponides lateralis</i> (Terquem)	+	
<i>Valvulineria collinsi</i> (Parr)	+	
<i>Streblus sp. (?)</i>	+	..	+	≈	+	≈	+	+	
<i>Calcarina sp. cf. calcar</i> d'Orb.	+	
<i>Globigerina bulloides</i> d'Orb.	+	+	+	..	+	+	
<i>Globigerinoides conglobatus</i> (Brady)	+	+	+	+	
<i>Orbulina universa</i> d'Orbigny	+	+	+	
<i>Sphaeroidina bulloides</i> d'Orb.	
<i>Globorotalia crassula</i> Cushman and Stewart	+	+	+	+	..	+	..	+	
<i>Truncorotalia truncatulinoides</i> (d'Orbigny)	+	+	+	+	
<i>Tretomphalus concinnus</i> (Brady)	+	
<i>Cibicides lobatulus</i> (W. and J.)	+	+	..	+	
<i>C. pseudoungerianus</i> Cushman	+	+	
<i>Dyocibicides laevis</i> Parr	+	+	+	
<i>Planorbulina rubra</i> d'Orb.	+	+	
<i>Acervulina inhaerens</i> (Schultze)	+	
<i>Gypsina vesicularis</i> P. and J.	+	..	+	+	..	+	
<i>Elphidium sculpturatum</i> Cushman	+	..	+	+	
<i>E. macellum</i> (Fichtel and Moll)	+	+	
<i>E. macellum</i> var. <i>limbatum</i> (Chapman)	+	
<i>E. crispum</i> (Linne)	≈	
<i>E. sp. aff. articulatum</i> (d'Orb.)	+	
<i>E. argenteum</i> Parr	+	+	+	+	..	+	

+ denotes species present.

≈ denotes dominant species.

Year	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Production (1000 tons)	100	100	100	100	100	100	100	100	100	100	100
Consumption (1000 tons)	100	100	100	100	100	100	100	100	100	100	100
Stocks (1000 tons)	0	0	0	0	0	0	0	0	0	0	0

Year	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Production (1000 tons)	100	100	100	100	100	100	100	100	100	100	100
Consumption (1000 tons)	100	100	100	100	100	100	100	100	100	100	100
Stocks (1000 tons)	0	0	0	0	0	0	0	0	0	0	0



RECORDS OF THE QUEEN VICTORIA MUSEUM, LAUNCESTON

COMMENTS ON THE CAINOZOIC HISTORY OF WESTERN TASMANIA

By

B. SCOTT

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ABSTRACT

A series of unconsolidated sands and gravels, with bands of clay and lignite, extends from Strahan and Malanna southwards to the Wanderer River, covering an area of approximately 225 square miles. Fossil determinations on two carbonaceous horizons at Strahan indicate an Upper Cainozoic age (probably Pliocene) for these deposits. Sections in cliff exposures on the eastern shore of Macquarie Harbour combined with the results of drilling by the Tasmanian Department of Mines show a minimum thickness of 730 feet, of which approximately 560 feet is below the present sea level. These beds are believed to have been deposited during the Upper Cainozoic in a graben. Continued movement on the boundary faults during deposition is indicated and the cyclic nature of the sedimentation could be related to this feature. Movement on these faults after deposition (post-Pliocene) is indicated by the presence of sediments at an elevation of 1,000 to 1,200 feet above the present sea level.

INTRODUCTION

During the regional mapping campaign of S.W. Tasmania recently carried out by personnel of Lyell-E.Z. Explorations (the exploration branch of Mt. Lyell Mining and Railway Co. Ltd. and the Electrolytic Zinc Co. of Australasia Limited), a series of unconsolidated sands and gravels, with bands of clay and lignite, was found to extend from Strahan (Figure 1) and southwards to cover an area of approximately 225 square miles. The sediments were demonstrated to be masking areas which would contain rocks belonging to the Dundas Group and Owen Conglomerate, of Lower Palaeozoic age. As these older rocks form the host for many of the sulphide deposits which are found on the West Coast, such as at Rosebery and Queenstown, it became necessary to examine these younger rocks in some detail in order to understand their broad outlines of lithology and thickness. As this work progressed, a study was also made of the various levels, or surfaces, to be seen within, and beyond, these unconsolidated sediments.

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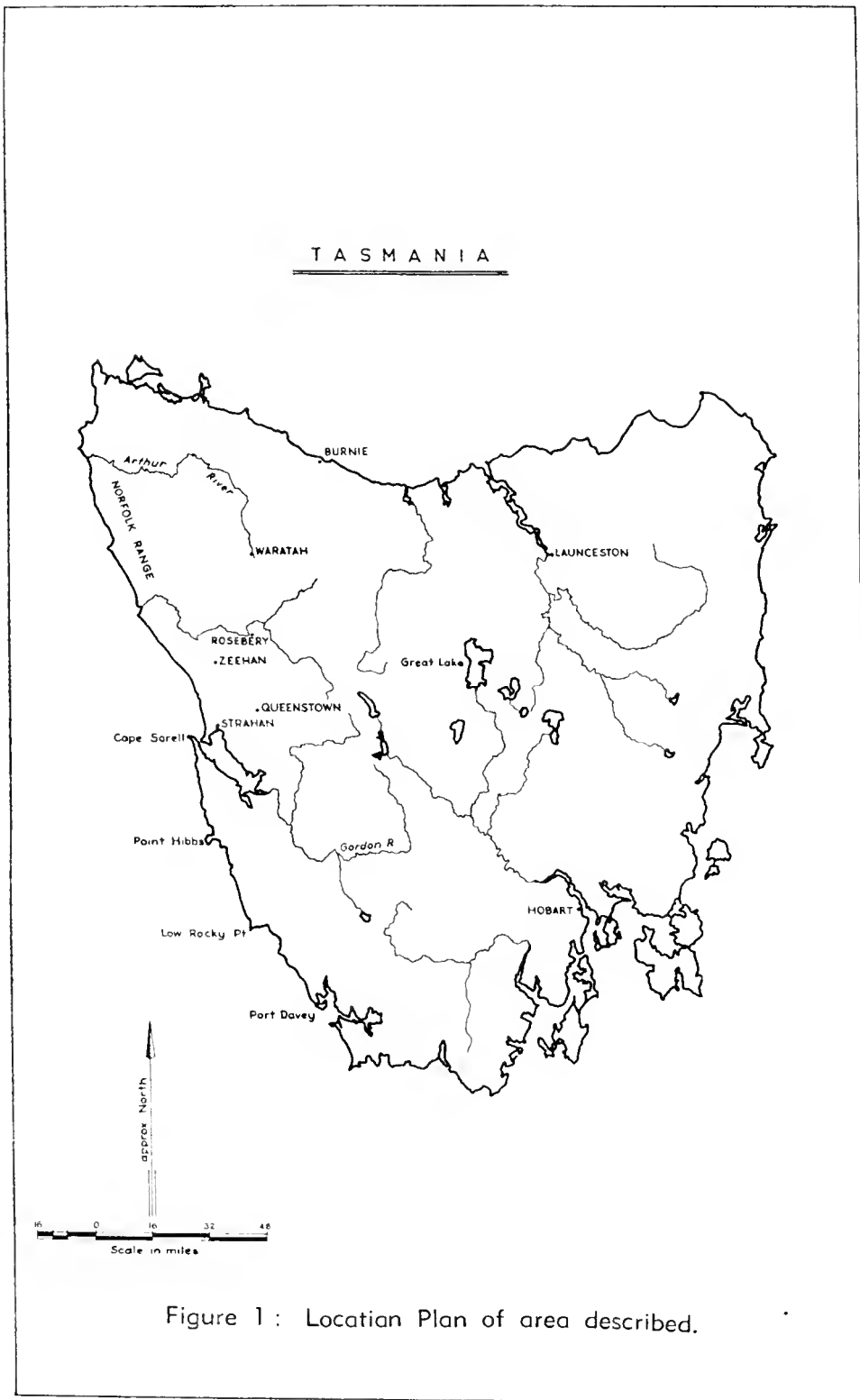


Figure 1 : Location Plan of area described.

PREVIOUS WORK

The first observations relating to these sediments were made by Lempriere (1954) who was Commissariat Officer for the period 1835-1839 on the convict settlement which had been established on Settlement Island in Macquarie Harbour. His observations relate to the poor nature of the soil in the area, and the lignite at Coal Head. Later workers in C. Gould (1862), R. M. Johnston (1888, 1890, p. 53, 1894 p. 73), T. B. Moore (1894 p. 147, 1895 p. 56 and 62), A. Montgomery (1894, p. 167), C. L. Hills (1914), S. W. Carey (1950) and J. Bradley (1954, p. 193) make reference to these sediments on the east shore of the Harbour. Hills refers to a thickness of about 100 feet of horizontal beds of clays, sandstones, mudstones and lignites at Kelly Basin, in the S.E. corner of the Harbour. Further to the north, A. Montgomery (1890, p. 42), R. M. Johnston (1892, p. 11), J. W. Gregory (1904 p. 37) noted the presence of clays and lignites in the lower Henty River area and David (1926, p. 91) records the presence of lignitic shales and sandstone from the same area. Most recently, Banks and Ahmad (1959, p. 117) have presented a detailed account of the lithology and structure of these sediments in the Henty area. South of Macquarie Harbour the only reference to these sediments is by F. Blake (1936) in his report on the Wanderer River area.

During the last two summers sections were measured by R. G. Elms at Conder River (Locality L) and Moore's Valley (Locality M, Figure 2), by P. Rodda at the Spero River and Moore's Valley, and by B. Scott elsewhere. Apart from these localised studies work of a general nature was carried out by way of helicopter reconnaissance and the examination of aerial photographs.

DEPOSITS

It will be convenient to describe the deposits exposed from Macquarie Harbour southwards to Moore's Valley. To arrive at some overall coverage a description of the Cainozoic sediments at the Lower Henty River is also included. The description is from the recent paper by Banks and Ahmad (1959).

1. LOWER HENTY AREA; Section from Govt. Railway cuttings between Malanna and the Henty River (Locality A on Fig. 2).

"The Cainozoic deposits exposed in the railway cuttings consist of more or less unconsolidated rocks, with gravels, cross bedded sands, clays and lignites being represented. The gravels are commonly bedded and the boulders in them are mainly sub-rounded. No striated pebbles were found although they were looked for. The rock fragments consist mainly of Permian sandstone, siltstone or granule conglomerate, dolerite, Owen Conglomerate, quartz and quartzite and more rarely fragments of clay or clayey sand or lignite. Some of these boulders are now deeply weathered." "It is also significant that the rock types present are all potentially of local derivation and could all come from within three miles to the east. The matrix of the gravels is predominantly sandy and they contain little clay."

2. MACQUARIE HARBOUR (Localities B to G on Figure 2).

The Cainozoic sediments are well exposed in the cliffs of the N.E. shore of Macquarie Harbour. These

unconsolidated sediments form cliffs up to 200 ft. high and were graphically described by Moore (1894) as forming "a formidable wall of consolidated sand and mud."

In contrast to the sediments to the south of the Harbour, these sections contain two distinct sedimentary types, one distinguished by a predominance of sands and gravels (arenaceous) and the other by a predominance of shales and mudstones with thin bands of low rank coal (lutaceous). Analyses of these coals, and associated pyritic mudstones are shown in Table I. The lutaceous type is exposed in the cliff sections at Braddon Cliff (E) and Coal Head (D). Above and below these sections a regional dip of 5° to 10° to the N.W. exposes arenaceous sediments at Sophia Bay (B) and Neilson's Cliff (C) and Farm Cove (F) and Clarks Bay (G) respectively. These sediments are identical in most respects to the lignitic clay/sand/gravel noted south of Macquarie Harbour but with a maximum size range of only up to the cobble gravel grade.¹ Particles of Owen Conglomerate and Precambrian siliceous sediments (quartz-mica schists and metaquartzite) predominate but north of Coal Head, that is in the upper group of arenaceous beds, particles of granite and rocks of the Dundas Group are relatively common. The colour of these sediments varies from cream to yellow, some of those iron stained sands containing sufficient iron hydroxides to form a cement. The particles are generally rounded; current bedding and gullying are common, with angular unconformities of up to 25 degrees. The current bedding direction varies from horizon to horizon in the sequence, and suggests both northerly and southerly current directions. The upper arenaceous beds are exposed at Neilson's Cliff (C) in a section showing 90 feet of sand and gravel, the low cliffs in Sophia Bay (B) show the same type of sedimentation, as do the sections at Strahan. The lower arenaceous beds are exposed in the cliff at Clarks Bay and show 75 feet of sand/gravel, at Farm Cove a cliff 54 feet high shows an identical sequence but with a 4 feet band of lignitic shale interbedded in the sand.

The lutaceous beds consist essentially of a thickness of sands and brown shales with minor clay bands. Lignitic bands are relatively common and thin seams of low grade coal and pyritic mudstones are also conspicuous (Table I). The sections at Braddon Cliff (E) (see Table II) and Coal Head (D), which are 2½ miles apart, appear to correlate reasonably well but between them at Philip Island and on the shore immediately to the north-east, the proportion of sand is higher than that at Localities E and D. Assuming that the shale beds were once continuous between Braddon Cliff and Coal Head, this emplacement of the arenaceous lens may well represent erosion, and later infilling, by an old river course. An example of this type of structure in the upper arenaceous beds can be seen at Sophia Bay.

The top of the lutaceous beds is present in the cliff near Coal Head (D). Its contact with overlying arenaceous beds appears to be conformable via a transitional unit 38 feet thick consisting of rapidly alternating layers of sand and brown shale/lignitic shale, each layer less than one inch in thickness.

1. Grain sizes follow Pettijohn (1957), p. 20.

COMMENTS ON THE CAINOZOIC HISTORY OF WESTERN TASMANIA

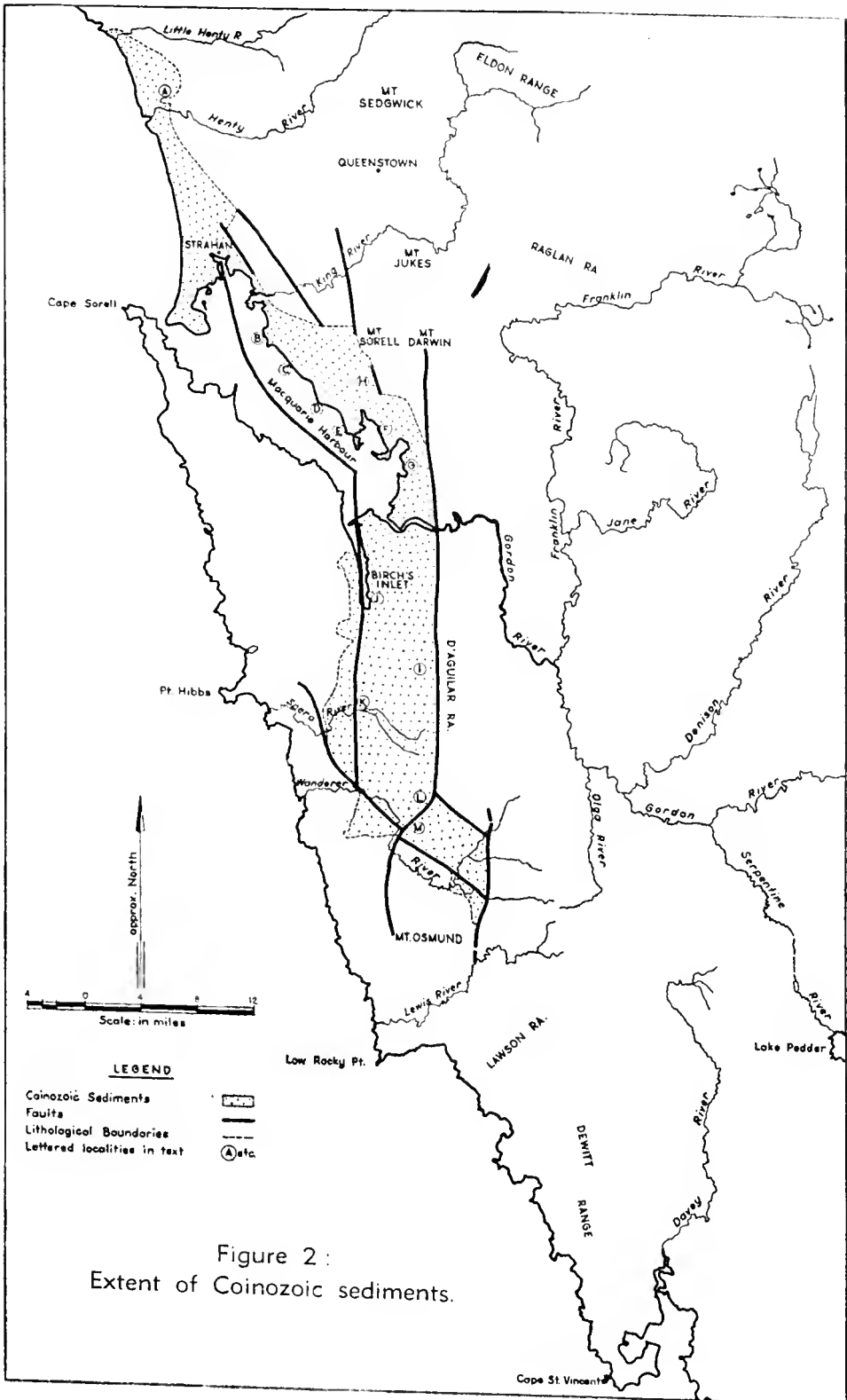


Figure 2 :
Extent of Cainozoic sediments.

TABLE I
ANALYSIS OF COAL AND PYRITIC MUDSTONE FROM CAINOZOIC SEDIMENTS—
MACQUARIE HARBOUR.

	1	2	3	4	5	6	7
Moisture	9.40	7.7	7.76	8.29			
Fixed Carbon	33.96	20.89	33.08	29.31			
Volatile	38.39	23.63	43.85	35.29			
Ash	19.06	48.33	15.87	27.75			
Total Iron					26.11	27.54	26.82
Ferrous Iron					18.26	18.97	18.61
Sulphur					7.20	4.50	5.85

Specim. 1 Coal from Braddon Cliff (Locality E)
 2 Coal from Coal Head (Locality D)
 3 Coal from Philip Island
 4 Average of Specms. 1 to 3
 5 Pyritic mudstone from Coal Head (Locality D)
 6 Pyritic mudstone from Coal Head (Locality D)
 7 Average of Specms. 5 and 6.

Analyses by Assay Office, Mt. Lyell Mining & Railway Co. Limited, Queenstown, Tasmania.

TABLE II
SECTION IN CAINOZOIC SEDIMENTS AT BRADDON CLIFF, MACQUARIE HARBOUR

	<i>Lutaceous Type</i>
Approx. 43 ft. to <i>TOP OF CLIFF</i>	5' sand
	12' brown shale becoming darker to top, pyritic at top
	1' coal
	8' brown shale with thin lignitic partings
	1' pyritic mudstone
	2' brown sandy shale
	7' brown shale with thin (1/4") coal partings
	1' coal
	3' brown shale
	3' coal
Specim. 1 in Table II	1' pyritic mudstone
	2' brown shale
	1' light grey clay
<i>BOTTOM</i>	<i>BEACH LEVEL</i>

TABLE III
FARM COVE BORE, MACQUARIE HARBOUR (Locality E on Figure 2)
Commenced 11th November, 1902 Completed 23rd January, 1903
Total Depth 571 feet

0' - 33' 10"	Alternating bands of lignite and clay none of the bands of lignite over twelve inches. No bands of lignite below 18' 1"	} Lutaceous beds
33' 10" - 88' 3"	Alternating bands of grey, dark and light shales/sandy shales	
88' 3" - 180' 10"	Sandstone, light and dark, very soft and friable	} Arenaceous beds
180' 10" - 571' 0"	Sandstones (soft and friable) with occasional lignite bands up to 5" thick.	

Thickness of Cainozoic Sediments on Macquarie Harbour

Neither the base nor the top of the sequence has been seen. As has already been stated, the top of the lutaceous beds has been seen at Coal Head, with a measured thickness of 71 feet. Using these measured sequences the following thicknesses are obtained:

*Measured Thickness of Cainozoic Sediments—
Macquarie Harbour**Northwest—Top*

Upper arenaceous group	At least 90 feet	Neilson's Cliff (C)
Lutaceous group	71 feet	Coal Head (D)
Lower arenaceous group	78 feet	Clarks Bay (G)

Southwest—Bottom

A vertical bore drilled by the Tasmanian Department of Mines is summarised in Table III. The exact location of the collar is not known but from the description it would have been in the near vicinity of Braddon Cliff (E). Assuming a regional dip of 5° to the northwest and that the hole stayed vertical, the base of the lutaceous beds was located at a depth of 87 feet, after which the hole continued in 481 feet of the lower arenaceous beds. Using this result with that of the field observations, the minimum thickness of the lutaceous beds can be taken as 158 feet.

*Minimum Thickness of Cainozoic Sediments—
Macquarie Harbour**Northwest—Top*

Upper arenaceous group	90 feet
Lutaceous group	158 feet
Lower arenaceous group	481 feet

730 feet (to nearest 10 ft.)

It is interesting to note that of this thickness of 730 feet, approximately 560 feet is below the present sea level.

3. EASTERN MARGIN — D'AGUILAR RANGE AND MT. SORELL (Localities I and H).

The sediments immediately to the west of these two localities are poorly exposed and there has not been the opportunity for the measurement of a section.

Lithologically, the sediments are boulder gravels with particles of Owen Conglomerate up to 3 to 4 feet in size, in an unconsolidated matrix of sand. Structurally, these friable sediments are faulted against the Owen Conglomerate to the east, a rock noted for its hardness and durability. However, the Cainozoic sediments near the D'Aguilar Range form a prominent cliff 100 to 200 feet higher than the flat Henty surface which has been cut into the western flank of the mountain range here (see Figure 3). This cliff and associated surface, which is also present at the south end of Mt. Sorell is rapidly being removed by erosion.

4. BIRCH INLET (Locality J).

The sediments at the south end of Birch Inlet consist of pebble/cobble gravels and sands. Particles of the Owen Conglomerate and Precambrian are common, but sandstone pebbles derived from the Eldon Group also occur. Particles of the Dundas Group are not apparent.

5. SPERO RIVER (Locality K).

The sediments contain a similar series of gravels, sands and clays as seen elsewhere in the area, with a maximum range into the boulder grade (+10"). Again the particles are predominantly siliceous and consist of Owen Conglomerate and Precambrian metaquartzites and quartz-mica schists. The measured sequences show a rapid variation in character as they are traced northwards from the Spero River. This change is expressed in the wedging out to the north of the sand grade and a concomitant increase in the gravel. Westwards there appears to be a reverse in this trend. Two other examples of this rapid horizontal variation in the character of the sediments here are the appearance of a band of lignitic clay 4 feet thick over two sections 70 yards apart and the thickening of a sand unit from 12 inches to double this thickness with a 3" band of pebble gravel over two sections six feet apart. All units show marked current bedding and gullying, with angular unconformities of up to 13 degrees.

These observations all reflect unsettled conditions of deposition and it is considered that this may be due to movement, during deposition, on the western boundary fault of the basin of accumulation (Figure 2) which is placed as only approximately 900 yards west of this locality. Immediately to the west of this boundary, the base of the Cainozoic sequence, resting on the Dundas Group, can be seen in the Spero River. This base is several hundred feet above sea-level.

6. CONDER RIVER (Locality L).

The generalised sequence at the Conder River has been built up from a study of three sections. The succession resembles that seen elsewhere, sands, pebble and cobble gravels consisting of particles of Precambrian metaquartzites and quartz-mica schist and of Owen Conglomerate. Particles of chert and shale also occasionally occur.

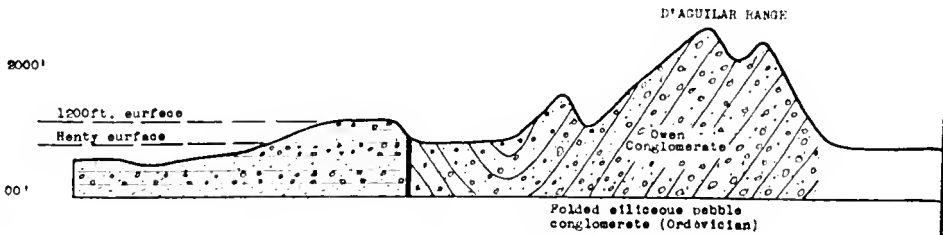
The column of 248 feet can be broadly divided into 5 stages, of which only the middle three are fully represented. Each stage is characterised by a decrease in grain size from bottom to top, from cobble and pebble gravels (plus 2") to pebble gravels (less than 2") and sands. There is also some evidence to suggest that the degree of sorting improves with decreasing grain size. Banks and Ahmad (1959, p. 123) noted a similar change in grain size in the Malanna area.

7. MOORE'S VALLEY (Locality M).

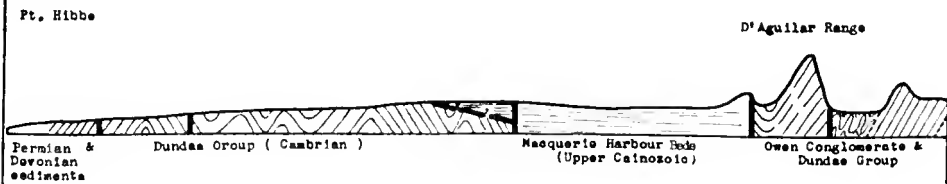
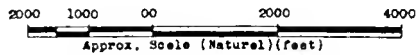
The generalised sequence here has been built up from a study of three different sections. The succession is similar to those already described and consists of a series of sands, pebble and cobble gravels with lignitic clay bands which dip 5° to 10° to the north. In contrast, these sediments occasionally contain appreciable (up to 50%) quantities of detritus from the Dundas Group, particularly towards the base of the measured sequence. Otherwise the particles consist of Owen Conglomerate, quartz-mica schist and metaquartzite. Usually the gravels have a sand matrix with less amounts of clay particles. However, occasionally the matrix is mainly clay.

FIG. 3

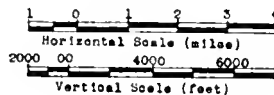
DIAGRAMATIC SECTIONS
SHOWING RELATIONSHIP OF SURFACES
TO STRUCTURE AND LITHOLOGY



Section through locality '1' on fig. 2
Looking North



Section Pt. Hibbs — locality '1' on fig. 2



In one of the measured sequences of 235 feet, six cycles or parts of cycles, can be distinguished. A cycle typically follows the pattern already outlined at the Conder River locality except that the top unit is sometimes a thin band of lignitic clay up to 2 feet in thickness. A complete cycle would be about 40 feet thick.

An investigation of the detrital minerals in the sediments established the obvious abundance of quartz, with muscovite. Rutile, hematite, topaz, zircon, kyanite and biotite were also identified, magnetite and chromite were not seen.

A minimum thickness of 425 feet has been measured with an unknown thickness removed from the top and an unknown thickness below the base of the measured column. Geophysical results indicate a thickness of 300 to 400 feet below the present valley floor but this figure cannot be directly added to that of 425 feet. A minimum thickness of 600 to 700 feet is indicated, the base of which is at an elevation of approximately 100 feet below sea-level.

AGE OF DEPOSITS

Particles of Owen Conglomerate (Ordovician) are common throughout the sediments with particles of sandstones of the Eldon Group (Silurian) being less abundant. In the lower Henty River area, Gregory (1904) and Banks and Ahmad (1959) recorded the presence of particles of dolerite (lower Jurassic) and Permian sandstone and conglomerate. In 1892, Johnston recorded the presence of a *Fagus* close to *F. cunninghami* and an *Acacia* close to *A. melanoxylon* from the lignites of the latter area. From this same area, Banks and Ahmad (1959) report the presence of seeds and seed cases on cones of *Banksia marginata* which also bear a close resemblance to the seed cases of forms still living in the area. According to Banks and Ahmad (op. cit.) on this basis the beds in the lower Henty area would best be considered as Upper Cainozoic.

E. D. Gill (personal communication, 1959) collected specimens from two carbonaceous horizons which are present in the cliff near the Customs House at Strahan. The fossil determinations were the work of Dr. Isabel Cookson and her colleagues of the National Museum of Victoria. Near the road level there is a carbonaceous horizon containing *Triorites harrisii*, *Nothofagus* (abundant), *Dacrydium*; *Acacia*, grasses and herbs are present. About fifty feet above this is another carbonaceous horizon containing *Triorites harrisii* (not abundant), *Dacrydium* (more abundant), *Acacia*, herbs and grasses are present. The lower horizon is considered to be Tertiary in age. In view of the similar ecology, and the site being the same, it is probably significant that *Acacia*, grasses and herbs are absent although present at the higher level. This higher band is Pliocene or Quaternary in age. *Acacia* is not known in beds older than Pliocene, the herbs and grasses are indicative of an Upper Cainozoic age. Considering the fossils, the stratification, and the ecology, Gill places the more likely age as Pliocene.

In summary at least the upper part of the sediments in the Strahan area and northwards to the Henty River can be considered as being Upper Cainozoic in age, probably belonging to the Pliocene Epoch. These sediments have in the past been called Macquarie

Harbour Leaf Beds (Johnston, 1890), Macquarie Harbour Group (Carey, 1950), Macquarie Beds (Bradley, 1954) and Macquarie Harbour Beds (Banks and Ahmad, 1959). It is suggested that the term Macquarie Harbour Beds is retained and it be defined as that group of unconsolidated sands and gravels with shale and lignite bands uncomfortably overlying the Dundas and Jucee Groups. It is several hundred feet thick and Upper Cainozoic in age, probably Pliocene. It is named after Macquarie Harbour on the west coast of Tasmania where the type area occurs. The co-ordinates in this area are (Zone 7 Grid) 810,000N, 340,000E (Strahan) for the unconsolidated sands and gravels and 788,000N, 351,000E for the shales and lignite (Braddon Cliff).

BASIN OF DEPOSITION

Figure 2 shows that the borders of the Macquarie Basin¹ are primarily limited by fault planes. Those to the east and north-east are readily apparent, those to the south arc based on geological and geophysical evidence but the western boundary fault running through Birch Inlet is primarily located on the results of an airborne magnetic survey. The boundary to the north-west is now covered by Macquarie Harbour but the lack of correlation between the geological features on either side of the Harbour strongly suggests the presence of a substantial fault running through this area. Some information as to its more precise location can perhaps be arrived at by contouring the soundings in the Harbour². The isobaths show that the bottom of the Harbour is 'V' shaped with the depth of plus 90 feet located in its centre and running north-westerly, towards Sophia Point (Locality B on Figure 2), and then north-north-westerly towards Strahan; this is the trace marked on Figure 2 as the location of the boundary fault here. The vertical throw on these boundary faults is not known although it must obviously have been considerable. One of these faults near Strahan brings the Dundas Group (Upper and Middle Cambrian) against quartzites of the Eldon Group (Silurian) but a reasonable estimate based on stratigraphic thicknesses involved is not possible owing to the possible wedging out of sediments (particularly the Owen Conglomerate of Ordovician age) in this area. However, a conservative estimate would be several hundred feet, possibly over a thousand feet.

It is interesting to note that all of the rock types present in the Cainozoic sediments could be of local derivation, within a few miles of the edge of the basin of deposition. Banks and Ahmad (1959) noted the same relationship in the northern area at Malanna.

The abundance of particles of Precambrian and Owen Conglomerate (Ordovician) and the comparative absence of particles of the Dundas Group (Cambrian) can be explained in two premises. Firstly, on the

1. The term Macquarie Basin is used as a general term to signify the general locality of deposition.
2. It is interesting to note from these isobaths that a relative drop in the water level of 25 feet would isolate the Harbour from the Ocean and deplete its extent by approximately 25%. A relative drop of 100 feet would reduce the Harbour into two small, shallow (20-70 ft. deep) isolated lakes.

relative durability of each type, with the lavas and shales etc. of the latter Group rapidly breaking up on weathering and transportation, and secondly on the assumption that the land to the east of the basin was higher than that to the west and that, as a consequence, most of the debris for sedimentation came from the former direction. As the stratigraphy to the east is primarily of Precambrian and Owen Conglomerate rocks, the absence of particles belonging to the Dundas Group is not surprising. The particles of granite which occur in the sediments on the north-east shore of the Harbour were presumably derived from the Darwin granite which occurs some eight miles to the east at Mt. Darwin (Figure 2), unless some unknown and nearer source is being masked by the Cainozoic sediments themselves. The kyanite which was noted in the sediments of Moore's Valley presents an interesting problem in that if it were derived from the Precambrian terrain to the east its occurrence indicates a higher metamorphic grade than the garnet mica schists which are known to occur in this area. However, kyanite has only been noted as a detrital mineral and has not yet been seen *in situ*.

SUMMARY

In summary then, these late Cainozoic sediments are believed to have been deposited into a fault basin, resembling a rift valley. The thickness of these sediments on the north-east shore of Macquarie Harbour is at least 730 feet, 560 of which is below the present sea-level. At Moore's Valley, there is good evidence for a similar minimum thickness but only with approximately 100 feet of these sediments below the present sea-level. At neither of these localities has the top of the Cainozoic sediments been recognised and, once inside the graben, only at Moore's Valley (and this is on the basis of apparent resistivity surveys) is there a definite suggestion of the base of these sediments.

Continued movement on the boundary faults during deposition is suggested and the unsettled conditions of

deposition at the Spero River locality which is close to the western boundary fault appear to support this contention. The cyclic nature of the gravel/sand/lignitic clay could also be related to this movement. The presence of sediments of the Macquarie Harbour Beds 1000 to 1200 feet above the present sea-level indicates that there has been considerable tectonic activity in the Cainozoic, some at least in the Late Cainozoic.

From the descriptions given of the Cainozoic sediments, they are not a typically marine series and the presence of lignite/coal bands indicates that these bands at least can be ascribed to formation in a paludal environment. These Macquarie Harbour Beds more closely resemble the Tertiary sediments which occur near Launceston than any other sediments of comparable age in Tasmania. These latter sediments are described by Carey (1947, p. 31) who suggests that they were deposited in lakes. Gill and Banks (1956, p. 11) indicate that at least part of these sediments are of Eocene/Lower Oligocene age. Elsewhere in Tasmania Banks (1957, p. 78) presents a summary of the Tertiary formations in the N.W. and N. of the island. Marine limestones of Upper Oligocene/Lower Miocene age are recorded in the N.W. and at Cape Barren Island (Furieux Group). No further marine sediments are known until those deposited at Cape Barren Island of Upper Pliocene/Pleistocene age. Banks relates this cycle of events to an Upper Oligocene/Lower Miocene marine regression and then a re-advance of the sea in the Pliocene Epoch which affected only the Furieux Group of islands. Consequently it would appear that whilst marine sediments were being deposited at the latter locality sediments were being deposited in the Macquarie Basin in what would appear to be a large lake. When it is considered that the Basin now borders the open ocean it is difficult to visualise what prevented a marine invasion into this area.

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LAUNCESTON

EROSION SURFACES IN WESTERN TASMANIA

By

B. SCOTT

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ABSTRACT

The topography of Western Tasmania is discussed and the marked concordances of summit, ridge and plain are placed into five levels at 4,400 to 5,300 feet, 3,900 to 4,400 feet, 3,000 to 3,500 feet, 2,400 to 2,700 feet and 300 to 1,400 feet. They are shown to be uplifted erosion surfaces and the possibility of them being faulted counterparts of one, or more, levels is discounted except in the area between the West Coast Range and the sea. East of the West Coast Range the Permian land surface transgresses these levels from 3,200 feet at Mt. Sedgwick to 2,400 feet near Lake St. Clair and its uniform easterly dip demonstrates the absence of major post-Permian faulting although the area as a whole has been uplifted. However, west of the West Coast Range this ancient land surface is at sea level; the Upper Cainozoic sediments at Macquarie Harbour are affected by faulting of this same age, and younger. Both of these relationships indicate extensive post-Permian faulting which would have effected the late Mesozoic and Cainozoic erosion surfaces in this area.

EROSION SURFACES IN WESTERN TASMANIA

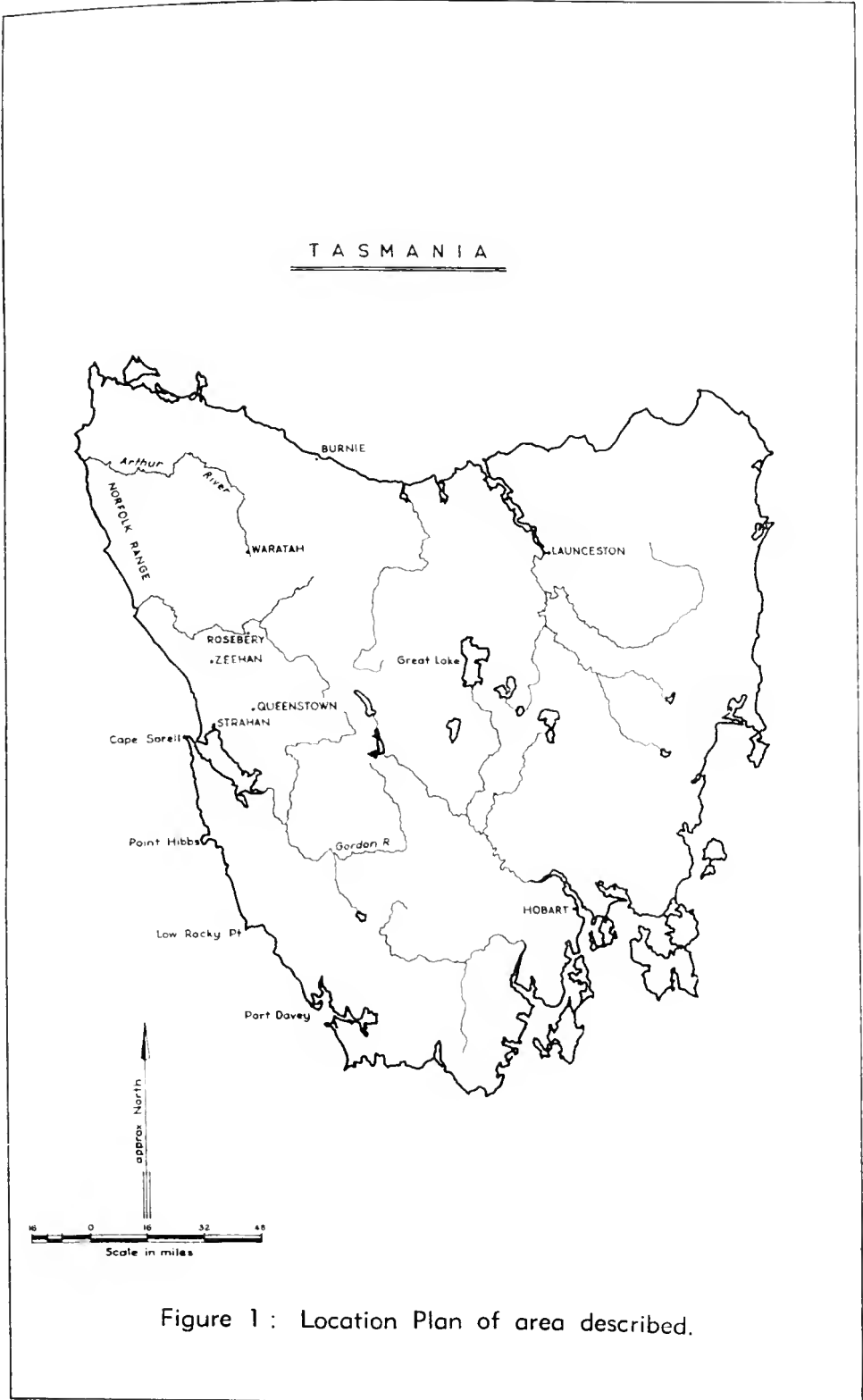


Figure 1 : Location Plan of area described.

INTRODUCTION

It has long been generally recognised that the topography of western Tasmania¹ shows a marked concordance of summit, ridge and plain heights at certain levels. These observations commenced with Gregory (1903) who recognised an extensive low level surface from his observations which he made on his visit to Queenstown via Burnie; this was his Henty "peneplain" and N.W. Plateau. This period was the time of a vigorous mining boom on the West Coast and from 1908 to 1915 thirteen Geological Survey Bulletins were issued by the Tasmanian Department of Mines which reported an area bounded on the north by the Pieman River, east to Rosebery and Queenstown and southwards to Macquarie Harbour and Point Hibbs. The sections on the topography extended and qualified the earlier work of Gregory and also recognised a higher level at approximately 2,500 feet (Ward, 1911, p. 8). In the previous year Twelvetrees and Ward (1910) had recognised the pre-Permian surface at Mt. Duudas although Gould (1860) was the first to describe the occurrence of this ancient land surface on the West Coast. In one of the last of the Geological Bulletins of this period, that describing the South Heemskirk Tin Field, Waterhouse (1911, p. 17) presents an admirable summary of the topography of the area under discussion and summarises the information gained by the previous publications. A gap of several years followed until Clemes (1925) described three surfaces (2,000 to 2,500 feet, 3,000 to 3,500 and an upper surface represented by the mountain tops) from the Lake St. Clair and Central Plateau region. Publications after 1925 do not specifically deal with the south-west of Tasmania but with the island as a whole. Lewis (1931, 1940, 1945 and 1946) refers to a preponderance of altitudes at approximately 1,500 feet, 2,500 feet and 4,000 feet. Nye and Blake (1938) recognised two major surfaces, at 3,000 to 5,000 feet and a lower one at about 2,000 feet. The former was thought to have been of late Cretaceous age with the latter of Oligocene age. They referred to the Henty surface of Gregory (1903) as the Western Peneplain and considered it to be either a third level not reaching above 1,000 feet and of post-Miocene age or a tilted portion of their lower surface of 2,000 feet. This latter surface is represented in the north-west of the State by their north-western Peneplain. Browne (1950, p. 111) recognised the existence of at least three surfaces. The highest of between 4,000 to 5,000 feet was represented on the west coast by the peaks at the Eldon Range, Freuchman's Cap and around Lake St. Clair. His 3,000 to 3,500 surface extended from Lake St. Clair with the peaks of the West Coast Range belonging to the same level. The 2,000 to 2,600 feet surface he named the St. Clair surface, being typically developed about the Lake St. Clair-Derwent Bridge area. On the West Coast he recognised the Henty surface reaching 900 to 1,000 feet in height and he considered the possibility that this level was continuous with the St. Clair surface at Waratah, that is, a downfaulted or downwarped portion of this 2,000 to 2,500 level. The 3,000 to 3,500 feet level was thought to be of a Cretaceous or early Tertiary age whilst the St. Clair level was correlated with the Miocene peneplain of Queensland and New South Wales.

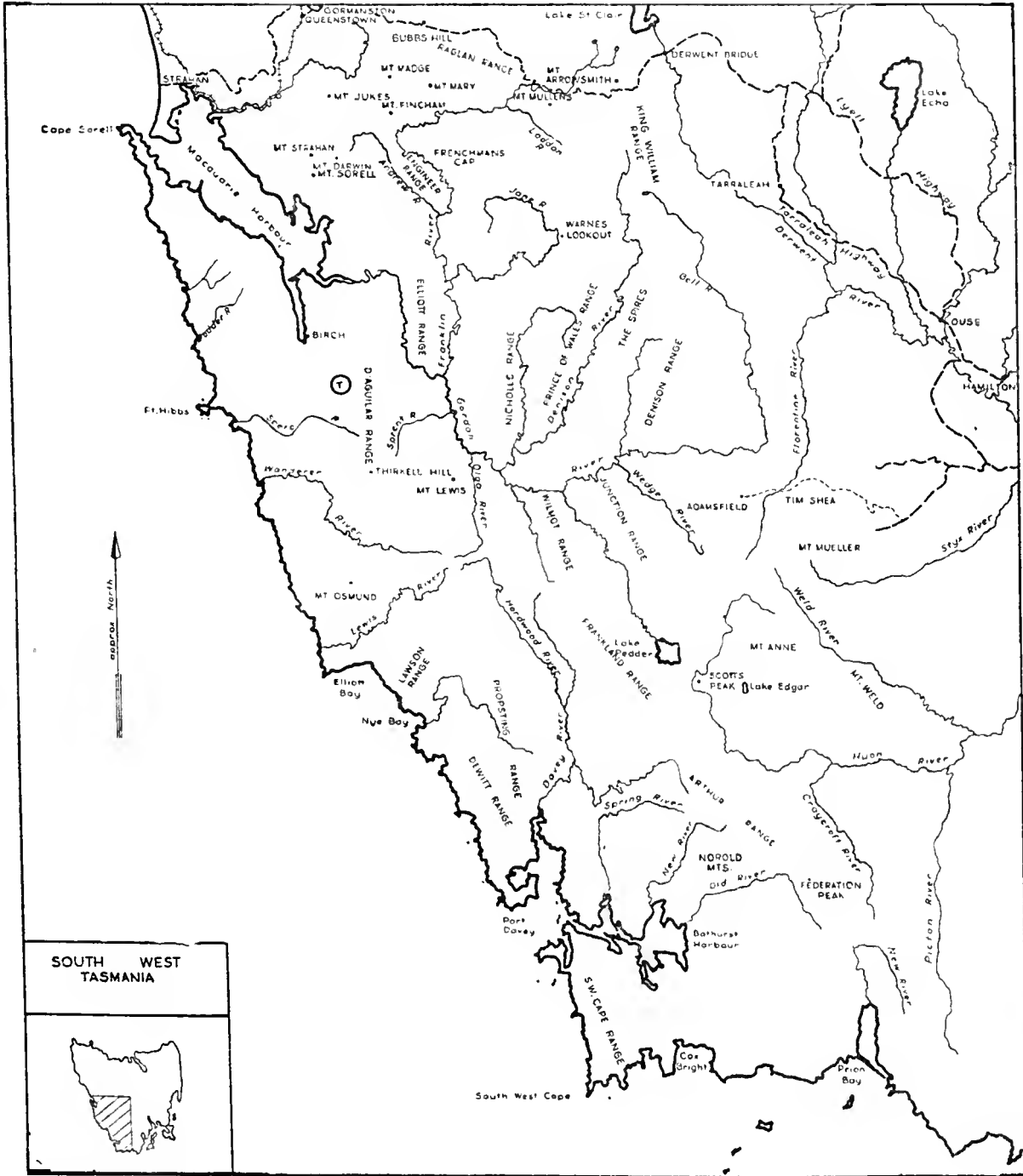
It is interesting to note that the reviews of Nye and Blake and Browne are primarily based on work completed prior to 1925. It is quite obvious, however, that there was no unanimity of opinion as regards the number of surfaces or their height. Opinion followed two distinct paths, either there were different surfaces formed at varying elevations or the apparent abundance of such levels was the result of the faulting or warping of one, or two, erosion surfaces. The almost overwhelming drawback to these discussions prior to 1958 was the absence of accurately contoured topographical maps. This has recently been remedied by the Department of Lands and Surveys of Tasmania and a series of maps at a scale of over two inches to the mile and contoured at a 50 feet interval is being prepared to cover most of the State. Several have already been prepared and their existence led Davies (1959) to present the first systematic study of the various erosion levels in Tasmania. Davies recognised six major levels and the elevations of these are reproduced in Table I. His general conclusion is that they represent uplifted sub-aerial erosion surfaces although the lowest (Lower Coastal surface which part equals the Henty surface on the west coast) may be largely of marine origin.

The high peaks of plus 4,400 feet are cited as possible residuals of a surface which can be correlated with the Mesozoic surfaces of continental Australia. However, the only levels which Davies safely ascribes to this ancient surface are the downfaulted and buried bauxites of the Launceston and Ouse districts. Following this the mature landscape was broken by extensive faulting which occurred either at the end of the Mesozoic or beginning of the Tertiary period. A long period of planation followed which lasted through Eocene and Oligocene and possibly into the Miocene during which extensive erosional and depositional plains were formed (see also Carey, 1947). Remnants of this surface, if they still exist, would probably be the higher plateau level of 3,900 to 4,400 feet. In the latter half of the Cainozoic an intermittent uplift commenced erosion once again which carved the lower surfaces out of this single mid-Tertiary surface.

Since Davies prepared his paper further contoured sheets have been made available by the Department of Lands and Surveys, notably the 4 Pillinger sheets and the 4 Zeehan sheets. Also an amount of elevations have come from the exploration work which has recently been carried out by the Mt. Lyell Mining & Railway Co. Limited and the Electrolytic Zinc Company of Australasia Limited in the area from Macquarie Harbour to Port Davey. The use of helicopters in this area has allowed the determination of the elevation of hitherto inaccessible localities by barometer. Since the reconnaissance traverses with the helicopter were always of a short duration (less than two hours) and the barometers were set to sea level at the commencement and end of the traverses the elevations given can be taken to be accurate to within 25 feet. This accuracy is sufficient for the correlation of major erosion surfaces.

1. The area under discussion in this paper is limited by the Pieman River on the north, Rosebery, Lake St. Clair, Lake Pedder and Port Davey in the south.

EROSION SURFACES IN WESTERN TASMANIA



Scale : 16 miles to 1 Inch.

Figure 2 : Location Plan of S.W. Tasmania

EROSION SURFACES

Henty Surface (300 to 1,400 feet)

One of the most striking points of interest when the West Coast is viewed from Macquarie Harbour is the various levels which are developed in the Cainozoic and associated Lower Palaeozoic sediments. These levels are very well developed in the former sediments at the south end of Birch Inlet but the most striking example is the 900 and 1,400 feet level which has been carved into the Owen Conglomerate on the western sides of the D'Aguilar and Mt. Sorell Ranges respectively (Figure 3). The heights of these various levels are summarised in Table II.

Considering those to the south of the Harbour first of all, the level of 800 feet is considered to represent the general level of the Henty surface¹ of Gregory (1903) with the lower levels developed along the river valleys which have cut into this surface. At the D'Aguilar Range, it rises to 900 feet and gently slopes to the west at an average rate of about 80 feet to the mile, to within about one mile of the sea coast. Its grade then steepens and it typically appears at the coast as cliffs up to 100 feet in height, such as at High Rocky Point, forming a rugged shore line. The surface also appears to be gently sloping to the south and the effect of this is readily apparent in the more hospitable coastline south of the Wanderer River, and especially so south of Low Rocky Point, where wide sandy beaches, with an absence of cliffs, are apparent. The plain can be seen continuing southwards towards Port Davey as a narrow coastal strip which rises inland towards the Lawson and De Witt Ranges. This low level surface appears to be either absent or very poorly developed in the extreme south-west of the State.

The surface is gently undulating with low monadnocks of Precambrian, such as Elliott Hill, Owen Conglomerate (Ordovician) at Mt. Osmund and of the Dundas Group (Cambrian) at Wart Hill. On a broader scale the West Coast, D'Aguilar and Lewis Ranges also appear to be monadnocks rising 2,500 to 3,500 feet. It is interesting to note that whilst the D'Aguilar Range is the direct southerly continuation of the West Coast Range, south of the Wanderer River this feature has been reduced to the Henty surface level and forms the area known as Tabletop. The only remnant of what must have been its former grandeur and ruggedness in this locality is the monadnock of Mt. Osmund, a low round hill rising to about 1,210 feet.

On the western flank of the D'Aguilar Range there is a localised surface in Cainozoic sediments at 1,200 feet (Figure 3). This surface can be traced for several miles northwards to the Gordon River. The development of this localised surface is considered to be due to vertical movement on the Lyell Shear and Long Fault which post dates the formation of the Henty surface.

To the north of the Harbour the Henty surface, and its extension, has been adequately described elsewhere by Gregory (1903), Twelvetees and Ward (1910), Ward (1911), Hills (1914 a, b & c), Waterhouse (1914 & 1916) and recently by Bradley² (1954), Wade and Solomon (1958) and Banks and Ahmad (1959). In the Queenstown area, the plain is at 800 to 1,000 feet, rising to 1,200 in the West Coast Range and falling to 5 to 600 feet above sea-level at the sea coast near Strahan, an average slope of about 50 feet per mile. It is considered to be equivalent to the Little Henty Penplain near the Heemskirk Range which is at 700 feet Waterhouse, 1916) and the surface described by Ward (1911) at 800 feet near Balfour in N.W. Tasmania (see also Gregory, 1903, pp. 177-178).

Banks and Ahmad (1959) describe the Henty surface at the Henty River area (Malana) at an elevation of 720 feet (\pm 10 feet) above sea-level and sloping seaward at an average rate of 60 feet per mile. Associated with this is a lower, and apparently younger, surface at an elevation of 350 to 400 feet which Banks and Ahmad call the Firewood Siding surface. This lower surface appears to be part of the Western Penplain of Gregory (1903, pl. XX). Davies (1959) places the elevation of this surface as between 300 to 900 feet. On the West Coast this upper limit is considered to be too low as the surface can be traced continuously from 300 feet to the mentioned height of 1200 to 1400 feet at the edge of the West Coast Range north of Macquarie Harbour. (See State Topographical sheets Pillinger A and Lyell A & C, 2 inches to 1 mile, contour interval of 50 feet). East of the West Coast Range this low level surface is present at 1,200 feet in the King River valley at least northwards to the junction of the King River and the South Eldon River (near Eldon Peak) and southwards to the continuation of this valley via the upper Andrew and Nora Rivers to the Gordon River. The plains in the Craycroft Range (1,400') and those associated with the Deception and Surveyor Range further to the east are at an elevation of 800 to 1,400 feet. The extensive Lighting Plains between the Jane River and Frenchmans Cap are also at this same general elevation, at 1,400 feet. Similarly the Collingwood River plain is at an elevation of 1,200 to 1,400 feet.

Age of Henty Surface

Banks and Ahmad (1959), in their description of the surface in the lower Henty River area, describe its development in Permian sandstone and dolerite, the latter being presumably of lower Jurassic age. In the Macquarie Harbour area the surface is developed in the Cainozoic sediments and consequently must post-date the deposition of these. The age of these sediments has been given as Upper Cainozoic (E. D. Gill in Scott, 1960), probably Pliocene, thus also placing the formation of the Henty surface as post Pliocene. Since this event, the surface has been uplifted several hundred feet with

1. Gregory (1903, pl. XX) restricted his term Henty Penplain to an area banded on the east by the West Coast Range, on the south by the King River, north by the Little Henty River and to within a few miles of the coast where his Western Penplain commenced. However, earlier in this paper (op. cit., p. 177) he describes the penplain as extending in a broad band parallel to the west coast, at least from the Arthur River in the north to some distance south of Macquarie Harbour. This southerly continuation of the Henty surface is most apparent when the Macquarie Harbour area is viewed from a low flying aircraft. Thus the use of the term Henty surface beyond its original limits is considered to be justified.

2. Bradley (1954, p. 195) uses the terms Howard's Penplain and Henty Penplain. The former is given as being present at 1,100 feet in the Andrew and King River Basins whilst the latter surface stands between 400 to 500 feet lower, and is the level of the old flood plain of the King and Queen Rivers. This is not the definition given to the Henty surface by Gregory (1903). Presumably the type area for the Howard's Penplain is Madame Howard's plain, to the north west of Queenstown. This plain is an essential part of the Henty surface as described by Gregory and consequently it would be best if use of the term Howard's Penplain were discontinued.

the result that the rejuvenated rivers have cut gorges up to 100 to 200 feet below the level of the plain with the development of knick points, incised meanders and examples of river capture. The extensive development of the local surfaces (see Table II) of lower elevation than that of the Henty is considered to be related to this relative uplift and following erosion, their horizontal development would indicate that the uplift was not continuous but occurred in a cycle of a maximum and then a minimum movement. As has already been discussed on page 5, the localised surface at 1,200 to 1,400 feet in the Cainozoic sediments is considered to be due to vertical movement on the Lyell Shear which post-dated the development of the Henty surface: this higher surface which is composed of highly friable sandstones and conglomerates, is being rapidly removed by erosion in an area of high rainfall (± 50 inches per annum). Faults disturbing the Cainozoic sediments have also been noted at Clarks Bay on Macquarie Harbour and in Moore's Valley, approximately 20 miles south of Birch Inlet. Davies (1959) places a higher coastal surface on the West Coast at a general height of 1,200 to 1,500 feet. This surface is apparently very well developed in the south-east part of Tasmania with the lower coastal surface standing below it at 900 feet. In the western half of the island he relates well marked and extensive valley flats to this higher surface. However, the Henty surface on the West Coast includes this elevation range, as already described above. It forms a gradual slope rising from 300 feet near the coast to 1,200 to 1,400 feet inland and east of the West Coast Range. Consequently the higher coastal surface would appear to be absent or exceptionally poorly developed in the area under discussion.

St. Clair Surface (2,400 to 2,700 feet)

The St. Clair surface was originally described by Clemes (1929) as the 2,000 to 2,500 feet level in the Lake St. Clair Region. Browne (1950) was the first to use the term "St. Clair surface". Davies (1959) defines its elevation as between 2,400 to 2,700 feet and this is accepted here.

In the area under discussion it is most clearly seen in the Lake St. Clair-Derwent Bridge area. On the west coast it was recognised as an accordance of summits and ridges by many of the earlier works during the period 1908-1915, being first mentioned by Ward (1911 p. 8). North of Queenstown it can be recognised at the Norfolk Range, the Heemskirk Range, Mt. Zeehan, Parsons Hood and Mt. Livingstone. Nearer to Queenstown Moore (1894) and Johnston (1894) recognised this general level in the Mt. Tyndall area. To the east of Queenstown Mt. Lyell, the north end of Mt. Owen, the north slopes of Frenchman's Cap, Mt. Maud, Collingwood Range, Engineer Range, Mt. Fincham, Mt. Madge and the Deception Range all attain this general elevation. South of Queenstown, Mt. Strahan, Mt. South Darwin, D'Aguilar Range, Mt. Lewis and the Lawson and DeWitt Ranges attain a similar altitude. Similarly most of the major Ranges between Mt. Lewis and the Rasselas Valley to the east appear to attain a similar elevation, such as the Hamilton, Wilmot and Junction Ranges. Also the Ranges east of Bathurst Harbour such as the Ironbound, Spero and Norold approximately attain 2,400 feet.

Lower Plateau Surface (3,000 to 3,500 feet)

This surface was designated the "Intermediate" level by Clemes (1925) who described it as the Traveller Plateau at an elevation of 3,000 to 3,500 feet. This elevation is also adopted by Browne (1950), Davies (1959) and the author. The surface is best developed outside the area at present being discussed, at the Great Lake. However, most of the prominent peaks on the West Coast Range attain this height as Mt. Sedgwick, Mt. Owen, Mt. Jukes, Mt. Darwin and Mt. Sorell. To the east the Raglan Range has quite extensive plains at this elevation, Mt. Mary, Mt. Sprent, north slopes of Frenchman's Cap, Last Hill, Rocky Hill and Pyramid Hill all have plains at this elevation. Similarly Mt. Arrowsmith has a plateau at about 3,200 feet.

The pre-Permian plane of unconformity has been extensively stripped at this elevation. At Mt. Sedgwick it is at 3,200 feet (see also Edwards, 1941) where Palaeozoic sediments. To the north the same unconformity can be seen at Mt. Dundas at about the same elevation. This stripped unconformity at Mt. Sedgwick forms part of the Lower Plateau surface. Similarly the small plateaus at this elevation elsewhere on the West Coast Range (particularly that at Mt. Jukes) can no doubt also be related to this stripped unconformity although positive proof in remnants of Permian sediments has not been located. To the east this unconformity is readily apparent at Eldon Bluff and the east to west ridge of high land which runs through Last Hill, Rocky Hill, Pyramid Hill to Goulds Sugar Loaf and Mt. Hugel (Gould, 1860). The unconformity, Permian on folded Lower Palaeozoic or Precambrian, has been visited at Last Hill and it is readily apparent on aerial photographs at the other localities. At Last Hill it is at an elevation of about 3,000 feet and at Pyramid Hill 2,800 feet. The Precambrian can be seen beneath the Permian in the Franklin River valley between Lakes Dixon and Undine with the unconformity at about 2,400 feet. The same unconformity is also present further to the south in the Surprise River valley. From the Last Hill to Lake Dixon the unconformity has an average slope of 45 feet to the mile. It is interesting to note how this tilted ancient land surface "transgresses" the younger surfaces, forming part of the 3,200 feet level in the West Coast Range and the 2,500 feet surface at Lake St. Clair some 28 miles to the east.

West of Queenstown, at the coast, Permian sediments have been recognised at sea level at the lower Henty River and at Point Hibbs. The position of these sediments and associated dolerite is at least 3,000 feet below those found in the West Coast Range and their faulted relationship with the associated Palaeozoic sediments indicates that they have been brought to this position by extensive post-lower Jurassic fault movement.

Higher Plateau Surface (3,900 to 4,400 feet)

This is defined by Davies (1959) as generally at an elevation of 3,900 to 4,400 feet. This elevation is well represented in the northern part of the area under discussion. Mt. Murehison, Mt. Tyndall, Eldon Range and Bluff, Rocky Hill, Pyramid Hill, Goulds Sugar Loaf, an unnamed plateau between the Sugar Loaf and Mt. Hugel, King William Range, the plateau below Mt. Hugel and Mt. Gell as well as several other adjacent

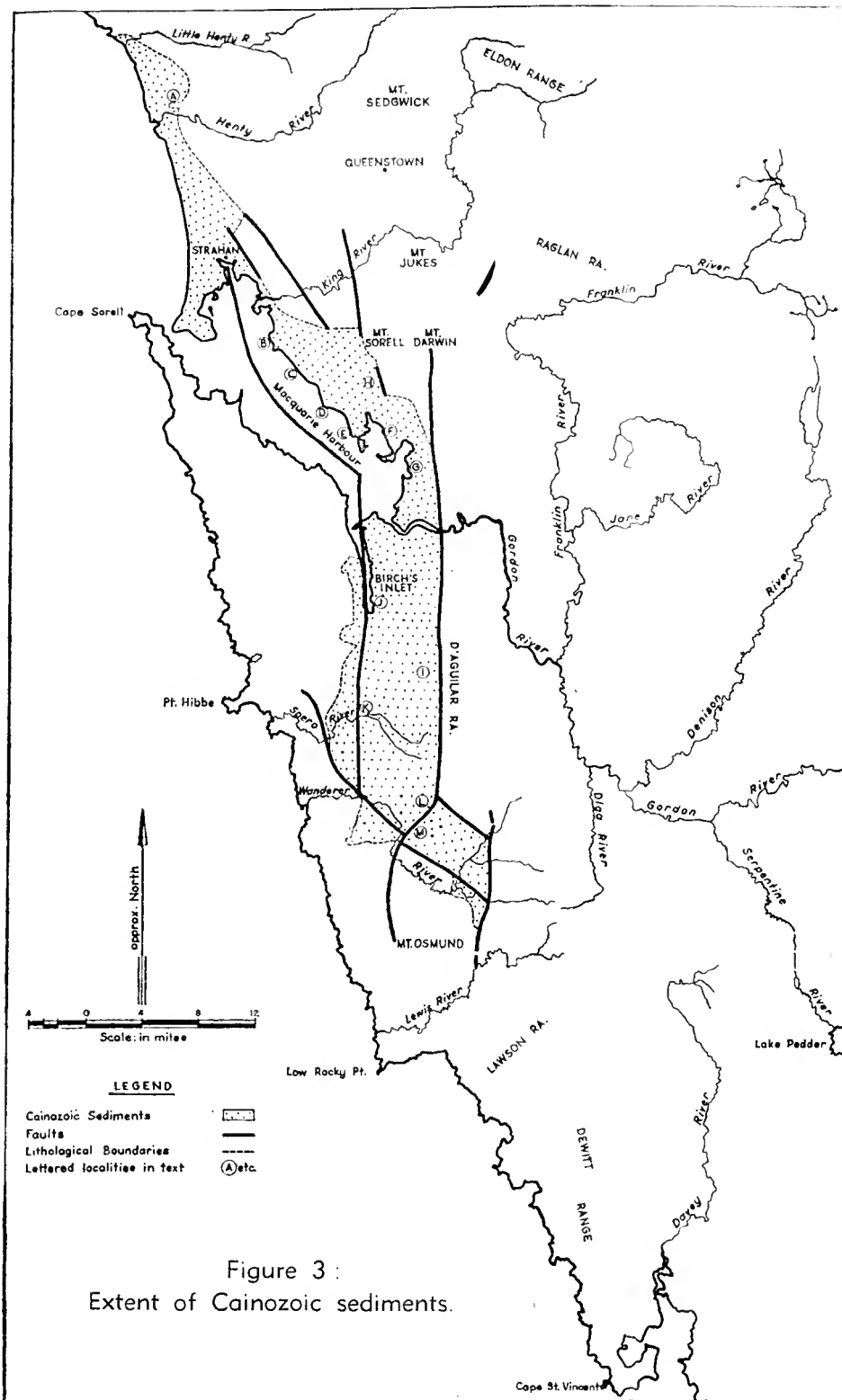


Figure 3 :
Extent of Cainozoic sediments.

localities show this surface. The Frenchman's Cap plateau is about the only representative of this surface outside this northern zone.

High Monadnocks (plus 4,400 feet)

Standing above the Higher Plateau surface are peaks such as Frenchman's Cap (4,750 feet) and Mt. Olympus (4,746 feet). The best examples of these peaks are beyond S.W. Tasmania in the Mt. Ossa, Pelion, Barn Bluff and Cradle Mountain area all of which rise above 5,000 feet.

RELATIONSHIP OF SURFACES

A study of the various contoured topographical sheets which are available for S.W. and Western Tasmania shows that each surface is represented within the next lower one by the presence of accordant monadnocks and within the next higher by plains. This relationship led Davies (1959) to the concept of a landscape derived from a mid to late Tertiary uplift of a single peneplain which had been derived from an early (Eocene-Oligocene) period of planation. This concept differed from earlier workers who envisaged the higher levels to represent earlier cycles and the lower levels to either have been faulted or warped into their present position (Browne 1950 and earlier). Two typical examples of the relationship of the surfaces described above will clarify this point. In the Mt. Sorell-Mt. Strahan area the 1,400 feet level of the Henty surface can be seen on the western flank of the mountain. Immediately above this level the St. Clair surface is developed at 2,200 feet at Mt. Strahan and the Lower Plateau surface at 3,200 feet at Mt. Sorell. These three surfaces are developed in the same rock type (Owen Conglomerate) and geological mapping precludes the possibility that the two lower surfaces are downfaulted remnants of the upper surface, or vice versa with up-faulting. At Frenchman's Cap the four surfaces described above are developed about the peak at 4,750 feet, these are at 1,400, 2,200, 3,200 and 3,800 feet respectively. These are all developed in Precambrian metaquartzites and siliceous mica schists and their distribution about the peak again eliminates the possibility of a faulted relationship between these various surfaces. Similarly the absence of major faulting during and after the formation of these surfaces in this area is supported by the constant slope of the pre-Permian unconformity from Last Hill to Lake St. Clair: this unconformity has undoubtedly been regionally tilted since its formation but it has not been disturbed by faulting in the area under discussion. Consequently, the present work entirely supports this concept that these surfaces (with the possible exception of the Henty surface) are uplifted sub-aerial erosion levels. The question of extensive faulting during or after the development of these surfaces has already been discussed and concluded that east of the West Coast Range it is either absent or of negligible proportions. This conclusion is an agreement with Davies (1959) who concluded that the mid-Tertiary planation followed major faulting and that there is no longer any positive evidence for extensive late Tertiary faulting. However, the dating of the non-marine sediments at Strahan as Upper Cainozoic (probably Pliocene) by E. D. Gill (in Scott, 1960) must qualify this viewpoint. These sediments at Strahan form part of an extensive area (225 square miles) of sediments which are several hundred feet thick, at

least 730 feet, and of which at least 560 feet is below the present sea level. These sediments were deposited in the Macquarie Harbour graben, consequently normal faulting of possibly up to 1,000 feet must have taken place on the West Coast during the Upper Cainozoic (probably Pliocene). The Henty surface is developed in the sediments and also crosses the boundary faults to the graben, thus movement on these faults must have largely ceased during the formation of this surface. However, some recent adjustments are considered to have taken place on the eastern boundary fault as discussed on page 5 and shown in Figure 3. A necessary corollary of this upper Cainozoic tectonic movement is that the 2,500 foot level which exists in the Heemskirk Range and at Mt. Zeehan need not necessarily be a correlate of the St. Clair surface, it could be a down-faulted position of a higher surface such as the low plateau level (3,000 to 3,500 feet).

It is interesting to note that this concept of extensive faulting with a considerable downthrow to the west is supported by the position of the pre-Permian unconformity. East of the West Coast Range evidence has been presented to show that apart from a regional tilting to the east it has not been materially disturbed by faulting since its formation. However, west of the Range the Permian sediments are downfaulted from 3,200 feet at Mt. Sedgwick and Mt. Dundas to sea level and below at the Henty River and Point Hibbs. It is appreciated that all of this faulting could have occurred during the late Mesozoic or early Tertiary period. However, it does demonstrate that the major north-south faults which exist between the Range and the coast were active at a time when the region to the east of the Range was one of stability.

SUMMARY

The Tabberabberan folding which took place during the Devonian period was followed by a prolonged period of planation which led to the development of the pre-Permian land surface which is recognisable at various levels between Lake St. Clair and Point Hibbs. The deposition of the Permo-Triassic sediments followed with the intrusion of the dolerite which is usually accepted as Lower Jurassic in age (Banks, 1958). Following this igneous activity there was a prolonged period of stability which produced an extensive and well developed surface of erosion in the Mesozoic, and older, rocks. The only remnant of a surface which can be ascribed to this ancient level is the downfaulted bauxites of the Launceston area, which are developed in dolerite (Carey, 1947). This period of tectonic quiescence was followed in the late Mesozoic or early Tertiary by faulting which broke up this surface. On the West Coast this faulting could have been responsible for the displacement of the pre-Permian surface from 3,200 feet in the West Coast Range to below sea level on the present coast line some 17 miles to the west. Elsewhere in Tasmania the formation of the Launceston Basin and possibly also the Oyster Bay and Derwent grabens can be ascribed to this period of tectonic activity.

The West Coast at this time would have undergone a general uplift but faulting or extensive tilting east of the West Coast Range can be considered to be of negligible proportions owing to the relatively undisturbed conditions of the pre-Permian surface from Mt. Sedgwick to Lake St. Clair. No sediments which can be related to this early and mid-Tertiary period have yet been

identified in the area under discussion. This is in a direct contrast to other areas of Tasmania where marine sediments of Eocene-Lower Oligocene age (Gill and Banks, 1956) were deposited in the Launceston Basin and the marine limestones of Oligocene-Miocene age were formed on the North-West coast, and the Furneaux Islands (Banks, 1957). During this period the extensive Cretaceous land surface which would have been present at some unknown elevation in the area under discussion would have undergone erosion with an undoubted development of lower surfaces. Although there is no direct evidence the complete removal of this surface would seem to be unlikely. If this is the case then the high monadnocks (plus 4,400 feet) such as Frenchman's Cap and the next lower surface, the high plateau surface at 3,900 to 4,400 feet, may well be remnants of this original Cretaceous level plus one of its lower surfaces developed during this early Tertiary. At the close of the Miocene and during the Pliocene intermittent uplift would have caused a rejuvenation of erosion with the formation of lower surfaces and reduction of the area covered by the higher levels. On the West Coast possibly

only the lower plateau (3,000-3,500) and St. Clair surfaces (2,400-2,700 feet) were formed during this interval.

At the end of Pliocene extensive faulting took place west of the West Coast Range with the undoubted disturbance of previously established surfaces and the formation of the Macquarie Harbour graben (Scott, 1960). The cyclic nature of the several hundred feet of the non-marine sediments which fill this structure suggest an intermittent nature to this movement. Elsewhere in Tasmania sediments of a similar age are known at Flinders Island (Banks, 1957). The Henty surface was developed in these former sediments and as this level crosses the boundary faults to the graben movement on these structures must have generally ceased prior to its development. However, some later movement is indicated by the presence of the localised 1,200 feet surface, as discussed on Page 5. This low level surface has recently been uplifted several hundred feet as the Upper Cainozoic sediments at Strahan are 250 feet above the present sea level. This has led to the active erosion of the surface, and indeed all surfaces, with the development of at least four minor levels below, and consequently younger than the Henty level.

TABLE I
SUMMARY OF ELEVATION OF SURFACES—WEST COAST

PRE 1915	CLEMES (1925)	LEWIS	NYE & BLAKE (1938)	BROWNE (1950)	DAVIES (1959)	SCOTT (1959)
				4,000'-5,000'	4,400'-5,300' (CRET. ?)	4,400'-5,300 (CRET. ?)
	Plus 3,600'				3,900'-4,400' (EARLY TERT. ?)	3,900'-4,400' (EARLY TERT ?)
	3,000'-3,500'	4,000'	3,000'-3,500' (CRET.)	3,000'-3,500' (CRET.)	3,000'-3,500' (UPPER TERT ?)	3,000'-3,500' (UPPER TERT.)
2,500'	2,000'-2,500'	(A) 2,500'	(A) 2,000' (OLIGO.)	(A) 2,500' (MIO.)	2,400'-2,700' (UPPER TERT.)	2,400'-2,700' (UPPER TERT ?)
300' to 1,000'		(B) 1,500'	(B) to 1,000'	200'-1,000' (B) (MIO. ?)	1,200'-1,500' 300'-900'	300'-1,400' (PLIO.- PLEIST.)

(A) & (B) All three strongly considered the feasibility that the lower surface was a downfaulted or downwarped portion of the upper, 2,500', surface.

CRET. =Late Cretaceous or Early Tertiary.
TERT. =Tertiary.
OLIGO. =Oligocene.
MIO. =Miocene.
PLIO. =Pliocene.
PLEIST. =Pleistocene.
UPPER TERT. =Post Miocene.
EARLY TERT. =Pre Miocene.

TABLE II

SUMMARY OF LEVELS IN MACQUARIE HARBOUR CAINOZOIC SEDIMENTS AND MARGINS

(For location see Figure 2)

Birch Inlet	Mount Discovery (D'Aguiar Range)	Spero River	Urquhart River ¹	Moore's Valley ²	South West ³ Coast	Mt. Sorell	Strahan	North of Harbour
	<u>1,200'</u>	<i>Top not msd.</i>	<u>800'</u>	<u>700'</u> ^o		<u>1,400'</u> ^o 1,100'		<u>1,200'</u> ^o 1,000' ^o 800' ^o 400' 380'
<u>300'</u>		510'		300'				
<u>200'</u>		460'		200'			<u>230'</u>	210'
110'		420'		120'	<u>150'</u>		130'	
60'		310'			70'		55'	
30'							30'	
15'								

Heights underlined indicate the top surface for that area.

All heights measured by aneroid barometer, accurate to plus or minus 25 feet. Heights marked ° are checked against State Topographical Survey sheets, contour interval of 50 feet.

1. Urquhart River is immediately south of the Wandrer River.
2. Moore's Valley is immediately south of Thirkell Hill.
3. Raised beach levels on ocean coast between Point Hibbs and Elliott Bay.

TABLE III

SURFACE ELEVATION

HIGH MONADNOCKS (PLUS 4,400')	Developed in dolerite (Lower Jurassic) at Cradle Mountain and Lake St. Clair.
UPPER PLATEAU (3,900' to 4,400')	Developed in dolerite (Lower Jurassic) at Lake St. Clair.
LOWER PLATEAU (3,000' to 3,500')	Developed in dolerite (Lower Jurassic) at Lake St. Clair and Great Lake.
ST. CLAIR (2,400' to 2,700')	Developed in Tertiary basalt at Waratah.
HENTY (300' to 1,400')	Developed in Upper Cainozoe, probably Pliocene, non marine sediments at Macquarie Harbour.

The table summarises the youngest rocks in which the surfaces are developed. Since each lower surface is considered to be younger than the next higher one the table also provides a minimum age for the surfaces.

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Van Diemen's Land
Correspondents

by

T. E. Burns and J. R. Skemp

Letters from
R. C. Gunn, R. W. Lawrence, Jorgen Jorgenson,
Sir John Franklin and others
to Sir William J. Hooker.

1827 — 1849



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PREFACE

by

Hon. E. E. Reece, M.H.A., Premier and Treasurer,
State of Tasmania

THE publication of the letters between William Jackson Hooker, the English Botanist, and his Botanical Correspondents in Tasmania, chief of whom was the Naturalist, Ronald Campbell Gunn, is not only of scientific importance but also a valuable contribution to the early history of the Colony.

William Jackson Hooker, who had been Regius Professor of Botany at Glasgow from 1820, became Director of the Botanical Gardens at Kew in 1841. In 1855 his son, Joseph Dalton Hooker, was appointed Assistant Director, and became Director in 1865 on the death of his father.

The story of the Royal Botanical Gardens at Kew goes back over two hundred years. The Gardens, with its Library, Museum, Plant Houses and Laboratories, are probably the most remarkable of their kind anywhere. Into three hundred acres of land beside the River Thames are concentrated almost every form of plant life, drawn from every country in the world; it is a collection built up by the dedicated work of many famous explorers and botanists, including Captain Cook and Sir Joseph Banks. The letters reproduced in this volume illustrate how this has been done, over long periods and distances, when the small sailing ship was the only means of communication between England and this remote Colony of Tasmania.

Joseph Hooker used the reports made to his father from Gunn and others in the compilation of his "Flora Tasmaniae", published in London in 1860 under the authority of the Lords Commissioners of the Admiralty. The British Admiralty was the publishing authority by reason of the fact that the original investigation into the Flora of Tasmania was undertaken during the Antarctic voyage of the English Discovery Ships "Erebus" and "Terror" (1839-43), under the command of Sir James Clark Ross, which anchored in the River Derwent for three months in the winter of 1841. During that voyage Joseph Hooker was Assistant-Surgeon of the "Erebus", and also Botanist to the expedition. On his return to England Hooker compiled his monumental work on the Tasmanian Flora, in four volumes; he dedicated it to Ronald Campbell Gunn of Launceston, and William Archer of "Cheshunt", Tasmania.

Looking back from this point of time the great amount of information available to Hooker then appears astonishing, but he explains it as due partly to the "increased exertions of the Botanical Correspondents, who were stimulated by the prospect of a speedy publication of their discoveries". In his account of the negotiations for publication of the volumes Hooker expresses his "unexpected gratification of receiving from the Governor and Parliament of Tasmania the announcement that they had awarded me a grant of £350". This valuable contribution towards publication was supplemented by an additional £100 from William Archer, who went to England to assist in the final preparation of the manuscripts.

"The Life and Letters of Charles Darwin" (by his son Francis Darwin) was published in 1887; "The Life and Letters of Sir J. D. Hooker" (by Leonard Huxley) was published in 1918. From these two works it is clear that these two distinguished con-

temporaries were close friends who consulted with each other in solving their scientific problems. In preparing his famous work "The Origin of Species", which brought about a revolution in scientific thought, Darwin had access to Hooker's manuscripts, and described the "Flora of Tasmania" as the strongest buttress for his theory of Evolution. It is not surprising, therefore, when the intended publication of Hooker's volumes on Tasmania was announced, that it was welcomed by Darwin. In a letter to Hooker he wrote:—"What capital news from Tasmania; it really is a very remarkable and creditable fact to the Colony." This letter then stated that his castle in the air was emigration to Tasmania, and he already regarded the colony as his "headquarters". He continued:—"I feel very proud of my adopted country [Tasmania]; it is really a very singular and delightful fact, contrasted with the slight appreciation of science in the Old Country." It is probable that Darwin's warm recollection of Tasmania came from his five-year voyage as a Naturalist on the "Beagle"—the 235-ton Navy Brig that left England in 1831, under the command of Captain Fitz-roy (later Governor of New Zealand) to survey parts of South America and certain islands in the Pacific, including Tasmania.

The purpose of this Preface is to explain very briefly the place of Tasmanian Flora in certain early scientific discoveries, and the reason why, after the passage of a century, the present Government of Tasmania is, in conjunction with the City of Launceston and the University of Tasmania, contributing to the completion of this work by assistance to the publication of the early personal reports from the Colony on which much of Hooker's volumes is based.

A handwritten signature in cursive script, reading "Eric Ruce". The signature is written in dark ink on a plain white background.

INTRODUCTION

by

Professor H. N. Barber M.A., Ph.D., F.A.A., Professor of Botany,
University of Tasmania

THE history of the development of Science, its ideas, and its great men is an immense field somewhat neglected by the professional historian. University libraries and state archives are full of classified, reprinted and reclassified documents illustrating the foibles of such diverse personalities as Queen Elizabeth I, King Charles II, King George III and Queen Victoria. Yet the world has had to wait almost 250 years for a definitive edition of Sir Isaac Newton's correspondence. Historical studies of the development of the great ideas of the 19th Century Science have hardly begun. Who among us, scientist, historian, or layman, can begin to imagine the state of thought on electrical theory before Faraday and Clerk-Maxwell, or on atomic theory before Cannizzaro, Frankland, Joule and Clausius, or on evolutionary speculation in the twenty years between Darwin's return from the Southern Hemisphere and the reading of his and Wallace's papers before the Linnean Society of London on July 1st 1858?

There are many reasons for this peculiar blindness. Probably the most important is the explosive way in which Science, particularly since Newton's day, has grown in a sort of self-catalytic chain-reaction. A new idea, or often a new statement of an old idea, spreads itself throughout the organised body of scientific knowledge, generating further new ideas, just as the neutrons of uranium 235 multiply with every atomic fission. This explosive situation, exciting as it is to ride the crest of the wave, has a number of unfortunate consequences. The man whose job it is to develop new scientific ideas has to run so fast to keep himself informed that he has too little time for that contemplation so necessary for the development of an historical attitude. The professional historian, on the other hand, is lost in the rear before he can begin to get the necessary techniques and ideas of Science and its language. The super-specialisation, which is now demanded by our Modern Arts Faculties, almost excludes any knowledge, or the desire for knowledge, of Science and its ideas amongst most of its graduate products.

Another reason for the blindness is the fact that the primary sources of the history of Science are often difficult, if not impossible, to obtain. It is a fantastic commentary on academic specialisation to compare, say, the documents available on the history of the British Reform Bills or the Corn Laws with those available on the development of the idea of evolution. Darwin's first notebooks on "the transmutation of species" written in 1837 and 1838 have been published in 1960 for the first time, as part of the centenary publication of "On the Origin of Species".

It was, thus, with great interest that I heard that Messrs. Burns and Skemp were preparing the papers of Ronald Campbell Gunn for publication. Gunn is one of the minor, but still very significant, workers who helped almost unwittingly to lay the foundations for our modern ideas of the origin of the diversity of living organisms and of man's place in that diversity. The letters give us an insight of the way in which the son of an Army Officer, born in Capetown, educated in England for the Army and then attached to the Royal Engineers in Barbados, migrated to Tasmania at the age of 21 and became superintendent of convicts and amateur botanist. This is scarcely

the background one would expect for a man who was elected into the Fellowship of the Linnean Society in 1850 and of the Royal Society of London in 1854. Nor is it the background for a man of whom Hooker could write in the Introduction to the *Flora Tasmaniae*: ". . . There are few Tasmanian plants that Mr. Gunn has not seen alive, noted their habits in a living state, and collected large suites of specimens with singular tact and judgment. These have all been transmitted to England in perfect preservation, and are accompanied with notes that display remarkable powers of observation, and a facility for seizing important characters in the physiognomy of plants, such as few experienced botanists possess.

I had the pleasure of making Mr. Gunn's acquaintance at Hobarton, in 1840, and am indebted to him for nearly all I know of the vegetation of the districts I then visited; for we either studied together in the field or in his library; or when he could not accompany me himself, directed one of his servants, who was an experienced guide and plant-collector, to accompany me and take charge of my specimens. I can recall no happier weeks of my various wanderings over the globe, than those spent with Mr. Gunn, collecting in the Tasmanian mountains and forests, or studying our plants in his library, with the works of our predecessors Labillardière and Brown".

There are two questions which it is necessary to ask in any consideration of Gunn's work and of his place in history. The first is how Gunn became so intensely interested particularly in botany but also in many other branches of natural history. There is no need for me to spend much time on this question. Mr. Baulch's biographical essay and the correspondence itself show us as much as we are ever likely to know. His friendship with Lawrence was one deciding factor. The enthusiastic response of Professor Lindley and W. J. Hooker and J. D. Hooker, father and son and successively Directors of Kew, must have been another. The arrival of Sir John Franklin and the younger Hooker with Sir James Ross helped sustain his interest.

The letters give us many fascinating hints of the intimacy which arose between men on opposite sides of the world and of very different educational and social backgrounds. Gunn seeks out advice and information; he wants no payment for his work except books on botany; he spends enormous trouble trying to get live plants in Ward-cases back to Kew; he continually seeks out better and safer ways of ensuring the arrival of his precious collections in those days of precarious travel.

The other question is the place of Gunn's work in biology. We must first try to understand something of the ferment which had developed in biology since the development of Linnaeus' *Species Plantarum* in 1753. Linnaeus did two essential things—he developed a cataloguing system just in time for use by the naturalists attached, almost as a routine, by almost all governments to their ships of exploration in that magnificent Indian Summer of exploration associated with the name of Captain James Cook, R.N., F.R.S. Once it was possible to catalogue, collections could be made and described accurately. Linnaeus' other essential contribution was a sort of antithesis to his thesis. His system of cataloguing turned out to be rather like attempting to classify scientists or poets or priests or politicians by the colour of their eyes, rather than by their subject, school, church or party. Such reliance on one characteristic may sometimes lead to the formation of natural groups, that is groups of objects with many important properties in common. More often, it leads to the grouping of objects into entirely artificial categories.

This is the impasse to which Linnaeus' catalogue of plants based, as it was, on the number of stamens in the flower, led botanists. The catalogue allowed all the orchids (with one stamen) to remain together; but at other places it grouped plants together

whose only characters in common were the possession of green leaves, seeds, and x rather than $(x + 1)$ or $(x - 1)$ stamens; in other places his catalogue put into completely different groups plants differing only in staminal number. These difficulties led to the development of natural systems. The letters give fascinating glimpses of how such problems were discussed 150 years ago. Robert Brown, who climbed Mt. Wellington in 1804, had published his *Prodomus Flora Novae Hollandiae* in 1810 and, as an appendix to Flinders' *Journal* in 1814, he gave the first account of the relationships of the Australian flora.

In his work Brown defined several more natural groups, e.g., the Proteaceae. He was expected to follow it up with a more complete account. However, although Brown was interested in this type of work until the end of his long life in 1858, it was left to G. Bentham and J. D. Hooker to give us one of the first great definitions of the natural classification. The work is still not finished in 1960.

What did this idea of a natural system of classification mean? Had the Creator of Genesis designed his creatures on certain basic structural and physiological patterns and then in his wisdom modified a few fundamental designs in this way and that? Why was it virtually impossible to classify Australian Leguminosae, Labiatae, Proteaceae, Rutaceae, Myrtaceae, etc., by examination of the non-flowering plant? In flower each species clearly shows its relationships. In each group the leaves vary from large, flat, typical leaves through small hard eridoid types to spines and scales so small as to be almost invisible. Why are such convergences of character (as we call them now) so characteristic of the Australian vegetation?

Cataloguing, thus, became the fashion. At first, it led, by way of the idealistic "Natur-philosophs" and Goethe's "Urpflanze" to a search for something like Plato's "ideal forms". But cataloguing also led immediately to the definition of a number of problems in plant geography. The first, which we may call ecological, dealt with the fact that regions with similar climates and soils situated anywhere in the world carry a vegetation of similar appearance or physiognomy. The shrubby, evergreen, aromatic "chaparral" or "maquis" is characteristic of winter-rainfall climates whether we go to Palermo, Valparaiso, Los Angeles or Busselton. Or you can stand above the moraines at Waldheim on Cradle Mountain and imagine you are not too far from Ennerdale and Great Gable. The vegetation has certain features in its vegetative construction giving a peculiar similarity in habit or growth-form.

Our second, or floristic, problem arises if we go deeper and catalogue the species of plants growing in such widely separated regions of similar climate. We shall scarcely find a single species in common. Why are the shrubby Ericas, bilberries and heather of the English Lake District replaced by the Epacrids of Tasmanian mountains? Why is *Eucalyptus* almost restricted to Australia where it plays, among many others, the ecological role played by the evergreen oaks, olives and pines of California and Sicily? Were there several Creations in different parts of the world or has there been a gradual process of change or evolution, as we call it now?

Darwin, during the voyage of the Beagle in 1835, posed a third problem of floristic plant geography—the flora and fauna of islands. Islands like St. Helena or Hawaii, situated thousands of miles away from the nearest continent, carry their own endemic flora which shows no very close relationship to any continental flora. Islands like the Galapagos or Cape Verde situated a few hundred miles from a continent carry a large number of species closely related to those of the nearest continental shores; but many of the island species are endemic to the islands occurring nowhere else in the world. Islands like Tasmania, a mere one hundred miles from the nearest continent, carry a

flora most of whose species are common to the mainland. However, Tasmania has a few endemic species. Our snow gum, *E. coccifera*, is different from the snow gums of Mt. Bogong or Kosciusko which are various forms of our cabbage gum, *E. pauciflora*. Similarly most of our Tasmanian conifers are endemic to Tasmania.

An accurate definition of all these problems demanded an immense amount of detailed work. Banks, Solander, Forster, Brown, Cunningham, Darwin, Hooker and Huxley in the years between 1770 and 1850 made rapid collecting forays in the Australian region. What was needed were resident collectors who knew what they were about. And so, the Hookers, father and son, established, where they could, relationships with the new colonies and their citizens. In Tasmania, there were Lawrence, Gunn, Archer; in Victoria, von Muller; in New South Wales Bidwell, Mitchell, Beckler, Dallachy; Colenso and Sinclair in New Zealand; Douglas in U.S.A. and Canada; and Fortune in China and the East. It was an amazing organisation built up by the sympathy and interest of the Hookers. Missionary, farmer, explorer, or superintendent of convicts could all help and all did. Kew's pre-eminence in systematic botany dates back to these amateur-collectors of the colonies.

Their work, as great scientific work always does, produced predictable results. The predictable result of Gunn's work was Hooker's magnificent *Flora Tasmaniae*, the centenary of which we are celebrating this year. The unpredictable result was the "Introductory Essay" to the Flora. In this essay, Hooker marshalls the facts of plant geography and shows how difficult it is to explain them except by the theory of descent brought about by natural selection working on inherited variation always present in populations of plants. Thus, a superintendent of convicts helped make men rethink his origins and his place in nature.

It is a difficult task for us in 1960 to know what Gunn really thought of all the theorizing from Home. Muller in Melbourne, to his death in 1896, never believed in evolution. Gunn, perhaps, because of his greater modesty, in his article published in vol. 1 of the Tasmanian Journal of Science (1842) on "Observations on the Flora of Geelong, Port Phillip", was content to quote Mirbel. The quotation reads:

"The surest way is to confine ourselves to collecting and arranging facts, leaving to those who may follow us the charge of discovering and developing the theory".

H. N. BARBER,
1960.

EDITORIAL NOTE

THE letters here published, most of them for the first time, are preserved in the library of the Herbarium at the Royal Botanic Gardens, Kew. Through the kind offices of Dr. R. Melville and by permission of the authorities at Kew, microfilm copies of selected letters were secured by Mr. T. E. Burns for presentation to the Queen Victoria Museum, Launceston. In addition, photostat copies of other letters were obtained from the British Museum of Natural History, Botanical Section, and from Kew, whence photographs of the Gunn portrait were also obtained. The Director of the Queen Victoria Museum, Mr. W. F. Ellis, has been granted permission to print these documents.

Acknowledgment is made to Dr. R. Melville, of Kew, for his help and encouragement in the conception of the project, for his ready co-operation when further material was required, and, most particularly, for his painstaking research into the nomenclature of the Gunn material preserved at Kew when the literature available in Tasmania was inadequate to interpret the manuscript.

The extracts from the R. W. Lawrence Diary, which have some relevance in that they describe the early botanical collections sent to W. J. Hooker from Tasmania, are also published for the first time. This diary, now in the possession of Mr. Leonard Lawrence, of "Formosa", Cressy, a nephew of R. W. Lawrence, came to light when enquiries were made regarding the diarist, one of Hooker's earliest Van Diemen's Land correspondents. They are printed by kind permission of Mr. and Mrs. Leonard Lawrence. Letters or extracts included in the commentary were made available by the courtesy of Mr. W. Baulch.

The microfilmed letters were transcribed, using an ordinary 35 mm. strip film projector, and typed. The typescript was then twice corrected by careful re-reading of the films. In a few cases reading was particularly difficult and laborious owing to the faintness of the photograph; to the writing being crossed (that is, the page being covered with writing in black ink, turned at right angles and, on the same side, again covered in writing in red ink); to fold marks or tears in the paper. The task was not made easier by the use of the long "s", which looks so much like an "f", in the handwriting of all the correspondents except R. C. Gunn, whose letters, fortunately, make up the bulk of the correspondence. Where the transcription of a word has been doubtful it has been enclosed in square brackets and, if quite illegible, this has been indicated by square brackets enclosing a blank space. To avoid interpolations in the text, the botanical numbers used by Gunn and Lawrence, and quoted in their letters to Hooker, are repeated immediately after the letter with the botanical name given the numbered specimen (where these have been ascertained from the literature available or by direct reference to Dr. Melville at Kew). Botanical names in the text are given in an index, together with the probable or known synonym. Botanical names in the commentary are given in italics, following the usual practice. **Bold type is used in the letters, but only to indicate words underlined for emphasis.** Botanical names in the letters which are printed in bold type were underlined for emphasis in the originals.

Care has been taken to ensure that the spelling and punctuation of the letters are printed exactly as they appeared in the originals. Some of the writers, notably T. K. Short and J. G. Robertson, employed their own peculiar orthography and the frequent repetition of (*sic*) after every misspelt word would, in the editors' opinion, tend to distract readers.

For those who think handwriting is some indication of the writer's character, it may be noted that Lawrence had rather a hurried scrawling style. Ronald Gunn had a small, neat, sloping hand (though his writing deteriorated somewhat after 1840), while his brother, Robert, of Edinburgh, wrote a formal copperplate.

Jorgen Jorgenson's was a large, round, bold handwriting, while that of Sir John Franklin was somewhat hurried, though easily legible. T. K. Short had a slovenly, misspelt scrawl, while that of J. G. Robertson was painfully laboured.

The signatures of the writers are printed except in the numerous letters of Ronald Gunn, where his signature is omitted except where particularly relevant.

The principal correspondent, and easily the most important contributor to Hooker's herbarium of V.D.L. plants, was Ronald Campbell Gunn and, as it was felt that some knowledge of his life was necessary for the proper appreciation of his letters, Mr. W. Baulch, who for some years has been collecting material on R. C. Gunn with the object ultimately of writing a full-length biography, has therefore contributed a short biographical note on this outstanding personality.

Help has been received from Professor H. N. Barber, of the Department of Botany at the University of Tasmania, and from Dr. W. N. Curtis, Miss J. Somerville, and Mr. W. D. Jackson, of the same department. Acknowledgment is due, also, to Mr. J. H. Willis, of the National Herbarium of Victoria, for his introduction to Kew and his later assistance.

On the historical side, assistance has been given by Mr. R. M. Gunn, of Perth, Mr. Leonard Lawrence, of "Formosa", Mr. Lambert Lawrence, of "Billopp", Mr. W. Baulch, Mr. Hawley Stancombe, of "Glendessary", Mr. J. M. Curtis, the late Miss T. Masters, Mrs. F. Edwards, Mrs. Gow, and Mrs. Mead. Photographic assistance has been given by Mr. H. J. King.

To Mr. W. F. Ellis, Director of the Queen Victoria Museum, Launceston, very special acknowledgments are due. As Editor-in-chief he has been most encouraging and helpful, and has devoted much time and thought to furthering the project. The Library of the Northern Branch of the Royal Society of Tasmania has been most useful and old volumes preserved by wise discrimination in the Launceston Public Library have been veritable treasures.

To Mr. Frank Green and Professor Barber, who read the first draft of these edited letters and recommended them for publication, the editors are most grateful, as well as for their subsequent very valuable help and advice.

We gratefully acknowledge the financial assistance received from the Tasmanian State Government, and the University of Tasmania, which subsidised the funds provided by the Launceston City Council.

RONALD CAMPBELL GUNN., F.R.S. F.L.S.

A BIOGRAPHICAL NOTE BY W. BAULCH, B.Sc., A.R.A.C.I.

Ronald Campbell Gunn was born at the Cape of Good Hope on 4th April, 1808. At that time his father, William Gunn, was serving as a lieutenant in the 72nd Highland Regiment, commanded by Lt.-Col. Ronald Campbell, after whom he named his son. In 1809, when Admiral Rowley was despatched with troops to capture the islands of Mauritius and Bourbon, the 72nd Regiment formed part of his force. The whole Gunn family accompanied the father on this expedition. They remained at the island while the regiment was on garrison duty and, during their stay there, the mother died. It was not until the short peace of 1814, when Bourbon was restored to France and renamed Réunion, that the regiment received orders to transfer to the West Indies. Before this Ronald's eldest brother, William, though no more than fourteen, had received a commission in the Bourbon Regiment with his father. This Bourbon Regiment appears to have been a kind of Militia formed on the island and commanded by officers from British regiments stationed there. According to family tradition the Gunns belonged to the Black Watch, the name current for all Highland regiments at the time.

Following the escape of Napoleon from Elba, the regiment was diverted to the Cape of Good Hope, where the Gunn family became friendly with Lt.-Col. William Sorell, later to become the Lieutenant-Governor of Van Diemen's Land. As a result of the defeat of Napoleon and his banishment to St. Helena, Britain's military forces were reduced. One of the regiments to be disbanded in 1816 was the Bourbon Regiment, now at Barbados, and its officers were placed on half pay. This caused the Gunn family to return to Scotland, where Ronald was educated with the idea of an army career. Little is known of this period in the life of the family, except that they probably lived in, or frequently visited the Border country, especially the area around Melrose and Newstead since Ronald later chose the name "Newstead" for his home in Launceston.

During this time, his father and brother William made many attempts to obtain army appointments without success. Tiring of life in Scotland, in 1822 William set out to visit India and Australia in order to investigate the opportunities offering there. His ship called at Hobart Town, where William was recognized by Lt.-Col. Sorell at a church service. The Governor persuaded William to settle there, offering him a public appointment and a land grant. One estate was granted in the Richmond district and he named it "Bourbon" after his old regiment.

Ronald's name was placed on the Commander-in-Chief's list for a commission in the British army. This did not materialise and when, in 1825, his father was appointed Paymaster in the 93rd Highlanders, serving in the West Indies, Ronald accompanied him. Another brother, Robert, had obtained a post on the staff of "The Scotsman" and remained in Edinburgh. For a short time Ronald had also served on this newspaper. Although he did not receive a commission, Ronald held a civilian appointment with the Royal Engineers at Antigua. Just prior to his father's death, he married, in 1826, Eliza Ireland, the daughter of a brother officer of his father. Two children, a son, Ronald James William, and a daughter, Frances, were born in the West Indies.

Meanwhile, in Van Diemen's Land, his brother William had held a number of public service positions and secured land grants for himself. Always impressed with the opportunities in Van Diemen's Land, and worried about the effects of the climate of the West Indies on his brother's health, William finally persuaded Ronald to come to

Van Diemen's Land with a view to settling there. Ronald returned to England in 1829 and almost immediately set out for Hobart Town which he reached in the ship "Greenock" on 5th February, 1830. He brought with him introductions from the Commander-in-Chief of the West Indies (Sir Charles Smith) and the Secretary of State for the Colonies (Sir George Murray) recommending him to Governor Arthur for employment in "some minor post". According to a document made available to Mr. J. Curtis, Ronald Gunn borrowed the money to pay for the passage from the Australian Company at Leith. The family travelled cabin class. Single fare was £68 5s., while his 2½-year-old son was charged quarter fare. Fifty pounds was advanced for outfit for the voyage and, with interest and insurance, the total amounted to £224 12s. 1d. This Gunn promised to pay at Hobart Town on arrival, his brother William being guarantor.

He was soon appointed under his brother William's supervision to act as superintendent of a convict barracks at Hobart Town. In December of the same year (1830) he was transferred to Launceston as Assistant Superintendent of Convicts for the Northern Division of Van Diemen's Land. He soon became Superintendent and, in 1833, he was appointed a Police Magistrate. Thus, at the age of 24, he was in control of all convicts in Northern Tasmania. At this time his duties involved the control of male and female Houses of Correction, the distribution and assignment of all convict servants, and the daily trials of all disorderly Crown prisoners (estimated to be forty to sixty weekly with a total of over 3,000 in a little over two years) as well as the supervision of chain gangs. His duties, and the social life of the town, soon brought him in contact with a young man of his own age, Robert William Lawrence, the son of William Effingham Lawrence, a large landholder in the northern part of the Island.

Lawrence had been induced to collect for and correspond with the great British botanist, W. J. Hooker, by a friend, Thomas Scott, a merchant of Launceston. Lawrence and Scott soon introduced Gunn to Hooker by letter and induced him to assist them in collecting plants. In 1832 Lawrence moved to "Formosa", near Cressy, to become overseer of his father's large estates there. Visiting him there, Gunn became even keener to gain some knowledge of botany. In the following year, Lawrence died suddenly and the loss of his friend had a profound effect on Gunn. For many years he continued to mention in his letters the great loss he had sustained. But he was now well started as a plant collector and, during the next two years, despite his onerous duties and Governor Arthur's unsympathetic attitude, he travelled extensively in northern Van Diemen's Land gathering new plants for Hooker.

At this time Ronald Gunn contemplated resigning his post to settle at the newly formed Port Phillip settlement across Bass Strait, which he visited briefly in 1835, but a new appointment as Police Magistrate to Circular Head (headquarters of the Van Diemen's Land Company estates) probably caused him to change his mind. This appointment, at £300 a year, meant far less official work and splendid opportunities for plant collecting. Prior to his removal to Circular Head, Gunn had sent his wife home to her people in Dublin, where she died in June 1836, soon after her arrival.

From Circular Head, Gunn travelled over much of the north-western portion of the island, from Cape Grim to the Forth River, although he had already forwarded some specimens from Dr. Joseph Milligan, then the V.D.L. Co.'s surgeon at Hampshire Hills. He also turned his attention to collecting animals, birds, and shells, as well as plants. Each shipment to Hooker was rewarded by a shipment of books and periodicals which Gunn regarded as sufficient recompense for his labours. Hooker had great admiration for the work done by Gunn and constantly encouraged him to continue.

The arrival in 1837 of Sir John Franklin as Lieutenant-Governor of Van Diemen's Land meant a period of greater encouragement and official support for Gunn. The interest that Sir John and Lady Franklin displayed in scientific matters, and the fact that Gunn's work had been commended to them by Hooker, brought Gunn to the forefront as an authority on Tasmanian Natural History. Lady Franklin invited him to assist in laying out a Botanic Garden on her estate "Ancanthe", Lenah Valley, near Hobart Town (now known as the Franklin Gardens). In October, 1838, he left Circular Head for Hobart Town to take up the positions of Third Member of the Assignment Board, and Second Assistant Police Magistrate. In Hobart Town he took an active part in all the Franklins' efforts to make the residents of Van Diemen's Land science conscious; for example, he became Secretary of the Horticultural Society formed in 1839 and, in 1840, Secretary of the Tasmanian Society formed in 1838 by Sir John to promote scientific enquiry. He frequently accompanied the Franklins on their trips (e.g., to Flinders Island, to Esperance Bay, to the Huon River), but a fall from his horse resulting in a broken leg, caused him to miss the overland trip to Macquarie Harbour which the Franklins made in 1842. In 1840 he was appointed Private Secretary to Sir John Franklin and Clerk of the Legislative Council and of the Executive Council. As Secretary he was sure to meet all visitors interested in science. Among these must be numbered John Gould, Joseph Dalton Hooker (son of W. J. Hooker), and Captains Ross and Crozier of the "Erebus" and "Terror" Magnetic Survey Expedition.

In 1841 Gunn married Margaret Legrand Jamieson, only daughter of David Jamieson, of "Glen Leith", near New Norfolk. Just prior to his marriage Gunn resigned all his government appointments and returned to Launceston to become manager of the very large estates of W. E. Lawrence, who had died the same year. He took up residence at Penquite House on Lawrence's suburban estate. On Sir John's recall in 1843, Ronald Gunn also became manager of the properties acquired in Van Diemen's Land by the ex-governor and Lady Jane Franklin.

Gunn's salary as manager of these estates probably enabled him to acquire property for himself. It was a period of depression in the colonies, following the bursting of the Port Phillip land boom, and land and stock were cheap. Whatever the reason starting with little when he left Hobart Town, by the 1850's he had become a large land owner, possessing both country sheep runs and large areas of land in the suburbs of Launceston. He already owned 45 acres of Glen Dhu, Launceston, where he had begun a private botanic garden in 1833. This was now developed as a market garden and orchard. When sold in 1854 it was stated to have realised upwards of £600 per year. He also acquired 107 acres on the eastern side of Launceston on the town side of Penquite between High Street and the North Esk River. On this estate he built, in 1856, the mansion of Newstead House, where he resided until his death. The house is still standing.

After a vain and tactless effort by Sir John Eardley-Wilmot, Franklin's successor, to incorporate the Tasmanian Society into a new "Royal Society of Van Diemen's Land, for Horticulture, Botany and the Advancement of Science" that he founded, the Tasmanian Society moved its headquarters to Launceston, where its most active member, Ronald Gunn, now lived. Until 1848, when the Tasmanian Society amalgamated with the Royal Society under Governor Denison's presidency and with Dr. Milligan as Secretary Gunn was the force which kept it alive. He was both its Secretary and the editor of its publication, "The Tasmanian Journal of Natural Science". Reports of its activities

published in the newspapers of the times are full of such references as—"Mr. Gunn read a paper . . .", "Mr. Gunn exhibited specimens . . .", "Mr. Gunn drew attention to . . .", &c.

He continued to collect specimens for Hooker, both dried and living plants, the latter being sent in hermetically sealed glass-topped containers called Ward's Cases. They were returned from England filled with living garden plants, ornamental shrubs, and trees.

He also collected living animals to send to England. "The Times" of London records in 1850 the arrival of a live Tasmanian Tiger (Thylacine) for Mr. Gray of the British Museum from Mr. Gunn.

In recognition of his work in Natural History, Gunn was elected a Fellow of the Linnean Society in 1850, and in 1854 a Fellow of the Royal Society of London, the first Tasmanian to receive this honour.

His work, in collaboration with William Archer, in helping Joseph Hooker with specimens and notes for his beautifully produced *Flora Tasmaniae*, the first book on the botany of this island, was gratefully acknowledged by Hooker in his introduction, and the book was dedicated jointly to William Archer and Ronald Gunn.

The period from 1840 to 1860 must have been an extremely busy one for Gunn. His management of the Lawrence and Franklin estates, the gradual acquiring of his own property, and the building of Newstead House, his exploring and botanical trips, particularly to the north-east and the west coast, must have given him little time for outside interests, while the circumstances of Franklin's recall and Wilmot's dealings with the Tasmanian Society caused Gunn to take little part in public affairs until the late 'forties. With Sir William Denison's arrival in 1847, Gunn became more active. At this time the great question agitating the mind of the community was that of the transportation of convicts to Tasmania. He was one of a group of large landholders who advocated the continuance of the system. He had charge of a petition to be sent to the Queen praying for the continuance in office of Sir William Denison, champion of transportation. He was also one of the principal signatories of a circular sent to the chief property owners and employers of labour advocating the continuance of this compulsory migration for economic and moral reasons but, in spite of all the efforts of Gunn and his associates, transportation ceased in 1853.

Gunn continued to take an active interest in politics, however, and in July, 1855 was elected to the Launceston seat of the Legislative Council, the result of the poll being—Gunn, 401; Field 12. With the granting of self-government to the colony in the same year, Gunn resigned his seat on the Council and stood for and was elected to the Selby seat in the first House of Assembly. He continued to hold this seat until 1860 when his friend, Isaac Sherwin, was elected in his place. Ronald Gunn does not seem to have been a very active member of parliament. Although he occasionally presented a petition or introduced a deputation and was chairman of one select committee during the term, the most common entry in the minutes of the House regarding him is—"Mr. Gunn granted leave of absence".

After his resignation from Parliament, R. C. Gunn was appointed Deputy Commissioner of Crown Lands for the northern side of the island. In 1862 he was appointed Agent for the Real Property Act; Deputy Registrar of the Court of Requests; Clerk of

the Peace; Deputy Registrar of Births, Deaths, and Marriages; in 1863, Deputy Recorder of Titles; Chairman of the Northern Sub-Board of Works; Chairman and Treasurer of the North Esk Road Trust; in 1864, he was chosen as one of the Commissioners to report on the site of Government for New Zealand, when Wellington was unanimously recommended.

Gunn travelled extensively over Tasmania, including some previously unexplored regions. His early trips were to the mountains near Launceston—Mt. Arthur, Mt. Barrow, Ben Nevis, Ben Lomond—and on many occasions to the Western Tiers. He also visited the Asbestos Hills and the mouth of the Tamar River. While at Circular Head, he went to Woolnorth and the country south of Cape Grim, to the Hampshire and Surrey Hills, the Middlesex Plains and to the upper reaches of the Forth River. With the Franklins, he visited Flinders Island, Recherche Bay, and the Huon. Later he made trips to Lake St. Clair, and on another occasion he followed the Franklins' route to Macquarie Harbour. He also made a traverse of the Western Tiers from the Arthur Lakes to the Meander Falls, and the first overland penetration of the dense rain forest between Mount Barrow and the north-eastern coastal plain. He made several trips to southern Victoria, including Westernport, Port Phillip, Cape Otway, Portland, and the Glenelg River. For the Government of Tasmania in 1859, with Surveyor Peter Lette, he reported on gold discoveries on the Forth River, on the Middlesex Plains, and the upper Arthur River. At the same time they explored the country between the north-western rivers to locate suitable access routes to the fertile forest lands which had not yet been taken up. This was the occasion when the plains named in Gunn's honour were discovered. In 1865, James and John Scott escorted Charles Meredith (the Colonial Secretary), C. Gould (the Government Geologist), and R. C. Gunn by way of Pipers River, Bridport, and Scottsdale, to Ringarooma.

During these years he had become an influential figure in Launceston. A large landholder, he was a director or chairman of several companies or societies—The Breadalbane Road Trust, the St. Andrews Immigration Society, the Launceston Patriotic Fund for relief of widows and children of deceased soldiers of the Crimean War, the Tamar Fire and Marine Insurance Company, the Mechanics Institute, the Bank of Australasia, the Horticultural Society, and Vice-President of the Northern Agricultural Society, formed at Longford in 1856.

Probably his last official appointment was as collector of the Western Railway rate in 1872. This rate was payable by property owners in the Western Railway District to meet interest on bonds issued by the Government to help finance the Western Railway Company's line between Launceston and Deloraine, built in 1868-70. As the line failed to do more than pay working expenses, owners and occupiers of the district had to make good their guarantees, although the Main Line Company's interest for its expenditure on the railway between Hobart and Launceston, begun in 1871, was guaranteed by the Government without any call being made on landowners. Gunn collected £7,000 of the £7,500 owing for the first half year's rate, but his sympathy was with the ratepayers and he notified the Government that the law could not be enforced and that in his opinion the rate could not be collected, and he resigned. The Government persisted in its claims and at Launceston ordered the seizure of large quantities of goods belonging to those who refused to pay and lodged them in the Commissariat store; thereupon riots broke out in the streets of the town and additional police had to be sworn in. In its next sitting, Parliament relieved the landowners of all liability.

Gunn's literary efforts seem to have been confined to editing the "Tasmanian Journal of Natural Science", writing articles for it, compiling lists of indigenous plants and animals for such publications as Backhouse's Journal, and there is an acknowledgment of the valuable aid he afforded the publishers in Walsh's Almanack for 1862. He presented his extensive private Herbarium to the Royal Society of Tasmania in 1878 and it was kept at the Tasmanian Museum, Hobart, until transferred to the National Herbarium of N.S.W., Sydney, in 1904.

In 1876, because of failing health, R. C. Gunn retired on a pension from his Government offices. For the remainder of his life he lived quietly at Newstead House where he died on 13th March, 1881. For at least two years before his death he had been so crippled that he was unable to move without assistance. On the afternoon of his funeral the public offices in Launceston were closed, but the funeral was poorly attended. This poor attendance was attributed by one newspaper correspondent to the fact that Gunn's ill-health had forced him to live in retirement for so long that people had forgotten him.

Ronald Campbell Gunn was buried in the old Scotch Burial Ground in High Street, Launceston. This cemetery was the gift of his brother, William Gunn, to the Presbyterian community. The cemetery, long disused, was taken over by the Launceston City Council about 1950 with the intention of making it into a park. William Gunn's grandson, Mr. R. M. Gunn, had the tombstone bearing Ronald Gunn's name and that of his second wife and a daughter re-erected at Carr Villa Cemetery. At the same time he removed all the coffins from the William Gunn vault to the same cemetery.

Ronald Gunn had five children of his first marriage and five more of his second. Descendants of some of these survive but none bear the name of Gunn. Two of his sons, one of the first and one of the second family, became medical practitioners. One died in Queensland and one in England, neither with male issue. Newstead House remained in the family with Gunn's daughter, Mary Anne, and her cousins, Louisa and Ronald Thomas Gunn, children of William Gunn, living there. In 1924, at the death of Louisa, the last to go, the property was sold and Gunn's magnificent collection of books, as well as numerous letters of historic interest, were dispersed. The Newstead estate was subdivided for housing and Gunn's private botanic garden destroyed.

Ronald Gunn's name is commemorated in Gunns Plains; Lake Gunn (one of the Arthur Lakes where Gunn had a summer sheep run); Campbell River and Mount Campbell in the Cradle Mountain Reserve, which were named in his honour by his friend James ("Philosopher") Smith, the discoverer of the Mt. Bischoff tin mine. In Devonport, there are Ronald, Campbell, and Gunn Streets; and in Launceston, Ronald, Campbell, and Gunn Streets were so named when the Newstead estate was cut up, but Ronald later became Junction Street and Gunn became Wentworth Street. Over fifty species of plants bore his name in latinised form, but revision over the century has reduced the number to about twenty-five. One bandicoot and four species of shellfish also bear his name.

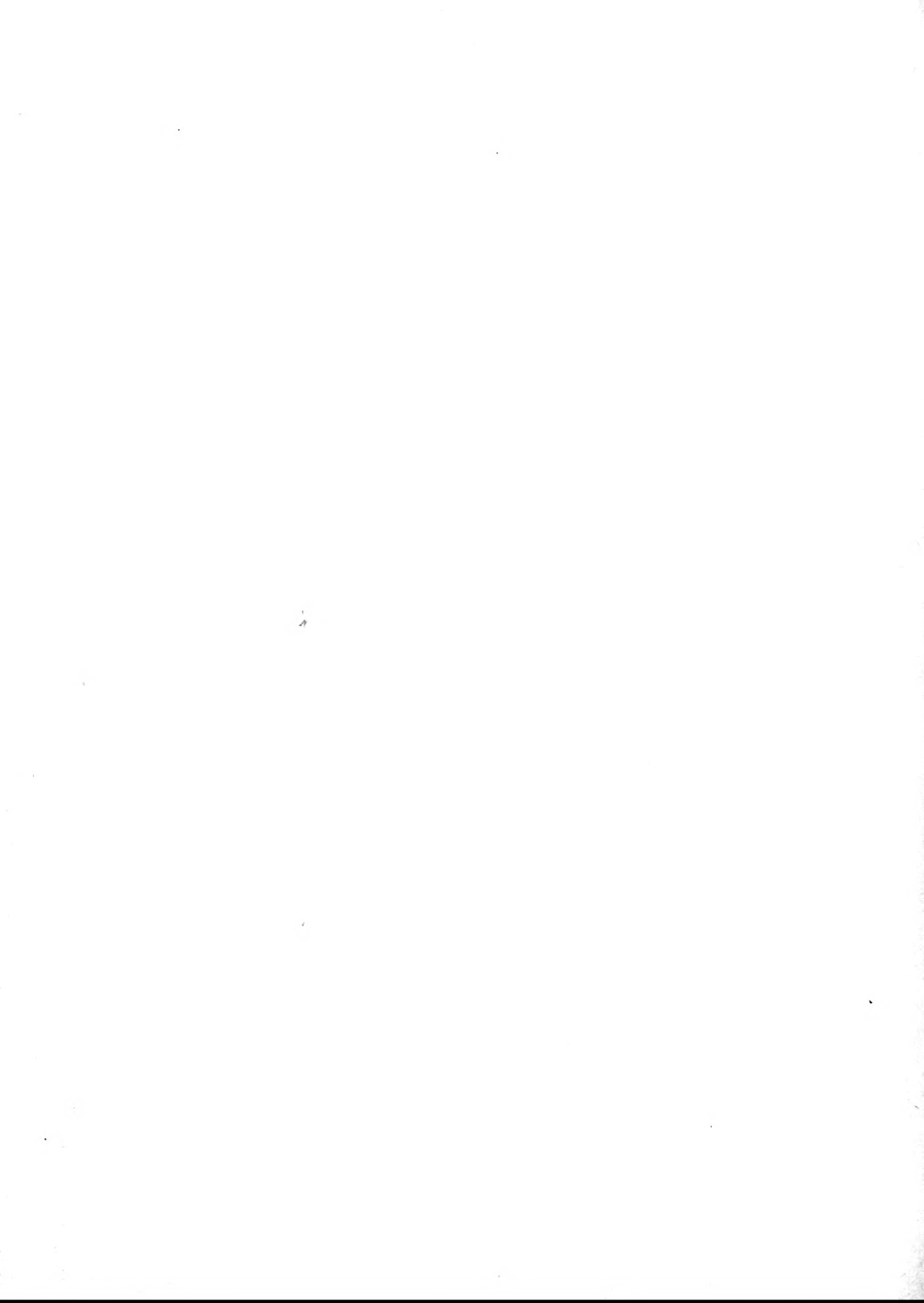
In the wide sphere of his public life, both official and voluntary, Ronald Gunn probably did more than most other public spirited citizens of the time. One lasting and tangible benefit to Launceston came from his Horticultural Society. This body, whose headquarters was the Launceston Government Cottage (later known as Franklin Lodge), had in its care the gardens which afterwards became the City Park, and the justifiable

BIOGRAPHICAL NOTE

pride that Launceston has in its many well-ordered gardens and reserves stems from it. "The Tasmanian Journal of Natural Science", organ of the Tasmanian Society, which he for several years edited, also set a very high standard for the "Papers and Proceedings of the Royal Society of Tasmania", which succeeded it.

But Ronald Gunn's chief claim to fame is his magnificent pioneering work in bringing to the notice of competent authorities the flora and fauna of Tasmania. Without his help and his beautifully preserved specimens and accurate notes, Joseph Hooker could never have produced his "Flora Tasmaniae" in 1860. Nor could Joseph Hooker and George Bentham have made complete their comprehensive "Genera Plantarum" which brought up to date the classification of all known plants and on which Bentham based his monumental "Flora Australiensis" wherein, with the assistance of Ferdinand von Mueller, he summarised the then known work on Australian plants.

Gunn's name is rightly honoured in Botany. It should also be honoured by all Tasmanians as that of one of their greatest and most distinguished citizens.



VAN DIEMEN'S LAND CORRESPONDENTS

by

T. E. BURNS AND J. R. SKEMP.

*Letters from R. C. Gunn, R. W. Lawrence, Jorgen Jorgenson, Sir Frank Franklin,
and others to
Sir William Hooker,
1827-1849.*

The last half of the Eighteenth and the first half of the Nineteenth Centuries were the great years of the Systematic Naturalists. Leuwenhoek's microscope had engendered interest in the more minute details, often of diagnostic value, in the classification of living things, while Linnaeus' binomial system of naming them and the framework of classification developed by the Jussieus in the Vegetable, and Cuvier in the Animal Kingdom, set the Naturalists of Europe gathering, dissecting, and classifying every species of living thing they could lay their hands on. The science of Natural History, dormant almost since Aristotle's time, became the subject of absorbing interest to many of the most brilliant intellects of the day.

It was, too, still an age of geographical discovery. New seas were being charted and new lands put on the map by European navigators, while in countries already colonized, the frontiers were being steadily pushed back by explorers and settlers. From these new discoveries came more and more new species of plants and animals to be named and classified. Most of the great voyagers of the period took with them accredited naturalists, together with artists to depict new species, both plant and animal, and often with gardeners to select and preserve living plants, for the discovery and propagation of new edible or ornamental kinds was a most important, and profitable, branch of horticulture.

Of the more famous navigators of the latter half of the Eighteenth and earlier years of the Nineteenth Century who visited

Tasmania and Australia, James Cook had with him on his first voyage Mr. (afterwards Sir) Joseph Banks and Dr. Solander; on his second voyage the German botanists Forster (father and son); while on his third voyage (when in 1777, he visited Adventure Bay in southern Van Diemen's Land) a considerable collection of new species was made by Mr. David Nelson and the surgeon of the "Resolution", Mr. Anderson. (In the training of medical men of the day, botany, particularly relating to herbal remedies, was an important subject. Most of the leading botanists were also medical practitioners.) Mathew Flinders, in his voyages of discovery around the Australian Coast during the years 1801-2, was accompanied by a man destined to be one of the greatest systematic botanists of the time, Dr. Robert Brown, who had, as his assistants, Ferdinand Bauer as botanical draughtsman, and Peter Good as gardener. In 1802, in the "Investigator", Flinders visited the Bass Strait Islands and Port Dalrymple, where Brown collected many new species. A result of these voyages was the publication, in 1810, of Brown's "Prodomus Flora Novae-Hollandiae", acclaimed, though only a fragment, as the greatest botanical work that had ever appeared.

In 1793, the French navigator, Bruni D'Entrecasteaux, spent some time charting the southern coasts of Van Diemen's Land, particularly the island and the channel that bear his names. With him were two naturalists, Labillardière and Riche, who collected and named many of the plants in this locality, as well as establishing a garden of European plants at Recherche Bay.

Another French expedition, under Captain Baudin, visited Van Diemen's Land in 1802. On his staff as chief botanist was Leschenault de la Tour, with Peron as zoologist.

It was, indeed, mainly British and French naturalists who did the bulk of this early work in collecting and classifying, both in the field and in the laboratories at home, and there was considerable rivalry among them (not always of the friendliest kind) to be the first to put on record new plants or animals discovered. There was still much to be done. The navigators touched only the fringes of the lands they discovered. A wealth of material lay behind the coastline that only land exploration could reveal and the early explorers usually took a naturalist with them or were themselves naturalists. Among Australian examples are Major Mitchell, Allan Cunningham, Count Strzlecki and Ludwig Leichhardt, but it required a biologist, with a proper knowledge of his specific subject, and time and facilities at his disposal, to achieve order out of the new material that constantly came to hand. Most of these qualified experts were in Europe, mainly in Britain and France. Two of the most accomplished botanists of the day were the Scotsman, Dr. Robert Brown, who, in 1827, became keeper of the botanic department of the British Museum, and the Englishman, Dr. (later Sir) William Jackson Hooker, professor of botany at the University of Glasgow from 1820 to 1840, and thereafter director of the Royal Botanic Gardens at Kew until his death in 1865, when his son, Dr. (later Sir) Joseph Dalton Hooker (1817-1911) succeeded him in that office.

Like Brown, Hooker in his younger days had collected plants in other lands. In 1809, during the Napoleonic Wars when Denmark was at war with Britain, he visited Denmark's dependency, Iceland. This was a famous occasion, for the romantic adventurer, Jorgen Jorgenson, who accompanied the British trading ship "Clarence", as agent and interpreter, seized control of the government of Iceland and, for a few months,

ruled the country as a benevolent despot. Jorgenson was deposed by the commander of a British naval vessel, but on the return to England, the "Clarence", on which Hooker was travelling, caught fire and sank. By the prompt and skilful action of Jorgenson, who took charge of the accompanying vessel, the whole ship's company was saved, though Hooker lost his botanical specimens.

As a consequence of this association, Hooker and Jorgenson became friends and, after serving a term of imprisonment, not so much for usurping power in Iceland, as for breaking his parole while a prisoner of war to do so, Jorgenson was the guest of Hooker at his Norfolk home in Norwich.

Later (according to his own story, owing to his gambling habits) Jorgenson fell from grace, and in 1825 was transported for life to Van Diemen's Land. It was not, however, his old friend's enforced residence there that turned Hooker's mind to the plants of the Colony, and Jorgenson, even if he had the inclination, as a convict had no opportunities for collecting. As early as 1823 Hooker set about trying to get specimens from Van Diemen's Land.

Though science was becoming an important branch of study at home, in Van Diemen's Land it had hardly begun. About half the population of the infant colony consisted of convicts and their guards, while the free colonists were more interested in their material welfare than in cultural matters—the settlers in establishing and widening their estates, the merchants and professional men in making money and maintaining their social status in society and, with one notable exception, up to Sir John Franklin's advent none of the early governors gave much encouragement to scientific enquiry. The exception was Colonel William Paterson, founder and Lieutenant-Governor of Northern Van Diemen's Land until 1812, who was himself something of a botanist and plant collector. His name is celebrated botanically in the Iris genus *Patersonia* R.Br. and the Orchid species *Caladenia patersonii* R.Br.

True, a mineralogist, W. H. Humphrey, had been attached to the staff of Hobart Town's founder, Lieutenant-Governor David Collins, but the work he did in that field seems hardly to have justified the office. In the eighteenth-twenties, according to a letter from Jorgenson, Humphrey still held the position. There was no official botanist, though New South Wales (to which colony Van Diemen's Land was an appendage until 1824) had one.

Colonel George Arthur, Lieutenant-Governor from 1824 to 1836, was fully occupied with the suppression of bushrangers, the Black War, the perfection of his convict system, and the animosity of many of the free settlers, but found time for scientific matters. It was under his regime that scientific studies in Van Diemen's Land had their tentative beginnings. His predecessor, Colonel William Sorell, had repossessed a farm of 80 acres, "Hangans Farm", on the banks of the Derwent for the purpose of establishing a botanical garden there in 1818, but practically nothing had been done and, in 1826, Arthur was complaining of its neglected state. "Nothing," he wrote, "having yet been done in collecting Plants, Shrubs, etc., with which the colony abounds. It is discreditable not to stir in this, and I am anxious about it, as I find it is remarked by strangers". In 1828 the first Superintendent of the Gardens, Mr. William Davidson, was appointed, and the gardens soon became a centre of attraction for citizens of Hobart Town; so much so that, in 1832, Arthur directed that they be closed on Sundays, as the crowd that came damaged the plants. In 1829 Davidson applied for a number of grafted trees from the Government gardens at Launceston and George Town. These were probably introduced fruit and ornamental trees, not native species. In addition, a large number of seeds were ordered from England. In the same year Davidson collected the seeds of 150 kinds of native plants from Mt. Wellington for growth in the garden. When Sir John Franklin arrived in 1837, the Hobart Botanic Gardens were already fairly well established.

A start had also been made in the way of scientific societies. In 1829 the Van Diemen's Land Scientific Society with Governor Arthur as Patron, Dr. John Henderson, President, and Dr. Adam Turnbull, Secretary and Treasurer, was founded. Dr. James Ross, LL.D., author and publisher of Hobart Town, remarked, "Whatever new species might be discovered by the members would for many years to come readily find a place in the excellent classification which learned men had adopted in the old world". The society met monthly and was occupied with papers and discussions on many subjects; and it established a museum; but it seems to have been more a social than a scientific body. In 1824, also under the patronage of Colonel Arthur, a Mechanics' Institute had been established in Hobart Town, at which lectures on astronomy, steam engines, and chemistry were given. It was not until 1842, however, that a Mechanics' Institute was founded in Launceston and the first scientific society in that centre did not begin to function until 1839.

There was no interested body, therefore, to which Hooker could address his enquiries for plants from Van Diemen's Land. He probably appealed to people both in the south and north of the island whom he thought might help him, but the only reply he seems to have received was from Thomas Scott, merchant of Launceston and formerly of Glasgow. It reads—

HOOKEE CORRESPONDENCE.

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LETTEE 277.

Launceston Van Diemen's Land
1st Sepr. 1827

Sir

I was honoured with your letter of 12th July 1823 conveying instructions and paper for drying plants, from my long silenee you no doubt supposed that I was paying no attention to your request, but I assure you it has been much otherwise, but as I am no botanist I went very awkwardly about it, my first intention was to have numbered the specimens, then to have

gathered the seeds of the same plants and numbered them to correspond with the specimens, but after several attempts I found I was only making confusion as sometimes when I brought home some seeds I could not recollect from what plant I had gathered them I therefore gave up that Idea, I have just thought of a plan by which I think I will be able to succeed better I intend to get a number of small bags made to gather the seeds in and likewise to put some of the leaves of the plant from which they were gathered along with them, or perhaps it would be better just to put a sprig of the plant along with them when I send them to you—In the immediate neighbourhood of Launceston the variety of plants is very limited. I have sometimes collected a quantity at a distance but after bringing them sometimes 20 sometimes 40 Miles on horseback many of them would be so destroyed that they did not look like the same things. I therefore considered them useless, there is however a considerable variety here still and I hope in a few months more to send you a farther supply of seeds and specimens in the meantime I have put (for you) on board the ship Admiral Coekburn a Box addressed To the Glasgow Royal Botanic Garden, the Master of the Ship, Lieut. Cooling R.N. has acted in a very shameful way on the present occasion, he kept the Bills of Lading beside him for 8 or 10 days making frivolous pretences for not signing them, such as, he had not examined them with the Mate's book, the day before he sailed he promised to take them on board with him, to sign them and send them to me, in place of which he went off and took them with him, the ship goes round to Hobart Town to take on board passengers and I have written to a friend to demand the Bills of Lading from him, if I get them I will forward yours by the first ship in case the Admiral Coekburn has left Hobart Town before I can send to Hobart Town again, however I am afraid from some circumstances which have come to my knowledge that Captn Cooling would wish to appropriate them to his own use, for which I am the more concerned as the box contains specimens which I will not be able to replace, they were a variety of mosses from Macquarie Harbour collected for me by my friend Mr. Spence Assistant Colonial Surgeon whilst he was doing duty there, the remainder of the Box was plants dried by my self and a few seeds, I hope they may arrive safe altho' I have my doubts, the Ship is bound for Rio Janeiro and Liverpool in ease you do not get the Bills of Lading you must recover the box the best way you can—I have seen your letter to my late friend the Revd John Youl, he died in March last as I observed by it that you wished to have Mosses and Ferns, I will collect

as great a variety of them as I can, we have here a very extraordinary fern, (the fern Tree) it grows upwards of 16 foot high and I am told nearly 2 foot diameter in the stem altho' I have never seen any that I judged to be so large as that. I had some thoughts of taking a small one up by the root say about 6 or 8 foot high and sending it to you whole but have deferred doing so until I should write to you as perhaps you have such a thing already and the freight on it home would be high, if you wish to have one you have only to write to me and I will forward it, they grow in shady places where the ground is moist, the stem runs up straight without leaf or branch, and at the very top the leaves spread out broad, having never paid any attention to them I cannot say whither they are of quick or slow growth a few days ago I had a small one whose stem is not a foot high brought in and planted in my Garden to try if it would grow in a situation less moist and less shadowy than that in which they are generally found I will let you know the result of my experiment

I am

Sir

Your Mot, Obt. St.

Thos Seott

To Dr. Hooker /
Glasgow \

Macquarie Harbour, where Scott's friend, Second Assistant-Surgeon James Spence had been on duty, was the dreaded penal settlement for twice-convicted convicts, established by Lieut.-Governor Sorell in 1822 on the desolate and rain-drenched west coast of Van Diemen's Land.

The Rev. John Youl was the first ordained clergyman of the town of Launceston, arriving in 1819, thirteen years after the first settlement there. Having at first no church to conduct services in, he held them in the open or sometimes in a blacksmith's shop, attracting his congregation by marching around the town in his canonicals and striking an iron bar with a mallet in place of a bell. St. John's Church of England was not completed until 1825, with the Rev. Youl as first rector. His stipend was small, but he obtained land grants in the Perth district still held by his descendants. He died in 1827.

Thomas Scott's premises were in Cameron Street at the two western corners of the George Street intersection. As well as being an agent for general merchandise and shipping he was a wine and spirit merchant. An advertisement in the "Launceston Advertiser" of 8th November, 1832, states that he is agent for the Caledonian Distillery of David M'Gown at Distillery Creek. Owing to a rise in the price of corn, the price of his article, "equal to the best Irish or Scotch Whiskey", had been raised to twelve shillings per gallon for sixty gallons or over and thirteen shillings for smaller quantities. On the 29th September, 1834, Scott is reported as being chairman of a meeting to draw attention to the loss of vessels in the Tamar. He probably lived at Glen Dhu where, according to charts, a Thomas Scott had five blocks amounting to fifty acres, but one or more of these may have belonged to Thomas Scott, the surveyor, who lived in the same locality.

Thomas Scott, merchant, is liable to be confused with Thomas Scott, surveyor, who was contemporaneous with him at Launceston. Each had a brother James, the merchant's brother being a merchant in Glasgow in 1830, while the surveyor's brother, then aged 20, was either on his way to Van Diemen's Land or still a clerk in the office of Sir Walter Scott at Melrose Abbey. A Thomas Scott died in Launceston in 1854, aged 72. Thomas Scott the surveyor died in Scotland a year later.

It was Thomas Scott, merchant, through whom Hooker was introduced to a much more interested (and interesting) correspondent from Launceston, Van Diemen's Land. This was Robert W. Lawrence, who, in July, 1829, at the age of 20, commenced a diary which he later transcribed into a cheap ruled exercise book, watermarked on the cover J. Smiles, 1829. This exercise book, together with another continuing the diary over the years 1830 and 1831, is now in the possession of Mr. Leonard Lawrence of Formosa, Cressy, nephew of the diarist.

This diary shows that Robert was a young man of scientific bent, with horticulture, botany, and zoology his main interests, though he also dabbled in chemistry and philosophy. Some extracts are given below. At the time he was living at "Vermont" on the banks of the North Esk near Launceston.

1829 July 30th Sowed Early Nimble Peas.

Sept. 15th Sowed Cauliflower } Grew very well
Purple Brocoli } afterwards de-
Early York Cabbage } stroyed by the
Grubs.

Forest tree seeds of several kinds (What few of these last came up were afterwards entirely destroyed by those dreadful enemies of the Gardiner as well as Farmer, which appear about the middle Oct.—)

Oct. 24th This morning a light shower fell. Sowed some Australian seeds viz. *Acacia venusta*/Came up 7th Dec. *Acacia Verniciflua*/*Tristanea voluista*/Came up 2nd Dec. *Hibiscus mutabilis* Called by Mr. Fraser the Monarch of the Australian flowers.

Nov. 19th Moran and Drudge barking. I hoed a Thr. 64°
—69° 30' few potatoes this morning. Dined at Capt'n. Stewarts when I had an opportunity of examining the *Didelphus Cynocephalus* more nearly than hitherto.

Nov. 21st Moran and myself making preparation for a short excursion into the bush this morning. At about 2 o'clock we effected a start, our party consisted of Mr. Champion, Mr. Lamont, myself and Moran. Fine morning and night. Found several rare plants in flower, particularly a plant so similar in habit to the genus *Pimelea*, that I am inclined to think notwithstanding its deficiency of a stamen, that it is a species of that genus, its description is as follows.

MONANDRIA MONOGYNIA

Calyx, O. Corol. monopetala, infundibuliformis, quadrifida, infera. Stamen 1. tubo insertum. Pist. 1/Stigma simplex/Pericarpium/Semina (Not yet seen in a sufficiently forward or ripe state)/Receptaculum/Flores, terminalibus capitulis/Folia oblonga, acuta, integerrima, opposita, erecta, petiolata/ Caules vimenei procumbentes, porrieti/Radix/Habitat: Black Hills/Fl. November./ An unprofitable excursion.

Dec. 5th Rather windy. Examined the small *Didelphous* plant, which constitutes so essential a part of the herbage of Cape

Grim and the other parts of the western coast, and found it to be the *Lotus Corniculatus* (var.) This plant is reported to be sought after with great eagerness by the sheep of this country. Mr. Curr of the V.D.L.C. considers it as the best of the pasture on the Company's Lands. It grows luxuriantly on the light soils of the sea coast..

- Dec. 6th Monday A very fine day. Employed in cleaning and setting up a very fine microscope lent to me by Mr. Wedge.
- Dec. 8th Wind N. Very fine. Drudge carting bark. Ther 69° 30' Moran hoeing potatoes. Employed myself today in the examination of several plants in the class & order Hexandria monogynia six of which I found to belong to the Genus *Anthericum*, and two others, to two different new genera. One of the species of *Anthericum* is remarkable from three of its stamina (or rather filaments) being bearded and three being naked I found this plant during my late excursion to Circular Head, growing on light soils on the coast. It is very much resembling a species with yellow flowers very common in this country but differs in the above mentioned circumstances, (the common one having all the filaments bearded) and in the spiral twist of its leaves. I find considerable difficulty in describing the different grassy-leaved species, where it becomes necessary to resort to the leaves for specific characters. I have thought that the situation (upon the filament whether vertical or horizontal) and form of the anthera would form good specific characters, in this genus, where in is found so great a variety of these organs.
- This day a solitary seed germinated of the *Acacia verniciflua*, sown 24th Oct. and a few days ago the *Hibiscus Mutabilis* sown at the same time.
- Dec. 10th *Acacia Stenophylla* up in the Greenhouse; sown in August. . . . I put in a few specimens today, among the number the beautiful Musk Tree. Also two beautiful and rare Ferns.
- Dec 17th. Windy. Drudge in town. Moran in the Ther 67° Garden. Collected twenty one species of indigenous seeds ripened in the Garden. Examined the herb called native pennyroyal, and found it to be a species of *Mentha* undescribed in Turton's *Linnaeus*.
- Dec. 21st. Moran and Drudge stacking bark. Made Ther 87° some experiments upon several minerals. In Diallage found the presence of Iron.

two species of steatite one red the other white; in the red I found the colouring matter to be iron; in the white, indications of a small quantity of Lime. A white cloud upon adding Oxolate of Ammonia to a solution of the mineral.

- Dec. 24th. Evening. The day lost to work. The Ther 65° morning intolerably close and hot. Drudge received his Ticket of Leave.
- Dec. 27th. No work; all the men drunk. Heavy thunderstorm in the evening.—
- Dec. 27th. Dined with Hobler.—In the evening came home and wrote out my application for the appointment of Gardener to the Society, and one or two other letters upon business—
- Jan. 11th. No answer to my application for the [1830] situation of Gardener to the V.D.L. Ther 67° Phil. Soc.—
- March 20th A cloudy and changeable day, sometimes Ther. 60° hot and sometimes cold—wrote to my Even 66° Uncle Edward today for several books.
- April 10th. Spent most of the day in an anatomical Ther 65° examination of the male organs of generation of the Opossum. But being young in the practice of dissection I am afraid I made some mistakes; if I have, they must be corrected by future examinations. I shall therefore give the result of my present dissection.
- [*He does so and includes a sketch.*]
- April 14th. Dissected a specimen of the *Pelicanus Corba*—Moran went to town for Glue and remained there till a late hour. I shall be obliged to punish him shortly if he does not mend.
- April 26th. Wrote to the Superintendent of Convicts again for Servants, and did several other matters of business in Town—Came home in the evening.
- April 27th. Did two or three jobs in Carpentry about Ther. 58° the house. Afterwards I had an opportunity of dissecting a specimen of the *Ornithorynchus Paradoxus* The few observations I was able to make are as follows—

TORACIC VISCERA

Heart.—The form and situation of the heart is much the same as in the Human subject. Fyfe says that the Foramen Ovale is short in this species of animal; but I could not ascertain the fact in this

dissection. I shall investigate farther on some future occasion. Lungs are situated on each side of the media sternalis as in the Human Body; the right side having four lobes, the left only one. The Trachea divides into Bronchia as in the mammalia.

ABDOMINAL VISCERA.

Liver 5-lobed. Gall bladder beautifully attached to the great lobes on the right side—The two branches of the Hepatic Duct join with the Cystic, about a quarter of an inch below the neck of the Gall bladder. The Ductus communis chole-dochus enters the Duodenum three quarters of an inch from the Pylorus. The Pancreas resembles that of most Quadrupeds. Spleen, consists of two branches, one of which is about three inches and a half longer than the other, and of an elongated form, see figure [and he gives a figure] Fyfe says, "the spleen of the ornithorynchus is of a quadrangular form, and larger than the stomach." The stomach is simple and remarkably small; having horny Papillae on the Pylorus. Testes situated internally between the kidneys and the lumbar vertebrae. The subject of this dissection was too young to admit of an accurate examination of the organs of generation.

- May 3rd. Returned from town after being disappointed in not having heard anything relating to my application for men—I received today an assortment of native seeds from Circular Head collected by Dr. Hutchinson, one of the few whom I have known to keep their promises.—Every appearance of rain before morning.
- May 7th Today a man of Mr. Priaulx's brought me a bird to look at, which I should have bought had he not told me a lie. It was a new bird to me somewhat in appearance resembling the coot kind. The iris of a beautiful and brilliant red—Body Brown—Small.
- May 14th Moran at work at the potatoes.—In the Evening I set to work to find out the nature of a chrysalized substance which I received from Dr. Westbrook for that purpose. It proved to be Nitrate of Silver—I received from him several other substances the names of which he did not know. One of them proved to be that species of Bitumen called asphaltum. Another Amber, a beautiful specimen.
- May 15th Engaged most of the day in chemical examination of minerals—&c—

By "barking" in the entry for the 4th October, Lawrence refers to his servants stripping bark from wattle trees for tanning purposes. The Monandria monogynia is probably *Pimelea filiformis*. The *Didelphus cynocephalus* is the Tasmanian Tiger, *Thylacinus cynocephalus*. In his plant classification in the descriptions that follow Lawrence is using the Linnean System (see below). His mention of *Lotus corniculatus*, the Birdsfoot Trefoil, is interesting as there is some difference of opinion as to whether this excellent fodder plant is a native or introduced. In his diary Lawrence quotes from the "Hortus Gramineus Woburnensis" regarding its value as a fodder plant. In his entry of 14th April *Pelicanus corba* refers to the Black Cormorant, *Phalacrocorax carbo*, and on the 27th April *Ornithorynchus paradoxus* is the Platypus, *O. anatinus*. Hobler, mentioned several times in the diary was a farmer also living on the banks of the North Esk. Hoblers Bridge, which carries the Tasman Highway to the East Coast, is named after him.

A few days later young Robert Lawrence had a chat with Mr. Thomas Scott who, as he himself says, was not a botanist. He was not even a satisfactory correspondent, for Dr. William Hooker's first letter had remained unanswered for over three years, and it was nearly three years since he had written that first reply. His conversation with Robert induced him to write again.

LETTER 276.

Launceston Van Diemens Land
24th May 1830

Dear Sir

I have to acknowledge receipt of your very kind letters of 28th Augt 1828 and 9th Octb. 1829 and have also to acknowledge the impropriety of my conduct in not writing to you sooner, as confession of a fault is a great step towards reformation, (perhaps half the battle), I hope you will forgive me for this time—I had dried some more plants for you but they were not sufficient to make any thing like a decent parcel. I have been so absorbed in business for a long time back, that great part of the specimens I had collected were again lost, and

to tell you the truth collecting of plants had gone quite out of my head, when three days ago I received your letter of 9th Octr. I immediately went to a young friend of mine Mr Robt. Lawrence who is an enthusiastic botanist, shewed him your letter and asked him to make up some seeds for you, and I have no doubt but you would send him any seeds he might want in return, he made up a small parcel, which I have forwarded by Mr. Hunter Mate of the Clansman which was just clearing out, as Mr. Hunter is going to Glasgow, and I know him to be very carefull, I have no doubt of your receiving them safe. I have sent them to the care of my brother Mr. James Scott No 102 Stockwell Street, who will deliver them to you, as he is making frequent shipments to me he will forward to me any seeds you may find it convenient to send Mr. Lawrence, enclosed I send the note he sent me along with the seeds he is a young man very anxious to learn and I have no doubt but you will find him a very valuable correspondent, I will request him to write to you by the Lucy Davidson which sails for London next month, and in the mean time I beg you will rest assured that my feeble endeavours will be exerted in the furtherance of your views—

I am

Dear Sir

Yours most sincerely—

Thos. Scott

P.S. Please address to me Cameron Street Launceston, as there is now another of the same name here. T.S.

Robert Lawrence, Hooker's new correspondent, was the eldest son of William Effingham Lawrence, a wealthy settler who had arrived in Launceston in 1823. W. E. Lawrence had been a successful merchant in England, with houses in London, Liverpool, and New York. Failing health induced him to seek a more favourable climate and he purchased the "Lord Liverpool", a cutter of 71 tons burthen, to bring him to Van Diemen's Land. With him he brought his wife and two children, a blacksmith, and two apprentices, together with a large quantity of merchandise, including furniture, agricultural implements, and mechanics' tools. The vessel was commanded by Captain George Coulson, with Samuel Budge mate, four seamen and a carpenter, all of whom intended to settle in the

colony. (Captain Coulson made his home on the east bank of the Tamar, near Windermere, where his descendants still live; one of the seamen, J. W. Bell, became an auctioneer in Launceston, in which profession he was succeeded by his son, W. T. Bell.)

W. E. Lawrence had been a friend of Jeremy Bentham, the great philosopher and reformer. A bust of Bentham, brought out at the time, is in the possession of Mr. E. L. Lawrence, of "Billopp", who also has the original abstracts of two letters on metaphysics, written by Bentham to his Swiss-French friend and disciple, Pierre Dumont.

They left England in May 1822, but a stay of four months at Rio de Janiero delayed their reaching George Town, at the mouth of the Tamar, until February 1823. The "Lord Liverpool", however, did not sail up the Tamar to Launceston until six weeks later. In the meantime, W. E. Lawrence had visited Lieutenant-Governor William Sorell at Hobart Town and obtained, in proportion to the considerable capital in goods and money he had brought into the colony, extensive grants of land in Northern Tasmania. These included the large estate of "Formosa", on the Lake River in the Northern Midlands, and areas adjacent to the small but growing town of Launceston. One of these areas was to the south of Windmill Hill and included the present-day suburban areas of Lawrence Vale and Penquite. Penquite House, only recently demolished, was built for Lawrence's overseer. Another section granted to him, together with Thomas Archer of "Woolmers" and Joseph Archer of "Pan-hanger", was on the marshes to the north of the town, on the banks of the North Esk River, on condition that an embankment was built to prevent flooding and that the land was drained. W. E. Lawrence's town residence was on a block between Brisbane Street and York Street, above the present City Park, overlooking the North Esk flats, and commanding a view of shipping entering and leaving the port of Launceston. The house, numbered 15 Brisbane Street, is still standing behind the houses which now front

the street. It is approached by a small lane at the head of which is a cast-iron gateway which once gave entry to the Henty residence in Cameron Street. The house is built of a ferruginous sandstone taken, apparently, from the Windmill Hill beds. Sills and lintels are of a fine-grade freestone not found in the district. The house stands in what appears to have been the floor of an old clay quarry. The clay perhaps went to make the soft friable bricks with which the buildings and garden walls of Launceston were built. The coarse sandstone found embedded in the clay would be discarded and used finally to build this house. A wing at the rear is in brick but the brick stables were demolished to make way for the home of Mr. A. W. M. Brewer. In the courtyard stands a very ancient weeping willow traditionally supposed to have been grown from a cutting taken from Napoleon's grave at St. Helena.

As the block was not alienated from the Crown until the arrival of W. E. Lawrence, the quarry may have been one operated by the Crown.

On the hill behind the North Esk marshes, he had another house, "Vermont", built for his son Robert. In addition, by grant or purchase, he became the possessor of other estates, including "Point Effingham", near George Town, and "Danbury Park", on the West Tamar. Besides his pastoral interests, W. E. Lawrence became a leading business man of Launceston, being a director of the Cornwall Bank, founded in 1828, and the Bank of Australasia, with which the Cornwall Bank was later merged, and also a director of the Tamar Steam Navigation Company, founded in 1832.

In 1826 it was brought to the notice of Colonel George Arthur, who had succeeded Sorell as Lieutenant-Governor in 1824, that the "Formosa" estate, owing to negligence (or, as it was hinted, collusion) of the Surveyor-General, George Evans, and his Assistant Surveyor, Thomas Scott, was greatly in excess of the permissible grant. (Apparently, it was customary at the time

to measure boundaries of large estates by pacing.) This led to a lengthy enquiry, as a result of which Evans lost his position and Scott his chance of promotion, but "Formosa" retained its 13,000 acres, and later Evans was granted an Imperial pension at Arthur's request. The litigation, however, created bad feeling between Arthur and Lawrence so that, though his talents and wealth made him an obvious choice, Lawrence was completely ignored by Arthur in his selection of members for his nominated Legislative Council.

Robert Lawrence, in whose name 2,000 acres of the "Formosa" estate were granted, remained in England to complete his education when his father left. He did not arrive in Van Diemen's Land until, a youth of sixteen, he landed at Hobart Town from the ship "Elizabeth" in April, 1825. Robert made a copy of his first letter to Hooker in his diary. The original is preserved in Hooker's correspondence as letter 144.

June 4th. Wind from the Southward, very cold. Rather unwell today so kept house and read all day—Moran still digging potatoes—Through the kindness of Mr. Scott I have got an introduction to Dr. Hooker of Glasgow—Professor of Botany—I have sent him 2 packages of seeds, and the following letter—

Vermont June 1st 1830

Sir

I am happy in being acquainted with a correspondent of yours Mr T. Scott who has been kind enough to introduce me to you by letter. He will no doubt inform you that I have a taste for the science of Botany.—My knowledge of this science is certainly very slight indeed, I am a mere learner and without a preceptor but I hope that in time, by application I shall become as much of a Botanist as to enable me to be useful to you now if you will accept my services such as they may be.

The principle obstacles to my becoming scientific are as you may conceive the total want of persons with whom to converse on such subjects; and of Books. If therefore you will occasionally furnish me with a little knowledge I will furnish you with new or at least rare species of plants to examine and describe, with their peculiarities as regards soil, sizes, habitat &c &c—

You may henceforth consider me therefore as an established correspondent—I will regularly send you seeds and a duplicate of my Hortus Siccus. Directions as to the best method of packing seed &c will be desirable and your address—

If it were possible to obtain Brown's Prodrum Fl. Nov. Holl.—I shall feel greatly obliged by your furnishing me with it.

I remain

Your Obt Serv

R. W. Lawrence

Address to care of
W. E. Lawrence Esq
Launceston

The address was placed on the back of the sheet, after it was folded and sealed with wax, and various postmarks indicate that it was received as an "India Letter" at Dover, and that it reached Glasgow on 30th October, 1830. A small rectangle shows "1/2".

Some further extracts from the diary follow—

June 10th The Orchidia and other hulous plants are rapidly rising above the ground; and the common though beautiful Epacris rises prettily above the coarser plants usually found on barren hills. Many species of plants appear to be preparing for a most luxuriant display of their spring colours

Sunday I lament to say that when I came home
June 27th this morning from Hobler's I found my
Ther 47° last three years labour lost, all my plants
30' were completely destroyed by cattle which had contrived to break down the garden fence. Two hundred head of cattle in a garden for one night is of course quite sufficient.—Captn Wales dined with me today—

I am an unfortunate devil I have most truly said in the preceeding pages—How often are our fondest hopes denied us—

July 2nd Returned from town where I have been remaining ever since Monday. My principal business being to attend to the dissection of the two murderers who were hanged. I witnessed the disagreeable sight of their execution, and was glad to find that the Culprits suffer very little; their death must be immediate.

July 7th Returned. In the evening began a Pneumatic apparatus—

July 8th Succeeded in several experiments on the Gases—

July 22nd Made an excursion round the neighbourhood in search of young plants for transportation. My rout was by Hoblers where I found young plants of a beautiful species of *Notelocia*—some *Oleas* and *Tasmannia*; then *Penquite*, *Waddles* and the *Cataract*. I was remarkably fortunate in finding young plants of several rare species—

—23 Moran and myself started for the Western District. In the forest on the Old Norfolk Plains road I recognised a very rare *Diadelphous* plant which I had before only seen in the Forest of Formosa—Reached Entally where I remained all night—

—24 Proceeded to Mr. Ashburner's where I remained all day and enjoyed the sight of numerous books of value as well as a great deal of amusing and instructive conversations—

Sunday Rained very heavily which induced me
—25 to remain at Mr. Ashburner's today—I enjoyed myself exceedingly. Mr. Ashburner was kind enough to lend me a book which I had often-times wished to read, viz. *Davy's Ag. Ch.* an extremely valuable production He also presented me with a small evaporating dish which was desirable to me—

—26th Proceeded on my ramhles, went up the Isis a few miles but only saw one new plant of an unsightly appearance. Reached Mr. Walkers estate about 2 o'clock I found myself so agreeably situated that I gladly remained there the afternoon and took a bed—

—27 Made through the Bush for my father's place Formosa where I arrived about 5 o'clock in the evening. This day I made several aquisitions

—28 Traveled round the Forest; obtained some rare plants for which I was seeking and then travelled on to the Companies. Found Mr. Dutton an hospitable gentlemanly man. He was kind enough to lend me several books &c Remained there all night—

July 29 Started from Mr. Dutton's about 10 o'clock for town, via Entally, where I had seen several plants on my journey

up. Took some of them and proceeded to town where I arrived at 6 o'clock. During the latter part of the Journey walked very fast. I left Entally at 4 o'clock and was in town at 6 o'clock—
 —-30 Returned to Vermont.

On October 5 he set out with a party of nine to take part in the expedition against the aborigines. Capt. Donaldson was the officer to whom he was responsible. The "Aboriginal Campaign" was, of course, Colonel Arthur's famous "Black Line", the abortive attempt to round up the remnant of aborigines, now in murderous and savage conflict with the white settlers, and contain them in Forestier and Tasman Peninsulas on the south-east of the island. It was a complete failure in its object, but provided a paid excursion and camping holiday for many able-bodied young settlers. To Robert Lawrence, who recorded its progress in his diary, it gave an opportunity for extending his botanical collection and doing a little zoological research. On 16th October, after the party had reached the Western Plateau, he dissected and named a snake, "*Coluber pinnatus* R.W.L." and comments, "I think that *pinnatus* is not an objectionable trivial name". It seems to have been a Tiger Snake, *Notechis scutatus*. Other entries read—

Tuesday . . . There is a new species of *Casuarina* here, which is remarkable in being dioecious. I have collected a large quantity of the seed. The other two species of *Casuarina* indigenous to this country, viz. *striata* & *tornosa* are also dioecious; this additional species make the number of dioecious *Casuarinae* three, the three other species described in Turton are monoecious. It is singular that in this genus there should be an equal number of species belonging to two separate classes. —Three new species of *Conchium* are found here also.

Owing to the necessity of attending to orders, I find it nearly impossible to make proper descriptions of the new objects which from time to time attract my observation. Fell in with a small plant which is new to me, a species of that numerous genus *Chrysanthemum*.

Lawrence's *Conchium* is now *Hakca*. On the next day, Wednesday, 20th October, Robert shows those qualities demanded of a leader in an emergency. He writes of it thus—

Here I had a row with the men, they were ill-tempered and pettish at the gloomy prospect before them, raining hard, nothing to eat, and every probability of being out all night, without blankets, or any thing to protect us from the still increasing rain. Every man, swore the lake lay in a different direction to that which any of his companions supposed, and every one pronounced his determination to go his own way. Indeed this disposition increased so highly, that I was compelled, after having used every persuasive argument I could think of, furling laying before them the many dangers they would incur by a separation, to inform them that I should immediately shoot the first man that I saw about to leave me. My violence had the desired effect.

On the 27th he dissected a native "Hedgehog", the Spiny Ant-eater, *Tachyglossus setosus*, and wrote a description.

By the 2nd November, he was in the vicinity of Richmond and wrote—

I have observed several new species of *Pultenoea*; and a species of *Eucalyptus* (*Eucalyptus robusta*?) is very common about here, which I have not seen in Cornwall, called the Blue Gum. It is when young an ornamental tree.

Saturday Novr. 6th
 Soon after breakfast this morning I went with Moran in front of the line to patrol. Crossed a hill of argillaceous stone abounding in impressions of an extinct species of *Filices* and a shell (Algae? being with shell).—I have several specimens. Also found a curious and quite new plant in the natural order of *Orchideae*, the nectarium has the appearance of a foxe's tail—Returned about dinner time with a violent headache.

Monday 8th Novr.
 Great complaints from the Capt. about our fire last night I have in consequence been obliged to stir the men up a little this morning. They are beginning to

become ill-tempered now, which makes the situation of a leader anything but enviable

Wednes-
day 10th
Novr.

Made an early start this morning and about one o'clock got into a very thick scrub, our course was due north. Here we dined. Proceeded about four miles further into the scrub, where we halted for the night. Found several new ferns and other plants—among them the following—Class and Order Icosandria Digynia Corol. 8-petalae, inferior, regular. Calyx 6-8-leaved, leaves very acute. Filaments filiform, anthera one valved, opening at the top—/Pistilla simple./Flowers terminal, in twos or threes,/ leaves lanceolate, whorled, hairy in the margin—Stem sprawling, the young shoots villous/ Shrub/Habitat. Scrub near Sorrell./Fl. November. Cherry Class & order Dodecandria Monogynia / / Calyx 4-leaved Corol. 4-petaled, each petal 3-cleft, inferior./Stamina 12. Antherae very long opening longitudinally—Pistil one Stigma simple/ Pericarpium a berry 3 celled./Flowers axillary, petiolated,/ Leaves ovate, serrate./Stem sprawling./ Hab. Thick scrub near Sorell—/Fl. November—This is a very elegant shrub, the young shoots having much of the appearance of a Kentish cherry. The fruit resembling a black-heart. I mention these as being two very beautiful plants. We passed some very large timber today some often trees measuring 12-14 feet in diameter at six feet from the ground.

Thursday
11th
November

Proceeded on our expedition this morning changing our course from north, to due west. The scrub sometimes very thick for about a mile and a half, when the country became a little more practicable; shortly after this we heard some persons talking, and on looking in the direction whence the sound issued, we saw some trees barked, and a roving party led by Mr. Massey—Mr M. was engaged in examining some Natives' Huts, they were five in number, and appeared to be those which had been seen several times already, by other parties. Mr. Massey had with him a Black who was taken a few days ago, as a guide, to lead him to the haunts of his tribe. Proceeded a few miles further passing a very dense and prickly scrub. The plants principally composing it were the *Mimosa verticillata*, *Pultenaea* -sp-, *Metrosideros lanceolata* and a coarse cutting grass.—Found a spear which had been lately made.

The "Cornwall" referred to was, at the time, the general name for the settled country around Launceston. The Blue Gum, *Eucalyptus globulus*, grows naturally only in the south and east of Tasmania. *E. robusta* does not occur in Tasmania. The two plants he describes in detail appear to have been *Bauera rubioides* and the Heart Berry, *Aristotelia peduncularis*. *Mimosa verticillata* is *Acacia verticillata*, Prickly Mimosa. By *Metrosideros lanceolata* he may mean *Callistemon pallidus*.

From Lawrence's notes on the trees and shrubs, this excursion apparently took them into the hilly country towards the present district of Nugent, where a higher rainfall produces big timber and a fern gully flora. The expedition was abandoned on 25th November and Robert returned to Vermont, where he resumes his diary. The entries regarding the Aboriginal Campaign were written into it from notes he took during the expedition. The following extracts were written after his return home.

Wednes-
day 19th
Jany
Ther 64°

Mr Francis Lord had come over today from town, in order to arrange concerning a hebdomadal meeting to be held (by us) for the purpose of improving ourselves in the science of Chemistry and Botany. At present Mr Lord appears to be unsettled, but he hopes soon to have matters so arranged, as to be able to attend with regularity—We read Thomsons introduction this morning and proceeded a short way into the chapter on Heat. Smith's introduction to his work on Systematical and Physiological Botany was also read, but I was so exceedingly unwell that I was obliged to go to bed.

[and next day]

My tooth continues very painful; I have been unable to eat for three days; my wisdom will be dearly purchased.

Monday
31st Jany.
Ther 66°
Wind
N.W.

Very strong breeze from the N.W. Landed my chemical apparatus in good order from the Prince Regent. Conveyed it to Vermont nothing broke or injured on the way.

Saturday
9th April

Mr Talbot gave me a bottle of water from a mineral spring on his estate to examine

Tuesday Thornberry was attacked by inflam-
19th April matory fever — I bled him and ad-
Thr. 60° ministered a purgation.

Sunday Engaged today in prosecuting my
24th April examination of Mr Talbot's mineral
Thr 68° water; did not complete it, but ascertained
Wind that it held in solution a small quantity
N.W. of Sulphate of Magnesia.

During April he paid a visit to the Tamar
Heads.

Wednes- Arrived at George Town by about 7
day o'clock a.m. Collett and I started about
17th April. 12 o'clock for a walk, we went round the
east head and along that coast. I found
several plants which I had not before
seen, but only one in a state fit for des-
cription, viz.

PENTANDRIA MONOGYNIA

Calyx 5-cleft. Corol. superior, funnil-
form, 5-cleft./Pericarp. Berry. Antherae
Perigynous. Stigma capitate./ Leaves.
Oblong, deeply channelled, silvery under-
neath;/ pedicel short/Shrub 2-3 feet
high./Hab. North East Coast V.D.L. Fl.
April & May—/

Several uncommon birds were seen; a
species of *Turdus* and a beautiful sea-
bird. A great paucity of shells on this
coast.—Numerous species of *Medusae*
abound, presenting quite a variety of
form.

Robert visited the limeburner's kilns in
Middle Arm and describes a geological sec-
tion of the quarry, including a drawing—

SECTION OF THE LIME ROCK

- No. 1. Stratum of light soil containing
angular gravel.
- 2. Indurated clay in small laminae,
very friable, and containing
small silicious stones—
- 3. Lime strata.

Tuesday ... Returned in the evening and went
3rd. May through some Latin with Mr Collett.—
Ther. 60°

Robert's next letter to Hooker refers to
the Aboriginal Campaign and his collecting.

LETTER 145.

Vermont May 8th 1831.

Sir

I had the pleasure of writing you June 1st
1830, and of forwarding to you a package of
seeds per Colisto, which I hope you received in
due course—

I have now the pleasure of sending by the
Czar, through your correspondent Mr Scott,
a collection of seeds made in 1830 and 1831.
I wish that it contained the *Hortus Siccus*
which I formerly promised, but owing to the
late Aboriginal Campaign, and other business.
I have been so much confused and pressed for
time, that I have been unable to prepare it for
you, though I have in my possession a consider-
able number of species for that purpose—
During the late campaign, in which I was
engaged, I had the fortune to collect several
species of plants, which I had not until then
seen, but seeds of which I send you in the
present package. I have been unable to afford
the necessary time for describing their habitudes
and peculiarities, but hope next season to be
able to give you some information on those
points.

You will find many of the parcels of seeds
which I have not named, to be those of well
known plants, though unknown to me at present;
and some which I may have named improperly.
An edition of Linnaeus's system of nature by
Turton 1806 is the latest species plantarum I
at present possess. I however expect shortly
to have an opportunity of obtaining the neces-
sary works from London, when I may perhaps
be able to render myself more useful to you in
this country than I am at present—I will write
by the post informing you of what the box
contains

Your Obt Sert

R. W. Lawrence

P.S. If you do me the favour to communicate
with me address to care of W. E. Lawrence Esq.

Launceston

V.D. Land.

Botanical terms and allusions in the letters
may need some elucidation. The Natural
System developed by the French-Swiss Ber-
nard de Jussieu and his nephew, mentioned
in Lawrence's next letter, replaced the
Linnean System about the beginning of the
nineteenth century. Linneus, the great

Swedish botanist of the eighteenth century, had divided plants into groups or classes according to the number of stamens present in the flower, and then subdivided these classes into orders on the basis of the number of pistils. Lawrence used this system in his diary and his note under the date 21st Nov. 1829 indicates that he recognized, from experience in the field, the deficiencies of the Linnean System. This artificial system often separated plants which, in other respects, were much alike, and brought together plants which had accidental or superficial similarities. Linneus developed a Natural System, but this was not widely known.

B. and A. de Jussieu developed and made public a Natural System, taking into account the plant as a whole and the position of the floral parts rather than their number. This Natural System is the one which Lawrence was just learning about, and which Gunn was to adopt with enthusiasm. It had the effect of bringing plants with similar characteristics and properties together though, as the century went by, it was to prove inadequate and artificial in its turn.

In the period under review, the de Jussieu System formed the basis for further development of the Natural System, notably by De Candolle, by Robert Brown in his "Prodrômus", by Lindley, and by Bentham and Hooker. Bentham and Hooker's classification has, with modifications, been used in works on Tasmanian botany, notably Hooker's "Flora of Tasmania", Rodway's "Tasmanian Flora", and Dr. W. Curtis' "Student's Flora of Tasmania".

Australian Floras, however, follow F. von Mueller's arrangement, with modifications.

Following the publication of Darwin's "Origin of Species" in 1859, it became necessary to review the systems of classification with Darwin's ideas in mind. Engler and Gilg endeavoured to do this in their system, which J. M. Black followed in his "Flora of South Australia".

The outstanding system of this century is that of J. Hutchinson, of Kew, in 1926. Hutchinson's Phylogenetic System seeks to escape from the artificialities of the earlier systems and arrange plants in the probable order of their evolution. All systems of classification are, however, developments of the De Jussieu System and may be traced back to it. It was this system which became familiar to Lawrence and Gunn and therefore it is necessary to have some acquaintance with it.

The "Journal of Botany", vol. III (1841), p. 56, states—

These Natural Orders, as Bernard de Jussieu had imagined them, were comprised in seven classes, which A. Laurent de Jussieu judiciously increased to fourteen. The Lobes of the Embryo constituted the three first classes; hence arises the famous division of the whole vegetable kingdom into Acotyledones, Monocotyledones, and Dicotyledones.

The Acotyledons have spores in place of seeds, and consequently no seed leaves. They are also known as Cryptogams (hidden marriage) from the fact that the tiny spores produce sexual plants where fertilization takes place unnoticed. The Cryptogams include Ferns (Filices), Mosses (Musci), Lichens, Fungi, and Algae (the last term embraces Seaweeds). They are without flowers in the normal sense.

The flowering plants Phanerogams, (visible marriage) are separated into two divisions according to the nature of their seed. Those with naked or unenclosed seeds, of which the conifers are the main group, are the Gymnosperms; those with seeds enclosed in an outer covering (like apples or wheat) are the Angiosperms.

The Angiosperms are then divided into two sections—the Monocotyledones, with seeds which contain only one embryo seed leaf, of which grasses, palms, and orchids are typical; and Dicotyledones, with seeds which contain two embryo seed-leaves, such as the pea family and almost all trees and shrubs that are not conifers or palms.

The plants of each major division are then classified into Botanical Orders and Families according to their natural affinities.

The Insertion of the Stamens on the pistil, on the part which bears the pistil, on the calyx, or on the corolla, affords the subsequent divisions.

The families, in turn, are further divided into genera and the genera into species. A species may again be divided into sub-species, varieties, or other ranks.

Thus, there are two descriptions of characters, the first derived from the embryo, the second from the relative insertion of different parts of the flowers; and these furnish all the classes. Characters of less and less importance supply the other groups, families, genera, and species; the groups always holding the same respective rank in the general system as their characters do in nature; and thus the leading principle of the method, drawn from Nature herself, is the relative value of characters.

A clue to the discovery of the system is given in the statement—

Still farther, there are the natural families all ready made; as in the Grasses, the Compositae, and the Umbelliferae.

The Linnean method of naming each plant by its generic name and specific epithet (which also applies to the Animal Kingdom) was retained in the System of De Jussieu. Thus, the botanical name *Eucalyptus globulus* Lab. for the Blue Gum indicates that this tree belongs to the genus *Eucalyptus* (because of its general characteristics) and is of the species *globulus* (a little globe, referring to its round seed capsule), because of the minor features which mark it off from other members of the genus. If the species is divided into sub-species, then a third name is appended. The abbreviation "Lab." indicates that the botanist who first published the name and description of the plant was the Frenchman, Labillardière.

Generic and specific names are usually of classical derivation, being based on both Latin and Greek roots, though the specific epithet usually take a Latin form. A separate name must be used for each genus, but the specific epithet may be used again and again, though obviously only once for each genus.

Besides classifying plants into their appropriate orders, the De Jussieu System also arranged these orders in a sequence according to their affinities with each other. The Dicotyledones begin with the family Ranunculaceae. In Gunn's lists of specimens found in the correspondence, plants like clematis and buttercups, which belong to this family, come first.

Like Thomas Scott, Robert Lawrence still thought seeds of plants were Hooker's main requirement, though he had also started a Hortus Siccus, or collection of dried plants. Hooker quickly advised him that it was plant specimens rather than seeds he wanted, particularly flowers and fruits of plants, and sent him instructions for drying and pressing them. In addition, he sent Lawrence works on botany, including Brown's "Prodromus" and his own "Botanical Miscellany", which contained notes on botanical expeditions and discoveries, and descriptions of new species, illustrated by Hooker's own exquisite and accurate drawings. His judicious praise and encouragement was greatly appreciated by Lawrence, as his next letter of 29th May indicates. Entries in his diary between the two letters to Hooker are—

- | | |
|----------------------------------|--|
| Wednesday
11 May | Went to town to visit His Excellency the Lieutenant-Governor. Saw him in the afternoon. |
| Sunday
15th May | In the afternoon walked over to Stephenson's to return some books borrowed of him and to borrow White's Nat. Hist. Selbourne. |
| Saturday
21st May
Ther 48° | Went to town in the morning and was gratified at receiving a most satisfactory answer from Professor Hooker to a letter which I sent some time ago. He has sent me the books I was desirous of obtaining among them Brown's Prodromus. Also a periodical published by himself called Botanical Miscellany. |
| Sunday
22nd | Remained at home all day preparing an Herbarium, to send per Czar to Professor Hooker— |
| Monday
23rd. May | Went to town saw Scott, who had not yet received the books &c from Hobart Town, which Dr. Hooker was kind enough |

to send me. Ordered a tin case for Herbarium. Bought half a ream of cartridge paper. Evening arranging Herbarium.

Tuesday 24th All day at Herbarium.
 Thursday 26th Went to town on business. Returned to Vermont and went on with Hortus Ther 53° Siccus.
 Friday 27th Finished the H-barium this evening.
 Saturday 28th Took Herbarium to town, and after having shown it to my father, had it soldered up, and made ready for shipping.
 Sunday 29th At Home all day writing to England.
 Monday 30th Town, where I shipped the Herbarium for Dr. Hooker.

Stephenson, from whom he borrowed White's "Natural History of Selbourne", lived on an estate of which a portion is now the Launceston Church Grammar School. Stephenson's Bend, on the River Tamar, is named after him. At this period Lawrence was writing to Hooker.

LETTER 146.

Vermont May 20th 1831

Dear Sir

I have received your letter of 30th Oct 1830, with that degree of pleasure which you can conceive a young Botanist to feel at the receipt of such a communication.—I sent by the Czar on the 8th inst a package of seeds for you, accompanied by a short letter explaining the cause of my not having prepared an Herbarium for you. I find from Mr. Scott that the Czar will be some days longer in this Harbour, which enables me to pack up hastily such specimens as I have by me. I am extremely sorry they are so few, but until I received your letter I imagined seeds to be the most important.—You shall have as rich an Herbarium of the plants of this country by degrees as it is possible for me to obtain.

That there are many undescribed plants in this country I have no doubt, but hitherto I have had no means of becoming acquainted even with the most common and well known plants, and consequently could not detect a new one. Your kindness, however, has now put me in possession of the means of acquiring a general knowledge of the Botany of this country, by

having furnished me with that invaluable Prodromus, for which, and your Botanical Miscellany, I take this opportunity of thanking you. You must not be surprised at my deficiency of botanical knowledge, for in England I never even thought of the subject of Botany, and here I am entirely self-taught.

The natural system of Jussieu I have not yet studied; but I perceive that it is now so universally adopted, that I must commence to use it immediately.

My arrangement of living indigenous plants is according to the Linnaean system.—I shall arrange a new and I hope first-rate Herbarium according to the natural method, which will be a work of time, and in the course of the formation of which, I shall no doubt have frequent occasion to apply to you for information. My present Herbarium is without arrangt. I have numbered the whole of the plants which I send to you, for though I believe that I know a number of them, yet I should like to be certain.

With regard to paper I am ashamed almost to ask you for it, but I send you now in this Herbarium nearly all I was able to find in Launceston. I intend having a supply from England as soon as I can; but I find my friends there are so long in attending to my requests, that I shall most probably receive what you send, long before what they may send though I write to them by the same vessel.—I shall attend fully to your Directions for collecting &c.—

The phan[ero]gamous plants have as you supposed principally attracted my attention; but the Cryptogamic, have not been entirely passed over, though I have not collected many and though I am nearly ignorant of them generically. I send a few Ferns only, they however are all I have; some are unfortunately not in fructification. The Mosses & Lichens I have never collected at all, but I shall not fail to do so in future. The Algae I once had a small collection of but they were by an accident destroyed—I hope however to repair this loss.

The Dawsonia I do not know, but if it exists in this neighbourhood, you shall have abundance of it as soon as possible. I am extremely obliged to Mr. Murray for the seeds he has been so good as to send me, and shall yearly send him a supply—

Your offer of a copy of your Musei Exotici I cannot help accepting, and the possession of it will ensure an interest in the subject on which it treats. The number that you sent to me containing Dawsonia, has excited in me a strong desire to possess the full work.—If I have the fortune to be the means, 'as you hope,'

of making known to you any considerable portion of the Botany of this island, it will give me the greatest possible delight. I shall labour to do so: hitherto I have not made Botany a matter of business, but now I consider myself in a certain degree bound to do all I can. The major part of the time I can spare from necessary business will be devoted to it.

Mr Murray would oblige me by furnishing me with as many species of the genera *Salix* & *Populus* as he can obtain, particularly the useful species, also *Elemus arenarius*. I shall take the liberty of writing to Mr Murray with my next parcel of seeds, and of giving him the information required by your Directions &c.

The Governor has promised to lend me a man who is a capital delineator, if I succeed in getting him I will have drawings made of all the remarkable plants whose organs of fructification are complicated. *Orchidea* &c &c and send you copies. I should think the parts could be better dissected on the spot while the plant is yet living than after being dried and pressed. I have seen a number of his paintings of indigenous plants which were very accurate and extremely well executed.—I have a good microscope.

I remain

Dear Sir

Yours Sincerely

R. W. Lawrence

Dawsonia was a genus of moss which, with its various species, was described by Hooker in his book on foreign mosses, "*Musci Exotici*". Mosses were one of Hooker's botanical specialities.

Mr. S. Murray, at that time in charge of the Glasgow Botanical Gardens, was interested in obtaining new species of plants from abroad. This is the first of many references in the letters to seeds sent to, or seeds or plants received from, Mr. Murray. The *Salix* and *Populus* that Lawrence wanted in return were, of course, Willows and Poplars; *Elymus arenarius* was Sea Lyme-grass, a grass allied to Barley and possibly used for binding sand dunes.

The delineator was undoubtedly William Barlow Gould, the convict artist who, in

1827, was transported to Van Diemen's Land for seven years for theft. He was, intermittently, the assigned servant of Dr. James Scott, R.N., Colonial Surgeon, from 1829 until 1832, when Gould was sent to Macquarie Harbour for drunkenness.

The drawings of plants made when he was with Dr. Scott (many of them named by James Backhouse) found their way to England. In 1958 they were purchased by the Queen Victoria Museum, Launceston, from Miss E. M. Hugh-Smith, of Reading, England. These full-size, water-colour drawings, 177 in all, in three sketch books, are beautifully executed, often showing sections of the flowers and fruit. Gould's story is told by Mrs. I. J. Mead in the "*Papers and Proceedings of The Royal Society of Tasmania*", vol. 93, 1959.

The next letter in the file, of the same date, is the first draft of the foregoing letter. It was sent by another vessel and, with some slight variations in phrasing, is substantially the same.

The next two are short notes written ten days later but sent by different ships, one advising Hooker of the despatch of a package of specimens, the other to John Hunneman, shipping agent of London, containing a Bill of Lading for the parcel.

LETTER 148.

Launceston 30th May 1831

Dear Sir,

I write per Elisabeth to inform you that I have shipped on board the brig *Czar* for London a package containing an Herbarium, and addressed to the care of Mr. Hunneman Esq, and which I hope you will receive in due course. I have enclosed to Mr. Hunnemann a Bill of Lading.—I shall commence immediately to prepare another collection for you, which I hope will be more extensive. *Dawsonia* shall be searched after. If you wish to obtain a number of specimens of any plant in particular pray let me know and I will obtain them for you as soon as I can.

I remain

Dear Sir

Yours Sincerely

R. W. Lawrence



Ronald Campbell Gunn by Thomas Griffiths Wainwright.
(By courtesy, Director, Royal Botanic Gardens, Kew.)



Sir William Jackson Hooker.

152

Lawrence to April 2. 1832

Dear Sir

Give me leave to
introduce to you my friend
Mr. Gunn; a gentleman who
has lately acquired a passionate
taste for the service of Botany,
and who has become an
enthusiastic collector.

Believe me

Dear Sir

Yours truly
R. W. Lawrence
To
D. W. J. Hooker.

I shall write you fully by the next but thank you
by - and until then must cross your letters -
I am in a little getting matters in order for my return
and will have an excuse for this lasty note -
Believe me very truly yours
R. C. Gunn

local -
ind. etc.

1887
A 11
1887
11

Hooker
W. J. Hooker
Hogson M.B.
1887
1887

Mr. Lundby's explanation has been most satisfactory and
shall write him fully by first opportunity.

LETTER 149.

Launceston 30th May 1831

Sir,

I write per Czar to advise you of a package addressed to Dr Hooker, care of John Hunneman Esq. Soho containing an Herbarium collected in this country, (V.D.L.) and shipped on board the Czar bound for London. I enclose a Bill of Lading.—Dr Hooker requested me to direct any packages I might send to London for him to your care. I shall feel obliged by your forwarding to him the present package as soon as possible.

I remain

Sir Your Obt Sert

R. W. Lawrence.

On the back of the letter to Hooker, written in another hand, is, "Astragalus Boeticus".

The next letter, to Hooker, was written ten months later.

LETTER 150.

Vermont. March 15th 1832

By the Princess Augusta I send you a small collection of dried specimens. I am almost ashamed at not being able to send you a larger number this season, but very important business has prevented me from making as extensive a collection as I had intended.—

I have commenced to arrange an Herbarium according to the natural method; but of which I know scarcely anything as yet.—In Brown's Prods the Papilionaceae, Mimosae, Lomentaceae, Myrtaceae, and Compositae all extensive orders here, are left out.—

The specimens of the present collection are numbered, without reference to the former one; you will oblige me much by transmitting to me the names attached to their respective numbers.

Among the Musci you will find several specimens without inflorescence; I send such under the idea that you will in all probability be already acquainted with them, and know them by their foliage or manner of growth.

As I thought it might be injurious to some of the specimens of Lichens to have them separated from the Musci &c amongst which they were growing, I have dried them en masse. I send you this seasons collection as far as Epacrideae, the remainder will be sent by the next vessel. Mr Murray will receive some seeds by the next opportunity—I hope you

received my last package (per Czar) in good order—

I expect soon to be enabled to do you a little more justice as a correspondent than hitherto.

In the meanwhile

Believe me

Dear Sir

Yours sincerely

R. W. Lawrence

"Prodromus", 1810 (Latin, a forerunner), was not followed by a major work on Australian plants by Robert Brown.

As there are no postmarks, it is possible that this letter was delivered by hand or went with the specimens the dispatch of which is confirmed in the next short note, two days after which he wrote a letter of introduction to Hooker for his friend Ronald Campbell Gunn.

LETTER 151.

Vermont. March 31st 1832

Dear Sir,

This is to advise you of a package of Dried Plants, shipped for you in the Princess Augusta, and addressed to the care of Mr. Hunneman I have written to that Gentleman, enclosing a Bill of Lading. I shall write to you more fully with the remaining collection of this season, which I hope to ship in about 6 weeks—

Believe me

Dear Sir

Yours truly

R. W. Lawrence

LETTER 152.

Launceston April 2nd 1832

Dear Sir

Give me leave to introduce to you my friend Mr Gunn; a gentleman who has lately acquired a passionate taste for the science of Botany, and who has become an enthusiastic collector—

Believe me

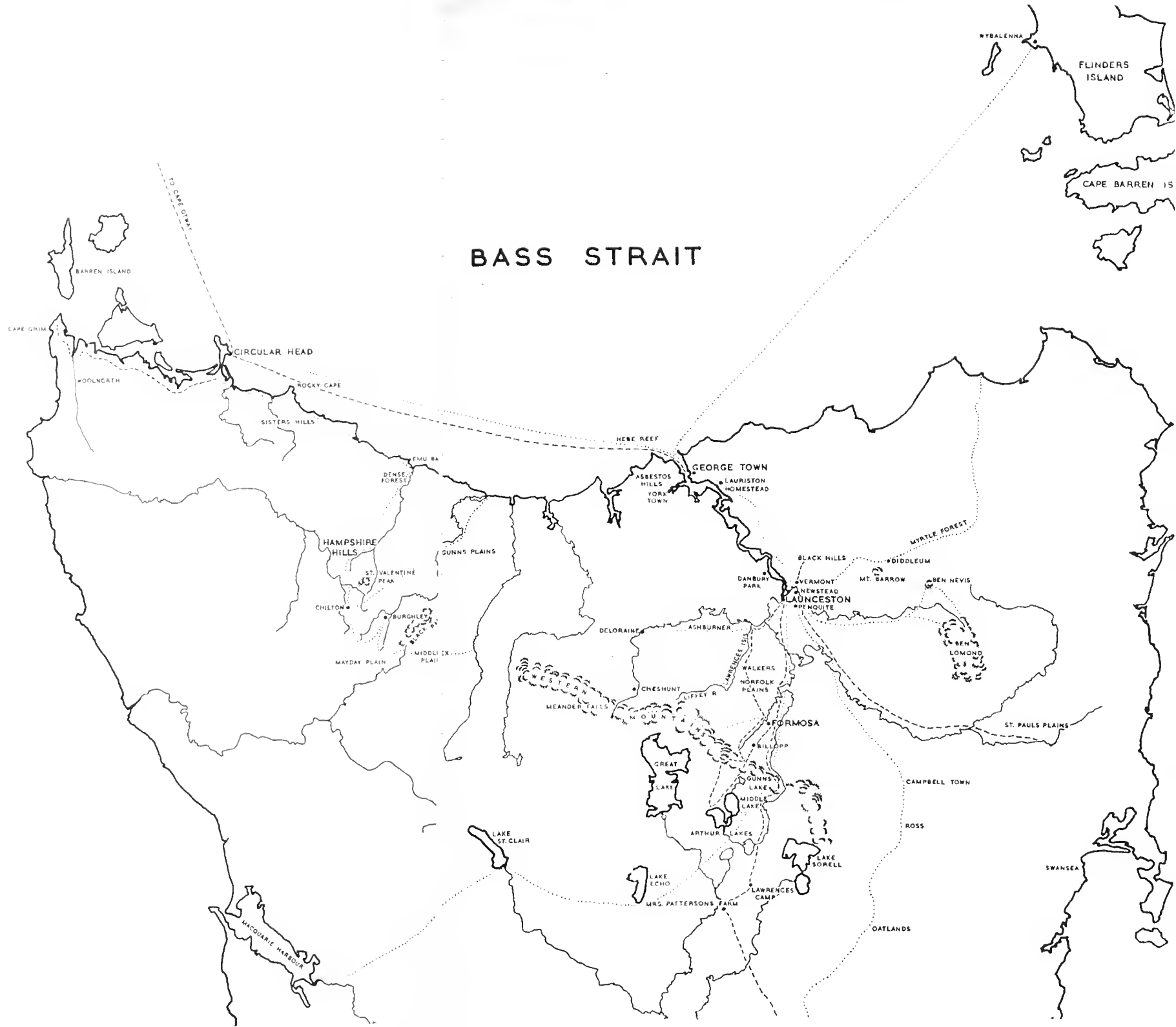
Dear Sir

Yours truly

R. W. Lawrence

BASS STRAIT

JOURNEY OF R. W. LAWRENCE - - - - -
JOURNEY OF R. C. GUNN



That Ronald Gunn became a plant collector is almost certainly due to his friendship with Robert Lawrence. Young men of the same age and the same social standing, they naturally became acquainted. The total population of Launceston was only a few thousand, of which nearly half were convicts, and "society" of the day was limited to professional and business men, government officials and the landed gentry and their wives and children; tradesmen and shopkeepers were rigorously excluded. Gunn, Superintendent of Convicts, held an important Government office; Lawrence was a wealthy landowner, so that they naturally met at social functions. But, unlike most of the young men of that time (and later) whose main interests were hunting, dancing, and drinking, Gunn and Lawrence had something in common. Better educated and with keener intellects than most of their fellows, they had within them the spirit of scientific enquiry and a desire to increase their knowledge, and here, in a new land, full of fresh and undescribed species, animal and vegetable, was an almost unlimited field for their activities. What they needed was a guide and teacher, and this, almost by accident, Hooker provided.

Lawrence, encouraged by Hooker, transmitted his enthusiasm for collecting to his friend Gunn. As a single man of ample means, he had more time than Gunn, who was tied to his official post and had a wife and three children, but, once started, botany became the absorbing interest of Gunn's life; all his spare time he spent collecting, arranging, and classifying, and his progress in the subject is reflected in his letters to Hooker.

Lawrence's next letter is dated from "Formosa".

LETTER 153.

Formosa 29th June 1832.

My Dear Sir,

I with great pleasure acknowledge receipt of your letter of the 2nd. Decr. 1831. I hope you received the Herbarium (such as it is) in a

satisfactory state. I am exceedingly obliged for the Paper; and the possession of the Musci Exotici, will ensure an attention on my part to the subject to which it relates—I have written to my agent in Hobart Town to forward the package as soon as possible.

I am fearful that the paucity of specimens I have hitherto sent you will cause you to imagine me to be less zealous collector than I profess to be and in order to remove such an impression if it should exist I will acquaint you with circumstances which otherwise it might be absurd to communicate to a stranger. I have been for some time occupied a good deal in making arrangements previous to my intended marriage, which will take place in about six months. Moving to a different establishment that too in the winter; carrying with me most of a four-years collection of living plants &c &c and building a House fit to live in, are all objects which require much time and attention to accomplish.

On the 25th inst. I took charge of an estate of my fathers called Formosa on the Lake River, consisting of 13000 acres, and have since been employed in arranging the late Overseer's accounts which I have not yet fully accomplished; and which I fear when arranged will prove any thing but satisfactory—The weather for a considerable time has been exceedingly wet, indeed so much so as to have surprised many of those who have been long on the Island. My removal from Vermont, therefore has been attended with difficulty and much unpleasantness.

My present situation is well adapted for making an interesting collection of Natural History subjects. A considerable number of the Animals peculiar to the Island abound upon this estate; I am immediately under the Western tier of Mountains, which are rich in the production of indigenous Vegetables; and I dare say will eventually when well examined prove interesting to the Geologist and Mineralogist.

You express your gratification in the anticipated receipt of the Ferns; I fear you must have been disappointed they were so few. The Trichostomum you speak of, I think I have seen in the possession of my friend Mr. Gunn (a zealous collector) whom I have taken the liberty of introducing to you. It appears that the Artist promised to me by Governor Arthur is employed in Hobart Town by Dr. Scott, the Colonial Surgeon, in making a collection of paintings of the Vegetables of that neighbourhood and that I am unlikely indeed to be allowed to use him. The general aspect of the scenery of V.D.L. is not I think of a very pleasing description. The vernal luxuriance of Britain is absent here

though we know the advantage of evergreen foliage. It is among the Mountains that we meet with striking and at the same time pleasing scenery; I have often regretted being unable to describe upon canvass, that which has afforded me so much pleasure to dwell upon during my rambles in such a situation. You request me to send you my remarks upon the character of the vegetation &c &c of the country through which I may travel. I have always kept journals of my excursions, observing the most remarkable natural peculiarities; and in future I will readily send you such, but only for your own perusal; unfortunately I am as yet so deficient in scientific knowledge that I cannot give you information fit for publication—In time, perhaps, when I shall be a little older, and shall have acquired more knowledge, I may have the satisfaction of being a more useful correspondent.

I have heard much of Mr Cunningham, and shall be very glad to know that his works are published; I shall immediately request my Uncle in London to look out for their appearance, and to send them to me as soon as published. I am pleased to hear of your Geographical Society. I have no doubt it will be productive of much utility. I am extremely obliged to Mr Murray for his kindness in taking so much trouble, which the packing of the Poplars and Willows, must necessarily give him; and that in return too, for the very scanty supply of seeds hitherto sent him by me. With my next collection of seeds I shall do myself the pleasure of writing to him. I have some seeds on hand but have not had time to pack them up by this opportunity. They will accompany the remaining half of Herbarium per Princess Augusta which I hope you will have received before you receive this letter.

Jorgen Jorgenson is not a Government Surveyor. He had charge of an exploring party of the V.D.L. Company's. See his Journal in third report of V.D.L. Company. His character does not stand high in the opinion of those who have had opportunities of observing it. He for a short time conducted the best periodical here, the Colonial Advocate.

John Dick is a bad character, he has lately been put in the Chain Gang. My friend Mr Gunn, the Superintendent of Convicts, will obtain an answer to the Widow's letter.—

I remain

Yours sincerely

R. W. Lawrence

No specimens of the moss *Trichostomum* from Gunn are acknowledged in the "Flora Tasmaniae".

Allan Cunningham was one of Australia's first and most distinguished resident botanists. He came to New South Wales in 1816, at the age of 25, to collect for the Kew Botanical Gardens and accompanied and led many expeditions, including that of Oxley over the Blue Mountains in 1817, and his own discovery of the Darling Downs in 1827. He visited Van Diemen's Land with Captain King in 1818-19. While here he made the following notes (taken from the "Journal of Botany", vol. IV, 1842, pp. 247-8):—

"I made a very interesting excursion to the summit of Mount Table [Mount Wellington], which presented me with a fair specimen of Alpine travelling, in the sudden transitions of the weather. (being alternatively fair, with snow storms,) and with the character of the botany, as may be found in Terra Australis collectively. In this elevated journey I gathered many curious plants, which, although I now find them described by that truly eminent botanist, Mr. Brown, were no less interesting to me, who knew nothing of them previously."

Of Macquarie Harbour, he says—

"In no situation did I find the botany so novel and otherwise interesting as on the low shores of a little bight, about nine miles up from the entrance, called Pine Cove, from the abundance of the Huon and Adventure Bay Pines, which its humid shaded woods afford. With the Huon Pine, (which may be a *Dacrydium*, or altogether a new genus,) and that named Adventure Bay Pine (*Podocarpus aspeniifolius*, Lab.) I detected the *Anopterus* of Labillardiere in flower; the *Cenarrhene*s of that author in fruit; the beautiful *Carpodotus*, the Sassafras-scented *Atherosperma*; the aromatic *Tasmania* in fruit; the native Birch; (*fagus Cunninghamii* Hook); a species of *Weinmannia biglandulosa* Hook; some of the *Epacrideae*, *Eleocarpus peduncularis*; *Gaultheria hispida* in fruit, with several others of like sterling importance. After a minute examination of all the trees of Huon Pine that had recently fallen, I was fortunate in the detection of the young fruit of that most useful tree."

Before he left Australia to return to Kew in 1831, Cunningham had collected over most of the New South Wales interior and many of the coastal regions of Australia, including Western Australia and Northern Australia and had also visited New Zealand. In 1832 he was offered the position of Colonial

Botanist of New South Wales, but declined in favour of his brother Richard, who was killed by blacks when with Major Mitchell, in Queensland in 1835. Allan Cunningham then took over the appointment, but resigned it after a short time. In 1838 he again visited New Zealand, where his health was affected. He died in 1839. The Myrtle-Beech of Tasmania and Victoria, *Nothofagus cunninghamii* (Hook.) Oerst., is named after him.

The "Geographical Society" was the Royal Geographical Society, founded in London in 1830, of which William Jackson Hooker was one of the original members.

The next letter, though it bears an earlier date, was not forwarded until some time after this letter of Lawrence's. It is from Thomas Scott, introducing Ronald Gunn to Dr. Hooker and, together with Lawrence's letter of introduction, accompanied Gunn's first and very deferential letter to the great botanist.

LETTER 275.

Launceston, Van Diemen's Land

12th. May 1832

Dear Sir,

This will be enclosed to you by my friend Mr. Gunn who I am happy to introduce to your correspondence, he has made a collection which he forwards to you by the Research, you will I think find him a very valuable correspondent, he is an enthusiastic Botanist and is indefatigable in his exertion—I feel much regret that I have never studied Botany, and am now too old to begin, but you see I am hearty in the cause, and in my short excursions will pick up everything that may seem to me uncommon and submit them to Mr. Gunn that he may either forward or reject them—

I am

Dear Sir

Yours very Sincerely

Thos. Scott

Cameron Street

To

Dr Hooker

Professor of Botany
Glasgow

One can almost hear Thomas Scott's sigh of relief as he handed over his collecting commission, first to Lawrence and now to Gunn.

References in subsequent works on Tasmanian botany, including Joseph Hooker's "Flora Tasmaniae", imply that Scott was an important collector, but his letters obviously refute this claim. He is also alluded to as Dr. Thomas Scott (possibly in confusion with Dr. James Scott, his contemporary at Hobart Town) though Ronald Gunn, in some of his earlier letters to William Hooker, corrects this mistake.

Thomas Scott must have the credit, however, of starting the ball rolling. Without his good offices, Lawrence and Gunn might never have corresponded with Hooker, and the study of Tasmanian plants, with its effect on the promotion of scientific enquiry in the colony, would have been postponed for many years. Ronald Gunn's first letter to Dr. William Hooker is a landmark in the history of science in Tasmania.

Launceston, Van Diemen's Land

18th August 1832

Sir,

—I beg leave to state that I have forwarded a package of dried specimens of plants, principally Ferns, Mosses & Lichens p. "Forth" to London to your address. care of Mr Hunneman, London, and I have enclosed within the package two letters of Introduction to you I received from my friends, Mr Thos. Scott, and Mr Robt. Lawrence:—

Mr Lawrence ex[c]ited in me a few months ago a taste for Botany and Collecting, and has since induced me to trouble you with the result of my six months labours which is the package above alluded to;—the collection is in many points very imperfect and poor, as I did not commence collecting until most of the native shrubs had ceased flowering—Decr.—Consequently Cryptogamic plants were the only ones left—and although my rambles were very circumscribed I was successful in obtaining a few things that Mr. Lawrence had never seen—amongst them two mosses similar to the *Dawsonia polytrichoides*, and of one of which I gave Mr. L. a few specimens to forward to

you some months ago, not being at the time aware that I should trouble you with my Collection.

Your already having a correspondent here in Mr. R. W. Lawrence whose attainments in Botany and indefatigability and perseverance in Collecting, so very far surpass my slender abilities, almost precludes my hoping you to adopt me as a **Second** correspondent therefore in sending you the present package I do it with a view that should you not desire a second correspondent in this Colony, to recommend my humble services to some Botanist Friend who will in return forward me a few good works to advance me in the Science, (of which I am as yet totally ignorant,) and also—seeds of any Plants, useful, remarkable, ornamental or which have not yet been introduced into the Colony and of which also a partial list is sent.—

I am as yet, as before stated, ignorant of Botany, and have no means of acquiring more [or] any information—I have no Books on the subject—and none can be obtained here—Mr. Lawrence's Collection was at my service in his own house, (lending such works being out of the question,) but he has now removed 28 miles from Launceston, previous to being married, and where he will for the future reside.

I made a considerable collection of seeds, but they were unfortunately totally destroyed by some vermin that got into the Case, but the loss is the less, as Mr. Lawrence has a fine collection which he is about to send home to Mr Murray—I have put up one or two varieties Mr. L had not, and which escaped the general destruction.

I have numbered all the specimens sent you, and of which I have retained duplicates to enable me to send you more specimens of any kinds you may desire—and also to request that you will send me the name of every number at your leisure.—Should you be pleased to adopt me as a Correspondent I shall feel extremely obliged by your sending me any Botanical or Horticultural [works] you may have to spare, as I feel the want of them very much.—If Mr Murray will also comply as far as practicable with [my] Requisition for Seeds, I trust [early] next season to be enabled to add [considerably] both to his collection in the way of [seed and] to yours in specimens—

I shall now close this long letter by [stating] that the letters of Introduction are [of] old

dates as I kept back my Collection from week to week to make it as far as possible [worth] your acceptance—

I Remain, Sir,

Your most obedient
humble Servant

Ronald C. Gunn

W. J. Hooker Esq
Professor of Botany
Glasgow

At the top of the sheet Hooker has written
“Mass of Moss 25 Pol. junip.—27 do.”
25 and 27 *Polytrichum juniperinum* Hedw.
With it went the following notes:—

Remarks—Mosses, Lichens, &c.

Few of the mosses are peculiar in their habits, most of those I collected being in wet umbrageous Ravines.—

Nos. 16. 17 & 28.—I collected on the summits of two very high mountains between 20 & 30 miles to the east of Launceston—and were not sheltered much—Nos 27 & 28 I imagine to be Dawsonia but which is “polytrichoides” I do not know.—I have put some good flowers of each in a small paper box so as to keep them safe.—No 25 I found on the Clay bank of a River growing amidst my Lichen No 2. I saw little of it—and I think it is not common.—No 23 I found in a creek at a considerable elevation on “Ben Nevis”—the water was washing over it, & it must be under water altogether 9 months of the year.—

No. 29—Grows on the bark of Trees, and spreads itself very beautifully, but seldom in large patches—(as p. specimens).

No. 30—a leaf or two of *Hookeria pinnata*,—as Mr. Lawrence informed me he had sent you some, I merely added it to fill up a number. Lichens.—No 1 is curious, and in its natural state extremely beautiful—but though I call it a Lichen from sheer ignorance—I doubt its being one.—I regret I could find no means of preserving it, as by pressing in the manner I have done, it will not regain its natural pulpy (I say pulpy as I know not a word to express my meaning) or fleshy state by immersion in water. It grows in large patches, from 3 to 6 feet in extent sometimes, on rich land, at the bottom of umbrageous hollows and creeks—No. 2. is very similar in its growth to No. 1, but I never met it but in one place—about 20 miles from Launceston (with Moss 25).

All the others grow on Rocks and trees, but without any striking peculiarity

My Ignorance in all branches of Botany particularly Cryptogamic—has I doubt not caused me to make some great mistakes in numbering both Mosses and Lichens—omitting to number some, and giving others two numbers—but I trust time and your assistance will enable me to improve—as my partiality for Cryptogamic plants is daily increasing, and I now, perceive beauties where a few months ago I believed there could be none.—

The Nos. will enable you to send to me for any that you wish, that may be either new, rare or desirable; and any that I may have omitted to number which you wish for, you must send me a sketch of—and inform me the No. to which it bears the greatest resemblance (to the eye.) when I doubt not I shall be able to pick it up—

The want of a microscope or a strong magnifying glass is severely felt by me, as neither can be procured here—Should you be kind enough to select me as an assistant Correspondent (to Mr. Lawrence) perhaps you could procure me a small one, and for which I shall willingly be your debtor,—as it will enable me to distinguish the various Mosses with greater facility.—

The names of the Mosses &c as well as plants &c will confer additional obligations

Mosses—

- 16, 23, 27, 28 not traced.
 25. *Bryum pachytheca* C. Muell. var. β
 29. *Bartramia papillata* Hook.f. & Wils. "on rocks".
 30. (33 in Fl. Tas.) *Hookeria pennata* Hook., i.e., *Cyathophorum pennatum* Bridel

Written on the outside of the sheet before it had been folded for sealing is—

My address is as follows.

Ronald C. Gunn
 Suptt of Convicts—
 Launceston
 Van Diemens Land

Or, if the vessel goes to Hobart Town, any Packet may as well be addressed to the Care of my Brother, Lieutenant William Gunn, Suptt of Convicts, Hobart Town.

The sheet, folded and sealed with wax, is addressed—

To W. J. Hooker Esq
 Professor of Botany
 Glasgow N.B.

At the bottom left-hand corner in small neat writing in—

R. C. Gunn
 1832 V.D.L.

Around the inside of an oval postmark is LAUNCESTON and inside a round postmark GLASGOW/A. 18 FE/1833. A rectangular mark bears the words INDIA LETTER/DOVER. There is another small rectangle with $\frac{1}{2}$ inside, and scrawl in ink, possibly a postal franking or perhaps cancellation mark. Apparently it took just seven months to reach its destination.

Following this is a short note from Lawrence illustrating the uncertainty of letters or parcels ever reaching their intended destination in those days of sailing ships and protracted voyages; and a longer letter, also from Lawrence, but written ten months later, revealing an alternative method of sending communications. This was by placing them in the care of acquaintances travelling to and from England, but it, too, often proved unsatisfactory. Accompanying this letter is a note on bird specimens that had been skinned by Mrs. Lawrence for Hooker's son William, who was interested in ornithology.

At the head of the first letter, Hooker has written an indecipherable note regarding the ship "Guardian".

LETTER 154.

Formosa 20th July
 1832—

My Dear Sir

In my last letter I acknowledged the receipt of yours informing me of your having sent me some paper and a Copy of Musci Exotici per the Anne Jameson. My agent in Hobart Town can hear nothing of a package addressed to me by that Vessel. I hope it is not lost, perhaps you may hear more of it—

Believe me

Dear Sir

Yours very truly

R. W. Lawrence

LETTER 155.

Formosa May 15th 1833

My Dear Sir,

I have had the pleasure of receiving your letter, and No. 6 of Botanical Miscellany, per favour of Dr Logan whom you were kind enough to introduce to me, but unfortunately whom I have not had an opportunity of seeing, as circumstances did not bring him to this country—He was kind enough to transmit your letter &c from Sydney—If you could without inconvenience when you send me any parcel, excepting when you know the individual as in the case of Dr Logan obtain Bills of Lading and get the Parcel entered on the Ship's manifest. I think I should be more likely to receive them as I could compell them to be forthcoming; as it is, I have lost two valuable packages—Your valuable Musci Exotici, Nos 4 & 5 of Botanical Miscellany, and the paper you were good enough to send with them are lost. I cannot hear anything of them. Mr Murray's package of Willows and Poplars per Sophia upon which I calculated so much and upon the news (by his letter), of the arrival of which I was so much delighted; was applied for by my fathers agent in Hobart Town who could not hear any thing of it; it was not in the ships manifest. The consequence was it went on from its proper place of destination, to Sydney; whence after three months I got it, all the plants of course dead. These kind of losses are extremely distressing and from the gross ignorance of all the people here particularly the officials it is impossible to induce them to pay any attention to what they term 'Such trash'; unless they can find it in the common routine of business—and probably see that they can get something by it—

I am extremely obliged for your enumeration of Plants, and am quite happy to hear that the examination of them afforded you pleasure and that some were novelties. I remark your observation respecting the quantity of each kind of specimen, and hope that in that particular the last and present collection will please you. I hope you receive my last per Princess Augusta, Capn. Hawkins, which I directed to Mr Hunneman and of which I advised you at the same time. I Believe I sent a Bill of Lading to him.—The present collection is a continuation of the above mentioned one, excepting those from No 250 which were collected during a short excursion I lately made up the mountains in this neighbourhood. If you will favour me with the names attached to their respective numbers as in your last communication I shall be obliged—I shall attend to the collection of such plants as you express a desire to have

more specimens of and when I obtain them they shall be sent to you. The Orchideae also shall be preserved in the manner you request, viz, some of the flowers of each in weak spirits—I send you some short notes made during my last little excursion, which if they afford you any notion of what is to be seen then so much the better; if not, there transportation to you costs nothing—

I have not had an opportunity of obtaining Birds of this country yet, but will send you such as I happen to fall in with—I do not skin them myself, but Mrs. L has lately done a few, which if your son considers sufficiently well done, more specimens shall be sent to him, as I intend forming a collection of Skins for myself, which will afford me an opportunity of collecting duplicates for him. I shall number what I have now, and send them to Mr. Hunneman, and shall be happy to hear from your son. If he will be so obliging as to send me the scientific names of them, I shall be much pleased; it will give me great pleasure to correspond with him—

I remain

Dear Sir

Yours very truly

R. W. Lawrence

LETTER 156.

Formosa May 16th 1833

Dear Sir

I send such specimens of Birds as I have by me, but will collect more extensively in future; Ornithology has not been a science that I have hitherto paid attention to, but I wish nevertheless to make a collection of indigenous Birds, and will send duplicates to Hooker Junr. with great pleasure as I obtain them.—W. Hooker will perhaps do me the favour to send the names of such as I now send him.—I generally carry my gun with me when I ramble and shall feel more interested in obtaining the varieties of Birds than heretofore, since I have someone to whom it will give pleasure to receive them: -

Yours very truly

R. W. Lawrence

No. 1 Musk Duck—*Biziura lobata* Shaw—The male is said [*to*] have a considerable flavour of musk; whence its common name.—The present is I think a male, but it has not the flavour which I have observed in some specimens. This bird cannot fly, and can hardly walk; its region is the water—Food, frogs &c &c—

- No. 2 Cormorant. (Pelicans of Linn) its habit is similar to the Black Diver, or Pelicanus Corvus, Linn—
- No. 3 Black Cockatoo. *Psitticus funereus*, Linn. It is generally supposed that it makes its appearance before rain. I have not, however, observed any such habits; I believe the notion to be incorrect. The principal food of this bird is the seeds of *Banksia integrifolia* and a large variety of grubs inhabiting that tree, which is also much sought after and eaten by the Aborigines of this Island—
- No. 4 Superb Warbler (*Motacilla* [] Linn I suppose) I think I have somewhere seen it called *Menura Superba*, but I do not recollect with certainty. This bird does not answer to the description of *M. Cyanea* in Turton's Linneus. Is it a variety of another species?
- No. 5. Golden Winged Fly-catcher—(*Muscapa* sp. Linn.?) Most frequently seen in Honey suckle trees (*Banksia*).
- No. 6 Wood Martin. (*Ampelis* sp ?) a Migratory bird which appear here late in the spring and leaves late in the Autumn. I saw them a few days ago only—(May)—Insects and seeds were found in its crop—
- No. 7—As there is no common name for this hawk, here, I will call it until I know its name from you—the swallow hawk from its resemblance to that bird in its manner of flying, and hovering over the surface of rivers; it is very beautiful; I am only sorry that it like most of the other specimens is so imperfectly preserved—It is the smallest Hawk we have.—
- No. 8. The Bronzed Winged Pigeon or Birrill Birrill of the New Holl. Aborigines (*Columba Alalcoptera*. Lathan.?) An excellent bird for the table and when alive very beautiful—
- No. 9. Cuckoo — Native Cuckoo. Food Beetles and Insects—a migratory Bird—
- No. 10. Smaller Wattle Bird—Belonging to Linn. Ord. Picac I believe but beyond I know nothing about it.
- No. 11. Snipe.—
- No. 12. Magpie Food, not very confined; Insects, Grubs, &c &c &c—

No. 13. Summer Bird—This bird as its name indicates is migratory—

No. 14. Scarlett fronted Parrakeet—a very beautiful little Bird, but not so much so as its ally *Psitticus sanguinisleutus*—

Not having sufficient specimens of birds to fill the Box, I have filled it up with all sorts of odds and ends that I could find, supposing them to be at all events more interesting than shavings—I fear however, you will not think the box with its contents worth the freight—

I have taken the liberty of sending some seeds in this package for Mr Murray which I shall feel obliged by your forwarding to him as soon as possible, that they may have every chance, if there happen to be anything valuable among them—

I have been so distressed for time lately that you must excuse the haste with which every thing has been got up. Mrs L. will endeavour to improve in the art of preserving the skins of Birds for my new correspondent. I shall write to night to Mr Murray requesting him to send me some seeds of *Symphytum asperrimum* & of a plant which if I recollect correctly is called in South America 'Aracada'? I dare say you will at all events know what I mean, an esculent root—Lest my Letter to him should miscarry, you will oblige me by speaking to him upon the subject—

In the hope of hearing from you soon

Believe me

Dear Sir

Yours very truly

R. W. Lawrence

Symphytum asperrimum is the Siberian Prickly Comfrey, a plant growing six to ten feet high, recommended for cattle fodder. *Arracacha esculenta* is an umbelliferous plant of the region of Caracas in South America, but he may mean *Oxalis tuberosa*, the "Oca" which has edible tubers.

A duplicate letter and notes also reached Hooker. The handwriting is not Lawrence's, but is finer and neater and may be his wife's. On the duplicate bird notes are a few insertions written in another hand, probably that of William Hooker, junior, as one note bears the initials W. H. For example, above "No. 1 Musk Duck" is written "Anus Lobata"; in No. 4 "Superb Warbler, *Malurus cyaneus*

Viell. Lond. P.5, t.72"; and to No. 11 is added the words "Our Jack Snipe".

These are the last letters of Robert Lawrence to Hooker. He died suddenly in October of the same year. A journal he had kept of "An Excursion up the Western Mountains" had been sent to Hooker, possibly at the same time as the letters, and this was published in full in Hooker's "Journal of Botany" No. 1, together with a section entitled "Towards a Flora of Van Diemen's Land", containing descriptions of plants sent to him by Lawrence.

In the file is the original of Lawrence's journal, as follows:—

Notes on an excursion up the Western Mountains
1833
Jany, 15
Th. 67°
None of the gentlemen who had engaged to accompany me on my expedition to the Lakes and along the Western range of mountains having arrived, with the exception of Mr Curson, we started with three men at about 6 o'clock a.m. carrying with us about a weeks stock of flour, tea & sugar &c—We had walked nearly six miles before we discovered that we had forgotten our shot. The circumstances of sending a man back for it detained us nearly six hours. During the time we were obliged to wait, the mountain tops became enveloped in clouds and there was every appearance of approaching bad weather. At length we had a pretty heavy fall of rain, accompanied by a squall, and by the time the man had returned with the shot, all was clear again and promised favourably. On his return we proceeded upwards, and reached about half way up the flat topped mountain, where we halted for the night. Our tent was a very portable one, consisting of two strong, coarse sheets sewn together and stretched over such a frame as we could most conveniently construct from the sticks of *Prostanthera lasianthos* and other shrubs around us. Met with nothing very remarkable to day.

The base of this mountain, to one third of its entire height is composed of White Sand-stone (free-stone) of excellent quality as a building stone; hence, at a future period, we may reckon upon having substantial buildings at Formosa in place of the miserable wooden ones which

at present exist there. Though indeed that time must be far off as it is intended to build in pise at present. I had not time to ramble much in this neighbourhood, to seek the minerals which normally associate with this rock; as my principal object was to attain high elevation for the purpose of obtaining specimens of the plants proper to them.

We made a very large fire in the evening in order that those at home might see to what height we had ascended—

Jan 16th
Th. 60°
Evap. 50°
The rill which afforded us water, also afforded two or three uncommon Musci, among them *Lyellia erispa* Dawsonia Polytrichoides and an aquatic moss of peculiar aspect which was unfortunately not in flower.

At
Formosa
Th. 63°
After collecting the above mentioned varieties we continued our ascent, which became more precipitous as we advanced. In the course of the Day we arrived at the summit of the Flat-topped (I have forgotten how to spell if I ever knew) mountain, after having climbed up places, from which when I looked downwards I felt considerable nervousness though my friend Mr Curson, whose small figure gave him an advantage, mounted up them with apparently the ease of a kangaroo—(Macropus minor?)

We passed during the morning the usual alpine plants, such of which as were in flower or fruit I collected. Among them were *Drymophila cynocarpa*, several species of *Pultenaea*, *Lomatia polymorpha*, *Leucopogon* sp. *Hakea* sp., *Orites* sp. &c &c

Mr Curson took two men to hunt while I remained at a place which we had fixed upon as an encampment with one man—

Mr Curson after about two hours absence returned without any game. I collected about the neighbourhood of the tent two species of *Richea* and an *Eucalyptus*, together with several other things—

The country here presents a rugged, and romantic appearance, being constituted of small wet flats or plains over which are scattered projecting columns of Basalt, and hemispherical masses of a species of moss, resembling beautiful green cushions; and occasional masses of rock, calling to mind the appearance of ruined Castles.

After our tent was erected I sent two men out again to hunt. During their

absence a severe storm came on and they returned unsuccessful. It was exceedingly cold so much so that the mens Kangaroo skin Caps and pouches were quite stiffened. Snowing all night—

Jan 17th. We found that during the night there had been a fall of several inches of snow. The sun however when rising promised us a fine day. After looking around us a little, and admiring the extensive panoramic scene beneath us, I started accompanied by Mr Curson and two men to hunt— We were out several hours, but owing to the dogs having lamed themselves in ascending the mountain, and to the ground being very stony we were again unsuccessful. We saw many Kangaroo of both the Forest kind and the Brush. We observed excrement of the Hyhena (*Didelphis cynocephalus*, vel *Thylacinus cyanocephalus*) but saw very few traces of quadrupeds, except those named above. Of Birds, there are but few, the most remarkable of which I have been accustomed to call the Mountain Bird, from the circumstances of always having found in such situations. Its scientific name I do not know but it appears to belong to the Ord. Pici of Blumenloch. Our collection of specimens and seeds of Plants was satisfactory this morning, Richea, a new (to me) small *Pultenaea*, a trailing *Exocarpus*, and a trailing aphyllus shrub were among the most prominent.

Returning to the tent, when after having rested a short time, we packed up and proceeded due South towards the Lakes; the Mountains running east and west. These mountains being purely Basaltic there is nothing to interest the mineralogist. After having walked about three miles, we saw a considerable number of Kangaroo. I therefore halted, that we might have the advantage of the evening and the next morning for hunting in the neighbourhood—

The country here is mainly a repetition of small plains, and low stony hills. The Plains having grasses and alpine plants upon them, but evidently being subject to lie under water during the winter season, indeed there is water on, or running through every one of them at this season— The hills bear several Eucalypts of deformed aspect arising from exposure to the winds, which are high and frequent. *Tasmania fragrans*, and several *Hakeas* & *Orites* appear here.

The hunters were unsuccessful though numbers of fine Forester (a larger kind of Kangaroo. I believe not the *Macropus giganteus*, however) were seen by them. The Dogs would not run though they were half starved—

Jan 18th Two of the men went out to hunt at the dawn of day, one of whom returned to breakfast, the other having lost himself—After waiting for him for several hours we fired some shots, by which we succeeded in leading him to us. No Game.— We were occupied some time in arranging the specimens of Plants and other things, when we had done which we proceeded towards the Lakes; at the first and smallest of which after about two hours walking we arrived. Found a *Veronica* which I had never seen before with deeply divided leaves— As we were walking through some underwood a Kangaroo started before me which I shot. The next or middle Lake was soon in sight. Here we heard the noise of Dogs, which we attributed to a party of Blacks hunting.— As we were walking along a plain leading to Lake Arthur we discovered a herd of as we thought wild cattle, but on shooting one of them, we found it to be branded with the letters J.J. Shortly afterwards we were surprised to see a flock of sheep.— Arrived at the largest of Arthurs Lakes, called I believe Lake Arthur. In the evening shot a Duck—

Jan 19th This morning we took about 18 lbs of meat from the Bullock killed yesterday. As we were sitting down to breakfast three men appeared, who turned out to be the overseer and stock keepers belonging to a Mr. Jones of Jericho, the proprietor of the Cattle and Sheep we had seen, and who had only settled in this neighbourhood about a week before. This was satisfactory as it enabled me to explain to them what I had done. The Overseer was very civil and invited me to his hut. Found *Bellendena montana* in flower and an *Epacris* new to me. We remained about the Lake the whole of the day. Found several rare plants and one quite new to me, of the order *Compositae*. I shot two Ducks from behind some tea-trees (*Leptospermum* sp.)

The scenery about Arthur's Lakes is less picturesque than it is generally reported to be, though it must be confessed that the largest of the three is a fine

sheet of water. The most eastward or smallest is not more than a mile in length, is surrounded by marshes and the south western end is very reedy. The middle Lake is about two or three miles in length. But the only one worth seeing is the largest one, being twenty or thirty miles in circumference. The eastern shore is shallow for a long way in and reminds a little of a seashore from the rocks being worn by the no doubt rolling waves in windy weather, and from the collection of a sand bank inland—I am not aware that there are any fish in this large piece of water save Eels.—Waterfowl abundant; two or three kinds of Ducks, Swans, and Divers. The *Ornithorynchus paradoxus* is plentiful here.

Jan'y 20th About 11 o'clock after having aired and
Th 42° packed up our specimens &c we made
70° our way to the westward of north to-
wards the Peaks; two conical eminences,
about 500 ft above the top of the flat-
topped mountain— Collected seeds of
At the Cyder tree (*Eucalyptus* sp.)— I shot
Formosa two Kangaroo in the course of the morn-
Th 70° ing.— Collected specimens of a few un-
73° common plants.— In the afternoon we
reached the foot of the highest Peak
where we erected our tent near a plentiful
supply of water.— Wind blew cold from
the eastward.—

Jan'y 21st Arranged the specimens collected yester-
Th. 42° day previous to ascending the Peaks—
60° In our ramble up the Peak we fell in with
44° *Gaultheria hispida*, and a new plant in
Decandria (Perhaps a *Baeckia*)— Also
a good deal of *Lomatia polymorpha*.
At The wind blew very strong & in less than
Formosa an hour the Thermometer fell 10°. Abun-
dant of *Usnea sphacelata*? here— If
what I have been accustomed to call *U.*
sphacelata is this new one, its distribu-
tion is universal over this island from
the lowest to the highest altitudes I have
visited. As we approached the top it
became very precipitous, and the wind
being exceedingly high I became too ner-
vous to be able to ascend further though
I made several attempts.— Mr Curson,
however, and my gardener went to the
top. Very cold indeed all day.

Jan'y 22nd A considerable fall of snow during the
Th. 41° night—
At Having packed up our traps, we prepared
Formosa to descend. From the Flat-topped moun-
Th. 63° tain we observed the gully, which ap-
peared to take the desired direction and

we determined upon following it to the bottom, where it appeared to constitute the creek which bounds the western side of Mr. J. Archer's estate, adjoining my father's upper sheep-run. We found here a hairy moss (*Trichostomum*?) of which I collected a number of specimens, but they were unfortunately not in flower. A number of very beautiful ravine-plants were passed as we proceeded downwards. The lower Third of this mountain appears to be composed of free-stone; we passed perpendicular and (by the action of water) excavated rocks of it I dare say an hundred feet in height. Fine specimens of *Prostanthera lasianthos*

From this place we pushed on very hard for the purpose of endeavouring if possible to reach Formosa. We arrived at the level ground at the foot of the mountains, just as it was darkening, and reached Formosa at about 11 o'clock at night, after a walk of about thirty miles, over a rugged country, with considerable weight upon our backs—

I should have enumerated the principal plants seen on this excursion as far as I could, had I not sent you specimens of them.

Specimens from No. 250 were collected on this occasion. Published records indicate the nature of the collection—

Lawrence—

259. *Leptostomum inclinans* R. Br.—
a moss.
302. *Friesea peduncularis* DC. i.e.
Aristotelia peduncularis (Lab.)
Hook.f.
321. *Phebalium montanum* Hook.
324. *Ranunculus nanus* Hook.
325. *Pelargonium erodioides* Benth.
ex Hook. i.e. *P. inodorum* Willd.

The Lawrence numbers require the year for certain identification as he apparently had one series of numbers for 1831 and another series for 1833. e.g. 321 (1831) *Dodonaea salsolifolia* A. Cunn. ex Hook. i.e. *D. ericifolia* G. Don.

His *Usnea sphacelata* may have been *U. melaxantha* Ach.—“Mr. Lawrence has collected barren, sorediated forms, with a black base and blackish extremities, without fibrillae, which are not very unlike *U. melaxantha*, at an altitude of 3,500 feet, on the highest parts of the western range of mountains.”—Fl. Tas.

The character of the country traversed by Robert Lawrence and his party remained, until quite recent years, much as he found it. Certainly, the six miles of flat, open country between “Formosa” (still in Lawrence hands) and his father’s upper sheep run (now the Billopp Estate owned by Mr. E. L. Lawrence) has been sown to improved pasture and is occupied by several farms, including the State Research Farm, but the rocky, lake-studded dolerite plateau beyond the crest of the Tiers, between 3,000 and 4,000 feet above sea level, still carries the stunted alpine plants and the curious moss-like Cushion Plants (not mosses but dwarfed shrubs resembling moss-covered rocks, adapted to the severe winter climate) that Lawrence found there, and is still used as summer runs for sheep and cattle. The small kangaroos (or Brush Wallabies) are still plentiful, though the large Forester Kangaroo and the Native Hyaena or Tasmanian Tiger (*Thylacinus cynocephalus*) have completely vanished from the scene.

The first of the Arthur’s Lakes, the Little Lake, is also called Gunn’s Lake after Ronald Gunn, while the creek from it to the second lake is Jones Rivulet, probably named after the owner of the slaughtered bullock. Some changes would be apparent at Lake Arthur, however, as the Hydro-Electric Commission is erecting a dam and pumping-station there to supplement the water supply of Great Lake.

On the return journey, Lawrence’s companions climbed one of the twin peaks near the crest of the Tiers, usually called Brady’s Lookout, after the famous bushranger of 1824-26. (Brady’s gang had raided “Formosa” in 1826.) On the evidence of the

perpendicular sandstone cliffs, the descent was made down the gully of a creek that reaches the plain near Poatina. Mr. Joseph Archer’s estate, “Woodside”, is still in the possession of the Archer family.

Sandstone from the mountain was never used in the construction of the “Formosa” homestead. As Robert Lawrence implies, a pise building replaced the first wooden structure and, on the evidence of mud walls standing until fairly recently, was built near the banks of the Lake River. Later, a brick building, overlooking the extensive flats of the the Lake River, about a mile from the original site, was built. Part of this building, which was largely destroyed by fire over fifty years ago, is incorporated in the present “Formosa” homestead, mainly a weatherboard structure. This is the home of Mr. Leonard Lawrence (son of W. E. Lawrence’s youngest son, born in 1835) and his wife, who have in their possession the Journal of Robert Lawrence for 1829-1831.

The next two letters are brief notes from Gunn advising Hooker of the despatch of specimens and Bills of Lading. Following these is a longer letter with a request for books on botany. It also mentions for the first time the names of James Backhouse and Dr. Lindley.

James Backhouse and his fellow Quaker, G. W. Walker, were sent out by the Society of Friends in England to enquire into the welfare, spiritual and physical, of the convicts in New South Wales and Van Diemen’s Land. Between the years 1832 and 1838 they made arduous journeys, frequently by foot, to reach the scattered penal settlements and, as a result of their reports, the lot of the prisoners was somewhat ameliorated. Backhouse, whose father was a nurseryman of York, was interested in botany, particularly in new plants that might be of use as food and ornament, and collected many new species. He was not a trained botanist, but was not above giving a new plant a name, even if it had to be changed afterwards. He was already acquainted with Dr. William Hooker, and corresponded with him, though

there are no letters in the file from Van Diemen's Land. His plant collections went to Robert Brown.

In his "Narrative of a Visit to the Australian Colonies", Backhouse mentions meeting Ronald Campbell Gunn, "the most industrious botanist in Van Diemen's Land, who wished us to join him in a botanical excursion". This was at "a location on the Meander", after Backhouse and Walker had travelled, by foot, by way of the Van Diemen's Land Company's stock route, from the Hampshire Hills, where they had been entertained by the Company's surgeon, Dr. Joseph Milligan. They were unable to accept Gunn's invitation "not for want of inclination but because . . . we were desirous of having a meeting with the people of Westbury on the morrow".

Dr. John Lindley was an eminent British botanist, who specialised in orchids. It was probably at Hooker's suggestion that Gunn sent him specimens, but he was tardy in acknowledgment and lacked the generosity of Hooker in praise and reward to his collectors. At the time he was Professor of Botany (the first) at the University of London.

Gunn's first letter is to John Hunneman Esq. of 9 Queen Street, Soho.

LETTER 129.

Launceston, Van Diemen's Land
18th. Augst., 1832.

Sir,

I beg leave to enlose Bill of Lading for a Box of dried Specimens of Plants shipped P. "Forth" for Professor W. J. Hooker, Glasgow, and addressed to your care, and which I trust will come safe to hand.

The next is to Hooker—

LETTER 130.

Launceston, 21st. June 1833.

Sir,

I had the pleasure of forwarding you last season a box of dried specimens of the Plants of this Colony P. Forth, Captn. Robertson to London, which I trust has reached you safe and in good order.

I shall again ship another box of Specimens in continuation to the first, by the Brig Camilla, Captn. Wilson of Greenock, about to sail for London in a few days.—

By the Camilla I shall write you more fully and shall enlose a Bill of Lading to Mr. Hunneman London.—

I shall also forward by the same oppty. a box of Seeds to Mr. Murray in charge of Captn Wilson, who is a personal friend of Mr. Murray's.

At the head of the next letter from Gunn to Hooker is this note in Hooker's hand, "Robt. Napier Esq. Vulcan Foundry 28, Washington St. for Jas. Scott Esq." which almost certainly refers to a forwarding address through Thos. Scott's brother in Glasgow.

LETTER 131.

Launceston, Van Diemen's Land
1st. July 1833.

Dear Sir,

I had the pleasure about this time last year of forwarding to you a case of dried specimens of the Plants of this Colony to the care of John Hunneman Esq. London, which I trust reached you safe and in good order.— I at the same time enclosed two letters of introduction from Mr. Thos. Scott, & Mr. Robt. Lawrence.

You will therefore be aware of my intentions and in how much I depend upon you for furtherance in the study of Botany. I am still without a single work, and can only obtain occasional glimpses at Books on Botany belonging to my friends—None are to be obtained by purchase either in this Colony or New South Wales. Under these discouraging circumstances I have only had it in my power to collect specimens, and even in the pursuit of that branch much interest was wanting from my not knowing what I was collecting.—

I now send you by the Brig Camilla of Greenock, Captn Wilson, bound to London, another case of specimens—wherein I have put duplicates of a considerable number of those I sent last year, and have extended the No of Plants from 130 to 443. Of Ferns from 22 to 45. Mosses to 60, and a few other odds and ends.— Of Mosses and Lichens I have been able to make nothing, and the want of a common microscope has prevented my distinguishing one species from another.

Mr Lawrence has sent you a large Collection P. Helen Marr which vessel sails a few days before the "Camilla"—In his collection are some fine specimens of Mountain Plants.

Mr James Backhouse of York, one of the Society of Friends, has been in this Colony some months on a religious mission—. He mentioned to me his acquaintance with you, and gave me a few specimens to forward to you— From him I gleaned much information, and regret that his stay in the Colony will be very short. He is in the enjoyment of good health and desires to be remembered to you.

A Dr de Dassel who was two or three years ago a Lecturer in the Royal Institution, London, has recently fixed his residence in Launceston, and from whom I hope to derive considerable assistance. I have had one or two rambles with him and Mr Backhouse, but not to any extent— Dr de D. being a Hanovarian most of his Botanical Works are in the German Language unfortunately for me— Neither has he any work on the Plants of these Colonies.

I last year expressed a wish to receive from you some Books on Botany— and if you can conveniently do so I shall willingly remit the amount for any expensive ones through Mr Scott— Amongst the many that I most desire are "Brown's Prodrômus."—Cunningham's work (if published.) Loudon's Enc. of Plants— Sprengel's Cryptogamia or any more recent one— besides any others which you may consider necessary to form a small Botanists Library in V.D.L.—

I have again this season sent a small box of specimens to John Lindley Esq London, but have not yet received a reply to my communication of last year.— If you communicate with Mr Lindley at any time relative to the specimens I send you I would beg to state that his numbers in the cases sent to him exactly coincide with yours, — although to him I have sent fewer of each.— This may assist in fixing a name of any new Plant.—

I have handed to Captn Wilson a box of seeds for Mr Murray which I hope will reach safe.

I addressed the box to the care of J. Hunne-mann Esq 9 Queen Street, Soho, London to whom I enclosed a Bill of Lading for the same.

Gunn's next letter brings Hooker the sad intelligence of Robert Lawrence's death. Some of the writing in this letter, which was crossed in red ink, is indecipherable.

LETTER 132.

Launceston, Van Diemen's Land
15th. November, 1833.

My dear Sir,

It is with feelings of the deepest regret I have to communicate to you the death of our mutual friend Mr. R. W. Lawrence. This melancholy event took place at Formosa on the night of the 18th. October last, the day on which he had attained his 26th. year, and the first anniversary day of his marriage. Twelve months ago poor Lawrence married a young and most amiable Lady, with whom he lived in the most happy state it is possible for mortals to enjoy in this world, and on 2nd. Sept. last I left them, after a short visit both in the enjoyment of excellent health; next day Mrs. Lawrence was safely delivered of a daughter, but from delicacy of constitution, or too sudden an exposure after her confinement, she was in a few days seized with a fever which terminated fatally within a month,—fatally to Lawrence's happiness & peace.

After her funeral I brought him into town with me and amused him in various ways, and he spoke with great pleasure of the satisfaction you had expressed in your last letter relative to his collections and your intention of publishing them— On 8th. Oct. I accompanied him some miles out of town on his return, and many future arrangements were made but just a few days after he was found apparently sleeping in his bed, having been carried off in a fit of apoplexy— within one fortnight he and his wife were buried.— You must excuse my enlarging upon this melancholy subject— I was I may almost say his only friend on earth, and we were brothers to each other, — Our pursuits and feelings alike, and it will be long ere I shall be able to fill the blank his death has made. I owe much to his memory as he led me to commence the study of Botany, in which I have spent many happy hours, and yet look forward to years of pleasure in the same pursuit. His loss to you will also be most severe, as he was years ahead of me in experience both of Botany and the localities of the plants of V.D.L.— I can only however promise to do all I can, and trust time will improve me.—

I have now to acknowledge receipt of your very kind and obliging letter of 23 Feby. 1833, which only reached [me] in October, as also the Musci Exotici, Brown's Prodrômus, & Smith's Grammar, all which reached me safe.— Your letter to Mr. Lawrence, and some Nos. of your Miscellany also reached him a few days before his death. "Brown" will as far as

it goes be of considerable service, but the No. of Plants not in it are immense.— As I have only lately turned my attention to Botany all Books on the Science will be useful to me particularly the most recent— as I am anxious to acquire a correct knowledge of the Jussieuan System for which purpose I have commenced a private Botanic Garden — having purchased nearly 40 acres in the suburbs of the town, and which I can attend to along with my official duties, and in a year or two I hope to be permitted to live on it.— I therefore want seeds of all kinds that will grow in the open air here (for the present) so that I may acquire a knowledge of the different Genera by sight, as also of the various natural orders, as until that is acquired I find I shall be labouring much in the dark— I shall also require a Species Plantarum, but I know not any work which combines all the qualities I want — I have seen Loudon's Enc. of Plants but it does not meet my expectations, and is particularly deficient in the Plants of this Colony.— But a late edition may be better. Send me at all events as many books as you can and if any are expensive I shall willingly remit the necessary sums.—

Mr. Lawrence's Father has taken possession of all his Books and his Herbarium—the latter I will endeavour to get hold of, and send you — at least such portions as are new, and in sending the names, send me his Nos. and the names of his collection as to himself, as it is most probable the whole will be handed over to me, or at any events should his father keep it, I shall at all times have access to it.— The Books will be kept by Mr. W. E. Lawrence as his own inclination runs a little that way, and he is now my only conversable friend.

I found a duplicate Copy of the 6th. No. of your Miscellany (without the plates) containing part of Carmichael's Journal, amongst Mr. Lawrence's books and I presume it to be the one you sent to me. I doubt much my ability to write any Journal of my Excursions which will be found worth publishing in your "Miscellany" but I shall at all events send you some manuscripts with my next Packet, and you may make what use of them you think fit.— I have felt very much interested in Captn. Carmichael's Journal as from all that I can see (the beginning being absent) he was a brother officer of my Father's and in the same Regt. vizt. the 72nd. and in which Regt. I was born at the Cape of Good Hope and went from thence with the Army to the capture of the Isle of France after which my Father was appointed to the Bourbon Regt. and in which Island my mother died.— I was too young during my long residence in the

Mauritius and Bourbon to know much about them, still I feel interested as being the Scenes of my childhood. I have indeed spent the best half of my short life within the Tropics, having only left the West Indies in Feby. 1829 after a residence of some years to emigrate here at my Brothers urgent request who had a fear of the climate.— I am however much better versed in Zoology than Botany as far as my knowledge of Plants is concerned, than in that of England— and to this day my taste runs in favour of Pine Apples, Bananas, Mangoes & the many other fruits to which I was first accustomed.

My other history is short — I am married — have 3 children, & my chances of progress increase as I am nearly 26 years of age.— But I must resume about your matters. There is no such things here as Collectors of Birds & insects and the few who offer these things for sale ask too exorbitant prices to be within reach.— I have therefore turned sportsman & have already expended some Pounds of both Powder & Shot in attempting to kill Birds. I have also destroyed many dozens skins in skinning.— I will however improve and [] parcel to you, I will add a bag of skins of Birds & [] and shall also [] collecting. I have [] [whole line indecipherable] first collection [] probable in a few seasons something [] while I may [] affords me great pleasure that you place it in my [] to be of any service to you or your family in the collecting way, and although [] own inclinations through all the various branches of Natural History [] books and a sufficient residence in England to acquire the rudiments of the [] deterred me from commencing and Lawrence's Books and enthusiastic feeling all assisted me to adopt Botany in preference to any other science.

I am very anxious to receive your next letters, and I would wish you to send me a few notes as soon as possible always after receiving any collections from me wherein you might mention any Nos. you was desirous of receiving more of or any particulars as a season may in that ease be gained.— I do not think for the future I shall send you any duplicates of former Nos. unless you ask for them as it is only swelling up the packages and giving me unnecessary trouble in collecting and sending specimens of what perhaps you may have had plenty of previously.— If there is any additional information wanted relative to the [] as to their altitude soil &c. let me know and I will send it to you.

I shall now close this inconscionably long scroll and hope to hear from you as frequently as

possible after receiving any specimens from me as it may enable me to save a season: seeds also of some kinds may be particularly desirable, but at present I know not what you possess in that way at Home.—

[*He signs and concludes*]

P.S. 2nd. Decr. Mr. W. E. Lawrence intends retaining his son's Herbarium — I shall however have reference to it — which will be an assistance — In sending any books out or anything else; take if possible a Bill of Lading from the Master Private hand are at all times bad, and letters and parcels sent by them do not reach their destination once in a hundred times R.C.G.

This letter, endorsed "Single Sheet", has an oval Launceston post mark, a small rectangular " $\frac{1}{2}$ ", and other post marks indicating that it was landed in England on 6th June, 1834.

In Hooker's "Companion to the Botanical Magazine" is printed the portion of Gunn's letter relating to Lawrence's death, together with descriptions of plants sent by Lawrence under the heading "Contributions towards a Flora of Van Diemen's Land".

The "Launceston Advertiser", reporting the inquest on Robert Lawrence's death held at "Formosa", states that "Before the coroner and a most respectable jury it was deposed that the deceased was subject to fits of apoplexy and was supposed to have expired in a fit. The verdict returned by the jury was—'Died by the visitation of God'".

The orphaned baby was taken and adopted by her mother's people, the Wedge family. She subsequently married Monckton Synnot, of Oakwood, Station Peak, in Victoria.

Gunn's address at this time would probably be Cameron Street, for in the Launceston Advertiser of the 27th February, 1834, we find him advertising for a Preceptor for the Scotch Church—applications to R. C. Gunn, Cameron Street.

His forty acres purchased in the suburbs of the town was probably the block lying to the west of the old Catholic Cemetery and bounded by Connaught Crescent, Granville

Street, and Thistle Street, which contained 44 acres and 29 perches. It is in a small sheltered valley facing south-east and its light sandy loam over clay is still used for garden purposes today, houses being built only around the margins of it. A local tradition says that here the first "love apples"—tomatoes—were grown in Launceston, perhaps the fruit of some of his seed exchanges.

An interesting letter to Governor Arthur regarding this garden is held in the Tasmanian State Archives, Arthur Period, File 15700.

Launceston 10th May, 1834

Sir,

During the last two or three years I have had a strong desire to form near Launceston a general collection, botanically arranged, of all plants, indigenous and exotic. A collection of this kind has long been a desideratum here, where valuable seeds have been frequently imported, and, what might have been sources of wealth, lost to the Colony from the importers being ignorant of the mode of raising them or careless, and no garden being devoted to that purpose, where in a few seasons they might be sufficiently propagated to prevent any risk of future loss. With reference to the indigenous plants, which are highly interesting, so little of their properties in the Arts, Agriculture or Medicine are yet known that any general collection of these must be desirable and would greatly facilitate any experiments which scientific persons, visitors to the Colony, or otherwise, might feel inclined to pursue. I need not urge any other inducements, such as many of the plants here differing from those on the Southern side &c. as His Excellency will I am certain be quite aware of every reason that could be advanced.

I regret that the smallness of my income, together with my large family, prevents my being able to carry my wishes on these points into effect without some assistance, but, I trust that my now devoting some acres of the very few I possess in the Colony, to this I may call public purpose, from whence I can derive no possible emolument, will induce His Excellency, from his well known encouragement to Science, to assist me by the loan of three labourers for about two months ratified by the Government.

My anxiety to commence my Botanic Garden immediately arises from my now possessing

at least 1,000 species of plants many of which will after this season become too large to transplant, and cannot thrive in the seed beds they now occupy, therefore must be lost; Also from being offered my selection from the large collection of plants of the late Mr. R. W. Lawrence at Formosa whose garden will this season be broken up.

I am afraid an application of this kind is unusual, but if inadmissible, I trust His Excellency will pardon it, as it is dictated by the best intentions.

I have the honour to be,

Sir,

Your most obedient humble servant,
Ronald C. Gunn.

The Honble. J. Burnett,
Colonial Secretary,
Hobart Town.

On the back of this letter is a precis made by Burnett and dated 14th May, 1834. Then follows: "His Excellency regrets that under all the circumstances he cannot acquiesce in this application; he would however were it at present practicable have pleasure in establishing a public botanic garden in Launceston. 20/5/34 A.T. 21/5/34 J.B."

A.T. probably refers to Adam Turnbull, who was private secretary to the Lieutenant-Governor in 1834, while J.B. was John Burnett, Colonial Secretary at this time.

The long letter from Gunn to Hooker is followed chronologically by an even longer letter from Jorgen Jorgenson.

LETTER 140.

Hobart Town, Van Diemen's Land, Sept:12.34
My once dearest friend, and still held in grateful remembrance by Jorgenson.

Years have now rolled over our heads since we saw each other for the first and last time. Either under good or bad fortune I should at times have made some communications to you, but in coming out in the the Ship "Woodman" between 8 and 9 years since a fiend like prisoner who had been educated for the church at the university of Cambridge told me, when accidentally mentioning your name, that he had seen an account of your death in some of

the public papers, and he related the same of some other dear friend. These reports, which I believed to be true, overwhelmed my mind at the time with the bitterest reflections, and it was not till 3 years since I was assured by the learned Dr. Ross that I had been grossly imposed upon. Yet I had made up my mind never again to hold correspondence either with England or Denmark, till the other day when my mind was roused, and my ill-cured wounds set a bleeding by some Despatches which had been addressed by the Danish Minister Plenipotentiary in London to Lord Palmerston, and by the Secretary for the Colonies to the Lieutenant Governor of this island. Not that these despatches were in any way unfavourable towards me: rather the contrary — but that my mind felt agitated to an uncommon degree when running over past events and former associations. I remembered you my Hooker— and I burst into a flood of tears. I was then determined to write, and if possible to hear from you— and once more to see your hand-writing, ere the grave closes over me for ever.—

A succinct account of my career since my arrival in this island, may not prove altogether uninteresting to you, and will indicate how I am at present situated. My life has been one of wandering—a stormy and turbulent Life, it was so in my very infancy, and has ever since continued in the same course. I landed here a total stranger. In conversation with your friend the late Mr Humphries the mineralogist I conveyed to him the melancholy tidings of your death, but he was slow of belief, as he had received from you a letter shortly before.— I was then engaged by the Van Diemen's Land Company in exploring, traversing and tracing roads through the Country. It was just such a life as corresponded with the state and feelings of my mind.—Often, when ascending the loftiest summits far above the Clouds, I beheld with a species of gloomy delight, the ranges and tiers beneath my feet, appearing like the waves of the mighty ocean troubled and agitated when the gale sweeps furiously over its surface. The terrific desolation around me as far as the eye could reach in the Horizon struck the mind with inconceivable awe and astonishment, but alas! I had no one by me who could participate in my feelings, my companions were all ignorant men, insensible to the sublime and the beautiful. During my first two journies through a sterile and inhospitable country, I had the bitter regret to lose my fellow travellers, my friend Lorymer drowning before my face without my having the power of saving him. He went down in crossing the mouth of Duck River 15 miles from "Circular Head" Shortly after 8 more found a watery grave. After having experienced incredible

hardships, bursting our way through heavy Wire Scrub, climbing of mountains, crossing deep and steep gullies, losing all my dogs for want of food and being without provisions for 4 days, three of us returned to "Circular Head" in a state of extreme exhaustion. Dunn being almost in a state of madness having for want of fresh water swallowed a pint of sea water.

After quitting the Company's Service I was engaged by the Government in various arduous pursuits in the Interior. I had four armed parties, each consisting of 6 men, placed under my directions to proceed in pursuit of the hostile aboriginal tribes, which although not very numerous found means for years to keep the Interior in state of constant alarm, and filling the country with bloodshed and plunder.— The superior knowledge of the Aborigines as far as regarded the bush, and their way of travelling, us being encumbered with heavy knapsacks laden with provisions, gave them an infinite superiority. My four parties, with other similar gangs, had but little success, though we saved many lives and much property constantly moving about. At length sprung up a modern Los Cavaz, who with a confidence somewhat bordering on inspiration informed the Governor, that he was certain he could by kind treatment and fair means, induce the Aborigines to surrender. The Governor listened to him, but all others considered his scheme to be one of insanity and excessive severity. I had then been in pursuit two years and the armed rangers were by the advice of Mr. Robinson, the gentleman alluded to, were all disbanded. This singular man went into the wild hush, with all his men unarmed, completely at the mercy of the Blaeks. Sometime after Mr Robinson fell in with one of the most hostile, ferocious, and bloody minded tribes. They beheld their victims before them with savage joy, and being infinitely superior in number, came bearing down on the party, with their spears and waddies. Nothing but instant death was expected, but all at once the whole tribe halted, seemingly struck with astonishment at the sight of so many unarmed men, they felt convinced, from the absence of fire arms and all other warlike weapons, that the white man could not entertain any unfriendly intentions towards them. Threats were speedily exchanged for signs of friendship, and strange and almost incredible, this tribe consented to accompany Mr Robinson to Hobart Town, where none had appeared for many years before, and more strange they went after their own manner, without the slightest restraint, and at their own leisure, hunting the whole of the way.— When arriving in Town the inhabitants felt highly gratified to hear and see what had been achieved,

so many murders had been committed for years past, that one in the Interior dared not to venture outside his door without being armed with a loaded musket.— Mr. Robinson then followed up with wonderful perseverance his first success, and after four years constant fatigue enduring every species of hardship, and being nearly the whole of the time absent from his respectable wife and family, he has now returned to the bosom of peace, all the tribes being now collected and sent to Iron bound island in Bass's straits, where they enjoy their usual occupations, hunting in the bush and so on, but at the same time receiving religious and other instruction.

Thus this interesting race through the perseverance and courage of one man has been preserved without the British name being disgraced by exterminating the original possessors of Van Diemen's Land, and all this with their own consent.

Since the disbanding of my parties, I have had a good deal of travelling, but all this has been far from advancing my individual private interest. By my journals I have traversed upwards of 28000 miles to and fro in this island.

Of all these matters I have kept regular accounts.— From my knowledge and experience, I have been somewhat connected with the literature of this island, and many things are published without my name appearing in the Periodicals. In 1831 I published my "Observations on the Funding System, with the relative situation in which Van Diemen's Land stands towards the Mother Country." I shall contrive to send you home this production for I feel particularly confident that the mode I therein proposed for liquidating the national debt is the only way such liquidation can be effected without producing embarrassment and convulsions, and would also be attended without particular injury to any class of the people.— One should imagine from the number of periodicals in this island, we are a literary people, but except in a few instances this is not the case. In Hobart Town we have four weekly journals viz: "The Courier"—"The Tasmanian"—"The Colonial Times"—and "The True Colonist".— Of these the "Courier" is by far the best and most impartially conducted paper. The proprietor, publisher, and Editor, is the learned "James Ross" LL.D. — so well known in England and Scotland. Independent of these we have three Sheets of Advertisements, viz: "The Trumpeter General"—"The Trumpeter" and "The Horn Boy" each of which appears twice in a week.— Then there is a Monthly Magazine, and two Almanacks printed yearly, but that by Dr. James Ross is by far the

best, being a true statistical work, as well as extremely useful to our merchants and farmers in the Island and of essential service to Emigrants who might wish to settle in this Colony.

In Launceston which is the Chief Town at the Northern side of the island, there are two weekly journals "The Independent" and the "Launceston Advertiser"—with two Sheets of Advertisements.—I think this will do pretty well for a Colony whose population does not exceed 34000 in number.

I shall seize any opportunity of making such a collection as may prove interesting and amusing to you. If I could procure proper advice from you, and being sure of support at home, I would certainly write and publish a narrative of this interesting island, for here my literary labours have rather been of pecuniary injury to me than otherwise; and I must also observe that which I have hitherto seen on Van Diemen's Land migration, Prison Discipline etc. are far from being correct productions and mostly dictated by party spirit, selfish motives and ignorance.—You may remember that a publication of mine appeared in London in 1827 entitled "The Religion of Christ is the Religion of Nature". Now you could really oblige me would you be so good as to write to the Bookseller in London and enquire who placed that manuscript in his hands, and whether it has been productive or not. I have seen one copy, but as to anything further I know not; and as from the causes already enumerated, I am necessarily very poor, even the smallest sum would be a relief, and there is a regular Colonial Agent attached to the Secretary of State's office London who receives money in London, and effect remittances to this and other Colonies.—Should a vessel sail from Glasgow to this place, or by some other conveyance, I would truly thank you for sending me out your "Tour in Iceland" my "Travels through France and Germany" — and my "Religion of Christ is the Religion of Nature". I enjoy my freedom in this Colony, but my Pardon does not reach anywhere out of it.

From what I have above stated you might be apt to suppose this to be altogether a sterile and inhospitable island. This however would be a wrong notion, for other parts again fully compensate the mind for former disappointments, there are large tracts in this island, than which it is impossible for the most luxuriant imagination to conceive more lovely within the whole circle of the creation. For miles you will see land of the most perfect park like appearance, rich in pasture, and beautiful to a degree. But here again when I

rested under the Honeysuckle, the Wattle-tree, or other elegant shrubbery, my mind became insensibly affected, both melancholy and despondent, I wanted one like you to communicate my feelings to for those about me took no delight in the beauties of nature. It was then that my broken heart wandered back to former associations and past days, I felt an intolerable vacancy within for such a friend I might for ever have preserved in you, but I have lost you with many others—God help me!—Though I have continued in good health, by reason I suppose, of much exercise in the fresh air, yet the fragments of my poor heart are widely scattered over the surface of the globe.—I feel my visitation, and most deeply do I feel it! — Glancing back to former associations of happier days, my heart and soul sink within me when I fix my remembrance on Sir Henry Jernyn of Sibton near Gosford, Suffolk.—Has death hitherto spared that exalted, that generous, that highly venerated friend? But here again I lost myself. If in existence do write to him, let me hear from him, if Heaven has not ordained it otherwise. But, if writing to him, do bear in mind that you speak pathetically, write with the highest glow of sensibility, commensurate with the intensity of my feelings, and my most friendly affections.—There are also some other friends of yours I could wish to hear something of — Mr Smith of Norwich — Sir Dawson Turner — Mr. Brown librarian Soho Square — Mrs Turner — Mrs Hooker, or whether you have a family or not?

I must inform you that in 1828 letters arrived to Archdeacon Scott here from the Phrenological society of Edinburgh requested that dignity to use every means of obtaining a cast of my head, to be sent home to Edinburgh, but by some mismanagement and blunder the thing was not at that time effected.—I could never think how such a request could come to be made, except you might have corresponded with the Society. Now as a matter of science I would consent to one and more things. Let the request come from the Society to the Lieutenant Governor, or any other person in the Colony whom I may know to find, and is acquainted where to find me at any time should I be in the Bush. Let the Society state their wish to such authority or person, and I will allow a bust to be taken by some skilful surgeon on certain conditions. Now I have slender faith in the science of Phrenology, and as to the names I observe on certain artificial heads, they would to me require explanation ere I could understand them. The moment the Society shall receive my cast, and after having examined the same with the utmost scrutiny. Then let all and every particular be reduced to writing, and

that writing to be sealed and placed in the hands of a person of the strictest honour and integrity. Whilst this is doing in London, I will here take a stern survey of my mind, fearlessly and boldly, to make known my own propensities, inclinations, vices, properties of the mind, and virtues (if any).— It will be a picture of no common interest and one which few persons would venture to draw of themselves. Before the packets are opened they shall be exchanged, and if they correspond, the Science stands vindicated and if otherwise, in my opinion, it will fall.— If I think proper I may exact Seeresy, for a series of years except as to the Society itself. However you manage as you like. Independent of the channels I have pointed out, our Bank Director, Charles McLachlan Esqre could render Service; he was late manager in this Island for the Australian Company of Glasgow.—

When I arrived here first I wrote a respectful letter to Mr A. McLeay, but received no answer, so I have never applied again, and as he is in Sydney he can do me little good here.

Now my once most excellent friend, and companion, let me call the blessings of Heaven on you and your's and sometimes remember your unfortunate Jorgenson.

P.S. Excuse this slovenly letter but time is precious.— Everyone knows me in this island.— This letter will pass through the office of S.ate for the Colonies and the Danish Minister Plenipotentiary in London.

This letter arrived in Glasgow in February, 1835, and appears to have been paid for by the recipient.

A second letter from Jorgenson, written a month later and sent by another vessel, is largely a summary of the first.

LETTER 141.

Hobart Town, Van Diemen's
Land, 15 October 1834

My dear Sir,

In the course of last month, by the ship "Cleopatra" I sent you a very long letter. By a most strange coincidence, my letter had no sooner left this post than I met Lieutenant Gunn, who informed me that he had received a letter from his Brother Mr Gunn near Launceston wherein that gentleman informed him that Professor Hooker of Glasgow had written him making some inquiries concerning one

Jorgen Jorgenson. This certainly appeared to me very strange, as I had not for many years written to you before.

We send all letters or writings in duplicate from this island by reason of the long distance from home, so should a Ship be lost, some other is likely to go safe.— However I shall in this letter confine myself merely to touch on the outline of my other very long letter. 1) I expressed my feelings and sentiments towards you 2) I spoke of my recollections of former days particularly alluding to you. 3) I furnished you with a succinct description of this country, with other little matters. However I merely write now in a very concise manner as I [*hope*] and trust, you will receive my former letter, long before this can come to hand.

There were two topics mentioned on which I shall fully explain myself again. I called to your mind that a book entitled "The Religion of Christ is the Religion of Nature" of which I am the Author, was published in London in 1827, nearly two years after I had left England for this colony. One Copy was sent to me here, but by whom I know not. And as my circumstances are, as you may suppose, very narrow and as the smallest sum would be an object to me, I would feel extremely obliged to you, would you write to the bookseller, and endeavour to learn from him, whether the Book has been productive, and if so, to remit me what he can.— I however omitted stating that eleven years further experience and observation have strengthened my faith, and I could in addition introduce some very strong arguments in support of those marked in my book.

The other matter referred to was that in 1827 or 28 a letter arrived in this Colony from the Phrenological Society in Edinburgh addressed to Archdeacon Scott wherein it was requested of him to obtain a cast of my head for the Society. I was at that time sufficiently inclined to have that done; but by some mistake or other the object failed. I have never been able to form the most distant guess how the Society could make such a request, unless you had corresponded upon the Subject. However, if the Society will write to the Governor here, or any other of the Authorities, known to any of them, and who will know where to find me, I will let them have a cast of my head. I have no faith in Phrenology, and yet one would not rashly reject the positive assertions of many men of science, study, and learning, so before the Cast is taken, and long before, I will pen with perfect honesty and immovable fearlessness, an accurate, precise, and most true account of myself, my inclinations, propensities, failings, vice and virtues (if any) and this document

shall be deposited in safe hands, to which the Society shall not be accessible, till a particular character shall have been given of the organs of my head. If their, and my statement agree, I shall have some faith in Phrenology — if otherwise, as far as regards myself I shall totally reject the Science. I leave you to arrange the affair in your own way.—

As I hope that God has preserved the Ship "Cleopatra" from mishaps, I do not write much at present, but I truly hope I shall receive a letter from you by the very earliest opportunity.

I remain

Your ever faithful

Jorgen Jorgenson

I am so well known here that any letter addressed to me will speedily find me.

Arriving in Glasgow on 2nd March, 1835, this second letter was apparently prepaid.

Archdeacon Thomas Hobbes Scott, head of the Anglican community of New South Wales and Van Diemen's Land (then part of the diocese of Calcutta) came to Van Diemen's Land first in 1826 and again in 1828, when he consecrated Old St. John's Church, Launceston.

The Van Diemen's Land Company, in which Jorgenson was an assigned servant, is the subject of a paper published as New Series No. 9 of the "Records of the Queen Victoria Museum".

On the Surrey Hills property of the Van Diemen's Land Company was "Burleigh", headquarters of Dr. Joseph Milligan, surgeon and later surgeon-superintendent of the company for Emu Bay and the inland areas. Milligan, as a young man of 23, who had only obtained the diploma of the Royal College of Surgeons at Edinburgh the year before, was appointed to the post in 1830, and until he was made superintendent of the area as well as surgeon (which also meant veterinary surgeon), had plenty of spare time for collecting natural history specimens. It was probably Backhouse's visit to "Burleigh" in January, 1833, that stimulated

Milligan's interest in plants, and probably his meeting with Backhouse soon afterwards that led Gunn to enlist Milligan as a fellow collector for Hooker, as recorded in Gunn's next letter.

LETTER 133.

Launceston, Van Diemen's Land

14th September 1834.

My dear Sir,

Your two highly valued letters of 27th Decr. and 10th Jany. only came to hand, together with the box of Books &c &c a few days ago. The Steam-boat did not leave Kindale in Ireland until 31st March, and called at the Cape, which she left on 8th July, thereby delaying her arrival here until last week — Your most valuable present of Books, for which I really know not how to make sufficient recompense, and which placed me most wofully in your debt, came in good condition, and have made my Botanical Library almost complete — with the Prodrromus & Musei Exotici which I acknowledged in my last, when I communicated to you the melancholy news of Mr Robt W. Lawrence's death. — That event has thrown me back more than I could have conceived as I have now no one with whom to talk over Botanical matters, or to excite me to exertion — Your Parcels for him P. "Tamar" also arrived safe, and were delivered to his father. — I am gratified to hear that so many of our Plants are new — I hope my future collections will continue to meet with your expectations — your remarks are interesting beyond what I can express and I only now look forward for your additional sheets. — I suppose I need hardly tell you how proud you have made me [*by*] naming the Mountain Ranunculus after me. — I cannot in this letter make any additional observations upon those specimens of Plants already sent, but along with my first box I hope to do so. — In December last I was appointed a magistrate which increased my official duties as to prevent my collecting much or sending the few I did collect,— home— as the novelty and extent of the duty which that appointment threw upon my hands made it at first no sinecure; — I have to try daily all the disorderlies of about 600 Crown prisoners (Convicts) male and all the females in the Town and district — besides having the Male & Female Houses of Correction entirely under my charge (with Supts. however) — together with the general distribution & assignment of Servants. — If I leave town for an hour or two I am hunted after in all directions so that my escapes after Plants require all my ingenuity to be exerted to escape

censure either from the Govt or the people. My last trip for example in April last to collect seeds on Ben Lomond was done in 4 days — I rode 90 miles — ascended and descended the mountain & slept two of the nights on the top in that time — I would not have minded the exertions then used, in spite of the rain & cold had my success been at all in proportion, but the excessive dryness of the last summer in V.D.L. which has almost caused a famine, as far as wheat & Potatoes go — & increased the prices of all articles of consumption to a great degree — had been felt equally severe on the mountains. — the plants had not flowered in most cases — others had all their young shoots burnt up, and not a few were dead or dying altogether. — I had a month before ascended Ben Nevis and found the same results, with the additional misery of having been for 8 hours without water myself & Party. — The only thing I saw new were two Gaultherias (I think) besides *G. hispida* — one of which the first was pleasant to taste, but I did not eat many being too anxious to send the seed to Mr Murray. — as I only found fruit upon one plant. — also plenty good seed of *Bellendena montana*, *Elichrysum* No. 275. and of some *Epaerideae* & a few others, but really so few as hardly to compensate for the labour had not my inclination naturally led me to ramble. — I am very sorry that my duties are so extensive and incessant as to preclude my visiting many of our friend Backhouse's scenes — vizt. Circular Head, Cape Grim, Hampshire Hills, Flinder's Islands &c. but I have opened communications with the Van Diemen's Land Coys. Medical Officers at Wool-nor.h & the Hampshire Hills from whom I expect considerable additions — I have already received a very small collection from the Hampshire Hills from Dr Joseph Milligan who has entered very much into the spirit of it — and I hope in a year or two your Herbarium of V.D.L. plants will equal any other in Britain. — All these additions I will insert in my first Box which I intend forwarding to you by the first vessel for England from Launceston. I find myself improving my knowledge of Botany and particularly according to the Natural System to which I am paying most attention. — I have this season commenced a Botanical Collection of Plants arranged according to the natural orders as enumerated in the Second Part of the Enc. of Plants, but in which I have detected a few errors — among others the entire omission of *Epaerideae* & *Pittosporae* I have devoted about 5 acres to the purpose in the suburbs of the Town in a place combining as many natural advantages as I could easily attain, but wanting plenty of water which is a serious fault but one almost universally felt in this Island — except by those persons on

the banks of the Rivers — which includes all. — All water sunk for is bad, — at least generally so. — In collecting plants for my Garden and arranging them I find it gives me a much more correct idea of natural affinities between the different genera than any books could give me. — It is on this account therefore that I sincerely regret the almost total loss of the most valuable collection of Plants from Mr Murray, — As setting aside the beauty of the Plants I wanted many as typical of natural orders of which I possess no specimens — Had the passage extended to six months instead of nine I am certain from their admirable package that most would have survived but alas a dozen or two tuberous rooted herbaceous plants, and still fewer of the shrubs are all that were alive in the large Box. — The Bulbs and Dahlias in the small Box were alive & good except very few and which might have [*survived?*] in a passage of as many weeks — The seeds were more unfortunate still as I do not think one seed hardly or Mr Lawrence's or mine will vegetate — They got quite rotten in consequence I think of some damp Hips & Haws having been put up, by which all the rest were made equally so — the oil cloth covering at the same time preventing evaporation. —

Your letter to Mr T. K. Short dated 3rd March came to hand a month before the others. — Mr Short has not come to Launceston, but should he do so I shall show him every attention — a Box of Sundries from Mr Short of Martin Hall I received at the same time, and shall send him a collection of such things as he desires by an early opportunity.

In looking [*over?*] a number of British Botanical Magazines I find the names of old acquaintances — Mr Telfair at the Mauritius and an old friend of my Fathers when we resided there — I was at the Capture of that Island though very young & remained there some years. Dr Nicholson of Antigua I knew intimately [*in?*] 1826 & 1827 — but I had no idea then of becoming Botanical.

I have not yet heard from Mr. Lindley in reply even to my earliest letters [*or?*] message. — Your remark however has removed the slight feeling of annoyance which I found growing in my mind, when I compared your Conduct to his — as in commencing Collector it was purely taste, and a mind bent upon some pursuit, and not necessity or for a livelihood & I was afraid Mr Lindley whom I only knew from his public name, might forget those points — if my collections are worth the freight & a few seeds in return, it was all I looked for — but your generosity has thrown me completely aback — £30 worth of Books alone has so

completely dumbfounded me (to use a Scotch phrase) that for some days I looked for the Invoice — as your letters were not delivered to me for some time.—

Should business of pleasure [*take?*] you through York I think a call upon Backhouse's brother would repay you — Many specimens of new Plants were collected by him out here & sent Home — The seeds sent also were numerous and rare, — and ought soon to be in a forward state.—

Dr de Dassel, very shortly after my last communication, I found to be a regular German Quack. — Professing to know everything & knowing nothing. — He at least knows nothing of Botany. — calling to me at one time the red & white flowd. Epacris No. 12 an Hibbertia — A Plant in the Euphorbiaceae then in flower. & seed — a Persoonia vizt. No. 142

Hypoxis hygrometrica — he has been giving his Patients as a Colchicum— A nultis alus — in fact he is as profoundly ignorant as he could be. — His Character in other respects does not meet my views, and I feel ashamed of ever having mentioned him — I must now close as my Paper will extend no further —

This letter did not reach Glasgow until 16th February, 1835.

Elichrysum No. 275 not traced. Epacris No. 12 is probably *E. impressa* Lab. No. 142 not traced. The *Hypoxis hygrometrica* Lab. is a small amaryllis with yellow starlike flower growing close to the ground in wet places. It has a small roundish bulb. *Colchicum* is the Autumn Crocus which is poisonous to cattle and to humans. The seeds and bulbs were used in small doses for gout or rheumatism. The doctor being without supplies of the drugs and herbs used in Europe probably used something rather resembling them in appearance found locally —or had them supplied by some local herb-
alists.

German quack or not, Dr. de Dassel continued to practice in Launceston, and presumably prospered, for he settled here. He was occasionally a consultant of Dr. W. R. Pugh, the first man to use (in 1847) an anaesthetic in the Southern Hemisphere. In a case in

which a patient of Dr. de Dassel died after an operation by Dr. Pugh, the latter was charged by another doctor of the town, Dr. Haygarth, with negligence. A libel action ensued, in which Dr. Pugh was exonerated and awarded £250 damages.

Mr. Charles Telfair was a surgeon on board one of the ships which bombarded Mauritius in 1810. He was Government Secretary at Bourbon and later Private Secretary to Sir Robert Farquhar at Mauritius. Later still, he was Guardian of Vacant Estates and Secretary to the Vice Admiralty Court. He remained at Mauritius and he and his wife collected the plants of the island for study by European scientists. He died in 1833, aged 56.

The Steam boat was apparently the "Tamar", a paddle steamer with sails, of 88 tons, built at Greenock on the Clyde for the Tamar Steam Navigation Company, formed by Messrs. Gleadow, Landale, Thomson, R. Dry, and W. E. Lawrence in 1832. for trading on the River Tamar between George Town and Launceston. She was the first steam boat to arrive at Launceston. (Bethel, 1954, describes her as a steam tug. She may have been used to tow barges or sailing ships but there was another steam tug, called the "Tamar", purchased for the Port of Launceston in 1855.)

The Mountain Ranunculus, *R. gunnianus* Hook., a native Tasmanian buttercup, was the first of many new species which Hooker named in honour of their collector. In all, one genus, *Gunnia*, and about 60 species of plants originally bore Gunn's name in some latinised form, though subsequently many of the names have had to be abandoned owing to the priority of other names or for other reasons. With generous gifts of books and compliments such as this, Hooker encouraged his collectors. Robert Lawrence had been honoured in the same way. Hooker certainly stimulated Gunn to even greater efforts as his next long letter indicates.

LETTER [].

Launceston 30th March 1835.—

My dear Sir,

I have at last arranged my collection of Plants for this season and sincerely hope they will reach you safe and in good order.— I have put in one Box No. 1 — and the largest— The duplicates of my various former numbers— some very good— some not— still all I trust will be welcome received.— also the few *Acotyledones* that I have collected during the past season, but in them you will find few novelties.— In the same Box I have placed a copy of Dr Ross's Van Diemen's Land Almanack possessing among its contents an "Index Plantarum" written by our friend James Backhouse and which may perhaps give some information relative to various plants which I have probably omitted — and otherwise good, considering the limited means he possessed — and its popular form.— The Almanack also contains a portion of the Autobiography of Jorgen Jorgenson — to which I refer.— I also enclose a copy of Ross's Almanack for 1834, which contains a good article also written by James Backhouse on the esculent Roots, &c. of Van Diemen's Land— and a humorous & I believe pretty correct account of Circular Head— a Map of Van Diemen's Land published by Dr. Ross— a Plan of Launceston— old— but still may be interesting— I regret I can make but such a poor return for your valuable books.—

In the second box No. 2. I have placed only the new Nos. extending from Nos. 444 to 630 inclusive and though I have myself been unfortunately prevented from any extended excursions— friend Backhouse and Dr Milligan, (an esteemed correspondent who I have induced to collect) have assisted me much.— The former has some months ago left the Colony for New South Wales, and is I believe now visiting the Penal Colony of Norfolk Island.— The latter is now medical officer stationed at the Hampshire Hills, (part of the Establishment of the Van Diemen's Land Company)— and is a brother magistrate of the Territory.— Relative to all the plants I have written short remarks which I attach to this letter and to which I refer for many particulars which would have been too voluminous for a letter.—

I am every day more satisfied with myself at my progress in Botany— and am still continuing the formation of my Botanic Garden upon the Natural System.— And I think that as my knowledge increases my ability to discover new plants will be much increased and that you need not think that you have yet received more

than one half of the Plants of V.D.L. from me.— I shall continue my annual boxes of specimens with such additions as I can make—

I have not yet received a single letter or acknowledgement from Dr Lindley— I have therefore sent him my third and last box of specimens— merely containing duplicates of my former collections to render those already received as complete as possible— but I have not sent him a single new No. after 443— As I cannot but feel hurt that years should elapse without his finding time to say "thank you"— and if he did not perform anything, might at least have promised.— Your conduct forms such a sad contrast that I am not aware of any excuse he can make— even granting that they were utterly valueless.— My time I can assure you is much more occupied than that of any other officer under Government in Launceston, one branch of duties alone, vizt. as magistrate, giving me 40 to 90 cases weekly to try and dispose of — besides the other miscellaneous duties of a daily sitting magistrate— then my Superintendents — of assigning men, & women and everlasting correspondence— makes my time for Botany limited indeed— and had you not induced me to continue my communications at a period when I had more time on my hands than now, I should long since have been obliged to give up in despair — At this moment I have waited three weeks in vain to procure a magistrate to undertake my duties for three days to enable me to ascend the mountains to collect seeds of the *Ranunculus Gunnianus* & others— & last Sunday I started and accomplished 76 miles on foot and horseback in 28 hours to collect, being unable to be away from my office— I do not say this to enhance the value of my collections to you— but to show that my time, no more than Mr Lindley's, is wholly unoccupied and I regret to say my income is far from being in proportion,— however— that is another affair. If when you see Dr Lindley you can get any hooks from him, do so,— and if he really expresses a desire for more specimens I can send them, but as far as I am concerned I now feel perfectly satisfied with your assistance— more especially as death has removed poor Robert Lawrence from co-operating — I sadly feel the want of some botanically inclined person to exchange thoughts with, but not a soul in Launceston or within many miles has the least taste for Natural History in any of its branches.—

With reference to your various enquiries relative to Jorgenson— I find he was appointed a Constable at Oatlands where his zeal in that office was so great as to lead to his receiving Emancipation some years ago.— His moral character here stands very low, the Chief Police

Magistrate and my Brother both giving me a bad account of him— He married a woman here of abandoned character and very drunken habits,— I do not know how he earns a subsistence just now, but I believe he is not devoting his talents to any profitable or industrious pursuit.— For your Book on Iceland I feel much obliged and felt greatly interested in its perusal.—

I regret I have been extremely unsuccessful in my pursuit of the two other branches of Natural History, vizt. Birds and Insects — With reference to Birds— I have tried in vain to acquire skill in skinning them and have failed, and have been equally unsuccessful in my search for a man capable of doing so— I do not however despair of procuring one of the first Bird skinners who arrives in any prison ship from England, as I have applied for a man of that description officially to Hobart Town to be assigned to my service, on purpose to fulfill my promise to you— until then I can do nothing— With reference to Insects I have also been bothered.— I cannot procure for love or money any Cork to line the bottom of the box and I find the slightest shake knocks the pins out when stuck into a hard board, and most of the pins becoming bent in attempting to push them in securely— My collections have therefore I regret to say been regularly lost four or five times from the box being touched rather roughly when out came pins &c and the legs, wings, antennae &c of the insects suffered, and rendered them useless. — Will you therefore at your earliest convenience send me out some Cork and I will get boxes made out here.— Mr Lawrence has been I believe collecting for you but I do not know with what Success. —I can only add to these various reasons for not having done what I ought to have done — that my inclination continues strong.— No Bird skins or collections in Natural History can be purchased in Launn.

My "List of Wants" continues very great and I annex a list of various Books I would like to procure, but not at your expence; Get what you can from Lindley, and if you will send me an Invoice of the Remainder I shall most happily remit you the money, as I apply to you from having no person who can so well select books I want in Britain.—

[At the head of next page in Hooker's hand is a list of books with some items marked]

Comp. to Bot. Mag. 3-6. *Brit. II. ad 8
(one to be sent afterwards) *Brit. Mag. ad []

[What follows is Gunn's]—

Books &c wished for from Britain.

- 1.* de Candolles "Prodromus Systematis Naturalis Regni Vegetabilis" — 4 vols. And his larger work if yet complete.—
2. Richards "Medical Botany" or any other superior book on the medical &c. properties of Plants

[In Hooker's hand]— Reid's Med. Bot. 1835

- 3.* Arnotts "Elements of Physics" vol 2nd or vols 1st. & 2nd. of the latest edition.—
- 4.* Encyclopaedia of Cottage, Farm and Villa Architecture by I. C. Loudon.
- 5.* Ency. of Geography by Hugh Murray— assisted by Hooker, Jamieson, Wallace, &c £3. 0. 0.— If this work is very good, if not Standard, do not send it.
- 6.* Arrowsmiths last Atlas of 54 maps £2.12.6

[In Hooker's hand]— 53 — 1.16.

7. The Best Work on Natural History in General in the style of "Turton's System of Nature" as in collecting, Birds, Insects, Animals, &c I should like at the same to study these different branches which I have no opportunity of now doing, and I should feel double interest in knowing what I was collecting—
- 8.* Smith's introduction to Botany edited by yourself
9. Lindleys introductions to "Botany" and "to the Natural System of Botany" may be sent by Lindley.—
10. Naturalists Library by Sir. W. Jardine— if good—

Lastly— Any other good works on Scientific subjects to which I am every day becoming more attached.—

When you visit London I would esteem it a favour if you would ascertain for me the price of a collection of minerals at Mawe's, Strand, London or elsewhere as I do not now know one mineral from another although I have read largely on the subject, and in my rambles have, I am certain, fallen in with novelties in that Department— I collected largely but from extreme ignorance of the simplest rudiments of mineralogy, I cannot ascertain the names even of metals— but if I had a collection to refer to, I could at once

find to which it bore the greatest resemblance, and be enabled to ascertain if it was at all curious or valuable.— If you can assist me in these matters you will oblige me much— as I know no one here that has the slightest pretensions to a knowledge on the subject—

I must now close this long and hasty letter by requesting that should there be any particular information relative to the plants or any of them which you may desire so as to render your published list as complete as possible, I shall be glad to do it as quickly as possible on your informing me what you wish,— such as Habitat, soil, time of flowering— &c which I have not furnished, but can furnish, if wished for or desirable.—

I sincerely hope that you will find my humble efforts such as to meet your expectations from a beginner like myself, and that you will make any allowances for imperfections— I also particularly caution you not to make me any compensation for my labours beyond what you find convenient, and within your own means, as I am aware that like myself you have a large family— and as my expenses only consist in Paper, Boxes, and tear and wear of clothes which I should destroy whether or not — you may perceive that any extraordinary remuneration is uncalled for, and now that I possess most of the Books essential for a Student from your liberality, I conceive you have amply done all that I could expect from you— and instead of now being in my debt, I am in yours.—

To Mr Murray I have sent a valuable collection of Seeds, and some orchideous roots which I trust will be safe— I have placed corresponding nos on the packets of Seeds to the Specimens, least you might wish to refer to any of them as specimens of the fruit of the Plants—

To Mr Cooper of Wentworth House, and Mr. Short of Nottingham I also send packages of seed,—

Your wishes upon all points I shall at all times have pleasure in attending to as far as my limited time and knowledge will permit—

I need not add that your letters and books are welcomly received and highly acceptable

[*He closes but goes on*]

16 April 1835. I this day closed the boxes.— The box of Bird skins will go by another vessel as also the seeds &c. for Mr Murray, & others as in spite of all my exertions four vessels have sailed without this— and I shall wait no longer but nail up.—

If you have any of the ferns more than you require, please send any that have seed to Mr Cooper of Wentworth House, to whom I intended to send some, but thought it better for you to divide than me, as I knew not which you required most.— If you cannot spare any write to Mr Cooper, and inform him that I am now collecting for him, but I shall be unable to send them before next Season.— Having everything to do myself, in packing, drying, collecting, &c &c you must make great allowances for errors and omissions.—

I enclose a parcel for my brother Mr Robert Gunn of Edinburgh, which I shall feel obliged by your getting forwarded P. Coach as early as convenient.—

I send you a Journal of a Journey to the Australian Alps by Dr Lhotsky— it is incomplete, but all that has reached this quarter yet from Sydney, & sold at the moderate price of one shilling a number.— I understand Dr Lhotsky is a German Adventurer like Dr de Dassel professing to know everything, but really quite ignorant, & assisted by others in his compilations.

In addition to the books please add— “Reece’s Medical Guide” (or any better one) — And when sending out Books, a Catalogue of Scientific Works from which I might cull — would assist me — in selecting — Books are not to be procured here at any price — on Scientific Subjects, & although I am now devoting my leisure time to Botany, I am extremely anxious to acquire additional knowledge to what I now possess in Medicine, Chemistry, and Natural History in all its branches.— Are the Books published by the Society for the diffusion of useful knowledge good, or are they merely got up by Knight the publisher —

I do not expect you to answer all my questions — at once — but in time, if we continue to jog on pleasantly together which I think admits of no doubt

Dr. Ross’s “Almanacks” reached Hooker safely with the plant specimens. In his “Companion to the Botanical Magazine”, vol. II, is Backhouse’s list of the “Esculent Plants of Van Diemen’s Land” from Ross’s “V.D.L. Almanack” of 1834.

Jorgenson’s letters of the previous year had evidently prompted Hooker to make further enquiries about his old companion; but Gunn’s unfavourable report probably influenced him from replying to them. Still,

he did get Jorgenson's first instalment of his "Fragment of an Autobiography". The second, and last, part of the "Fragment" was printed in Eliston's (Ross's successor) Almanack for 1836. It is on these two "fragments" that J. F. Hogan's book on Jorgenson, "The Convict King", is largely based.

Dr. John Lhotsky was a German doctor of medicine, who, before coming to Australia in 1832, had travelled extensively in Brazil. He seems to have been a rather unprincipled adventurer, writing journalistic articles on his travels and selling the specimens he collected. For a time, during the eighteenth-thirties, he was a medical officer for the Van Diemen's Land Government, stationed at Port Arthur. In the letter file at Kew is the first part of a printed pamphlet entitled "Information for the People, No. 1. Sketches of Tasman's Peninsula", a romanticised account of a journey he made through the bush there, "printed for the Proprietor by J. M. Short, Argyle St". Presumably sent to Hooker by Gunn as a sample of Lhotsky's work, it has neither literary nor scientific merit.

On the head of the letter is written, apparently by Hooker, "Book on Skins/Reece's Bird Guide". On the page containing Gunn's "Wants", Hooker has also inserted a few more items and puts ticks against those that presumably were sent.

This letter was enclosed in No. 2 of the two boxes of plants he had packed for Hooker, and with it went his list of specimens numbered to agree with the duplicates he kept in his own herbarium.

The 443 specimens of flowering plants in Box No. 1 are listed in their natural orders according to Jussieu's system, beginning with the order Ranunculaceae in the Dicotyledones. These are followed by the Monocotyledones, including many orchids. Another set of numbers: (1 to 50) is used for the "Acotyledones"—the Cryptogamic plants, mainly ferns and mosses. This box contained duplicates of plants he had already sent to Hooker, and the numbers are by no means

consecutive. Mostly they are simply given the generic name (or what Gunn thinks it is), sometimes with a query, e.g., "—*Sam-bucus* (?) 19"; some have simply a number, e.g., "—76"; while against some others he appends descriptive notes. The full annotated list is printed as an appendix.

LETTER 134.

Launceston V.D.L. 6th May 1835.

My dear Sir,

I have just had the pleasure of putting on board the ship "Janet" of London, T. C. Matheson, Master, **Three boxes** to your address, care of John Ker Esq. Asst. Secy. to the Commissioners of Custom's London,— to whom I have also this day enclosed "Bill of Lading" for the same, and sincerely trust they will all reach you in good order.—

Box N. 1 Contains a large collection of **duplicates** to my former Nos from 1 to 443.— also Ferns and all the acotyledonous Plants, which are this season very few—

Box N. 2 Contains Specimens of New Nos from 444 to 630 both inclusive— and a **prodigious** long letter, and sheets of Remarks, to which I refer.—

Box N. 3 Contains skins of Birds.— I should not have sent these to you as I consider them of trifling value and badly preserved, but they were principally left by the late Robt. W. Lawrence, and intended for you and I have therefore so far fulfilled his wish in sending them.— I have added of my own collecting a Pelican of the River Tamar, 2 Herons, one white Cockatoo, a parrot, some opossum & other skins of animals, & a few trifling odds and ends.— In my letter in Box No 2 I have fully explained the cause of my bad success in Bird collecting from the want of a Skinner as I have neither time nor skill to attend to it, but hope soon to remedy this

I have so fully explained everything in my long letter before alluded to that I have little to add in this. I am astonished you had not received a very long letter I wrote to you reporting the melancholy and sudden death of our worthy friend Robert W. Lawrence previous to your sending your last letter, dated 5th April, 1834. He died on 18th October 1833 at Formosa suddenly, being found dead in his bed.— His young and worthy wife had died after giving birth to a daughter a few weeks previous— Poor Lawrence dying on the first anniversary of his marriage aged 26.— A more worthy and kind hearted man never existed, and

I deeply deplore his loss—to me irreparable—as I have not now a single soul to speak to about Plants, or to excite my emulation— He was enthusiastic in the pursuit of all branches of Natural History.

I am much afraid my last letter to you has also gone to the bottom.— I wrote very fully to you as also to Mr. Murray acknowledging the safe arrival of your various packages &c — by the steam-boat “Tamar” in September, 1834.— and sent my letters to you (as well as many others) by the “Cleopatra” which was the last vessel for the season from this Colony.— and I see by a late newspaper that she was totally wrecked on the Falkland Islands on her voyage home— She sailed from Hobart Town on 25 Septemr. last.— I have not heard whether the mail was saved— if not, my letters are gone.— I cannot now repeat the contents— beyond stating that your Books reached me quite safe and have delighted me since beyond measure. Your “Tour in Iceland” in a separate parcel was also duly delivered by Captn. Wales of the “Tamar”, who as an old acquaintance took every care of things entrusted to his charge. The plants having been between 8 and 9 months on board the vessel, you may suppose that they were almost wholly rotten, as were also Mr. Lawrence’s, the Bulbs, being hardier; came almost wholly safe; only the tenderest being destroyed; but in the larger box, the iron wire, and wooden tallies were as rotten as the plants.— It is excessively annoying after the immense trouble which had been taken to lose so valuable a collection.— the Seeds sent to Mr. Lawrence & myself were also totally destroyed from the ignorance or carelessness of the packer who placed a large quantity of pulpy hips, haws, holly berries, &c. in each package and these; being wrapped in oil skin which prevented evaporation, communicated damp & mouldiness to all the rest, so that on arrival here even the cones of the Pines were so rotten as to crumble to pieces, nuts, &c. &c. in a like state.—Captn Wales had them in his Cabin the whole voyage so that no blame could by possibility fall upon him.— I only hope Mr. Murray will not be discouraged but continue sending as often as his time and conveniences offer.— and as an inducement I have now got ready to send him by next vessel about 230 packets of seeds— many new and not before sent by me.— I shall put them up with the greatest care.— I shall at the same time send packages to Mr Cooper of Wentworth House and Mr. Short of Nottingham, but not so large or numerous.

In your letter to me and elsewhere you address Mr Thomas Scott— as Dr. Thos. Scott.— He is not a Doctor but merchant in Launce-

ton.— I would not make this Remark to you but there is a Dr. James Scott who will get the credit of any he may have sent to you— and I see Backhouse in his “Index Plantarum” (which I sent you in one of the boxes,) also blunders and gives a Mr. J. W. Scott credit for having sent you those sent by our mutual & worthy friend Mr Thomas Scott, Merchant.— Mr. J. W. Scott is an ignorant man in Hobart Town but an indefatigable collector of seeds [possibly a line missing. *Crossing begins.*] by which he earns a [] Scott’s business as a Merchant has prevented his [continuing] his natural taste for plants but I owe him much as my introducer to you— as I believe he was also of the late Mr Lawrence.

If nothing occurs in the way of business to alter my wishes it is my present intention to forward you my Collections more frequently than I have recently done— as it is too much labour to arrange a very large box-ful I am exceedingly anxious to receive your farther notes upon the Plants I sent Home, vizt. the natural orders after “Stackhouseae”— And I hope you will find the plants as you go on presenting an equal No. of new ones.—

I shall be most happy to hear from you as frequently as possible.

[Having closed his letter, Gunn added]—

Your last letters recd. by me — are dated Glasgow 27 Decr. 1833 and 10 January 1834.— and an introductory letter by Mr. Short dated 3rd. March — And another from Mr. Cooper dated 5th April 1834.

In Box No. 1. I have placed a small packet containing two almanacs similar to those I sent to you — which I shall feel obliged by your forwarding to my Brother in Edinburgh as addressed.

This letter arrived in Britain on 20th October, 1835.

Dr. James Scott was the man for whom the convict artist, W. B. Gould, made the botanical drawings referred to previously.

The “Tasmanian Colonist”, of 24th June, 1834, notes that, “Mr. J. W. Scott, our industrious native seed collector, collecting with deserved encouragement, has just shipped a large collection to the Royal Gardens at Kew, and is now making a similar collection for the Royal Dublin Society”.

In his next letter, Gunn quotes from a letter he had received from James Baekhouse. It shows, too, his interest in new scientific discoveries, particularly those that might assist his botanical studies.

LETTER [].

Launceston, Van Diemen's Land
29th June 1835.

My dear Sir,

I am induced again to write to you from an itch I have this day for scribbling, and also from the want of any one nearer with whom to exchange thoughts, opinions, &c.— I have just sent on board the ship "Bolina" to London, by which this letter goes, a case addressed to Mr. Ker, London containing three smaller boxes of seeds, vizt. for Mr Murray, Mr Cooper & Mr Short.— The two latter gentlemen gave me no address via London, to which port all vessels go, so that I have trespassed on your friend Mr. Ker to open the case and despatch the three smaller boxes as addressed.— Mr Murray's contains about 252 papers of Seeds of V.D.L. 24 of kinds just reed from James Baekhouse who collected them on Norfolk Island, and one paper of the seeds of the "Prangos" of Thibet, said by Loudon in his Enc. of Plants P.1070—to be the most productive forage Plant in the world.— If Mr Murray grows it— I will trouble him for some back again.— From the number of seeds I have now sent him I am certain you will have many novelties and I have requested him to sow some of all; as however similar many may be to those of New South Wales— I still suspect not a few will be different though closely allied species— From our friend Baekhouse I look for much information, if he has time.— He wrote an interesting letter from Sydney which I recd. a few days ago— He had just returned from a visit [to?] Norfolk Island which is the penal Colony of New South Wales & V.D.L. to which the worst twice & thrice convicted felons are sent.— The Island is however itself a lovely spot. I cannot do better than subjoin an extract from Baekhouse's letter to me.— "We (alluding to himself and his fellow missionary Mr Walker both of the Society of Friends) have been much interested with our visit to Norfolk Island; which is a beautiful spot by nature. *Altingia exelsa* towers like spires over all other trees, and attains 150 to 200 ft. in height, & I measured one 29½ ft in circumference at 4 ft. up. The next tree in magnitude is *Hibiscus* (*Lagunia*) *Patersonii* which though a low shrub on the declivities of the Island to the sea, is, in some places, 80 to 100 ft. high; and I measured one (not the

largest I have seen, but I happened at this time to have the measuring tape in my pocket) 16½ ft. in circumference. The Island is a series of small basaltic Hills with narrow vallies, covered with rich red soil; their points and the lower part of the vallies are open, & covered with coarse grass,— Lemon & Guava trees, scattered about like Thorns & hazels, Grape Vines, & Figs, as well as Lemons, Gnavas & Cape Gooseberries have escaped from the gardens of the former Settlers, & gained a possession which they will long retain in spite of all efforts to reduce them. The upper portion of the gullies and hills are generally covered with wood, for the most part a completely different race to the trees of V.D.L. The opening of these gullies into the grassy mounds is generally marked by quantities of tree-ferns (*Alsophila exelsa*) of tall stature, exposing fair crests to the sun:— *Charlwoodia australis* (*Dracaena*) with its branches terminated by heads of sedgy looking leaves, is also to be seen a little farther up the hills in these situations. One small ridge [on?] the N. part of the Island rises into a mount which is estimated at 1,200 ft above the sea, but the Lemon has in this fine climate, where the thermometer ranges from 65° to 85° of Fahrn., ascended to the very summit, where it grows among the native trees." The above interesting sketch is accompanied by various other matters — Among other things he mentions, that, of the *Solanum laciniatum* of N.S.W., the fruit is [edible?] whereas that of V.D.L. (my No. 376) is not at all so.— I wrote to you on 6th. May 1835 P. "Janet" to London, and at the same time sent two cases of dried specimens of Plants and one of Bird & other skins— (the latter not in very good order.)— all of which I trust will have reached you long before this will.— In one of the cases I also sent you a prodigious long letter which would occupy you no small time to get through.— I have during the last four weeks fallen in with a bird-skinner, & have accordingly occupied a few leisure hours in shooting all the species of small birds near town — I have already got about 24 species well done, and of some of the kinds three or more specimens— I note the colour of the iris, & other matters but am afraid from my town residence, that I shall be unable to enlighten you much on the habits, migrations &c &c, however— I shall do my best.—

[Crossing]

Would it not be as well for the future for me to send all seeds to your address instead of to Mr. Murray, as should Mr Murray by any chance leave the Botanic Garden, my boxes being addressed to him would become his private property instead of that of the Garden.— I merely hint this to you.— You will find on all

or most of my seeds corresponding Nos to the specimens sent to you which will enable you to give correct names to Mr Murray, and may also assist you as a means of examining the seed vessel.— I read in a copy of "White's Selbourne" edited by Capt. Brown P. 266— of an instrument called a Sympiesometer for measuring the altitude of mountains invented by Mr Adie 58 Princes St. Edinburgh — Could you ascertain the price for me? The altitude of mountains here would be interesting as fixing the localities of certain Plants, and might convey useful information for their treatment at Home.—

I find that I have only sent you the flowers of one sex of No 452. I fortunately got some of the others in Mr Lawrence's collection of Plants, — which I shall send home next season— both Nos 452 & 173 are dioceous.— I also have strong reason to believe that most of the specimens I have sent Home to you this season as No. 54 *Clematis blanda* are another quite distinct species, & which will make four species that exist here.— You will perceive a great difference in the leaves which are never alternate— The habit of the Plant is also different— having a more prostrate growth and in a different soil to my No 54 of 1832—I however merely call your attention to the point — I have sent Lindley some of the same this season as duplicates of 54. I shall however closely observe them this season.

[and adds as a postscript]—

Hoping that I am not troubling you too much I am extremely anxious for a continuation of the names of the Plants from the Nat. Ord. "Staekhouisiae" — onwards — Another want.— I saw an acct. of an instrument for taking views upon an improved principle better than the Camera Obscura called "Burge's Patient Pancidolon" will you report upon it— price, &c. &c.

376. *Solanum aviculare* Forst.—(the Kangaroo Apple, though Backhouse says it is edible).
452. *Plagianthus sidoides* Hook.
173. *Sida pulchella* Bonpl. ex DC., i.e. *Plagianthus pulchellus* (Bonpl.) A. Gray.
54. *Clematis blanda* Hook, i.e., *C. aristata* R.Br.

By *Altingia excelsa*, Backhouse obviously refers to the Norfolk Island Pine *Araucaria heterophylla* (Salisb.) Franco. The letter

was landed at Deal on 5th December and reached Glasgow two days later.

Attempts to establish the identity of Gunn's "bird-skinner" have been unsuccessful. Gunn was evidently hoping to get as assigned servant a convict taxidermist as soon as one arrived in a prison ship. The State Archives of Tasmania report that between March and August, 1835, the only prison ship arriving was the "George the Third", which was wrecked in D'Entrecasteaux Channel with great loss of life. Of the 81 surviving convicts, not one was a taxidermist, nor were any of them assigned to Gunn. It therefore seems more likely that the man Gunn "fell in with" was a free man or possibly an ex-convict taxidermist. He seems to have served Gunn well for several years.

In the Launceston Museum is a case containing some forty species of beautifully-mounted Tasmanian birds. A note in the writing of Mr. H. H. Scott, curator of the museum from 1898 to 1938, says it is the work of a convict done a hundred years ago. Could this have been Gunn's "bird-skinner"?

The next three letters to Hooker are from Thomas Keir Short, of Nottingham, and tell their own story.

LETTER 161.

Martin Hall Feb 17th

My Dear Sir

I have great pleasure in informing you, that I have just received a letter from R. C. Gunn Esqr in answer to the one I sent, accompanied with a box of seeds and your kind letter of introduction, which he kindly acknowledges. It bears date Sept 16th 1834. He is now forming a General Botanic Collection of plants Government will not aid him, so we must do all we can for him & the Science. He is much in wants of a few books on botany; tell me what will be of most use to him. In the box, I sent a few odd numbers of the various periodicals I could pick up. If you can give me a list in that way I shall be much obliged.

Mr Gunn informs me that I shall shortly receive a box of the Terrestrial Orchidæ of the

Island he will send us seeds & roots at every opportunity he has; and I shall return it as often as I can.

If you have any letters to send I will enclose them as I send a box to him next month. If you would like to see the letter you can, if you will return it to me after you have read it, I can send it in about a week or 10 days as I intend sending Joseph the insects I promised which I hope will arrive safe.

With respects to Mrs H— and your family,

I remain yours truly

Thomas Keir Short

To

Dr Hooker P.B.

Glasgow.

This letter was addressed to Bath Street and by the postmarks reached Glasgow on 18th February, 1835.

LETTER 162.

Martin Hall

March 17th 1835

Dear Sir,

When you have read this letter you will think that I am one of the most restless and changeable beings on earth. The day after I wrote to you I received a letter from my Cousin in Van Diemen and I am going to join him there, I am quite ready & sail by the *Loyds* 400 tons from London on the 10th of April The cause of my informing you is if it is not to much trouble & presumption to request a letter of introduction to Mr Gunn, as I intend residing on the Launceston side of the Island. I have sent him a box of seeds which sailed by the *Rubicon* from London on the 15th of this month: I informed him that I was coming. I have not been idle in getting a collection of seeds, I have got in the 1st place 87 varieties of Vegetable seeds of *Skizanthus*, *Colceolarias*, *Clarkias*, *Collomias*, *Penstamons*, *Ipomias*, *Asters*, *Larkspers*, *Pines*, *Furs*, *Ilex*, *Oaks*, *Elms*, *Rhododendrons*, *Azalias*, *Callendrinias*, *Magnolias* & many others to the amount of 381 varieties, *Roots Amarillis*, *Coburgias*, *Ixias*, *Narcissus*, 12 *Cactus*, 5 *Staphaelias*, & a Box of 15 kinds of *Camilias* & *Rhododendron arbores* and *abba* & which if I can get over alive will be a great acquisition, if it is, not their already. If there are any other plants likely if you will mention it, I will endeavour to take it. I have books in abundance among them [*Curtis* ?] from the first. I intend staying

10 years from England I shall see New Zealand & those Islands before I return if possible. Now inform me if you want dried specimens, seeds, roots or what & how I must send you them as I shall send home at every opportunity I have. I am going to turn my attention principally to sheep & the growth of wool.

Hopeing you will give an early answer as the time is so short

I remain Dear Sir

Yours truly

Thomas Keir Short.

P.S. Kind respects to Mrs. H. & family.
A few weeks later he is about to sail.

LETTER 163.

London April 11th
35

Dear Sir

According to promis I have sent you the insects which I hope you will receive safe. I sail for vandieman's land on or about the 25 of this month. I have taken my passage & find the Captin a very cleaver intelligent man. I shall turn my sole attention to sheep, & the improvement of natural history. I am likely to have a young man come to me next spring which will give me a much greater portion of time to attend to Natural history. You will heare from me as soon as I arrive in VDL With respects to Mrs Hooker & family I remain yours

Thomas Keir Short

Less than six months later he has arrived.

LETTER 164.

Launceston Oct 10th 1835

Dear Sir

It is with great pleasure that I have now an opportunity of addressing you from this favoured island. You will perhaps have seen in the papers the death of Mr. Cunningham the botanist at Sydney he was killed by the natives whilst upon an exploring expedition under Capt Mitchel.

I have made application for the situation to General Bourke here & to the Colonial secretary at home. I have also written to the Duke of Newcastle or Lord Lincoln who I can depend on as being my friends Mr Sams the Under Sherif for Launceston has written to Mr Aiton

in my favour, so if you will be so kind as to exert yourself in my favour I will be very much obliged as I know you have such extensive connections. I perhaps have taken upon myself too great a liberty in refering the gentleman to you for a character i e if I am capable to fill the situation which character I hope you will give as favourable as you can as it is a situation that would suit me very much indeed. I am with Gunn at present and a most delightful companion he is we go out together on every spare hour we have to collect, and I can assure you that he has got a rich collection of new plants for you since the last box came. He is very anxious for an answer to his last voluminous letter as we are quite puzzled with many of the plants. I am going to Port Phillip for the purpos of Collecting plants Birds &c &c &c I do not intend to settle in the colony as I find it will not answer my purpos it is too late in the day for this place so I have written home to inform my father that I intend coming back to England. In the meantime I devote the whole of the time while here to collecting everything & shall be obliged to remain until I hear from home but if I get the appointment at Sydney it will alter my plans and views altogether. I hope and trust you will do all that you can towards my appointment to the situation at Sydney, as I could there follow up my pursuits of naturall history in all its branches. My next letter will be of more interest than this as I have so much to write and so little time to do it in, that I cannot call my scattered thoughts to write anything but about the appointment which is uppermost in my cranium. I have great faith in your letter which I showed to Coln Arther who was anxious to form a Botan garden as he said but cannot at present he said that my was highly satisfactory & would give me the appointment if given to any one.

With respect to Mrs H and family

I remain yours

Thomas Keir Short.

On the back Dr. Hooker is addressed as "Professor Hooker LL.D.", while "T.K.S." over "V.D.L." in the lower left-hand corner seems to indicate Gunn's influence.

Richard Cunningham (1793-1835), who was speared by the blacks at Dandaloo, N.S.W., when accompanying an exploring expedition under Major Thomas Mitchell, was brother to the more famous botanist and explorer, Allan Cunningham. He was Gov-

ernment Botanist of New South Wales from 1833 to his death. The post was then filled by Allan Cunningham, though, after a short period, he resigned. Major-General Sir Richard Bourke was governor of the colony at the time. He was evidently unimpressed by Mr. Short's claim to the position.

William George Sams, born in Buckingham in 1792, arrived at Hobart Town in the ship "Harvey" in 1825. After serving as Under-Sheriff at Hobart Town, he was transferred to the same position at Launceston in 1827, where he was also Notary Public. He was a member of the Port Phillip Association and went to Port Phillip in 1836, and is included in Billis and Kenyon's "Pastoral Pioneers of Port Phillip". He died at Richmond, Victoria, in 1871.

The following letter from R. C. Gunn to Hooker also reports Mr. T. K. Short's arrival in Van Diemen's Land.

LETTER 28.

Launceston 25th Septemr. 1835.

My Dear Sir,

Our mutual acquaintance Thomas K. Short Esq. has to my no small astonishment arrived in V.D.L.— he writes me to say he has a letter for me from you, but which I have not yet received — I expect to see him in Launceston in a few days.—

I have been at George Town within the last fortnight and collected a few plants, but the season is not far enough advanced — I found a beautiful *Correa* — resembling in leaf and habit *C. virens*, and bearing a pendulous flower similar to it in size, but the colour was a beautiful crimson on the upper half and green on the lower — the varieties were very various in colour & one var. I found with half the Corolla white & half green — very abundant — Backhouse saw three years ago a solitary specimen in a bouquet — but I could not find where it had been collected, and therefore entered it in the Index Plantarum of Ross's Almanack as *C. speciosa* — but on reference I see the flowers of *C. speciosa* are said to be erect & figured in the Enc. of Plants, whereas the present are as completely pendulous as *C. virens* — You will receive it in my first collection & more specimens of *C. Backhousiana*. I also found near

George Town a new *Tetratheca*. 449. *Drosera Menziesii*, and one or two others of which I had not before collected specimens — My collection of Birds has now become pretty good — and well skinned, not similar to the miserable box full I sent before, but really good, as I have got a bird skinner by profession now in my service.— I brought to town 115 specimens shot in a fortnight — the varieties are not very numerous but they will become more so— I am unfortunately a bad shot,— which causes me to miss many birds.— I think you will be much pleased should they reach safe — I shall send them by the first vessel from Launceston.—

I have received a good collection of specimens of Plants from the Hampshire Hills — which I will add to my first box of this season, among others are beautiful specimens in flower and fruit of my No 178 — called by you *Betula Antartica* to R.W.L. also specimens of *Podocarpus asplenifolius*, *Carpodontus lucida*, some new ones, and many others not easily procured near Launceston.

I am very anxious for the names of the Plants in the Natural Orders after "Stackhousiae" which I have not yet received — I cannot correctly ascertain the Plant called by you *Phebalium montanum* — you have sent my wrong No (213) and the late R. W. Lawrence unfortunately retained no specimen of it (No. 231) in his Herbarium— My specimens from the Mts. were that season so imperfect as to puzzle me sometimes now a good deal, but I have since pretty well replaced them.

Should Mrs. Gunn, who has recently gone to Dublin, apply at any time to you for money you will oblige me much by not giving any— she has unfortunately acquired a habit of extravagance in drinking, which after a marriage of ten years has reluctantly compelled me to send her home to her relatives in the hope of effecting a cure — my success is doubtful — but her being able to procure money would spoil all, and from her knowledge of our continued correspondence I thought it probable she might apply to you, and to guard against which induced me to write this letter,— a hint to you is enough.—

I had a short visit the other day from Jorgen Jorgenson. I requested him to call again (being then busy) that I might enquire more fully into particulars, but he has not done so.— He was shabbily dressed and looked very miserable — he told me he had written to you — His universal character here I regret to say stands very low,— he is evidently a clever man, but has turned his talents to a wrong account.—

178. Not traced.

213. The "Journal of Botany" gives Gunn's number as 223 and Lawrence's as 321 for *Phebalium montanum* Hook.

449. *Drosera menziesii* Hook. non R.Br., i.e., *D. planchonii* Hook.f.

This letter has the oval Launceston postmark and seems to have been landed at Dover on 3rd February, reaching Glasgow on 5th February, 1836.

Jorgenson's visit occurred just twelve months after his long letter to Hooker was written. No doubt at the time he was looking forward to a reply that never came, and thought perhaps that Gunn might have some news of his old friend; or possibly lend him a helping hand.

The next three letters to Hooker, from Ronald Gunn's elder brother Robert, of Edinburgh, to whom he had sent the Hobart Town Almanacks through Hooker, are self-explanatory. At the time Robert was on the staff of the "North British Advertiser". Previously he had been on the "Scotsman", on which paper Ronald had also worked before going to the West Indie in 1825.

LETTER 137.

7 North Bank Street
Edinburgh, 20. Nov 1835

Sir,

Had I not expected to have had an opportunity of thanking you personally for your kindness in forwarding me the parcel from my brother in Van Diemen's Land, I would before now have acknowledged its receipt.

A vessel will sail from Leith in about a fortnight, by which, I shall have occasion to send my brother a parcel, and shall be happy to forward any communication you may have for him.— By leaving it at our Office (The North British Advertiser) 112 Queen Street, opposite the New Exchange, I shall receive it in due course free.— And at any time any parcel you

may be desirous of forwarding to your friend [*there?*], will be sent free by being placed under Cover to me, and sending it through our agent [*Mr. Smeal?*] as above.

To save you trouble and unnecessary expense it may be as well to direct the Books from London to which you allude to be sent to me here and I shall forward them to him from Leith.

Ronald sent me a Van Dieman's Land Almanack containing among other interesting local information an Index of Plants indigenous to that Island, but it is probable he will have forwarded you a copy of it also: if he has not, I shall be happy to give you the one he sent me.

Ronald expresses in warm tones the manifold obligations he is under to you for your Kindness and the fostering generosity you have evinced towards him in his new Study; and I cannot help being gratified that you have deemed him worthy of your patronage

I am Sir

Your very obed. St
Robt Gunn

LETTER 138.

7 N Bank St Edinr.
4 December 1835

Dear Sir

Yesterday I received a parcel of books from Messrs. Longman & Co., and today I am favoured with your letter of the 2d.

As the "Mid Lothian" will not sail for Van Diemen's Land from hence for some 2 or 3 weeks, you need not put yourself to any inconvenience by hastily forwarding Books you purpose sending to my Brother.

I have looked over the Books from Longman & Co. and I can hardly conceive of any Publications more calculated to improve and gratify the individual for whom they are intended: If they were your choice, they reflect much credit upon your judgment; if the Selection was his, he would seem to have known full well what to ask.

Believe me

Dear Sir

Yours very respectfully
Robt Gunn

LETTER 139.

7 N Bank Street

Edinburgh, 29 Jany. 1836

Dear Sir

Your favours I duly received along with the various parcels of Books &c, which I packed up carefully in a box and forwarded pr the "Mid Lothian" to my brother, with the exception of the last small parcel you sent, which arrived too late; but it will be forwarded by the next opportunity. I shall write my brother by post, and will inform him that he will receive it by next ship along with the Book published by A & C Black to which you referred in your last.

The Willows came safely, and Mr. Lawson kindly sent one of his men to see them carefully stowed away on board.

A small parcel of seeds came from Mr Murray (I think), wrapped up in oil cloth, I gave it to the ship's Surgeon whom I accidentally met on the eve of sailing and I have little doubt he will take care of it.

Well, I think my brother has been exceedingly fortunate in possessing the friendship of Gentlemen who have possibly appreciated his humble endeavours beyond their merit; but of one thing I am assured — that he will be ever grateful for your Kindness.

Believe me

Dear Sir

Yr very obed. st
Robt Gunn

We now return to letters from Van Diemen's Land by Ronald Gunn.

LETTER 181.

Launceston, 16 January 1836.

My dear Sir,

I shall ship to your address by the John Denistoun to sail in a few days from this Port for London— a large Case containing 330 to 340 Skins of the Birds of this Colony— A few skins of Birds (19) from New Holl. and a few Animals and Reptile skins of this my adopted land.— They are packed with every care in tin soldered so as to resist any damp— and a sufficient quantity of washed wool as will keep them from knocking about.— There are only 75 species of the V.D.L. Birds sent — but of some

I have sent from half a dozen to a dozen or two to enable you to distribute or exchange with naturalists. I do not expect any will be new, but I think some are rare— They are preserved in the best way and will, if they reach safe make amends for the Box of Odds and Ends last season, the remains of R. W. Lawrence's Collection.— I am still busy collecting and will be able to send you another box-full I hope next season— I have in the meantime been delayed in writing out a few Notes of the Habits of the Birds, &c or it might have gone by the present opportunity.— My Plants are partly arranged, containing a few additions, but of a great bulk, to go by an early vessel— of which however I shall write more fully in my next— I need not express how anxious I am again to hear from you with the continuation of the names beyond Stackhousiae.— You are becoming almost as bad as Mr Lindley, who by the bye has not yet favoured me with an acknowledgement of my many communications.— Your letter by Mr T. K. Short & that Gentleman arrived here together in Octr last, and with slight intermissions has lived with me ever since— I am however entre nous much disappointed. He can give me no information in Botany or any other science— and his Collection of Books though [*expensive?*] is very badly selected— His seeds ditto I have however nevertheless reaped considerable advantage, although not to the extent I looked forward to.— He is however a good hearted young man, but very ignorant of the world.— He now lives with me & I find him a companion suited to join in my Natural History pursuits— He adds a few shells of V.D.L. & some Insects, the combined labour of Mr W. E. Lawrence, my youngsters and himself,— and I think many more may be expected.—

[*Crossing on first page.*]

Your Letter of Introduction by Dr Logan was forwarded to me by that Gentleman from Sydney through Alexr Mc Leay Esq. Colonial Secretary there— I have not therefore seen him. I shall write you more fully by the vessel that takes the Case of Birds and I merely communicate thus hastily to enable you to insure it in England should you consider it worth while.—

I hope my boxes by the Janet reached you safe— they contain a considerable number not previously sent.— Mr Short has rambled a great deal about the Country as he is turning his attention to nothing but Collecting but without having discovered many new Plants not already forwarded by me to you— He is decidedly more in the Entomological way than any other, as of Plants in general he is positively more ignorant than myself.

Our united labours will however I hope do some good to you— I shall at all events do my best— I should like some of the spare Bird skins sent to Mr Swainson or any other eminent Ornithologist who you are acquainted with and who might assist me in Books or authorize my drawing for small amounts for other matters wanted from England & not to be procured here— Powder & shot alone are almost ruinous.— I am also very anxious for the names of the Birds as early as possible,— but which I suppose your Son can at once give me.—

I shall write you frequently I hope with my collections during the next two months, and also hoping soon to hear from you—

This letter was landed at Brighton on 20th June, 1836, and reached Glasgow two days later.

William Swainson, who has been mentioned in a previous letter, was an English zoologist, and no doubt some of Gunn's specimens reached him through Hooker. He apparently made no acknowledgment nor rewarded Gunn in any way for them, though, as a later letter suggests, he sold some of them to other zoologists. Gunn's Striped Bandicoot, *Perameles gunni* Gray, 1838, was no doubt named in honour of its collector. Swainson's own name is perpetuated in the native species *Antechinus swainsonii* (Waterhouse). Swainson's Pouched Mouse.

He was also interested in botany and Governor Latrobe of Victoria appointed him to make a report, published in 1853, on the timber of that colony, mainly eucalypts and casuarinas. He presumably applied zoological distinctions to botanical species, for he made 1530 species or varieties of eucalypts, 201 pines, and 213 species of casuarinas. He died in New Zealand in 1855.

Gunn's news of Mr. Short's activities is followed by a letter from that gentleman himself.

LETTER 165.

Launceston
1836

My dear Sir

It is with great pleasure that it is now in my power to send you a few specimens of natural history they are few in number but perhaps they may be acceptable as some of them may be new. In looking over the list of Insects No 4 is the only one that possesses anything peculiar & that is the strong scent it produce when crushed. I have some spirits of wine that they were collected in that still possesses a most powerfull scent & the bottle has been uncorked the last six weeks. I shall be able I hope to send you more another time as I possess no more Duplicates tho previously I collected 98 species, which is much in comparison with the number the colon possess but non of them are remarkable for beauty. I have yet only had one vissit to the sea coast for the purpos of collecting Conchological specimens at which time I collected 44 species but I found that I had only duplicates of about 16 which I have sent you & will send more when I am able to get them which will be soon as I am going to Flinders Island immediately. No 9 is a beautiful shell & very difficult to get perfect although I was fortunate in getting as perfect as those I send you. Nos. 16. 17. 18. 19. 20, all from the River Mersey salt water. 43 is the shell the natives make their necklaces off, they string them & then emerse in a oil they procure from the Penguin & then hold them in damp grass over the fire to steam them by this process they remove the Eperdermis As regards plants these [are?] placed with those Gunn sends you (which by the by he has not sent you in this lot but will follow) I let him place them with his on condition that if anything new he places my name to it so you may know, of which I am very tenacious. I shall go down to Emu bay for the purpos of Collecting the Gunnea australis which I hope to have the honour of bringing to England, with me as well as all the other varieties of Orchidae of which I have got a great quantity which I hope will be before many months if I do not get the situation of Botanist at Sydney, which Bourk refuses to give me, though I hope I shall not be refused at home as I have powerful interest particularly with the Tory interest. I am sure you will be pleased with the Birds Gunn has sent you they are the best lot of skins I ever saw you must bear in mind that I have nothing to do with them further than add to the collection a few specimens he had not but I shall be able to replace them I hope, as I let you have the only specimen that I possessed. I have sent a box of skins to

Professor Ronnel of London for the purpos of getting their names & getting as many friends (scientific) as I can. I have also sent a collection of dried plants to the Linnaean society but I do not think they will be of much use to them as they possess them Dr Lindley has behaved in a most ungentlemanly manner to Gunn who has sent him two good collections of plants and in return has not even condecended to acknowledge the receipt of them, nor sent books nor anything else. it is just the same way he treated me except that he honoured me with a very scurrilous letter which I never did nor will answer Mr Gunn is anxious that you should send some of your specimens to Swainson for the purpos of naming them. I do not know weather he has mentioned it in his letter but he has to me several times, as I and Gunn keep the same numbers in all our pursuits, it makes it much better as your letter & numbers agree with all the collections that I send to England. Gunn has got a very good correspondant at the Cape Barron — Ludwick (or some such name) who has sent a collection of 300 seeds to him. the cape bulbs flourish in a most surprising manner we have the ixias 3 & 5 ft high with spikes of flowers on them 14 inches long. I shall attempt to bring home the Grasstree & the Tree fern if it is possible to be done with care and attention I hope to manage. We are much in want of rains the crops have suffered much, but are now mostly cut, & housed: the weather is dreadfully hot the thermometer has been 110 in the shade from the hot winds.

[Crossing first page.]

I am fear full that I shall be under the necessity of returning to England earlier than I anticipated as I have received the melloncholy intelligence of the death of a beloved brother who died in Batavia from which circumstance I expect my father will summons me home before I complete my collection as I should wish. I have written to the Linnaean society for the purpos of becoming a member and as it is requisite that some 2 or 3 fellows should sign the certificate I have taken the Liberty of mentioning your name as one who I think would do it. I have other friend who will do it but I prefer your name to others as it is my intention to devote the whole of my life for the future to scientific researches and I shall if I live perhaps have the presumption to become a candidate for a professores chair; by this you will see that I am not lacking in ambition. since I began this letter to you a friend has sent me a lot of Insects which I have enclosed more than I intended but I would have sent more if I could have got cork, for the box as it is I find I can get nothing but New Zealand pine and it is as hard as oak wood,

if you would send Gunn and I some pieces of cork we could manage it better as it is I shall wait & bring them with me when I return home, I must beg of your son to reserve any duplicates of insects or shells as I intend to make as large a collection as I possibly can I am particularly fond of conchology & have got a fine collection of shells I must apologise for this letter which I would have written anew after I recd the supply of insects but I had not time as the vessel is to clear out tomorrow I have not time those insects marked in the list with red ink are the last I received, they are from Lawrance, who is making a collection of them for you now if you could send Gunn [and?] I a box like the one you sent Lawrence we could collect a great number of insects as it is I have only cork for my own boxes. I must conclude with regards to Mrs Hooker, your family & self

Hoping the box will arrive safe

I remain Dear Sir

yours

Thomas Keir Short.

Gunn's next letter went in the "John Dennistoun" with the animal and bird specimens. It seems probable that the Striped Bandicoot that bears Gunn's name was sent at this time.

LETTER []

Launceston, Van Diemen's Land.

5th February, 1836.

My dear Sir,

I have this day shipped on board of the ship "John Dennistoun" bound to London a Case of Specimens in Natural History to your address— I have enclosed Bill of Lading to John Ker Esq. London, to whose care the case is inscribed.— The John Dennistoun sails tomorrow from Launceston, and will most probably be out of the River in a week, so that I hope they will reach you safe and soon— the case is lined with tin and I have taken every precaution by packing every specimen in paper and wool between, to prevent any from rubbing or getting otherwise injured— Lots of camphor and spirits of Turpentine have also been put in the box so that I think they will be found perfectly free from insects— As some of the specimens of birds, lizards, &c. are small, and already jammed in all corners I would recommend much caution in the unpacking, also to prevent the number being lost, or torn off, I put in the box

a List of every specimen, its sex, when shot, &c also some sheets of Remarks on the habits of the birds, the colour of their eyes, legs, &c and any other particulars that I have been able to pick up, but which my present employment and town residence is very unfavourable to.— Of the specimens of animals I had not time to say anything, but will do so by my next box— some Reptiles, a few Birds from New Holland, also some Insects and Shells from Mr Short are added— The case is a good size— but you must judge for yourself when you see it.— I also have written a long letter which is attached to the notes,— and to which I more particularly refer you.—

Mr Short continues to live with me, but starts in about a fortnight for New Zealand— he will be there about five weeks, and return in the same vessel to Launceston— It is a bad season to collect plants in flower, but he may obtain a few specimens in fruit— and some of the seeds may be desirable— His favourite pursuit however appears to be conchology, in which he may be more successful at New Zealand

I have been much delayed from various causes in getting my Plants ready for you, but do not think I shall be many weeks late.— It will be a large lot.—

The plate 3396 of the Botanical Mag. "*Plagianthus sidoides*" is my No. 452— and you may not be aware that both 452 and my 173 are dioecious, a strange circumstance in Malvaceae— the anthers of one sex being quite barren — In my last box I believe I sent specimens of one sex only of 542 but this season I procured the other and will forward them to you as also a new species from near Campbell Town.— There are many other notes I shall send you with the Plants, but in the meantime keep this letter for the Birds—

In the box are 333 skins of V.D.L. Birds of 75 species— 19 skins of Birds obtained from New Holland not skinned by self.— 11 Animals— 2 Snakes, 2 Guanans, 3 lizards, 1 Bat, 2 Sea Hedge hogs (a fish)— 1 frog— which I believe is all— saving and except Shorts addition.— I shall be anxious to hear from you at all times and more particularly with the names— and any Books — As the mail P. John Dennistoun closes in half an hour I must hastily conclude.

N.B. The colour of the Iris of No. 17 — Blue winged Parroquet — is dark brown to black — I had not before noted it.— A case or two of wide mouthed bottles, with glass stoppers, or Corks would be useful for snakes, fish, &c if you wish for any — or some other person may R.C.G.

Written sideways as a note at the head of the first page are these notes in Hooker's hand—

Sent in Jun 1836/Nos. 7-11 of Comp. to Bot.

Mag./Brit. Fl. ed.3/Cryptog. Parts 1 & 2 / Conpend. ed Hook./Plates 1-44 of Ic. Pl Rai. Lithogr/Sir W. J. and son/ Soc. for promot. of Useful Knowledge— Thomas's Chemistry/

452. *Plagianthus sidoides* Hook.
 173. *P. pulchellus* (Bonpl.) A. Gray.
 542. *Frenela australis* R.Br. ex Endl., i.e., *Callitris oblonga* Rich.—the Native Cypress. His new species was possibly *C. tasmanica*—the Oyster Bay Pine.

The letter was landed at Dover on 13th July, 1836, and arrived in Scotland two days later.

The list of birds and animals mentioned is not in the file. Hooker no doubt sent it with the specimens to the ornithologists and zoologists who examined them.

Gunn's next letter, though written from Launceston, bears a new address, denoting his appointment as Police Magistrate to Circular Head. Written at the head is—

My present address is / Ronald C Gunn Esq./ Police Magistrate/Circular Head, V.D.L.

LETTER 182.

Launceston, Van Diemen's Land
 2nd September 1836

My dear Sir,

Three of your letters have recently come to hand as also the Box of Books which I hasten to acknowledge and tender you my sincere thanks for.—

I am now on a hurried visit to Launceston for two or three days and have been unable either to look over the Books or carefully peruse your letters— but shall do so immediately after my return to Circular Head— the bustle attendant on my removal from Launceston, and getting settled at Circular Head has prevented me

writing you earlier or forwarding the collection of Plants I have now got nearly ready for you— Short purposes returning to England in about six weeks and I shall avail myself of his going to send you I hope all my Collections to the present time.—Mr. Short has just returned from New Zealand where however his Collections have been in my opinion inconsiderable— He is very indolent as a collector and always begs or purchases in preference.— He has been living much with me & now goes down to Circular Head where I have had his books.— He is really supremely ignorant, vain & conceited and although we agree very well together, I must say that I have seldom met with a young man who has seen so much of the world and benefited so little by his experiences. He has been extravagant out here and I am now obliged to procure him the funds (about £150) to go to England or otherwise he would have been a dead weight & no assistance to me.— I must also caution you in receiving all his Botanical & Nat. Hist. information as also that relating to these Colonies in general cum gran salis — He is not particular in matters of fact— Indeed his indulgence in the marvellous, &c &c has prevented his acquiring many true friends out here— I have been enabled to sift out some of his better qualities, and by making allowance for all the rest, manage him well, but others have failed — indeed Short has in many points reason to be thankful that he became known to me — as I hardly know what he would otherwise have done.— all this is for your own information and I only conceived it necessary to inform you upon these points lest you might be induced to publish some of Mr Short's statements, which although some may be pretty correct, the probability is that at least one half would be wrong— Do not however make these opinions of mine known to him as it can do him no good.—

I have already informed you that I have been appointed Police Magte to the North Western part of V.D.L. including the Hampshire & Surrey Hills, Emu Bay, Circular Head & Cape Grim [*Inserted above in another hand (a glorious country, W.J.H.)*].— and I think I shall be able to send you a few novelties— I have already seen two new Acacias, a new Billiardiera— & some others.—

I shall write you fully by the oppty Mr Short goes Home by— and until then must crave your patience.—

I am in a bustle getting matters in order for my return and will prove an excuse for this hasty note—

[*He closes and adds*].—

Dr Lindley's explanation has been most satisfactory and I shall write him fully by first oppty.

On his leaving Launceston Gunn was presented with a snuff box with this inscription on it—

“Presented to R. C. Gunn Esq. by his friends in the Northern Division of the island of V.D. Land, as a token of their regard and esteem, as also to mark their sense of his obliging and upright conduct as Superintendent of Convicts at Launceston”.

The next letter, from Jorgen Jorgenson, acquaints Sir William Jackson Hooker of the departure of the island's governor, Colonel Arthur.

LETTER 203.

Hobarton, Van Diemen's Land
28 October 1836.

Sir,

I seize this opportunity, our present Lieutenant Governor Colonel Arthur leaving this Colony after a reign of nearly thirteen years, to write to you. I wrote about two years since to you, and one subsequently, but have not been favoured with any replies.— I however heard from Mr Gunn that you had not altogether forgotten me. I had the heart-felt satisfaction of observing in some of our public journals that your Sovereign has bestowed on you those honors which you so justly merit. Nothing could afford me greater gratification than receiving some few lines from you ere the grave closes either upon you or me.— Colonel Arthur will deliver this letter or rather the parcel containing it to Mr Thomas Chisholme Anstey, a young gentleman of the most splendid qualities, now studying the law in London.— He is the son of Mr Thomas Anstey of this Colony, a very wealthy gentleman, and large proprietor of land.— He is a member of the Legislative Council— a Magistrate— Coroner— and Director of the Derwent Bank.— To me, since my stay in this Colony, he has been a steady friend and patron. I shall request Mr J. C. Anstey to enclose my letter to you under cover, and should be happy through him to hear from you.—

As our Governor is about leaving us I shall endeavour to furnish you with some outlines of this gentleman's character and career.— Colonel Arthur's administration merits particular attention, and the Statesman may derive a lesson from contemplating on the amazing progress the Colony has made through the perseverance and prudence of a single man.— The genius of Colonel Arthur's government is not developed at a hasty glance, but should we proceed onwards and gradually we shall have room for cool reflection, and that reflection will lead us on till we find ourselves astonished at what a single individual can achieve, who is highly gifted, and endowed with courage, patience, and equanimity of temper.— All these we have found in Colonel Arthur, and each succeeding year has in a higher degree unfolded the powers of his mind.— Now that he is on the eve of quitting our shores for ever there is a sort of gloom hanging over us which is not easily described.

The Colonists have come forward in a most extraordinary manner, in numberless addresses, to express their sense of Colonel Arthur's merit and services. Independent of which the large sum of £1500 has been raised by subscription for a service of plate to His Excellency.—

What I have here stated is merely a simple tribute I cannot help offering to the memory of a gentleman who may in the justest sense be styled the founder of the Colony, whether we consider the vast improvements made during his administration — general education, and prison discipline.—

I could write a great deal more, but as I am uncertain whether you take any interest in matters of this kind, or whether my communications are well received, I shall conclude with subscribing myself your

most obedient Servant
and sincere welwisher
J Jorgenson.

Sir William Jackson Hooker.

Mr. T. C. Anstey, through whom the letter reached Sir William, was the son of Mr. Thomas Anstey, owner of the Anstey Barton estate near Oatlands, in the Tasmanian Midlands. Thomas Anstey senior had befriended Jorgenson after he had left the Van Diemen's Land Company's service, and obtained for him the post of constable for the Oatlands district. Here Jorgenson was in charge of roving bands that tried to maintain order between the blacks and the white settlers.

Although, since Arthur was its bearer, it was diplomatic to speak well of him in the letter, Jorgenson evidently had a high opinion of the ex-governor. In the second part of his "Fragment of an Autobiography", published in Eliston's (formerly Ross's) "Hobart Town Almanack" for 1836, he devotes a section to a description of the departure of Colonel Arthur, "His Excellency's Lady and their interesting family of twelve children", praising Arthur and belittling his enemies. Jorgenson shrewdly observes that these enemies that at first fawned on the new governor, Sir John Franklin, were soon in a faction against him, too.

Gunn's next three letters, all sent by different vessels, in November, 1836, advise of the early despatch of another box of plant specimens. In the first, marked private, he gives Hooker his present opinion of Mr. Short's character; in the second and third, following advice from Launceston, his opinion of Short, who was returning to England with Gunn's assistance, has worsened considerably.

LETTER 180.

PRIVATE

Circular Head 10th Novr 1836.

My dear Sir,

I have at last got my plants ready— but have been quite unable to get them P. Guiana— but they will leave by the first vessel from Launceston in Decemr— The new Nos amount to above 150.— and some good specimens of the older numbers.— As a collection altogether it is good.—

Mr T. K. Short proceeds to England in the Guiana, and has done little good in these Colonies.— He spent all the means he possessed in the most foolish manner, and would have become a burden on me had I not shipped him off— As he had not the means— I procured him the loan of £200, becoming security for its repayment, for which he has given a draft on his father and which I hoped he will see duly honoured.— Mr Short appeared utterly devoid of application — to make money or earn a livelihood appeared to him impracticable— and all

he aimed at was notoriety as a great Naturalist & Traveller His collections he always purchased where possible, and all his other information he principally gleaned from me by copying my various memoranda on Birds & Plants— But even with that assistance so little research does he himself possess that I would recommend much caution in your publishing or acting upon information received from him.— His ignorance can only be equalled by his vanity and assumption of knowledge— or I might say impudence.— He did not ascend one Hill or mountain in V.D.L. and has not seen nine tenths of our most common and beautiful plants although accessible.— His New Zealand collection is far from good— His insects are the collection principally of Mr. Lawrence's son— His Birds sent Home were all from me— & the few he now takes done by my servant.— His neglect of Truth however in the commonest matters is his greatest failing and one which has lost him the good opinion of many who would otherwise have been his friends— although I must so far say that he draws the long-bow almost entirely in the attempts to magnify his exertions, knowledge, & discoveries— and in the attempts to make himself a great man.—

I have now given you his bad points— which a long residence under my roof enabled me to see continually— and I must now say something on the other side.—

In the first place down to the present moment we never had a difference and many acts of mutual kindness passed between us—I believe him to be much & sincerely attached to me— and indeed he ought to be— He has a goodness of heart which compensated for much, and would have made him a pleasing companion had not his vanity led him astray— He never willingly said or did anything to annoy me — and therefore I feel every wish to benefit him— and sincerely wish him well— but as I do not believe you knew him so well as I now do I consider it only an act of Justice to you to inform you on the many points in the early part of this letter— and although to me your introduction carried its full weight— I think when you again have an opportunity of seeing him you will be able so to question him as to convince [*yourself?*] that my opinion is a true one.—

This I wish to be strictly confidential— and that you will only take advantage indirectly of the information it contains in as far as you may find it to be correct— with Mr Short I still desire to be friendly & correspond — but my knowledge of his character will always enable me to make the necessary allowances and deductions

[After closing he adds]—

My box will contain longer letter on the Plants & other matters

My address now is R. C. Gunn

Police Magistrate

Circular Head V.D.L.

According to postmarks, the letter was landed at Gravesend as an "India Letter" and reached Glasgow on 24th April, 1837.

LETTER 30.

Circular Head 16th Novemr 1836.

My dear Sir,

I at last sit down to inform you that I have forwarded by the V.D.L. Company's vessel to Launn. a box containing dried specimens of Plants, which I hope may be in time to go by the "Guiana" to London, which vessel was to sail about this time.— The Collection is considerable, and contains about 150 new Numbers,— I am however now in an interesting field, and the vegetation is in many points new to me— I hope by next season to add considerably to my list— but my promises have really so frequently been broken that I shall not hastily make more. The time occupied in arranging and comparing my specimens, collected in many different situations, occupies considerable time — and Mr Short's residence with me until October last — my removal here, & other causes have delayed me far beyond what I could have imagined— and some of the specimens suffered considerably from damp— I can only hope when you do receive them you will not be disappointed.

I wrote you hastily from Launceston on 1st Sept. last but shall now reply to your highly valued letters of 12 Oct 1835 and Jany 1836 more at length.— Your Present of Books I can hardly thank you enough for— they are really invaluable, — and I hope you do not overrate my slender assistance.— However I must now reply to your letters in due order— Your disposal of Short's Seeds I think the best that could be [*made?*] and I only deeply regret that the Willows which I value so much were entirely dead— Immediately on their arrival at Hobart Town my brother got the Supt. of the Govt. Garden to unpack and examine them, but did not find a sign of vegetation in them. It is really quite disheartening.— Your remarks on the Sympiesometer and Camera lucida are satisfactory and I do not wish to procure either now as I do not think they would answer the

purpose for which I wanted them.— Your commands relative to my putting the Remarks on seperate pieces of Paper alongside of the specimens I have this season attended to, but my utter ignorance of Botany beyond what I recently acquired, renders me unable to do that justice in them which I could have done had I known Botany previous to my arrival in the Colony— but better a bad collector than none— and I am aware you will pardon, or laugh at, as the case may be, any blunder my extreme ignorance may have caused me to make.— Indeed I feel convinced the more every day of my inability to communicate my thoughts in language sufficiently plain and explicit.—

I am not aware whether Backhouse made a large collection at Norfolk Island or not.— I think it probable he did — as he is indefatigable in collecting— although specimens are very frequently few and small of a species. I believe there is little else to reply to particularly.—

I sent you a case of Bird Skins by the "John Dennistoun" to London in February 1836, and I hope they have reached you safe, as I took considerable pains and in some cases spared no expense to get them well done & as various as possible, and I packed them myself as carefully as I could.— I shall be much grieved if any mischance has befallen them.— I have got a good lot more for you, and a number of other species to add to the 70 already sent,— and although I will not promise, I intend that they shall follow the box now sent in a very few months.— At Circular Head I have also turned shell collector, and it is probable I shall be able to send you 70 to 100 species of Van Diemen's Land Shells at the same time as the Birds.— Could not Swainson be made to assist in furnishing me with books? — I shall send you enough for yourself and to spare and I have thought that Swainson both in the Zoological & Conchological Departments might be made to cooperate — I do not feel satisfied at drawing incessantly on your Pocket and would like to levy contributions on others, yet I wish that it should come through you, and that your Sons, should they so feel inclined, might have an opportunity of describing and publishing any new species which I may be fortunate enough to send Home, — but more on that subject when I send them.

Having broken the chain of my Nos to Lindley by not forwarding him any new Nos. in 1835 — I do not think I shall again resume my correspondence with him— I have therefore sent you all my collections for the two last seasons, and shall leave it to you to give such portion to Dr Lindley, or any other Botanist as you can spare and as you can get a fair equivalent for— My collections to you will soon become valuable & I trust to make them more so if nothing

comes in the way to prevent my collecting.— I am glad you are soon about to publish as you may otherwise be anticipated by others in the naming of Plants which ought to be from you— and I presume that is at all times considered desirable.— as showing you to be the first describer.— I wish you every success— and the time may come when I shall have an opportunity of saying so face to face— and enjoy at the same time the great treat of looking over your immense herbarium.—

To the remarks with each specimen I refer you for any further particulars— My new Nos. are principally from George Town and Hobart Town— Those from Hobart Town made during a hurried visit I paid that Town in Novr & could only devote one day to ascending Mt Wellington & adding a few I collected on the road side.— From Dr Milligan of Hampshire Hills are some fine specimens.—

At Circular Head I find a considerable number of plants that I had not before seen growing — having received my specimens from Backhouse & Dr Milligan— At Woolnorth I have also seen two or three and anticipate some more— indeed I could hardly be placed in a situation better suited for collecting— as all the seaside plants were previously inaccessible to me or nearly so— My only want will be a mountain of which there are none near.— My Police District is about 100 miles long— if I went by land— extending from Cape Grim to Emu Bay, & from thence including the Hampshire & Surrey Hills, — but extensive as it is on the map I am happy to say the duties are almost a sinecure — and as compared to the situation I left, entirely so.— At Launceston I have frequently tried upwards of 30 eases in a day— here I have had only 18 in six months— and I take matters in most other points as easily as possible. Mr E. Curr, the prinl. Agent of the V.D.L. Co. & writer of a book on V.D.L., is the manager and resides here— We are on excellent terms— and being allowed a Horse by the Govt., when I want one, I ride a little in diff. directions — a Schooner belonging to the Company also enables me to visit Woolnorth easily & frequently,— so that I am not precisely tied to the Peninsula of Circular Head.— About Deer I intend visiting the Hampshire & Surrey Hills.—

Colonel Arthur has at last left the Govt. of V.D.L. and not generally regretted, although the Colony has certainly under his charge attained an almost unexampled degree of prosperity.— To Science he was unfavourable, and less is known of the Nat Hist of V.D.L. in it —than in England.— Many of our animals and Birds will become extinct or nearly so yet no attempt

at a Museum, Botanical or Zoological Gardens has been made.— Ground here is valueless comparatively speaking— & Convict labour far from dear yet an immense Govt. Garden and Domain with Supt & labourers were always employed growing cabbages, carrots, & such like for the Governor's table & Horses— not that that could be precisely objected to, but a few pounds employed in collecting Emus, the different species of Kangaroo, Wombat, &c., would have been no great matter, & their food, being grass alone, no expense would have been incurred beyond fencing in a piece of ground.— Emus are now extremely rare— and in a few years will be quite gone, and no means has been taken in the Colony to domesticate or breed them.—Kangaroo have been killed in tens of thousands for the sake of their skins, & persons may live in V.D.L. for months without seeing one— I hope Sir John Franklin will alter matters a little. In New South Wales things are managed otherwise.—

I have little more to add to this long letter— there is little news here that can interest you.— My intention of settling on the South Coast of New Holland is for the present postponed — a settlement has however been formed at Port Phillip from V.D.L. by a number of Gentn. & at least 30,000 sheep are over there.— A Commandant & Military have been sent from Sydney to keep order, but it is sure to thrive astonishingly fast from the knowledge of the Settlers, with the Colonial management, their wealth & its vicinity to V.D.L.— More than can be said I am afraid for King Georges Sound or Spencer's Gulf— however they have got a fine country & climate —

My List of Wants must now begin— and I only hope that you will charge me with such portion as you think above the value of my remittances but I hope the Birds &c. will enable you to make others contribute as I feel reluctant to draw so much on you.—

- 1st. Noveau Dictionaire des Sciences Naturelle— which you say can be got at £18.18/- by all means
- 2nd. Botanical Journal. I never received but the first No of this Periodical from you and will feel obliged for the others.—
- 3rd. Companion to Magne. — All Nos except 3. 4. 5 & 6.
- 4th. Arnotts Elements of Physies.— In your letter, but not in my box.— still wanted — You say it is with my Brother— And he may have omitted to send it.—
- 5th. Vol 15, Linnaean Transactions Pages 170 to 331— containing an aect. of Australian

Birds— much desired— as also an article in vol. 14. P. 430 (or thereabouts) contg. an acct. of their structure.— I have seen the former in the possession of a Gentleman here, and I covet it much.—

6th. Illustrated introduction to Lamarcks Conchology — by E. A. Crouch.— This I would like to possess as also some of Swainsons works on Zoology— however, should you find the latter too expensive, perhaps when my next Zoological Box arrives, you may be able to drive a bargain with him for some Books.— Shells are abundant at Circular Head and as my walks take me constantly over the beaches I should like to possess a slight knowledge of Conchology— & its species— I possess Mawe's Introduction— good in its ways but not sufficient.

7th. Part 8 of Bentham's Labiatae — I received the first seven Parts from the author.—

8th Lindleys "Orchideae" except Parts 1, 2, 3, 4 which I recd. from the author.—

9th. The British Cyclopaedia, by C. F. Partington, Division Natural history— 2 copies.— One of these I wish to give Dr Milligan,— I have given him a copy of Loudon's Enc. of Plants— received from Dr Lindley, & all the other duplicates I possess, but which amount to a few — as my whole stock is from you.—

I must now I think close my list of wants— I requested Mr Short to send me the Botanical Magne New Series — in return for what I may send him, but although promised, I do not depend much on his performance.—

Any other stray Books you think useful you can send — and I shall be happy to remit the value and indeed in some cases an extra copy would be useful as enabling me to make a profitable exchange with Collectors,—

I wrote you on 1st Septr. from Launn. & on 10th Novemr from Circular Head— the latter entirely relative to Mr Short.— That Gentleman you will most probably have seen before this reaches you and my letters were principally cautions lest you might publish from Mr Short's information, which in nine cases out of ten would be incorrect upon all points— he draws hasty conclusions from isolated facts— and I do not think any person ever left V.D.L. with less correct information & more prejudice— On Natural History he can say nothing— Plants he never collected except within a mile of Launn in my Garden & a few at Circular Head.—

He never ascended a mountain of any kind,— or slept one night in the open air, as all collectors must very often do— and in our climate without inconvenience.— Shells—Mr Short picked up a few at Circular Head, but upwards of one half were received from others— as from his plethoric & full habit he could not stoop! — this in a young man of 22! — Birds he made a miserable fist of— and all he sent Home were from me — those he now takes were his own shooting & done by my servant, but the number does not exceed 12! — Insects I have told you about.— He now talks of writing a work on V.D.L.— a work on New Zealand— & one on Conchology.— I hope his better judgement will prevail when he gets Home.— and, as before stated, even his notes & memoranda would not be valuable from their incorrectness on most points— to a Bookmaker.— I sincerely wish him well— but unless he changes he will make a sad fool of himself— and unless possessed of much money — will spend more than his income.— These remarks may prove useful to you and it will not be essential that Short should be aware of your reasons for not publishing from his notes— as I have every reason to believe that he wishes you to do so.— I hope in my so freely discussing this matter you will not attribute it to private malicious or jealous feelings— For a long time after I saw Mr S's character I hesitated in expressing my opinion to you and thought that you would soon be able to judge for yourself— but since then — notwithstanding the ill opinion you might form of me in attempting to prejudice you against a friend, I felt that I was only acting conscientiously, & doing as I would wish to be done to, to caution you, leaving it to yourself to act or not upon the limits given— So ends Mr Short, with whom, as already stated on 10 Novr I intend to correspond, but will be more in the way of exchange of goods than of ideas.—

I have little now to add— I hope soon to send you another box of something— and I think it probable that in two months it will be on its way— I am collecting Plants largely & have almost as many drying as are now sent— so you may look forward to more work—

[He adds]—

P.S. Add to my list of wants— Illustrations of American Ornithology by Captn Brown Cold. plates.— being Companion to the letter press in Constables Miscellany. I possess the letter press, but want the plates.— I also want Paper to dry Plants in if you can conveniently send me any of the thick Grey absorbing kind similar to some you sent me before.

Pardon errors as I have been obliged to write this letter hastily—

The letters alluded to 1st September, 1835, from Launceston, and 10th November, from Circular Head, are not in the file. That of 1st September, however, probably contained much the same matter as that of 25th September, which would go in a different vessel. Presumably Gunn had visited Circular Head in November to take a look around before accepting the new appointment. At the time he had evidently been contemplating leaving the government service to seek his fortune at the new settlement of Port Phillip, just founded by Batman and Fawkner and their parties, and had made a brief visit there from Circular Head in 1835. Gunn, in his letters, always referred to the mainland of Australia as New Holland, which was indeed its official British title until the colonies were granted self government in the eighteen-fifties. The name Australia, however, suggested by Flinders in 1802, was already in general current usage.

His Circular Head appointment at a salary of £300 gave Gunn a great opportunity for adding to his botanical specimens, and plenty of leisure for collecting, a respite from the hard work and worries of his Launceston home and office. Colonel Arthur had not encouraged the study of Natural History, and Gunn obviously did not regret his departure.

LETTER 169.

Circular Head, V.D. Land
20th November 1836

My dear Sir,

I have now shipped a Case of dried specimens to Launceston, to go by the first vessel to London and addressed it to the care of Mr David Maclean, Lobby, Custom House, London, to whom I have written enclosing a Bill of Lading, to be filled up by my agent in Launceston and I need hardly add I hope it will reach you safe and in good order.— The New Nos extend from 617 to 772— not including Cryptogameae— but the duplicates of my old Nos are very numerous and in many cases good.— A few from the South Coast of New Holland are put in, but are far from interesting & with very few exceptions similar to species in V.D.L. indeed I was astonished to see the similarity although if we bear

in mind that the diffee of Latt. between Cape Otway (one of the points visited) & C. Head being only about two degrees, no great difference could be expected.

I have just received letters from Launceston and mentioning Mr Short's departure for England — I regret to add that his conduct on leaving the Colony was very bad — He has left a number of his accounts unpaid — and attempted to pay off one of £30 by giving an order on me — but which was not taken— Indeed, some of his transactions, as reported in various letters to me, from different persons, amount to acts of swindling — and I therefore feel not a little anxious that I shall have to lose the sum of £172.10/- advanced to him by Messrs Willis Keogh & Co through our friend Mr Thomas Scott, upon my guarantee, & for which Mr Short gave a Bill on his Father's Agents Messrs Goodwin & Lee, London.— This will be in addition to Cash lent him by myself, but for which I care little, although my young family will suffer a little— I will under these circumstances feel obliged by your writing to his Father, and induce him to honour the Bill, or should it be dishonoured previous to receipt of this, that he may as early as possible, remit the amount & expenses —

From Mr Short's conduct throughout in this matter and which he has kept from me. I have the greatest fear that his principles are bad— and I am sorry that an individual so undeserving should have been able to procure letters from you which led to his introduction into the best V.D.L. society— and which his present conduct has so deeply disgraced.— I wrote you as fully on this subject in some of my letters as I thought myself justified in— but I now feel more than ordinarily annoyed at having my great kindness and greater hospitality abused and imposed on.

After Mr Short's Cash transactions are settled, if ever, my correspondence with him will cease, — and I may now safely recommend that yours should also.— I shall feel very anxious to hear from you upon this subject— a loss of about £200 with my limited means & large family — will be no joke — and prove not a little embarrassing.—

The letter was landed at Falmouth and was in Glasgow on 28th June, 1837.

The letter with the plants despatched by the "Guiana" (if it arrived) is not in the file. Gunn's next letter, a long one, was written some four months later, after he

had spent a few days with Dr. Milligan, collecting plants and other natural history specimens at the Hampshire Hills and adjoining country. It contains, as well, the news of the death of his wife in Dublin, and a little more autobiographical information.

At the end of the letter he "devotes a separate sheet to Mr. Short", giving a resumé of that pseudo-naturalist's sojourn and misdemeanours in Van Diemen's Land.

LETTER 33.

Circular Head, Van Diemen's Land
31st March 1837.

My dear Sir,

Your much esteemed letters of 24th June, 15th & 29th July, have all come to hand, as also the Box of Books P. Elizabeth, a few days ago— and I need not tell you how delighted I was— I must however proceed to reply to such parts of your letters I think require it and then proceed to detail my own doings.—

To one so young in the pursuit of Nat. History your praise is most gratifying, and indeed incites me to go on — that my dried plants should please so veteran a Botanist as yourself is more than I could reasonably have expected— and now that you praise my Birds I hardly know what to think— unless it is that you lean with a kindly eye to a beginner— if they please it is all that I desire.— Your hopes of Mr Short's collection at New Zealand will I am afraid not be realised— His whole collection including Cryptogamia amounted to about 50 species & many of these very bad.— Insects about 12 to 20 species & all these I believe bought.— Indeed by money alone did Mr Short collect— & I regret to say it will prove to be by mine — but more about him hereafter.—

Your Remarks about Swainson are I doubt not correct, & my only view in suggesting him as a person who would take off some of the spare Bird Skins arise from advertisements in his Naturalists Guide.— I care little however if they please you and your son.—

On the Books I can say little — beyond most cordially thanking you for your liberality— I only sincerely hope you are keeping within bounds.— On No 7 of the Companion to the Bot. Mag. you desire me to return it should I have two copies, but you have not previously sent it— so I have retained it.— I still want Nos 1 & 2 which you did not send in the first Box.— With the specimens of the Plates for

your new work I am much pleased — they are very correct except *Correa Backhousiana* — the flowers of which are pendulous & not erect.— They have been rubbed upwards in drying by the Gentn. who sent them to me from Woolnorth — you will however receive plenty of my fine specimens in a Box I lately despatched, but by what vessel it went I do not know.— I now endeavour to dry my specimens as much as possible like nature— and prevent their shrivelling up as much as I can before submitting them to pressure.— I must not make any reply to your letters without expressing my added obligations to you for your kind intention of mentioning my name to our new Governor Sir John Franklin — I have not yet seen him— but hope to do so in a few weeks, about which time I purpose visiting Hobart Town— the Colonists are as yet delighted with him and I think there is little doubt but a man of his character will please.—

I have now packed an immense chest of sundries in the Natural History line— of which I annex a full list of contents.— A Pair of V.D. Land Emus, a bird now almost extinct, obliged my having it made 5 feet long— & of course larger than would otherwise have been deemed essential.— Of the Birds, Animals, fish &c I can say little,— they are as various as the opportunities I possessed of collecting would allow, & as good as my limited means and skill would allow.— I hope they may give satisfaction.— In a separate Box inside I have packed up for you a collection of Shells, & various marine matters, part of my Circular Head labours— the Shells are about as good as can be got from this Colony— Few however possess any remarkable beauty.— Mr. Short informed me that Miss Hooker was fond of shells, should such be the case I only hope she will accept of those now sent, and that I may have the pleasure of adding her as another of my correspondents in your family— as I wish to possess the names of the shells also. Do not be afraid that I shall neglect your favourite Botany— Birds, Shells, &c are useful in the winter when the plants are not in flower— but in Summer — Plants— plants— plants only.— My Botanical Collection for the last six months has been immense — it far surpasses in quantity & quality— although perhaps not in variety— that of any other season— or I may say two, yet I have left much undone.— I am now arranging them as fast as I can, but do not expect to get them off for a few months after this— There will be many novelties— but it is impossible to enumerate them.— I may however say that there are two additional species of *Drosera* — neither of which I had before seen.— A new *Stackhousia*, small, with yellow flowers from Woolnorth— another *Hovea*— a *Calys-*

tegia (probably *reniformis*)— plenty of *Comesperma calymega* ? and others of which I can give you no idea in Myrtaceae, and Compositae, &c.— In Orchideae I have also got some new & beautiful species, indeed I think of two or more additional Genera.— *Gunnia australis* I find abundant within four to five miles of Circular Head parasitic on the *Aster Argophyllus Pomaderris apetalae*, & 219.— I did not discover it until late in the season, & found few in flower.— My collection however as a whole will illustrate a great number of my older Nos. of which I never obtained very good specimens, & I have also now collected many myself for the first time, having received my only specimens from Mr Backhouse, Dr Milligan or others.— I visited the Hampshire & Surrey Hills in Feby, and, considering the limited means I had of transporting a large package of undried plants to Circular Head, I did pretty well.— I exhausted Dr Milligans scant supply of Paper— but the season was in many respects too far advanced.— I must pay it another visit earlier next season as I am not satisfied altogether yet— Dr Milligans arduous duties as Surgeon Superintendent over the V.D.L. Company's Establishment at the Hampshire and Surrey Hills allow him but little time to devote to Botany— as formerly he had only his duties as Surgeon to perform.— The Hampshire Hills are from 1200 to 1500 feet above the level of the sea— and most of the plants in the neighbourhood I have been accustomed to see on the sides of the mountains near Launceston.— My rambles extended as far as Middlesex Plains over the Black Bluff which must be upwards of 4000 feet high— here many new Plants delighted me— but I can hardly, even now, with patience record that my servant lost my whole collection from that locality, and I discovered my loss too late to be able to replace it.— During my whole Botanical life of 5 years I certainly met with no loss that annoyed me so much.— I shall be able to muster one or two specimens however of each species (or nearly so) which Dr Milligan fortunately collected for himself & kept in his pocket.— From Rocky Cape I have collected beautiful specimens of *Xanthorrhoea Australis*? of Backhouse in flower and fruit— *Blandfordia* in flower and fruit— *Banksia serrata* ? (aemula of Backhouse) & many similar things.— Woolnorth, alias Cape Grim has also added a few — and many I now have for the first time got specimens in fruit.— Altogether, I am quite pleased with myself this season, and when you receive them which I hope will be in due course of events, that you will be delighted too.—

To a Mrs John Grant Smith you are indebted for a collection of Algae herewith sent— She is a very estimable fellow resident of mine at

Circular Head, where her husband is storekeeper, and to her I am under the greatest obligations for her great attention in changing my large collections of Plants when in paper drying during my repeated absences to Woolnorth, to the Hampshire Hills and else where, and without her my collection would have been far less, & a great proportion of those collected would have been spoiled.— Her collection of Sea-Weeds are very prettily dried, and if they are not as choice & various as you could have wished, you must blame me & not her, for being unable to direct.— Three fourths of the Shells are also of her collecting.— Mr. Smith by the bye is a Glasgow Gent. — A nephew of Mrs Anne Grant of Laggan, Authoress of Letters from the Mountains, Roy's wife, &c & also nephew to Mrs. Dr. Wardlaw of Glasgow.

I forgot to mention earlier that Mrs Gunn died at Dublin on 25th June 1836, leaving me a widower with five children at the age of 28.— She was the daughter of a brother officer of my Fathers— and we were companions in the West Indies— Both our Fathers having died at Antigua. I married her — love our only portion— I only 18 years of age and she 19.— Notwithstanding many difficulties I was very happy, never repented, & until a few years ago had no complaint— she then unaccountably to me, and I believe to herself, became so fondly attached to the bottle that all other considerations were forgot.— My misery was almost complete— my ruin hung by a thread,— when I fortunately got her Home to her friends, and at the early age of 29 she fell a victim— her constitution, originally very strong, completely overpowered.— It has in many points made an old man of me.—

With Alexr. Macleay Esq. of Sydney I was not personally acquainted,— My Brother knew him,— and through Mr Backhouse I intended opening a correspondence with him at the time I heard he had left or was about to leave New South Wales.— He has a daughter married to a son of Major afterwards Lt. Col. Ronald Campbell of the 72nd. regt. after whom I was named.—

I have very little more to add— I send you notes on almost every species of Bird, Mammal, or Shell sent— they are it is true very hastily written; and without that previous study which is essential to correctness of style, or elegance in writing— but it is out of my power to do anything like justice to the various subjects,— Most of my assertions will I think however be found to be true, and, should need be, you can clothe my facts in your own language— Terms will I doubt not be often

found misapplied but to a novice like myself, ignorant of all Scientific terms, such must be expected.—

If not too late, I must I am afraid request you to countermand my order for Books.— Should Mr. Short's Bill be dishonoured, as I but too much feel will be the case, it will take all my spare means, and indeed I fear some serious sacrifices, to pay it— as it is but too probable other claims on me may be pressed at the same time— It cannot now be helped.—

I also will feel obliged by your returning me the Cartridge Paper I send with the specimens, or some other as the price here is most exorbitant— A little good thick grey paper to dry specimens in would also be acceptable.—

Hoping to hear from you as frequently as your other more important duties and correspondence will allow, believe me to be

[*He adds*]—

P.S. As my Brother might sometimes wish to avail himself of the opportunity of your sending out a box of Books, &c, of writing to me, I will be obliged by our letting him know sometime previous.— He is not one of the most regular correspondents in the world.

I think it as well to devote a separate sheet to Mr Short— it is a pity to mix so very unpleasant a business with everything that is delightful.— From time to time circumstances transpired which led me, reluctantly at first, to caution you relative to believing or publishing statements received from Mr S. beyond this I had little reason to find fault— His introduction to me by you stamped him as being Mr Short of Martin and respectable and I was also aware of his having brought out letters to other respectable individuals— he came out as a Cabin Passenger— And in looking over his things I found him possessed of a most expensive, though ill assorted, collection of Books, instruments, &c which must have cost even in England two or three hundred Pounds.— Choice wines, also, part as he said of his sea-stock.— However ignorant he might be, he had the manner of being rich, spoke largely, & his statements were so far borne out by his equipment.— On first asking his views — he replied “They are entirely in pursuit of Natural History & at the end of twelve months or so to return Home.—” Unfortunately for me he deposited his Books in my house — I was afraid to lose the use of them, & finding that he was living at a ruinous rate at an Hotel— that is at about £500 a year — I invited him to join me in my humble fare & I would make him up a bed—

as I was then recently separated from my wife.— This was in the latter Part of 1835. From that period until his departure for England, with the exception of his short visit to New Zealand— my house was his Home and my friends were his friends— through me he was introduced to almost every respectable person in the Northern Division of V.D.L. & at Mr Lawrence's, as elsewhere, he had a general invitation.— His boorish and uncouth manners were tolerated on my account, and I endeavoured to make every apology for his evidently neglected education. However I need not enlarge on my kindness to him— it was unremitting— I am said to be naturally good & easy tempered, cheerful, & warm hearted— and so far Mr Short had full benefit of them.—

Sometime before his departure I had become fairly tired of him— He kept my servant incessantly attending on him — and my house in a litter— His funds were exhausted, and although I believed in his statement that large remittances might be expected daily, I but too plainly saw from his want of energy & application that ruin alone could attend him in this Colony— He wished to return home and upon his statements of his wealth & that of his relatives I promised to finance him the means,— upon which he promised to pay full interest.— This brings me to Oct. 1836. At this time he owed me for money advanced beyond what I possessed of his in my hands, £25— and he had had Board, Lodging, Attendance, Wine, Spirits &c for Nothing.— I need not add to this various Nat. Hist. Productions— I accordingly gave him a letter of credit on my friend Mr Thomas Scott for £125 with Interest, but Mr Short afterwards found this too small, and Mr Scott acting upon my recommendation as there was no time for reference, took his Bill on Messrs. Godwin & Lee of London for £178.18.10 stg.— All this I would still have believed well enough had he not at the very eve of his departure swindled an immense number of Individuals— even down to his washerwoman— His acts of swindling were carried on systematically leaving no doubt that he was an adept at the business. To many he gave orders on me— making as it were bad worse.— Yet you will hardly believe that he concludes a letter to me whilst under weigh on board— “by wishing me every happiness & fortune I can wish myself in this world.” — However he might have acted towards others I at least thought myself safe — he knew my circumstances— that I had five young children— that I was deeply in debt from the habits of my wife— he had experienced my kindness for months— and in all things was more a brother than otherwise.—

He left with me some Books, subject to his future disposal, such as the Flora Londonensis, Latham's Birds, Gmelin's Syst. Nat. — & two or three others— none of much value to me & still less to any other person in V.D.L.— During his residence he also made me presents of some Books, but like the others there were few useful, and none valuable or but what I could have done well without— They would indeed not amount to more than a return for Bird skins &c I gave him (at one time 120) — I do not complain on this point. I did originally intend to charge him for his Board & share of House Expenses & told him so— but at his departure my better nature prevailed over Pounds Shillings & Pence.— I have now summed up all— Of his character I need say little— of his conduct in V.D.L. still less— he has become a proverb & I am fairly ashamed to hear the name coupled as it always is with a sneer "Your friend Short."—

I now really wish you to write to his relatives to endeavour to induce them to Pay me the amount of £204 with or without Interest & Expenses of Bill.— Interest is here 15 P. Cent paid half yearly— He mentioned his uncle the Revd. William Heth, Elksley, Nottinghamshire as being his principal friend, & that he was to be his heir.— I am aware how severe the misconduct of a son must be on a father who has other children to support but it falls heavier on me who has not even the tie of blood to bind me to him— and I but too much fear had I not found him the means of leaving the Colony his longer stay would have ended in a serious way—

I do not believe Mr Shorts principles will ever allow him to do well— and I can only regret I am but too likely to be a sufferer — for myself I care little but for my young children much.—

His new *Stackhousia* was probably *S. flava* Hook.f. 219 was not traced. *Banksia serrata* (*aemula* of Backhouse) was *B. serrata* Linn.f., the only stand of which in Tasmania grows in the Rocky Cape-Sisters Hills area. *B. aemula* R.Br is a N.S.W. and Queensland species.

Also enclosed with the letter were these two short notes—

LETTER 32.

My friend Dr Joseph Milligan of the Hampshire Hills, who has from time to time supplied me with many specimens of Plants from his District is in want of the undermentioned books, and as from his remote residence he did not know how to procure them from Home, I undertook, in return for his attention in the plant line to apply for them through you,— knowing that you would be able most probably to obtain them a little under the usual retail price— an object to a poor devil out here— on moderate income— If you will be kind enough to do so and send me out the Invoice I shall immediately remit the money— as really I know of no other way of going to work.—

- | | | |
|----|--|---|
| 1 | Bentham's Deontology by Dr Bowring— 2 vols
8 vo. | |
| 2 | On the Horse & Treatise
on draught | } [<i>In Hooker's hand
is added</i>]
By Soey. for
diffusn. of
useful knowledge |
| 3 | British Cattle— | |
| 4 | Practical Geomy.. Lin-
ear Perspective & Pro-
jection, &c by T. Brad-
ley ——— | |
| 5 | Paley, illustrated by Brougham, 3 vols Cloth | |
| 6 | Smith's Wealth of Nations by Macculloch— | |
| 7 | Loudon's Ency. of Agriculture | |
| 8 | Edinr. Cabinet Library, first 14 vols— 5/ ea | |
| 9 | Arnott's Elements of Physies vol. 2nd. | |
| 10 | Lardner's Cabinet Cycl. Hist. of United States.
2 vols. | |
| 11 | Do ---- Roman Empire by Simonds
— 2 vols. | |
| 12 | Do ---- Hist. of England— the 3rd
& 4th vols. | |

Dr Milligan wishes the Books to be either half-bound or bound in cloth.

LETTER 31.

I send you a small collection of Algae picked up at Circular Head for which I am indebted to a Mrs Smith, a much esteemed friend.— I was unable to inform her in what way they were best preserved, but she has as it were naturally dried them so beautifully that I think she could hardly improve— she previously soaked them for a night or so in fresh water— The variety at Circular Head is not very great, at least to my inexperienced eyes, as our beaches are sandy— during the approaching winter however it is probable Mrs Smith will add considerably to the number now sent— and I shall be glad to hear from you that they prove acceptable.— I am always glad to get any assistance in collecting for you—

I am aware of no peculiarities in habit which deserve noting— Some of what I suppose to be Corallines are very beautiful—

Ronald C. Gunn

1 May 1837

Letter 33 and its enclosures probably went with the box of specimens sent in June by the "Crusader" from Launceston; it bears no postal marks or address. Across the head is written this postscript — "Please forward the Box for Miss Peacock — it is from Mrs. Smith & only contains some trifling Nat. History productions."

Gunn's pair of Emus reached the British Museum and were preserved in the Museum of Natural History. According to Matthew's Birds of Australia, Vol. I, these two skins and one at the Frankfurt Museum, Germany, were the only in existence of this unique Tasmanian bird, which is presumed to have become extinct about 1850. The Tasmanian Emu (*Dromaius diemenensis* Le Soeuf 1907) was a distinct species from the Australian Emu, being shorter in the legs and with a white patch under the throat. It was described and named by Le Soeuf from the British Museum specimens. Advice from both the British Museum and the Frankfurt Museum recently received reports that they are no longer in existence, probably being destroyed by bombing during the last war.

The following brief letter may also have been enclosed in the box of specimens which left Launceston in June. The outside of the sheet does not bear any postal endorsement to indicate it was sent by post, and it was before the days of envelopes. It records what no doubt was to be a most important day in Gunn's life, his first meeting with the new governor at Hobart Town.

The advent of Sir John Franklin as Governor of Van Diemen's Land meant much for the advancement of science in the colony: it meant, too, the much desired official encouragement for his botanising that Gunn found wanting in Arthur.

Both Sir John and Lady Franklin were keenly interested in scientific enquiry, the gifted and intrepid Lady Jane a devoted student of natural history, perhaps even more so than her famous explorer husband. To dine and converse with them must have given extraordinary pleasure to Ronald Gunn, starved for years of such sympathetic and intellectual companionship.

LETTER []

Launceston 19th June 1837.

My dear Sir,

I have just returned from a visit to Hobart Town.— I was much pleased with Sir John & Lady Franklin with whom I had the pleasure of dining at Govt. House.— He did not mention having heard of me from you, and of course I said nothing on the subject.— With Capt. Maconochie R.N. late Professor of Geography, London University & his Lady I was also much delighted— the latter appears very fond of Botany,— and knew me by name from Dr. Lindley.—

A letter of yours dated 3d. Jany. 1835, enclosing the Plate of *Ranunculus Gunnianus*, and the published acct. of the first part of the V.D.L. Plants duly arrived by post via Sydney— the day before yesterday— that is 2½ years after date.— Of course the contents are too old to require much comment. I hope to send you a very large and fine Collection of Plants by an early opportunity.—

Mr. Backhouse is again here.— He is going to send you a most valuable Collection of New Holland Plants immediately— with notes— which I am sure will be invaluable— as I know of no one who could give you so good an account of the Flora of these Colonies—

His large Norfolk Island Collection — and also those collected in various parts of New South Wales he sent to Mr. Robert Brown through Mr. Alexr. Macleay, the Coll. Secy. Sydney — but he gave them with directions that you should have access to them for reference, &c.—

I can add little more.— I shall continue to send you as much as I can of everything.— Believe me— in haste

[On the letter Hooker has noted]—

Sent to Mr. Gunn May 30th 1838./ 1. Paper of different sizes/ 2. One American Press./ 3 Books./ Mr. Lyells. Dante/ Edinburgh

Almanack. / / British Flora Ed. 4. / Naturalists Library / Penny Cyclopaedia. / / Icones Plantarum pts. 3.4. / [Tuskeys Zain or Longs?]/[Franklin Coppermine series ?]/ 4. Four parcels for Mr. Robertson./

Charles Lyell of Kinnordy, Forfarshire, 1767—1849, father of Sir Charles Lyell, the geologist, translated *Vita Nuova & Comito* of Dante and this is probably the book sent to Gunn. The Penny Cyclopaedia 1833-1846 was edited by George Long 1800—1879, who edited the *Bibliotheca Classica* from 1851—58. The *Icones Plantarum Rariorum* was published by Longman and Rees at 15 - a part. Part 1 contained among other things — “Gunnianae; from Van Diemen’s Land *Corraea Bachousiana*, Hook. tab.2. *C. ferrunginea*, Backh. tab. 3.” that is, it was used to publish the names and descriptions of plants newly discovered by collectors. A zain was a dark horse without markings and a Luther Tucker 1802-1873 wrote works on farming. The Mr. Robertson would be the Lawrence’s agent at Formosa.

Backhouse was paying his last visit to V.D.L. and would soon be returning home.

Captain Alex Maconochie, who with his wife also charmed Gunn, was Sir John’s Private Secretary. He held advanced views on the more humane treatment of convicts that disagreed with those of the Governor and he subsequently lost his position. Later Machonochie was made Commandant of the Penal Settlement on Norfolk Island, where he attempted to put his theories into practice.

Sir John Franklin was already acquainted with Hooker. Among the letters in the file is one from Sir John written a year before his appointment to Van Diemen’s Land.

21 Bedford Place Russell Square
2nd. July 1835

My Dear Sir,

Lady Franklin was informed the day or two since that there is a Steam vessel preparing at Greenock which is to visit Iceland — This information has made us desirous of following your example and taking a peep at the interesting spot. It has occurred to me that you being near Greenock can furnish us with every par-

ticular relative to this vessel and especially as to the time of its starting and the places she will touch at, and I am sure I may rely on your doing us this favour, if it be in your power — We are going over to Guernsey next week to see my little girl who is with one of my sisters -- but shall be quite ready to make our way to Greenock if we find the steam vessel is to start early — I presume she will not sail later than the first week in August —

We have been staying a few days with Richardson at Chatham and I was glad to find he had nearly arrived at the close of the Printing his Fishes— I was very sorry to learn from him the interruption you had suffered in your work by the failure of your publishers — I trust however that it is only temporary —

Lady Franklin begs to join with me in kind regards to Mrs. Hooker— We think of visiting Scotland this summer whether the Iceland trip can be executed or not — and my wife is particularly desirous of going to the Orkneys & Shetland— We shall afterwards go to our friends Colnl. Grant at [] Castle — and to some other friends — I shall be obliged by your answer to me under cover to Sir John Barrow Admty— addressed to Bedford Place and I will leave directions for it to be forwarded to Guernsey if we should have sailed

Believe me

My dear Sir

Most [truly?] yours

John Franklin

Dr. Hooker
Professor of Botany
Glasgow

Hooker must have felt in some degree responsible for inflicting Mr. Short on Gunn, and Gunn had given him plenty of reminders of Short’s deficiencies. He would get an even more forcible reminder when he received this letter from London, and Gunn’s next letter home confirms the bad news.

LETTER 179.

COPY.

London June 9th 1837

Sir,

Our Partners at Launceston Messrs Willis Keogh & Coy advanced the sum of £172.10. to Mr Thos K. Short upon his draft on Messrs Godwin & Lee, which has been dishonoured. We find that our friends have taken the security of parties to whom Mr Short took out letters of

introduction: but if this Bill has to be returned to them they will have to pay it with £30 per cent expenses & re-exchange.

We shall feel obliged by your informing us whether there is any prospect of Mr Short's being able to pay this money, we have written to him, but received no reply. We make this application at the request of Mr Thos Scott of Launceston who is one of Mr Short's securities in consequence of your introduction either to himself or Mr Gunn.

We are Sir, Your mt Obt Sert

Willis Jackson & Coy.

Sir W. J. Hooker

LETTER 170.

Circular Head, V.D.L.

25 September 1837.

My dear Sir,

My worst fears relative to Mr. T. K. Short's bill have been realized, and I have just been called upon to pay it with expenses— thus—

Amount of Bill dishonoured	£172	10	0
25. P. Cent reexchange	43	2	6
Postage	0	5	0
Brokerage 1 Per cent	1	14	6
Protests	0	13	6
	£218	5	6

Amounting to £218.5.6— and I need hardly tell you that with my large family and slender means it has pressed most severely and ruinously.— I think I mentioned to you the circumstances which led to my acting so foolish a part as risk such a sum upon Mr Short— but in reality my authority to Mr Thos Scott of Launceston was to advance £125 for two years to Mr Short upon interest, taking his personal security & that I should see it duly paid — but on Mr Short's going to Launceston— he found it was not a sum large enough— & doubtless having other designs— induced Mr Scott to advance £150 Cash taking his Bill on Messrs Godwin & Lee, Bishopgate Street, London for that amount with premium added amounting to £172. 10/- No reference could be made to me, as communication with Circular Head only occurs once a month & Mr. Short was accordingly on his way to England before I could disapprove of the alteration in my original intentions.— Of Course Messrs Godwin & Lee had no funds, & I suppose never had. Besides the amount of this Bill & expenses Mr Short owes me £25 for Cash lent him previous to his

quitting my house, and I do not charge him in any way for Board, Lodging, & many etcetras for the many months he had with me— In fact the amount of £218.5.6 & £25— besides 17/3 & other smaller amounts since paid his washer-woman & others are a loss without any return and I reaped no advantage directly or indirectly by my generosity— and which Mr Short himself will acknowledge.—

Not having heard from Mr Short himself since his arrival in England, I have been obliged to sell at the lowest prices all the Books he left with me, & I have also sold the few articles he gave me as presents from time to time, (although usually he received equivalents) to cover the smaller sums for which he drew on me and meet the incidental expenses caused by the protesting of his Bill— and which the whole does not cover.—

Mr. Thomas Scott as indorser of the Bill holds it & I believe intends immediately prosecuting Mr Short for the amount— but as I suppose he has not the means, I would feel obliged by your requesting his Father to do so— It is unjust towards him I allow— but he is his son and it is probable he will have the means of stopping it from any property or money which would otherwise be left to him— More particularly if his uncle the Revd. Wm Heth is the man of wealth he always represented him to be— & that he was to be his heir.—

There is only one thing more I can say— which is— that during my whole life I never knew so gross an instance of ingratitude for unceasing kindness & my introductions gave him the means at the last of swindling to a large amount many deserving persons, & had he been apprehended, his transportation would have been certain— as I now hold evidence enough to convict him at any time— I hope however age may work his cure but I am much afraid after his conduct to me above all men— that he is hopelessly lost.—

I sent you in June from Launn a large Box of Bird skins, Shells, and sundries too tedious to enumerate P. Crusader to London — freight free — and which I hope will reach you safe & give satisfaction, I am now arranging an immense collection of Plants collected last year in this District It will contain upwards of 100 new species— and duplicates of a great many of the numbers of which you only recd bad specimens some years ago— Of Orchidea it will be very rich— but I must not say too much.— Send me back all the Cartridge Paper you can— & also other kinds to dry the Plants in.—

Your two letters of 5th May by Mr. Todd & the Revd Mr Lillie have reached me, but the parcel has not yet come to hand.— My residence

at C.H. prevents my seeing either gentleman, but my first visit to Hobart Town will I hope give me the oppty of making their acquaintance.— My brother is one of the two Elders of Mr Lillie's Church so that they are likely soon to be intimate. My Brother & family are at present absent on a visit to Sydney N.S.W.— & I must say I should like to visit the far famed Botany Bay—

The letter was sent by the ship "Dawson" which landed the letter at Falmouth. Sir W. J. Hooker L.L.D. is addressed as Regius Professor of Botany N.B.

The Rev. John Lillie (misspelt Lilley in a later letter) was born in Scotland and, at the age of 30, came to Hobart Town to take charge of St. Andrews Presbyterian Church. "A man of rare eloquence and power", his interest in science and literature was instrumental in instilling into Tasmanian society a desire for higher things than the mere accumulation of wealth. He was one of the foundation members of the Tasmanian Society and also of the Royal Society of Tasmania, of which he was Honorary Secretary from 1845-48. He left Tasmania for New Zealand in 1858 and died there in 1866.

Ronald Gunn's brother William was at the time Police Magistrate at Hobart Town. Although he and Ronald were always on the best of terms, William never seems to have taken any interest in Natural History, nor did he belong to any of the Scientific Societies founded at the time.

The next letter in the series introduces a new Van Diemen's Land correspondent for Sir William Hooker, John George Robertson, manager of W. E. Lawrence's Formosa estate, following Robert Lawrence's death. (The four parcels from Hooker for Mr. Robertson, mentioned in a previous letter, would be for him).

Robertson was born in Glasgow in 1803 and arrived in Van Diemen's Land in 1831. In 1841 he left Tasmania and settled on the Glenelg River near Portland in Southern

Victoria, and founded the Wando Vale estate, still in the possession of his descendants. There he collected many plants, which were forwarded to Hooker mainly through Ronald Gunn (who also visited Robertson in later years at Wando Vale.) J. H. Maiden lists him among his Victorian Botanists ("The Victorian Naturalist", Nov. 1908) and says that just before coming to Van Diemen's Land he had been naturalist and botanist of an Indian Expedition. Robertson certainly regarded himself as a botanist and Maiden quotes him as saying, "With the exception of the late Mr. Robert Lawrence, Mr. Ronald Gunn and our much respected ex-governor, Mr. Latrobe, [Mr. C. J. Latrobe, first governor of Victoria] I never met any individual resident who knew anything more about Australian plants than myself". He died in Scotland in 1862.

From the appearance of this letter, however, his schooling must have been neglected. His spelling is peculiar. He seems to be using a phonetic alphabet of his very own, but whether he writes "the" as "thu" or "ther" or "thir" it is difficult to determine. His "to" is usually "t—" but the dash is sometimes a small arc almost an "o". His writing is laboured; he seems to have pressed heavily on his quill. Whatever his claims as a Naturalist later, in 1837 he was still in the beginner class, at least in the field of entomology, with which his letter mainly deals. Pins were one of his problems.

LETTER 272.

Formosa 29 Deer. 1837

[written in another hand]—(Tasmania)

Dear Sir,

From thu time I have taken t — writ you aftur thu receipt of your Kind lettur and present of Starks Elements of Natural History you must be thinking I am but a luke warm correspondent— but after thu receipt of your lettur I had to get boxes but first of all wood from Launceston that required neerly 1 muntth I had then thu boxes t— make that I had t—make

[on?] a wat day, you omitted to send your Agent name in London that I had to send t—Circular Head fur, from R. Gunn, and after all was arranged I had than t—wate a Ship sailing living as I do 26 miles from Launceston— and having no aquenton thur, that I can trouble with my littule affares you must not be surprisid at thu long time spent in me sending thing t—you fur I am not more than 2 or 3 time in town in the Year.

I could find no authu sort of Pill Boxes than thu sort sent you and whu I am t—pack Moths & Buttufys within it is more than I know, I have made the attempt with some Moths their was one thing you omitted in your direction t—me about packing in Pill boxes which I was at a lose t—know what to do, that was whether I was t—put pin through them that were t—be pack in that way, this you might think was not worth your notice at thu time but with me was most essential, I find it be far thu easiest way fur me t—colect thu insect with pin— you are aware that my dutys to my imployur require me close moving from one place t a nother on thu farm and I in gennule carry a few pin with me and when I get a insect I put it in my hat with thu pin and at night thu Hat is empteied into a box, I have carried boxes, and bottels with spirits, but I find thu pin thu readeast way fur me— it is but very selden indeed I can spare time t—Hunt exclusively fur insect, but on such accation I will make it a point to do as you desire shuld thu pin be objectionable— Thu is one thin I knu that thu pin I hav used are very objectionably but I do assure you that thur is no authu sort of pin to be bought in Launceston fur thu last 2 years I have employed a body to keep a look out fur small pins without success— they are eathu t—short or t—longe and thu small short one I only found one paper off lately

I was very sorry t—hear that thu last box I sent you that they had brocken case, but I have often experienced thu same missfortune with Snding insects when I celected them in thu present celection I have taken evu care I could t—prevent accident and shuld thu break loose in one box they will not spoil all, but I only hope they will arrive safe. In thu celectun sent at present I think you will find about 16 or 17 new specem that was not sent you in my first celection I have not numbered them for I expect to send you a nithu latur nexed atumn and will then be able t—send thu same sort with number & perhaps by that time I will heer from you— I do not know of above 47 more specem of insect in thu colony that I have not sent you, I have found but 3 new speciem this season and 2 of them were very small, thu is a endless number of small insects that you might have if you can put me in the way t— celect them

I have commenced colectin Spiders for your Friend and hav inclued a few in the box in phiel with spirits of wine and whiskey I have not yet been able to obtain wide mouth phiels fur large ones so hav been unable t—celect largely

I have had a Box that was sent to Mr. Lawrence by your Father t—fill with Insects I helped t—fill at once and a Mr Short who was hear colecting got thum all he has agane sent it to me and it is now full and will be sent by thu first opportunity to town, thur was 8 or 9 speciem in it which Mr Short got that I nevu had, got by a young man a friend of Mr Lawrence whu at thu time was riding about thu cuntry and had a great oppurtuny fur celecting

I have inclosed in thu one of the Bills of Lading a nother I have sent to Mr. David Mac-lane in London thu Box is shiped by the Phildun thue is a lettu in it which I will thank you t—forward t—my Fathu, hoping t—hear from your son

I am Sir

your Obt St

John G. Robertson

The letter sent by the "Phildun" was landed at Penzance on 16th May 1838 and reached Glasgow two days later.

Sir William did not neglect his correspondent. On the letter is this note in Hooker's hand.

Sent to Mr Robertson
through Mr Gunn
May 30th 1838

- 1, Box with Pins & phiels
- 2, Annals of Nat Hist 1-3
3. Browns Edinb. Nat Hist 1-3
4. Naturalists Companion
5. 2 parcels from his friends

Gunn's next letter indicates that his meeting with Sir John and Lady Franklin had had pleasant consequences for him. He had certainly won their trust.

LETTER 34.

Circular Head 15 February 1838.

My dear Sir,

I really forget whether I have acknowledged your letter by Mr Lilley & Mr Tod.— I have as yet seen neither but I received your Box

containing the Geological specimens & some Books, for which as usual I really can hardly thank you sufficiently. The Geological specimens are very valuable to me here.

I sent you P. Crusader in June last an immense Case of Sundries — which I hope arrived safe and gave you satisfaction — it contained odds and ends of all kinds. I have now ready packed a very large case of specimens containing a great number of most interesting plants and at least 150 new numbers — as also a case for Dr Lindley— I am keeping both back for a few weeks until the Orchidæ collected this season are dry, as in that order I have been most successful— and I am sure you will be delighted should it reach you safe.

Sir John & Lady Franklin are sincerely desirous of forwarding the Cause of Natural History in this Colony.— A Nat. Hist. Socy. has been Established and Lady Franklin is about purchasing a piece of ground out of her private income for a Collection of our indigenous Plants — a thing most urgently wanted.— She has authorized me to apply to you for a Gardener to manage it— An operative man who would work & collect himself — He must be of sober habits and of Course in other points of good Moral Character.— To be engaged for 4 years from the date of his arrival in V.D.L. His Salary for the first year to be £40 & to increase 25 a year & a House. His Passage to V.D.L. could be obtained in one of the Free Emigrant Ships. These are the terms I suggested to Lady Franklin & which I thought would enable her to obtain a man well qualified to keep a Garden of some two acres or so entirely devoted to our V.D.L. Plants.— This will come exclusively out of Lady F's pocket, and on her departure she intends handing it over for the good of the Colony.— She is a most amiable & estimable Lady — and has certainly secured my best feelings. I shall proceed to Hobart Town in a few weeks to select what I shall think a suitable spot.

I accompanied Sir John & Lady Franklin last month to Flinders Island to visit the Aboriginal Estab. All the Aborigines of V.D.L. having been removed by the Govt to that spot where they are clothed and fed and receive religious instruction.— The change of Life, and perhaps one or two other causes — of which bad water is the most serious has reduced the number from about 400 to 98 — and the number of children only amounts to 10.— Unless Sir John at an early day adopts some remedial measures (which I believe he intends) the race in another season or two will become extinct ! — They are an interesting race and in my opinion far from so low in the scale of being as many endeavour to

urge. A favourable climate & abundance of food always at command were unfavourable to the development of their minds They neither wanted houses nor clothes — and could always procure a sufficient number of Kangaroos, Opossums or other animals without rambling far.

During the few Hours I was on the Island I made a short excursion to see the Xanthorrhæa — which I had not met with in the Colony— I was much pleased with the picturesque appearance of a plain covered with them.— I picked upon abundant specimens of No 488 (myrtaceæ) in fruit — also a new shrub about 3 feet high in flower in Dilleniaceæ which I had once before seen near George Town some years ago neither in flower or fruit.— The only other novelty is a new plant altogether in fruit which I guessed to be Proteaceæ & may be a Dryandra [It?] was only about 9 inches high. — I shall add some of each in my case now about being closed.—

I heard from Mr T. K. Short — but it was merely informing me that his father had been unable to Pay the Bill — it was in these words. "Dear Gunn, I am sorry that I am obliged to alter the tone of this letter, for on going to Martin I found that things have not gone on as they should have done, and that my father has had some serious losses & was not capable of taking up my bill for £172, so it is returned to V.D.L. but he will be able to let me have the sum in a few months so I will then remit it to you as speedily as possible, all I can now do is borrow the money from Mr T. Scott for one year more & pay the interest & the expenses of a returned bill." His letter was dated London 2d. June 1837. — I have now paid the amount to Mr Thomas Scott, and must [] make up my mind to the loss — it will be dear bought experience, but my good nature will not take any serious warning. I only beg it may not affect our mutual correspondence — if you have failed in your application to his Father, let it go— and I only hope it has given you no annoyance. I value money as little as most men can who have a family — and can only regret some more deserving subject than Mr T. K. Short did not profit by my loss. I shall not occupy more time or Paper on the subject. —

[Crossing begins here.]

Dr Lhotsky has gone Home, or is about starting — be cautious of him. He is I am sorry to say a Black Sheep. He has made no friends in V.D.L. and is a good riddance.— He has pestered me with a few letters and has been very anxious to see me, but I most cautiously avoided him, having heard from the best Authority and all quarters "that he was utterly devoid of good moral principle." — That was

enough — His last letter to me is an application for the most urgent kind for money to enable him to return to his own country. Short & Lhotsky have made Naturalists at a sad discount out here.

Gunn signed and then on the first page wrote across the original

Hope to write you very soon again & report the departure of my Collection of Plants

He again signed but added a postscript

Let the Gardener sign indentures for the 4 yrs. from his arrival, and it would perhaps be as well to bind him to me on behalf of Lady Franklin — or to Himself if it is equally convenient. It is probable that I shall have most to do with him. — A knowledge of the Natural System, to a certain extent at least would be desirable, & to be able to read & write. — You can easily guess the man we want — Sobriety is however of first rate importance in this Colony. —

488. *Kunzia corifolia* Reichb. i.e. *K. ambigua* (Sm.) Druce. The *Dryandra* was possibly *Isopogon ceratophyllus* R.Br.

The letter was landed at Dover and post-marked in Glasgow at 8 a.m. on 15th July, 1838.

The land purchased by Lady Franklin, possibly on Gunn's advice, was the estate called "Ancanthe", at Kangaroo (now Lenah) Valley on New Town Creek, about four miles from the centre of Hobart. On it in 1842 Lady Franklin had built her museum, on classical Greek lines, for housing natural history exhibits of the colony. On the Franklins' departure from Van Diemen's Land the Ancanthe estate was vested in five trustees — Bishop Nixon, Mr. J. E. Bicheno (Colonial Secretary), the Rev. T. J. Ewing (Principal of the Queen's Orphan School New Town), the Rev. J. P. Gell and Mr. R. C. Gunn. Subsequently the estate became the property of the Church of England, and the museum, though still standing, fell into neglect. In recent years the Museum has again become used for cultural activities. The building is now used for art exhibitions.

The land round it too, has been tidied up, and ornamental, though not botanic, gardens, the Franklin Gardens, are being formed there.

The excursion to Flinders Island with the Franklins is commemorated in Hooker's "Journal of Botany", Vol. 2. pp. 399—402. In it Hooker lists further new species "Towards a Flora of Van Diemen's Land, chiefly from the collection of Ronald Gunn, Esq., and the late Mr. Lawrence." Gunn appended notes to the species and Hooker quotes that from No. 893 *Pleurandra asterotricha* Sieb. i.e. *Hibbertia billardieri* F. Muell., the Climbing Guinea Flower.

As this was one of the few plants I was enabled to collect upon Flinders' Island, during my few hours' stay there, I cannot omit the present opportunity of expressing my hearty obligations to Sir John and Lady Franklin, who most kindly invited me to accompany them on their visit to the aboriginal establishment upon that island. Such an opportunity so seldom arrives, and encouragement to scientific pursuits has been of such rare occurrence from influential individuals in this colony, that their attention was more than usually felt. Sir John and Lady Franklin accompanied me upon foot in the evening, to see the Grasstrees (*Xanthorrhoea*), distant about four miles, over a rough and hilly road. It was quite dark before we returned, when a number of aborigines met us with torches made of bark, which lies in quantities upon the ground. In walking along, they picked up fresh pieces, and the light was really excellent the effect most picturesque. The accomplished lady displayed her usual energy, walking most cheerfully over trees and bushes in a manner which astonished and delighted me. Our clothes suffered not a little from the thorny shrubs which beset our path.

Neither Sir John Franklin, nor anyone else, could do much to help the dwindling aboriginal race, now safely isolated on Flinders Island. Venereal disease, rather than bad water, was one of the chief causes of their decline in population and the lack of children. About 200, rather than Gunn's 400, is the usual estimate of their numbers when they were first taken to the island.

The following brief letter to H. B. Fielding, Esq., Stodday Lodge, Lancaster, is taken from the British Museum files.

Circular Head, Van Diemen's Land
21st April 1838.

Dear Sir,

Notwithstanding my promise to send you a Collection of Van Diemen's Land Plants. I have really found it impossible to fulfil my intentions. However that you might not be altogether disappointed I have set by the present conveyance to your address through Dr. Lindley of London a very few plants being in fact merely a specimen of the Botany of this Island.

My inability to comply with your wish to send you plants regularly arises from many causes — among other my occupation as Police Magistrate of a District, my having to collect and dry all my Collections myself — and I find that the leisure hours not devoted to one or other will be fully occupied in arranging those I send to Sir W. Hooker & Dr. Lindley — a labour rendered far greater from my being but a mere novice in Botany. I have been compelled to decline the very valuable correspondence of Mr. Bentham (author of a work on "Labiatae" & others) and other gentlemen from the same causes.

At a further period perhaps when I may have more time to devote to my amusements it is possible I may bear your application in mind & send you a larger Collection — but having already disappointed you, it would be unfair to promise what I may never have the means of fulfilling.

Of the few I send now I must beg your acceptance — they are of too little value to speak about and I regret that I cannot at present do more.

I Remain, Dear Sir,

Yours very truly

Ronald C. Gunn.

H. B. Fielding Esq.

I have attached no names to the specimens, but you can obtain them, if wished, from Sir W. Hooker or Dr. Lindley or as they will be published.

The back of the sheet is endorsed "H. B. Fielding Esq. Stodday Lodge, Lancaster, R. C. Gunn". It is postmarked "India Letter, Devonport" — the port of entry.

Mr. Bentham would be George Bentham, (1800-1884) nephew of the famous Jeremy Bentham, and for a time his secretary.

George Bentham was a very accomplished amateur botanist. His main work was the "Genera Plantarum", (1862-1883) which he produced in collaboration with Joseph Hooker and which superseded Jussieu's classification of plants. He also produced the first complete Flora of Australia (1863-1878) in collaboration with Baron Ferdinand von Mueller, the great German-Australian botanist.

On the same date Gunn wrote a long letter to Sir William, reiterating his request for a gardener for Lady Franklin's garden, and containing a few more memories of his childhood and youth induced by various articles on travel and botany in Hooker's "Botanical Miscellanies". The most famous of the characters whose names Gunn found in the botanical periodicals was David Douglas, a Scotch botanist attached to the Glasgow Botanic Gardens who collected plants in Western U.S.A. and Canada in the eighteen twenties and thirties. He met a tragic end in the Hawaiian Islands in 1834, when he fell into an animal trap dug by the natives. The Douglas Fir (Oregon Pine) *Pseudotsuga douglasii* Carr. i.e. *P. taxifolia* which he discovered is named after him. Thomas Drummond was another Scotch botanist, an authority on mosses, who collected in Western and South-Western U.S.A. about the same time.

The letter's main purpose, however, is to acquaint Hooker of the habitats of the very large assortment of plants he is preparing to send, and to this end is accompanied by a map of the North-Western corner of Tasmania. This map published by the V.D.L. Company shows their extensive estates in North-Western Tasmania. The rivers, creeks and other landmarks of these estates is given in great detail and a firm line marks the 'roads' connecting the various centres of settlement — Circular Head to Emu Bay, Emu Bay to Burleigh, and the stock road across Middlesex Plains towards Deloraine. A pencil note of Gunn's on the map, however,

reads— "The track does not run as marked but actually along the indentations of the Coast immediately above high water — or on the beaches where practicable." Gunn has also crossed out "Copper Ore" printed on the map and substituted "Iron Pyrites". The map is entitled "North West Quarter of Van Diemens Land including Grants of Land belonging to the Van Diemens Land Company." The map was based on surveys made by Henry Hellyer in 1831, and at the bottom right hand corner are the words, "J. Cross Sculpt. 28 Holborn."

LETTER 35.

Circular Head 21 April 1838.

My dear Sir,

Is is about nine months since I commenced arranging my collection for 1837 but as usual it has taken at least twice as long as I expected and is only just completed.— I need hardly mention how many cares tend to retard my labours of arrangement — My official duties to a considerable degree — my absence at Launceston and the other Stations of my District — and lastly the labour of collecting, drying, &c which falls entirely upon my shoulders — You doubtless think it may be indolence— and perhaps that might come in for a share of the blame— but my inclination means well— and I would fain be busy if nothing came in the way.— However this seasons labour is now over, but I have now on hand most of my collection of 1837 — this is collected in that year— of the earlier Natural Orders mentioned— and no despicable lot either— You shall have them in time but you must wait & go on with what I now send you.—

I have resumed my correspondence with Dr. Lindley— it has most materially added to my labour in dividing the specimens so that each might have a fair share in about the same state of flower and fruit, &c. & was no small cause of my delay in completing my boxes.— I wished to have continued sending to you alone leaving to you to distribute, but Dr. Lindley's letter to me was couched in such a style as to admit of no excuse for my further neglect— and indeed strange as it may appear in one who usually prides himself upon being a punctual Correspondent, I actually left Lindley's letters unanswered for two years!!!— I received them just as I was leaving Launceston for Circular Head — that caused one delay— then I intended sending some plants with my letter and finally I

waited until apologies and every thing else were rendered utterly useless and in pure despair I wrote him — a few weeks ago.— If he knew me he would pardon me— if he does not— why I cannot help it.— I must just send him lots of Orchideae and soften him. You and I are now old friends— we can actually afford to quarrel, if need were, and make up friends again— but I trust no such necessity shall ever exist.

I cannot enter into particulars about my Coll. for 1837 without expressing in the warmest terms my obligations to Sir John & Lady Franklin— they at once gave me that encouragement in my pursuits which I so much wanted but which I never obtained from Colonel Arthur — Then, my shortest absences were taken notice of, and made a subject of complaint to the Head of my Department, although the duties were faithfully discharged— My worthy superior however knew me too well to believe that my official matters would be neglected even for Botany— and I therefore escaped many dry rubs kindly intended by His Ex.— who nevertheless availed himself of my labours in begging for seeds.— Sir John and Lady Jane however commenced a new era— and Science in general is receiving that attention which in a Colony so young as this where so much is unknown it deserves.— It is true I have not received one penny in money nor one hours leave of absence to devote to my Botanical and Natural History pursuits— but I have received what I value much more— kindness attention and encouragement.—

I wrote you on 15 Feby. for a Gardener to arrange a small Botanic Garden about to be established by Lady Franklin at her own expense.— This is true love of Science. The Garden is to be made at first only for our indigenous Plants, but I have no doubt it will be the nucleus of a regular Botanical Collection of Plants of the Southern World, and as our climate is pretty cold I hope it may be the means of introducing many plants into Britain which at present are unknown. Lest my former letter should have miscarried I repeat Lady Franklin's wishes. The Gardener must be a sober well behaved man with a fair knowledge of Botany sufficient to arrange Plants, &c. and at the same time an operative man. His Salary will be £40 the first year to increase £5 a year for 4 years which will be the period of his agreement fm the day of his arrival in V.D.L. A House will also be erected for him in or near the Garden but this I do not promise. His passage out to V.D.L. can he obtained in one of the Free Emigrant Ships to these Colonies. Should you be unable to obtain such a man perhaps Dr. Lindley might. Let him be bound by indenture.

I have received no assistance from Dr. Milligan for last season or this so that the whole labour has fallen upon my own hands, except indeed most essential attention from Mrs. Smith in attending to my Plants when necessarily absent & also for a splendid Collection of Orchideae — as well indeed as many other Plants.— She has with her Husband now left Circular Head permanently— and I am again alone. She has enabled me to add another small Collection of algae to those already sent.

I am becoming anxious to hear again from you.— Your Botanical Periodicals interest me much and I feel quite at Home in reading many of Douglas's accounts of his rambles. Sir John Franklin mentioned many interesting anecdotes relative to Mr Drummond to me.

My Brother remembers Capt. Carmichael quite well he was in the Regt. with my father. Telfair lived in Bourbon immediately opposite the House occupied by my Father— he was the Colonial Secretary— In looking over some Botanical Magazines I find Dr Nicholson of Antigua mentioned— I knew him in that Island in 1827— He was then junior partner with another Medical Gent. who died shortly after.— I was last at Antigua in Feby 1829— and have not heard from it since.— I lived there about two years. So much for mutual acquaintances— if I may so call them.—

But to resume — I must refer to the next page for some account of my labours.

You will perceive that my Collection for 1837, (as I have dated it for the sake of reference, although many were collected in 1836 and some in 1838,) far exceeds in extent any of its predecessors.— The New Nos. extend from 773 to 1117, but many of these numbers I have no doubt you will find belong to older collections, but which, on Dr Lindley's account, where doubtful I have renumbered. Cases still arise I doubt not also when two species are sent under one No.— in this case you must quote the year of each as on reference I may probably recollect where I collected each species. To most of them I annex the day on which I collected it — it will guide you as to the season of flowering & reference to the specimen will in many cases indicate whether it was past full flowering, or whether it was only just coming in. I have written Sheets of Remarks on each as usual — I omit none, and every year adds a little to my experience, and in most cases you may take the last as being most probably correct. My memoranda are written in the greatest haste, are full of tautology &c and as I might misapply Botanical terms I usually omit them, so that under all these circumstances should you deem it necessary to give the world any of the information therein contained, I beg

you will revise and correct and clothe them in appropriate language. I have so frequently expressed my utter ignorance of Botany and the want of even the common rudiments which could be obtained from personal tuition that I need not solicit your indulgence to my lame efforts.

My collection has, with only two or three exceptions, been entirely made in the North West portion of V.D.L. and except one excursion to the Hampshire & Surrey Hills (see Map) & as far as Middlesex Plains, my excursions have been limited to the Coast.— I send a Map to which you can better refer to the localities named by me, and which I give thus minutely that should my career be, like poor Lawrence's, suddenly cut off other collectors may know where to find any rare species.— I trust however this contingency may not arise. I am not aware of any other remarks which my collection calls for— in unpacking each sheet should be shaken as little as possible as sometimes spems. from particular localities and varieties are separated on the sheet by some slight arrangement which your eye will easily detect.— In packing, the Nos. are unfortunately reversed, but my memoranda are arranged so that you can begin at the bottom. I am now becoming anxious to know the new or undescribed from the well known plants — It would enable me to discriminate in Collecting, and of many I am even still ignorant of the Genera — Backhouse used to say — Better give a plant a wrong name than none at all, but I am not inclined to follow that principle as I find erroneous names once given most pertinaciously adhere— whereas a plant without a name is ready to receive the true one.— I would really beg a mema. of even the Genera of most of the Plants & those probably new, indicated — it would assist me much.— The names of Ferns you have not yet sent.

Wants.

Mr Shorts kindness has already crippled my exertions as even Botanizing is not done without considerable expense— Men to be hired & tear & wear of clothes, to no small extent.— Indeed Paper, Packing Cases, &c. are a source of expenditure three times as much as they would be in England— but never mind.—

In Books I must leave it much to yourself— the following are however incomplete.

Companion to Bot. Mag. wants Nos. 1.2.13.14. 15. & all after No. 21.—

Icones Plantarum Nos. 3 & 4.

De Candolles Prodromus vol. 5.

If you can afford it but not otherwise send me any of the following.

Botanical Magazine all after vol. 8 tab. 3373
— bound,

Dr Graham's work on the "Diseases of Females"

A Minerological Cabinet with Crystals to match the Geological Cabinet you sent me & which I prize much.

The Botanical Miscellany & Journal. Of the latter I only possess the 1st. No.—

If not very dear I should wish about 10 yards of the lightest waterproof fabric to make a tent for my rambles.— Such as Macintoshes— I see travelling Capes & Cloaks of Fustian made waterproof which I think would do. It must be tough & as light as possible.

You cannot err in sending me Books upon any subject— Botanical Medical, &c. &c. For the latter my Botany has given me a strong taste.

But new general literature & newspapers in a colony like this & in so remote a part of it as Circular Head would prove highly acceptable.— But in this — as in all things— please yourself.

I shall be glad to hear from you as often as you find leisure to write. Believe me

Very sincerely yours
in haste as usual

Ronald C. Gunn

You must send me Paper— I am much in want of it— both to dry Plants & to send them Home in.— Here it is an enormous price.

Also please ascertain for me the price of a pair of large Globes— My children are getting old enough now to use them.

The Habitats mentioned with my Plants you will find on reference to the annexed Map.—

Beginning at the West.

Barren Island — one of the Hunters Isles.

Rabbit Island (called Anchor Island in Map.)

Woolnorth (not Woolworth as printed by you) which includes Cape Grim, & I have been as far South as Studland Bay.

Welcome River. East of Woolnorth.—

I believe these are all the localities named by me.— The whole country is of the most barren kind and it is impossible to describe the general sterility of the Country along the whole Coast from Circular Head to Woolnorth for many

miles inland.— The soil is sand — the Country level consisting of extensive plains usually very wet in winter bearing a dense covering of three to four feet high of shrubs, except where burnt off and small clumps here and there of dwarf Eucalypti— The shrubs are various— but principally consist of *Aotus* (212) *Melaleuca* (682 & 18) two or three species of *Leptospermum*, dwarf *Banksia Australis* 3 to 4 feet high, *Leucopogon ericifolia*.— The smaller plants are various Plants in *Junceae*, *Restiaceae*, &c most unnamed, but hardly a single Grass. These plains are usually denominated **Heathy Plains**, to which indeed they have a striking resemblance, & from which I have reaped my principal harvest of plants.— The Sea Coast plants are particularly noted.

Circular Head Habitats.

1. The Peninsula of Circular Head— the soil is good in general, & as containing my residence has yielded many plants.— Immediately South of the Peninsula there is a belt of Heathy Plains which extend to Woolnorth in the West.— Here I collected many of the Orchideae and most of the plants the soil of which are marked "poor wet sand".— About 8 miles South from my South [house?] a dense almost impenetrable forest commences which yielded me the *Gunnia* & a few others.
2. Black River East from Circular Head, 8 miles.— Soil very various in its neighbourhood— The rich alluvial land yields *Fagus* No 178 *Phebalium Billardieri*, *Tasmania aromatica*, *Anopterus* & a few others.
From the Black River along the Coast I picked a few things, but nothing peculiar.
3. Detention River is near Rocky Cape.—
4. Rocky Cape is an extensive range of Hills I should suppose averaging 4 to 600 feet in height but many much less— The soil is of the most miserable kind being poor coarse quartz sand. In the small hollows between the Hills the ground is full of springs — and so boggy you can hardly walk over with dry feet.— These hollows yield *Drosera binata* in abundance *Drosera* 782 — and some other plants
5. The Sisters, two hills East of Rocky Cape which yielded the *Banksia serrata* Linn.f. & *Lasiopetalum discolor*.

The Hampshire Hill Habitats are best seen on the map going South from Emu Bay.

1. Emu Bay
2. Hampshire Hills 20 miles from Emu Bay.
3. Chilton or the Surrey Hills — 20 miles from H. Hills
4. Burghley also part of Surrey Hills — a deserted station.

From Burghley I followed the road !!! which required a microscopic eye when on it, over the Leven River to May Day Plain, from thence over the Black Bluff to the Vale of Belvoir & on to the Middlesex Plains I penetrated a few miles for two days towards the Forth's Gateway, but was obliged to return.

With these notes and the Map you will not I hope be at a loss to find out where I collected most of my plants.— I have walked or rode but principally the former, from Woolnorth to near the Forth in less than a month — amounting by the track (or indeed many places trackless,) to about 160 miles which doubled as I returned makes 320 miles— with 8 rivers to ford sixteen times — and only fordable at low water— even then dangerous. But look out for another Budget by & bye.

212 *Aotus villosa* Curt i.e. *A. villosa* (Andr). Sm. "While going through the Gunn typescript I discovered that *Aotus ericoides* (Vent.) G. Don must replace *A. villosa* (Andr.) Sm." — Dr. R. Melville

18 *Melaleuca ericaefolia* Sm.

782 *Drosera spathulata* Lab.

178 *Nothofagus cunninghamii* (Hook.) Oerst.

"*Leucopogon ericifolia* is presumably a slip for *L. ericoides* R.Br." — Dr. R. Melville.

This "Budget" went with the specimens. Another letter of the same date went by mail by another vessel reaching Glasgow on 17th October, 1838.

LETTER 171.

Circular Head V.D.L. 21st Apl. 1838.

My dear Sir—

I have great pleasure in mentioning that I have this day closed the lid on a large Case of Dried specimens of Plants which I have been arranging off & on for nearly nine months. I have called it the Collection for 1837 although many specimens were collected in 1836 & 1838 — but as I may send you another lot this year I shall retain 1837 for the present one. My new Nos extend from 773 to 1017, and many are novelties.— To Dr Lindley I have sent a similar Collection, though not precisely so many specimens of each as to you.

No. 896 is I think left out of the case, but it & any others which I find I have omitted; but which I intended to send, I shall either send in Dr Lindley's case, or else in another one to you at an early date.— I have now in my possession a large collection unarranged— but few if any are new species, although a great number are of kinds in particular states of inflorescence or fruit which would be desirable, or of kinds of which imperfect specimens have I think been sent.— Something in fact offers almost every day.

In unpacking the Case commence with the mosses, & sundries which are shoved in to fill up— then the monocotyledones— and so on backwards— as I put them into the Case. Ranunculaceae first — & you must unpack in the other order. My memoranda are very hurriedly written and necessarily full of errors— more however in the style & application of terms than in the facts they contain.— I trust the whole will give you satisfaction. I proceed to Hobart Town in a few days and shall then I hope see Mr Lilly who I have not yet had the pleasure of meeting— and at the same time fix with Lady Franklin on a piece of Ground to purchase for our small Botanic Garden.

I sent you a perfect ark, only of dead things, P. Crusader in June last— I hope it arrived safe. Its size was so great that I got it fortunately Home freight free & hope its carriage to Glasgow did not cost too much — the expenses of such a Collection in this Colony is I can assure you more than you could sell it for in Britain for some birds 6s/ to 8s/- & upwards I sometimes pay if rare & 2s/ to 4s/ is looked upon as nothing. The very cotton is 9d. P. lb.— Camphor 1s/6 p. oz. Arsenic 6s/ P. lb. & so on. Case 30s/- From this you will see that what in this place could be sold for £30 or more is in England not worth one half— However profit is not my object & in mentioning these things it is only to show

that my Collections are not here valueless—indeed I feel so interested now in the Nat Hist. of V.D.L. & that its productions should be known that I care little for small losses.— My children may profit by the exertions of their father after I am gone.— Mr Shorts £250 out of my purse has however most sadly crippled my exertions— & embarrassed me a good deal.— He gave the finishing stroke to what my unfortunate wife had left undone. Tell your young ornithologist that I have obtained some 8 or 10 additional species for him at least— & some interesting ones.— He shall have them by & bye, but in the mean time I hope to hear from him. I saw a specimen of the rare Apterix or Wingless bird of New Zealand the other day.— the owner said £40 would not purchase it.— I should have gone as far as £5— but he was without a conscience. I hope however to pick up one sometime.— I have not sent you duplicates of Shorts New Zealand Plants not being aware whether he had given you the portion he marked & set aside for you;— they were principally ferns.

To my various notes & a long letter in the Case I must refer you for further particulars— Backhouse was at Swan River in Feb 1838 & about to proceed to the Mauritius. I have just found out that I have made an error in the following Nos which please alter on all memoranda & where they occur. Vizt. 1111 to 1117 alter to 1011 to 1017—[They?] are the only 7 Nos. which I remember being wrong. I fortunately was in time to alter them in Lindleys Collection.

[] enclosed the Bill of Lading to Mr David Maclean, London. I found the letter in my portmanteau & now send it.

“Your young ornithologist” was Hooker’s son William, mentioned by name in a subsequent letter. The Apterix or Wingless Bird of New Zealand is the Kiwi, *Apteryx australis*.

A few days delay in the sailing of the Company’s ship from Circular Head enabled Gunn to add another short note.

LETTER 172.

Circular Head 26th April 1838.

My dear Sir,

A Short delay in the departure of the “Edward”, our vessel from C. Hd has enabled me to pack up a Collection of Ferns, Mosses & Liehens for you which I have put into Dr

Lindleys Cases.— Dr Lindley is I believe no Cryptogamist so I have sent him none, but I mentioned that on application he could have a portion from you of those now sent if he desired it— & which I shall feel obliged by your doing. You will be much better able than I to divide them among those persons who pay attention to that branch of Botany. Many of the Mosses & I think you will find different to those already received— The specimens are numerous & some very good. The Liehens are also various. Insects appear to injure them very much here— and unless kept with the greatest care many are utterly destroyed— as has been the case with me every season. Having not only to collect all & every specimen myself and afterwards to change their papers regularly, without any assistance— you will be able to account for my Collections of some plants not being more extensive. If I had only the Collecting to do I should manage very well, but the daily & incessant labour of changing the Papers of heaps of Plants & drying them is more than I sometimes relish. My solitary Servant attends to the Zoological Department, Cooking & keeping my House in order & it would be too much to make him Botanist into the bargain.

A small packet of seeds is also added. Many you are likely to find useful for the Herbarium, & would recommend you looking over the Nos for the purpose.—

I can add nothing else at present— Hoping soon to hear from you—

[The postscript reads]

Do not forget to alter Nos 1111 down to 1117 into 1001 down to 1017 altering the third figure [from the right] into a cipher will do the business.

His solitary servant was probably his “bird skinner”, evidently a very useful man. From this and the following letter it is evident that Gunn was still collecting birds and other animals to send home for classification.

LETTER 36.

Circular Head V.D. Land
31st July 1838.

My dear Sir,

Is it so long since I heard from you that I sometimes think you must have forgotten Van Diemen’s Land and Ronald Gunn— it shall not

however be my fault if your memory is not occasionally refreshed — and for that purpose I have written you pretty regularly & also sent three cases still unacknowledged — vizt. One of Plants P. “Arabian” in Decr. 1836 New Nos. 631 to 772.— One immense Case or rather Ark P. “Crusader” June 1837 — containing Birds, beasts, fish, shells, Algae, &c. — And lastly another immense case of Plants P. “Rhoda” to London in May 1838, which is now on its way — and will I trust arrive safe.— It is the biggest lot I have sent you & contains New Nos. 773 to 1017.— I am indeed sometimes afraid I shall completely overstock you, but it is your own fault, as you ought to cry ‘hold—mercy’.

Your son William will most certainly get into my black books unless he sends me some account of the Birds soon— You can tell him— that I shall hold back a vast number of most interesting species until I hear from him, and I hope it may prove a stimulus. A very clever young medical Gentleman, Dr. J. Grant, in Launceston, is endeavouring to arrange and classify our Birds— in which I am lending my humble assistance— or rather we are trying to find out the names, &c. In Falconidae we have specimens of 10 or 11 ? distinct species, vizt. Falco 3, Buteo 1, Circus 1, Aquila 1, Pandion ? 1, Astur 2, Accipiter 2 ? — Of Strigidae 2. Of Hirundinae 3. (I have been unsuccessful in obtaining more specimens of the beautiful (and rare ?) *Chaetura australis* Of Caprimulgidae 2 and so on.— I have obtained numerous specimens of the little *Malurus gularis* & *Ceyx azurea* as also of *Turdus farina*.

I have been anxious also to hear relative to our shells.— Unless some letter comes soon I fear I shall be away from Circular Head, and thereby be unable to send more should they be found interesting.— Since sending them to you I have thought that a set might be of use to Mr. Lyell or any other Geologist although not suited for a cabinet of shells. It is probable specimens will from time to time be sent home of our fossil shells, and in that case it would be interesting to have a collection of the shells now existing in these seas warranted genuine, as I either picked or saw picked, the whole. In this light I hope they may prove valuable. Of the “Algae” I can say no more. Mrs Smith left Circular Head with her husband, some months ago.

Since sending my last case of Plants I find I left out all the specimens of No. 896, a small species of *Utricularia* you shall have them next oppty.— The Geraniaceae are also incomplete, but I shall endeavour to revise them in next

collection. I think I have added a few new plants since, it being the winter season, few have been in flower; I only remember one in Chenopodeae which I have not yet sent.

I obtained from Mr. W. E. Lawrence last month poor Robt W. Lawrence’s Herbarium. It had been lying packed ever since his Death, and it is possible I might have got it long ago had I asked for it. I have looked over it but find it very meagre now as compared to my own; he erred at first, as I did, in retaining most untenably small specimens, and in many cases none, merely noting some general thing, assumed name, by which he might probably have been enabled to remember the plant, but which is no guide to me. It will be useful however to refer to & I think I shall be able to find out two or three species which before puzzled me a little.

Mr. W. E. Lawrence has just been nominated to a seat in the Legislative Council of the Island— Sir John Franklin having at once appreciated his high character, great worth and commanding talent— He is the cleverest (and also I believe the richest,) Gentleman in the Colony.

When in Hobart Town in May for a few days I unfortunately missed seeing the Revd. Mr. Lillie. He was at that time busy Courting, and has since married a Miss Burnett, daughter of our late Colonial Secretary, John Burnett Esq., now in England, I very much regretted not seeing him, as I wanted to have a chat with him about you. He is intimate with my brother & his family.

Mr. T. K. Short has written me three letters since his arrival in England, but alas ! no hopes of a remittance. His impudence surpasses anything I ever met with, and although I have read of such characters in fictitious works I hardly expected to have ever known one. He carries his assurance many points beyond anything I could have conceived possible. It has been a dear-bought lesson to me, & I should complain less if my children’s interests had not suffered.— it also reduces the means I formerly laid out in Nat. Histy. — Well — nil desperandum— I may gain in the long run by being obliged to adopt more economical habits, but it is unpleasant. Mr. S. sent me out the 1st Part of Gould’s Synopsis of the Birds of Australia — it appears a good work, & I will feel obliged by your sending me all the subsequent Nos. or indeed two copies of all except the 1st, of which one copy. I have not replied to any of Mr. Short’s letters — I could not write him in a friendly style — and an angry one would be useless — I have therefore remained silent. Hoping soon to hear from you

[On a flap turned in he adds]

Our Circular Head small craft has been detained a few days longer than I expected but I have no news to add.— I am quite well.—

Be kind enough to mention to Mr S. Murray that I received his letter & seeds by Mr McCulloch— but I have not seen that Gentleman.— I think he has gone to visit Port Phillip in the South Coast of New Holland.

On the other flap of the sheet folded in when the letter was sealed are listed 24 standard measurements, of which he writes—

The following measurements of that rare bird the "apterix" may prove interesting to your son.

From tip of Bill to rictus	4½ in
along the top	4
width	1 in
Length of Bird	21 2/10
Scapula	1 4/10
Coracoid	0 7/10
Tibia	4 9/10
Femur	3 5/10
Neck	4
Body	6 6/10
Neck and Body	12 7/10
Tibia	2 1/10
Md. toe	2 4/10
Outer toe	1 7/10
Inner toe	1 7/10
with slight web	
Radius & ulna	0 8/10
Humerus	1 4/10
From wrist to claw	0 5/10
Claw	0 2/10
Hind Claw	0 5/10
Mid. Claw	0 2/10
Out & inner	0 8/10
Eye very small.—	
[]	
[]	
Body []	

This letter, landed at Deal, reached Glasgow on 18th January, 1839.

Dr James Grant had arrived late in 1835, with a letter of introduction from the Secretary of State, as a medical settler. His patron was the Marquis of Midlothian. His

first appointment was as First Class Assistant Surgeon at Launceston hospital at a salary of £91. 5. 0 per annum. In Lady Franklin's Diary of 22nd January, 1838, ("Some Private Correspondence of Sir John and Lady Franklin," Mackaness, 1947.) is this reference to Dr. Grant on the occasion of her visit to the Bickfords who lived near Muddy Creek on the west bank of the Tamar.

As we were ascending the hill, 2 persons bare headed came to meet us. The elder, a tall, fine-looking man, with a black patch over his left eye was Mr. Bickford. The eye had been lost by Mr. Grant of the Hospital having lodged the contents of his gun in it one day when aiming at some quail. This was 2 years ago. Mr. B. spoke of it without any unpleasant reflection. He said that after a time Dr. Grant neglected him tho' he was suffering much; when Mr. B. met him again he reproached him for having taken no notice of his desire to see him. Young Grant excused himself on the grounds of his extreme poverty. He had no horse, he had not even 3d. to pay his passage in the punt. Mr. B. told him that tho' he felt hurt, yet whenever he did come, tho' only for his own pleasure, he should ever receive a hearty welcome.

Dr. Grant was a member of the Tasmanian Society and contributed four papers to the "Tasmanian Journal" — on "Fulica Tasmanica" (*Fulica atra*, the Tasmanian Coot), on "Thylacinus Harrisii" (*Thylacinus cynocephalus*, the Tasmanian Tiger), on the "White Hawk," (*Astur novae-hollandiae*) and the fourth on the "Bunyip of Australia Felix" written in collaboration with R. C. Gunn. In this he suggested the skull submitted might be that of a very young Camel. He made three drawings of it which were published in the Journal. Mr. W. S. Macleay, F.L.S., F.Z.S., of Sydney, in a letter reprinted later in the Journal from the "Sydney Morning Herald," thought the skull might be that of a malformed, unborn foal.

Dr. Grant practised in Launceston until 1851, when he obtained an estate on the Arthur River near the Woolnorth Estate, and was appointed coroner for the Woolnorth

district. He resumed practice in Launceston in 1856, and died in Melbourne in 1865.

A silver tray in the possession of R. M. Gunn Esq. of Perth, grandson of William Gunn, has this inscription, "To Ronald Campbell Gunn Esq. A Token of Esteem & Gratitude from the Relatives of the late Dr. James Grant."

Mr. (later Sir) Charles Lyell was the famous British geologist who originated the modern theories on the age of the Earth, based on fossil evidence, and whose "Principles of Geology" had been published in 1830-32.

Lady Franklin in a letter to her sister written on 21st June, 1838, makes the following reference to W. E. Lawrence's appointment—

We are expecting a visit from Miss Lawrence of Launceston, a young lady of seventeen, who is to accompany her father to Hobart Town, when he takes his seat in the Legislative Council for the first time, Sir John having appointed him to it, in the room of a resigned member, Mr. Bethune. I talked to you about the Lawrences in a former letter. I should like Mr. Joseph Archer to hear of this appointment for I well recollect his telling me and Sir John in London that the two men of the greatest talent in the Island had never been brought forward into public life, (or at least into Government notice) both being inimical to Col. Arthur and disliked by him. These two persons were Mr. Gregson of Hobart Town and Mr. Lawrence of Launceston."

The birds listed were probably forwarded to Hooker for distribution among British ornithologists. *Falconidae* presumably refers to Birds of Prey in which *Falco* are Falcons; *Buteo* is a Buzzard (probably the Brown Hawk); *Circus* the Swamp Hawk; *Aquila* the Eagle; *Pandion* the Osprey; while *Astur* are Goshawks and *Accipiter* are Sparrow Hawks. *Strigidae* are Owls; *Hirundinidae* refers to Swallows and Martins, but Gunn apparently included with them *Chastura australis* the Spine-tailed Swift. The *Caprimulgidae* or Nightjar family are represented in Tasmania by the Tawny Frogmouth

and Owlet Nightjar. By *Malurus gularis* he probably refers to the Blue Wren, *Malurus cyaneus*, the *Ceyx azurea* would be the Azure Kingfisher and *Turdus farina* probably the Ground Thrush.

Gunn's suggestion that he may not be at Circular Head much longer is borne out by his next letter, from Hobart Town, to which centre he was now transferred as Second Police Magistrate. On leaving Circular Head the Van Diemen's Land Company presented him with a silver tray inscribed "To Ronald Campbell Gunn, J.P. for his able, zealous and conciliatory conduct as Police Magistrate on their estates during 1836-1838".

LETTER 173.

Hobart Town, 30th Novr 1838.

My dear Sir.

Since I last had the pleasure of writing to you, your favour of 30 May by Dr Scouler came to hand, as also the Books, Paper, &c. for which please accept my best thanks. Last month I was offered the appointment of second Police Magistrate at Hobart Town & to be member of the Board of Assignment which I accepted, and am therefore now fairly settled in the metropolis of V.D.L.— I left Circular Head on 14th Octr. with all my worldly goods; leaving behind many friends in that limited community with whom I had spent many pleasant hours. My present situation will occupy my time more fully than it has been for some years past,— so that my Natl. History Collections are likely to be small for some time to come, but still I hope to be able to collect a specimen or two occasionally. I delivered your letter to Sir John Franklin, and for which I owe you many obligations. You however flatter me too much & lead him to expect more from my scientific exertions — than I am at all likely to fulfil. Both Sir John & Lady Franklin have shown me since their arrival the greatest possible kindness & attention.

I found Dr Scouler at Hobart Town— and had various conversations with him. I gave him numerous letters to my friends at Launceston where I thought a favourable opening existed for a medical man. His opinion after visiting it coincided with mine but he thinks a flock of sheep at Port Phillip will be the most profitable— extensive tracts of land fit for grazing can there be occupied rent free — the climate is excellent— and he can at the same time follow

his profession— altogether I believe he has made the most judicious selection, & I have no doubt will thrive. He sailed on 10th Inst. on the *Renown* for Sydney to visit that Colony — & to go to Port Phillip direct from there or via Launceston.

I have not yet received any account of Mr Short's money.— I sincerely hope at least some portion of the Amount may be recovered.

It is with feelings of deep and sincere regret I have to mention the death of my amiable friend Mrs. I. G. Smith which took place at Launceston on 8th Octr — at the early age of 29. She had been in a delicate state of health for about two years and a half.— In Sept 1836 she removed to Circular Head, and in the search after Orchideae, Algae, Shells, &c appeared to be gradually improving from the pure air and exercise consequent on such pursuits; but her whole constitution appears to have been injured and a few weeks after her accouchement and the death of her child she also was removed from this life. My youngest child was taken care of by her from his infancy, and she was indeed a mother to him. Her loss to me on his account is deeply felt— but that person must indeed have many friends who can spare a tried and faithful one— (and certainly I am not that one—) without feeling that another link of the chain which binds them to this world is broken.

As we advance in life how many of those who started with us in our career or who we picked up on the road — drop from us— and doubtless it is well ordered to be so— that when the time comes for our own removal, we may have as few ties as possible to make us regret leaving this world. My next collection will contain many of Mrs Smith's Orchideae beautifully preserved but all are duplicates of my last numbers. I am most unfortunate in my Botanical friendships,— poor Robert Lawrence's loss has never been made up— the vacancy caused by his death still remains open.

In August last I visited the Hampshire Hills on duty from Circular Head.— During my ride through the dense humid forest extending from Emu Bay to the Hampshire Hills I found the long looked for *Dawsonia polytrichoides* in considerable abundance.— It was only coming into flower, but some of last seasons flowers not having dropped off I recognised the peculiar tuft of ciliae. The plants at first struck me as belonging to *Epaerideae* from their size and rigid appearance but on dismounting I discovered it to be a moss.— On my return I found the flowers and was really delighted to be able at last to send it to you.— The plants were in many

cases 6 to 11 inches high.— It grew in large patches, always on the ground & not on decayed trees, usually on the ball of earth torn up by the roots of trees when blown down by the wind— I found it from within 4 miles of Emu Bay to about 9 miles from that station but it may extend farther inland.— It is strikingly different to my Nos 28 & 29 (*Polytrichum*). I have requested Dr. Milligan to collect it largely when in a proper state of inflorescence but even if he neglects doing so I think I have enough of excellent specimens of both male & female flowers — I rolled them into a parcel and carried them in my coat pocket as I had no good means of preserving them.— My absence, including two days at the Hills, being only 6 days — & a ride of 160 miles.— I think I have no other novelty to mention to you particularly. I have found *Drosera Menziesii* & the *George Town Tetrathea* in considerable abundance between Rocky & Table Capes.—

Dr. Milligan's Books have not yet arrived.—

10th Decr. Lady Franklin has invited me to accompany her on an expedition to Port Davey & Macquarie Harbour & I expect to start this evening.— Mr. Gould the Ornithologist accompanies us, and I had hoped to have had the Revd. Mr Lillie also, but his clerical duties are too extensive to admit of his being absent more than two weeks— whereas there is a possibility that we may be detained from 4 to 6 weeks. As I take ample means of preserving plants I hope to add some novelties from that remote quarter. The Huon or Macquarie Harbour Pine will be one tree which I have been long anxious to see, & ascertain in how far it agrees with any of the *Coniferae* I found on the Western Mountains. Sir John Franklin does not go with us. I shall report the results on my return.

I much fear you can do nothing in Mr Short's business except by fair means — as the Bill was returned to this Colony. I have requested Mr Scott to send it back to the merchants in London & thereby enable them to proceed upon it. the amount would be invaluable to me just now.

I shall send you another lot of plants as soon after my return from Macquarie Harbour as possible. We go by sea with a Govt Brig & Schooner. Address me in future merely Ronald C. Gunn Hobart Town

[On the back of the letter is this note by Hooker]:

“Sent Mr Gunn by Dr Johnstone/Mar 1840 /
Annals Sc. Nat. V. 1-6 /Ann. of Nat Hist 20-25
/ Ie Plant. P. VI. / Journal of Botany 9 -10 /

Edinb Jour of Nat. Hist / Penny Mage V. 15.
16./ Iceland Tour vol. 1-2."

Musci 28 *Macromitrium microstomum* Hook.
& Grev.

29 *Bartramia papillata* Hook.f. &
Wils.

The George Town *Tetratheca* is probably *T.*
ciliata Lindl.

The letter bears a Hobart Town postmark with a crown over the name. It was landed at Brighton on 18th May, 1839 and was post-marked into Glasgow at 5 p.m. on 19th May, 1839.

Dr. Scouler was another of Sir William's acquaintances, who, on emigrating to Van Diemen's Land, carried a letter of introduction to Ronald Gunn. No doubt, after the unhappy experience with the erring Mr. Short, who still continues to crop up in the correspondence, Hooker was now more careful in his nominees.

Dr. Scouler, a one-time pupil with Dr. Hooker, was surgeon on the Hudson Bay Company's brig, "William and Ann," which took David Douglas to the west coast of North America. To Dr. Hooker from the Great Falls on the Columbia River, March 24th, 1826, Douglas writes—

"From Dr Scouler you must have obtained a good description of North-Western America, and be made acquainted with many of its treasures. He left me in fine spirits; and when we were together, not a day passed in which you were not spoken of. His departure I much regret; we had always been friends, and here our friendship increased. When botanizing along the shores of the Columbia River and in the adjoining woods, we would sometimes sit down and rest our limbs, and then conversation often turned on Glasgow and Ben Lomond. If a favourite moss caught his eye, and was eagerly

grasped and transferred to the vasculum, the remark was pretty sure to follow, 'how much would Dr. Hooker like to be with us!' I felt very lonely during the first few weeks after Dr. Scouler had sailed."

Dr. Scouler was later Professor of Natural History in the Andersonian University, Glasgow, and subsequently Professor of Geology in the Royal Dublin Institution. *Vide* "Companion to the Botanical Magazine" Vol. II 1836 p. 105.

Mrs. Smith, who had helped Gunn both with his botany and his motherless family, probably died from that scourge of the times, consumption. Her well-mounted specimens must still be in existence, either at Kew or Sydney Herbarium, where Gunn's own collection is now kept.

Dawsonia polytrichoides (*D. superba* Grev.) was the moss that Gunn and Lawrence were seeking for Hooker when they began collecting. The dense forest where Gunn found it has today been replaced by the fertile farmlands of the Ridgley district.

The expedition to Port Davey and Macquarie Harbour in the Government schooner "Eliza", H. Hurburgh, Master, never got further than Recherche Bay in D'Entrecasteaux Channel. There it was weather-bound nearly a month and finally returned to Hobart Town. Those in the party, in addition to crew and servants, were Lady Franklin and her step-daughter Elinor, John Gould, Ronald Gunn and his assistant and Captain King R.N. and his wife. Lengthy references to their stay in Recherche Bay may be found in Lady Franklin's letters published by Mackaness.

While there Gunn collected many plants, being especially interested in those that the French botanist Labillardière had described when with the D'Entrecasteaux expedition of 1793. He also searched unsuccessfully for any remains of the European garden laid out at the time by the gardener of the expedition, La Haye.

John Gould was the famous ornithologist and author of the monumental "Birds of Australia." At the time Gould and his wife were guests of Sir John and Lady Franklin at Government House, while he and his assistant John Gilbert collected specimens to describe. From these specimens artistic and accurate coloured drawings of the birds were made by Mrs. Gould for reproduction.

Gunn's next letter is addressed from Hobarton, Tasmania. The oval postmark on the outside however reads "Hobart Town, V.D.L."

LETTER 174.

Hobarton, Tasmania.

18 February 1840.

My dear Sir,

So long a time has elapsed since I had the pleasure of receiving a letter from you that I am now in hopes your Son, who is expected to reach this about April with Captain Ross, will be the Bearer of some tidings from you. However I never blame you but I am well aware how very closely you must be occupied; and that among your many very valuable correspondents I must hold a very second-rate place in importance. I am still zealous in Collecting, but really incessant official employment prevents my devoting the time necessary to arrange them for transmission to England. My House however is now so full that I must get rid of them immediately & shall therefore as soon as possible commence my system of packing for you & my other correspondents. The great Robt Brown has requested me, through Sir John Franklin, to correspond with him & I intend therefore adding him to Dr. Lindley & yourself in my list, & send him a lot this season.

Where I am not adding new species to my Collection I am at least adding numerous good specimens of the old numbers. I found 226, *Podocarpus* sp. Nov. ? on Mt Wellington & have got plenty of it. *Drosera Areturi* abundantly & many others Another *Cryptandra* from the Derwent like *C. ulicina* & many others highly interesting even to me. I see *Vallisneria spiralis* in the Derwent but it is not yet in flower. I heard of a small species existing in it—(some years ago,) but I looked for it in vain a few days ago. I have rambled to the summit of

Mt Wellington more than once,— To the Huon River over-land, & examined the banks of the Derwent pretty closely for 26 miles above Hobarton, but I cannot say I have found all, or one half of what I have no doubt exists in these localities as I can only in my hurried trips from incessant office tasks take a cursory peep at the most striking plants— leaving the smaller ones for greater leisure at a future day. During the last 12 months in addition to my duties as Asst. Police Mgte. & Managing Member of the Assignment Board, I have been assistant to my Brother as Prinl. Superintendents of Convicts. Holding these offices I have hardly dared to leave Town for 24 hours at any time.— I am now about to relinquish these and succeed to the Honble Harry Elliot as Private Secretary to Sir John Franklin— Mr Elliot returns to England & sails tomorrow— by him I send this, and the trunk of a Fern tree for your acceptance as I learned their structure was exciting much interest among Physiologists. I have sent 4 of them — so that you must commission some friend to cull a good one. One of them branches off into three stems or heads. Another has some parasitical ferns on it — so that there is a choice. 2 are for Lindley one for Brown & one for yourself.

I feel quite ashamed of my not having yet sent you the *Dawsonia* which I collected so long ago, but in addition to my official business I have so many other odd matters to attend to that my amusements must be neglected. I have established a Horticultural Society here & made myself Secretary to push it on with plenty of work but no pay— but it will do much good. I was elected President of the Laun. Horticultural Society which was formed two years ago. I am Secretary of a Natural History Society Sir John has established here. We are few in number yet — but we are endeavouring to ferret out the Natural History of this interesting Colony. I have written a paper enlarging Mr Backhouse on the fruits, roots & plants of V.D.L. which may be rendered available for the sustenance of man;— & some smaller ones. My collection of Testaceae is also the best. We purpose immediately forming a museum— more particularly directed to the productions of the island.

Lady Franklin's Botanic Garden is under my care and about 180 acres have been purchased by her 4 to 5 miles from Town. I am now clearing some acres to lay out the Natural Orders of our indigenous plants— & have opened out a walk up the Rivulet upon which it is placed upwards of a mile and a quarter long through a dense grove of Fern trees, *Fagus*, *Pomaderris*, *Cryptocarya* & other interesting Plants— with

a splendid collection of Cryptogamia on all sides. I look anxiously for your Son to aid me in laying it out to advantage.

I found some interesting land & fresh water shells last week which I must send by & bye to any one interested in these things.

Of Dr Scouler I heard a week or two ago. He has commenced Brewer at Parramatta near Sydney. Dr Valentine, author of *Some Improvements on the Microscope* & a paper on Mosses in the *Linnaean Trans.* arrived here recently. He was delighted with some Mosses & Ferns I showed him. He has received an appointment as Dist. Surgeon at Campbell Town in this Colony. I fear however he has to a certain extent abandoned scientific pursuits, although it is a pity as he possesses a splendid microscope & he is fond of your favourite branch—the Cryptogamia, Characeae, &c. Many of the Aquatic plants are I doubt not very interesting, but they certainly possess little attraction when seen in a dried state.

I have so much to tell relative to individual plants that I must defer my remarks until I send you my collection — whenever that may be.

I shall soon write again I hope

[He signs off and then adds forlornly]

I have never heard from Short.

226 *Podocarpus alpina* R.Br.

By *Fagus* Gunn means the Myrtle Beech, while *Cryptocarya* is a genus in *Lauraceae* not found in Tasmania. He may mean *Atherosperma*, the Sassafras. *Testaceae* are marine shells.

This is the only letter in the whole series in which Gunn uses the name Tasmania in his address. Tasmania did not become the official name of the colony until self-government was granted in 1853, but it was in current use twenty years earlier. Gunn, however, was a stickler for official usage. He never calls the land across Bass Strait Australia, but refers to it as the southern

coast of New Holland, its official title until 1850, though here again the name Australia, suggested by Flinders, was already commonly used.

Gunn's house was in the old Government House grounds, where it had been built by Governor Arthur for his nephew, Charles Arthur. These grounds occupied the site of the present Hobart Town Hall and Franklin Square and the street between them.

Sir William Hooker's son was Dr, Joseph Dalton Hooker R.N., who at the age of 23, was surgeon-botanist to the expedition of Captain (afterwards Sir) James Clark Ross, who with Her Majesty's ships "Erebus" and "Terror" (under Captain Crozier) was making extensive observations on the variations of the Earth's magnetic field. Ross arrived at Hobart Town in August 1840 and stayed three months, setting up a magnetic observatory on the Domain, on the site of the present Government House. He then sailed south, getting to within 200 miles of the South Magnetic Pole before being blocked by ice. Returning to Hobart Town to refit, the expedition spent the months of March, April and May there, before sailing for Sydney, New Zealand and the Pacific to continue magnetic observations.

Gunn's visit to the Huon River overland may have been to the first settlement in the estuary of the Huon, in which Lady Franklin was actively interested (see Mackaness).

The Hobart Town Horticultural Society, founded in November 1839, with Captain C. Swanston president and Ronald Gunn secretary, held its first show at the Regatta Ground on 3rd December of that year. It was later merged with the Royal Society of Tasmania, founded by Sir John Eardley Wilmot in 1843.

Franklin's Natural History Society, later known as the Tasmanian Society, was the

first real attempt to found a learned society in Tasmania. It made some notable contributions, by way of scientific papers, to the knowledge of Tasmanian Natural History, before it combined with the Royal Society of Tasmania in 1848.

A letter, not in the file and which may have been lost in transit, evidently preceded the following one.

LETTER 175.

Hobarton, V.D. Land.
5th Decemr 1840

My dear Sir

I wrote you a few days ago P. "Marianne" enclosing Third of a Bill of Exchange for £11, being an amount left with me by your Son for transmission, and I now beg to enclose the other two parts which I trust will be duly honoured.

It is so short a time since I wrote that I have got but little news to offer.

I fear I shall be unable to have the Box ready to go P. Emu, and must allow it to remain until I can really quit my office altogether. Unless carefully put up the things will get all destroyed—which would render them valueless, & I find some of the V.D.L. plants put up by your Son were not dry & had become mildewed. I shall not however alter his parcel in any way.

I think it is possible the vessels may come here again about the beginning of this winter unless they find a good harbour near the Magnetic Pole. The vessels sail most miserably ill, and cannot beat to windward. Off our Southern Coasts the Gales are very strong and usually from one Point vizt the S.W.—Your Son's Collections from the Islands south of New Zealand will be invaluable.

I hope to be able to leave my present offices some time this month. Mr Lawrence's health continues precarious, & he is most anxious to place the management in my hands as early as possible. A Son of Professor Henslow of Cambridge is to succeed me as Private Secretary, and I am now alone waiting for his arrival from Sydney to initiate him into his duties—and then retire.

Your old acquaintance Jorgenson honours me by frequent interviews—as he knows I now through you feel an interest in him. He is however incorrigible, and will never do much

good. He follows no industrious mode of earning money, but really lives by his wits. I shall send you the continuation of his Autobiography in the Box to you.—

I send my friend Mr Wm Valentine (the microscope man) some specimens of Azolla in water the other day. He was delighted with it and thinks he can throw considerable light upon it, even altho' the immortal Brown has had it through [his?] hands. Valentine is in full practice as Asst Colonial Surgeon at Campbell Town and has abandoned all Botanical researches or nearly so, but he could not resist the temptation of the Azolla when I put it in his way. I have a large glass bottle with Orchideae for Brown in pyroligneous acid — into it I also threw some Azolla for his amusement.

I must now conclude this by promising again to write you soon —

Sir William's address is given as Woodside Crescent, Glasgow. The letter is postmarked outward from Hobart Town on 7th. Decem-ber, 1840. and inward to Glasgow at 2 p.m. on 20th April, 1841. The postmark "SHIP LETTER" has replaced the former "INDIA LETTER". Port of entry is not indicated.

The Azolla that tempted Valentine is commonly called Waterfern, but is not a true fern.

The day before Gunn wrote Sir William this letter, his "old acquaintance Jorgenson" also wrote to him. This letter, written in a good, firm hand, has no postal endorsements, simply "Sir Wm. Jackson Hooker / Glasgow," on the outside. It may have been sent in an envelope, or possibly Gunn enclosed it with his to save Jorgenson the postal charges. Apparently they both agreed about Dr. Lhotsky's character.

LETTER 47.

Hobart Town, Van Diemen's
Land. December 4. 1840.

[Dear?] Sir,

After a lapse of many years, it could not be but extremely gratifying to me that you had requested Dr Johnson to make some inquiry about me. I have seen that gentleman several times. Mr Ronald Gunn also acquainted me

that your son was engaged as naturalist on board one of the discovery ships, and that he wished to see me. I met him one day and had the unspeakable satisfaction of beholding the son of one who in former days was my friend; and the transactions we were engaged in at the opposite extremity of the globe dwell on my memory, although at this time of life the images which lurk round my mind partake of the character of a dream.

I endeavoured once or twice afterwards to see Mr Hooker, but he dedicated the whole of his time to look for plants etc. He, however, appeared to me to resemble you very much, and possessed your manner when you were young. I hope that no untoward accidents will occur during an expedition which is not without its perils. —

Mr Gunn tells me that he going to send you the "Annual" of 1838, published by Elliston, and should he do so, you will therein find the second part of my "Autobiography". I believe that the ever lamented Dr Ross forwarded you some former Annual, which contained the first portion of my Autobiography. It is indeed to be regretted that for the last two years past no Annuals have been published in the Colony, but Elliston is not equal to the task.— He lack's Dr Ross's abilities and industry; the latter was a man of sterling worth, and highly respected.

I think you will feel some interest in me, and like to know what I have been doing since my arrival in the colony. The Annual of 1838 will furnish you an account of me up until the departure of Sir George Arthur from the Colony. My history since my arrival here has been (as in all other instances of my life) one of strange fortunes and great activity; I have at various periods exercised great influence over the colonial press. A valuable work is now completed which will be published in England "Sketches of Van Diemen's Land and the Neighbouring Colonies By T. H. Braim, of St John's College, Cambridge, and now Head Master of the Proprietary School, New Town. The work will be much more extensive than was at first intended. I was invited to render assistance. The fact is that I alone could effectually do so. I had been two years in quest of the Aborigines. With reference to this race of people the Colonial Archives contain no less than eleven large Octavos.— Volume No. 1 — is upwards of one thousand pages, more than five hundred written by me, in the shape of reports to the local government — and so on in other volumes. The languages (four in number) of the Aboriginal tribes of Van Diemen's land are not noticed in the public records, and I am

the only one who possess the vocabularies complete, at least to a certain extent. I believe Alexander McGeary's has been published in England by an imposter and literary pirate of the name of Lottsky, who succeeded in gaining a copy; but McGeary is very illiterate.— I intended sometime since to have forwarded you the vocabularies, songs and translation of part of the first chapter of Genesis, but I supplied Mr Gunn with what I had, and as Mr Braim's book will soon appear you will therein obtain the necessary knowledge, should it interest you.

The history of the manners, custom's, languages, with the so called "Black War" will alone comprise 200 pages.— The history of Van Diemen's Land from its first Colonization will occupy 200 more, including Emigration, Convict Discipline; observations on the literature of the Colony etc.

All this matter has been written by myself without any assistance. The mass of journals in my possession has been of material service, and of great importance. The introduction is also left to me, and the entire work, as far as I am concerned, partakes something of the character of philosophical inquiry.

I have however made a very bad bargain, for when Mr Braim first commenced he intended to make a light production, but had he done so, he must have lost the golden opportunity of being the first writer who has written a connected history of the Colony. All that you have seen at home is fallacious in the extreme; and evinces decided feelings of party-spirit and prejudices.— Mr Braims will have the merit of sterling truth, and be free of all bias.

I have stated that Dr. Lottsky is an imposter and a literary pirate; I have so said because I think you may have seen something of his paltry productions at home, he is a very ignorant man, although excessively impudent. It is not altogether fair to revile an individual who is at a distance of 16000 miles, and I shall therefore, out of a great number of pranks, state one. A learned German Botanist, through his agent in London, sent to one of our most respectable and wealthy merchants, requesting to procure him native seeds of all sorts. People here at the time thought Lottsky to be a very clever fellow. Mr. M. Orr, the merchant alluded to, applied to the self dubbed Dr who said "Wery vell, Sar, you must give me £30 to begin vith." The sum was advanced, and in a short time produced a large tea chest, well packed up and secured.— Lottsky said "but, Sar, mind the air must not come to it, it will spoil all the (de) seeds". Mr M. Orr, did not suspect any trickery, and the package was forwarded to England. When it

was there opened, to the astonishment of all, it was found to contain nothing but saw dust. Lottsky knows nothing about seeds, plants and shrubs. In Sydney he played similar capers. About six months after the saw dust had arrived in London Mr Orr received a letter from his correspondent complaining of the trick.— Dr Lottsky met some day Mr Orr in the street when the former came up offering his hand saying "Oh Mr Orr — how you do?" — Mr Orr replied "I wonder you have the impudence to speak to me after the deception you have practised upon me with the seeds." — Vat deception? — Filling the chest with saw dust. — "Ah, Sar, have you got the (de) money paid vich you gave me?" — Yes! — "(Oh,) Then, Sar, you have lost nothing — Good morning Sar!"

When at Port Arthur Lottsky got some prisoner there to take some drawings of fishes, and so on, which he called his own. He then advertised that he intended to give public lectures in the Court House. His character and ignorance were well known by this time, so the public rushed in without paying for the admission ($\frac{1}{2}$ Crown each). When Lottsky began to open his lecture, the whole audience set up a roar of laughter, and continued making all manner of noises.— The speaker then with the utmost sangfroid said — "Wery vel I see you do not understand dese tings, I shall valk."

He also advertised his museum for show which consisted of a box of trash, for which, however, he received £30, as a matter of charity, from the Institution, to enable him to defray the expence of his passage home.

I have thus marked the conduct of Lottsky in the colony, for it is men of his stamp, who meeting with just disappointment, go home and publish some wretched pamphlet, or something in the Newspapers, to the injury of the character of the Colonists, and which is greedily swallowed.

You will see in Mr Brain's book some strictures on Captain Maconochies convict discipline plan, which is the most foolish that could enter the head of a man. It is visionary altogether.

I am now advanced to that time of life, next March 29th Sixty one years, that I cannot much longer expect to linger in this world, and I am desirous, in case of final departure that [some?] memorial be left of me. I have been so careless as not even to keep one copy of each of the productions which I have published. — — They are in Danish, "An account of the fisheries in the South Seas, and the force trade." In English "The Copenhagen Expedition traced to other causes than the treaty of Tilsit."—(My "State of Christianity in Othaheiti" I wish no'

to notice, it must be passed over)—"Travels through France and Germany" — "The Religion of Christ is the Religion of Nature" all published in England. In Van Diemen's land, "The Funding System" and "Publicola" on trial by jury. — You have some manuscripts by you, and one fell in the hands of Mr. Christie, who I believe is a friend of your's. I wrote it in conjunction with Mr. Jermyn. Even at this its publication would be useful, as it contains a great deal of valuable matter with regard to the ancient times of Ietland and Scandinavia. I have also contributed largely in my dates to some of the London Newspapers, noticed when I am no more.—

I might have written more, but you will probably see Dr Johnson.

I should be glad to learn what is become of Mrs Jermyn, Mr Turner, and some of other of your friends of whom I have not heard for years?

I shall now conclude with wishing you all manner of happiness as well as your family.— With the most perfect sincerity I subscribe myself

Your's most faithfully

J. Jorgenson

P.S. It would hardly be fair to Mr. Braim to let it be generally made known that I have contributed so largely to his book.—

Gunn's remark on the poor sailing qualities of the "Erebus" and "Terror," together with Jorgenson's foreboding comment on the perils of the voyage, may have caused Sir William to ask Sir John Franklin to try to persuade Joseph to leave the expedition if and when it returned to Hobart Town; (though there would scarcely be time enough for the transmission of the letters to and from England).

This is Sir John's reply. It is addressed to Sir William J. Hooker, Kew, Sir William having been appointed Director of the Royal Botanic Gardens, Kew, in 1840.

LETTER 157.

Govt. House V.D. Land
6th August 1841

My dear Sir William

Had not your Son written by every opportunity which was afforded I should certainly have done so at an earlier period.— I [inferred?] however that he would speak for himself as to

his health and feelings respecting the voyage having had the pleasure of seeing him quite well on his first arrival and full of zeal in the good causes— He would have scouted any suggestion that I might have made as to his remaining here and I am sure the loss of his services to this Scientific voyage would have been great indeed had the state of his health rendered such a proposition desirable — I am truly happy to say that his health was then good and also on his return after their successful trip to the Southwards — He was in fact then looking stronger— He caught a cold on one of his excursions which caused him to keep on board a little time but from the effects of this he had completely recovered before the ships sailed for Sydney— Ross assured me that he is always well at sea— and among the foremost to promote the objects of the Expedition.— I have been much pleased with his energy and zeal in collecting and I have no doubt that his accuracy & faithfulness in describing what he gathers equals his zeal — He would be always at his work and in this respect reminded me often of our mutual friend Dr Richardson — I trust neither Lady Hooker or yourself will entertain any uneasiness and will depend upon it that he will by the blessing of God return Home strengthened & improved in every way and that his Family & Friends will have cause to rejoice at his having been employed on this Expedition.

As the ships are to proceed after the next summer's operations to the Falkland Islands— there is little prospect of your having the pleasure of seeing any of the party again before we have the happiness of meeting them in England — It is fortunate that the position of V.D. Land was more favourable for the series of observations which Ross had to make than any other in this Quarter— and thus he was enabled to follow his own inclinations and afford us the highest gratification by staying longer here than he could have at another place— This family feel identified with the Expedition and I have the satisfaction of knowing that the whole Colony entertains a very lively Interest in its success— and in the welfare of its Commander Officers & Crews. The Magnetic observations at the Stationary Observatory are highly interesting and I am sure the most important results will be obtained from their Analysis — No persons could be more sedulous and accurate than are the three officers Dr Kay Mr Scott & [Mr Dayman?] who make and register them—

You will be sorry to learn that your correspondent and friend Mr R. C. Gunn had the misfortune of breaking his Leg a few months since— which though it is now nearly re-

covered— will prevent his being so active a collector as before. He is now in charge of the Estates of Mr Lawrence recently dead— one of our most wealthy Proprietors— a situation more to his taste than the confinement of a Public Office where you have to work somewhat after the manner of a Horse in a Mill. Mr Gunn's Head Quarters are at Launceston so that we see but little of him— I perceive however that he is taking the lead in the Horticultural Society at that place and establishing a monthly meeting for the discussion of subjects appertaining to that Science — the effects of this will not be to prevent his contributing Papers to our Society — of which you perhaps may have heard from your Son — who kindly furnished us with a Paper.— This little Scientific Society was formed at Government House where its meetings continue to be held monthly— Our first number has been printed these six weeks— but its publication has been delayed for two or three illustrations— When it is published I shall have pleasure in sending you a copy— and will you allow me to say that we should be much flattered by your contributing a paper for one of the forth coming numbers— on any subject which your full acquaintance with the Natural History of this Colony will readily supply—

The latest English Papers communicated the intelligence of your appointment to the Direction of H.M. Garden at Kew which I believe you have been desirous to obtain for some time. Among other great advantages which your residence at Kew will give to Science— your friends in London will derive the benefit of more easy & more frequent personal conference with you— Lady Franklin joins me in sincere congratulations and in kind regards to Lady Hooker. Your Son had the kindness to present my wife with a Copy of your letters on the late Duke of Bedford, which I was reading last night.— We heard recently of the arrival of the ships at Sydney & that Ross had established his observatory on Garden Island. I forwarded to him a box full of Papers & letters for both ships which Captain Beaufort had sent to my care by the Rajah [] He will therefore get the Box before he leaves for New Zealand

Believe me

My dear Sir William

Yours very Sincerely

John Franklin

Sir William J. Hooker
Kew

[Written across the head of the first page is this postscript]—

Will you remember me very kindly to our [friend?] Brown — What would he say to V.D. Land now? Of all his acquaintances Old Kemp alone survives — Jorgen Jorgenson died in the hospital after a short illness — He had been long breaking — Dr. Hooker saw him and perhaps had from him a request for a little money as I occasionally had on the score of being an old ship mate.

Old Kemp was Antony Fenn Kemp, merchant of Hobart Town and owner of the Mt. Vernon estate at Green Ponds (Kempton) in the Southern Midlands. He may have known Robert Brown when he was in New South Wales or later.

Jorgenson also probably knew Brown when he was with Flinders. He had now gone on his last great adventure; without, presumably, having had a cast of his head taken for the Phrenological Society.

The "little Scientific Society," for which Dr. Joseph Hooker had contributed a paper on "Some Fossil Wood from Macquarie Plains, Tasmania", was the Tasmanian Society already alluded to, and of which Ronald Gunn was secretary during his term of office as Secretary to Sir John Franklin.

Hooker's Paper was printed in the Society's "Tasmanian Journal", Volume 1. In the same volume is an extract from the "Proceedings of the Zoological Society of London" which contains the descriptions and names of 24 new species of fish from "Port Arthur, Tasmania, collected by T. J. Lempriere Esq. under instructions from Sir John Franklin," by John Richardson M.D., F.R.S., F.L.S.

The Royal Gardens at Kew, of which Sir William Hooker continued as Director for the rest of his life, were founded in 1759 by the dowager Princess of Wales, Princess Augusta, with the help of Lord Bute, a better botanist than a statesman. Her son, George III, took a great interest in them and was often in residence at the Royal Palace there.

He had Sir Joseph Banks as adviser; in fact Banks was in effect, though not in name, Director of the Gardens until his death. In 1840 the Gardens were taken over by the State and Hooker placed in charge of them. It was largely due to the work of Sir William and his son Sir Joseph who succeeded him, that Kew Gardens are now the most famous botanical gardens in the world, and contain an herbarium of over a million plant specimens.

The nucleus of the Kew Herbarium was Sir William's own collection, which he transferred from Glasgow and which was later purchased by the British Government. Of this collection Dr. Asa Gray wrote in the "American Journal of Science," Vol. XI, No. 1 (quoted in the "Journal of Botany," Vol. III p. 366)—

The herbarium of Sir Wm. J. Hooker, at Glasgow, is not only the largest and most valuable collection in the world, in the possession of a private individual; but it also comprises the richest collection of North American plants in Europe. Here we find nearly complete sets of the plants collected in the Arctic voyages of discovery, the overland journeys of Franklin to the Polar Sea, the collections of Drummond and Douglas in the Rocky Mountains, Oregon, and California, as well as those of Prof. Scouler, Mr Tolmie, Dr Gardner, and numerous officers of the Hudson Bay Company, from almost every part of the vast territory embraced in their operations, from one side of the continent to the other. By an active and prolonged correspondence with nearly all the botanists and lovers of plants in the United States and Canada, as well as by the collections of travellers, this herbarium is rendered unusually rich in the botany of this country North America; while Drummond's Texan collection, and many contributions from Mr Nuttall and others, very fully represent the Flora of our southern and western confines. That these valuable materials have not been buried, nor suffered to accumulate to no purpose or advantage to science, the pages of the *Flora Boreali-Americana*, the *Botanical Magazine*, the *Botanical Miscellany*, the *Journal of Botany*, the *Icones Plantarum*, and other works of this industrious botanist abundantly testify; and no single herbarium will afford the student of North American botany such extensive aid as that of Sir Wm Hooker.

Ronald Gunn's next letter, from Launceston, explains his change of address.

LETTER 176.

Launceston, Van Diemen's Land.
31st October, 1841.

My dear Sir,

I am almost ashamed to acknowledge yours of 2d. April, which I received on 1st Sept. and last week a small box of Books. I can assure you I deeply feel your very kind attention, and am only sorry that various untoward circumstances have caused first months— and then years to elapse without my having sent you any return. I shall now cease to promise — but perform as soon as possible. My collection is really immense & valuable. It occupies much room & I shall be glad to get it off, but my anxiety to increase my own very limited knowledge by correctly numbering them before transmission has delayed me— which joined to incessant official drudgery during my stay at Hobart Town almost knocked Botany out of my Head.

Large packets of letters from you & your family for your Son Joseph sent by Dr Sinclair— came into my Hands. I packed them all up with letters from myself, and sent them to him at New Zealand through Sir John Franklin, who would forward them via Sydney, and I have no doubt will duly reach him— although I was doubtful at the time. A small packet— apparently containing some trinket — & a Book— I retained— with the intention of returning them to you by the first opportunity— as they were bulky to send by Post & might be lost. I intimated to him that I had done so.

During the stay of your Son at Sydney I had three letters from him— the last dated 4 Augt. He was much pleased with the attention he received from Mr W. S. Macleay, but I suppose he has from time to time given you a full detail of his wanderings. I hope you have got his Kerguelen, Auckland & Campbell Islands specimens. The latter are most interesting, and it will be gratifying, to you to compare the Flora of these southern lands with that of Van Diemens Land & New Zealand. To your Son the present trip will be of inestimable value, and I am sure he will make the best use of it.

I rejoice in your appointment to the Royal Gardens at Kew and I shall feel great pleasure in assisting you with seeds &c. I am again Gardening my self at Launceston— resuming a Hobby which has lain dormant for 5 years.

I think I mentioned my resignation of all Government Offices— and my having become Manager of the late Mr Lawrences Estates. & one of his Executors. He died possessed of large property, but has left a very large family to inherit it. My present employment will take me much about the country & facilitate my collecting very much:— this season will however be almost lost to me— as I had the misfortune in April last to have my Horse fall with me & fracture my left leg in a very bad way. It confined me for some months to the House, and my power of progression is still very limited. Whether I shall ever be able to clamber the Hills as I used to do is a question I cannot answer. It has been a source of much pain & inconvenience, and has helped to retard my returns to you. I was grieved to learn that heavy afflictions had also visited your family. They are no doubt all wisely ordered for our good, although we cannot help feeling the heavy pressure at the time.

With Sir John & Lady Franklin I continue upon the best possible terms.— I must go over to Hobart Town sometime this summer to see them— Their kindness to me has been unceasing.

I saw with pleasure the 1st part of the "Flora of V.D.L." in your Botanical Journal. There are a few additions & emendations to be made in it— but it will be time enough by & bye. Your Son was satisfied before he left this [island?] that *Ranunculus vestitus* was a very distinct species & not a variety of *R. pimpinellifolius*. That *Tetratheca glandulosa* & *pilosa* were distinct species also.— But I reserve to myself for future proof that *Tetratheca* 217 is also distinct. The *Boronias* must remain for the present— but I shall send you specimens of at least two *Pelargoniums* which are distinct— despite their tendency to run off into varieties. Your Son Joseph & I had some amusing discussions over these plants, although his acuteness & sound reasoning far surpassed anything I could bring forward.— I shall make Mr Brown arbitrator I think between us as I intend sending him a Collection when I send yours. Lindley has done the *Orchideae* admirably. I have got some additions for him— & I found *Burnettia* very abundant near Recherche Bay— upon the ground where La Billardiere collected. I found [that?] an interesting locality.

Joseph intends publishing a Monograph on the Genus *Eucalyptus*. It will be a most interesting & valuable work. I intend collecting materials zealously for him, but my broken leg has sadly interfered with my good intentions.

Dr. Milligan is about to leave the Hampshire Hills & settle at Launceston. This I am sorry

for— as he was a useful agent in that part of the Colony. He has promised however to make a large Collection before he leaves this summer.

The most interesting plant I shall send you will be a large species in Epacrideae— the leaves like *Richea* but in some cases upwards of 3 feet long. The leaves all grow at the extremity of the stem— which is straight— without any branches. The flowers are unfortunately insignificant— growing in the axils of the leaves almost out of sight. It is the Plant alluded to by Backhouse in Ross's Almanack under the Head *Richea*.— & I had heard of it at one time [as?] a species of Palm (or what I suppose now to have been it.) I shall send you seed of it.— it grows near Macquarie Harbour on the West.—

217. *Tetratheca procumbens* Gunn ex Hook.f. now grouped with *T. pilosa* Lab. The *Burnettia* was probably *B. cuneata* Lindl.

A scrap of paper in Hooker's writing labelled Letter 177 is enclosed in the letter book. It reads — "Wanting No 2 Companion / Nos. 107 & 109 Bot. Mag. sent Octr. 1842/ & / all after 132 which is the nast No./ 133 to 174 sent."

Dr. Joseph Hooker's sojourn in Van Diemen's Land must have been a very pleasant interlude for Ronald Gunn, and led to a lasting friendship.

It was also a pleasant meeting for Joseph Hooker, for in the Introductory Essay to his "Flora of Tasmania", 1860, he writes — "I had the pleasure of making Mr. Gunn's acquaintance at Hobarton, in 1840, and am indebted to him for nearly all I know of the vegetation of the districts I then visited; for we either studied together in the field or in his library; or when he could not accompany me himself, he directed one of his servants, who was an experienced plant collector, to accompany me and take charge of my specimens. I can recall no happier weeks of my various wanderings over the globe, than those spent with Mr. Gunn, collecting in the Tasmanian mountains and forests, or studying our plants in his library, with the works of our predecessors Labillardière and Brown."

Dr. Milligan did not stay long in Launceston. He was soon at Hobart Town with a Government appointment, and good prospects of promotion.

The large species of Epacrideae would be *Richea pandanifolia* Hook., a conspicuous, palm-like plant, sometimes reaching 30 or 40 feet in height, of the western forests of Tasmania.

Gunn's next letter (written on small note-paper instead of the usual foolscap sheets) is from Penquite, near Launceston. Penquite House was on the Launceston suburban estate of that name owned by W. E. Lawrence, and Gunn presumably used it as his headquarters while administering the Lawrence estates. The old brick house was demolished in 1957 to make way for cottages erected by the Masonic fraternity for aged and needy members and their widows.

LETTER 178.

Penquite, near Launceston
29 Decemr 1841.

My dear Sir,

I have just time to send you by Captn Milligan Commanding the Barque *Mona* which vessel sails for London tomorrow— the Book & small parcel which I would not forward to your Son Joseph— being doubtful whether they would reach him or not.

I trust they will now once more get safe into your hands to be delivered to him personally at the termination of his interesting and arduous voyage.

I recently received from M. Le Guilleu— the Surgeon of the French Discovery Ship *Zelee* (One of D'Urville's) a good Collection of Plants from "Auckland Islands" but as your son has since been carefully over the same ground, I suppose there will be little novelty in Le Guilleu's.—

I have heard nothing lately of Captn Ross's expedition and I suppose our first accounts will be via England.

Sir John & Lady Franklin are in excellent health. They are most anxious for me to accompany them to Macquarie Harbour, on the

West Coast, next month, but my broken leg is not yet sufficiently strong to justify my walking so much— as such a trip would require. Sir John will most likely retire from the Government of this Colony about next January, so that 12 months more will be as much as [we?] can reasonably expect of his Government. He is a most amiable & worthy man.

The French expedition of D'Urville visited Tasmania when on a voyage to the Antarctic regions in 1839, when its naturalists made collections from some of the remote and uninhabited islands of the Southern Ocean.

The story of the Franklins' overland expedition to Macquarie Harbour in the autumn of 1842 is well known. An account of it, written by Mr. David Burn, a young settler of the Derwent Valley district who accompanied them, was published in the United Services Magazine June-December 1843 and reprinted by George Mackaness, Sydney, in 1950. Dr. Milligan also accompanied the party, which was led by Surveyor-general J. E. Calder.

It is sometimes stated that Ronald Gunn was another member; but this letter, and subsequent ones, shows this to be wrong. A few years later, however, Gunn himself did make this hazardous journey following the same route.

Gunn's broken leg, which prevented his going with the Franklins, also limited his botanical activities. It is twelve months before he writes to Sir William again.

LETTER 183.

Launceston, Van Diemens Land
19 December 1842

My dear Sir,

It is so long since I last had the pleasure of addressing you that I really forget the time. I at once acknowledge it to be my own fault, & therefore must say but little about it. I think in my last I reported that I had pretty well recovered from the effects of a broken leg, a comminuted fracture caused by my horse falling upon me, and which at one time I feared would have rendered any walk of a few miles

a matter of impossibility to me in future. I am happy to say that I am now nearly as strong upon my limbs as ever, & although I have not tested them by any walk of more than 10 miles at a time, yet even my short excursions satisfy me that my powers of locomotion are but slightly impaired. The greatest inconvenience which resulted as far as [we?] are virtually interested— was the serious delay which it occasioned to my acquiring a thorough knowledge of the duties of my new situation. For nine months I was unable to ride on horseback— to walk or hobble was impossible—and much of the land I had charge of was inaccessible to any wheeled vehicle. I had therefore nothing— but Patience left— and I have taken another year to learn the routine of the farms. Of course my Botany fell much in the background although I continued to collect at all times & seasons when opportunities offered. Having got my arrears of work pretty well up, I have recently arranged all the dicotyledons of my collection & am now numbering them to go Home. I trust by the Adelaide next month— that is unless some unforeseen business comes in the way as it too frequently has done of late. On careful comparison of my specimens in numbering this season, I am clearing up many former blunders, & will I think put matters in a clearer way than I have ever hitherto done. Among many novelties— & I think I shall add 200 to my former numbers— I may mention the *Agastachys* in flower & fruit— all the species of *Athrotaxis* & allied species in fructification & I think an additional species of the former, also the Plant called *Podocarpus* mentioned by Brown as existing on the top of Mt Wellington— the fruit is like a *taxus*. A new Plant an *Epacrideae* growing 30 feet high with a straight trunk usually unbranched & a tuft of leaves on the top like *Richea*? (my No 517) but the leaves upwards of two feet long— the flowers are however insignificant.— It is allied to *Dracophyllum*. *Prionotes cerinthoides* & the true *Decaspora disticha* of Labillardiere. A new *Carpodontos*— 4 additional *Cryptandras* & about as many of *Pomaderris*. Many additional *Epacrideae*, and of other Natural Orders. For some of my novelties I am indebted to Dr Milligan who accompanied Sir John & Lady Franklin overland to Macquarie Harbour.— The season was an impropitious one, but yet he gathered a few although many were not in flower. I gathered the *Boronia pilosa* at Recher[che?] Bay— the spot visited by Labillardiere him [self?] & identified all the Plants in his "Novae Hollandiae Plantarum specimum" except three or four which I did not find— vizt his *Billardiera pisiformis* with blue flowers. *Melaleuca (Astartea) fascicularis*. *Styidium umbellatum*. *Croton quadripartitum*. These may nevertheless have escaped the cursory examination I made. His

Polygonium adpressum is certainly my No 432. & not the plant figured in the Bot. Mag. (My No. 325).— They are distinct species. All these & many points I must reserve until my Collection goes Home.— and I shall then advocate the cause of some of my discarded species.— I have got two or three additional Ferns.— indeed you will I think be satisfied with my labours by & bye.

Among our novelties are some specimens of fossil "Banksia" which I shall send you.— and I think you will acknowledge them to be among the finest you ever saw.

I am I fear much in your debt for Books but I can only beg of you not to hesitate for a moment in letting me know the amount & I shall remit. All I must beseech you is continue to send— & let me pay.

Sir John and Lady Franklin continue to get on uncommonly well.— Dr Milligan has recently received the appointment of Inspector of Convict Discipline at a salary of £500 a year. It will I fear naturally operate against his usefulness to us in the shape of Botany, but I keep his zeal awake by writing to him at all times.

I have not lately written to your Son not knowing where my letter would find him. I shall however send him a "long yarn" through you by the next opportunity.

I may mention that I have plenty of seeds to send you also for your Garden at Kew and as I am once more Gardening & have now possession of Mr Lawrence's — I must solicit some contributions when you feel that you have leisure to attend to me.

[He adds]

Mr Lawrence Senr was intimate with Aiton of Kew— & frequently recd plants from him.

[Across the top of page one in Hooker's hand is written]

Bot Mag Nov to May inclusive/ Lond. J. of Bot. do./ Leones Plant. P. XI./ Baekhouse's Journal

517, *Richea dracophylla* R.Br. but the description seems to fit *R. pandanifolia* better.

432. *Muehlenbeckia adpressa* (Lab.) Meissn. var *a rotundifolia* Meissn.

325. *M. adpressa* (Lab.) Meissn. var β *hastifolia* Meissn. the *Polygonium gunnii* Hook.

His new *Carpodontos* was probably *Eucryphia milligani* Hook.f.

This letter is addressed to the Royal Gardens, Kew and arrived in April 1843.

William Aiton snr. published "Hortus Kewensis" in 1789 the second (1810-13) edition of which was issued by his son who had succeeded him as superintendent of the Gardens in 1793. Sir William Jackson Hooker became first official Director in April 1841 after the transfer of the Gardens to the Commissioners of Woods and Forests.

During the twelve months between this letter and the next Gunn's leg had recovered sufficiently to permit him to resume his collecting, albeit rather surreptitiously, so far as his duties of managing the Lawrence estates would permit.

These estates comprised the suburban properties of "Lawrence Vale" and "Penquite" stretching from Glen Dhu to the North Esk River, and "Vermont" (near Mowbray); a large sheep run at Port Effingham, near George Town at the mouth of the Tamar, (on which the Bell Bay Aluminium Works and the George Town golf links are now situated); the farm of "Danbury Park" near Cormiston on the West Tamar; "Formosa" and the "upper sheep run" of "Billopp"; and summer grazing leases in the vicinity of the Arthur Lakes. In visiting them, on horseback or by cart, Gunn would have plenty of opportunities to look for new plants.

Dr. Milligan had a series of rapid promotions; his interest in Natural History was, no doubt, a useful recommendation to Sir John Franklin. The next letter records his appointment as Commandant to the Aboriginal Settlement on Flinders Island.

While there his young wife, Eliza, second daughter of W. E. Lawrence, died after childbirth at the age of eighteen. Her lonely tombstone still stands at the site of the old cemetery of the Aboriginal Settlement, between Whitemark and Emita.

Joseph Milligan's brother, A. N. Milligan, who had also settled in Tasmania, married the widow of W. E. Lawrence.

Nearly twelve months later Gunn advises Hooker of the despatch of another consignment of specimens. This letter is written on very thin paper.

LETTER 184.

Launceston, Van Diemens Land
6 Decembr 1843

My dear Sir

I have at last been able to close three Cases of Plants for you and to ship them on board of the *Mona* to sail next week— but in the midst of continual occupation with other & less pleasant matters I have been unable to complete my notes relative to each species, which must follow in a subsequent vessel— I send the Plants & in most instances they will speak for themselves as I have noted on each the date & place of Collection. For future reference I have numbered the whole Collection as that of 1842 so that should any plant now sent as say 247— prove not to be my 247 of 1833 it can be distinguished. On all these points— I shall write separately.

I have to thank you most sincerely for three parcels of Books — the oldest in date arriving last. They help me vastly. I trust my present lot of Plants will prove some equivalent. I shall annex a list of my wants in this way.

Your idea of Publishing the Plants of V.D. Land, New Zealand & the Antarctic Islands delights me beyond measure.— We want it much. I got a small collection of the Auckland Island specimens from your Son, and subsequently received a larger lot from France from M. La Guilleu, the Surgeon of the *Zelce* with whom he became intimate at Hobart Town. D'Urville seemed to be an accurate observer, but I do not know whether he continued to collect plants during his last trip. He did not show me any during his stay in Hobart Town.

Dr Milligan accompanied Sir John and Lady F. but did not collect any specimens of the Huon Pine strange to say & to my great regret. He picked up a few novelties which you will find in my present Collection, but I had obtained most of his plants previously. *Prionotes cerinthoides* was abundant in that Country, but I had previously got it from Mt Wellington. The *Agastachys* I obtained in 1838 at Recherche Bay. His means of carrying specimens was I believe limited, & Geology is his more favourite pursuit. Milligan is now going as Commandant to Flinders Island where the remnant of our aborigines is domiciled. He will have a fine field to look upon down there, but he is very slow.

I had the pleasure of seeing a good deal of Mr Bicheno upon his arrival in the Colony. I like him very much but I fear his official duties will allow him no time for Botanical or Natural History pursuits.

My good friend Sir John Franklin has left the Island, and will leave Port Phillip for England about a month after this time. I sincerely regret his departure as the loss of a warm & worthy friend. He may not have been a brilliant Governor, but he was certainly a good man & influenced by the best and purest motives. I rejoice to be able to say that after an intimate official intercourse I have retained Sir John's good opinion to the last. He has appointed me his agent in these Colonies (as has also Lady Franklin) where he leaves several thousand pounds invested. It is the best proof he could give of his confidence in me. It is just possible I may take a trip across to Port Phillip to take a final leave of them next month. but that is as yet uncertain.

Our new Governor Sir Eardley Wilmot has established a Horticultural & Botanical Society at Hobart Town, but I doubt very much its success.— There are no men in the Colony who give up time to these things. I am really almost the only one who steals some hours from other business to devote to Botany & after all I do but little of what a man might do whose time was entirely devoted to Nat. History. It would really answer the purpose of some of the richer Societys & Naturalists to pay a person out here to collect— — make it in fact worth a person's while to gather & send Home. When I tell you that Paper alone has cost me upwards of £40stg. within the last three years you may judge of my expenses. Some animals I have just shipped to Professor Owen in brine cost me about £20. A trip in the bush always costs some pounds & your Son will tell you how much it costs to have the slightest thing done. I usually pay handsomely even for common things that

those who gather "curiosities" as they are called may bring any novelties to me. I am however entirely without a Botanical assistant, so that I must collect, dry, arrange &c all my specimens myself which will account for the delay in your boxes going off. Mrs Gunn helps me a good deal but a rising family gives her full occupation without bothering herself with my hobbies. I have six farms under my own management scattered 70 miles apart.— so that my frequent visitations to each give me riding enough. On Horseback however I cannot carry much although I make shift to stuff my hat & pockets. I dare not carry visibly my means of preserving plants or else the good people would suppose I was neglecting my business & only culling flowers. I therefore hide my botanizing propensities as much as possible.

Mr Gray of the British Museum has never written to me or sent me any Books. I regret this as it has damped my ardour in many of those branches. The Box which I now regret you gave to the British Museum was worth £50, and the specimens in it cost me nearly that amount ! For some of the rarer birds I paid £2. each—and the two Emus were over here worth £10. Gould told me that he bought many of the skins from Gray & paid for them but even that amount never reached me. It is unfair, because with a large family I yet spend every spare shilling for the advancement of Science— & look for no return beyond that of Books or similar things. The British Museum could afford to reward me liberally, & for their own sakes ought to have encouraged me as a Collector.

From Mr Short I have never heard. I am still in debt £300 on his account which I must pay off as soon as I can gather the amount.

I have sent Duplicates of your Collections to Lindley & Brown, & if you see them you might suggest Books not already sent by you although in most cases duplicates are valuable to give away to induce people to collect for me.

I shall add a short account of my Cases in the next sheet to which I must beg to refer you

Box

W.I.H.

1 contains specimens of woods, some fossils, and branches of that large Epacrideous plant growing 10 to 25 feet high with usually merely a tuft of leaves to top. It is sometimes but not usually branched. Backhouse mentioned it in his Index Plantarum in Ross's Almanack under Richea, & if it is undescribed I should like it to bear his name — He did much more for Botany than appears,

and I always gladly acknowledge that I reaped very much valuable information from him. The flowers are small. You will find them as No. 1215 in the Collection. In this Case are sundries besides.

Box

W.I.H.

2 contains Ranunculaceae to Myrtaceae & nothing else. I find that certain Caterpillars breed in the Eucalypti & destroy them in spite of the smell of camphor & Turpentine. They are an excessive nuisance.

In Box Marked J.II. are seeds of a great number of the Eucalyptus tribe with my numbers on the packets.

Box

J.H.

L This contains all the Natural Orders 227 of Dicotyledones from Myrtaceae to Coniferae. The Monocotyledones I have not yet arranged !

This case also contains a lot of specimens from Port Phillip and I have 300 more to follow from the Coast at Portland Bay. Lot of Mosses & Lichens, Lycopodiums, Fungi, &c. not numbered. Lot Algae from George Town are numbered. They were gathered & preserved by Mrs. Gunn upon the plan suggested by your Son. Woods of various trees & shrubs named or numbered to correspond with the plants. Some "Native Bread" a fungus here. Seeds of Eucalypti. Dawsonia — & anything else to fill up.

In a box to Mr Brown I put some Cider of our Eucalyptus — as I did [not?] wish to put any liquid in more boxes than one lest the Bottles should break. Get him to let you have some of it. I forget if there was anything else in this Case for you.

Should you require reference to more specimens than I have sent you, you will find corresponding ones of most of the species in the Collections I have just sent to Lindley & Brown. The only ones I did not send them were the rarer Eucalypti which your son talked of publishing

Amongst my new numbers you will doubtless find mere varieties of some of the older ones, but I explain my reasons in each case in my notes (which are to follow). Many however are new say 200 of them — and as I yet have a great number of Monocotyledones not previously sent Home by me my numbers will swell out by & bye. I have gathered Vallisneria, Isoetes 2

species *Azorella*, *Ruppia*, *Potamongetons*, & various *Charae* which I must arrange as soon as possible. A few additional orchideae also rewarded my explorations.

My excursion to Recherche Bay enabled me to identify nearly the whole of La Billardiere's V.D.L. plants as I went over the ground visited by him. The only species I have not seen are his *Billardiera pisiformis* which I do not believe exists in V.D.L. but as it is common at King George's Sound & LaB. collected all his Cape Lewin plants a little to the East of that harbour I presume he has mistaken the habit. *Gompholobium tomentosum*, *Melaleuca fascicularis*, *Stylidium umbellatum*, *Euthales trinervis*, *Croton quadripartitum*, I did not collect. They may have existed but as I did not possess his work to draw my attention to them I never thought of searching for them. Of almost every other plant of V.D.L. in his work you will receive specimens just now. I intend however sending you some observations on the Plants figured in his work with a view to clearing up some difficulties & synonyms. His *Boronia pilosa* is my No. 1037 — and you will find that his plates considering their age are very characteristic. *Frankenia tetrapetala* is my 1029. — *Myriophyllum amphibium* is my 1068 *Eucalyptus cordata* my 1071. *Canthium quadrifidum* is your *Coprosma microphylla* & my No. 219. *Cyathodes abietina* my 1185 *Decaspora disticha* my 1200 & not my 297 as I at one time supposed. *Epacris myrtifolia* 1206, &c &c The true *Campynema linearis* is my 954/1837

I can never sufficiently express my admiration of Brown's *Prodromus* — it is so exceedingly accurate. It is to me a source of astonishment how he saw so many of our rarer plants. I wish he had completed it.

I spent a week on the mountains last February but except to obtain "Cider" & specimens of the real Cider tree (*Eucalyptus*). I picked up few novelties.— A small *Coprosma* was almost the only plant I gathered. I got some good specimens of some of the older things.

On the Sea Coast near George Town I have added a little to my stock. It is a sandy country covered with what we call a healthy vegetation— A *Goodenia*, *Utricularia*, *Villarsia*, *Casuarina*, *Leucopogon* ? &c not previously obtained are in the present Collection.

I send a letter for your son, but should he not have returned to England pray open it as it contains nothing but what you may peruse

[After closing he adds]

The Algae are sent in a Case of Lindley's addressed to you — as your own was closed before I thought of them

Any Parcels for me sent to Messrs Buckles & Co. of Mark Lane will be duly forwarded. They are my wool agents. This will save delay in looking out for opportunities.

My address is Launceston V.D. Land.

1215. Probably *Richea pandanifolia* Hook.

1037. *Boronia pilosa* Lab.

1029. *Frankenia tetrapetala* Lab. i.e. *F. pauciflora* DC.

1068. *Myriophyllum amphibium* Lab.

1071. *Eucalyptus cordata* Lab.

219. *Canthium quadrifidum* Lab. i.e. *Coprosma quadrifida* (Lab.) Rob.

1185. *Cyathodes abietina* R.Br.

1200. *Decaspora disticha* Hook. i.e. *Trochocarpa disticha* (Hook.) Spreng.

297. *Decaspora gunnii* Hook. i.e. *Trochocarpa gunnii* (Hook.) Spreng.

1206. *Epacris myrtifolia* Lab.

954/1837. *Campynema linearis* Lab.

"Native Bread" is an underground fungus, *Myliitta australis* Berk.

This letter was landed at Falmouth as an 'India Letter' and reached Kingston (on Thames) on 18th April, 1844.

The Hon. J. E. Bicheno had arrived in Van Diemen's Land as Colonial Secretary in 1842, and, keenly interested in scientific studies and Natural History, was a leading member of both the Tasmanian Society and the Royal Botanical Society formed in 1842. The holiday resort of Bicheno on the East Coast is named after him.

Professor Richard Owen, of the Royal College of Surgeons, was the famous zoologist and anatomist, whose work in comparative anatomy contributed much towards Darwin's Theory of Evolution. Some of his contributions for the Zoological Society of London are reprinted in the "Tasmanian Journal."

Mr. J. E. Gray was a zoologist at the British Museum. Perhaps he thought it was reward enough for Gunn to name the Striped Bandicoot (*Peremales gunnii* Gray, 1838) after him.

This letter contains the first reference to a second Mrs. Gunn and a growing family. In 1841 Ronald Gunn had married Margaret Legrand Jamieson, daughter of David Jamieson of "Glen Leith" estate near New Norfolk. He apparently combined botany with courting, as several of his specimens in the Sydney Herbarium have "Glen Leith" as the collecting locality.

It is doubtful if Gunn went to Port Phillip to say goodbye to the Franklins. There is no mention of a trip there at the time in subsequent letters. According to the diary of Lady Jane Franklin (Mackaness, 1947), Ronald Gunn, Thomas Henty and J. H. Wedge came in a steamer and bade farewell to the ex-governor somewhere between Swan Island and Circular Head, most probably at George Town, where Gunn owned a house and two acres of land.

The property owned by the Franklins in Tasmania was considerable. According to the Government Gazette of 1864, Lady Jane Franklin was still in possession of 5,200 acres of pastoral country on the North Esk, 1,200 acres at Barrowville and 1,000 acres on the St. Patrick's River. In each case Ronald C. Gunn is listed as agent. She had also owned the "Ancanthe" estate near Hobart, Betsy Island off South Arm, and land on the Huon River at Franklin, let in small sections to tenant farmers.

With the letter went notes on Labillardière's collection, which are printed as Appendix C.

Six months later Gunn entrusted another box of specimens for Hooker to the care of the Rev. Archdeacon F. A. Marriott, Chaplain and Archdeacon to Bishop F. R. Nixon, the first Anglican Bishop of Tasmania. Marriott had come to Tasmania with Nixon in 1843 and was returning to enlist more clergymen for service in Tasmania, and to obtain funds for promoting the work of religion and education in the colony. One result of his efforts was the establishment of Christ College at Bishopsbourne (later removed to Hobart).

LETTER 190.

Launceston, Van Diemens Land.
9 May 1844.

My dear Sir,

The Venerable Mr Archdeacon Marriott proceeding to England in a few days P. Kinnard from Hobart Town I have forwarded by him (to save freight) a small box of rough dried Algae. They really look so perfectly horrible to the eye that I have been ashamed to send you any hitherto and I fear the present lot will do me no credit. I find that they become very brittle in drying and what is worse—lose colour—shrink & look most villanously ugly—they also take up much room in packing. If you can aid me by any hints by which their appearance may be improved so that they may reach you in decent order—I shall try to send you something better worth while. I have got a considerable number of additional species dried like ordinary specimens of Plants but I did not know whether it might not be an objectionable mode—These you must get in my next lot of Plants. I think they look very much better than by hanging them to dry in the air. I am also disposed to think that drying them just as they come out of the Sea is better than soaking them previously to drying in fresh water. The salt seems to keep them soft and would enable you to soak them in England more easily for examination—& then you might dry them finally if you liked. Let me know whether there are any objections to preserving thus—as fresh water is not abundant near George Town in the summer time.

As the present lot will I trust cost you nothing— I shall be glad to receive your report. I have plenty more of the smaller kinds dried on white paper. & lots of what I suppose *Claudea elegans*.

I have been ill for the last 3 months which has confined me to the House— & I lost the season for collecting many things. Of V.D.L. Plants I have got very few novelties since I last wrote— & my illness has prevented my arranging the Orchideae & Monocotyledonous Plants. I shall have to go on as soon as I have leisure.

I have also got for you between 6 & 700 species of Plants from Australia Felix North of Portland Bay, & from the Banks of the Glenelg River. Many are very interesting to me as showing the variation between the Flora of V.D.L. & New Holland. Many species are the same, but many are astonishingly like— but yet different— The Orchideae are nearly all found in this Colony— but there are several genera with which I am unacquainted as not being found in this Island. The various species of *Loranthus*— parasitical on the *Eucalyptus* and *Acacias* seem to be the most marked character of difference in the flora of the two places.

Since I last wrote with my last collection I was at George Town & York Town. An additional species of *Ozothamnus* also rewarded my labours, but I saw several plants which I had only previously gathered about Rocky Cape— & it is a good thing to find new localities nearer Home. A visit to Rocky Cape would now cost me at least a month.

By Capt'n Riddle of the Barque "Tasmania" I sent you very rough notes on the collection I sent P. Mona. I fear you will find them miserably meagre— but really so long as I can only steal moments to devote to Botany — so long you must feel satisfied with but imperfect sketches of the Plants &c I am enabled to send you.

These Colonies have got into a fearful state in money matters— arising from over speculation and other causes. Property has fallen in Value to a ruinous extent— and land is now sold for a tenth of what was paid for it a few years ago. Insolvencies innumerable have been the result— and I have reason to bless my stars that my poverty has prevented my losing anything. I therefore remain as I was— richer now than many of my neighbours who formerly boasted of their thousands.

I shall be glad at all times to hear from you when you have leisure. Tell Joseph that I must write to him next.

I have sent to Dr. Robt. Brown a Collection of Sponges by this opportunity.— Have you any interest in them?

I have more Cider of the Cider Tree if you desire it.— The nuisance is that a liquid cannot safely be sent amongst dried specimens.

I shall now say Goodbye

[*He adds as a postscript*]

I mentioned before for you to send any parcels for me at any time to Messrs Buckles & Co. Mark Lane, London who will always forward them direct. They are my wool agents. The Box is marked W.L.H. on the lid, but I put a card of address under the one with the Archdeacon's name, so that when he got to London he might tear off his own and let yours stand.

The letter arrived on 4th October, 1844.

Whether or not the parcel sent home by Archdeacon Marriott was satisfactory, the collections of sea weeds that Gunn from time to time sent to England formed the basis of the fifth volume of W. J. Harvey's "Phycologia Australica," and this volume is dedicated to him with this note—"From Ronald C. Gunn came the earliest collections of Australian algae, which, through the kindness of Sir W. J. Hooker, fell under my notice. Many new species are of his discovery; to him also is due the re-discovery of *Claudia elegans*; and to him I am not only indebted for the freest use of his personal collections, but for multitudes of duplicate specimens".

The plant collections from Australia Felix (Major Mitchell's name for the Western District of Victoria) were almost certainly gathered by John G. Robertson on or near his station of Wando Vale. Gunn visited Robertson more than once, but in later years and, as he makes no mention of collecting these specimens himself, it is likely that Robertson sent them to Gunn for arrangement and examination before transmitting them to Hooker. The New South Wales botanist J. H. Maiden mentions, (in a note on Robertson in an article called "Records of Victorian Botanists" in "The Victorian

Naturalist" of November 1908) that he has a "List of Plants received from Mr. J. G. Robertson in Gunn's neat handwriting. All the plants are numbered. There are ten and a half closely written pages with critical notes."

Loranthus is the Mistletoe. The Australian mainland has several species of this parasite which is absent from Tasmania. The so-called Tasmanian Mistletoe is really a parasitic leafless vine of the genus *Cassytha*. *Claudia elegans* is a seaweed.

The "fearful state of the colonies" followed the collapse of the Victorian Land Boom in the early eighteen-forties. Land and stock prices fell disastrously and many speculators and land owners became insolvent. It is possible that Ronald Gunn took advantage of the low prices to purchase land and stock following the slump. By 1850 he owned considerable property.

The Cider of the Cider Tree was a fermented liquid made from the sap of the Cider Gum (*E. gunnii*). During late spring and early summer the sweetish sap of this highland species of Eucalypt runs very freely and appreciable quantities may be obtained from cut or broken trunks and branches, or deep incisions in the bark. The Tasmanian aborigines collected this sap in holes lined with clay and covered it with bark until it fermented. Gunn's bottled cider was probably made by less primitive methods.

In an article called "Excursion to the Western Range, Tasmania", in the "Tasmanian Journal" (Vol, 2, p. 140) Lieut. William H. Breton, R.N. remarks that—

The Shepherds and stock-keepers who tend the flocks and herds on that elevated region are in the habit of making deep incisions wherever an exudation of the sap is perceived upon the bark. The holes are made in such a manner as to retain the sap that flows into them, and large enough to hold a pint. Each tree yields from half to a pint daily during December and January, but the quantity lessens in February, and soon ceases.

In Gunn's next letter he reports sending a couple of bottles home to Hooker, with bottled specimens preserved in pyroligneous (acetic) acid.

LETTER 189.

Launceston V.D.L. 30 Septemr 1844

My dear Sir,

Your most interesting letter of 13th May was received by me a fortnight ago with sincere pleasure—and I assure you I am delighted with the prospect of seeing a Flora Tasmania. I shall give my best help towards it despite the multiplicity of my present associations.

I now send Home P. "Robert Matthews" two Cases to your Address. One containing two bottles of Cider from the Eucalyptus, a great number of Orchideae in pyroligneous acid—vizt various sp. of *Diuris*, *Caladenia*, *Macdonaldia*, *Chiloglottis*, *Pterostylis*, &c—also a bottle with *Gunnia Australis*. To fill up the case I put in sundry bottles of Snakes, frogs, Birds, Mulluseae, and Crustaceae, &c— which I should like to be given to any one who would use them. I am really anxious that our Tasmanian Natural History should be well known—and if I can be the humble means of collecting the specimens—I shall be satisfied. All I have ever asked has been Books without which I cannot work, or at least I toil in the dark— without pleasure—and I am afraid my collections would soon be very small indeed were it not for the intense enjoyment I feel in gathering. In the second and largest Case are two packages— Auckland & Campbells Island specimens for your Son; a Lot from the Straits of Magellan; a few New Zealand plants & ferns; a few plants from Port Essington & Raffles Bay on the N. Coast of New Holland— collected by Le Guillieu in D'Urville's Expedition— a very large lot of the smaller Algae preserved on papers— among which plenty of large specimens of *Claudia elegans* and some others hardly less beautiful.— These are almost entirely the labour of my "Womankind" as the Antiquary has it. Another parcel contains the larger Algae, *Zostera marina* in fruct., *Ruppia maritima* ? *Caulinia antarctica* and some others which bother me, as I am fairly beyond my depth when I get out of the *Phaenogamia*. You must aid me a little by & bye. To these I have added all my specimens of Ferns, some good specimens of a beautiful coralline, & the whole filled up with an immense lot of seeds among which are many rare and good ones such as *Athrotaxis* & *Dacrydium*— My *Backhousia* (arborescent *Richea* of Macquarie Harbour) and numerous *Leptosperma*,

&c &c. All the Lichens, Fungi &c I threw in. I was vexed to find two small cigar cases of minerals, &c belonging to your Son among my miscellanies the other day— My House at Hobart Town was very small, & I had put them amongst some V.D.L. shells, &c in packing to come here, & there they lay snugly esconced until chance led me to turn over my reserve boxes of shells. My eye then caught "J. D. Hooker" legibly written by myself on slips of paper in each. I cannot help this blunder now.

I immediately wrote to Lieut. Smith to send me the Wards Case— & it is now on its way by sea to Launceston. If I get it in time I shall fill it at once and send it to you. I am sure I can send you many interesting plants from this. If you will therefore at once send me two more cases out through Buckles & Co who will tell you when a good vessel is likely to come direct to Launceston— and I shall promise faithfully to fill them and send them Home regularly. I have a large garden & cultivate largely— but I am most anxious for all those things likely to stand our open air without much nursing. If I get your Case in time I shall send the list of the things I send you in it by another letter. It is probable I may draw upon you from time to time on acct. of the Royal Gardens for whatever amount you authorize — but it will only be with a view to defraying expenses— or to invest in a good Microscope and Books. I possess Zeal to overflowing— but my mind is too often exhausted by a multiplicity of associations — one unconnected with the other— which my position here obliges me to discharge— so that I have not that continuous leisure to enable me to become proficient in any science— or indeed the advantage which those possess who devote all their time to any one pursuit. You shall have however as much of my time as I can spare & perhaps more than I ought were it not that my whole heart & soul is with you.

I have got some interesting things still to send, but my box would not hold them, & I thought the Auckland plants, Fungi, Lichens, Algae & things of this character were more important to reach Joseph first. For the future I shall send all to you, & must beg you to divide with Lindley on my account— as he has been most attentive to me. If therefore you can spare any seeds (particularly Orchideae) pray let him have them.

I am sorry Brown is so close. I venerate the man so highly that I am most unwilling to think otherwise than most favourably of him. I never found one of his observations wrong yet— and he seems to have seen almost everything. Get him to let me know the result of the Fossil

Woods I sent him. I am anxious to know if one was really a *Banksia*. Tell him that I suspect that I have got Fossil *Casuarina* or something like it, which I will send him if he sends me the acct. of the present lot. I have got an instrument made for cutting thin sections of wood for the microscope, but I cannot manage to cut the stones so as to compare them. Tell him also— I have more sponges for him from the South Coast of New Holland (Western Port).

Amongst some Books I bought at Auction the other day I got "Jacquins Selcetarum Stirpium Americanarum Historia"— in 2 Vols. edition 1763 with 183 plates. It is of no use to me whatever, and if you want it — I shall send it to you. I also got Hills Hortus Malarbaricus, part 1. with 57 plates edition 1774. This is also of no value to me. The plates are good of their age & Commelin's descriptions probably correct. I mention these to you as they may for ought I know be valuable in England.

I shall send this in the Case & write again by post.—

Of the various genera of orchids Gunn forwarded, *Macdonaldia* is now known as *Thelymitra* and *Gunnia* as *Sarcochilus*. Of the seaweeds *Zostera marina* was probably *Z. tasmanica* G. V. Mart.

The "Flora Tasmaniae" was published as Part III of "The Botany of the Antarctic Voyage of H.M. discovery ships "Erebus" and "Terror" by Lovell Reeve of Covent Garden, London, in 1860. It bears this dedication—"To Ronald Campbell Gunn, F.R.S., F.L.S., and William Archer, F.L.S., this Flora of Tasmania, which owes so much to their indefatigable exertions, is dedicated by their very sincere friend, J. D. Hooker, Royal Gardens, Kew, January, 1860." (Gunn became a Fellow of the Linnean Society in 1850 and of the Royal Society of London in 1854).

William Archer was the second son of Thomas Archer of "Woolmers," in the Longford district of Tasmania. Born in 1820, as a young man he studied architecture in England and later designed several well-known Tasmanian buildings, including the Hutchins School, Hobart, and the mansion of "Mona Vale" in the Tasmanian Midlands.

His home was at "Cheshunt" near Deloraine, under the northern scarp of the Western Tiers. He was an enthusiastic plant collector and accomplished botanical draughtsman. Among the 200 beautifully drawn, coloured lithographic plates that illustrate the "Flora of Tasmania" are 30 done by William Archer, depicting 60 species of Tasmanian orchids. As well, he contributed £100 towards the cost of production. The Tasmanian Government also voted £350 for the "Flora Tasmaniae", while the British Treasury gave £1,000 towards the cost of coloured plates for the whole series, which included "Flora of Lord Auckland and Campbell's Islands", "Flora of Fuegia, the Falkland Islands, &c.," and "Flora of New Zealand", as well as the "Flora of Tasmania." The Tasmanian section, in two beautifully produced volumes, the first for Dicotyledones, the second for Monocotyledones and Acotyledones, describes in all 2203 species, of which 412 were figured.

There is no mention of William Archer in any of Gunn's letters to Hooker contained in the file, but most of these were written when Archer was still only a youth or a young man in England. It is certain they afterwards collaborated in collecting and corresponded with each other. In William Archer's letters and diaries (in the possession of his granddaughter, Mrs. Frank Edwards of Ulverstone, Tasmania) there are several references to Ronald Gunn, and there is little doubt that he made "Cheshunt" a base for some of his collecting trips. Although they had a mutual interest in Botany, they were opposed in politics. William Archer was an Anti-transportationist, Ronald Gunn favoured a continuation of the Convict system. In an entry of his diary of 10th May 1847, Archer mentions a meeting on the question at the Cornwall Hotel, Launceston, when "Mr. Gunn and others spoke in favour of Transportation, but the meeting hissed them constantly and would scarcely listen to them at all". In 1851 William Archer stood as a candidate

for the first elected Legislative Council of Tasmania, for the division of Westbury, which then included the whole of North-Western Tasmania. Archer in his diary records that in his election campaign he visited Circular Head in company with Ronald Gunn, who was making a report on the affairs of the V.D.L. Company; but Gunn did not interfere at all with his canvassing and they did some botanising together.

This letter also contains the first of many references to Wards Cases, an innovation in the transportation of living plants over long distances which might occupy months. In a letter of 13th January 1836, in Vol. I of W. J. Hooker's "Companion to the Botanical Magazine", Mr. N. B. Ward explains how he got the idea when he placed the pupa of a moth in a sealed glass jar in moist earth in which also were weed seeds. These germinated and continued to live and grow in the jar for several weeks. Sunlight could enter the jar but moisture could not leave it.

Applying this principle on a larger scale he placed living plants in a strongly made box containing moist earth. The glazed lid of this box, shaped like a hip roof, was then clamped down with steel bands so that the box was hermetically sealed. The box was then placed where sunlight could reach it, as on the deck of a ship. On a long voyage, barring accidents, the survival rate was reasonably high, though Joseph Hooker sometimes referred to them sarcastically as Ward's 'Coffins'. (Polythene plastic bags are now used for the same purpose.)

A reference in a brief note, written two days later to acknowledge the receipt of more books from Sir William, indicates that Sir John Franklin's Tasmanian Society had now in actuality become Ronald Gunn's Tasmanian Society with its headquarters in Launceston.

LETTER 186.

Penquite, 2nd October 1844.

My Dear Sir,

Your immense consignment of Books by Lieut. Smith only reached me yesterday — and as I had got a small parcel from the same gentleman previously — I was surprized by the arrival of the second and larger lot. — Pray accept my best thanks for them.

I enclose herewith Copy of an Article of Mr Colenso's which appears in the 2nd Vol. of our "Tasmanian Journal" on "Certain New Ferns". The Tasmanian Society was really dead until I took it in hand the other day — became its Secretary — and have now in the press at Launceston! a number of the "Journal" which will contain this paper of Colenso's as also portion of another which ought to have been published long ago.

I enclose herewith a list of a few plants — any of which you can send out in the Cases — and I shall replace them to you by not less interesting Tasmanian forms.

Your Case of Plants is on its way to me — but has not yet arrived. I shall at once fill it with Ferns & plants from near my house — trusting to send those from more distant places by other opportunities.

In the present Case which I close at once — you will find many Odds and ends. — There are more things to go by next vessel. — but my hands are full. —

[*He concludes and then adds*]

Mema of things wanted. —

Plate 432 of *Icones Plantarum* wanting.

Letter Press of Plate 3430, Vol. 9. Botanical Magazine wanting.

These you may have to spare & they will make my Vols. complete.

I should like Mary Wyatt's *Algae Dawsoniensis*. — You have sent me the Supplement to it. — Send me the names of the genera of my algae when you can.

Pritchard's "Hist. of Infusoriae" would if cheap, enable me to get Plants from P. Phillip — or any other works on this subject — as my friend there is devoted to this study.

The outside of the letter bears Sir W. J. Hooker's name but no address and no post-marks and so may have been enclosed in a larger packet. The enclosures he mentions are not with the letter.

Writing to Sir John Franklin from Penquite on 19th September, 1842, regarding the *Tasmanian Journal*, Gunn says, —

I find it difficult to remember all the circumstances originally connected with the printing of the Magazine, but I believe they were nearly as follows.

When it was first determined to publish the "Tasmanian Journal" I applied to Mr. Elliston printer of the Hobart Town Courier to ascertain whether it could be printed by him. He said he could but only by throwing off half a sheet at a time, as he had not a sufficient quantity of some of the kinds of type required. At his request I asked the Government Printer if he could spare the quantity wanted by Mr. Elliston upon the condition that it should be returned as soon as he could obtain some from England, but M. Barnard could not comply. The Courier was subsequently printed twice a week and if I recollect rightly greater difficulties arose to the printing of the Magazine by Mr. Elliston without a larger supply of type. I then asked him if it could be printed at any other office in Hobart, but he replied that it could not, as there was no office had a sufficient quantity of good type of the description required to do the work well, and it was particularly desirable that such a publication should afford a good specimen of the typography of the Colony.

At Launceston Mr. Dowling had sold his establishment to Mr Knight, who was printing two newspapers, and could not undertake the publication of a Magazine. The character of the type of the Cornwall Chronicle rendered the employment of that office impossible.

Neatness and accuracy were deemed essentials in a Scientific Periodical, and the miserable blundering style in which all the Newspapers were got up, except the Hobart Town Courier and Launceston Advertiser, was enough to have deterred from the employment of any but the Printers of these Journals if they could have undertaken the work.

The Rev. William Colenso, of Paihai, New Zealand, was a corresponding member of the Tasmanian Society, and contributed four

original papers to the "Tasmanian Journal", two of them on Ferns. The other two are the result of an excursion with a fellow missionary, the Rev. W. Williams, to the Poverty Bay region of New Zealand; one dealing mainly with botanical species observed there, the other entitled "An Account of some enormous Fossil Bones, of an unknown Species of the Class Aves, lately discovered in New Zealand." This is probably the first record of Moa bones ever to be published.

Colenso was Gunn's counterpart in New Zealand, Hooker's main correspondent and collector there. He has there been honoured by a biography, "William Colenso", by A. G. Bagnall and G. C. Peterson, published in 1948 by A. H. and A. W. Reed of Wellington, with the aid of the New Zealand State Literary Fund.

The Papers and Proceedings of the Tasmanian Society published in the "Tasmanian Journal of Natural History" are of a very high standard. Some are reprints of Papers read before learned societies in England, including a few by Sir William and Dr. Hooker and Professor Owen; but mostly they are original works, several by Ronald Gunn himself. One of these (Vol. I. p. 35) is a revised list of James Backhouse's "Esculent Plants of Tasmania", first published in Ross's "Hobart Town Almanack" of 1834, and arranged by Gunn in Natural Orders; another (Vol. III p. 147) on "The Bunyip of Australia Felix", was written in association with Dr. James Grant, and based on a skull found on the banks of the Murrumbidgee River by Athol Fletcher Esq., forwarded from Port Phillip by Edward Curr Esq.

A week after writing this letter Gunn had received his first Ward's Case from England and unpacked it, and was now busily refilling it with native plants for return, and three weeks later reports its despatch.

LETTER 187.

Penquite, near Launceston.
10 October, 1844.

My dear Sir,

I have already written you two letters in reply to yours by Lieut Smith, but as I expected to have to write a third to acknowledge receipt of the Case of Plants— I put them both into Case W I H No 2. which is already shipped on board of the "Robert Matthews" — and which you will find on top.— I have now the pleasure of saying that the Case of Plants has reached my hands, & I opened it this morning— finding upwards of one half its contents alive.— I have no list however of the plants in it — but I may as well mention that all the Coniferæ save one, and nearly all the Azaleas are dead. This would lead me to observe that, perhaps, in future lots, it would be well to assort the plants— putting some which like a dry atmosphere into a case by themselves. Nevertheless the Case has been most fortunate, & it is probable some may have died from a pane or two of glass having been broken during the passage which however Lieut. Smith kindly got repaired. I have at once set to work to fill it and return it by the vessel to sail in a few days, and as the Orchideæ are many of them now in flower— at which season alone they can be gathered— I have filled the case almost exclusively with these little plants. You will I think receive many of them if not all alive. There are in the Case

Pterostylis squamata, *nana*, *curta*, *nutans*,
pedunculata & *mutica*.

Caladenia barbata, *carnea*, *Patersoni*, & others

Chiloglottis diphylla;

Cyrtostylis reniformis;

Microtis sp.

Diuris curvifolia, *lanceolata*— with varieties of
both these species

Glossodia major

Anguillaria dioica & *uniflora* ?

Burchardia umbellata

Caesia corymbosa & species

Arthropodium sp.;

Anthericum barbatum ?

Drosera my 448.

Brunonia australis;

Brachycome sp.—

Anopterus glandulosa

Athrotaxis 3 species—

These two last & 1 pl of *Fagus* are doubtful although I have had them for some considerable time.

You will also find a great number of miscellaneous plants in the earth— and in the balls with the plants which were dug out of the Natural soil — Among these I send *Wahlenbergia gracilis* & the annual species.

Viola hederacea

Dianella sp; &c &c &c &c &c

I sincerely hope these will reach you safe— as I dug them all up myself— & have seen them at once packed carefully in your Case. I would advise you to save all the earth and mosses in the Case, & place it over a gentle heat by which you are likely to start many seeds of the *Hymenantha angustifolia*, *Astroloma humifusa* & others. Not a particle of the soil I sent being from the garden.

Immediately after filling the above Case I set about collecting Ferns which I shall send you in a close box nailed down. I do not know how this plan will answer— but it is worth trying as the simplest way of sending such bulky and common things— which if lost are easily replaced. If I can get a Case made here reasonably I shall send it off by one of our early vessels with shrubs, of which I have got many ready— at all events return me as many Cases as you like & I shall fill them regularly— if not with handsome plants at all events with what may prove botanically interesting. Almost every Orchideous plant I send is in its natural soil— so that you can keep them afterwards by the sample you find about their roots.

This is a capital season for Plants to reach V.D.L. being our spring— so that your dispatching things from Kew in April & May, would suit us admirably— but you must be guided by the sailing of vessels.

For your Son's Flora Tasmania I have still many new things— which he shall have in due course.— I am working — though it can only be by fits and starts.— By the Robert Matthews you will therefore now receive 4 Cases— altogether; as P. memorandum & Bills of Lading enclosed— To their contents I must refer you—

[He adds as a postscript]

I have before closing the lid on the Wards Case covered the whole surface with seeds of all our species of *Athrotaxis*— as also rare *Epacrideae*, *Cryptandra*, *Leguminosac*, and many other seeds. Some of these will I trust grow.—

The Box of Ferns contains amongst odds & ends.—

Blechnum or

? *Lomaria*— 7 species

Dicksonia 1 small spn

Aspidium proliferum

Aspidium sp.

Polypodium Billardieri

Cheilanthes tenuifolia

Adiantum assimile

Lindsaea ? large

Doodia aspera ?

Hernionitis ? my 14

Grammitis rutaefolia

The Moss will also contain seeds—

448. *Drosera peltata* Sm.

14. *Todea africana* Willd. i.e. *T. barbara* (L) T. Moore—Austral King Fern. His "annual species" of *Wahlenbergia* was perhaps *Wahlenbergia gracilentia* Lothian which "was collected on Circular Hd. but *W. gymnoclada* and *W. billardieri* were also sent under '*W. gracilis*'"—Dr. R. Melville.

This letter sent per "Robert Matthews" arrived on 13th February, 1845. Early in December he writes again.

LETTER 188.

Penquite, near Launceston.
3rd December 1844.

My dear Sir,

By the "Robert Matthews" which left our land on 28 Oct. I sent your Wards Case full of Orchideous roots and a number of small things which I trust may reach you alive. Also a closely covered Case full of our Terrestrial Ferns of 14 species — if these arrive even comparatively safe— I shall send you immediately all the rest of our Ferns — terrestrial & epiphytical— as they are all come-at-able within a reasonable distance of Penquite — say 50 miles. I have been unable to see the *Gunnia Australis* since I left Circular Head but if I can come across it in my rambles you shall have it. By the Robert Matthews I also sent two Cases— one of dried specimens and the other of wet ones — such as *Orchideae* in bottles— besides various reptiles, &c to send to others. These have been doubtless in your hands sufficiently long that you know their contents.

I am still gathering fast — I have splendid specimens of *Alsophila Australis* for you which I found in the Asbestos Hills— and plenty of it.— I also obtained some additional species of Algae— and a good number of plants— which if not new will at least be better in flower than any I before sent. Since I last wrote I may enumerate *Pleurandra astrotriche* *Tetratheca ciliata* *Platylobium Murrayanum* & many common things— with a new sp. of *Clematis*, a new *Acacia*— unfortunately out of fl. close to *A. Gunnii* a *Triglochum* a *Chara* and some small things not easily enumerated.— The *Ruppia* are finely in flower — as also *Myriophyllum varia[e] folium*.— A curious new aquatic *Ranunculus* with fine thread like leaves, which flowers under water; I obtained at Formosa— and I think I can add two species of *Euphrasia* to those last sent—

To your Son I have detailed my visit to a Granite Country 20 Miles North East of Launceston — there I got a few small plants such as *Caldesia* &c. but I think little quite new unless another *Ranunculus* (besides my 634) proves to be so on examination. My *Ranunculus* 634 which you have classed with *R. lappaceus* is very distinct from it— as further examination will show. In the St Patricks river I obtained *Callitriche verna* I think— but you shall have specimens.— I am paying a good deal of attention just now to collecting the unattractive plants so as to supply you with many which are I suspect often overlooked.— I trust I may thus be able to give you a fair idea of our flora although I much fear many will still pass unheeded.—

I am getting a Wards Case built for myself & as soon as it is finished I shall fill it and ship it off. I shall draw against those already sent but only as a means of paying your Son for the Books I obtained. I shall dub him my banker & let the results of my labours reach me in Books, paper & such like. I can assure you that you reap almost half the profits of the Books I obtain, as the moment my knowledge is increased — I am enabled to work to much greater advantage— and my flagging zeal gets a fillip from every packet. From this time I shall send you all my Specimens — from which you can cull for your Herbarium, & then distribute the remainder. Send me names of the Mosses & Lichens & if you could return me a small modicum of each with the name appended it would add to my pleasure & ultimately most immensely to your Herbarium as without the names I plod on in the dark, & feel little interest in things of which I know nothing. The moment I catch the name even of a genus I then seek out other species — Pray bear with my ignorance and I shall try ultimately not to disgrace my

preceptor. You must know that I know nothing just now and I have not time to wade through the mass necessary to acquire generic names. Give me that first help and I can often fight my way to the rest. Books of Plates of various kinds afford me much assistance and many thanks to you for the good supply I have from time to time received.

I am about to charter a steam boat for a day's Cruise (along with a few others) to visit the Hebe Reef about 7 miles off from George Town with a view to gather any Algae not common to the Estuary of the Tamar. What success I shall have I know not, but I am waiting for fine weather— and the moon's age to be favourable so as to give an unusually low tide.

I am exceedingly sorry that I cannot get my friend Dr. Valentine to work at the Cryptogamia for which his knowledge so admirably suits him. He has abandoned Botany altogether, and I believe he has done so lest his devotion to it should injure his business as a medical man. There is no other one in the Colony whose aid I would covet. I mentioned in my letter to your Son my having procured numerous specimens of a species of *Cyttaria* off the *Fagus Cunninghami* agreeing very closely to Darwin's description of the *C. Darwini* off the *Fagi* at Terra del Fuego. In these damp Forests I saw many *Jungermannia* & allied genera but I know not how to preserve the thin thread-like inflorescence. I got *Anthoceros* (*Monoclea*) also— but these plants are still puzzling to me.

Decemr. 20th I have got very little more to add to the preceding.— I am adding a species or two every now and then— or getting good specimens of plants which have escaped me hitherto. I got lovely specimens of my *Pimelea* No. 6— of which I have not hitherto sent you a good specimen.—

It is some months since I last heard from you, but I hope to hear soon again from you or your son.— I am not losing a moment from the little leisure which my various avocations permit.

[*He appends a Bill of Exchange*]

£ stg	Launceston V.D.L.
	3rd Decemr 1844.
Pay to Joseph D. Hooker Esq or Order the sum of	Pounds on acct of two
Cases of Tasmanian Plants shipped by me P. Ship "Robert Matthews" from Launceston V.D.L. to London for the Royal Gardens at Kew —	

Sir W. J. Hooker,

Kew.

Ronald C. Gunn

[He also adds]

In your *Icones Plantarum* — I see that you spell our Coniferous trees, *Arthrotaxis* instead of *Athrotaxis* which was Don's name as given in the *Linnean Trans.* Endlicher in his *Enchiridion* does the same— Why I know not.— *Cenarrhenes* is also continued by all although LaBillardiere corrects it into *Cenarrenes* in the errata at the end of Vol II of his work.— I presume therefore the latter is the right way.—

At Tab 295 of the *Icones Plantarum* — the letter press is *Tillaea verticillaris* but the Plate — *Bulliarda recurva*.

At Tab. 285— a wrong plate is given to illustrate the text— I have not seen these alluded to in any errata and therefore mention it.

By the bye I have closely examined the *Callitriche* since— & found all the flowers perfect— it will therefore probably be a different sp. from the *verna* which I at first took it to be. I have got one or two aquatics which still puzzle me — One I really thought was the *Montia fontana*, but I do not find it to agree with the description of that plant.—

I have been hoping to see the *Flora Antarctica* ere this.

Yours ever
Ronald C. Gunn

634. *Ranunculus lappaceus* Sm. var.
pascuinus Hook.f. i.e. *R. pas-*
cuius (Hook.f.) Melville.

6. *Pimelea filiformis* Hook.

Cenarrhenes nitida is the Port Arthur Plum. The first published name is accepted. The *Callitriche* species was probably *C. stagnalis* Scop.

Although Gunn could not persuade him to do any plant collecting, Dr. William Valentine became a member of the Tasmanian Society, and presumably sometimes attended its meetings in Launceston. He had a good knowledge of optical instruments. Besides microscopy he was interested in astronomy, and erected a telescope in his garden at Campbell Town, where he was visited by American astronomers to observe the transit of Venus in 1874. The great tubes of the instruments are now gateposts there.

Another hobby was organ building. One pipe organ he was building in a shed was destroyed by fire when it was almost completed. He began another, for which his friends bought a set of spotted English pipes, but it was unfinished when he died in 1876. Valentine remained at Campbell Town, where he built the first hospital and continued to practice, sometimes with unfortunate results. In 1842 he fatally poisoned his friend, Theophilus Swifte, the schoolmaster, by accidentally administering a dose of laudanum instead of a black draught. This mistake cost him £25 in the Supreme Court.

His descendants, who lived in Launceston, were more interested in sport than science. His son William was secretary of the Tasmanian Turf Club, and also a keen angler. The Valentine Rivulet, a tributary of the St. Patrick's River, is named after him. One of his grandsons, Russ Valentine, was a brilliant Australian Rules footballer.

The Asbestos Hills is a barren quartzite range west of the Tamar Estuary and terminating in Badger Head. Deposits of the mineral asbestos are found there.

The 'granite country' would almost certainly be the Diddleum Plains to the north of Mt. Barrow. Gunn had a sheep run there. The St. Patrick's River flows through the Plains and is joined there by the Valentine Rivulet.

The 'blank cheque' appended to this letter was to enable Dr. Joseph Hooker to act as Gunn's 'banker', receiving from the Kew Gardens authorities the monetary value of his collections, and expending it on botanical books and appliances, including, no doubt, the Wards Case mentioned in his next letter to Sir William Hooker. This letter, and the one that followed it six months later, is mainly concerned with plant specimens received from or sent to Kew.

Although most of Gunn's botanical correspondence was with Hooker, he did occasionally send specimens to his hero, Robert

Brown. The following rough draft of a reply from Brown to Ronald Gunn is from the files of the British Museum, and elicited another letter from Gunn to Brown (also from British Museum files).

The rough draft really is a 'rough' draft. There are frequent alterations, corrections and insertions, in his search for the appropriate word or phrase. For example, Brown first writes—"careful packing", alters it to "Excellent packing" and finally decides on "*judicious* packing". His handwriting, hasty and untidy, together with his old-fashioned use of the long 's' made it difficult to decipher, and in some cases the words could not even be guessed at.

7 Dean St. Soho
Sepr 2d. 1844

My dear Sir,

I had very great pleasure in receiving your instructive Letter & the Extensive series of Dicotyledonous Plants of Van Diemen's Land wh accompanied it

These Plants are very valuable to me the specimens are in excelent condition & the C[ryptogams] arriv'd quite safe thanks to your judicious packing I received also your packet of Dawsonia through Sir William Hooker this moss is very interesting to me & your specimens belong to what I am inclined to consider a second species of the genus (*D. Longifolia*) of wh a few specimens were Found many [years ago] by Allan Cunningham in New South Wales.

Your Fossil Woods are also very acceptable & I should be glad to receive at a future time larger specimens of that wh you consider a Banksia.

In the British Museum we have an enormous trunk of this kind presented by a Mr Cr[] In structure It certainly very much resembles the *B. australis* but the recent plant has a remarkable [] character wh is [absent?] in the fossil

I am very desirous of adding to my Collection of [] Algae of V.D. Land & I find you have lately detected *Claudea* [*elegans*] a highly interesting discovery. Pray let me have as many specimens as you can of them partly to be distributed in your name to European Botanists [] who will be delighted in this very beautiful plant

I had hoped to have been [able] but a [] more particularly to have attended to your collection & to have communicated to you such remarks on it as its examination might have suggested But from various causes indifferent health being one I have [] been prevented I shall certainly however not lose sight of it & long to see your Monocotyledonous [] collection wh I hope is on its way.

I may mention that the specimens of Orchidea in the B. Hbm. have perished so far either from the acid being too weak or [the] great number of Specimens it contained that I was obliged to throw them away

Sir William Hooker promised but has not yet sent me a copy of the catalogue of your Botanical Library [so your needs are unknown] to me

I send for your acceptance the Volumes hopping to [] complete your set of the Linnean Soc. Transactions vizt vols 12 to [19 ?] part 1st both inclusive & a copy of the *Plantae Javanica Rariones* as far as published (vizt Parts 1-3) to wh I am a contributor & wh I hope you have not already got.

The only other article now sent is a very short essay on the Development of Embryo in Conifera in French & in English with an addition note of this essay I have sent a copy for Mr Biecheno & for Mr Valentine wh I beg you to forward an excellent Botanical observer whom you must have met with.

I am at this moment on the point of leaving London for several weeks & hope on my return in the begin of Novr to find that your Monocotyledones have arrived & hope then to be able to examine your [] collection [] now obliged conclude with [] begging you to believe that

I am Your obliged faithfully

R. Brown

Ronald Gunn Esq.

On the back of the letter Brown has written "Rough Copy to Ronald Gunn Esq. Launceston Van Diemens Land Sepr 2 1844" Regarding the *Dawsonia* moss species, Dr. Melville states that the *D. longifolia* of the Gunn mss. is *D. Superba* Grév.

Gunn replies—

Launceston, V.D. Land
27 January 1845.

Very dear Sir,

Three days ago I received the Box containing the Linnean Trans. & the Plantae Javanicae rariones all safe — for which pray accept my very best thanks. To a person like me so far removed from any Herbarium — books containing figures of Plants are invaluable — & with my very limited Botanical knowledge save a world of Labour, and really very often enable me to note things which would otherwise pass unobserved.— Every New Book which I obtain I find adds amazingly to my knowledge— and renders my labours of more value to those friends in England who feel an interest in my Collections. My library hitherto has been almost exclusively supplied by Sir Wm Hooker— and that to an extent so liberal that I am quite sure my specimens cannot repay him one fourth of their value. I have therefore tried to levy a slight tax upon others by gathering in other branches of Nat. Hist. but my labours have I presume been valueless for no return ever reached me. Books alone I have solicited and having no public or private Library in the Colony to refer to — I am driven to possess them of my own.— I am also unfortunate in having no scientific acquaintance nearer than Valentine who is 40 miles off at Campbell Town. I mention all this to account for my insatiable desire to possess Books— more especially all relative to the productions of these Colonies— & recent ones on all subjects so that what I do learn may be of the latest date.

In thanking you for your kind letter of 2d. Septr 1844 — I have also to express my gratification at having been the means of finding some things to interest you.— Of the *Claudea* I sent a great number of specimens to Sir W. Hooker about two months ago— some of a very large size. If I can go to George Town again during the summer I shall get more I have no doubt. It was not very abundant about a foot below low water at neap tides on a point in the Estuary of the Tamar 7 miles from the Sea — where indeed all the Algae I sent Home were collected. It is probably common enough elsewhere, but I never looked — little dreaming of novelty.—

I shall send you more specimens of what I believed to be a fossil *Banksia*— and I shall add what will not be of less interest to you — I am sure — fossil leaves & cones of *Casuarina* ! (siliceous) as also wood. The Cones contain in one specimen the seeds beautifully perfect,

and the sections of the leaves shew the peculiar striae for which the *Casuarina* is remarkable. They are from Great (Flinders) Island in Bass' Strait where my friend Mr. Joseph Milligan found them. The whole appearance of some specimens is very nearly that of the mass of leaves & cones which usually lies under a *Casuarina* tree — or preserved in very still water.

On our *Fagus Cunninghami* here a species of Fungus very like — if not identical with *Cyttaria Darwinii* abounds.— I gathered numerous specimens some time ago & preserved them in three ways — spirits, brine, & Pyrolig. Acid — to see which was best — and which I shall send Home. I had not the full description at the time, but a reference to the Plate & description in the last part of the Linnean Trans. which you have so kindly sent me— leads me to think that if not alike it is closely allied — My specimens are however usually the size of letters c. d. e. & some so large as b. in the plate. It shows how interestingly many plants are distributed and associated.

Last week I was for a day or two on top of the Western Mountains at Arthurs Lakes — but obtained little novelty.— Two specimens of *Aseroe rubra*, I picked up — and I believe the *Isoetes* in the Lakes is very distinct from the species with long flaccid leaves common in the rivers low down — as I collected both during the excursion. Of course I gathered plenty of specimens of such as were in fl. such as *Coprosma repens*, *Pilitis acerosa*, various *Ranunculi*, but nothing I had not seen before.

Tomorrow morning I start for Macquarie Harbour to get the *Dacrydium* — and such other Plants as I can find — My journey must be on foot — and as my men and myself must carry on our backs provisions, bedding &c — I fear the weight of plants must not be so great as I could wish. I shall however endeavour to pass by everything not rare or new — although pretty specimens of almost any plant is at all times tempting. I shall take a pack horse as far as I can — My route will be over the mountains passing South of the various Lakes —

Arthur's, Great Lake, Echo — & so through Marlborough to Lake St Clair & thence S.W. to the Gordon River.

Pray excuse this hurried letter but I could not resist writing even at the last hour before my departure to thank you most heartily for your attention.

My continued occupation has delayed the transmission of my Orchideae but they are nearly ready.

Believe me

Most faithfully yours
Ronald C. Gunn

[The endorsement reads]—

Dr. Robert Brown
17 Dean Street
Soho
London

with "R. C. Gunn" in the bottom left-hand corner. In another hand (possibly Brown's) is written—"Mr. Gunn—Jany 1845."

The letter arrived on 27th May, 1845.

The fungus *Cyttaria darwinii* (Orange-ball fungus) was first discovered by Charles Darwin at Tierra del Fuego during the famous voyage of the "Beagle" in 1838. It is parasitic on Antarctic beech trees, the fruit when ripe resembling a cluster of very small oranges with pitted skins. It is eaten by the natives of the southern tip of South America and *C. gunnii* Berk. is included by Backhouse in his esculent plants of Tasmania. *Fagus Cunninghami* (now *Nothofagus cunninghamii* (Hook.) Oerst.) is the ever-green Beech (usually called Myrtle in Tasmania) of high rainfall areas of Tasmania and Victoria.

Gunn, as is disclosed in a later letter, had a summer sheep run at Arthurs Lakes (which Lawrence had visited during his excursion in 1833). His trip to Macquarie Harbour (which his broken leg had prevented him making with the Franklins in 1842) would almost certainly follow the route marked out by Surveyor-general Calder at the time; and would take him close to Frenchman's Cap and involve two hazardous crossings of the Franklin River. (Surveyor-general Calder's account of the cutting of the track is contained in the "Tasmanian Journal", Vol. 3.)

After the formal and courteous 'My dear Sir' that begins Gunn's letters to Sir William Hooker, it is somewhat surprising to find one addressed familiarly to 'My dear Hooker'. The directions on the outside of the sheet, however, indicate that this one is for Sir William's son Joseph, whom Ronald Gunn had met and made friends with in 1840.

LETTER 191.

Penquite, 29 March 1845.

My dear Hooker,

I wrote to you a day or two after my return from my trip towards the Franklin River, & reported generally the results. I now have the pleasure of stating that I hope to send you the living Plants P. Dawsons to sail from this in a few days. The Plants have now been in their "Wards Case" for upwards of a month; and although the Coniferae do not look so healthy as I could wish, I yet trust many will survive. The Plants in the Case are of.

- X Huon Pine
- X *Phyllocladus asplenoides*
- X *Fagus Cunninghami*
- X *Anopterus glandulosa*
- X *Telopea truncata*
- X *Tasmannia aromatica*
- X *Richea pandanifolia*
- X *Agastachys odorata*
- X *Lomatia* (entire leaved)
- X *Rubus Gunnianus*
- X *Anemone crassifolia*
- X *Irideous* Pl. No. 270
- X *Leptospermum* sp. 2 sp.
- X *Cenarrenes nitida*
- X *Taxantheme australis*
- X *Atherosperma moschata*
- X *Phlebalium Billardieri*
- X *Lyonsia straminea*
- X *Weinmannia australis*
- X *Friesia peduncularis*
- X *Zieria* (sp. nov.) No. 1038
- X *Carpodontus lucida*
- X do. sp. nov.
- X *Prionotes cerinthoides*
- X *Celmisia asteliaefolia*
- X *Acacia vernieiflua*
- X *Asphodeleous* ? Pl quite new to me
- Do my No 371

You will perceive by the above list that the far greater Number are very rare plants, and also as they are all very young and love a humid atmosphere that they will do well. All the moss which is about them was brought all the way from the Franklin with them & doubtless contains seeds— and I have also sown a good number amongst it. The *Asphodeleous* Pl. which is growing, has leaves like *Astelia alpina*, but much longer and grows in very wet places on the face of limestone rocks. The Huon Pine also grows in moss saturated at all times with water, & you may treat all the plants marked thus X in that way— the others require a very humid atmosphere but less water would not injure them.

Send more Cases as often as you like and I shall return them filled without delay with something or other. Against these I shall draw handsomely because I am sure that it would cost very many Pounds to get any one in V.D.L. to go so far for them. The proceeds of course go into your hands.

I have already arranged the Collection of dried specimens except the *Astelia* leaved asphodel ? which is as green now as when first gathered although without a root, and pressed in paper constantly changed for 7 weeks. I shall be sorry when it loses its beautiful bright green colour.

Since my return the season has been past for collecting, & all my time has been occupied otherwise.— At night however I arrange a little, & you will by & bye receive a noble lot of Tasmanian Plants.

I am Secretary of our little Tasmanian Socy & Editor of the Journal which gives me a good deal to do— correcting proofs— catering materials— & brushing up our lazy labourers in the scientific vineyard. I hope however to see the thing get on by and bye.

Let me get your *Flora Antarectica*, the *Icones*, *Loudon Journal*, & *Species Filicum* out regularly. I shall work like a perfect steam engine for you in return.

[He signs but goes on]

All my people are very well & beg to be most kindly remembered to you.

The "Royal Botanical Society of Van Diemen's Land" will go to the devil.

Launceston, V.D.L. 29th March 1845.

Pay to Josph D. Hooker Esq or Order the sum of _____ Pounds stg. on account of a Case of rare Tasmanian living Plants shipped by me to the Royal Gardens at Kew P. ship "Dawsons."

Sir W. J. Hooker

Director Royal Gardens
KEW

Ronald C. Gunn

P.S. 14 April. Yours of Oct 1844 I have recd. & I presume by it that a third Case of Books is on the way for me— contains Freycinet. I shall reply to your letter by first leisure day, — Mr [Jamieson] died on 4 April — & I have just returned from the funeral after an absence from Home of a week.

My thing that you think a sp. of *Ceratella* or *Trineuron* you will more probably find to be a *Forstera*. At all events it is not *Compositae*. I have large masses in flower for you.

270. *Libertia pulchella* Spreng, the plant named *L. laurencei* by Hooker.f.

1038. Was not traced.

371. *Milligania longifolia* Hook.

The *Carponontus* sp. nov. was perhaps *Eucryphia milligani* Hook.f. The "thing" which Hooker thought was a species of *Ceratella* or *Trineuron* (*Abrotanella* in *Compositae*) was probably a cushion bush. The fact that Gunn thought it to be a *Forstera* (a genus in *Stylidiaceae*) seems to indicate that the plant was *Abrotanella forsterioides* Hook.f. and that this note of Gunn's suggested the specific epithet.

The letter, addressed to Joseph D. Hooker Esq, West Park, Kew, Surrey, went per the ship "Dawsons" and arrived on 25th August, 1845.

The Royal Botanical Society which 'will go to the devil' was the original of the Royal Society of Tasmania, and was founded by Sir John Eardley Wilmot, Sir John Franklin's successor as governor of Van Diemen's Land, in 1852. Wilmot's main object in establishing the society was to have a corporate body of responsible citizens to take control of the Hobart Botanic Gardens which, until his accession, had been maintained by public funds. On orders from the Home

Government this practice was now to be discontinued and the maintenance of the Gardens became the responsibility of the governor, whose income was correspondingly increased.

Wilmot's proposal was to grant £400 a year to a society, to be known as "The Royal Society of Van Diemen's Land for Horticulture, for Botany, and for the advancement of Science," in whose control the Gardens would be vested. He was already, *ex-officio*, president of the Tasmanian Society, in succession to Franklin, and he called a meeting of that Society, the Hobart Horticultural Society and the Mechanics' Institute to discuss the formation of his new society. His tactless handling of the meeting, however, and his refusal to grant time to consider the proposals, antagonised many members of the Tasmanian Society, who withdrew in a body. Wilmot then formed his new Royal Society from those who remained at the meeting, and resigned from the Tasmanian Society. Sir John Franklin, who had not yet left the colony, was re-elected president of the Tasmanian Society.

Efforts to amalgamate the two societies proved unsuccessful, and the headquarters of the Tasmanian Society moved to Launceston where its heart and head, Ronald Gunn, now resided. There, too, its later Papers and Proceedings were printed at the "Examiner" newspaper office by Henry Dowling, publisher of the famous pirated edition of Dickens "Pickwick Papers".

The Royal Society continued to meet in Hobart, with William Champ, John Abbot, Dr. George Story and the Rev. John Lillie as secretaries. Its scientific achievements between 1842 and 1846, however, were small. Two horticultural shows were held and one paper, on Eucalypts, by the Rev. John Lillie was read, contrasting with the wealth of Papers and Proceedings published by the Tasmanian Society during the same period.

In a letter preserved in the State Archives, in the correspondence and papers passing direct to the Lieutenant Governor or his

Private Secretary, is the following in Gunn's writing, and addressed from Penquite, 26th. November, 1844.

I have endeavoured to restore the Tasmanian Society to its primitive state and hope to succeed. I am dubbed Secretary and we meet regularly, quietly and unobtrusively at Launceston where I trust we may do some good. At Hobart Town we would have been swamped by the gigantic Royal, but here we are out of the way— and — science being republican, we have got rid of all vice presidents, &c., and flourish alike as humble members.

There is no address on this letter so we must presume it was a private communication to Bieheno with whom it is known Gunn was friendly.

In 1848, however, largely owing to the efforts of the new Governor, Sir William Denison, the two societies were combined, with Ronald Gunn's friend, Dr. Joseph Milligan, as secretary, and the present Royal Society of Tasmania really began to function.

Milligan was secretary until 1860 and was succeeded by William Archer, another fellow-botanist and friend of Gunn. In 1860 Milligan returned to England and died there in 1884. He left the Royal Society of Tasmania a bequest of £350 and land at George Town. The native lily genus, *Milligania*, is named after him.

Two letters written by Milligan to Sir William Hooker from the Kew letter file are of interest. The first, written in 1849, advises the depatch of the first number of the Papers and Proceeding of the Royal Society of Van Diemens Land to Sir William.

LETTER 103.

Hobart Town

18 August 1849

Sir,

Amongst a mass of Specimens in the various departments of natural history accumulated on my hands, and which I now wish to dispose of in a way to render them useful, there are considerable variety of Seeds of Indigenous plants of Tasmania, which, as they must deteriorate by long keeping, I have determined at once to divide, and after assigning to the

Botanical Gardens of the Royal Society of Van Diemen's Land such as have not already been introduced into it, to distribute as widely as possible the residue amongst institutions and persons likely to bestow upon them the care and attention necessary to their successful cultivation in the hope that in England at least some [may] be found either new —un introduced or at the least hitherto cultivated without success—

The Council of the Royal Society of Van Diemen's Land having requested me to furnish to yourself a Copy of the first number printed of their "Papers and Proceedings" I have forwarded them to your address under Cover to Mr. John Murray of Albermarle Street London — in doing so it occurred to me that I could not better dispose of a moiety of the Tasmanian Seeds in my possession and of which I have spoken than by transmitting them to you for cultivation in the Royal Botanic Gardens at Kew—

You will discover amongst the Seeds several from the Extreme Western side of Van Diemen's Land — a [part] of the Island not much visited and the peculiar productions of which are consequently little known. Upon each packet there is a number corresponding with the number of the Specimen or plant in my register and Collection, so that if you find anything deserving special notice or anything upon which additional light may be thrown by reference here it may be easily accomplished and I may add that it will afford me very sincere pleasure to receive your remarks and whenever it may be in my power to supply information or procure specimens when required—

The parcels of which I advise you are shipped by "the Marmion" which is to sail from this port within an hour or two. I have only therefore time to express a hope that the Correspondence which this gives me the opportunity of Soliciting may prove as agreeable to you as I feel assured it must be advantageous to the working of the Royal Society of Van Diemen's Land and to the interest of Botanical Science generally in this place—

Believe me to be
with great respect

Your very faithful servant

Joseph Milligan
Secretary
of the Royal Society
of V.D. Land.

Sir W. Hooker
Kew Gardens

The second letter, written after Dr. Milligan's return to England, is of a more personal nature.

LETTER 140.

15— Northumberland St.
Charing Cross.

Dear Sir William

I am making a collection of Photographic portraits of celebrated and eminent men connected with the Exhibition of 1862 and of others of equal distinction with whom I came into contact there and to give the album additional interest I am asking for the autograph signature underneath the portraits. I need scarcely say that without your photograph such a collection would be incomplete and in order to obtain it I paid a visit to Kew yesterday but was so unlucky as to miss you though Dr. Hooker told me you had just returned from the country and that I should easily meet you somewhere about the grounds. I failed however and then it was too late to call at your home. So I adopt the present expedient and to save you trouble I enclose a Carte de Visite to which if you approve you will perhaps be so very kind as to affix your sign manual and return to me at your convenience

Excuse the liberty I take and allow me to be

Dear Sir William.

Yours very faithfully

Joseph Milligan.

Sir W. J. Hooker
&C. &C. &C.

We now return to letters from Ronald Gunn to Sir William Hooker.

LETTER 192.

Penquite 14 April 1845.

My dear Sir,

I have much pleasure in saying that I have shipped on board of the Dawsons— to sail from this Port to London tomorrow— a Wards Case containing a lot of living Plants for the Royal Gardens at Kew and against which I have drawn through your Son for a blank amount.— They are a portion of the Plants I gathered near Macquarie Harbour and will I trust reach you safely— or at least some of them. I am vexed to perceive that the Huon Pines look ill but perhaps some may pass muster & live. Pray continue to send out Cases and I shall fill them

for you and of course, all I want is repayment in such form as your Public Establishment can give, and which I desire to constitute a fund to assist in defraying the expense to which you put yourself in sending me out Books. &c.— The present Wards Case I got made by a botch of a Carpenter on the farm, but I much fear it is not quite the thing. At all events return it and as many more as you like. In sending Plants out to me I should like a few of your newest & best fruits— Strawberries, Raspberries &c as well as Apples, Plums, Cherries, Peaches, Nectarines, Apricots, &c. We have good collections of most of these, but yet any possessing any particularly good properties would be desirable.

I had recently finished a letter to your Son when I received his esteemed letter dated Oct. 1844, and to which I shall reply at an early day. I am working away & shall attend to every suggestion I receive from you in so far as my very limited knowledge of Botany will permit.

I have this past season gathered Coniferae and taken a little more pains with the less attractive branches of our Botany. Much however yet remains to be done in the Phaenerogamous Vegetation. A new Clematis— a new Ranunculus & many others show pretty clearly that that field is not yet exhausted— although doubtless the Cryptogamia have been less examined. I really believe that if you wrote to Valentine or got Brown to do it — that he might do ten times more than I could. He is unfortunately in the very worst Cryptogamic Region in V.D.L. but yet he might do something. He is a most accurate microscopic observer, draws well, but dreads the fascination of Botany drawing him away from his professional duties. I have tried coaxing & scolding by turns— without avail.

On 1st April I rambled up a Rivulet not very far from this & got some interesting specimens of Hymenophyllum, so that I hope to clear up some points— as I do not feel perfectly well assured that the species meant as *H. cupressiforma* by Labill. is your *H. Tunbridgense* or else I have got a new one. I have got good specimens to send of *Siphopteris heterophylla*, *Asplenium laxum* of which I got proliferous fronds — which Brown in his Prod. says he had not seen, and some others; but no new ones so far as I can judge. I have satisfied myself that my No. 174/1833 is a very distinct sp. of *Veronica* although I believe in all my subsequent Collections I confounded it with others. I have now got lots of specimens. I cannot have a vast amount of novelty at any time to communicate, but every difficulty cleared up— or species of a Plant clearly & satisfactorily ascertained on the spot must be important and add to the correctness of any Flora Tasmanica.

I must now temporarily close this
[*he writes but adds*]—

The List of Plants in the Case is in my letter to Dr. Hooker. I have not taken a Bill of Lading for the Case but it is the only one P. Dawsons & I shall write to Messrs Buckles & Co to land it.—

Tell your son to send all packages for me always to Buckles & never mind the expense.— I prefer them thus sent to the risk by private hands.

[*In Hooker's writing is added*]

3 Cases

by Robt Mathews 1 case of his
own & our Sons

by ship Dawsons 1 case of his own

174 1833. *Veronica arguta* R.Br. i.e. *V. notabilis* F. Muell.

This letter was also sent per ship Dawsons, and arrived on 25th August, 1845. His next letter is also concerned with Wards Cases.

LETTER 166.

Launceston, Van Diemens Land
November 1845

My dear Sir William,

I have to thank you for your kind letter of 7th April last, as also for Books, Plants, Seeds &c the only thing left me to say is that your very great attention stimulates me to additional exertions during every leisure moment I can spare and I hope I shall be able to send you something worthy in return.

The Cases of living Plants from Kew arrived in very bad order although unusual attention had been paid to them during the voyage. They were too dry as the former two cases were too wet. The soil had not a particle of moisture in it so that the most hardy plants died. I annex a list (which I send with this) of the few that survived and of those that were dead as it may guide you a little in future packing. The Seeds have almost all grown but they were a bad collection of uninteresting annuals such as *Osotes* 7 sp., *Silene* 5 sp. with *Bisentillae*, and other plants possessing little beauty, and not much interest. Annuals also, unless very handsome or curious, require an amount of labour in a New Colony in saving the seeds year after year that we cannot afford, and therefore I seek perennials in preference— and really you would be delighted to see how flourishingly most of the plants from England flourish out here— and although the Latitude of 41° would lead you

to expect great heat nevertheless our Climate is very mild. Cowslips, violets, foxgloves, columbine, and a host of plants indigenous to Britain seem to do better than the dryness of the air would have otherwise led one to expect. In the shrub & tree department I am also anxious to add those which are either hardy or so nearly so as to do in the open air here.

I have refilled your Cases and return them by the "Renown", the same vessel that brought them out. I have put extra iron clamps to them as the joints had slightly given way which perhaps might have caused the excessive dryness by letting out some of the moisture. The Plants I have put into the cases are miscellaneous as Pr. list, but *Fagus Cunninghami*, *Teloepa truncata*, *Atherosperma moschata*, *Anopteris*, *Cenarrhenes*, *Weinmannia* (?) &c are valuable, and many are growing as I have kept some in a nursery for the last 10 or 12 months, & they have made shoots since I put them in the Cases. Of course it requires more experience than I possess to put up these things well, but I am very anxious that they should reach you safe and in good order. A few of the remnants of my Macquarie Harbour Collection are now sent.

I have also packed up a Case of living Ferns the same as the last, & trust it will reach in like good order. It contains some species not previously sent, and almost all that are come-at-able within 20 miles of my House. I hope to go down to George Town next month and from that place if possible I shall send you the *Gleichenias* & some other species not to be found near this. I could not procure you seed of the Huon Pine; but I sent you a number of Young Plants of it in a Wards Case P. "Dawsons" in April last for the safe arrival of which I am most anxious. After carrying Plants on a man's back in a knapsack over a rugged country for about 150 miles and then sending them by sea 15,000—they ought to possess some little interest.—

I have sent you also a Box of Seeds most of them recently gathered—the date of collecting being attached to some, and these I trust will grow. The names on them so far as I could find them will speak for themselves.

A very large and heavy Case of Sundries — a list of the contents of which I have put into the Box of seeds— it is sufficient to say that it contains splendid fronds of *Alsophila*, & sections of a *Caudex*, Fossil *Banksia* ? & *Casuarina* ! The latter seems undoubted. Rock Lichens, Fungi, specimens of woods principally brought all the way from Macquarie Harbour in our knapsacks—as they were of rare kinds, *Lawrenciacicuta* in fruit, & lots of other odds & ends

which I have at once sent to be out of my way. Pray debit me with the freight of this case as I am afraid you are far too liberal in your remunerations to me. I continue to draw against you for living Plants and seeds— which amount will I trust help to pay off some the Books.

I am now numbering my Plants to go I trust soon, but am continually delayed by press of other business; I however add almost daily to the number of species; & I trust your sons Flora Tasmaniae will contain many novelties not yet seen in Europe. Much however will remain undescribed but the supplementary parts will then be immensely interesting & valuable completing the main work. I shall leave no means untried so far as my humble knowledge extends to assist and will collect as indefatigably as other avocations will allow.—

I hope to have the pleasure of addressing you again soon & in the meantime pray accept my warmest thanks for your uniform attention.

[*He adds*]

I have sent the Bill of Lading to Messrs Buckles

This letter went by the ship "Renown" and arrived on 14th April, 1846.

The reference to carrying plants in a knapsack for 150 miles, is of course, to his overland journey to the Franklin River and Macquarie Harbour in the summer of 1845.

Though he hopes 'to have the pleasure of addressing you again soon', Gunn's next letter to Sir William (in the file) is dated over 12 months later. It too, refers mainly to cases of specimens sent Home.

LETTER 167.

Penquite 25th Decemr 1846 V.D.L.

My dear Sir William,

I have shipped to your Son's address on board the Halifax Packet bound for London, and to sail tomorrow, three Cases of Plants & Fossils—and I have enclosed Bills of Lading to my agents Messrs Buckles & Co of Mark Lane.

Case No. 1. I D H. Contains an extensive suite of specimens of *Dicotyledones* — including; all those gathered during my trip to Macquarie

Horbaur, &c of course Huon Pine, and an immense lot of others— and more new ones than I thought probable after so many years collecting. You will I am sure be pleased to examine this collection. In Case No 1 I also put up a Portrait of myself, and specimens of about 20 species of wood— also a packet of *Lawrenzia spicata* in all stages of inflorescence being gathered at many different times.—

Case I D H No 2. Has Monocotyledones & Acotyledones. The former some 9 years collecting— and having many new species.— Acotyledones I have entirely renumbered and you will find a vast No to interest you. Among the ferns you will I think see *Gleichenia tenera* — (my No. 1586), *Alsophila*, *Allantodia*, & some others which were either rarely sent Home by me or not such good specimens. Mosses some are very curious— But pray look at No 1625.; there are however many others scarcely less interesting. *Jungermannia* are also numerous, but do not require to be particularized. Lichens — Algae of some new species.— Corallines & their allies (or what I believe to be such) of about 30 species, and all very beautiful.— Fungi a very extensive series, but I find much difficulty in preserving many of the kinds of the smaller species.— You will find the Caterpillar fungus (*Sphaeria*) of which I have also preserved plenty of specimens in Spirits, Brine, Pyrolog. Acid & will send them with my next parcel. I need not enumerate more fully what perhaps you will have read before this reaches you. I filled the case with fossils.

Case I D H No. 3. Consists of two small boxes united together and containing fossils. One of specimens of a recent sandstone formation at Launceston The other case containing impressions of Plants from Shale near Hobart Town. However they are all I think ticketted sufficiently plain to be understood.

The Orchideae I have not yet sent you.

During the last spring I had intended to have gone round our North East Coast but the weather was too wet to admit of my crossing the numerous rivers with my pack Horses.— Next week I intend again visiting Lake St Clair, and ascending to the Summits of some of the Mts. in its vicinity. Lake St. Clair has itself a semi-alpine vegetation— and as the Mts rise at least 2000 ft. above the level of its surface— I am led to hope that I may discover some novelties at an altitude which can hardly be less than 5500 ft. I shall report results in my next letter.

In the various specimens I have now sent, you will I think find many that will interest you— such as *Isoetes*, *Pilularia*, *Chara* of many species, *Coniferae*, & many of the smaller plants. You will also find *Montia* ?, *Callitriche*, *Limosella*,

and others which had previously escaped my notice.— The wide distribution of Aquatic plants is a matter of interest and I am led to think that Migratory Aquatic Birds assist nature— or are rather the means used by nature in scattering these plants. The temperature of water being less liable to change than the atmosphere the seeds fall into favourable situations for germination, more readily than those of land plants would do. I can only in that way account for *Vallisneria*, *Ruppia*, *Pilularia*, *Potamogeton* *Callitriche*, *Montia*, *Isoetes*, *Lemma* &c being everywhere— & *Arundo phragmites*, *Typha*, *Lythrum*, & others which are the inhabitants of river sides & ponds, being also very widely distributed. The temperature of our rivers rarely fall below about 45— and even on the Mts are usually above 50— our springs about 50 to 52. — Such temperature rising of course with our summer heats— must be favourable to many plants.

I have just read a letter from Messrs Buckles & Co intimating that they had put some Books on board the Union for me from you. I shall look most anxiously for them, as they are almost my only enjoyment out here. You have not written at to the state of any of my Cases of living Plants which I sent Home. Pray return them full, & I will refill them for you regularly. Do not forget that I asked for a collection of Roses.— I garden now much less than formerly— giving Botany & Natural History all my spare time.

I gave the Revd. Henry Jones, Chaplain of H.M. Ship "Castor"— letter to you and your son— as he wanted to see Kew. He [is] a most intelligent person & has now been for some years in China, New Zealand &c., & will give you much information about these places.

The *Allantodia* was perhaps *Athyrium umbrosum* (Ait.) Presl.—The Black Fern; the caterpillar fungus perhaps *Sphaeria gunnii* Berk. i.e. *Cordyceps gunnii* (Berk.) Berk. in Hook.f.

1586. *Gleichenia tenera* R.Br. i.e. *G. flabellata* R.Br. var. *tenera*.

1625. Not traced.

Across the head of this letter which reached England on 23rd April, 1847, is a note in Hooker's writing—"Parcels by Onger and Meryon, 174 Fenchurch St."

At the time the only settlements in the north-eastern quarter of Tasmania were a

few pastoral properties near the coast line, at Bridport, Boobyalla and Cape Portland. The heavily forested country inland was uninhabited and unexplored. Gunn's projected trip was probably from George Town to Cape Portland and he would have had to cross, in turn, the Piper, Little Forester, Brid, Big Forester and Ringarooma Rivers.

The picturesque Lake St. Clair, source of the Derwent River, is a large body of water enclosed in a moraine-blocked valley with forest-clad hills backed by mountains. Gunn would formerly have passed by it on his overland trip to the West Coast.

The portrait of Gunn as a young man, a coloured drawing of his head and shoulders by an unknown artist, is still at Kew. It may possibly have been painted by Thomas Griffiths Wainwright, convict artist and writer, who was transported to Van Diemen's Land in 1837 for forgery. A portrait of Mrs. William Gunn by Wainwright is recorded in "Wainwright in Tasmania" by Robert Crossland. Mr. R. M. Gunn of Perth has another portrait of Gunn as a boy. In the Launceston Public Library is another portrait of Gunn as an old man, seated at a table. This is a handcoloured photograph, taken between 1860 and 1870, and "presented by his admirers" to the Mechanics' Institute, the forerunner of the Launceston Public Library.

His next letter, in a very friendly familiar style, is for Joseph.

LETTER 168.

Penquite, 16th June 1847.

My dear Hooker

I sent you P. "Murrayshire" two packages — one of dried plants and one of Bottles of sundries vegetable and animal. The pump of the Murrayshire most unfortunately got choked, and she had to put back to Launceston, discharge much of her Cargo, and start again. Long ere this reaches you I hope they will be safely in your hands.— The Murrayshire sailed finally about 1 May.

Amongst the new Plants I then sent you were a new Cruciferous one ; — a new Fagus ! very

like one of the Fuegian ones; a new Fern from Mt Olympus; and sundry other interesting additions.—

I have since got from Dr Milligan a small Collection from Macquarie Harbour, (which station has again been broken up,) and it contains the Mt Olympus Fagus which he obtained from the top of Mt Sorrell, near Macquarie Harbour. In Milligan's Collection there are however some new plants— and I may mention one new Richea (or Dracophyllum) — a third ? Carpodontus; a very curious new Patersonia or allied genus; a new fern; some new Umbelliferae; & two or three other things which will be an addition to your stock. These I shall send you soon. He also obtained in flower that curious Astelia leaved asphodeleous plant (my No 1388) and what he thinks is another species from the same genus.—

Since I last wrote I went to P. Phillip but did no good in the Botanical way— in fact there was nothing in flower about 1 April but the Oxalis microphylla, the Correas, and one or two plants in the heathy spots. Since my return I have been most unusually busy as I always am after an absence even of short duration.

My packages and parcels have now been so numerous since any account of the results have been received by me from you— that I shall almost swamp you with them. When the Magnum Opus comes out then indeed we shall see all that can be said upon the subject.

My business however is increasing from various causes and it is just as well that my Botanical Collections have got a fair start, otherwise I feel I could not again so readily make such large Collections.

I have been disappointed at not receiving any cases from Kew. I paid a man many Pounds to get me a large Lot of Athrotaxis, Microcachrys, &c besides my own immense collection of living plants from Lake St Clair, all which I popped into a nursery & there they remain, subject to theft, &c. I do not feel disposed to have any more Wards Cases made, as the last I had made for myself has not yet been returned. Blow up the Deputies at Kew, & let them return my case even if they want no more of our trees. Of course my drafts against them were only intended as a means of paying for their Collecting— & incidental expenses. Natural History is very pleasant but most uncommonly unprofitable in a money making community like this.—

I wrote to you about Lots of missing Books, & am anxious that you should at your very earliest convenience replace the lost ones. It is a most confounded nuisance but it is a little your own fault for not writing by post— as I

do— naming the [month] when you send a parcel, even if you cannot name the vessel which brings it.— Always do so— & I can then look. If you write to me at any time that you have that day or week sent a parcel for me to Messrs Buckles I shall be quite sure to get it by the first vessel direct to Launceston; & I can look out accordingly.— I now want.

† Icones Plantarum Part 14.16 & all subsequent.

† Species Flicum Part 3.5. & all subsequent.

† London Journal of Botany Part 48 to 52 both inclusive, & all after 56.

Botanical Magazine Nos 12 to 16 both inclusive 3rd Series, all after No. 19.

† Flora Antaretica. Parts 13 to 16 both inclusive

† Elements of Conchology Parts 1 & 2.—

[In Hooker's cramped hand the following (filling up a line originally left blank) "The above are missing exclusive of any which may have been sent with them."— *Gunn continues*]

Draw upon my pocket if necessary to complete & send me the following— which I think I sent for in my last.

Dr Smiths Zoology of S. Africa Part 24 & all subsequent

Dr Smiths Journal of the Expedition into Southern Africa.

De Candolle's Prodrromus, all after Part 9.

Lindley's genera & species of Orchideous Plants. Part 7, & any subsequent if published.—

Journal of Botany Vol. 2. No. 11. (Not London Journal of Botany.)

Cyclopaedia of Anatomy & Physiology. all after Part 25.

Cyclopaed. of Practical Surgery all after part 12. Illustrated London News Vol. 5 & all subsequent as published.

† Voyage of American Discovery ships. the full Edition

Supplement to Penny Cyclopaedia.

† Cosmos by Colonel Sabine.

† Vestiges of Nat. History of Creation, with the explanations by the same author — a Sequel to the Vestiges

† Lindleys Nat. System of Botany— New Edition

† Lindley's Elements of Botany

† Rural Chemistry by Solby.

Sillimans American Journal. Nos 90 & 94 & all after 100.

[Some if the items have been marked with a dagger, presumably by Hooker, and, following them, in Hooker's hand, is the following —

"N.B. Many of the above sent by Mr. Heward in consequence of a former list. This to be cancelled and a fresh list asked for."]

[Hooker has also written, but crossed out—"King and Fitzroy—Stokes-Beagle." The letter then resumes]

Whenever you can— put the Books into a Box as they get very much injured in the paper wrappers which are generally rubbed off at the Corners— & otherwise destroyed. For all this trouble I shall compensate you some day by the magnificance of my collections.— However you will have better materials for Flora of V.D.L. than anybody else who ever lived.

Milligan has handed to Bicheno some fossils from Macquarie Harbour to be transmitted to the Geological Society. The Cases have gone there ere this— & you may see them by calling there. Some of the vegetable forms Milligan says are new— but his notions of their resemblances are sometimes startling.

Thine always

Ronald C. Gunn

1388. *Milligania longifolia* Hook.f. and *M. densiflora*. Hook.f.

His *Richea* (or *Dracophyllum*) was perhaps *D. milligani* Hook. (1852), as *R. Dracophylla* R.Br. (1810), *R. pandanifolia* Hook.f. (1844), *R. gunnii* Hook.f. (1847), and *R. scoparia* Hook.f. (1847) had been named before this date.

His very curious new *Patersonia* was perhaps *Hewardia tasmanica* Hook 1852. See reference to Mr. Heward above.

At the head of the letter, presumably in Joseph's hand, is the note—'Ship sails Dec. 25th.' According to the postmarks the letter left Launceston on 18th June and arrived in London on 26th November.

Dr. Milligan's visit to Macquarie Harbour would be in the course of his duties as Medical Superintendent of Convict Discipline. The first penal settlement, established by Governor Sorell on Sarah Island in Macquarie Harbour, was closed down in 1832. This second penal station was apparently set up during Sir Eardley Wilmot's governorship as part of the Probation System,

probably (as the first one was) for the exploitation of the Huon Pine timber, but it was soon abandoned.

The new *Fagus*, 'like a Fuegian one', which Gunn collected from Mt. Olympus, near Lake St. Clair, and Dr. Milligan from Mt. Sorell, near Macquarie Harbour, would almost certainly be *Nothofagus gunnii*, the Deciduous Beech or *Fagus*, peculiar to the Western and South-Western highlands of Tasmania and the country's only native deciduous tree. On the exposed mountains it is a stunted shrub but grows to the dimensions of a small tree in sheltered valleys. The rich gold of its autumn foliage adds a unique colour note to the Western Mountains in April and May.

The note "King & Fitzroy Stokes—Beagle" in Hooker's writing at the foot of the letter refers to the three commanders during the 1820's and 1830's of the survey ship "Beagle" in which Charles Darwin made his famous voyage with Fitzroy. All, at various times, had visited Van Diemen's Land and Captain Phillip Parker King, R.N., son of Phillip Gidley King, was Port Officer and Superintendent of Government Vessels at Hobart Town during Franklin's regime.

There were no letters in the file for 1848; and the next (to Sir William Hooker) bears the date 17th March, 1849, and records some of Ronald Gunn's bush excursions.

LETTER 165.

Launceston, Van Diemens Land
17th March 1849

My dear Sir William,

From some not easily to be explained cause I have permitted your kind and most welcome letter of 10 Jan'y 1848 to remain unanswered. I find upon my table a letter indeed three fourths written, but it was never completed & of course never forwarded. I assure you I was indeed rejoiced once more to see your old familiar writing, and although I do not possess the advantage of being personally known to you, yet I always look upon you as one of my oldest and most valued friends. Your son has, it is true, for some time relieved you of your correspondence, but I shall be sorry if ever his

return to Europe should induce you to cease to write to me, & deprive me of that pleasure which your letters always afford to a poor Botanist like myself at the Antipodes.—

My Zeal remains but alas! my time is sadly trenched upon by other and less pleasant employments than Botany— Still I collect, but am puzzled to find time to arrange. I have got a glorious lot of Algae for Harvey — and many will I am sure be new. I am much interested in tracing the British Species which exist in our Seas, associated in many instances with similar, but not identical representatives of European forms. I am sure however, that more British species will be found in my present collection— such as. *Sphacelaria scoparia* *Porphyria laciniata*, *Codium Bursa*, an *Asperococcus* like *A. Turneri*, and several others. I [now] do little besides collect, & have no time to examine.

I am much pleased to find that some more of my Tasmanian Plants are being published in the London Journal of Botany. Pray attach my Numbers to the species as far as you can, as it will save me very great trouble more especially in such Natural Orders as Compositae, Epacridae, &c. You must not forget that I am not so clever a Botanist as to be able to read off the description of a plant & at once recognise it. If I could devote much of my time to my plants no doubt I could do pretty well, but many months sometimes elapse without my touching a Plant or Botanical work. Pray therefore help my ignorance by printing my Nos. or by sending me a list of them. It is thus that illustrated Books are so useful to me as, having a capital eye, I am enabled to know plants by sight without the toil of poring over the descriptions. I have almost abandoned all hope at ever being better than a mere culler of weeds & wild flowers for you.

In October last business took me to Arthurs Lakes (my summer sheep station) where I found your sons "*Scleroleima fosteroides*" in flower. It still bothers me much as it is so unlike any plant in Compositae with which I am acquainted, and I should have been more disposed to refer to it the nat Ord. "*Scleranthae*." No doubt however your son is correct. There is another undescribed plant in Compositae which grows with it in the same masses, & of which I shall send you specimens.— *Scleroleima* only grows on the highest parts of the mountains, & during a recent visit to the Northern parts of the same range— where the waters are thrown off to the North & South — to discharge themselves into the Sea by the Derwent & Tamar— I found it very abundant— indeed acres upon acres of the "green Cushions" (*Scleroleima*) impeded our walking very much.— The only

novelty I found at Arthurs Lake in Octr was a new Cruciferous plant (a *Draba* ?) small & insignificant.—

Last week I rambled (as already observed) over all the northern and highest part of the Western Mountains, keeping to the North of the Great Lake and as much as possible upon the ridge dividing the Northern & Southern Lakes. I may here observe that the vast table land forming the Western Mountains is a plateau of about 40 miles square rising gradually and almost imperceptibly from the Southward, and ending abruptly in steep basaltic precipices to the North and North East— having bold headlands projecting out called in the Colony Bluffs, at every few miles. The Country to the North & South East of this table land lies 2500 to 3000 feet or more immediately below— & from which lower Country the mountains are almost inaccessible except at a few points— so that from Launceston and all that part of the Colony the Mountains present a grand and splendid aspect whereas from the South no Mountains are visible so that you may ride or drive a cart up to the verge of the cliffs without having in any instance had to encounter either a high hill or any serious obstacle. The top of the Mountains is, as I said, almost a table land consisting of long narrow grassy plains running one into the other, and divided by narrow rocky ridges covered usually, but not always, by dwarf *Eucalypti* and other alpine shrubs. The whole formation is greenstone, and to compare great things to small the ridges and plains remind me of a heavy sea off the Cape of Good Hope suddenly arrested— the waves forming the rocky Hills.— All the hills run nearly N. & S. or rather N.N.W. & S.S.E.— and break off into short lengths admitting passages from one valley to the other. All this Country to the elevation of 4600 feet is now covered during the summer months with flocks of sheep removed from the low Country to rest the pastures— the Government letting this Mountain Country at the rate of £10 per 1000 acres. From the description I have attempted to give you you will perceive that the highest part of the Mountains is the Northern end, and that all the waters flow to the South except those within a mile or less of the northern edge. The numerous basin like Cavities in this Mountain Country are occupied by Lakes— some very large as the Great Lake but many of them are small — covering only a few acres and this smaller character occurred most frequently as we proceeded to the Westward where 15 to 20 small lakes (called in the Colony lagoons) were to be seen at one time probably the remains of some larger lake or lakes which had been drained off. However, Botany was more my object than Geology, but I got nothing new to reward me. I got however some good speci-

mens of Coniferae. The prostrate Conifer like *Microcachrys tetragona* (my No 367) and which from the remarkable resemblance in the leaves and branches to the *Microcachrys* has led to them being confounded — will prove to be in my opinion a new genus. It is quite prostrate— common over all the mountain tops in that quarter, dioecious ? the cone bright red like a strawberry and soft like a berry. I should desire it to bear the name of Hooker as a specific name. (There are Cones of the prostrate *Microcachrys* ? pressed in my Note Book). I think you have by mistake figured a branch of it a *Microcachrys* at tab. 560 of the *Icones Plantarum* — at least it is certainly very like the male of the prostrate plant. On the streams on the higher parts of the ranges *Athrotaxis cupressoides* is very abundant skirting the edges of the rivulets. Clumps occasionally occur where there is a Sphagnum Bog, and in one place I found a small forest of them covering 20 to 30 acres. The trees are very thick at the base (about 2 feet in diameter) — but taper off very rapidly towards the summit— as the tree seldom exceeds 20 feet high, but more usually much less. I proceeded Westwards to the Falls of the River Meander where I first discovered all these Pines in 1833. Here I collected first specimens of the *Athrotaxis Selaginoides*. It forms a tree very similar in size and mode of growth to *A. cupressoides* that is low in height, but with a trunk about 2 feet in diameter. Although I found it growing sparingly upon the margin of the Meander just below the falls, yet it seems to prefer the beds of loose rocks and stones which have fallen from the cliffs above, and where it would puzzle one to perceive how it found soil to support its roots. I sought in vain for a tree of *Athrotaxis laxifolia*, and as I found many young plants I have come to the conclusion that no such species exists — my specimens being branches off young plants. There seems to be a peculiar variety of *A. cupressoides* as the young plants of both *A. cupressoides* and *selaginoides* usually possess leaves like the older plants of these species. I may be rash in condemning *A. laxifolia*, but another season will satisfy me. Of *Microcachrys tetragona* I saw plenty but as I sent it to you abundantly from Lake St Clair few observations are necessary now. The *Podocarpus alpina* was common on the top growing amongst & trailing over the rocks & stones with the prostrate *Microcachrys* ? Many other plants greeted my sight, but they were all old acquaintances. It was a bad season to get any plant in flower, and early as the autumn was, 4th to 10th March, I was caught in a snow storm which covered everything up and I had to walk for miles through snow. After the snow came sharp frost— the thermometer falling at lowest to 30° so that our Mountain plants ought to be able to stand any vicissitudes

to which they can be exposed in the open air of Britain. Here severe heat and cold follow so rapidly upon one another that plants must possess great vital energy to be able to resist these sudden changes of temperature. Very many of our Tasmanian Plants will I am sure do in the open air in England.

In October I walked for several days through a forest of *Fagus Cunninghami* towards the North-East, and came out upon the North Coast. In the fagus forest not one gramineous plant met my eyes for days— everything except the trees of Beech and Eucalypt were cryptogamic, *Aspidium proliferum* occasionally in very wet places *Lomaria procera* covered the ground. Dead logs, trunks of trees, the very ground itself covered with mosses *Jungermannia* and such like— with the small epiphytal ferns. Occasionally shrubs occurred where the forest became more open, but no grass appeared anywhere. Towards the Coast the soil became sandy & undulating— the vegetation at once changed, and I found all my old acquaintances of the healthy plains of Circular Head & Rocky Cape. The only new form was a Euphorbiaceous plant (My No. 744.) which occurs all along the North Coast after you attain a few miles East of Port Dalrymple. I have not seen it elsewhere in the Colony but it occurs at Port Phillip. It is a different plant from any of our other Tasmanian Euphorbiaceae.—

You ask me (for your Museum) for a cut through one of our gigantic Eucalyptus trees but I fear it is not to be obtained. Our largest cross-cut saws have only blades of 6 to 7 feet in length whereas I measured a Eucalyptus tree perfectly solid at 5 to 6 feet from the ground 49 feet in circumference drawing the measuring tape tight round it. I have passed larger trees but measured this one as it was close to my elbow. Now it would be no joke to send you a cut out of such a tree. However I must see what can be done, and send you as large a slice as I can.

I quite envy your Son the delights of his Himalaya & Borneo trip. I anticipate very much new matter as the result of his explorations— and trust that he will return safely to you and in good health.

I have often desired to send you portraits of our trees and sketches of some of our characteristic scenery— one sketch being equal to a dozen pages of description. Do you think a Daguerreotype apparatus would answer the purpose or a Photographic one? I would gladly go to the expenses of £10 to £20 to furnish you with perhaps 100 portraits of all our most important trees— and occasionally of some of our peculiar Fern tree glens. Of course I must select the day— and do it when all is calm. If

upon enquiry you think or know of any mechanical means by which I can attain this object, I am sure you would afterwards be delighted at the results of my labours. For example portraits of the species of *Athrotaxis*, *Callitris*, *Acacia*, *Casuarina*, &c. would give you a capital idea of our vegetation. Pray think over it and see what can be done. Your last Cases of Plants from Kew were again unfortunately in bad order, and very few survived— and these the least interesting. I have one of the Cases filled for the last few months with Mountain Plants which now that they are rooted ought to reach you safely. I shall send them by first ship from this.—

I have plenty more to say but my paper is running short, and I fear your patience too will be exhausted with my long letter. I hope you are going on with your "*Icones Plantarum*" as well as your "*Species Filicum*" They are both inimitable and invaluable works— Part 15 of the former, & part 4 of the latter are the last I have received. Under *Lindsaea ensifolia* Sw. you quote LaBillardiere's plate of the *L. lanceolata* Vol 2, t.248 & say the species is from the North Coast of New Holland. Now LaBillardiere was not on the North Coast at all and he quotes the species as from Van Diemens Land ("In Caput Van Diemen") as at that time V.D. Land was not known to be an Island, and in all his descriptions of Tasmanian Plants he calls it as was then called "*Cape Van Diemen*". (Is not *Lindsaea lanceolata* my *Filices* No. 20) I think it is, & it agrees very well with LaBillardiere's plate. Brown, strange to say, does not give it as a Tasmanian Plant. It is not common. De Candolle and others I see have followed in mistaking LaBillardiere's Cape Van Diemen (Tasmania) for the Cape Van Diemen of the N. Coast of New Holland. I suspect however that La Billardiere has described some of the Plants he gathered at Lewin's Land near King George's Sound as natives of V.D. Land by mistake— The specimens having probably got mixed. I am the more confirmed in this opinion as I never saw them here, & find them described as existing in that part of New Holland.

My eldest Son Ronald has passed as a Surgeon & M.D. at Home. I have begged him to call at Kew ere he returns to this Colony & shall be glad if you can induce him to collect for you too.

[Written across the head of the letter is a final postscript]

Instead of sending any parcels for me to Buckles & Co who have now given up business— pray send them always to Messrs. Onger & Meryon, Booksellers, 174 Fenchurch Street.

367, *Microcachrys tetragona* (Hook.) Hook.f. Note Gunn's confusion. The erect shrub is *Diselma archeri* Hook.f.

744. *Ricinocarpus pinifolius* Desf.

20. *Lindsaea linearis* Sw.

Sphaacalaria scoparia was probably *S. paniculata* Suhr., *Codium bursa* probably *C. tomentosum* Ag., by "*Scleroleima fosterioides*" he means *Abrotanella fosterioides* Hook.f. the floral heads of which resemble those of *Scleranthus biflorus* Hook. in *Scleranthaceae* rather than those of a plant in *Compositae*. His associated undescribed *Compositae* may have been *Pterygopappus lawrencii* Hook.f. though this was named in 1847 perhaps from material sent by R. W. Lawrence earlier.

With regard to the *Lindsaea* Dr. R. Melville writes, "The only Gunn specimens of *Lindsaea* in the Herbarium are *L. linearis* Sw. *L. ensifolia* Sw. is a synonym of *Schizoloma ensifolium* (Sw.) J. Sm. and *L. lanceolata* Lab. is listed as a variety of it. I have found no evidence that Gunn collected *Schizoloma*."

Postmarked in Launceston on 21st March, 1849, this letter arrived on 23rd July, 1849 only four months later.

Gunn's 'ramble' along the high northern scarp of the Central Plateau and his descent down the Western Tiers by way of the Meander falls most probably ended at "Cheshunt", the estate of William Archer, on the Meander River not far from the base of the Tiers.

This excursion was over fairly familiar territory: the other, across the North-East, broke entirely new ground over country previously untrod by white man, or even black, for the Aborigines kept to open country and avoided thick scrub and rain forest. Gunn almost certainly started from his grazing property at Diddleum Plains, north of Mt. Barrow, to which a stock track led up the St. Patrick's River valley from Launceston. Thence he probably followed

the Valentine Rivulet, skirted Mt. Maurice and reached the headwaters of the Ringarooma River, whose valley he followed until he reached the open coastal plain country and the sea either at Boobyalla or Bridport, where there were sheep stations. Nearly all this Ringarooma valley was originally covered by *Fagus* (now *Nothofagus cunninghamii* (Hook.) Oerst.) the Tasmanian Myrtle-Beech, and giant Eucalypts. If, as is likely, Gunn was seeking new pastoral plains he was disappointed.

This tract of country was again traversed by Surveyor James Scott in 1855 or '56 when in search of the rich basaltic soils that were at the time being pioneered by bush settlers on the North-West Coast. Scott found such land both in the Ringarooma Valley and at Scottsdale, and settlement quickly followed. He is generally credited as being the first discoverer; but this letter proves that Gunn had been there before him. Gunn's 'old acquaintance' among the plants of the coastal plain would be the Wedding Bush, *Ricinocarpus pinifolius*. In October, miles of country in this region are covered with its creamy white flowers.

Gunn's observations on the size some eucalypts attain are not exaggerated. In moist and fertile soil trees over 20 feet in diameter were sometimes found. Most of these giants went with the clearing of the country by the bush pioneers, but when Gunn wrote this letter this era had hardly begun. Trees over 300 feet tall (there are even records of some over 400 feet) were also to be met with. Nearly all these huge trees were of the species *Eucalyptus regnans* (commonly called Stringy Gum in the North of Tasmania, Swamp Gum in the South, and Mountain Ash in Victoria). The present tallest (measured) tree in the State (326 ft.), also a *Eucalyptus regnans*, stands in the Styx Valley in Southern Tasmania.

Gunn's interest in new inventions that might aid his botanical researches had not waned. Photography was just beginning, and the etching process of the Daguerrotype was soon to be superseded by the collodion

or wet plate process. In either case a considerable time exposure was required to register a suitable image, which explains his proviso of a calm day to make his tree portraits.

His eldest son Ronald (of his first family) returned to Tasmania to practice, but remained only a short time before going to Queensland. The eldest son of his second family, John Jamieson Gunn, also became a doctor. He died in Derby, England, about 1880.

The next letter, the last of the series, continues the comments on La Billardiere's confusion in naming the localities where he collected plants when with D'Entrecasteaux in 1792-3.

LETTER 77.

Launceston, Van Diemens Land.
10th May 1849.

My dear Sir William,

In my last letter I took occasion to mention, in speaking of LaBillardiere, that I believed he had mixed many of the specimens of Plants he collected near King George's Sound with those he gathered at Recherche Bay in Van Diemen's Land— and I am the more confirmed in this opinion as I perceive that every plant save one, which I had not detected in this Colony and yet which are described in his work as being natives of Van Diemens Land, have been recently described as natives of Western & South Western Australia in the "Plantae Preissianae" of which you kindly sent me the four first fascimile.

Billardiera pisiformis, Labill. t.90. Never seen or heard of in V.D.L.

Sollya heterophylla,

Melaleuca fascicularis Labill. t.170. I have never seen in V.D.L. & it occurs in Leuwin's Land.

Gompholobium tomentosum Labill. t.134. Not seen in V.D.L. but occurs in Western Australia.

Euthales trinervis (Velleia) Labill. t.77. Not seen in V.D.L. but occurs in Western Australia.

Croton quadripartitus Labill. t.233. Gaud. I have never seen in this Island but it occurs in Western Australia.

Now I have little doubt that these 5 species have by mistake been put down as natives of

this Island more especially as LaBillardiere explains in his work of the want of accommodation for his specimens on board the *Recherche*.

Stylidium umbellatum Labill. t.217. I do not perceive in the "Plantae Preissianae"— and as Robt Brown never saw it, I think it probable that it will turn out to be merely a monstrous variety of the common Sea side species with the top of the spike snapped off by some animal, and the lower flowers assuming the form of those specimens I sent you from Lake St. Clair which were slightly umbellate.

Acacia saligna, Labill. t.235. I do not exactly know although I had believed it to be meant to represent my *A. dissitiflora* but Benthams not being able to recognise it leads me therefore to suspect that it may be a Western Australian species too.

I believe I have recognised all the rest of LaBillardiere's Plants marked as from Van Diemen's Land — "in Capite Van Diemen" as he calls it— Bass's Strait not having been discovered until several years after La Billardiere's visit with D'Entrecasteaux to Van Diemen's Land.

I made a mistake with reference to *Lindsaea lanceolata*, Labill. in my last, mistaking for it *Pteris falcata* which it much resembles. I have not seen *Lindsaea lanceolata* I find, and now think that it too must be added to LaBillardiere's mistakes as being found in V.D. Land.—

Since I last wrote I have enquired and satisfied myself that *Athrotaxis laxifolia* is a true species — indeed I had forgotten that you mentioned having obtained from me a specimen with the fruit. It is so many years since I saw the large plants of it— and having lately at the falls of the Meander obtained young Plants without being able to find any old tree led me to question whether it might not turn out to be a mere variety. I am glad however it is really a species of so very interesting a genus.

I now send you *P. "Potentate"*, which takes this, a small paper parcel (Freight paid here) containing specimens of the prostrate Conifer (My No. 167 of 1833) which has been mistaken for a new variety of *Microcachrys tetragona*. It is not only a distinct plant, but I think quite a new genus. It is dioecious? — fruit red, pulpy & soft like a berry when ripe — grows quite prostrate. My specimens are pretty good, and you will find no difficulty in describing it from them, as they are numerous. I have requested that it may bear the specific name of Hooker— as a small but well deserved token of my regard and esteem. I regret that my skill has not enabled me to describe many of our Plants as most assuredly I should have named many after you.—

In the same parcel you will find beautiful specimens of *Athrotaxis selaginoides*, young plants of *A. laxifolia*, and specimens of *Scleroleima fosteroides*; also another compositae which grows in the mosses with it and hardly less interesting (No. 2058) a new Crucifer; a plant in Mytaeaceae, Hemiphues; a new *Richea*— perhaps two; new *Orites*; new Plant allied to *Patersonia*? — and some others as well as duplicates of some half dozen others. I am heartily ashamed that so many treasures are lying waiting in my rooms, but I really cannot find time to assort them — and it was only by a desperate effort that I got this small parcel put up for the sake of getting you to describe at once the new coniferous plant.— I add a fern to the parcel which is also new to me;— I do not wish that any other parties should anticipate you in the description of any of our Plants—

Having opened a communication with Mr Lovell Reeve for various Books wanted by myself, as well as my friends, and as I will be receiving parcels from his regularly, (as well as from Messrs. Ongar & Meryon) I would feel obliged by your sending any odds and ends which you can spare me through Mr Reeves. I have written to him by this opportunity suggesting that in future, if you had no objection, the *London Journal of Botany*; *Botanical Magazine*; & *Annals of Natural History* would be more valuable to me if they came out in his monthly parcel instead of waiting until there was a lot to send. Much of the interest of these Books depending upon the novelty of the contents. I have sent you so few contributions lately that I do not like to trespass upon your pocket too much & therefore will feel obliged by your allowing Mr Reeves to furnish me with any Books at my own expense which you may think would be either of interest or value. My last Nos. of Books —

Botanical Magazine No. 37	} These are the last received by me
London Journal of Botany No 72	
Annals of Natural History No []	
Icones Plantarum Part 15.	
Species Filicum Part 4.	

I should like to obtain the following
De Candolle's *Prodromus* all after vol. 9.—
Plantae Preissianae all after Part 4. Interesting to compare with *Flora of V.D.L.*

Sillimans American Journal of Science. I have from time to time received odd numbers from you, & it is so admirable a Book that I should like it much if not dear. I possess No. 89 to 100 of the old series but Nos. 90 & 94 wanting, & I possess from Nos. 2 to 8 of the new series, Nos. 1 & 3 of new series wanting.— Really you must suppose me a perfect bibliomania, but having few other enjoyments but my Books to

keep me up to the progress of matters in Europe I like to get as many as my limited means can purchase and the very great generosity of my British friends will furnish. Here all the World is new — and which-ever way I turn— whether amongst Plants, fish, shells, fossils, &c I find much that is new and not described or detailed in the common Books to which I have access. We have no public Library that can be so called, and no Museum in the Colony, so that I must possess all within myself or go without that information which I so ardently desire to obtain. In Ornithology I am rich as I have Goulds splendid Book on Australian Birds, Garrells British Birds, Gray & Mitchells Genera of Birds, & some others— and thanks to your liberality I am becoming rich in my Botanical library.

By the bye I shall at an early date give you roughly some of my ideas on the vegetation of Van Diemens Land, and its peculiar character— and which from its general resemblance to much that is characteristic of that of the Carboniferous era, leads me to infer that it is not essential that the character of that period in England should have been so much warmer than the present climate as most Geologists seem most anxious to urge.

[*Wax seal over*]

It has struck me for a long time that if our vegetation was found in a fossil state people would assuredly infer that our three species of Fern tree, *Richea pandanifolia* with leaves nearly like those of a palm & 3 to 5 feet long, *Athrotaxis* like *Lepidodendron*, &c would characterize a warmer climate than the cold bleak region of the South West of Van Diemen's Land, with a mean temperature for the year below some parts of Britain according to Professor Dove's tables, and much below many parts of France. More However by & bye if it interests you.

Believe me always

Most sincerely Yours

Ronald C. Gunn

Do not fail to send me Dr Hookers letters which I see by the *Athenaeum* are printed.—

[*ENDORSEMENT*]

[*Round postmark
bordered by a
single thick line*]

P. Potentate.

Sir W. J. Hooker
West Park
Kew — Surrey

R. C. Gunn

LAUNCESTON

11 MY11

18[49]

167 of 1833 probably *Microcachrys tetragona* Hook.f.

2058 not traced.

Lovell Reeve of Covent Garden, London, was the publisher of Dr. Joseph Hooker's "Flora Tasmaniae".

Gunn's complaint of the lack of a Public Library or Museum in Tasmania at the time was justified. The Ancanthe Museum established by Lady Franklin at Kangaroo (Lenah) Valley had practically ceased to function after she left the colony. Had Ronald Gunn remained in Hobart the story might have been different, though Ancanthe was rather too remote to be of much service to the general public.

The Royal (Botanical) Society discussed the setting up of a Museum and library in its formative years, and in 1848 Sir William Denison gave permission for the use, free of charge, of the large Committee Room at the Legislative Council Chamber as a museum and library and meeting-room for the Society; he also obtained a Government grant of £100 a year towards the expenses of the Museum. In 1849 the Tasmanian Public Library was established in Hobart, and the Royal Society decided to restrict the books in its library to those of a scientific character. In 1852 the Royal Society took the lease of premises in Harrington Street and its library and museum were moved there. In 1853 the cases and fittings (and presumably any worth-while specimens) of the Ancanthe Museum were purchased for use in this building. Finally, in 1860, the site of the present Hobart Museum in Argyle Street was granted to the Royal Society and its first building, to which extensive additions have since been made, was erected there.

The Launceston Museum also had its beginnings in the Royal Society, of which a Northern Branch (with Ronald Gunn an active member) was formed in 1853. Its first meetings were held in Franklin Lodge (the governor's northern residence in what is now the City Park), but later it moved

to the Public Buildings, where cases were installed to hold exhibits of a small museum. When the Northern Branch of the Royal Society became moribund these, with the contents, were taken over by the Mechanics Institute and installed in their premises, (now the Launceston Public Library). With the erection, in 1891, by the Launceston City Council of the present Queen Victoria Museum and Art Gallery in Wellington Street (Royal Park), the cases and contents, mainly minerals, formed the beginning of the present collections.

This is the last letter in the file from Ronald Gunn to either Sir William or Dr. (afterwards Sir) Joseph Hooker. As the previous letter indicated, Joseph was now handling the official correspondence at Kew, though he did not succeed his father as Director of the Gardens until Sir William's death in 1865. Any further letters from Gunn (and they must have continued until after the publication of the "Flora Tasmaniae" and possibly until Gunn's death in 1881) were probably regarded as private correspondence. Notes and observations on any specimen sent would go into the Herbarium.

(The only other relevant letter in the file of Tasmanian correspondence is of a much later date—London, February 5th 1929. This is from R. W. Giblin, the Tasmanian historian, who had apparently visited Kew to get advice about a rubber plantation he was interested in. When he was there the Kew authorities had asked him the whereabouts of "Penquite" and "Formosa" in Tasmania, probably in connection with localities where plants, in the herbarium, had been collected by Ronald Gunn. Giblin found out for them where "Penquite" was, but was unable to locate "Formosa".)

In 1849, Gunn, in his early forties, still had many years of active life ahead of him. Ten years later, with the surveyor, Peter Lette, he explored and made a report on the land on the North-West Coast between the Mersey and Inglis rivers and on some gold discoveries that had been made by James

(Philosopher) Smith and others in the area. It was on this commission that he discovered the fertile treeless flats about 15 miles up the Leven River that still bear the name Gunns Plains, and where a memorial has recently been erected to his memory. (It is possible that Gunns Plains was seen earlier, as in a sketch map made by Dr. Milligan for the V.D.L. Company in the eighteen thirties, 'Rings Plains' is marked in approximately the same position. However, it was apparently forgotten until Gunn came upon the place 20 years later, when settlement quickly followed. It is now a prosperous farming district). It is virtually certain that Gunn collected botanical specimens on this and other exploring trips and sent them, with accompanying letters, to his friend Joseph Hooker at Kew.

William Howitt, the author, visited Tasmania in 1854 and met Ronald Gunn at Launceston. Gunn was then living at Penquite House, Newstead House, his final residence, not being built until two years later. In his "Two Years in Victoria", published in 1855, Howitt records their meeting:

"Mr. Gunn's house lies in a fine park enclosed from the native forest, and exhibiting not only fine native timber, but splendid steeps and most picturesque glens. The country round is extremely beautiful. We made a long ramble during the afternoon, getting some rich views of cultivated valley on the North Esk, and of a peculiarly fine glen, where the perpendicular masses of basaltic rock, relieved by noble trees, presented a specimen of bold beauty rare on the other side of the Straits . . . In our walk, Mr. Gunn drew my attention to a particularly rough and scrubby shrub, with short stout boughs striking out on every side, and said that the botanists had classed it amongst the violets". He refers to *Hymenanthera angustifolia* R.Br. The fine glen is the Punch Bowl.

Ronald Campbell Gunn has sometimes been claimed as Tasmania's greatest botanist. In an academic sense he was not a botanist at all; he had no formal botanical training and, as he himself admits in one of his later letters to Sir William Hooker, he had not the requisite knowledge to describe a species botanically, and had "almost abandoned all hope of ever being better than a culler of wild flowers and weeds for you". But he was a magnificent collector, both in his ability to recognise new species or varieties and in his technique of preserving them. Ronald Gunn probably collected and preserved more specimens of new Tasmanian plants than all the rest of the collectors put together, and it is fitting that so many should still bear his name.

In 1876 he presented his extensive private herbarium to the Royal Society, to be housed in the Hobart Museum; but it is now in the Sydney Herbarium being taken there in 1904 by J. H. Maiden, with the consent of the museum authorities for study. In a letter to Mr. W. Baulch dated 2.9.1951, the late Rev. H. M. R. Rupp, then Honorary Curator of the Orchidaceae at the National Herbarium of New South Wales, explains how this came about—

The late Mr. W. F. Blakely, one of the senior botanists here for years, told me that during the directorate of Mr. J. H. Maiden, he persuaded the Hobart Museum authorities to send Gunn's collection to Sydney. . . . It was therefore sent here, on the understanding that when it had been thoroughly checked over, duplicates, where possible, should be returned to Hobart. Soon after its arrival [*Rupp incorrectly believed the transfer took place in the 1920's*] the depression of the early 'thirties set in and the staff of the Sydney Herbarium was reduced and nothing was done in the matter of returning duplicates to Hobart.

As soon as possible I went very carefully through the Orchids of Gunn's collection . . . and with the approval of the present Director, Mr. R. H. Anderson, I sent as many duplicates as possible to Hobart. There are many other specimens of Gunn's here beside the Orchids; but I have no responsibility for them, and know very little about them.

Most of the orchids, which were collected between 1832 and 1844, are in astonishingly good condition; in fact many look as if they had been collected last week. Gunn was a master hand not only at collecting, but at pressing and preserving plants.

The letters have recorded the development of Ronald Campbell Gunn from an enthusiastic amateur to a mature critic of botanical species. They show also the great part that Gunn played in the growth of an appreciation of science in the young Colony.

But the real hero of the letters is William Jackson Hooker. Indirectly it was he who founded the Tasmanian Society and the Royal Society that emerged from it. Without his generous and friendly encouragement it is doubtful if Gunn, or any other collector,

would so tirelessly have persevered in a hobby that demands so much time and effort. We cannot do better than end with this tribute paid to his father by Joseph Hooker in a letter to Baron von Mueller on Sir William's death, taken from "By Their Fruits", by Margaret Willis.

My loss has indeed been a grievous one, my father having for so many years been more my daily companion than any other person. I shall never see his equal for liberality of purse and work to library and herbarium, for genuine kindness, for utter absence of self-love and self-esteem, and for single-minded devotion to science. He thought nothing of himself in these matters, and scrupulously avoided applause, flattery, and distinctions. These attributes brought their own reward. He lived and died more happily than any scientific man I know and had not a single enemy or detractor.

VAN DIEMEN'S LAND CORRESPONDENTS

Appendix A

R. C. GUNN'S SPECIMEN NOTES

It has been deemed advisable to print these numbers and Gunn's notes on specimens in full. The numbers alone however convey very little and present tantalizing problems to students engaged on research. Where possible therefore the plant identification associated with the numbers in Hooker's Journal of Botany and in the Flora of Tasmania have been added in square brackets after the numbers. If the name shown is that now current nothing further is added, if however the current name is different the abbreviation "i.e." follows and then the current name is given. In this way it is hoped to make the list valuable to research students.

Various difficulties arise however. First it is not possible to check the numbers with the actual specimens. This must be left to individual workers with particular problems. Secondly, instead of numbering each specimen consecutively R. C. Gunn used several series of numbers each beginning at No. 1—one for Dicotyledons, one for Monocotyledons, and one for Mosses, one for Ferns and one for Lichens, which however he did not always number but used the specimens as packing material. Again he used at least two series of numbers for the Dicotyledons, each series beginning at No. 1. The first series probably ceased about No. 500 when he received books from Hooker which introduced him to the Natural System. In his second series he tried the impossible task of classifying all specimens before they were despatched. This must have seriously delayed despatch, but it would enable a student to discover the limits of the various collections by noting the return to the Ranunculaceae periodically as the series proceed.

Another difficulty results from his practice of giving a number of collections of one species the same number. Thus he collected *Ranunculus lappaceus* Sm. and gave the specimen the number 90. A little later he would collect the same plant again and give the fresh specimen the number 90. If both specimens belonged to the same species in the opinion of the botanist at Kew or the British Museum they were frequently amalgamated on the one herbarium sheet and collections made at different times cannot now be certainly identified. If the specimens proved to be different then two identifications will bear the number 90 as for example *R. lappaceus* and *R. pimpinellifolius*. When R. C. Gunn was doubtful about the similarity of the two specimens he often placed the question mark after the number thus 90 ? This made it necessary for the botanists at Kew to treat such a number as entirely separate. Thus 90 ? became a number in its own right and was treated as we would treat 90A.

The determinations made were published in a number of publications and it is known that manuscript lists giving some numbers and the Kew determinations exist in the Mitchell Library, Sydney, where most of Gunn's papers are. Editorial additions to the appendices are derived from three sources. (a) "Contributions towards a flora of Van Diemen's Land; from collections sent by R. W. Lawrence, and Ronald Gunn, Esqrs., and by Dr. Scott" printed in Hooker's "Journal of Botany" which was issued as Volume 1 in 1834. This was probably the work of Sir W. J. Hooker while still the Professor of Botany at Glasgow University. This was continued in Hooker's "Companion

to the Botanical Magazine" Vol. I p.p. 272-277 1835) which has not been sighted. (b) "Contributions towards a Flora of Van Dieman's Land, chiefly from collections of Ronald Gunn Esq., and the late Mr Lawrence by Joseph Dalton Hooker, M.D., R.N., Assistant Surgeon and Naturalist in H.M. Discovery Ship, Erebus" which appeared in Volume II of the same Journal published as a bound volume in 1840. Hooker filius continued and amended the work begun by Hooker. (c) "Flora of Tasmania" by J. D. Hooker, 1860, the first complete Flora of Tasmania. Using these three lists one of us (T.E.B.) tried to make the numbers given in the lists which follow somewhat more useful. Current synonyms have been obtained from Rodway's "Flora of Tasmania", Dr. Curtis' "The Student's Flora of Tasmania", J. M. Black's "Flora of South Australia" and Rupp's "Orchids of N.S. Wales".

It is hoped that the errors inevitable in such a process may not be too great.

A ? *preceding* a number is a marginal note inserted probably by W. J. Hooker when he first examined the collection.

LETTER 27

[An enclosure with letter dated 30th March, 1835.]

BOX No. I

Remarks on Plants sent from V.D. Land to Dr. W. J. Hooker—1835

I have arranged them this season as far as practicable according to the Natural Method—only keeping the new Numbers in a detached lot from the duplicates of those sent Home in former years. You will perceive innumerable blunders but I am anxious to pursue that system as far as possible in all my collections.—

CLEMATIS 53. [*C. gentianoides* DC.]—54. [*C. blanda* Hook. i.e. *C. aristata* DC.] good specimens of this last in fruit—I have also put in two small branches of what is evidently a new species but could not find it in flower.—

RANUNCULUS 90. [*R. lappaceus* Sm. and *R. pimpinellifolius* Hook. var. *glabrior*] 157. [*R. glabrifolius* Hook.]

& 229. [*R. scapigerus* Hook. and *R. leptocaulis* Hook. i.e. *R. pumilio* R.Br. ex DC.]—good specimens of *R. scapigerus* Hook. (229) [Fl. Tas. has 299 in error]

collected lately at Deloraine 35 miles West—I have been unable to detect the difference between my 90 & *R. pimpinellifolia* [Hook.] not having retained specimens—

PLEURANDRA [*HIBBERTIA*] 22. [*P. riparia* R.Br. ex DC. var. *glabriuscula* Hook. i.e. *H. stricta* R.Br.]

CARDAMINE. 401 [*C. dictyosperma* Hook.]

VIOLA. 84. [(1832) *V. betonicifolia* Sm.] 95. [(1832) *V. hederacea* Labill. also 95 (?) *V. sieberi* Hook.] I have put in here one or two specimens of a *Viola* which may be different on Examination to 95.—In my Herbarium I have by mistake retained my present No. 528

—as 84— but have now altered it to *V. betonicifolia* as p. your mema.

DROSERA. 350. [Vol. I J. of B. has *D. peltata* Sm., Vol. II *D. lunata* Buch. ex DC. Fl. Tas. also. See below]

In my herbarium the specimen retained of *D. peltata* is with pink flowers, and smooth calyx [i.e. the specimen he retained for 350 was *D. auriculata* Benth. ex Planch.]—as another species is equally abundant I have given it a new No. (448) [i.e. *D. peltata* Sm.] in this years collection and wish to know which is the true *D. peltata*.

COMESPERMA. 147. [*C. volubile* Lab.] 170 [*C. retusum* Lab.]

TETRATHECA. 21. [*T. pilosa* Lab. var. β] 193. [*T. pilosa* Lab. var. α] 194. [*T. glandulosa* Lab.]—Nos. 21 & 193 called by you varieties [of *T. glandulosa* Lab. var. *pilosa*] do not exist together—and 21 is found at Launceston—and 193 in the Western parts where the climate is much colder and where I have not seen 21.

BILLARDIERA. 11. [*B. mutabilis* Lab. i.e. *B. scandens* Sm.] 169. [*B. longiflora* Lab.]

BURSARIA. 15. [*B. spinosa* Cav.] I send additional specimens of this but find the tree has spines though not abundant on the young branches,—neither do I find the leaves on any plants to be much smaller than those sent.—

PITTOSPORUM. 154. [*P. bicolor* Hook.]

LINUM. 71. [*L. marginale* A. Cunn. ex Planch.] This No. you have omitted to give me credit for in your mema. [Vol. II J. of B. has 71. *L. angustifolium* Huds. Gunn seems to be referring to a manuscript list sent to him by Hooker on receipt of a previous parcel of specimens. "No. 71 is *Linum marginale* A. Cunn."—Dr. R. Melville.]

STELLARIA. 96. [*S. pungens* Brongn. ex Duperrey]

FRIESIA. [*ARISTOTELIA*] 312. [*A. peduncularis* (Lab.) Hook. f.]

HYPERICUM. 73. [*H. gramineum* Forst.f.] This No. also omitted in your mema. ["No. 73 is *Hypericum gramineum* Forst."—Dr. R. Melville.]

DODONAEA, 377. [*D. viscosa* Jacq.]

GERANIUM, 63. [*G. potentilloides* L'Herit. var. *parviflora* Willd. i.e. *G. microphyllum* Hook. f.] This appears to vary considerably in the colour of the flower and mode of growth.—May not some that I take to be vars. prove species.—

PELARGONIUM, 425. [*P. australe* Willd. var. *albiflorum* Hook.]

OXALIS, 370. [*O. magellanica* Forst. f. i.e. *O. lactea* Hook.] 94. [*O. corniculata* L.] I send more specimens of 370 recd. from the Hampshire Hills as it does not exist near Launceston. The flower is always white—94 always yellow—and a much larger plant—I think they are distinct.

CORROEA, 152. [*C. virens* Sm. i.e. *C. reflexa* (Lab.) Vent.] 153. [*C. lauranciana* Hook. var. *glabra* Lindl. Curtis gives var. *glabra* Benth.] others in this year's collection.

ERIOSTEMON, 14. [*E. verrucosa* A. Rich. Vol. I. J. of B. gives *E. obcordatum* A. Cunn. ex Hook.]

BORONIA 8. [*B. gunnii* Hook. f.] 303. [See below] I differ with you in thinking these to be vars. of the same species.—No. 8 exists at Launceston & 303 on the Mersey and Western parts where the climate is totally distinct.—The smell of the two also differs very much.—No. 8 smelling like Rue—and 303 so as to give it the Colonial name of Lemon Plant [*B. citrodora* Gunn. ex Hook. f.]—Nos. 214 & 303 are probably vars.—but until I can procure good specimens of the two last Nos it must remain undecided. [214 *B. variabilis* Hook.]

ZIERIA, 140 [*Z. arborescens* Sims]

POMADERRIS, 126. [*P. apetala* Lab. var. α Hook. f.] 440. [*P. elliptica* Lab.]

CRYPTANDRA. [*SPYRIDIDIUM*] 150. [*S. ulicinum* (Hook.) Benth.]

STACKHOUSIA, 69. [*S. monogyna* Lab.]

PULTENEA, 137 or 186 [Both *Pultenaea subumbellata* Hook.]—135 or 215 [135 *Bossiaea cinerea* R. Br.]—179, 185. [Both *Pultenaea* 179 *P. juniperina* Lab. 185 *P. daphnoides* Sm.]—Nos. 137 & 186 are I think alike as also 133 & 215—and have accordingly this season placed them together.

DAVIESIA ? 176. [*Bossiaea ensata* Sieb. i.e. *B. riparia* A. Cunn.] 177. [*Daviesia ulcina* Sm.] 181. [*Daviesia umbellulata* Sm. var. β acuminata DC. and var. γ i.e. *D. ulcina* Sm.] 148. []

AOTUS, 24. [*Gompholobium latifolium* Sm. i.e. *G. huegelii* Benth.] Good specimens in flower & fruit.—

PLATYLOBIUM, 64. [*P. triangulare* R. Br.]

HOVEA 138. [*H. purpurea* Sw. i.e. *H. longifolia* R. Br.] 139. [*H. heterophylla* A. Cunn.] in flower & fruit.—

GOODIA, 135. [*Bossiaea cinerea* R. Br.] 208. [*Goodia pubescens* Sims.] 209. [*Goodia lotifolia* Salisb.]—I have placed 135 as a *Goodia* from the shape of the fruit.

LOTUS 83. [*L. corniculatus* L.] 439. [“*L. australis* Andr.”.—Dr. R. Melville]

VICIA? 161. [*Leptocynnus clandestinus* Benth. i.e. *Glycine clandestina* Wendl.]

KENNEDIA [*KENNEDYA*], 26. [*K. prostrata* R. Br.]

VIMINARIA ? 172. [*Sphaerolobium vimineum* Sm.]

LEGUMINOSAE Sundries, 171. [*Bossiaea cordigera* Benth.] 212. [*Actus villosa* (Andr.) Sm.] 234. [*Oxylobium ellipticum* R. Br.] 308 ? (an **AOTUS**) [This question mark after a number indicates that Gunn had previously sent a specimen he numbered 308. He now submits what he takes to be a duplicate specimen and so gives it the same number, but he is not quite sure so he warns Hooker by putting a ? after the number not to accept it without close examination. For his part Hooker had to distinguish the two specimens in some way intelligible to Gunn. He therefore called one specimen 308 and the other 308? 308 was *Pultenaea fasciculata* Benth. and 308? was *Pultenaea tenuifolia* R. Br.]

AGACIA, 130. [*A. mucronata* Willd. var. α] 131. [*A. diffusa* Lindl.] 201 [*A. melanorhylon* R. Br.] 202. [*A. mucronata* Willd. var. β *dependens* (A. Cunn. ex Benth) Hook. f.] 203 [*A. myrtifolia* Willd.] 204. [*A. verticillata* Willd.]

POTENTILLA, 251. [*P. anserina* L.]

GEUM, 249. [*G. urbanum* L. var. *strictum* (Ait.) Hook. f.]

ACAENA, 87. [*A. ovina* A. Cunn. ex Field] I send under this no. two distinct kinds which I have only marked as vars.

LYTHRUM, 30. [*L. salicaria* L.] 81. [*L. hyssopifolia* L.]

EPILOBIUM, 82? [82 *E. junceum* var. α 82? not located]

TILLAEA? 91. [*T. verticillaris* DC.]

BAUERA, 156. [*B. rubioides* Andre. var. α]

BAECKIA, 86. [*B. thymifolia* Hook. f. i.e. *B. ramosissima* A. Cunn.]

LEPTOSPERMUM, 7. [*L. flavescens* Sm. i.e. *L. sericeum* Lab.]

METRASIDEROS 17. [*Callistemon salignum* DC. i.e. *C. pallidus* (Bonpl.) DC.] 105. [*Melaleuca gibbosa* Lab.] Backhouse in his “Index Plantarum” in Ross's Annual calls No. 17. “*Callistemon lophanthus*.”—

MELALEUCA, 18. [*M. ericaefolia* Sm.]

CALYTHRIX, 13. [*Calyctrix glabra* R. Br. var. α *galberrima* i.e. *Calyctrix tetragona* Lab.]

UMBELLIFERAE? 245. [*Trachymene humilis* (Hook. f.) Benth. It is an *Umbelliferae*.]

SAMBUCUS? 19. [*S. gaudichaudiana* DC.]

GALLIUM [*GALIUM*] 159. [*Asperula conferta* Hook. f. a form of *A. oligantha* F. Muell. *Gallium* is an allied genus in *Rubiaceae*.]

- GNAPHALIUM.** 112. [*Helichrysum apiculatum* (Lab.) DC.] 113. [*H. semipapposum* DC.] 246. [*H. semipapposum* DC.] Of No. 113 I have sent three kinds marked as vars. but which in collecting I took to be species. — I leave them to your decision.
- ELICHRYSUM** [*HELICHRYSUM.*] 108. [*Helipterum bicannum* DC.] 239 [*Helipterum anthecoides* DC.] 111. [*Helichrysum tractatum* (DC.) Willd.] 116. [*Helichrysum scorpioides* Lab.] 120? [120 *Gnaphalium alpinum* F. Muell. ex Hook.f.]—The specimen I obtained of 120 is so bad that I cannot be certain if the specimens now sent are the same, or 409. [*Gnaphalium luteo-album* L.]
- — — ? 118. [*Leptorhynchus squamatus* Less.]
- GALACTITES?** [*PODOLEPIS*] 110. [*P. acuminata* R. Br.]
- PICRIS?** 115. [*P. hieracioides* L.]
- CRASPIDIA.** —117. [*C. richca* DC.]
- ERIGERON.** 164. [not traced]
- BELLIS.** 66 [*Brachycome stricta* DC.] — 67 [*Lagenophora billardieri* DC.] or 232. [*Lagenophora billardieri* DC.] Nos. 67 & 232 are I think alike.
- SONCHUS.** 265. [not traced]
- SENECIO.** 114. [*S. australis* (DC.) Willd.]
- ASTER.** [*OLEARIA.*] 36. [36 of 1844 *Eurybia gunniana* DC. var. *salicifolia*—"All of No. 36 including the 1844 collection seems to be typical *O. gunniana* DC"—Dr. R. Melville] 38. [*O. ramulosa* DC. var. 0 *aculeata* DC. also var. γ *floribunda* Hook.f. (*epilecia* DC.)] 261. 273? [273. *O. gunniana* DC. var. β *brevisipes* also var. ϵ *vana* (*subpedunculata* DC.)] 123 [*Helichrysum hookeri* Sonder]—At No. 36 I have put in two specimens of 180 need. from Mr. Backhouse but I cannot recognise the difference between it & 36.—Of 273 now sent I am a little doubtful.
- OZOTHAMNUS?** [Now grouped with the *HELLICHRYSUM*] 39. [*Cassinia aculeata* R.Br.] 240. [*H. thyrsoideus* DC.]
- CULCITUM.** [*BEDFORDIA.*] 121. [*Bedfordia salicina* DC.]
- BRUNCNIA.** 109. [*Brunonia australis* R. Br.]
- GOODENIA.** 45. [*G. ovata* Sm.] 48. [*G. elongata* Lab.]
- VELLEIA.** 47. [not traced] 430 [*Goodenia hederacea* Sm. a var. *lanata* of *G. geniculata* R. Br.]
- EUTHALES.** 46. [*Velleia paradoxo* R.Br.]
- STYLIDIUM.** 102. [*S. graminifolium* Swartz.]
- CAMPANULA.** 72. [*Hahlenbergia gracilis* var. *vinciflora* R.Br. "This is *H. billardieri* Lothian"—Dr. R. Melville] 165. [var. *littoralis* R.Br.]
- GAULTHERIA.** 305. [*G. hispida* R.Br.] See New Nos.
- ANDERSONIA.** 155. [*Sprengelia incarnata* Sm.] The specimens now sent are large, and I think it probably may differ from some of those sent as 155 in 1833.
- EPACRIS.** 143. [*E. cerserta* R.Br.] 144. [*E. gunnii* Hook.f. i.e. *E. microphylla* R. Br.] 145. [*E. lanuginosa* Lab. var. α] 146. [*E. lanuginosa* var. γ 146? *E. lanuginosa* var. β but Gunn does not refer to this number here.]
- LEUCOPOGON.** &c. 34. [*L. collinus* R. Br. var. α] 191. [*L. virgatus* R.Br.] 196. [*L. ericoides* R. Br.] 197. [*L. hookeri* Sonder] 429. [*L. eichei* R. Br.]—Specimens of 191 are sent which were collected at three places widely distant, vizt. Launceston. Deloraine, & Hampshire Hills.—
- ASTROLOMA.** 122. [*A. humifusum* R. Br.]
- ACROTRICHE?** 192. [*A. serrulata* R. Br.]
- Sundries EPACRIDAE.** 297. [(in part) *Trochocarpus disticha* Spreng. var. *caunighani* Hook. also *T. gunnii* (Hook.) Benth.]
- For **LOBELIA** 104 [*L. gibbosa* Lab.] see New number at 514 [*L. gibbosa* Lab.]
- NOTELEA** 374. [*Notelea lignstrina* Vent.] The colour of the fruit of this Plant is various—from a wax coloured white to a deep purple and all the intermediate shades of red and pink. Specimens last season sent were purple berries now white.
- GENTIANA.** 119. [*G. montana* Hook. i.e. *G. diemenica* Gries.] I found one specimen, the flowers of which were light purple.
- CONVOLVULUS** 52. [*Convolvulus erubescens* Sims.]
- ?MYOSOTIS?** 50. [*Myosotis suarcolens* R. Br.] & one or two **sundries.** [The ? preceding the item is marginal and was probably added by Hooker.]
- SOLANUM.** 51. [*S. nigra* L.]
- EUPHRASIA.** 167. [*E. scabra* R. Br.] 200. [*E. multicaulis* Benth. ex DC. i.e. *E. brownii* F. Muell.]
- VERONICA.** 2. [*V. labiata* R. Br. i.e. *V. derwentia* Andr.] 65. [*V. gracilis* R. Br.] 269. [*V. nivea* Lindl.] 174. [*V. gracilis* R. Br.] 269. [*V. nivea* Lindl.] 174. [*V. arguta* R. Br. i.e. *V. notabilis* F. Muell.]
- LYCOPUS.** 400. [*L. australis* R. Br.]
- AJUGA.** 32. [*A. australis* R. Br.]
- PRUNELLA.** 31. [*P. vulgaris* L.]
- ?PENARIUM.** 70. [not traced]
- WESTRINGIA.** 213. [*W. brevifolia* Benth ex DC.]
- MEMA. OMITTED IN PROPER PLACE
- Remark relative to No. 1 Lomatia (omitted)
- In one of your former letters to R. W. Lawrence you called this plant 'Lomatia silaifolia'—but happening lately to see Sir J. E. Smith's "Specimens of the Botany of New Holland" I find it differs widely from *Embothrium Silaifolium* as those figured and described,—vizt.

- Lomatia Silaifolia.—of J. E. Smith.— } Lomatia No. 1 ————— No. 10. [not traced]
 Leaves thrice divided into narrow decurrent, sharp entire segments, sometimes three cleft.— } Pinnatifid.—See specimens of which many very good are sent ————— 76. [not traced]
 Flowers—Inodorous.—&c. &c. with one lanceolate sharp bractea in common to every pair of flowers } Very sweet scented.—No bractea exists ————— 78. This plant has when green a most foetid odour, not unlike human excrement, more perceptible however on bruising the leaves.
 [From the description, *Zieria arborescens* Sm. The bruised bark of *Cenarrhencs nitida* Lab. has a similar odour. See note to 546.]

I therefore think it may be *L. tinctoria*—but make this remark merely to draw your attention to it.

May not our V.D.L. Warratah—(175) be *Telopea truncata*—& not *Lomatia polymorpha* as named by you to Mr Lawrence?—It is the only V.D.L. erinson flowd species I have seen—and I see that *T. truncata* has crimson flowers.—Backhouse in Ross's Almanack for 1835 calls it *Telopia Tasmaniana* but upon what authority I know not—as I have not seen him since that publication, and he is now in New South Wales—or Norfolk Island.—But as there is no mention of *T. truncata* in that work he may have noticed that in Erown's Prodomus it is marked as a V.D.L. species.—Excuse my freedom in these Remarks but I am aware you have many difficulties to contend with in examining dried specimens.

R.C.G.

- No. 85 [not traced]
 ————— 92 [*Poranthera microphylla* Brongn.]
 ————— 97 [not traced]
 ————— 151 [not traced]
 ? ————— 161 [not traced]
 ————— 219 [not traced]
 ————— 226 [*Podocarpus alpina* R. Br. ex Mirbel]
 ————— 293 [not traced]
 ————— 356 *Leptospermum thymifolium?* (omitted) [from its correct place among the *Myrtaceae* on the list]
 ————— 398. (not in flower)

MENTHA. 89. [*M. gracilis* R. Br.]

PROSTANTHERA. 58. [*P. rotundifolia* R. Br.]

SAMOLUS? 381. [*S. littoralis* R. Br.]

UTRICULARIA. 49. [*U. dichotoma* Lab.] These are a few specimens sent from Hampshire hills.

PLANTAGO. 141. [*P. varia* R. Br.] and a var. with edges of leaves not serrated.

POLYGONIUM. 325. [*Muehlenbeckia adpressa* Meisn. var. β . *hastifolia*, the *P. gunnii* Hook.f.] These specimens collected in my own garden from a young plant I had recd. from Macquarie Harbour.

CASSYTHA. 27. [*C. glabella* R. Br.]

HAKEA 20 [*H. microcarpa* R. Br.] & some specimens from Hampshire Hills.

ORICTES. [ORITES.] 286 [*O. revoluta* R. Br.] in fruit

BELLENDENA. 282. [*B. montana* R. Br.]

LOMATIA 1. [*L. tinctoria* R. Br.] See annexed remark

PIMELEA. 4. [*P. nivea* Lab.] 5. [*P. humilis* R. Br.] 225. [25, (not 225, the Gunn number) *P. gracilis* R. Br.]

LEPTOMERIA. 260. [*L. billardieri*, R. Br.]—This & 29 are alike.

ANTHOBOLUS? 190. [*Amperea spartioides* Brongn.] —I think also same as 28.

CROTON. 35. [*Micranthea hexandra* Hook.] flower & fruit

BETULA.? 178 [*Nothofagus cunninghamii* (Hook.) Oerst.]

The following Nos I was a little puzzled about and therefore have placod them at end, & also ono or two odd specimens.

MONOCOTYLEDONES

DRYMOPHILA. 224. [*D. cyanocarpa* R. Br.]

IRIS? 270. [*Libertia lawrencei* Hook.f. i.e. *L. pulchella* Spreng.] recd. from Hampshire Hills.

BLANDFORDIA. 241. [*B. punicea* (Lab.) Sweet]

?THYSANOTUS? 351. [*T. patersoni* R. Br.]

CAESIA? 100? [*Arthropodium pendulum* DC.] 346. [*Caesia corymbosa* R. Br. i.e. *Chamaescilla corymbosa* (R.Br.) F. Muell.] 99? [99 *Caesia vittata* R. Br. 99? not known]

BURCHARDIA. 103. [*B. umbellata* R. Br. (nomina conservanda 1940)]

CYPERACEAE, JUNCEAE, &c &c.—336. [*Xerotes longifolia* R. Br. i.e. *Lomandra longifolia* (R.Br.) 93. [*Lomandra glauca* (R.Br.) *Lomandra* now included in the *Xanthorrhoeaceae*]

421. [*Isolepis setacea* R. Br. i.e. *Scirpus calocarpus* S. T. Blake; *Isolepis saviona* Schult. i.e. *Scirpus cernuus*, Vahl. *Isolepis riparia* R. Br. i.e. *Scirpus cernuus* Vahl. 421? *Isolepis cartilaginea* R. Br. var. γ i.e. *Scirpus antarcticus* L.]

340. (one specimen) [*Luzulus campestris* (L.) DC.] 415. [not traced] 341. [*Luzula campestris* (L.) DC.] 331. [*Restio tetraphyllus* Lab.] 332. [*Carex fascicularis* Soland. ex Hook.f.] 333. [*Carex longifolia* R. Br.] 416? [416 *Carex gaudichaudiana* Kunth.] 338. [*Leptocarpus brownii* Hook.f. ♂] 337. [*Hierochloa redolens* R.Br. also *Hierochloa borealis* Roem. i.e. *H. fraseri* Hook.] 339. [not traced]

I have placed the duplicates of the Orchideae vizt. [and he gives the numbers below] amongst the New numbers as in some cases they required to be put in juxtaposition to ascertain difference.—

101. [*Thelymitra nuda* R. Br. and *T. angustifolia* R. Br. the latter being *T. aristata* Lindl.]

127. [*Dipodium punctatum* R. Br.] 352. [*Prasoplyllum patens* R. Br.] 353. [*Prasoplyllum fuscum* R. Br.] 354. [*Microtis arenaria* Lindl. i.e. *M. unifolia* (Forst.) Rehb. f.] 343. [*Diuris maculata* Sm.] 342. [*Diuris sulphurea* R. Br.; 342 of 1835 *Diuris corymbosa* Lindl. i.e. *D. longifolia* R. Br.]

347. [*Caladenia barbata* Lindl. i.e. *C. deformis* R. Br.] 357. [*Pterostylis obtusa* R. Br. i.e. probably *P. decurva* Rogers as *P. obtusa* does not seem to occur in Tasmania.]

355. [*Pterostylis cucullata* R. Br.]

& 344. [*Caladenia clavigera* A. Cunn. ex Lindl.]

ACOTYLEDONES

I have placed all the Ferns and Lycopodiums together as the latter order are not sufficiently numerous to number by themselves—and I will give the Lycopodiaceae new Nos. with the Filices, as thitherto I have placed them with the cotyledonous Plants.—

FILICES.

48. **LYCOPODIUM**.—From Mounts. This was No. 23 of my Cotyledonous Plants.—but I have now altered it to Filices No. 48 [*Lycopodium claratum* L. var. *Magellanicum*]

49. **LYCOPODIACEAE**.—(New No.) [*Lycopodium densum* Lab.]

36. **PSILOTUM truncatum**. [“Probably in error for *P. triquetrum* Sw. i.e. *P. nudum* Griseb.”—Dr. R. Melville] Some specimens with a *Jungermannia* on it.

29. **BOTRYCHIUM?** [*B. lunaria* Sw.—*Ophioglossaeae*] Reed, from Hampshire Hills. [“Correct 1 specimen at Kew”—Dr. R. Melville]

30. **BOTRYCHIUM?** [*B. virginianum* Sw. Fl. Tas. “This was probably *B. australe* R. Br. *B. virginianum* does not occur in your area”—Dr. R. Melville.] This plant I found abundant near Launm, but waited until I could find a flowering frond, but either cattle, the heat, or some other casualty came in the way, and I could not find one with any inflorescence.

14. **Osmunda barbara?** [Thunb. *Todea africana* Willd. ex Schrifft i.e. *T. barbara* (L.) T. Moore]

23. **Gleichenia speluncea?** [*G. speluncae* R. Br. i.e. *G. circinnata* Sw.”—Dr. Melville]

19. **Hymenophyllum nitens**. [R. Br. i.e. *H. flabellatum* Lab.] Of this fern you will find some specimens abundantly covered with inflorescence others with very few.—

47.—Is this a new species of *Hymenophyllum* or do you think it a dwarf var of No. 19 I recd. the specimens from Hampshire Hills

40. **Hymenophyllum tunbridgense?** [Sm. i.e. *H. cupressiforme* Lab.]

46 (New No.) Reed, from Hampshire Hills. This in some points looks so different to 40 that I have given it a new No. [“Specimen is in the Herbarium and is *Hymenophyllum rarum* R. Br.”—Dr. R. Melville]

39. I sent you a specimen of this in last collection recd.—from J. Backhouse.—Those now sent are partly collected by myself and partly recd. from Hampshire Hills—It grows on the Tree Fern.

35 **Trichomanes venosum** [R. Br.]

15. **Cheilanthes tenuifolia?** [(Burm.f.) Sw.]

41. **Pteris**. [not traced]

18. **Pteris vespertilionis?** [“*P. vespertilionis* Lab. i.e. *Histiopteris incisa* (Thunb.) J. Sm.”—Dr. R. Melville]

8. **Pteris falcata?** [R.Br. i.e. *Pellaea falcata* (R.Br.) Fée]

4. **Stegama** [*Lycopodium carolinianum* L.]

2. do.	}	[Numbers not traced]
3. do.		
26. do.		
27. do.		
28. do.		

29. do. [*Botrychium lunaria* Sw.]

1. **Doodia**—I am quite undetermined in how far these differ one from the other.—In collecting I have thought them dissimilar, yet in drying I find various specimens connecting one to the other so closely as to leave me still unsettled as to whether they are one or two species.—

22. **Asplenium flabellifolium?** [Cav.] The specimens I now send differ so widely in size, habit, &c that I am inclined to believe them two species.—The small ones grow among rocks on Hill sides together with Nos. 15 & 16.—and the larger specimens in shady places among rocks where it is moist—and where Nos. 15 & 16 are never found.—

24. Asplenium laxum? [R. Br. i.e. <i>A. bulbiferum</i> Forst.]	}	These ferns are very similar in appearance and habit being found parasitical on the Tree fern and dead trees.—
10. Allantodia australis? [R. Br. i.e. <i>Athyrium umbrosum</i> (Ait.) Presl. ssp. <i>australe</i> (R. Br.) C. Chr.]		

9. **Aspidium coriaceum?** [Sw. “Specimen is here, it is *Rumohra adiantiformis* (Forst.) C. Chr.”—Dr. R. Melville] Parasitical like the above.

7. **Aspidium proliferum**. [R. Br. i.e. *Polystichum proliferum* (R. Br.) Presl.]

17. **Polypodium rugosulum?** [Lab. i.e. perhaps *Hypolepis rugosula* (Lab.) J. Smith]

6. **Polypodium Billardieri**.—[“Specimen here: it is *Microsorium diversifolium* (Willd.) Copel.”—Dr. R. Melville] Parasitical on trees—but more generally covering rocks and stones, (like Ivy) to which it strongly adheres.—

11. *Siphopteris Grammitides*? [*Polypodium grammitides* R. Br. i.e. *Ctenopteris heterophylla* (Lab.) Tindale] Parasitical on trees.
44. *Grammitis rutaefolia*? [R. Br. i.e. *Gymnogramma rutaefolia* (R. Br.) Hook. et Grév. i.e. *Pleurosorus rutaefolius* (R.Br.) Fée]
12. *Grammitis australis*? [R. Br. i.e. *G. billardieri* Willd.] Parasitical on fern trees—as are Nos. 9, 10, 11, 12, 19, 24, 35, 36, 39, 40, 45, 46, 47.

MUSCI ET LICHENES

Of Mosses and Lichens—as of Ferns—I have found no novelties—for the best of reasons—not having visited those places I was likely to find any.—I now send you the few that I happen to have picked up while in search of others.—Vizt. some good specimens of Hookeria No. 32.—& a few of 27, 37, [*Hypnum unguiculatum* Hook.f. & Wils.] 47 & one or two others.—I have added No. 62.—a Beautiful Moss in good flower—and the others may assist my former collections.

The Lichens &c. I have wrapped up in Paper without numbering and used them as a means of packing the box.—Among them you will find two good *Iots* and a few others that may help you to find out the other Collections.

—A small paper of specimens of the curious fungus called "*Native Bread*" I find them however so shrivelled that I shall put the next I find in spirits.—It has when fresh an appearance of a mass of boiled rice—how it is produced or grows I know not—it is generally found in ploughing new land, and sometimes in masses as large as a man's head.—See Hobart Town Almanack for 1834 Page 131. Some Manna sent in a bottle—produced by species of *Eucalypti*.

BOX No. 2

REMARKS ON PLANTS SENT TO DR. HOOKER IN MARCH 1835, Nos. 444 to 630 inclusive.

I have also arranged the first 100 numbers according to their Natural Orders, but as specimens were received by me from Mr Backhouse, and also collected by myself after the first arrangement, I have placed them at end.—

444. *RANUNCULUS* [*R. leptocaulis* Hook. i.e. *R. pumilio* R. Br. ex DC.]—Swampy places.
445. *PLEURANDRA*? [*P. hirsuta* Hook. i.e. *Hibbertia hirsuta* (Hook.) Benth.] dry hills, Hobart Town, reed, from J. Backhouse.
446. ————— [*Cardamine heterophylla* Hook.]—wet places.
447. ————— [*Cardamine pratense* (L.) var. γ *tenuifolia* Hook. i.e. *C. tenuifolia* Hook.] This plant I collected at Deloraine—It grows in sluggish streams and flowers a few inches above the surface of the water.—I always found it growing in water, and in many places 3 to 4 ft. deep.

448. ————— [*Drosera peltata* Sm.] This *Drosera* is as abundant as 350 [*D. lanata* Bush, ex DC. i.e. probably *D. auriculata* Baekh. ex Planch.] but differs in the following points—vizt. 350.—radical leaves—frequently none—and in others more approaching to cauline leaves close together & more oval than in 448.—Cauline leaves smaller than 448.—hairs rose coloured with dark black glands Calyx smooth and much taller than 448.—flower Pink.—448. Radical leaves always present—hairs in cauline leaves white—Calyx hairy, flowers white, but sometimes pink.

449. *Drosera Menziesii* [Hook. non R. Br. i.e. *D. planchonii* Hook.f.] Collected at Swan Port East Coast by J. Backhouse.

450. *STELLARIA*? [*S. media* Sm. i.e. *S. media* (L.) Vill. perhaps.]

451. do? [*S. multiflora* Hook.]

452. *Sida pulchella*? [*Plagianthus pulchellus* (Bonpl.) A. Gray] Native Name *Chirajong*.—In your Memo you state that this is mixed with No. 173 [Vol. I "Journal of Botany" says *Sida pulchella* Bonpl. ex DC. and *S. discolor* Hook. The distinction does not seem to have been maintained.] I have therefore given it a separate one [i.e. number]. It does not exist in a natural state on this side of the Island—my specimens are from plants in my garden.—

453. *GERANIUM* [*G. potentilloides* L'Herit. i.e. *G. microphyllum* Hook.f.] Is this No. 63? [*G. parviflorum* Willd. i.e. presumably *G. microphyllum* Hook.f. since the "Journal of Botany" agrees they were the same.]

454. *ERIOSTEMON* [*Phebalium billardieri* Adr. Juss. i.e. *Ph. squameum* (Lab.) Druce] from an esteemed correspondent Dr. Joseph Milligan, J.P. Hampshire Hills to whom I am indebted to the very many specimens marked throughout this collection as "From the Hampshire Hills," which are part of the Van Diemens Land Coy's territory.—but little explored by persons not attached to that Establishment. This species I think is very distinct from the following No.

455. *ERIOSTEMON*? Very abundant on the banks of the South Esk near Launceston, growing about 6 or 7 ft. high—but frequently higher—and strangely omitted in my former collections.— [It was the same as No. 454.]

456. *Corroea Backhousiana*. [Hook.] A single specimen of this sent home in 1833—Some more now reed, from Woolnorth N.W. Corner of V.D.L. & one of the V.D.L. Coy's Establishments.

457. *Corroea ferruginea*? [*C. Laurenciana* Hook. var. β *ferruginea* Hook.]

Specimens and a young plant reed, from Mr. J. Backhouse who collected them on Mount Wellington (in the middle & upper regions nearly to the top) at Hobart Town in October 1834.—Backhouse remarks to me—"I think *Corroea ferruginea* quite distinct from the Cape Grim plant; in addition to the other differences the corolla is slenderer than in *ferruginea*, & more contracted than in *C. virens* [Sm.]—(Qy. *C. Backhousiana*? R.C.G.) and is a much less compact shrub.—"

458. *Boronia hysopifolia*? [*B. hysopifolia* Sieber. i.e. *B. nana* Hook. var. *hysopifolia* Melville] from near Launceston.

459. **Discaria?** This I collected on Pig Island in the River Tamar 7 miles below Lamm. I think there is another species near Lamm, but it is such a spinous shrub that I failed in all my attempts to preserve it. I will try again next season. [It was *Hymenathera angustifolia* R. Br.]
460. **POMADERRIS.** [*Cryptandra obovata* Hook.f.] Collected by J. Backhouse at Meredith River, Swan Port, East Coast V.D.L.
461. **POMADERRIS** [*P. racemosa* Hook.] from Flinders Island, Bass's Strait also by James Backhouse.
462. **STACKHOUSIA** [*S. monogyne* Lab.] from Sandhill near Lameston it flowers later, in a more sandy soil, & with evidently a different leaf to No. 69 [*S. monogyne* Lab.]
463. **Indigofera Australis?** [Willd. - It was.]
464. [*Oxylobium arborescens* R. Br.] Reed, from Dr. Milligan, Hampshire Hills
465. [*Hibbertia virgata* Hook. non R. Br. i.e. *H. fasciculata* R. Br.] from Woolnorth.
466. [*Swainsonia lessertiaefolia* DC.] do. do.
467. **PULTENEÆ** [*P. pimelioides* Hook.f. i.e. *P. dentata* Lab.] from Woolnorth
468. do. [*Dillwynia cinerascens* R. Br.] Westbury Road.
469. do. [*D. glaberrima* Sm.] from Hampshire Hills, also Woolnorth
470. do. [*Pultenaea diffusa* Hook.f.] from Hampshire Hills—This and the preceding (469) sent by Dr. Milligan as the same.
471. **PULTENEÆ** [*P. stricta* Sims.] South Esk, abundant.
472. [*Bossiaea prostrata* R. Br.] South Esk
473. **PULTENEÆ?** [*Aotus villosa* (Andr.) Sm. "I have not traced this no. It is not *Aotus ericoides* (Vent.) G. Don the synonym *A. villosa* (Andr.) Sm. is invalid"—Dr. R. Melville.] [One specimen only— from Woolnorth
474. **DAVIESIA?** [*Bossiaea cinerea* R. Br.] do, from Woolnorth.
475. **AOTUS** [*Gompholobium latifolium* Sm. "This no. is *G. huegelii* Benth."—Dr. R. Melville.] from Hampshire Hills
476. **Acacia affinis?** [*A. dealbata* Link.] Silver Wattle. —
477. **Acacia decurrens?** [“This *A.* is *decurrens* (Wendl.) Willd. var. *mollis* Lindl. As a species it has to be called *A. nearnsii* De Wild.”—Dr. R. Melville.] Black or green Wattle. 476 flowers in August and 477 in Decemr.— both attain considerable size— particularly 476 the trunk of which I have seen 2 feet in diameter, and with the branches spreading at least 20 feet in every way from the tree. At Deloraine & higher up the Meander River I have seen an acacia which I believe to be 476 or one very like it—at least 100 feet high and from 60 to 70 feet clear stem, at the base however not more than one foot to a foot and a half in diameter. —I saw several that had been blown down extend quite across the Meander River where a considerable width—the bark of 476 & 477 is largely exported from Lameston to the English Market.— and this season upwards of **1500 tons** have been shipped as P. the Custom's books from Lamm, only.—
478. **Acacia** [*stricta* (Andrews) Willd.] Creeping roots.— plant seldom exceeding 3 to 4 ft high.—
479. **Acacia Salicifolia?** [*A. verniciflua* A. Cunn.] from J. Backhouse, collected at Hobart Town.
480. **Acacia** from Hampshire Hills reed, with some specimens of 205—& under the same no.
- One specimen here, not nod. reed, from J. Backhouse collected on Flinder's Island Bass's Strait.
[Two varieties of *A. uncinata* Willd. are given under 480 in FL. Tas. var. α *uncinata* Wendl. and var. β *depdens*. 205 has not been traced.]
481. **Acacia ruscifolia?** [“A. Cunn ex. G. Don i.e. *A. verticillata* Willd. var. *latifolia* Benth.”—Dr. R. Melville] from Hobart Town
482. **Acacia oxycedrus?** [*A. vicana* Henslow] from Hobart Town
483. **Acaena ovina?** [*Acaena sanguisorbae* Vahl. i.e. *A. uncinifolia* (J. R. & G. Forst.) Druce.]
484. **LEPTOSPERMUM.** Not in flower.
485. do. [*Eriostemon virgatum* A. Cunn. “485 is *E. virgatum* A. Cunn ex Hook.f.”—Dr. R. Melville.] from Hampshire Hills
486. do. [*Leptospermum scoparium* Sm. var. α *scoparia*] from Woolnorth [Two other varieties var. β *linifolia* DC. and var. γ *marginifolia* are given as 480.]
487. **METROSIDEROS?** [*Callistemon viridiflorum* DC. i.e. *C. viridiflorus* (Sims.) DC.]
488. [*Kunzia corifolia* Reichb. i.e. *K. ambigua* (Sm.) Druce] from Flinders Island, reed. from J. Backhouse —. Two odd specimens “Myrtaceae” from Woolnorth put in here but not Nod.
489. **CALYTHRIX** [*glabra* R. Br. var. α *glaberrima*] from Hampshire Hills
490. do. from Woolnorth are these alike? [They were]
491. [*Oreomyrrhis eriopoda* (DC.) Hook.f.]— **Common**—
492. **ERYNGIUM.** [*resiculosum* Lab. Another 492 was *Galium ciliare* Hook.f. var. β but as Gunn was dealing with the *Umbelliferae* would not be the plant mentioned here.]
493. [*Daucus brachiatus* Sieb.] Common
494. **OZOTHAMNUS?** [*O. ferrugineus* R. Br.]
495. **ASTER** [*Eurybia floribunda* Hook.f. i.e. *Olearia floribunda* (Hook.f.) Benth.] Very similar in appearance to 38... [A number in the 380's with a blurred units figure.]

496. *Aster tomentosus*? of J. Backhouse in Ross's annual.—[*Eurybia lirata* DC. i.e. *Olearia lirata* (DC.) Benth.] I have sent some specimens of the leaves only, to show their general size. Colonial name "Daisy tree".—
497. } [*Ozothamnus bracteolatus* Hook.f.] from J. Back-
498. } house.—Flinders Island.
- A specimen here not Nod. collected by J. Backhouse at Cape Raoul, Tasman's Peninsula—like my 166
499. ELICHRYSUM. [*HELICHRYSUM*—*H. leucopsideum* DC.]—Flinders Island.—
500. do. like a white var. of *E. bracteatum* collected by Backhouse at Cape Raoul. [*H. papillosum* Hook.f. i.e. *H. albidum* DC.]
501. ELICHRYSUM. [*HELICHRYSUM*.]—Is this the same as 409?
502. do. } probably the same? [502 was
503. do. } *H. scorpioides* Lab.]
504. GNAPHALIUM. [*Helichrysum semipapposum* DC.] South Esk.
505. Common.
506. HIERACIUM ? [*Microseris forsteri* Hook.]
507. *Craspedia glauca* ? [*C. macrocephala* Hook. i.e. *C. uniflora*.]
I collected in March 1834 a white species of *Craspedia* [*C. richia* Cass.] on Ben Nevis, but the insects have destroyed them—I however send home the remnants not numbered.
508. ————[*Erechtites hispidula* DC. "This is *Senecio hispidulus* A. Rich. x *quadridentatus*, Lab. Det. R.O. Belcher"—Dr. R. Melville.]
509. [*Cymbonotus lawsonianus* Cass.] grows with the leaves spread out and very close to the ground.
510. [*Lagenophora gunniana* Steetz. i.e. *L. huegelii* Benth.] }
511. [not traced] } Common—
512. [*Lagenophora emphyosopus* Hook.f.] }
513. [*Pacquerina graminea* Cass. i.e. *Brachycome angustifolia* Cunn.] found on the South Esk at Perth—grows in wet places.
104. —placed here—to facilitate reference to 514.
514. LOBELIA. [*gibbosa* Lab.] On reference to the specimen I retained of No. 104—I find it to be different to the one now sent as 514—but that you may judge the better I have placed them together—No. 104, as now numbered, I found on the Sandhill near Launceston in a poor quartz sandy soil—and in a similar situation & soil on the Tamar,—the seed of 104 is double the size of that of 514.—514 is abundant on my allot, near Laun. [His 104 may have been the *L. simplicaulis* of F. von Mueller who also noticed this variation in size of seed and erected a separate species on it later.]
515. GAULTHERIA. [*lanceolata* Hook.f.]—I found this on Ben Lomond last season, and from its dwarf creeping habit, (not above a foot high) smaller leaves, without the hairiness on the stem of *G. hispida*—I have given it a No. as a new species and send seed of it to Mr. Murray.
516. GAULTHERIA. [*antipoda* Forst.]—I found only one plant of this in fruit on Ben Lomond last Season and from which my specimens are collected—the fruit is very pleasant to the taste, but there were too few to admit of my having a mouthful—and at the same time to remember Mr. Murray's wants.—the fruit is larger than either of the other species although the plant itself does not exceed 6 inches in height and of a prostrate habit as far as I could judge—the plant in question was pendulous on a clay bank—a stream having undermined it.—I hope it may prove new.—
517. RICHEA *dracophylla* ? [R. Br.] Collected by our friend Backhouse at Mt. Wellington at Hobart on 29 Octor. 1834.—It is strange that neither Mr. Lawrence or myself have found this on any of the Eastern or Western Mountains—I have myself ascended them 6 times—& Mr Lawrence I believe equally often—I therefore do not believe it exists except in the Southern & South-Western parts of V.D.L.—it is very beautiful—as Backhouse sent it to me green & just collected, by the Coach.—
518. [*Lissanthe strigosa* R. Br.]—South Esk.
519. CYATHODES. [*parvifolia* R. Br.]—from the Mountains.—
520. STYPHELIA ? [*Cyathodes glauca* Lab.] Hampshire Hills.
521. LEUCOPOGON ? [*australis* R. Br.] Hampshire Hills. There appears to me to be two species under this no. recd. from Dr. Milligan, but the habits of two plants may cause the difference
522. EPACRIS [*impressa* Lab. (in parte)] Hampshire Hills, Is this 142?
523. EPACRIS. [*Lissanthe ciliata* R. Br. i.e. *Brachycoma ciliatum* (R.Br.) Benth.]—near Launceston.
524. *Anopterus glandulosa* ? [*A. glandulosus* Lab.] I have sent you one specimen of this beautiful plant in 1833 recd. from Backhouse those now sent are from Dr. Milligan Hampshire Hills—as I have not yet seen the plant growing.
525. *Cynoglossum*.—blue flowering—Common.— [Probably *C. australe* R.Br.]
526. VERONICA. Hampshire Hills.
527. *Veronica formosa* [R.Br. i.e. *Hebe formosa* (R.Br.)]
528. *Mazus pumilio* ? [R.Br.] It was a specimen of this plant which I retained in my Herbarium as No. 84 of 1832—I have now however altered it as before noted.
529. MENTHA [*australis* R.Br.]—common.—Colonial name Pennyroyal from whence sundry streams are called "Pennyroyal Creek" in all parts of the Island.
530. VERONICA. Hampshire Hills.

531. *Cryptocarya glaucescens* [i.e. *Atherosperma moschata* Lab.] Sassafras,—in flower and fruit—this lovely tree attains a great size in the Western forests.—It grows in damp ravines & with No. 178 [*Nothofagus cunninghami* (Hook.)]—forms a narrow strip of dense forest on both banks of the Meander River and farther west becomes I believe more common, the bark is infused by persons in the bush and used instead of Tea when the stock of the latter runs out.—it is very pleasant. The tree attains a great height—and its timber I believe good though too scarce near town to be available.—
532. *Cassytha pubescens* ? [R.Br.]
533. *Cassytha melantha* ? [R. Br. It was *C. pubescens* R. Br. however.] Loose in the box—Parasitical—These plants are curious,—but I have been unsuccessful in drying them—the favorite tree that I have remarked them on are acacias, but they do not appear to be very choice in their selection. I shall collect more carefully I hope next season.—
534. **ORIETES**—[ORITES but it was *Grevillea australis* R. Br. var. β *linearifolia* Hook.f. and var. γ *tennifolia* Meisn.]—South Esk.
535. do. [*G. australis* R. Br. var. γ *planifolia* Hook.f.]—North Esk.—& South Esk.—You will perceive these to be quite distinct from 199, which grows prostrate in the mountains.—
536. **HAKEA** [*tissosperma* R. Br., a variety of *H. acicularis* R. Br.] The most arborescent in V.D.L. & grows on the tops of the mountains—I have seen it 12 ft high, and the trunk 6 to 9 inches in diameter, I have put some of the fruit in a paper in the box.
537. **PERSONIA** [*P. juniperina* Lab. var. β *ulcina* Meisn. and var. γ *brevisfolia* Meisn.]
—Sundry odd specimens on Pinelea put in here recd. from Woolnorth, &c.—too few to Number yet may be useful to you.—
538. *Exocarpus cupressiformis* [i.e. *Exocarpus cupressiformis* Lab.] It is only when the plant attains a great age that the branches become pendulous as figured by Labillardiere, at all other times it is a beautifully erect growing shrub—the top conical—Its average height seldom exceeds 10 ft.—never that I have seen, and it is very common everywhere, have I seen it 20 ft high.—In Loudon's Enc. of Plants I see it called 40 ft. high—a timber tree & in Coniferæ!!! all errors.—the wood is never used except for fuel—and not very good or equal to Casuarina for that purpose.
539. *Exocarpus strictus* ? [i.e. *Exocarpus stricta* R.Br.]—attaining about 4 ft.
540. **CROTON** ? [*BEYERIA backhousei* Hook.f. i.e. *B. viscosa* Miq.] Flinders Island from J. Backhouse.
541. **URTICA** [*incisa* Poir.]—Common—generally however in damp shady ravines and Scrubs.
542. **CALLITRIS** [*Frenela australis* R. Br. ex Endl. It was certainly *Callitris oblonga* Rich.] South Esk—this species seldom exceeds 6 to 12 feet high, with its curious Cones extending from bottom to top adhering to the trunk—as it flowers and bears fruit when not above 2 ft. high.—the Cones never drop off.—
543. **CALLITRIS pyramidalis** ? [*Frenela rhomboidea* (R.Br.) Endl. i.e. *Callitris tasmanica* (Benth.) Baker & Smith]—Oyster Bay Pine, East Coast, recd. from J. Backhouse.
544. *Casuarina stricta* ? [Ait. It was, however, *C. suberosa* Otto & Dietr.] The Cones of these specimens are smaller than usual, for convenience in preserving—This tree is commonly called by the Colonists by the name of **he-oak** in contradistinction to another *Casuarina* which is called she oak, although both are dioecious. It is also called swamp-oak—grows erect—and young trees are not unlike the *Exocarpus cupressiformis* at a distance.
—Six specimens received from Woolnorth—I think the same as above.

SUNDRIES

DICOTYLEDONES

545. Common.

546. Another species of 78.—and has a smell equally offensive, or nearly so. [“Not found under *Zieria*”—Dr. R. Melville.]547. [*Hydrocotyle tripartita* R. Br.] I thought this a *Ranunculus*—548.? [548. *Galium vagans* Hook.f. i.e. *G. umbrosum* Forst. 548? *G. squalidum* Hook.f. i.e. *G. australe* DC.]549. do. [*Galium australe* DC.] Hampshire Hills.550. [*Lobelia pedunculata* R. Br. and *L. fluviatilis* R. Br., the latter *Isotoma fluviatilis* (R.Br.) F. Muell.] In wet places.551. [*Lasiopetalum discolor* Hook and *L. gunnii* Steetz., the latter being *L. dasyphyllum* Sieb.] Prime Seal Island, Bass's Straits—J. Backhouse.

552. —Flinders Island—J. Backhouse

553. [*Hydrocotyle tasmanica* Hook.f. i.e. *H. hirta* R. Br.] —Common—554. [*Hydrocotyle vagans* Hook.f. i.e. *H. hirta* R. Br.]554? *H. peduncularis* R. Br. var. δ]—South Esk—in wet places, and under water during the winter floods.

555. I recd. seed of this plant from Macquarie Harbour but I think it is an imported one—I however thought it as well to send it to you least it might be new & indigenous

556. [*Cenarrhens nitida* Lab.] from Hampshire Hills (I never saw this plant)557. **GALIUM** ? [*Asperula pusilla* Hook.f. i.e. possibly *A. oligantha* F. Muell. 557 is also *Cyperus sanguineofuscus* Nees, but that is obviously in the Monocotyledones series of numbers.] from Hampshire Hills and Woolnorth.

558. [*Mentha serpyllifolia* Benth.] Hampshire Hills
 559. ———— [*Holorogis pinnatifida* A. Gray i.e. *H. heterophylla* Brong.]
 560. [*Myriogyne minuta* Less.] Common—very sweet
 Scented particularly when pressed in walking or
 otherwise.

MONOCOTYLEDONES

New Nos.

561. **HYPOXIS.** [*hygrometrica* Lab.] This is the autumn
 or summer species [Nov. to Feb. *H. glabella* R. Br.
 and *H. pusilla* Hook. are conspicuous in September.]
 I also send some specimens of 163 to show the differ-
 ence—I last season in my memo. to you at 163 alluded
 to No 561 (now sent) as 124—which was an error, or
 if not an error I have got two 124's, [No. 124 has not
 been noted.]
 562. **Anguillaria biglandulosa** ? [It was *A. uniflora*
 Hook. i.e. *A. dioica* R.Br.]
 563. **ANTHERICUM** ? [*Anthropodium pendulum* DC.
 "i.e. *A. milleflorum* (DC. ex Red.) McBride"—Dr. R.
 Melville.] I here have put in some specimens from
 Hampshire Hills & also one specimen of 90 to show
 the difference. [No. 90 in the Monocots has not been
 noted. No. 90 Dicots is *Ranunculus* spp.]
 564. ———— [*Dianella longifolia* R. Br. and *D.*
revoluta R. Br.] This may probably be 263 as my
 specimen of that No. is imperfect. This bears
 beautiful blue berries. [This last statement points to
D. longifolia R. Br. or *D. tasmanica* Hook. as the
 berries on *D. revoluta* R. Br. are very small and
 sparse.]
 565. Another species of 564. [but "565 is type number
 of *D. tasmanica* Hook."—Dr. R. Melville.]

566. **JUNCUS pauciflorus** ? [R. Br. Fl. Tas. gives
J. Australis Hook.f. also, perhaps of another collection
 566 (in part) *Dianella laevis* R. Br. "It is *Juncus*
gunnii Hook.f."—Dr. R. Melville] The following Nos.
 to 573 of Juncaceae, Cyperaceae, &c require no remarks
 —I have numbered two or three as species which may
 probably be vars caused by different situations—I
 find it better however to increase the Nos. lest they
 be diff. as I note the habitats

567-568-569-570-571-572-573—

- [567, 568, were *Juncus australis* Hook.f. "568 is *J.*
australis Hook.f." "569 in part is *J. pallidus* R. Br."
 —Dr. R. Melville but 569? and 570 were *J. pallidus*
 R. Br. 571 is noted as *J. communis* E. Mey but "None
 was *J. communis* E. May"—Dr. R. Melville. 572 was
J. gunnii Hook.f. i.e. *J. pauciflorus* R. Br. though 572
 in Herb. Lindl. is noted as *Chaetospora nitens* R. Br.
 i.e. *Schoenus nitens* (R. Br.) Poir. but though probable
 this may not have been a Gunn collection. 573 was
Elaecharis gracilis R. Br. or what Hooker f. took to be
 that plant and may have been *E. acuta* R. Br.]

574.575.576.577.578.579.580.581.582.583.

- [574 was *Carex adpressa* R. Br.; 575 *Lepidosperma*
elatio Lab. 576 *L. concava* R. Br. and *L. angustifolia*
 Hook.f. the latter being *L. laterale* R. Br. 577 not
 noted; 578 *Carex gunniana* Boott. "The holotype of
Carex gunniana Boott. is a gathering of this number
 now in Herb. Kew ex Herb. Boott."—Dr. R. Melville
 579 *Carex chlorantha* R. Br.: 580 not noted; 581
Chaetospora imberbis R. Br. var. γ i.e. perhaps
Schoenus brownii Hook. or *Sch. apogon* Roem &
 Schult.; 582 *Isolepis cartilaginea* R. Br. i.e. *Scirpus*
cartilagineus (R. Br.) Spreng.; 583 is note as *Juncus*
bafonius L. but it "is not in Herb. Kew."—Dr. R.
 Melville.] 584 [*Spinifer hirsutus* Lab.] from Circular
 Head & Woolnorth—where it is abundant.

- 585 to 597 inclusive—Grasses—[585 was *Danthonia*
pilosa R. Br.; 586 and 587 *Koeleria cristata* Pers.;
 588 *Stipa pubescens* R. Br.; 589 *Dichelachne erinita*
 (L.f.) Hook.f.; 590 *Echinopogon oratus* Beauv.]

591. [*Anthistiria australis* R. Br. i.e. *A. ciliata* Lim.]—
 591 is the Kangaroo grass & our most valuable native
 grass for standing the summer heats.

592. [*Agrostis billardieri* R. Br. i.e. *Deyeuxia billardieri*
 Kunth. and *Agrostis aemula* R. Br. i.e. *Deyeuxia*
forsteri (R. et S.) Kunth.; 593, 594 not noted; 595
Poa affinis R. Br. 596 and 597 *Poa australis* R. Br.
 var. γ *siberiana* usually grouped under *Poa caespitosa*
 Forst.f. ex Spreng. at present under review at the
 National Herbarium of New South Wales.]

598. "Cyperaceae" [actually *Luzula campestris* DC.]

599. [*Hypolaena fastigiata* R. Br.]

ORCHIDEAE

I have put here together all my specimens of
 Orchideae, viz. both the duplicates of my old Nos.
 and such new ones as I have been able to add.—The
 duplicates of the old Nos. first

OLD NUMBERS

127. flowers late in the season. *Dipodium punctatum*
 [(Sm.) R.B.]
 352 [*Prasophyllum patens* R. Br.] & 353 [*Prasophyllum*
fuscum R. Br.] four Sheets—vizt two collected by
 myself and two recd. from Hampshire Hills—I think
 on examination you will find more than two species
 under these Nos.
 354 [*Microtis arenaria* Lindl. i.e. *M. unifolia* (Forst.)
 Reicbb. f.] Collected by myself & also some from
 Hampshire Hills. —probably also to be two species
 under this No.
 343. [*Diuris maculata* Sm.]
 342. [*Diuris sulphurea* R. Br., but 342 (1835) was *D.*
corymbosa Lindl. i.e. *D. longifolia* R. Br.]
 347. [*Caladenia barbata* Lindl. i.e. *C. deformis* R. Br.]
 101. [(in part) *Thelymitra angustifolia* R. Br. but
 actually of Hook.f. non R. Br. i.e. *Th. aristata* Lindl.]
 357. **PTEROSTYLIS** [*obtusata* R. Br. but H.M.R. Rupp.
 1951 thought that *P. obtusata* R. Br. was not found in
 Tasmania but that the plant was *P. decurva* Rogers]—
 Hampshire Hills

355. **PTEROSTYLIS** [*encullata* R. Br.]—this differs widely from the plates of both *P. curta* [R. Br.] & *P. nutans* [R. Br.]—you sent me out,—the lower segments being very brown and downy,—the flower is larger & the plant of a dwarf, but more robust habit than No. 600.

NEW NUMBERS

600 **Pterostylis curta** ? [R. Br.] I think this one agrees with your plate of *P. curta* in almost every point as clearly as possible.—I found it this season very abundant on my own land near town (as also 355,—) where I am now forming my botanical collection.

601. **PTEROSTYLIS** [*calculata* R. Br.] Hampshire Hills.

Three specimens collected by myself at Deloraine I took to be 601. & have now numbered them accordingly.

602. **PTEROSTYLIS** [*furcata* Lindl.] I found this species in a wet place about 8 miles from Launceston.

603. [*Pterostylis squamata* R. Br.; *P. squamata* & *P. barbata* Lindl.] Of this highly curious and beautiful species which was first found by a little daughter of mine only three years old. I have only seen the few I now send you—it does not appear to be by any means so abundant as the other species I have fallen in with—.

604. **Pterostylis nutans** [R.Br.]—reed from Jas Backhouse—this species I do not remember to have seen growing anywhere near Launceston. [Line crossed out and above written "See No. 629" i.e. *P. pedunculata* R. Br.]

605. **Pterostylis** [*mutica* R. Br.] This abundant species which I never found until this season, has an exceedingly sensitive **labellum**—And on being touched with a pin or straw starts up and closes the office of the flower—after a few hours it returns to its usual position, which is perpendicularly down, and may again be made to start. — It is fully as sensitive as the *Stylidium*—A number of the specimens now sent are from Hampshire Hills.

606. [*Caladenia carneae* R. Br.] Pink when in flower.—found near Launceston

607. [*Eriochilus autumnalis* R. Br. i.e. *E. encullatus* (Lab.) Reichb.f.] from Hampshire Hills—I think this is a species that throws up a reniform leaf in the Spring which dies—and is succeeded by a pink flower in the autumn—vizt. in March.—

608. [*Glossodia major* R. Br.] Common near Launceston

609. [*Diuris pedunculata* R. Br.]—from Hampshire Hills.—I think this a species that is the earliest flowerd. of all orchideae.

(144 old No.) **CALADENIA**.—The specimen I have retained of this No is similar to those now sent under this number, but I think it probable other species were at the same time sent to which I have now given different numbers.—

(610, 611, 612) [*Caladenia patersonii* R. Br.] I am uncertain in how far I have distinguished the different species of this Plant which are in so many points remarkably similar.—No 612 flowers earliest—then Nos 610 & 611—and No 344 as now marked in this year's collection considerably later than any of the others. [344 was *C. elvirigera* A. Cunn. ex Lindl. Flowering time in Tasmania has only a slight North-South component. It has a noticeable East-West component at any given altitude. Altitude is the chief component however. Mr. H.J. King's experience is that *C. patersonii* flowers as early as October on the coast lands; that *C. patersonii*, *C. elvirigera*, and *C. filamentosa* are to be found flowering together in the first week in November at Epping and that *C. dilatata* and *C. pallida* appear on the coastlands about six weeks later in December, and *C. pallida* at Lake St. Clair in January. Gunn's 344, 610, 611 and 612 should therefore prove interesting.]

In this place you will find a sheet of various Orchideae reed, & collected from various quarters—they were too few to divide & number, I have therefore sent them to you, upon the same principle as I have done in other cases, that they may perhaps help to illustrate other collections already recd ?

613. [*Gastrodia sesamoides* R. Br.] I retained no specimens of 359 [*Gastrodia sesamoides* R. Br.] which I have reason to believe is the same as the one sent now from having found two specimens in the same quarter as those last sent were collected by the person who gave them to me.—Within the last few days I recd some more specimens of evidently the same plant from Mr. J.E. Robertson, who is Mr. W.E. Lawrence's overseer, in charge of Formosa, who found it most abundant in patches growing from large masses of tuberous root,—a number of flowers springing from each mass.—The two solitary plants that I found near Deloraine had also large roots like two or three Kidney potatoes of middling size joined together irregularly.—Is it *Gastrodia sesamoides*?

Mr John E. Robertson now in charge of Mr Lawrence's Estate since the death of his son, our friend, comes from Glasgow & was I believe known to you.—He is a Zealous Collector, but has, I learn from him, already established correspondents at Home, so that I have been unable to glean from him.—

Another equally powerful reason is, I believe, that Mr. S. Murray & he quarrelled.

614. **Corysanthes fimbriata** ? [R. Br. i.e. *Corybas fimbriatus* (R.Br.) Reichb.f.] reed, from Jas Backhouse the tall var. collected at Swan Port, East Coast, the dwarf var.—at Mount Wellington Hobart

615. **Cryptostylis reniformis** ? [He means *Cyrtostylis reniformis* R.Br. i.e. *Acianthus reniformis* (R. Br.) Schlechter] Swan Port by J. Backhouse.

The following Nos since received and collected.—
Received from James Backhouse—with the names now sent, attached.

616. **ASTER** — Hobart Town.—

617. **DIOSMA** ? [*Bursaria procumbens* Putterlich i.e. *Marianthus procumbens* (Putt.) Benth.]

618. **CYATHODES**—Swan Port.

619. *Styphelia adscendens* ? [R.Br.] Hobart Town.
 620. *Epacris exserta* ? [R. Br. It was however, *E. macronulata* R.Br.] New Norfolk.
 621. *Grevillea australis* ? [R.Br.] Meredith River, East Coast.
 622. *Pimelea flava* ? [R.Br.] Sassafras Valley, Hobart T.
 623. *Pimelea cernua* ? [Hook. i.e. *P. linifolia* Sm.] Hobart Town.
 624. ———— [*Bertya rosmarinifolia* Planch.] From Swan Port.
 625. ———— [*Conospermum taxifolium* Sm. ex Rees.] From Spring Bay, East Coast.
 626. **BAUERA** [*rubroides* Andr.]

(A Sheet of Sundries are here added recd. from Backhouse & others some of which may be interesting).

627. **ANTHEMIS**. These specimens are collected rather too late off a plant recd. from Deloraine district which is now growing in my garden—I would have thought it had been imported had I seen a plant of

Anthemis in any Garden of the Colony, which however I have not. [Nevertheless he had the evidence, *A. nobilis* L. was used as a remedy for indigestion and was an early introduction.]

- 628 **SONCIUS** ? [not traced]
 629. **PTEROSTYLIS** [*pedunculata* R.Br.] (among the Orchideae)
 630. **Xanthorrhoea arborea** ? [*X. hastilis* R. Br. (Gunn Mss., 630, exempl. nullum). It would be *X. australis* R. Br.] I have cut three scapes into joints to fit at the side of the specimens in the box.—One of them only is the proper size, the others are small, injured by insects. Some of the leaves are also put in the box in a bundle—but the trunk is too bulky to send you.) The specimens are from Flinders Island Bass's Strait, & I annex a sketch by Jas. Backhouse of the usual appearance of this curious tree as it is commonly called.

Nos. 533 & 630 are in box No. 1

All Errors, omissions, &c.&c.&c.&c. to be made due allowance for

Ronald C. Gunn

APPENDIX B

GUNN'S COMMENTS ON HOOKER'S DETERMINATIONS

LETTER 26

I subjoin a few Remarks on your "Plants of Van Diemen's Land". . . which I thought worth noting.—

The following Nos of mine omitted

- LINUM** 71. [*L. angustifolium* Huds. "This is *Linum marginale* A. Cunn."—Dr. R. Melville.]
HYPERICUM 73. [*H. involutum* Chois. "73 is *H. gramineum* Forst."—Dr. R. Melville.]
PELARGONIUM 61. [*P. australe* Willd. ex DC. var. *minus* A. Cunn ex Field]
 62. [*P. australe* Willd. ex DC. Hooker's "Journal of Botany" Vol I says var. β , γ , and δ]
 425. [*P. australe* Willd. ex DC. var. *minus* A. Cunn ex Field sub-No. 425 var. γ *albiflorum* Hook.]

Wrong Nos. given to

Dodonaea Cunninghamii ought to be 9.

Boronia variabilis var. γ [*B. ciliolata* Gunn ex Hook.f.] ought to be 303 (Noted as 30)

Cryptandra vexillifera [*Spyridium vexilliferum* (Hook.) Reissek.] ought to be 161, (noted as 16)

Corroea lawrenciana [Hook.] does **not** flower in Decr. & Jany but in June & July, and part of August.—It is one of our earliest flowg. shrubs.—

The specimen I have retained of 323 marked by you as "*Phebalium montanum*" [Hook. No. 223] Backhouse says is a *Pimelea*. —

For remarks on *Boronia*, *Bursaria*, *Oxalis* and *Drosera*—I refer to my notes of the respective nos. now sent.—

The Remarks are trifling but I thought it as well to mention them so that should you publish an account of the Plants, you might make it as correct as possible.

Ronald C. Gunn

APPENDIX C

GUNN ON THE LABILLARDIERE COLLECTION

LETTER 185

Some short Remarks on LaBillardiere's Plants collected in Van Diemen's Land.—

As the only part of V.D. Land visited by LaBillardiere was Recherche Bay—and its immediate neighbourhood—landing in a few places also in D'Entre-

casteaux Channel—there is but little difficulty in identifying most of the species figured in his book—A few however require some observations from me.

Drosera peltata Labil. vol. 1 t. 106. This agrees closely with my 350 [*D. auriculata* Backh. ex Planch.]

— which on the heathy land (like Recherche Bay) has mere scales ? on the stem instead of leaves near the ground.

Tetratheca glandulosa [Lab.] t.123. Correctly figured & certainly not a var. of *T. pilosa* [Lab.] although I think it difficult to find specific differences for the species, of this genus.

Billardiera fusiformis [Lab.] t.99. If this is *Sollya angustifolia* [Lab.] I expect it will never be found in V.D.L.—Labillardiere visited the South Coast of New Holland about Long. 122e, which is to the East of King Georges Sound and which he calls "Lewins Land" where the *Sollya* now exists— I therefore think it possible he has erred in quoting the place. The corollas of all our *Billardiera*'s are apt to **turn blue** in drying.

Frankenia tetrapetala [Lab.] t.114. Common in the Islands of Bass's Straits & I saw it at Circular Head but not in flower. It flowers in October & I have recently got a specimen. It is my 1029 [*Frankenia pauciflora* DC. "Mr. Gunn says it almost covers those parts of Goose Island (growing a foot high) where space for any vegetation is left between the burrows of the mutton bird."—Fl. Tas.]

Boronia pilosa [Lab.] t. 124. This is my 1037 and is most abundant at Recherche Bay.—It seems to run off into my 665, your var. **floribunda** [Hook.f.]

Boronia pilonema [Lab.] t. 125, my No 791. I gathered this at Recherche Bay also.—It is plentiful on all our poor heathy plains where *B. tetrahecodes* [Hook. *B. nana* Hook. var. *hyssoipifolia* (Sieb.) Melville] will not grow.

Gompholobium tomentosum [Lab.] t. 134. I cannot recognise this plant amongst my collections.

Sphaerolobium vimineum [Sm.] t. 138. My No 172? [*S. vimineum* Sm.] I find that De Caudolle says that *Viminaria denudata* [Sm.] is a native of V.D.L. but I question it. It is common on the S. Coast of New Holland—or at least the plant I take to be *V. denudata* [i.e. *V. juncea* (Schrad.) Hoffm. Known from only one locality on the East Coast—Curtis]

Aotus ferruginea [Lab.] t. 132. Is my Nos 212 & 361. [*Aotus villosa* (Andr.) Smith i.e. *A. ericoides* (Vent.) G. Don] It is a very variable plant in the ferruginous colour as well as villous character of the Branches &c.

Acacia saligna [Lab.] t. 235. I do not know this unless it is a badly figured specimen of my No. 802. *A. dissitiflora* [802 *Acacia macronata* Willd. var. *dissitiflora* Benth.]—with small flowers appearing at an unusual season. The pods vary also.

Myriophyllum amphibium [Lab.] t. 220 My number 1068. I found it in boggy places at Recherche Bay.

Melaleuca fascicularis [Lab.] t. 170 This I do not know.

Eucalyptus cordata [Lab.] t.152. Is my own No 1671—a species I never saw except in the Country South of Hobart Town.

Eucalyptus globulus Labil. A tree very common about Hobart Town—South to Recherche Bay and

for about 35 miles North of Hobart—but I have not seen it anywhere in the Northern parts of the Colony. It is abundant on the Islands in Bass's Strait & at Cape Otway on the South Coast of New Holland.

Canthium quadrifidum [Lab.] t. 94 (*Marquisia* *Billardieri*) [DC.—i.e. *Coprosma billardieri* (DC.) Hook. f.] Is my No. 219 and the name *Coprosma microphylla* [A. Gunn MSS] must be abandoned. *C. nitida* [Hook.f.] will become a **Marquisia** I presume as there is not in my opinion any Generic difference between them.

Coprosma hirtella [Lab.] t. 95, is my No. 10. *C. caspidifolia* of De Caud. may I think be abolished—being a mere variety of *C. hirtella*—which is very variable in leaf &c.

Eurybia microphylla [(Vent.) DC. i.e. *Olearia microphylla* (Vent.) Maiden & Betche] t.199, is my No 149—[*Olearia lepidophylla* (DC.) Benth.] and the *E. lepidophylla* of D.C. prod. —It grows only on the Sea Shores.

Velleia trinervis [Lab.] t. 77 I cannot recognise.

Seaevola cuneiformis [Lab.] t. 80. This I have not gathered.

Stylidium umbellatum [Lab.] t. 217. This I have never seen.

The plants of *Stylidium* vary so much from soil situation &c that I am puzzled to separate *graminifolium* [Swartz.] from any of the others like it.

Lobelia alata [Lab.] & *cuneiformis* [Lab.] t. 72 & 73, are mere varieties as correctly laid down by Brown [of *Lobelia anceps* Thunb.]

Leucopogon Richei [R. Br.] t. 60. As Labillardiere does not mention this plant as a native of V.D.L. where he must have seen it if it had been identical with my 429. I am led to believe that it does not exist in the Island. My 429 which is so like it must be *parviflorus* [Lindl. i.e. *Leucopogon richiei* var. α Hook. f.]

Leucopogon trichocarpus R.Br. t. 66, is I presume my No 196 what I have hitherto called *L. ericoides* [196 *Leucopogon ericoides* R.Br. var. α ; var. β —*L. trichocarpus* R.Br.]

Leucopogon virgatus [(Lab.) R.Br.] t. 64 is my No 712 and *L. collinus* [(Lab.) R.Br. t. 65 is my No 211/1837? [It is var. α]

Acerotriche serrulata [(Lab.) R.Br.] t. 62, is my No 853. [No. 853 *A. patula* R.Br.—Fl. Tas. Gunn considers No. 853 and perhaps also No. 192 *A. serrulata* (Lab.) R.Br.—Fl. Tas. to be Labillardiere's plant. "Both 853 and 192 are this species—A Gunn ms. slip with the specimen 853/1842 reads "Acerotriche serrulata. This is the plant figured in Labillardiere and grows on the sandhills near Circular Head". 'Serrulata' has been crossed out (wrongly) and 'patula Br.' added in a different hand. Gunn did not collect *A. patula* R.Br."—Dr. R. Melville]

Epacris myrtifolia [Lab.] t. 35. seems to be my 1206. [Hooker agreed—Fl. Tas.]

Epacris heteronema [Lab.] t. 36 I cannot correctly identify. [Gunn had collected it, however, No. 1207, 1208—Fl. Tas.]

Polygonum adpressum [Lab. —*Muehlenbeckia adpressa* (Lab.) Meisn.] t. 127. Although LaBillardiere does not quote this as a plant of V.D.L. Brown does. LaBillardiere's plant is obviously my 432 [var. *rotundifolia* Meisn.] which I saw plentiful on the South Coast of New Holland.

Persoonia juniperina [Lab.] t. 45. LaBillardiere says that *P. juniperina* grows three feet & more high. I take it to be my 869 [var. *ulicina* Meisn.] as none of the others grow so tall.

Pinelea nivea [Lab.] t. 6 is my 1243 collected by me at Recherche Bay. I have also seen specimens from Port Arthur, but I have not gathered it elsewhere.

Croton quadripartitus [*C. quadripartitus* Lab. i.e. *Adriana quadripartita* (Lab.) Gaud.] t. 223. I have not gathered yet in V.D.L.

Blandfordia grandiflora [R.Br.] t. 111. My No 241. [*Blandfordia grandiflora* Hook. f. non R. Br. is

Gunn's plant. The oldest name for this appears to be *B. punicea* (Lab.) Sweet. The combination *Blandfordia grandiflora* R. Br. var. *backhousii* (Gunn ex Lindl.) Hook. f. was published in the Fl. Tasm. 2, 49. but I am not aware of a combination under *B. marginata* Hook. f. In a rather long note on this plant in the Herbarium Gunn was recommending to Hooker the commemoration of Backhouse in a generic name".

Dr. R. Melville. [Why LaBillardiere's specific name was not retained I know not, but it is at all events as good an one as "grandiflora" which can only mean larger than the species yet discovered. *B. punicea* Labil. [*Aletris punicea* Lab.] would be quite as correct as the hundreds of names which occur in Botany. One would not expect this from the great Brown, but he may have had good reasons which I "wot not of." The Country was **actually scarlet** with this beautiful plant about Recherche Bay, Mussel Bay &c in December.

Campynema linearis [Lab.] t. 121 is my No 954.

Of the other Monocotyledonous plants I shall say nothing until those I have now got are transmitted.

Of the Acotyledones I profess to know little. You may be able to recognise some of them which I have not.

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- Zieria* 110
Zostera marina L. 100, 101
Z. tasmanica G. V. Mart.
Sea-wrack; Eel-grass



RECORDS OF THE QUEEN VICTORIA MUSEUM LAUNCESTON



A LIST OF TASMANIAN ABORIGINAL MATERIAL IN COLLECTIONS IN EUROPE

By
N. J. B. PLOMLEY
Department of Anatomy,
University College, London.

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ABSTRACT

The extinction of the Tasmanians some eighty years ago and their virtual captivity for more than forty years previously, have meant that material relating to these aborigines is not only rare, but usually lacks the information about its origin that is necessary for its proper study.

The general conclusions reached in a survey (Plomley, 1961) of Tasmanian collections in Europe were that skeletal remains were not adequately documented, thus permitting only the identification of a "typical form"; and that there was such doubt as to the origin of cultural material that little if any reliance could be placed on most of it. It was also found that collections in Europe of Tasmanian stone implements were, with one exception, quite inadequate for satisfactory work — although here the need is rather for precise archaeological studies in the field. Attention was also drawn to the various portraits of the aborigines, which have not received the attention they deserve; and to the manuscript sources of information about the natives.

The following paper gives particular information about these collections. In it will be considered first the sources of the more important collections, and then the various classes of material will be listed in detail.



THE COLLECTIONS

When, early in the 19th century, it came to be believed that racial differences could be characterised by the structure of the skull, there arose a demand for material representative of the various peoples of the world, and Tasmanian skulls were especially sought because of their rarity. Not much care was taken to ensure that the origin of the specimens was accurately known or recorded, it being sufficient to have a skull in one's collection bearing the label "Tasmaniau". The composition of the various collections shows this clearly: the skulls were acquired piecemeal, from residents in the colony and from visitors, from surgeons and from land-owners, and varied in source from material collected in the hospitals to specimens picked up in the bush. There being no native burial grounds and most of the Tasmanians burning their dead, these skulls date almost without exception from the period of European settlement, and from that time not only were the tribes more and more displaced and intermingled, but hybridisation occurred and other racial forms were introduced into the area, among them aborigines from the Australian mainland. There have also been mistakes of labelling and the like. Altogether, there is not much hope of coming to any detailed conclusions about the form of the Tasmanian skull; and the same can be said of other Tasmanian morphological material.

By far the largest collections of Tasmanian skeletal material in Europe were those of Dr Barnard Davis and of the Royal College of Surgeons of England, but important collections were also built up at Edinburgh, Oxford, Paris and elsewhere. The Barnard Davis and College of Surgeons collections were destroyed in 1941, but other losses of skeletal material seem to have been small. However, little information can be obtained about collections in Germany.

Dr Joseph Barnard Davis (1801-1881), F.R.S., surgeon, of Shelton in Staffordshire, amassed the largest private collection of skulls in England. He published catalogues of them, the *Thesaurus craniorum* (1867) and its *Supplement* (1875). His Tasmanian material included a complete skeleton, about fifteen skulls, bones used as "relics of the dead", and items of ethnographical interest. The skeletal material was all acquired by the College of Surgeons in 1880, but his ethnographical collection was dispersed.

Another large collection of Tasmanian skeletal material was built up by the Royal College of Surgeons. Particulars of most of it have been given in the catalogues of osteological specimens by Owen (1831, 1853) and by Flower (1879, 1907), but a few specimens were received subsequently. The catalogue of 1907 lists two skeletons and eighteen skulls; and another skull, possibly Tasmanian, is listed among the pathological specimens. The reference numbers relating to the collection are confused owing to renumbering. To the College material must be added Barnard Davis's specimens, but information about them can only be obtained from his lists, no mention of them being made in Flower's catalogue of 1907. It is particularly important to note that the Barnard Davis series was renumbered by the College and has been referred to in the literature under the new numbers, but that no comparative list of the numbers has been published. All that now remains of these two collections is one skull and some fragments, all other material having been destroyed by enemy action on the night of May 10/11, 1941.

Collections in Europe of Tasmanian stone implements are, with the exception of the Westlake collection at Oxford, unrepresentative and inadequate for useful study. Only four contain more than a hundred specimens, and the impression gained is that much of the material had been rejected first by the aborigines and later by those by collecting it!

In Europe, collections of Tasmanian ethnographical material are found mostly in England. Specimens collected by the French and British expeditions to the Pacific (and it is known that at least one of the French expeditions at the end of the 18th century acquired ethnographical material directly from the natives) seem no longer to exist. Present collections in England have been derived in large part from one made by George Augustus Robinson, a man who was associated with the Tasmanian aborigines from 1829 to 1839, first as their Conciliator and then as Commandant of the aboriginal settlement on Flinders Island. Later, from 1839 to 1849, Robinson was Chief Protector of the aborigines in Victoria. It is clear that during the whole of this period he collected relics of the aborigines, and also that those he acquired in Tasmania were sometimes of Australian manufacture—thus, he records in his journal for April 24, 1831, that while at George Town (Tasmania) he was given a basket made by the natives of Moreton Bay (Queensland); and on July 1, 1832, while at Cape Grim, north-western Tasmania, some Sydney natives attached to a party engaged in the rounding up of the Tasmanians, gave him some of their weapons, which they had made there especially for him and which almost certainly included boomerangs (MSS in Mitchell Library, Sydney). Moreover, it is doubtful whether Robinson saw much difference between Australians and Tasmanians: certainly people who had known him after his return to England in 1852 thought this, and came to disregard what he had to say. His collections seem to have been a jumble of Tasmanian and Australian material, some of it unlabelled, some of it wrongly labelled. During his lifetime he gave away some of the things he had collected, and after his death in 1866 his widow sold what remained to Dr Barnard Davis for £30. There is a list of this in Barnard Davis's MSS at the Royal Anthropological Institute in London and it is worth quoting not only because it helps to identify items in the original collection, but because Barnard Davis's annotations and comments indicate the diversity of origin of the material:—

"List of ethnological objects collected by the late Geo Augustus Robinson, and purchased of his widow, Mar 29 1867.

Skull of Tasmanian man No. 1481.

Do. woman S2.

Map of Van D's L. Frankland 1837.

12 coloured drawings of Tasmanian aborigines by [blank] in frames.

5 coloured drawings of do. on tinted paper in four frames.

2 coloured drawings of do. framed—one of these is named "Togerlong-tee".

1 pencil drawing of "Morum-morum-been" by W. Strutt, 1852, Boningong Tribe. (Australian).

5 drawings of the heads of aborigines of Tasmania in profile of a sepia tint in frames.

1 pencil drawing of "Waram-drenin," Warrenep Tribe. By W. Strutt, 1852. "Warren-ten-noon" alias "Mary", lubra of "Morum-morum-been". (Australian).

- 1 coloured drawing of an *Australian* in a sailor's jacket, by W. B. Gould.
- 1 drawing in pencil of "Paru-garu", one of the Native Police in 1851. Signed W. Strutt, del. (Australia).
- 1 lithograph of "Moornwillie," an *Australian* of good manners.
- 1 do. of "Oorunguiam" and "Murnight", Native *Australian* Police.
- 1 drawing coloured "The natives of Tasmania bewailing the loss of their country". A design for the "Finis" of Mr G. A. Robinson's work.
- 1 coloured drawing of Cape Barren Geese. "R. Neill, delt. July 1830".
- 1 daguerrotype of 3 Tasmanians.
- 1 large oil painting of a native of Brune Island called "The Doctur," who was highly esteemed by G. A. Robinson.
- 1 skin of wombat with the fur turned inwards, and all the openings secured, for a water vessel.
- 1 slender stick with an almond shaped prominence at the end.
- 1 woman's girdle for the loins, made of white shells. Qu. whether Australian. (Appears to be African).
- Necklaces. (Shells are cowries with yellow spots; string looks like hair. Pacific?).
- 1 beautifully carved box in the shape of a canoe, with grotesque heads at the extremities. (This is a feather box from the Feejees).
- 3 human lower jaws of Tasmanians with native cord wrapped round them. These were worn round the necks of the natives as amulets.
- 2 human tibiae of Tasmanians prepared in the same way for wearing.
- 2 plaster busts of Tasmanians, by B. Law, Hobart Town. The man is the bust of Woreddy, a native of Brune Island. The woman is Truggerannana, native of Sullivan Cove.
- 5 stone axes in split hafts, fixed with gum of xanthorrhoea. Tasmanian. See Bonwick p. 44.
- 1 do. with stick haft. Do.
- 3 do. without hafts. Do.
- 1 large necklace made of reeds (Australia) labelled "1847 July. Necklace N.N.W. from Bill le".
- 23 *Haliotis* shells, a fish for which the women were expert divers. They took a pointed stick in one hand and had a bag under the arm. She descended and loosened the fishes from the rocks & put them into the bag, generally coming up with the bag full. Occasionally a woman got fixed between two rocks and was drowned.
- 5 reed necklaces from "Ovens" '41. Australia.
- 2 necklaces made from some portion of a shellfish. "Ovens, '41". (or a coralline).
- Drawing. Return of G. A. Robinson to the Penal Settlement of Macquarie Harbour with the Port Day Tribe of Aborigines on the morning of the 25th May, 1833. Mr Robinson's own inscription on the back.
- Piece of native rope, made of grass.
- 3 necklaces of claws of an animal. One strung on twisted sinew.
- A portion of claw necklace with 8 larger claws.
- A small feather ornament.
- A small portion of net.
- A necklace of six strands, feather.
- Another with more slender strands.
- 2 very fine nose sticks and a small one.
- Bunch of bones of the albatros. From a barren island near V.D.L. frequented by the albatros. Extreme N. West Albatross Island.
- About 20 string necklaces made of native string.
- 1 necklace made of sinew.
- 1 finely prepared thick sinew rolled up into perhaps an amulet.
- Box of worsted work the Tasmanians were taught to make.
- 2 bundles of sticks for producing fire. Tasmanian. 6 "fire sticks"—4 twirling sticks & 1 receiver —8 twirling sticks and 4 receivers. The "fire sticks" are for carrying fire, the round ones for producing.
- 1 bundle of small sticks, charred at the ends.
- 2 amulets made of the cremated bones of the dead. V.D.L. "Roydeener", or "Numremureker".
- 2 Australian shields.
- 8 boomerangs; one of which is large and used for throwing *vertically* G.A.R.
- 11 throwing sticks, some carved.
- 5 shields of different forms S.A.
- Coloured drawings of 2 *Tasmanian* catamarans or floats. (See plates of Atlas de la Perouse No. 44 Cape Diemen).
- 1 *Tasmanian* catamaran.
- 5 spears, barbed. Tasm.
- 29 fine spears of different kinds.
- 10 reed spears, "Ovens Feb. '41".
- 17 spears, 2 with iron spikes.
- An amulet consisting of the bones of a child tied up in a little bass bag. The 2 femora 2 ulnae and the bones of one hand. (In skull case).
- 4 apron-bands, made of emu feathers for women. (See Lloyd's Tasm. Vict. 467. Australian).
- 2 bunches for men.
- 2 human ribs, clean. For a charm or an ornament.
- 2 lumps of *Eucalyptus* gum prepared by natives (*Eucalyptus resinifera*). Some pieces of raddle for painting the body.
- A quantity of prepared sinew.
- 5 teeth of the wombat and kangaroo, cut from the hair of "Loek" 2nd daughter of "Bilbilyun" 1 Sept. 1839. These are Australian and the hair is flowing.
- Mask in plaster of a portion of the face of a *Tasmanian*. It reaches from near the eyes where the ringlets of oched hair come down on to the nose to the tip of the chin. The nose is broad, face flat and mouth of pleasant expression. This is remarkably different from an Australian face. "B. D. Sculpt. 1835".
- Small specimens of crystals. *Tasmanian* diamonds?
- Box of worsted and other work done by the women, *Tasmanian*, at Flinders Island.
- Piece of pith of *Tasmanian* Tree Fern upon which Robinson had to subsist at times.
- Small amulet. Seems to contain a bone.
- 2 boxes of minerals, *Tasmanian* and Australian.
- 3 long fishing nets "Ovens Feb. '41".
- 3 long slender nets.
- Stake net. A large net rolled on sticks, circular base.
- 2 mats, one of which has a pocket in it. "Gram-pions". *Tasmanian*.
- 4 long narrow bags. Seem to be for catching some animal in.
- Another small circular bass mat bag. Tasm.

- 2 very beautiful baskets or bags, Tasmanian, used by the women for fishing &c. One of them contains a good description in it by G. A. Robinson in MS.
- 8 thick bass bags. Tasm.
- 2 small fine net bags, one of which is inscribed "Net bag July 15, '47". Australian.
- 12 net bags. One of these is ticketed "Ovens Feb '41", another has a native name on the ticket.
- A small net.
- A piece of netting which is either an apron or a bag in the process of being made.

In a letter which he wrote afterwards to Mrs Robinson, Barnard Davis remarked that "Dr Milligan has returned to England . . . from what he tells me, it seems that almost all the objects I had from you are Australian and not Tasmanian, except the portraits. I always thought this was the case, because Mr Robinson was disposed to confuse the two races together, and call the whole Australian." (Letter dated October 13 1867, in the Mitchell Library, Sydney).

On March 16, 1848 G. A. Robinson wrote to J. S. Prout, the artist, to say that he was sending him some articles relating to the Tasmanian and Australian aborigines, including the signboard listed above. In the same letter Robinson also says, 'I should much like Mr. Brown's dgt. group of Walter, Mary Ann & David Brune.' This is likely to be the 'daguerrotype of 3 Tasmanians' listed by Barnard Davis.

Barnard Davis's collections were dispersed before and after his death in 1881. The skeletal material was bought by the Royal College of Surgeons in 1880, and his library was sold at Sotheby's in January/February 1883. With the library were sold photographs and drawings "of various types of savages," but the Tasmanian portraits were probably not included here: the latter were almost certainly framed, and Sotheby's catalogue seems to refer to material either mounted in albums or loose. What happened to the ethnographical collection has not been elucidated. Items from it have been traced to a number of collections, and it therefore seems likely that it was sold at auction, but no records of this have been found. Such details would be of great interest, since they might give clues to the origin of some of the portraits.

Besides the Tasmanian ethnographical material in Barnard Davis's collection, most of which he had obtained from G. A. Robinson but some from others, there were a few other original collections in England. The Chichester Museum had a small Tasmanian collection, obtained between 1833 and 1838. This collection, which included three skulls, was acquired in 1912 by Captain A. W. F. Fuller of London; and recently most of this and some other Tasmanian material was sold by him to the Chicago Natural History Museum.

Another collection of interest is in the Museum at Saffron Walden, a country town about fifteen miles from Cambridge. This museum was founded in 1832 and its ethnological collections contain a number of genuine early pieces, obtained from various native peoples during early contacts with Europeans. The original registers of the museum have been lost (if they ever did exist), but a catalogue of specimens acquired between 1832 and 1880 was prepared about

1897 from labels and other memoranda. There is also an *Abridged catalogue*, published in 1845, and among the entries are the following (p. 76) :—

"A boomerang: the natives by throwing it in a peculiar manner, can cause this weapon to strike an object behind them. From Van Diemen's Land. John Helder Wedge Esq., Van Diemen's Land."

"A shield of wood 3 ft. 6 in. long, 10 in. wide, ornamented with zigzag pattern, filled up with a white substance. ditto. ditto."

The MS catalogue of 1897 lists various gifts between 1833 and 1839 from John Helder Wedge of Leighland, near Perth, Van Diemen's Land, and from Charles Wedge of Shudy Camps, near Linton in Cambridgeshire. J. H. Wedge was a government surveyor in Tasmania from 1826 to 1835. In 1835 he went to Victoria, where he carried out a number of surveys. His brother Charles was also a surveyor, working in Tasmania and in Victoria. The gifts received from J. H. Wedge and his brother included animals and birds, geological specimens, and weapons of the natives of New South Wales and New Zealand, as well as shields, clubs, waddies, spears and boomerangs from Van Diemen's Land. A number of these latter, marked "Van Diemen's Land" and corresponding to individual items in the MS catalogue, are still in the collections at Saffron Walden. Here, then, is a clear case not only of wrong labelling but of this having occurred early in the history of the collection. It shows clearly the care that must be taken in dealing with Tasmanian aboriginal material. The shields and boomerangs can, of course, be rejected out of hand, but there is no case either for attributing the waddies, spears and clubs to the Tasmanians. All are apparently Australian, even the spears which, though lancelike, consist of two parts, a more slender point being fitted into a "handle" of about the same length—an example of this type of spear was presented some years ago by the Saffron Walden Museum to the Launceston Museum, Tasmania.

The Royal Anthropological Institute of Great Britain and Ireland, which was founded in 1843 as the Ethnological Society of London, had a collection of anthropological material, but most of this was dispersed many years ago. A Tasmanian skeleton obtained from Morton Allport in 1873 was sold to the British Museum (Natural History) in 1898, but some portraits of the aborigines are still at the Institute.

Lastly, it is worth noting that Tasmanian aboriginal material was shown in the Great Exhibition of 1851 in London. Four items are mentioned in the catalogue :—

194. Necklaces of shells, as worn by the aborigines of Tasmania (J. Milligan).
230. Seven baskets, made by the aborigines of Tasmania (J. Milligan).
231. Model of a water-pitcher made by the aborigines of Van Diemen's Land (J. Milligan).
279. Four models of canoes of the aborigines of Van Diemen's Land (J. Milligan).

Of these objects, the model of the water-container and one of the models of the canoe-raft are almost certainly those now in the British Museum. When the Exhibition closed at the end of September 1851 the huge structure of cast iron and glass was removed from Hyde Park

to Sydenham, where it became known as the "Crystal Palace". Ethnographical material was shown among the permanent exhibits there, these probably including a series of portraits of the Tasmanians. Unfortunately, all were lost in the fire which destroyed the building in 1836.

Nearly all the Tasmanian ethnographical material mentioned above is now in the British Museum or in the Pitt Rivers Museum, Oxford.

SKELETAL MATERIAL.

THE SKELETON.

[The presence or absence of the mandible has been noted when examining collections, and this is indicated by (md+) or (md-) respectively].

Five skeletons of Tasmanian aborigines are referred to in the literature as being in collections in Europe, but only two of them still exist. These five skeletons were obtained from Morton Allport, Curator of the Hobart Museum, between 1850 and 1875. [In the *British Medical Journal* for November 30, 1858 it is stated that five Tasmanian skeletons were shown in the anthropological section of the Universal Exhibition of Paris, but this may be a mistake. At the Exposition des sciences anthropologiques held in Paris in that year three Tasmanian skeletons were exhibited; they had been lent by Dr Barnard Davis and by the Royal College of Surgeons.]

Royal College of Surgeons of England. (Material destroyed 1941).

[Specimens from the Barnard Davis collection are indicated by adding in brackets after the College number the letters BD and the number used in Davis's *Thesaurus caniorum* (1867) and its *Supplement* (1875)].

1096. Tasmanian male. (From grave on Flinders Island).

1097. Tasmanian female. ("Bessy Clark").

1406 (BD 1761). Tasmanian male.

British Museum (Natural History).

1917.10.29.1. Tasmania. Male (?) (md+). Purchased from the Anthropological Society of London, 1898; from Morton Allport, 1873.

Institut royal des sciences naturelles de Belgique (Brussels).

Squelette d'un Tasmanien de l'Île Flinders. (md+).

Echange Morton Allport 1873. No. 310 (I.G. 3203. Reg. 46).

References: Davis (1874, 1875), Flower (1907), Garson (1899), Hrdlicka (1928), Klaatsch (1903), Pyeraft (1925), Steadman (1937), Turner (1910).

THE SKULL.

Royal College of Surgeons of England.

Most of the Tasmanian skulls in the Museum at the College were recorded in the 1907 edition of the catalogue of osteological specimens, only a little material having been received subsequently. At different times different series of numbers were applied to the specimens: most of these were used prior to the first edition (1879) of Flower's catalogue, but at least some of the specimens received after the publication of the edition of 1907 were given yet another series of numbers. As nearly all the material no longer exists and as any worthwhile descriptions of it refer mainly to Flower's numbers, there seems little point in trying to sort out the confusion of the old numbers in the MS registers of the College and in Owen's catalogues of 1831 and 1853.

Flower lists the following skulls in the 1907 edition of his catalogue:—

1098. Tasmanian male. Hunterian collection.

1099. Tasmanian male. Presented by Ronald Gunn.

1100. Tasmanian male. Presented by Ronald Gunn.

1101. Tasmanian male. "Tasmanian warrior, killed at Brushy Plains." Presented by George Busk, 1864.

1102. Tasmanian male. Brought from Tasmania by Dr. Milligan. Presented by George Busk, 1864.

1103. Tasmanian male (entered in MS catalogue as "cranium of an Australian"). Presented by Lady Franklin, 1854.

1104. Tasmanian male (somewhat exceptional characters: ? Tasmanian). Presented by Dr Hobson.

1105. Tasmanian female. Hunterian collection.

1106. Tasmanian female ("from Port Dalrymple, Van Diemen's Land"). Presented by Sir Everard Home, 1809.

1107. Tasmanian female. Presented by Ronald Gunn.

1108. Tasmanian female (from a grave in Bruny Island). Presented by Dr Archibald Sibbald, R.N., 1854.

1109. Tasmanian female ("previously described as Australian"). Presented by Ronald Gunn.

1109.1. Tasmanian. Presented by J. Marshall, 1892.

1110. Said to be Tasmanian, female. Presented by Sir Joseph Hooker, 1866 ("from Dr. Bedford").

1111. Tasmanian, ? male aged 14 years. Presented by G. J. Guthrie, 1825.

1112. Young Tasmanian. Presented by Ronald Gunn.

1113. Tasmanian, female infant ("from Port Dalrymple"). Presented by Thomas Hobbes Scott, 1821.

1113A. From South Pacific, with characters resembling those of the Tasmanian race, male. Presented by Sir Joseph Hooker, 1866.

Material received after 1907 included:—

1096.1. 7 teeth, from a shell-heap in Tasmania. Donor: W. J. Lewis Abbot, 1922.

1096.2. Imperfect mandibles from sand-dunes in S.E. Tasmania.

1109.1. Tasmanian: imperfect calvarium, probably female. Donor: Sir Colin Mackenzie, 1915.

In Owen's catalogue of 1831 two skulls are listed which had been given to the museum by Thomas Hobbes Scott in 1821. These two specimens appear in the MS register as:—

No. 1082. September 28 1821. Henry Cline Esq. from (the Revd) Thomas Hobbes Scott Esq. lately returned from New South Wales, etc.

1. A skull of an adult from Port Dalrymple, the posterior part of which appears to have been injured by fire.

2. A skull of a female child from Port Dalrymple. The central points of the parietal bones project unusually.

The subsequent history of the child's skull is straightforward: it is item 99 of Owen's list (1831), item 5345 in his list of 1853 (where it is entered as "the cranium of an Australian child, from Van Diemen's Land") and item 1113 of Flower's lists (1879, 1907); but that of the

damaged adult skull is confused. The latter is listed by Owen under his number 95 in 1831, and under his number 5903 in 1853 (quoted in error as 5904 in an annotation in the MS register). It is not listed by Flower but appears next in Paget's catalogue of pathological specimens (1882) as item 2085—"a mutilated skull of a European . . . from the Barnard Davis collection". There is also a later (?) catalogue number for this specimen—1,2890. The skull is still in the collections at the Royal College of Surgeons (md—).

The Barnard Davis collection, acquired by the College in 1880, was renumbered there, but it was not listed in Flower's 1907 catalogue; these new numbers have been used by workers who have examined the material at the College. In the following lists the College numbers are shown first, and then, in brackets, the numbers of the *Thesaurus craniorum* or its *Supplement*.

In the *Thesaurus craniorum* (1867) are listed:—

- 1407 (BD 860). Tasmanian male. Deville collection.
 1408 (BD 861). Tasmanian male. From Van Diemen's Land; Mr Goodwin, Surgeon R.N. Deville collection.
 1409 (BD 862). Tasmanian female. From Van Diemen's Land; Mr Goodwin, Surgeon R.N. Deville collection.
 1410 (BD 863). Tasmanian female. From Van Diemen's Land; Mr Goodwin, Surgeon R.N. Deville collection.
 1411 (BD 867). Tasmanian male. From Dr Greig. Deville collection.
 1412 (BD 928). Tasmanian male. Native of Van Diemen's Land; from Mr Espie, Surgeon. Deville collection.
 1413 (BD 1054). Tasmanian male. Purchased of Mr J. S. Prout.
 1414 (BD 1119). Tasmanian female. Found in the bush at Raeccourse, Surrey Hills; from Dr Joseph Milligan.
 1415 (BD 1120). Tasmanian female. Found at St Marys; from Dr Milligan.
 1416 (BD 1120a). Tasmanian female (?). Picked up on north coast; from Dr Milligan.
 1417 (BD 1121). Tasmanian male. From Dr Milligan.
 1418 (BD 1297). Tasmanian male. From G. A. Robinson.

In the *Supplement* (1875) are listed:—

- 1419 (BD 1481). Tasmanian male. From G. A. Robinson collection.
 1420 (BD 1482). Tasmanian female. From G. A. Robinson collection.
 1421 (BD 1763). Tasmanian female.

Of the whole Tasmanian collection in the College the only specimens now existing are — 1096.1, 1096.2 and a fragment of 1416 (BD 1120a), which are now lodged at the British Museum (Natural History); and Paget's 2085 is still at the Royal College of Surgeons.

References: Hrdlicka (1928), Klaatsch (1903), Steadman (1937).

University of Oxford.

The Tasmanian crania bear the serial number AUS 80.

1017. Tasmauia. (md—). January 8th 1864. (In Department of Human Anatomy, Oxford).
 1018. Tasmania. (md—). January 8th 1864. (In Department of Zoology and Comparative Anatomy, Oxford). This skull has not been

described. It was not with others of the series when they were originally described by Garson, and has not since been referred to by any author. It was located during the present enquiries, being recognised by the inscriptiou "1018" and its typical morphology.

1019. Tasmauia. (md—). January 8th 1864. (In Department of Human Anatomy, Oxford).
 1020. Tasmania. (md—). Revd W. W. Spicer. (In British Museum [Natural History]).
 1021. Tasmauia. (?). (md+). Said to have been brought back by Captain Cook and to be Polynesian. Later classified as Tasmanian. From Christ Church (Ch.Ch.809a O.C.). (In Pitt Rivers Museum, Oxford). (Originally part of Cook's collections, this skull is the only relic of the Tasmanians obtained before European settlement which still exists).
 1022. Tasmania (md—). Pitt Rivers collection, 1887 (Ruxton). [In British Museum (Natural History)]. This skull was originally numbered "1021a" and measurements of it have been published under this number.
 1023. Tasmania (md—). Pitt Rivers collection, 1887 (Ruxton). (In Department of Human Anatomy, Oxford). This skull was originally numbered "1021b" and measurements of it have been published under this number.

References: Garson (1899), Steadman (1937), Turner (1908).

Royal Army Medical College.

This collection, originally described in 1857 by Surgeon Major George Williamson, M.D., was transferred to the Department of Human Anatomy, Oxford, about 1910, and then, a few years ago, to the British Museum (Natural History). The numbering is that of Williamson's MS and published lists, with the prefix AUS 80, which was added when the skulls were catalogued at Oxford. (Records and MSS relating to this collection are at the British Museum [Natural History]).

5. Tasmania. Donor: Dr Atkinson, Hobart Town. Note:—Williamson listed this skull as that of "Louisa Ferris, who twice attempted to commit murder," but it may be that of an adult male aborigine.
 (58. Native of Van Diemen's Land. Note:—Missing from the collection when received at Oxford).
 59. Native of Van Diemen's Land. (?).
 60. Native of Van Diemen's Land.
 445. Native of Van Diemen's Land. Donor: Dr Willis.
 446. A boy, a native of Van Diemen's Land.

All the above skulls either lack mandibles, or have mandibles apparently of other skulls associated with them.

References: Steadman (1937), Williamson (1857).

British Museum (Natural History).

- 87.12.5.1/1q²⁴. Tasmania. (md—). Donor: W. Savile Kent.
 94.1.20.1. Tasmania. (md+). "Lady Franklin". Donor: G. C. Trench, 1894.

References: Pycraft (1925), Steadman (1937).

King's College (London).

The Tasmanian skull mentioned by Knox (1850) as being in the collection at King's College could not be traced in the Anatomy Department.

Middlesex Hospital (London).

Berry, Robertson and Buehner (1914) refer to two skulls labelled as Tasmanian in the Middlesex Hospital Museum. They consider their authenticity to be somewhat dubious. These skulls could not be traced in the Anatomy Department.

University of Cambridge.

The following skeletal material in the Department of Anatomy was described by Duckworth (1902):—

2096. Tasmanian. Adult male. (md—). The entry in Duckworth's register is—"Cranium ♂ presented by Rev T. Anford in 1845. He describes it as the skull of a poor aboriginal woman murdered in the bush, and gave it to the Rev H. G. Tomkins, Vicar of Branscombe, by whom it was given to Sir G. Humphry. It is evidently male."

2097. Tasmanian. Mandible of adolescent. Donor: James Bonwick.

2098. ? Tasmanian. Mandible of male.

2099. Tasmanian. Adult male. (md—, face and front of cranium only). Port L . . . The entry in the register is:—"Presented to Dr Humphrey by Mr Edmund Abbott who sent it through Mr Charles Harrison of Sudbury." "Sudbury" is evidently Judbury, in the Huon district. "Port L . . ." is expanded to "Port Lamahne??" in the register; could this be (Cape) "Paul Lamahne" badly written?

2100. Tasmanian Adult male. Donor: James Bonwick.

Note:—Specimens 2097, 2098 and 2099 could not be located in 1958/59.

In addition to the above, there is the following undescribed specimen in the collections:—

49. Skull (md+) covered with dried integument on the right side. It was discovered in the trunk of a tree in country near the Tamar Rv and was said to be that of an aboriginal. Donor: Professor J. T. Wilson. Said to have been found by Dr Maddox, Government Medical Officer, about 1880.

University of Edinburgh.

The history of this material (except Nos. 10 and 11 which are undescribed) has been given by Turner (1908). The skulls, which are in the Department of Anatomy, are referred to under the serial number XXX.

1. Van Diemen's Land. Adult male (md—). Monro series (52).

2. V.D.L. Adult male (? William Lanney). (md—). Donor: Dr Lloyd S. H. Oldmeadow.

The original record was "Skull of Tasmanian aborigine, given me by Dr E. M. Crowther of Hobart, Tasmania, and supposed by him to be that of the last of the Tasmanians, (commonly known as King Billy). It was the only Tasmanian skull found in the collection of Dr Crowther's father when he died, and as he was the possessor of King Billy's skull it seems very probable that it is the skull Dr Crowther supposes. Lloyd S. H. Oldmeadow. 11/10/88."

3. Tasmanian. Adult female. (md+). Donor: Dr J. L. Robertson.

4. Tasmanian. Adult male. (md+). Donor: C. Gray. Goodsir series.

5. Van Diemen's Land. Adult male. (md—). Goodsir series.

6. Tasmanian Adult male. (md—). Goodsir series.

7. Van Diemen's Land. Adult male (md—). Phrenological Museum.

8. Extinct race V.D.L. Adult male (md—). Donor. Mr J. Grant.

9. Bridgewater. Juvenile. (md—). Donor: Mr Brent.

10. Tasmanian. (md+). Donor. Dr W. Ramsay Smith, 1912.

11. Tasmanian. (md—). Old collection (Ogilvie catalogue 371).

Royal Scottish Museum.

There is a skull from Van Diemen's Land in the collections, that of an adult male (md—), and originally from Professor Jameson's museum. It was described by Turner (1908) as XXX.10, but this number has since been used by the University of Edinburgh for another Tasmanian skull, added to the collections after the publication of Turner's paper.

Musée de l'homme (Paris).

972. Calvarium de Tasmanien de Port Dalrymple. (md—). Coll: Bedford.

973. Calvarium incomplet trouvé sur les bords du lac St. Clair, Tasmania. (md—). Voy. *Astrolabe & Zéléé* 47.

1503. Crâne de Tasmanienne de Launceston (md+). Verreaux 69. This skull may not be that of a native of Launceston. The entry in Verreaux's MS list in the library of the Muséum d'histoire naturelle in Paris reads—"69. tasmanienne, adulte, tête séparée, donnée par Mr Ronald Gunn". Gunn lived in Launceston and Verreaux met him there.

1505. Crâne de Tasmanien. (md+). Verreaux 68.

3619. Crâne de Tasmanien. (md+). Voy. *La Favorite* 10.

3637. Crâne de chef Tasmanien. (md+). Coll. Eydoux II—Gervais (1876).

3638. Crâne de Tasmanien. (md+). Voy. *La Favorite* 12.

4767. Crâne de Tasmanienne. (md+). Lac Saint Clair. Coll. Dumoutier 5—Voy. *Astrolabe & Zéléé*.

4768. Crâne de jeune Tasmanien. (md+). Détroit de Furneaux. Coll. Dumoutier 6.

[Note: Among the skulls in the Dumoutier collection, no. 4 is labelled—"Crâne d'Australien mort à Hobarth town, publié comme Tasmanien". References to it as Tasmanian appeared in the results of the voyage of the *Astrolabe* and *Zéléé*, in Blanchard's text (pp. 134-136) and in the atlas (pl. 36)].

Although the skulls in the Musée de l'homme have been referred to by a number of authors and particularly by Broca, Quatrefages and Topinard, only a few of them have been described individually. So far as has been determined, information about the skulls is given in the following:—

972. Klatsch (1903). Quatrefages & Hamy (1882) refer (p. 225) to this skull as being

part of Dumont D'Urville's collection. (The Revd William Bedford was Senior Chaplain in Van Diemen's Land and was interested in G. A. Robinson's work among the Tasmanian aborigines. One of his sons, Dr E. S. P. Bedford, entered the colonial medical service in Hobart in 1828, and became a leading doctor there).

973. Quatrefages & Hamy (1882), pp. 204-205—"femme Tasmanienne du sud".
1503. Quatrefages & Hamy (1882), p. 225.
1505. Klaatsch (1903). Quatrefages & Hamy (1882), p. 225, f. 230, 234-236—"Tasmanien de Launceston. Coll. J. Verreaux no. 1". Topinard (1872)—"Tasmanien, no. 1505 du Museum".
3619. Quatrefages & Hamy (1882), p. 224—"no. 3 de cette même série de Hobart - Town". Topinard (1872), f. 2—"Tasmanien, no. B.III, 186 du Muséum . . . la mâchoire est assujettie avec de la ficelle".
3637. Dumoutier (1874). Gervais (1876) — head collected by Eydoux in 1831. Quatrefages & Hamy (1882), f. 228, 229, 231—"Tasmanien de Hobart-Town"; Eydoux no. 2.
3638. Klaatsch (1903). Quatrefages & Hamy (1882), f. 232, pl. XIX f. 3, 4—"Crâne d'un Tasmanien de Hobart-Town"; Eydoux no. 1.
4767. Klaatsch (1903). Quatrefages & Hamy (1882), pp. 224-225—"femme tasmanienne du sud".
4768. Quatrefages & Hamy (1882), p. 225—"crâne de jeune sujet du détroit de Furneaux recueilli par Dumoutier . . . ce jeune Tasmanien peut avoir onze ans environ". (Voy. *Astrolabe & Zéléc*).

Institut royal des sciences naturelles de Belgique (Brussels).

- (a) Tasmanien. (md—) Soc. auth. (= Société d'anthropologie de Bruxelles, now Société royale belge d'anthropologie et de préhistoire).
- (b) Tasmanien. (md+). Coll. Dr. Meisser 75d/24.6.1868 (IG2653. R188).

Note:—Turner (1910) states that this skull is not Tasmanian.

Etnografiska Museet (Stockholm).

There is the left half of a Tasmanian skull (md—) in the collections. It was described by Ramström (1926).

University of Vienna.

The Department of Anatomy has the following specimen:—

1403. Van Diemensland. (md+). This skull is listed in Hyrtl's catalogue (1869) under the number 337. Nothing more is known about it, the registers having been destroyed in the last war.

Naturhistorisches Museum (Vienna).

5015. Tasmanien. (md—). This is skull no. 3 of the series described by Harper and Clarke (1898). It was also described by Pöchl (1916). The story of its translation to Vienna is given by Höhnel (1926, pp. 307-308).

Wroclaw (Breslau), Poland.

The Tasmanian skull described by Barkow (1862) and by Weiger (1885) was destroyed in the last war (letter from Dr B. Miskiewicz, Institute of Anthropology, Polish Academy of Sciences).

Fuller collection (Chicago Natural History Museum).

1. Skull of a native of Van Diemen's Land (md+). Originally presented to Chichester Museum in 1833 by J. Forbes M.D. Female? (Steadman no. 1; Field no. 113 [Chicago Natural History Museum]).
2. Female skull from Tasmania. (md—). Formerly in the Chichester Museum, to which it was presented by T. Humphrey in 1838. (Steadman no. 2; Field no. 114).
3. Male native of Van Diemen's Land. (md—). Presented to the Chichester Museum by T. Humphrey in 1838. (Steadman no. 3; Field no. 115).

Reference: Steadman (1937).

THE PELVIS.

In the Musée de l'homme (Paris) there is the following specimen:—

1504. Bassin de Tasmanienne de Launceston. This was sent by Verreaux from Tasmania in 1843 and in the MS catalogue of his collections it is recorded as "70. pelvis tasmanien"; there is no mention of it being accompanied by other parts of the skeleton. This is probably the pelvis described by Verneau (1875) and by Garson (1899), both of whom classify it as male.

HAIR.

Pitt Rivers Museum (Oxford).

1. Tasmanian. Eydoux coll. (Hairs brown).
2. Tasmanian. Donor: F. von Luschan, 1914. (2 twisted ringlets, a mixture of light and dark brown hairs).
3. Tasmanian. Voy. *Astrolabe* (Quoy & Gaimard). (Hairs black).
4. Tasmanian male. From Mr Robinson of Bath. (Coiled ringlets loaded with red "earth"; hairs black). [The Mr Robinson referred to is G. A. Robinson, who on his return to England lived in Bath].

University of Edinburgh.

The following material in the Department of Anatomy was described by Turner (1914). Specimens (a), (b) and (c) were from Ling Roth's collection. The Edinburgh collection is not wholly accessible at present, but items (b) and (d) have been located; item (c) probably corresponds to specimen 6491/LR 3. XLIX, catalogued as being in the collections.

- (a) Hair from the head of a Tasmanian aboriginal chief who accompanied G. A. Robinson, collected about 1832.
- (b) Hair of Truganini (♀) (1872).
- (c) Hair of Mrs Thos. Cochrane Smith (hybrid).
- (d) Hair of a male Tasmanian.

Musée de l'homme (Paris).

There are two entries in the catalogue of the collection of hair:—

7857. Cheveux de Tasmanien. Eydoux no. II. (Crâne no. 3637).
7858. Cheveux de Tasmanien. Voy. *Astrolabe* (Quoy & Gaimard no. 10).

However, these entries do not appear to correspond with the two samples in the collection, which are both labelled "Tasmaniens. M. Beauregard", and are:—

- (a) A tightly curled dark brown or black tress, the coil 2½-3 cm long.

- (b) Some hairs without any curl and blond to brown in colour, of maximum length about 6 cm.

University of Vienna.

The following specimens are at the Anthropologisches Institut:—

Von Luschan coll: seven coiled tresses of typically Tasmanian hair, numbered 5131, 5133, 5134, 5135, 5136, 5137 and L5. Their colour ranges between light and dark brown. One specimen is dated "1878"; another (L5) is marked "♂".

Pösch coll: five specimens similar to the above; two are not numbered, the others 492, 5128 and 5132. This series does not include the "blonde" Tasmanian hair described by Pösch (1916a), which is said to be in the collections here, but has not been located.

Naturhistorisches Museum (Vienna).

There are five specimens of hair marked "Tasmanier" in the collections. Nos. 154, 155 and 156 were received from von Luschan and are typical Tasmanian tight coils; they are 3-4 cm long and the hair is brown. The entry in the register under nos. 157 and 158 is "Tasmanier? beide Haarproben tragen die 2 Bezeichnung Nauru". These latter specimens are tresses of almost straight hair, no. 157 dark brown, about 35 cm long and with a slight wave; and no. 158 is dull black, about 45 cm long and with at most a very slight wave.

ANATOMICAL MATERIAL.

Except for the skeleton and hair, nothing is known of the structure of the body in the Tasmanians. Surgeons performed autopsies on aborigines and probably also dissected the body. A few postmortem reports exist, but these do not give any information about the anatomy; no other records are known.

There were some preserved heads in collections in Europe, but they were never dissected or reported upon in detail, and all that now remains is a single mummified specimen.

Dumoutier (1874) and Gervais (1876) reported briefly on a preserved head obtained by Eydoux when he visited Hobart in July/August 1831 in *La Favorite*, as surgeon of Laplace's expedition. The specimen was eventually destroyed because the preservation was not satisfactory, but there is a plaster cast of the head in the Musée de l'Homme (Paris), numbered 3806, and the skull was kept (no. 3637); and specimens of the hair are in several collections.

There was one preserved head, and possibly another, in the collections of the Royal College of Surgeons of England, but this material was destroyed in 1941. It was never described.

Ling Roth (1899) published a photograph of a preserved Tasmanian head in the collections of the Royal College of Surgeons in Ireland. It is still there. This head, said by Ling Roth to be that of an aboriginal named "Shiney," is labelled—"Head of Tasmanian native. Race extinct. 1845. Presented by Dr J. F. Clarke, Inspector General of Hospitals". The specimen was said to have been preserved in whisky, but it has been dried out for many years, Ling Roth's photograph showing it in this state.

In 1911 Professor G. Elliot Smith described a mummified Tasmanian brain sent to him by Professor R. J. A. Berry. The specimen does not seem to exist now; it was probably cut up for examination.

RELICS OF THE DEAD.

The term "relics of the dead" is used here as a designation for objects of human origin carried or used by the Tasmanians as mementoes of the dead, or as charms against or cures for sickness or injury. So far as known all were probably "charms" in the sense of "articles possessing protective or curative properties". There seem to have been two varieties of these objects, (a) bones, fragments of bone or dried parts of the body which were either enclosed in a cover of, for example, kangaroo skin, or tied round with a cord of sinew, by which they were also suspended, and (b) gatherings from cremation sites contained in a wrapping.

Barnard Davis obtained examples of both forms of relic from G. A. Robinson, and these were acquired by the Royal College of Surgeons with his collection of skeletal material. The College retained the type (a) relics, renumbering them as follows:—

1422 (BD 1487). 1422A (BD 1488). 1422B (BD 1489). 1422C (BD 1490). 1423 (BD 1491). 1424 (BD 1492). 1425 (BD 1493). — (BD 1491).

All this material was destroyed in 1941.

Two examples of type (b) relic from the Robinson-Davis collection were presented by the College to the British Museum, in the catalogue of which there is the following entry relating to them:—

"Bundle of bark containing cinerated ashes of the dead. It is circular in outline and pressed flat; fastened by thick reddish string on one surface. Marked "amulet of KILLUPEY MALATOFT or TUPA," June 26 1838. Another bundle of ashes L.7. Formerly belonged to George Augustus Robinson, Protector of the Aborigines (from Dr Barnard Davis' collection). Presented by the Royal College of Surgeons 14th December 1882. 82. 12-14. 2".

The details of the catalogue entry appear to be a mutilation of an original label. It seems likely that this was one of Robinson's (the word "cinerated" is found in his MSS), but to accord with the specimens "bundle of bark" needs some such words as "skin bag enclosing" first; and *killupey*, *malatoft* and *tupa* are unlike Tasmanian words or names. The date June 26, 1838 is not one on which a Tasmanian aboriginal died on Flinders Island but there is a reference in Robinson's journal for May 25, 1838 to a native woman called "Ellen" who wore "an amulet a parcel of ashes hung round her throat to alleviate the pain." Robinson had previously seen her with a human bone suspended to her back and had asked her for it, but was refused, Ellen pointing out that he already had one in his office. Ellen died on June 13 and Robinson might well have obtained the "amulet" on June 26.

Through the kindness of Mr B. A. L. Cranstone, the two specimens in the British Museum have now been examined. Their present form is flattened and roughly circular; they are about 3 cm thick, and one is about 13.5 cm in diameter and the other about 17 cm. The cover is skin of a mammal, but no trace of the hair remains. The cover forms a bag, the mouth of which is drawn together by a cord and, in one of the specimens, also by strips of skin 1-2 cm wide. The cord is a crude 3-ply fibre twist. Strips and cord are threaded through slits in the skin bag and laced across its mouth, the slits being arranged in a single row around the mouth, about 1 cm from its margin. The contents of each bag are partly charcoal and dust, and partly unburnt vegetable

matter. The largest lumps of charcoal have one or more sides of about 1 cm. and there is a gradation of size between these and the dust. All the charcoal appeared to be wood charcoal: no bone was found except part of the beak of a bird, slightly charred at its base, in one of the specimens. The unburnt vegetable matter comprised bark and grass, the bark being more papery in one and more fibrous in the other; no leaves were found. There was a definite appearance of layering, the unburnt material lining the bag and surrounding the inner mass of charcoal.

All the bone "relics" of the Barnard Davis series (1422, etc.) were bound with kangaroo sinew (1422 A had also a cord of vegetable fibre to suspend it), but this may not have been the original condition. Robinson obtained some at least of these "relics" at the Flinders Island settlement, and twice mentions in his journal asking a native to replace with a cord of kangaroo sinew the string with which the bone was bound.

The "relics" used by the aborigines at the Flinders Island settlement had either been brought there by them or were prepared at the settlement. Bundles of ashes, if they were to contain human material, could not have been prepared later than October 17, 1835, when Robinson arrived to take charge. The same would apply for most other types of "relics," for after Robinson arrived all bodies were buried. Of those dying at the settlement before October 17, 1835 some were buried and some were cremated. Even in Robinson's time however, some "relics" were prepared by mothers from the heads of their infants dying soon after birth.

References: Davis (1875), Pulleine (1924), Roth (1899).

SPEARS.

No Tasmanian spears were located during the survey of European collections, apart from those labelled "Van Diemen's Land" in the Saffron Walden Museum. There is one spear in the Fuller collection at Chicago which may be Tasmanian.

WADDIES.

British Museum.

The following description is associated with the one specimen in the British Museum:—

"Wooden club in form of a pointed stick with roughened grip. Mr Jas. Backhouse, Tasmania. Used for hunting wallaby. Obtained in 1832 from natives at Flinders Island (reference: Backhouse (1843) "Narrative . . .", p. 90). Purchased from Treasurer of Yorkshire Philosophical Society Museum, York." Length about 65 cm.

Fuller collection (Chicago).

Among the material obtained by Captain Fuller from the Chichester Museum was a rough stick with a chipped grip. This was apparently the specimen referred to in the catalogue of that museum as being a club used by the natives of Van Diemen's Land, presented in 1833 by John Forbes, M.D. (Field no. 4137).

Musée et Institut d'Ethnographie (Geneva).

Three clubs in the collections may be Tasmanian.

CANOE-RAFTS (Models).

There are references in the literature to seven models of the Tasmanian canoe-raft. Three of these were figured by Ling Roth (1899); they were then in the

museum of Eton College, but are now in the Pitt Rivers Museum, Oxford. Four other models were shown at the Great Exhibition of 1851, and of these one is now in the British Museum (the other three have not been located).

Pitt Rivers Museum (Oxford).

- (a) "Aboriginal canoe of tea-tree bark (*Melaleuca*) bound with kurajong bark. They were usually made of stringy bark. Capable of taking 8-10 persons. Obt. by Sir John Franklin (Governor), 1843; dd. Eton Coll. Museum 1893." (Three bundles of about the same size, tapering at the ends. Ling Roth (1899), p. 156).
- (b) "Aboriginal canoe. Tasmania. Obt. by Sir J. Franklin 1843; dd. Eton Coll. Museum 1893." (A large central bundle and two much smaller bundles forming the sides, brought to a point at one end and cut square at the other. Made of bullrush? Ling Roth (1899), p. 156).
- (c) "Aboriginal canoe. Tasmania. Obt. by Sir J. Franklin 1843; dd. Eton Coll. Museum 1893." (A single round bundle, tapering at the ends. Made of bullrush? Ling Roth (1899), p. 156).

British Museum.

"Tasmania. Boat made from three rolls of bark; this is really a raft with pointed ends. Given by the Secretary, The Royal Society (exhibited in the Great Exhibition of 1851). 51.11-22.5." ("Secretary of the Royal Society" signifies Dr Joseph Milligan, Secretary of the Royal Society of Tasmania, 1848-1860, who was in charge of the Tasmanian exhibits at the Great Exhibition). This is the model referred to by Ling Roth (1890, p. x, pl. IV; 1899, p. 157). The entry in the catalogue of the Great Exhibition reads:—"279. J. Milligan. Four models of canoes of the aborigines of Van Diemen's Land. (These are exact models of the large catamarans, in which the natives used to cross to Bruné Island; the material is bark of the *Melaleuca squarrosa*)."

FIRE-DRILLS.

Two fire-drills have been described in the literature as Tasmanian. One of these instruments was figured by Lubbock (1869, 1890, 1900), and both were described and figured by Ling Roth (1890, 1899).

Pitt Rivers Museum (Oxford).

"Firestick, native Tasmanian. Presented by Dr Barnard Davis 1868."

Fuller collection (Chicago).

The fire-drill figured by Lubbock in the second and subsequent editions of his book *Pre-historic times*, was given to him by G. A. Robinson. When Lubbock's collection was dispersed this fire-drill was acquired by Sir Henry Wellcome, but when Wellcome's collection was sold in 1934 only the drill could be found, the pad being missing. The drill was bought by Captain Fuller and is now in the Chicago Natural History Museum (Field no. 4138).

In spite of the evidence apparently provided by these fire-drills, it is very doubtful whether the Tasmanians used such instruments to obtain fire, at any rate before their contacts with the Australian aborigines. Lubbock received his specimen from G. A. Robinson,

and it seems likely that the Pitt Rivers-Barnard Davis specimen was also originally in Robinson's collection, a collection in which there was known to be confusion between material of Tasmanian and Australian origin. Ling Roth (1899, appendix H) states that the Barnard Davis specimen was obtained from Dr Joseph Milligan but this seems doubtful and it is much more likely that it was one of those obtained from Robinson (see list). Moreover, Ling Roth's statement (1899) that Milligan "knew nothing of the aborigines until 1817" is hardly correct: he was appointed surgeon to the Van Diemen's Land Company in 1831 and was stationed on the North-West Coast, an appointment which gave him opportunities for observing the natives. Milligan's statement to Barnard Davis, quoted on page 4 of this paper, that the specimens he had obtained from Robinson were largely Australian, has, therefore, some authority.

Robinson's statements to others on the subject of fire-making do not help either. Thus, among his papers in the Mitchell Library, Sydney, there are some letters written to him in 1865/66 by a Dr John Davy of Amble-side. Robinson had evidently sent Davy particulars of "the manner employed by the Tasmanians to procure fire," but his description was apparently not clear for Davy could only *infer* from Robinson's reply "that it was by friction." The same correspondence shows that Robinson had pointed out to Sir John Lubbock that he had fallen into a mistake by trusting to the statement made by Dove (1842) about the Tasmanians that although fire was well known to them, some tribes, at least, appear to have been ignorant whence it was obtained, or how, if extinguished, it could be re-lighted. Yet Lubbock continues to quote Dove in later editions of his *Pre-historic times*, and merely figures the fire-drill given him by Robinson.

Possibly this confusion has arisen not only from Robinson's muddle but also from the use of the word "firestick" to describe both a fire-brand (for carrying fire) and a fire-drill (for making fire by friction); and there is some indication of this in Barnard Davis's list of the Robinson collection (p. 2-3). Certainly, any references to fire in the field journals in which Robinson kept a daily record of his journeyings through the Tasmanian bush, confirm Dove's statement. The last word seems to be provided by Robinson himself, writing in his journal on May 13 1840 when he was travelling in the bush in Victoria—"I observed for the first time how natives in their original state get fire by friction from two pieces of wood," he says, and then proceeds to describe and figure a fire-drill clearly identical with the two "Tasmanian" specimens referred to above, to describe how it was used and to record that the aboriginal he saw using it presented this fire-drill to him. The drill pad of a "Tasmanian" specimen from Robinson's collection now in the Queen Victoria Museum, Launceston, Tasmania, is made of non-Tasmanian material (Palmaceae). There remains little doubt that the records of Tasmanian fire-drills are based on Australian material.

WATER CONTAINERS.

The Tasmanians made a container for water from the broad blade of *Sarcophycus potatorum*, a type of kelp common along parts of the Tasmanian coast, forming the vessel by gathering up the sides on sticks. Such a vessel has been described by Labillardière (1800)

and by Péron & Freycinet (1807/1816).

A model of one of these containers was on display in the Great Exhibition of 1851, and the note in the catalogue reads:—

"231. J. Milligan. Model of a water-pitcher, made by the aborigines of Van Diemen's Land. (This water-pitcher is made of the broad-leaved kelp, and is large enough to hold a quart or two of water. The only other vessel possessed by the aborigines for carrying a supply of water was a sea-shell, a large cymba, occasionally cast upon the northern shore of Van Diemen's Land, which contained about a quart). This is evidently the model now in the British Museum, which is labelled—"Model of kelp water vessel. Given by J. Milligan. 51.11.222".

Ling Roth (1899), in giving a figure of this model, also refers to another model in the Ethnological Museum of the Louvre, but this has not been traced; it is not in the collections of the Musée du Louvre, or of the Musée de la marine (formerly in the Palais du Louvre), or of the Musée de l'homme.

NECKLETS.

Four types of necklet of Tasmanian origin have been described. One was made of the sinews of the kangaroo's tail, formed into several loops; another comprised loops of twisted plant fibre; and another loops of furred skin. The fourth type of necklet was one or more loops of small shells, usually *Elenchus sp.*, strung on a sinew or twisted fibre.

Necklets said to have been made by the Tasmanian aborigines are fairly common in collections. Most of them are strings of small shells; and in all those seen the shells are strung on a machine-twisted thread, which may either signify restringing, or that they were made after European contacts had been made. Many of the latter must have been made by the captive aborigines on Flinders Island.

British Museum.

There are about ten necklets of shells in the collections. Two of these were presented by J. Edge-Partington and were obtained by him in Hobart; another was given by Joseph Milligan in 1851; and others are marked as coming from Flinders Island.

Pitt Rivers Museum (Oxford).

There are at least five necklets in this museum, four of which are strings of small shells. The other necklet is labelled:—

"Necklet of native string worn by both sexes Tasmanian aborigines; dd. Dr Barnard Davis 1868." This consists of several coils of string, the loops about 20 cm. long and several of them bound together here and there with a whipping of a 2-ply twist over a distance of about 1 cm. This necklet has been figured by Ling Roth (1899, p. 131).

Museum of Archaeology and Ethnology (Cambridge).

There is a necklace of the shells of *Calliostoma sp.*, about one metre in length overall, which is labelled "? Tasmanian. Dr Webster. 1906".

Royal Albert Memorial Museum (Exeter).

There is a shell necklace and a bracelet in the collections, reputed to have belonged to Truganini (donor Miss C. E. Wright, 1905).

Pitt Rivers Museum (Farnham).

There are two necklets in the collections, labelled "Necklace made of dog claws on sinew. Tasmania." These necklets consist of teeth and beads on a string of vegetable fibre. The teeth are canines of the dog and are pierced through the roots for stringing. On the roots a pattern has been incised. They are probably native work from New Guinea.

Royal Scottish Museum.

There are two Tasmanian shell necklets in the collections, one labelled—

"Necklace of shells made by natives. Presented by the Tasmanian Commission, International Exhibition 1862.";

and the other—

"Necklace of small shells (*Truncatella marginata*) and a few *Elenchus* shells strung on thread. Cape Barren Island, Bass Straits."

Another necklace of *Elenchus* shells, which is labelled as Australian, is thought to be Tasmanian.

Hunterian Museum (Glasgow).

There is one necklace of shells in the museum, from the Bass Straits.

Museum für Völkerkunde (Köln).

Some necklets in the collections may be Tasmanian.

Fuller collection (Chicago).

A necklace in this collection (Field no. 4139), obtained before 1834 by John Merrimen, may be of sinew. It is covered with a red incrustation.

Museo Nazionale (Rome).

There are some Tasmanian shell necklaces in this museum, in the Giglioli collections.

BASKETS.

It seems likely that the Tasmanian aborigines in their natural state used only one type of weave in the baskets they made, and that such baskets were small and in form globular or cylindrical with a rounded bottom. Other types of basket-work have been attributed to the Tasmanians. Three different types were described by Ling Roth in the first edition of his book (1890), but by the time of the second edition (1899) he had come to the conclusion that only one weave was indigenous, and consisted of vertical bars held together by horizontal bars of 2-ply plaiting, the horizontal bars about half an inch apart, and the vertical bars spaced by the horizontal plaiting. A narrow-leaved "grass" such as *Lepidosperma* was used in manufacture, single blades being used both in the vertical bars and in each strand of the horizontal ply (Ling Roth, 1890, pp. ix-x, pl. III; 1899, pp. 144-145).

There is very little precise information about the basket-work of the Tasmanians. The baskets illustrated by the French explorers are shown with insufficient detail (they are usually in composite illustrations, e.g., as in Labillardière), or may be Australian rather than Tasmanian (Péron & Freycinet, pl. XIII). The real confusion seems to have begun with Robinson, whose collections contained baskets marked "Tasmanian" of the three forms figured by Ling Roth (1890, pls. I, II, III). A large number of baskets must have passed through Robinson's hands: comments in his diaries for 1829-1834 mention baskets, Australian as well as Tas-

manian, given to him in Tasmania by the natives and others, and baskets sent by him to friends and acquaintances; baskets (and necklaces) must have been a common commodity at the native markets held later on Flinders Island; and there is no reason to suppose that baskets were not acquired by Robinson during the Port Phillip protectorate. There were many opportunities for muddle then and later.

*British Museum.*A. *Tasmanian-type* (Ling Roth 1890, pl. III).

- (a) One basket labelled—"Basket. Tasmania. Mr Milligan 51.11-22.1".
- (b) Four baskets labelled—(1) "Tasmanian GAR," (2) "J. B. Davis coll." (One of these baskets measures about 9" x 9", another 9" x 7". All have a 2-ply twist carrying-string).
- (c) One basket labelled—(1) "Tasmania GAR/Roth pl. III", (2) "J. B. Davis coll", (3) "A. W. F. Nov 4th 1889 +4672 Tasmania J. B. Davis".
- (d) One basket labelled—"Rush basket. Given by A. W. Franks +4672".

B. *Other types.*

B1. (Ling Roth 1890, pl. I).

There are about ten baskets of this type in the British Museum. All of them are labelled "J. B. Davis coll", and some of them have other labels also, in four cases the other label or one of them being "Tasmania GAR". These baskets are larger on the average than those of type A, being commonly about 15" across and 12" deep, and one of them is quite large, measuring about 24" across. One of the baskets has the following labels—(1) "Tasmania GAR," (2) "J. B. Davis coll / drawn by Miss Roth". (3) "Tasmania A.W.F. Nov. 4th 1889 J. B. Davis +4675 / Roth pl. 1".

B2. (Ling Roth 1890, pl. II).

There are five baskets of this type in the British Museum, labelled "Tasmania GAR", and from the Barnard Davis collection. One is also labelled "drawn by Miss Roth".

C. *Miscellaneous basketry.*

In the British Museum there is also a mat and a large container, both of type B1 weave. It is unlikely that these articles are of indigenous Tasmanian manufacture.

- (a) "Flat circular basket of spiral plaiting with withes and strips of leaf or grass: projecting mouth at one side. No history, but it was in company with Tasmanian baskets. Presented by A. W. Franks Esq., 4th November 1889. (Dr Barnard Davis). (+4671)". This container is circular, the diameter about 15".
- (b) "Oval mat of plaited rush (or leaf strips) with a smaller mat of the same shape fastened in the middle. Tasmania G.A.R. Presented by A. W. Franks Esq., 4th November 1889. (Dr Barnard Davis). (+4674)".

Pitt Rivers Museum (Oxford).

- (a) "Basket in twined weaving. Probably made of *Lepidosperma filiforme*. Tasmania. Pitt Rivers collection 1440. From Royal Gardens, Kew." This is a type A basket, considered here to be Tasmanian.
- (b) "Coiled basketry. Sewing done in a series of zig-zag loops with two elements. Possibly made of *Lepidosperma gladiatum*. Tasmanian: Pitt Rivers coll. 1441. From Ethn. Soc. coll.; dd. Royal Gardens, Kew." This is type B1 basketry.

Museum of Archaeology and Ethnology (Cambridge).

There is a Tasmanian (type A) basket in this Museum labelled—"Collected by Rev. Backhouse, Quaker Missionary, 1835." The index card describes the basket as a "roughly pear-shaped openwork twined bag of unspun fibres held by a coil of twining crossing them at intervals of about 1/3" Very similar in construction to 54.120 from Queensland except for the closeness of the basal coil and the lack of a binding at the top."

STRING BAGS.

In the British Museum and at Oxford are some string bags consisting of loose loops of a 2-ply cord, and having a carrying handle of cord (ref. Ling Roth 1890, pp. ix-x). There are four of these bags in the British Museum, all from the Barnard Davis collection; one measures about 18" across and 18" deep, and the others about 12" across and the same depth or a little less.

In the Pitt Rivers Museum (Oxford) the specimen is labelled—"Tasmania. Bag worn over neck and under left arm by women diving for *Naliotis* shell fish. Obtained by Dr Davis 1868. PR coll 1429". There is no evidence that such a string bag was used naturally by the native women when gathering shell-fish, the records referring to baskets being used for this purpose.

STONE IMPLEMENTS.

Tasmanian stone implements are to be found in a number of collections in Europe, but except for the Westlake collection at Oxford, the specimens are often inadequately labelled, damaged or weathered. Moreover, there are so few specimens in many of the collections that a comprehensive series is seldom found, and this has tended to restrict the work of European students.

The Westlake collection in the Pitt Rivers Museum (Oxford) comprises about 12,000 specimens, but has been referred to only by Balfour (1925). Ernest Westlake formed the collection during a visit to Tasmania: arriving in Hobart about mid-November 1908 he stayed in the island until at least January 1910 and during that time travelled extensively. His notebooks contain accounts of interviews with old settlers who remembered the natives and half-castes, or whose parents and relatives had known them.

There are collections of Tasmanian stone implements in the following Museums, the approximate number of specimens being shown in brackets following the name of the institution or collection:—

England. British Museum (300), British Museum (Natural History) (4), Museum of Archaeology and Ethnology (Cambridge) (72), Horniman Museum (London) (49), Manchester Museum (a few), City Museum (Bristol) (50-100), Wellcome Historical Medical

Museum (London) (16), Exeter Museum (a few), Lacaille collection (London) (16), Brighton Museum (9), [Part, perhaps all, of the Brighton collection came from E. B. Tylor and was used in preparing his paper on Tasmanian stone implements (1894). In this museum are also the three ground stone axes which Tylor described in 1895 and which had been in Barnard Davis's collection]. Geological Museum (Oxford) (40-50). [Among these specimens are some from E. B. Tylor's collection].

Northern Ireland. Belfast Museum (6).

Belgium. Institut royal des sciences naturelles (Brussels) (443).

France. Musée de l'homme (Paris) (21), Institut de palaeontologie humaine (Paris) (10).

Denmark. Nationalmuseet (Copenhagen) (170). [The Pulléine collection is not in the Nationalmuseet, as stated by McCarthy (1938). (The skulls from the Pulléine collection (ref. Hrdlička (1928)) are in the South Australian Museum, Adelaide)].

Italy. Museo Nazionale di Antropologia e Etnologia (Florence), Museo Nazionale Preistorico Etnografico (Rome). [It is understood that both these collections contain only a few specimens].

Sweden. Etnografiska Museet (Stockholm) (7), Etnografiska Museet (Göteborg) (a few).

Switzerland. Bernisches Historisches Museum (14), Musée et Institut d'Ethnographie (Geneva) (about 30).

BONE IMPLEMENTS.

The Westlake collection at Oxford contains a bone implement made from the fibula of a kangaroo, from a midden at Adventure Bay, Bruny Island; and there is a specimen of doubtful authenticity in the British Museum.

SIGNBOARD.

One of the painted boards issued by Governor Arthur about 1828 to inform the aborigines that native and settler were equal under the law, is in the Museum of Archaeology and Ethnology at Cambridge. It had formed part of Dr Barnard Davis's collection, and he had obtained it from John Skinner Prout, the artist, in 1856. Prout, who came to Australia in 1840 and stayed about ten years, spending some of that time in Tasmania, was given the board by G. A. Robinson. (Refer to Little (1945) for a description of this board).

BUSTS, FACE-MASKS (Plaster).

Musée de l'homme (Paris).

There is a collection of plaster busts and face-masks of the Tasmanian aborigines in the Musée de l'homme which includes five busts modelled by Dumoutier when he visited Hobart Town in 1839/40 as préparateur d'anatomie and plirénologiste of Dumont D'Urville's expedition with the *Astrolabe* and *Zélée*.

904. Buste de Bourrakooroo, natif de Ringarooma-bay. Coll. Dumont D'Urville 58.

905. Buste d'un naturel de la terre de Van Diemen. (Jeune fille). Coll. Dumont D'Urville 59. (Also marked: "HYOLEBOUYER (Lalla Rook)").

906. Buste de Ménalarguema, natif de Oister-bay. Coll. Dumont D'Urville 60.

915. Buste de Timmey, natif de George River, terre de Van Diemen. Coll. Dumont D'Urville 69.

916. Buste de Gucuny, port Sorrell, Tasmanie. Coll. Dumont D'Urville 70.

There are also copies and trials of some of these, as well as face-masks prepared from 915 and 916, and the face-mask of a child.

In addition to the above there are the following :—

(a) Buste de jeune Tasmanien. Coll. Dumoutier.

(b) 3806. Buste de Tasmanien moulé sur la tête rapportée par Eydoux, Voyage de *la Favorite* (145), et conservée dans l'alcool. Le crâne est dans la collection sous le no. 3637).

References : Dumont D'Urville (1811-51), Quatrefages & Hamy (1882).

Law's busts of Truganini and Woureddy.

Copies of these well-known busts of Truganini (T.) and Woureddy (W.) have been seen in the British Museum (T. & W.), Royal Anthropological Institute (T.) and in the Musée de l'Homme (T. & W.; obtained by Dumoutier in 1839/40, coll. Dumont D'Urville 67 and 68). There are also copies in the Salisbury Museum (T. & W.) and in the Anatomy Department of the University of Edinburgh (W.).

Captain A. W. F. Fuller has a copy of the bust of Woureddy with the words "From J. Scott Col. Surg. to Dr Forbes" also inscribed on it. This bust came from the Chichester Museum.

CASTS OF SKULLS, ENDOCRANIAL CASTS.

Endocranial casts and casts of skulls have been seen in various collections. Some of these, and others, have been referred to in the literature. There is often no information from which to identify the original model, and for this reason and also because such casts are of little use for precise work, they will not be listed here.

PORTRAITS OF THE TASMANIANS.

Original portraits of the aborigines have been located in several collections in Europe. They will be dealt with in another paper.

SCOPE OF ENQUIRY.

A list of the museums and collections covered by this enquiry is given below. Those that were visited are indicated by an asterisk (*); enquiries were made at others by letter. Collections in which Tasmanian material was located are marked with a dagger (†).

Austria :

Vienna—*† Naturhistorisches Museum; *† Anatomischen Institut, Universität; * Museum für Völkerkunde; *† Institut für Anthropologie, Universität.

Belgium :

Brussels—*† Institut royal des sciences naturelles de Belgique.

Denmark :

Copenhagen—*† Nationalmuseet.

Eire :

Dublin—* National Museum of Ireland; * Department of Anatomy, Trinity College; *† Royal College of Surgeons in Ireland.

England :

Arundel—Totems Museum.

Batley—Bagshaw Museum.

Birchington—Powell-Cotton Museum.

Birmingham — City Museum; Department of Anatomy, The University.

Bournemouth—Russell-Cotes Museum.

Brighton—*† County Museum.

Bristol—† City Museum; Department of Anatomy, The University.

Burnley—Towneley Hall Museum.

Exeter—† Royal Albert Memorial Museum.

Hastings—Public Museum.

Liverpool—Public Museum.

Manchester—† Manchester Museum; Department of Anatomy, The University.

New Barnet—Abbey Museum.

Saffron Walden—*† Museum.

St. Helens—Gamble Institute.

Salford—* City Museum.

Salisbury—† Salisbury, South Wilts and Blackmore Museum.

University of Cambridge—*† Department of Anatomy; *† Museum of Archaeology and Ethnology.

University of Oxford — *† Pitt Rivers Museum; *† Museum of Geology; *† Museum of Zoology and Comparative Anatomy; † Department of Anatomy.

Kingston upon Hull—City Museums.

Northampton—Central Museum.

Farnham (Dorset)—*† Pitt-Rivers Museum.

London—*† British Museum; *† British Museum (Natural History); * Commonwealth Institute; *† Wellcome Historical Medical Museum; *† Horniman Museum; *† Royal College of Surgeons of England; *† Royal Anthropological Institute; * Department of Anatomy, University College; * Department of Anatomy, Kings College; * Department of Anatomy, Middlesex Hospital Medical School; *† Captain A. W. F. Fuller (private collection and Fuller Collection, Chicago, U.S.A.).

Northern Ireland :

Belfast—*† Museum.

Poland :

Wroclaw (Breslau) — Institute of Anthropology, Polish Academy of Sciences.

Scotland :

Aberdeen—Department of Anatomy, The University.

Edinburgh—*† Department of Anatomy, The University; *† Royal Scottish Museum; * Royal College of Surgeons.

Glasgow—City Museum; † Hunterian Museum.

Perth—City Museum.

Stirling—Smith Arts Institute.

Stromness—Orkney Natural History Society.

Sweden :

Goteborg—† Etnografiska Museet.

Stockholm—*† Etnografiska Museet.

Switzerland :

Basel—Museum für Völkerkunde.

Bern—† Historisches Museum.

Geneve—† Musée et institut d'ethnographie.

Neuchatel—Musée d'ethnographie.

France :

Le Havre—° † Muséum d'histoire naturelle.
 Paris—° † Musée de l'homme; ° Musée du Louvre;
 ° Musée de la marine; ° † Musée de la France
 d'outre mer; ° † Institut de palaeontologie
 humaine.

Germany :

Berlin-Dahlem—Museum für Völkerkunde.
 Bonn—Seminar für Völkerkunde der Universität.
 Frankfurt am Main—Anthropologisches Institut;
 Senckenberg Museum; Frobenius-Institut.
 Hamburg—Museum für Völkerkunde.
 Köln—† Museum für Völkerkunde
 München—Staatliches Museum für Völkerkunde.

Note:—The following material is referred to in the literature, but little information has been obtained concerning it:—

Berlin University—skull (no. 241) of Nanny, a
 half-caste Tasmanian.
 von Luschan collection—5 skulls, from G. A. Robin-
 son (Klaatsch (1903), Turner (1908)); hair.
 Friedenthal collection—hair.

Verworn collection—stone implements.

Klaatsch collection—skulls and stone implements.

Dr. Fritz Kiffner, who was one of Professor von Luschan's pupils, has informed me that the von Luschan collection is now in the American Museum of Natural History, New York, and Dr H. L. Shapiro of that Museum has since informed me that seven Tasmanian skulls were acquired from the von Luschan collection.

Holland :

Amsterdam—° Institut voor de Tropen; Depart-
 ment of Anatomy, Municipal University.

Leiden—Department of Anatomy, University.

Utrecht—Institute of Anthropology. (Tasmanian material believed to be in the collections cannot be traced).

Italy :

Florence—† Societa Italiana di Antropologia e
 Etnologia; † Museo Nazionale di Antropologia
 e Etnologia.

Rome—Istituto di Antropologia dell' Università
 di Roma; † Museo Nazionale.

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RECORDS OF THE QUEEN VICTORIA MUSEUM LAUNCESTON

NOTES ON THE PETROLOGY AND STRUCTURE OF THE PRECAMBRIAN METAMORPHIC ROCKS OF THE UPPER MERSEY-FORTH AREA

by
ALAN SPRY
Department of Geology
University of Tasmania

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ABSTRACT

Precambrian metamorphic rocks in the headwaters of the Mersey and Forth Rivers include the Howell Group (garnet- and mica-schists and quartzites), Fisher Group (quartzites and slates) and the Dove Schist (garnet- and mica-schist). The rocks were strongly deformed during two phases (F_1 and F_2) of the regional metamorphism of the Frenchman Orogeny; a third phase (F_3) may include both Precambrian and Palaeozoic movements. The rocks resemble those of Frenchman's Cap in their chronology of deformation and crystallization. It is postulated that the rocks were folded into the large recumbent Borradaile Fold during F_2 and then into a series of synforms and antiforms during the Devonian Tabberabberan Orogeny.

INTRODUCTION

The Precambrian rocks of the headwaters of the Mersey and Forth Rivers have been briefly described by Spry (1958) and are very similar to those at Frenchman's Cap (Spry, 1962b). The area (fig. 1) is covered by the Middlesex one-inch sheet of the Tasmanian Mines Department (Jennings, 1958).

The Precambrian rocks are overlain by Cambrian sediments just South of Lorinna, but like many other parts of the edge of the Tyennan Geanticline, the Cambrian Dundas Group is generally missing and Ordovician sediments rest directly on the metamorphic rocks. The unconformity between Ordovician and Precambrian rocks is not strongly angular and the dip and strike are similar even though garnet schist is overlain by unmetamorphosed sandstone. Devonian granite has intruded along the unconformity in several places.

South of the unconformity is a belt of garnet-schist (Dove Schist) followed to the south by a belt which is dominantly quartzitic (Fisher Group). Next in order going south along the Mersey River is the Arm Schist (garnet- and mica-schist) then the quartzite belt through Maggs Mountain (Maggs Quartzite or Fisher Group) and then the Howell Group of schists and quartzites which extend further south for many miles (fig. 1).

It will be shown that two periods of deformation (F_1 and F_2) occurred during the regional metamorphism which is considered to be the Frenchman Orogeny (Spry, 1962a). Structures related to a third tectonic event (F_3) are not subdivided here and probably range in age from Precambrian to Devonian.

PETROLOGY

The lithology of the various rock groups will be first described and then the possible structural, stratigraphic and petrological relations discussed. Study of similar rocks at Frenchman's Cap (Spry, in press) has shown that the history of the metamorphic rocks can be best determined by analysing the chronology of crystallization and deformation. Bedding is referred to as S_0 , the foliation produced during F_1 is S_1 , S_2 was formed during F_2 and S_3 during F_3 .

DOVE SCHIST

Dark coloured, rather fine-grained mica schists are well exposed along the Mersey Forestry Road for several miles north of the junction of the Mersey and Fisher Rivers. Similar schists outcrop further west along the Forth River and the type locality is at the quarry just west of the Forth River on the road from Lorinna to the Dove Mill (Spry, 1958).

The schists are strongly foliated with a colour banding parallel to the foliation. The lithology is uniform and interbedded quartzites are rare. Lincation is uncommon.

The schists contain quartz, muscovite, chlorite and albite with garnet in many specimens but biotite in only a few. Accessories are graphite, iron ore, zircon and tourmaline.

The main difference between the varieties of Dove Schist lies in their fabric and five specimens (7372°, 7382, 7370, 7383 and 7392) from the Mersey Forestry Road, 3 miles north of the Fisher - Mersey junction illustrate this. No. 7372 is simplest and is fine-grained and composed mainly of sub-parallel flakes of muscovite with small lenticular grains or aggregates of quartz and small porphyroblasts of garnet. The foliation is made up of interweaving layers of mica dividing the rock into lenses. Chlorite forms small discontinuous layers. Albite occurs as small lenticular porphyroblasts with various S_i (S-internal, the S-surface within a crystal) structures. In some grains the S_i are sigmoidal and trail off into S_e (S-external, the S-surface outside of the crystal) and are thus syntectonic, others contain straight S_i which pass out into S_e and are posttectonic, some contain S_i which are discordant with S_e and thus are pre-tectonic to the foliation.

Muscovite and chlorite generally occur as well-oriented parallel flakes (syntectonic) but randomly oriented posttectonic flakes are also present. Other muscovite crystals occur in thin quartzose lenses which are parallel to the foliation but which contain mica flakes oblique to the foliation. It will be shown that these flakes represent an old foliation S_1 and that the major foliation is S_2 . The latter is slightly crumpled and a foliation S_3 has developed along the appressed limbs of the folds; some growth of muscovite and chlorite has occurred along S_3 . No mineral growth was associated with S_3 at Frenchman's Cap.

No. 7382 is similar in outward appearance to the previous specimen and outcrops close to it but is considerably more complex. It contains three distinct foliations. The major schistosity S_2 is formed by thin, closely spaced, parallel layers alternatively richer in muscovite or in quartz. An older foliation S_1 occurs as tightly folded remnants between the layers of S_2 . A third foliation S_3 runs obliquely across the rock as widely spaced, straight fractures with a little randomly oriented posttectonic biotite (fig. 2g).

Muscovite occurs as small flakes along both S_1 and S_2 and is probably syntectonic to F_1 and F_2 . Garnet forms small structureless porphyroblasts which do not disturb the surrounding micas; some have 'pressure tails' of quartz in S_2 and thus are pre-tectonic to F_2 and probably post-tectonic to F_1 . Albite forms small ragged crystals with dusty trails (fig. 2b) concordant with S_2 and are possibly post-tectonic to F_2 .

Biotite occurs in a number of forms. Greenish flakes along S_2 are post-tectonic to F_3 and appear to be the last mineral to crystallise. Large ragged and bent flakes of rusty brown colour appear to pre-date S_2 and to be post-tectonic to S_1 . Green biotite occurs in lenses along S_2 but the cleavage is perpendicular to the lens (fig. 2e); trails of tiny dusty inclusions pass unbroken from S_2 through the micas which consequently are post-tectonic to S_2 (fig. 2d).

No. 7370 is a fine grained, irregularly schistose rock with porphyroblasts of albite set in a matrix of muscovite, quartz, garnet and chlorite. The dominant schistosity is S_2 and barely-discernible remnants of S_1 remain. The correlation of foliations e.g., S_2 , from specimen to specimen is made from continuity in the field and is independent of petrographic criteria as seen under the microscope.

The albite forms spongy porphyroblasts which are either untwinned or have simple twins on the Albite Law. The outer parts of the crystals have trails of inclusions continuous with lines of grains in S_2 and are clearly post-tectonic to S_2 . The cores of the albites extinguish differently from the rims and thus have a slightly different composition; central inclusions are either randomly arranged or absent. The cores might be pre-tectonic to S_2 .

Garnet forms small crystals in the core of the albites and in the schistose matrix; both types are of similar size and it seems probable that all the garnet crystallized at an early stage.

No. 7383 contains a foliation which may be S_1 or S_2 . Garnet is absent. Albite, tourmaline, chlorite, biotite and muscovite are post-tectonic to the folded foliation (fig. 2e).

No. 7392 is mineralogically simple in that it consists of quartz, biotite and muscovite with a little albite, but its structure is complex. S_1 is recognizable as a very tightly folded surface cut by S_2 which is itself folded. The rock consists of alternate lenses of quartz and mica with the orientation of the mica depending on its position within the folded S-surfaces. Muscovite has crystallized syntectonically along S_1 and S_2 and post-tectonically in the cores of some folds in S_2 . Albite is post-tectonic to S_2 and biotite appears to be largely post-tectonic to S_2 as it forms unbent flakes obliquely across some folds of S_2 .

Specimens of schist from the Forth River are essentially similar. Specimen No. 7371 from the quarry at the type-locality is a lustrous greenish rock. It is composed chiefly of quartz, muscovite, and chlorite with accessory garnet, tourmaline, zircon and rutile and the fabric in thin section is very irregular (fig. 2f). The rock consists of alternate layers of muscovite plus quartz and of line-grained chlorite; the layers have been tightly folded then disrupted so that isolated fold-hinges and twisted limbs remain. The flakes within the layers are discordant with the boundaries of the layers. The tiny chlorites form a matted aggregate in which the flakes are diversely oriented with only a slight tendency for alignment in zones, particularly along the margins of the layers.

° Numbers refer to specimens in the collection of the Department of Geology, University of Tasmania.

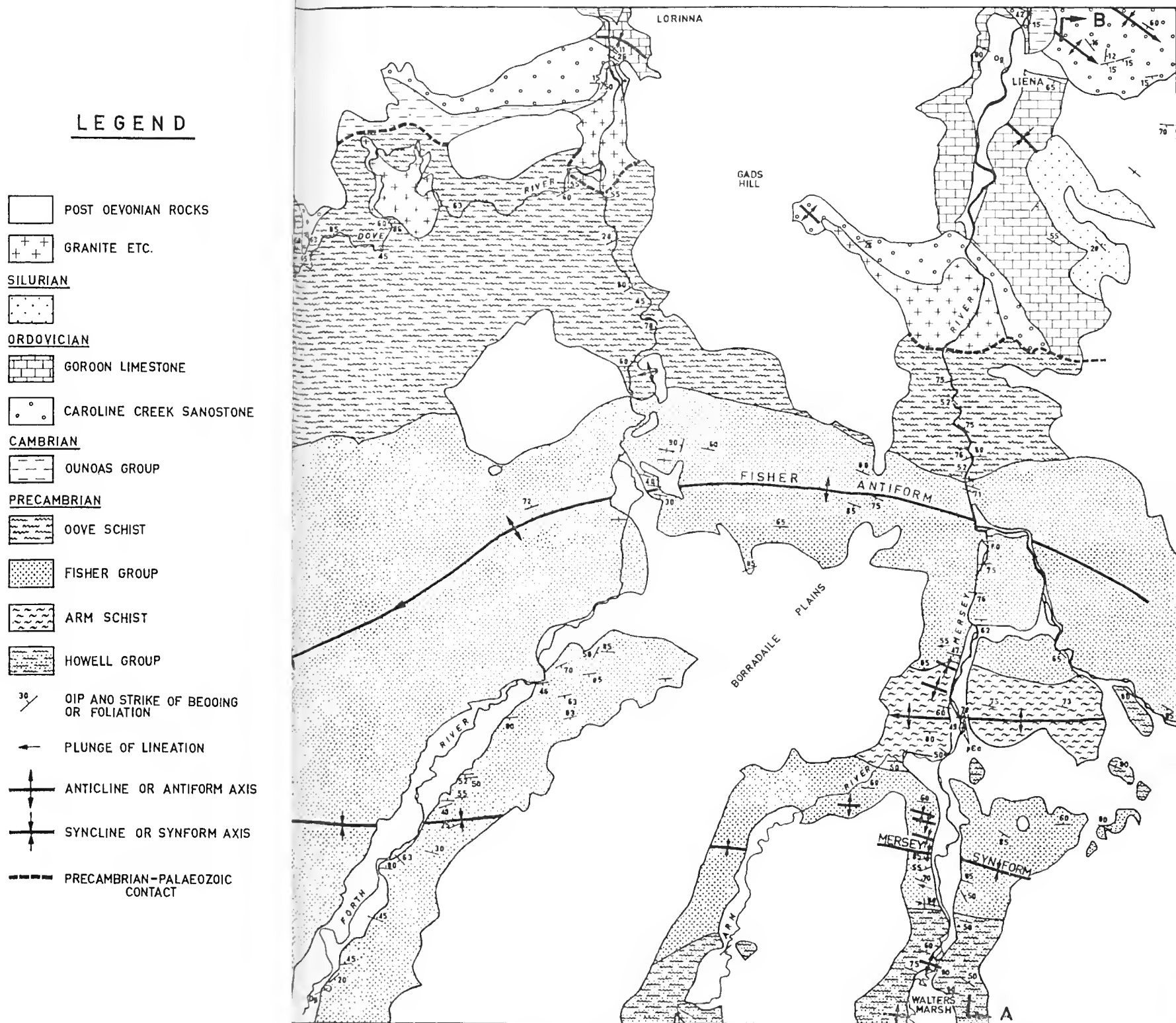


Fig. 1.—Geology of the Mersey-Forth Area. Based on Spry (1958) and Jennings (1958).



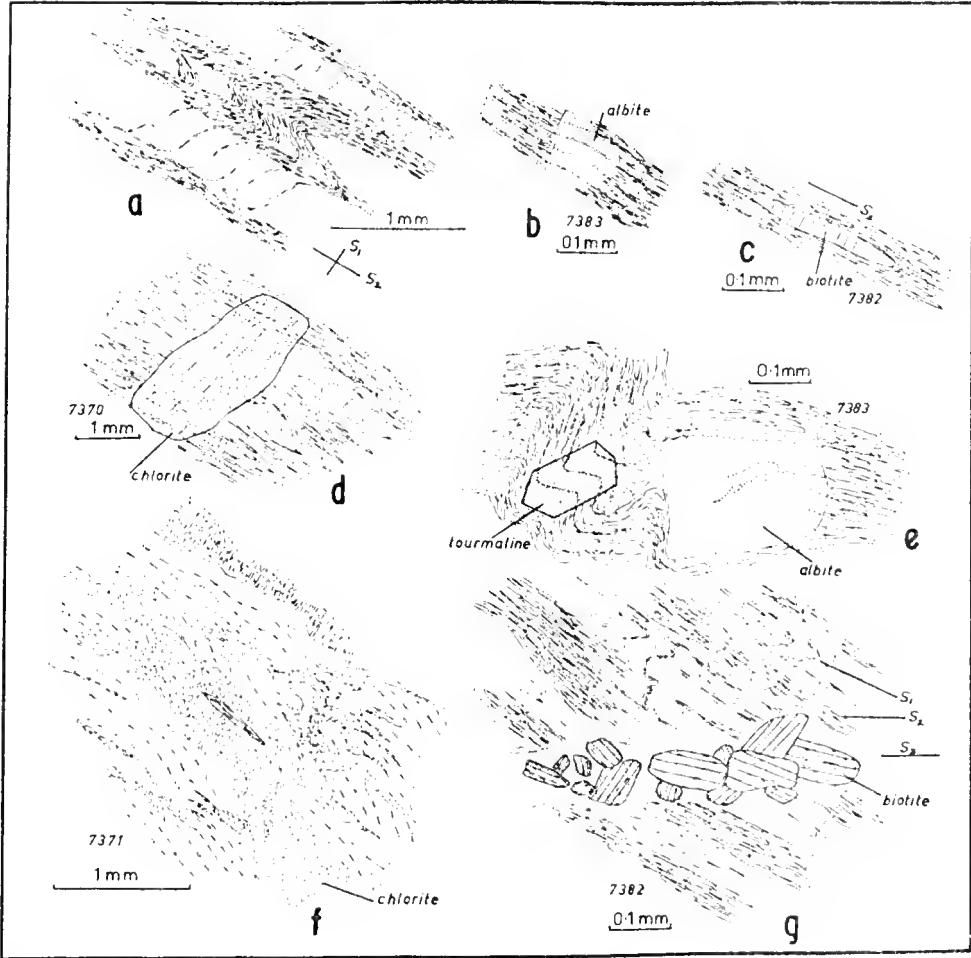


Fig. 2.—Textures of some schists :
 (a) Folded S_1 remnants within planar S_2 .
 (b) Helicitic structure in posttectonic albite.
 (c) Lenticular flakes of biotite elongate along S_2 but with cleavage perpendicular to S_2 .
 (d) Helicitic structure in chlorite, posttectonic to S_2 .
 (e) Helicitic structure in tourmaline and albite, post-tectonic to S_2 .
 (f) Complex structure of Dove Schist.
 (g) Posttectonic biotite along S_2 .

The development of the fabric is difficult to interpret but by comparison with the structure in adjacent rocks it is likely that the parallel chlorite flakes and lines of muscovite flakes mark S_1 and that the banding, S_2 , has been tightly folded.

An analysis (Table 1) shows high alumina and silica; the low lime is typical of Tasmanian Precambrian schists. The analysis suggests that the chlorite is an iron-alumina variety.

No. 7368 which is a greenish schist, 3 miles west of the Dove Mill, shows the major foliation at about 20° to a compositional banding which might be bedding. Under the microscope, the texture is irregular and the foliations not well developed. Muscovite, quartz, chlorite, albite and a little biotite are present. Irregular layers of mica trend in one direction to give a foliation, but many micas are oriented at various angles to the foliation. Two generations of biotite include large, bent, partially chloritized flakes which are pre-tectonic to the foliation.

Fabric evolution

It is difficult to determine exactly what happened in the early stages. Bedding (S_0) is not preserved although dusty S_1 in chlorite and albite of no. 7366 (discordant to both S_1 and S_2) may represent bedding.

The fabric of the Dove Schist has evolved in the following way:

F_1 { Bedding (S_0) was folded and an early foliation S_1 produced by syntectonic growth of quartz and muscovite. Brown biotite and garnet were probably formed. Some biotite was chloritized post-tectonically.

F_2 { The major foliation S_2 was formed during folding and transposition of S_1 . Syntectonic growth of quartz and muscovite; post-tectonic growth of albite, chlorite, biotite and tourmaline. Chloritization of garnet and biotite.

F_3 { S_2 was folded with the production of a sporadic fracture cleavage S_3 . Some post-tectonic growth of chlorite, green biotite and quartz.

HOWELL GROUP

Spry (1958) named the group of schists and quartzites along the western side of the Mersey valley, south of Walter's Marsh, the Howell Group. A narrow belt of schist and minor quartzite near the Arm-Mersey junction was named the Arm Schist and was regarded as possibly a distinct formation although the lithological similarity with the Howell Group was recognized. Jennings (1958) grouped the Arm Schist in the Howell Group. Stratigraphic equivalence cannot be either proved or disproved but the structural interpretation advanced later regards the Arm Schist as a formation in the Howell Group. In any petrological discussion there is no reason to separate them as the lithologies appear identical.

The schists as a whole are composed of muscovite, quartz, garnet, albite, chlorite and biotite with accessory tourmaline and rutile. The two main varieties are quartz-muscovite-albite-garnet schist, and quartz-muscovite-biotite schist.

Examples of the first group (7388, 7401 and 7374) are coarse-grained, knotted and strongly foliated rocks. Under the microscope they consist of about 45% quartz, 25% muscovite, 20% albite, 5% garnet and 4% chlorite; rutile, apatite and tourmaline are accessories. The analysis (Table 1) shows the moderate silica, low lime

TABLE I

	1	2	3	4	5	6
SiO ₂	62.50	93.52	72.56	70.82	76.92	64.76
Al ₂ O ₃	19.70	3.63	15.03	16.72	12.08	19.00
Fe ₂ O ₃	0.75	0.28	1.85	0.53	0.68	1.07
FeO	5.59	0.38	1.02	1.28	1.89	3.20
MgO	1.72	0.14	1.07	1.22	1.61	1.16
CaO	0.48	0.04	0.04	0.39	Tr	0.08
Na ₂ O	0.11	0.10	1.11	1.02	1.47	1.72
K ₂ O	4.34	2.15	3.91	4.24	2.59	4.35
H ₂ O+	3.94	0.20	2.34	2.80	1.86	2.98
H ₂ O-	0.11	nil	0.20	0.20	0.03	0.12
MnO	0.05	0.01	0.01	0.03	0.01	0.04
TiO ₂	0.62	0.05	0.62	0.77	0.42	0.88
P ₂ O ₅	0.07	nil	0.03	0.07	0.04	0.08
	99.98	100.50	99.29	99.41	99.60	99.44

- Schist, 7371, Dove Schist, Dove Mill.
- Quartzite, Fisher Group, Mersey River.
- Banded slate, 7390, Fisher Group, Mersey River.
- Banded slate, 7390, Fisher Group, Mersey River. (anal. Avery and Anderson).
- Mica schist, 7387, Howell Group, Walter's Marsh.
- Mica schist, 7388, Howell Group, Mersey River.

and high potash typical of Tasmanian Precambrian mica schists.

Large (2mm.) prismatic porphyroblasts of albite are set in an irregularly schistose matrix of quartz and muscovite. One foliation (S_1) is dominant and is formed by subparallel mica flakes and by alternating lenticular layers rich in quartz or in muscovite. A younger foliation (S_2) occurs as sporadic shear planes at about 15° to S_1 ; growth of a little quartz and chlorite has taken place along these surfaces. The remains of an older S-surface occurs as contorted S_1 within albite.

The strongly contorted S_1 in the albite are not found elsewhere in the rock and consist of trails of tiny opaque grains, apparently graphite. The first stage appears to have been the folding of a surface which may have been S_0 or S_1 with little evidence of syntectonic growth. The albite encloses a little quartz, idoblastic tourmaline and garnet so that these three minerals predated its formation, but the main growth of a foliation formed by muscovite postdated the albite. The feldspar is posttectonic to S_1 . A few scattered, bent flakes of partially or wholly chloritized biotite which contain S_1 somewhat similar to those in the albite, are regarded as of similar age. The major part of the muscovite and quartz outline S_2 and are syntectonic. The garnet contains a few vague S_1 and has the same relationship to muscovite as the albite (the mica wraps around it) so that it also predates S_2 . Within the layers of S_2 some muscovite flakes outline fragmentary folds and this is probably folded S_1 . Some muscovite flakes grow randomly across the major foliation and thus are post-tectonic to S_2 . Some quartz and chlorite crystallized along S_2 ; chlorite has replaced garnet as a late, non-oriented aggregate.

No. 7401 shows some slight differences. The albite porphyroblasts contain S_1 which are traced out, not only by tightly contorted dusty inclusions (S_0), but also by gently curved lines of elongate quartz crystals (S_1). This indicates some growth of quartz prior to the albite formation. Traces of a folded S-surface (S_1) older than the major foliation (S_2) are present as fold cores and lenses containing parallel muscovites oblique to S_2 .

Brown biotite is abundant. Some large flakes enclose dusty S_1 trails and also muscovite flakes and are post-tectonic to S_1 . A few small biotite flakes are enclosed in albite and could be early post-tectonic to S_2 . A large proportion of the smaller biotites are parallel to the muscovite in S_2 and are probably syntectonic to this stage.

A little chlorite is present, most of it clearly derived from garnet. It commonly forms an envelope to the garnet crystals and forms part of S_1 . It would appear that chlorite is syntectonic to S_2 but garnet is older and probably associated with S_1 .

No. 7374 lacks chlorite; in this specimen biotite forms an envelope to the garnet and appears to form by reaction between muscovite and garnet. Many garnets show snowball structure and are syntectonic to S_1 ; they are partly replaced by randomly oriented biotite which is post-tectonic.

Quartz-muscovite-biotite schists (such as 7399 and 7408) are richer in quartz than the schists in the previous group, contain much larger muscovite flakes, are not so strongly banded, have only rare garnet, and contain albite but not as porphyroblasts.

The foliation produced by parallel muscovite flakes, thin layers of muscovite and the elongation of some

quartz, has been contorted. This foliation is probably equivalent to the major foliation S_2 of the other schists but clearly recognizable relicts of S_1 are uncommon (e.g. No. 7386). Albite encloses round quartz crystals and rare garnets but no S_1 are clearly recognizable.

Muscovite flakes are bent around the small folds but the biotite which averages about 1/20th of the size of the muscovite is fresh and unmet. It is intergrown with the muscovite and appears to replace it.

The order of crystallization was probably as in Table II.

Quartzites

Beds of quartzite up to a hundred or so feet in thickness and varying from vitreous to saccharoidal, and massive to foliated, occur within the Howell Group (e.g. 7397, 7400, 7402 and 7404). The quartzite core of an overturned anticline is exposed under the bridge across the Mersey River at Walter's Marsh. A thin-section cut normal to the lineation of specimen 7397 from the Walter's Marsh bridge is medium grained and granular. Quartz is not noticeably elongate but a weak foliation is produced by tiny, sparse, sub-parallel muscovite and biotite flakes. The quartz grains are slightly undulose and contain many cracks.

No. 7404 from the same locality is finer grained but is more strongly foliated; the parallelism of micas is more pronounced and the quartz grains are slightly elongate.

FISHER GROUP

The Fisher Group consists of the quartzites and slates along the Mersey River between a point about $\frac{1}{2}$ a mile north of the Arm River junction and a point about $\frac{1}{2}$ a mile north of the Fisher River junction.

The group is dominantly composed of white quartzite. Some is very thickly bedded and massive with ripple marks and cross bedding. Bedding is clearly visible and many of the rocks are only poorly foliated and lineated; folds are rarely visible. The pelitic members are black, laminated siliceous slates which are strongly cleaved and possess small tight folds.

The quartzite at Maggs Mountain was regarded as possibly a separate formation Spry (1958) and named the Maggs Quartzite. The mapping of Jennings (1958) further west indicated that the Fisher Group and Maggs Quartzite are continuous. Petrographic examination shows that the two are lithologically indistinguishable and so the term "Maggs Quartzite" is not used further.

Quartzite

The rocks are dominantly composed of quartz with albite and microcline and minor amounts of rutile and tourmaline as accessories. The analysis in Table I is that of a feldspathic sandstone with about 6% of feldspar, mostly microcline.

The main variation is in the texture. No. 7375 from the Forth River, $\frac{1}{2}$ a mile north of Gisborne's Hut, is a coarse white massive quartzite with traces of small isoclinal folds visible on a polished surface. A weak foliation is parallel to the axial surface of the folds.

Under the microscope the rock has a pronounced mortar texture; large parallel lenticular quartz grains with strong undulose extinction are set in a fine-grained matrix containing parallel muscovite flakes and equigranular quartz grains. A little fresh pre-tectonic microcline is present.

The mortar texture is present in 7405 but is less clear in 7389 and 7394 and barely recognizable in 7398.

In these specimens the proportion of large relict grains is very much smaller and the matrix is coarser in grain with undulose, elongate and lenticular crystals with blurred margins. The feldspars occur as well-rounded crystals commonly surrounded by a layer of tiny muscovite flakes. A feldspathic quartzite (No. 7385) from Maggs Mountain is more strongly recrystallized and foliated with no signs of mortar texture.

No. 7378 from the track along the Forth River, 1 mile north of Gisborne's Hut, has a weak cleavage close to the bedding and a strong lineation due to irregular fine ribbing. In a section cut normal to the lineation the texture is most unusual and quite unlike any of the other quartzites. The quartz grains are lenticular and feathery with sutured margins; they are strongly undulose and have a preferred orientation.

Petrofabric analyses (Spry, in press) show that some ripplemarked quartzites are virtually undeformed and have no preferred orientation of quartz whereas others are more deformed with a weak fabric.

Slates

Black slaty rocks occur among the quartzites of the Fisher Group but lack of outcrop has prevented mapping of their distribution. The rocks are thinly bedded, siliceous, dark in colour, somewhat glossy and might be called either slates or low grade phyllites. Very tight shear folds from a few millimetres to a few centimetres across are prominent (examples include 7406 and 7390).

The slate is composed of quartz, fine-grained muscovite and a little chlorite with accessory zircon, tourmaline and iron ore. Two chemical analyses of a specimen from the western side of the Mersey River, midway between the Arm and the Fisher Rivers, are given in Table 1. The rock was originally a siliceous siltstone and is rich in silica, alumina and potash, but poor in lime and iron. It is similar mineralogically and chemically to a phyllite from the Mary Group (Spry, 1962b) but is quite different in fabric. It is not chemically dissimilar from the schist (7387) from the Howell Group but has less silica (5%), more alumina (4%) and more potash (2%).

Under the microscope, bedding (S_0) is visible as layers differing in grainsize (particularly quartz) and in the relative proportions of quartz and muscovite; chlorite occurs as tiny dark green aggregates and zircon (some quite angular) is abundant in some layers. A single strong foliation (S_1 ?) produced by parallelism of micas and by elongation of quartz grains has been folded with extreme thickening in the crests and troughs and thinning on the limbs; the folds are asymmetric and almost isoclinal. In some parts the bedding has been completely sheared out but in others can be seen to have been displaced in segments by the foliation. The bedding has a frayed appearance where it is cut by the foliation.

STRUCTURE

PRECAMBRIAN STRUCTURES

Bedding (S_0) is only recognizable with certainty in some of the more massive Fisher Group quartzites where it shows ripple marks and cross bedding. Compositional banding in Fisher Group slates is not much disturbed tectonically and is almost certainly bedding also. The contacts between major quartzites and schists in the Howell Group are bedding planes along which considerable tectonic movement has taken place.

Compositional banding on a small scale in Dove and Howell schists is due to alternations of quartz and

muscovite-rich layers and is a foliation (S_2) much later than bedding. If the oldest S -surface is taken to be bedding (and this is by no means certain) it has been isoclinally folded, sheared through by later foliations and rotated towards parallelism with them. On a larger scale it seems very probably that even though the major foliation (S_2) of the schists is steeply dipping and there appear to be very great thicknesses of metamorphosed sediments, the formations or groups as a whole are subhorizontal and tightly folded. It does not seem likely that the inclination of the schist can be determined from the attitude of the foliation or bedding relicts within it; in which case there seems no way to determine its attitude. In other parts of Tasmania it has been found that S_0 , S_1 and S_2 are commonly almost parallel because of repeated isoclinal folding.

Remains of up to 3 or 4 foliations are present in some of the schists but generally only 1 or 2 are recognizable macroscopically. Bedding and a single, slightly oblique foliation can be recognized in Fisher Group quartzites and slates. A strong and a weak foliation can be seen in most Dove Schists. Generally only one major foliation is recognizable in Howell schists and quartzites. This is subparallel to bedding relicts and parallel to the axial surface of small folds.

The foliations strike a little north of west and dip steeply to the north or to the south (fig. 3).

Spry (1958) described mesoscopic and macroscopic folds of various dimensions. In the petrographic section it was shown that S_0 and S_1 and probably S_2 were folded on a microscopic scale during the metamorphism. No detailed study has been made of the fold styles but many are similar folds of S_0 and S_1 associated with considerable flow along the axial surfaces (S_2). Some thin quartzite layers within schist show extreme thinning of limbs and thickening of cores and the formation of fold mullions. Some of the folds in the Fisher quartzites appear to be simple parallel folds.

Discussion later suggests that the major mapped folds are Devonian in age and that no large-scale Precambrian structure is visible. For similar reasons to those given for the Frenchman's Cap area it is suggested that there may be a very large recumbent fold with an east-west axis. It is possible to draw a profile of a complex structure to fit the stratigraphy suggested by Spry (1958), Jennings (1958), and Spry (1962a) showing a large Precambrian recumbent fold distorted by Devonian antiforms and synforms (fig. 4). This is named the Borradaile Fold.

Evidence given later suggests a hinge several miles north of the Fisher River on the Mersey Forestry Road. The contact between Dove Schist and Fisher Group is interpreted as the zone in which the foliation becomes vertical then overturned at the hinge of the recumbent fold.

The rocks in this area are not strongly lineated and measurements of lineation directions are too few to give an understandable pattern. A plot of poles to lineation of all kinds is given in fig. 3. The lineation lies in the foliation and the diagram shows that the lineation plunges at moderate angles to east or west.

The varieties of lineation include fold axes, fold mullions, ribs on quartzites, crenulations in schist, large grooves in quartzite and rarely, intersection of foliations of various kinds.

Three reasons are possible for the spread in direction in fig. 3:

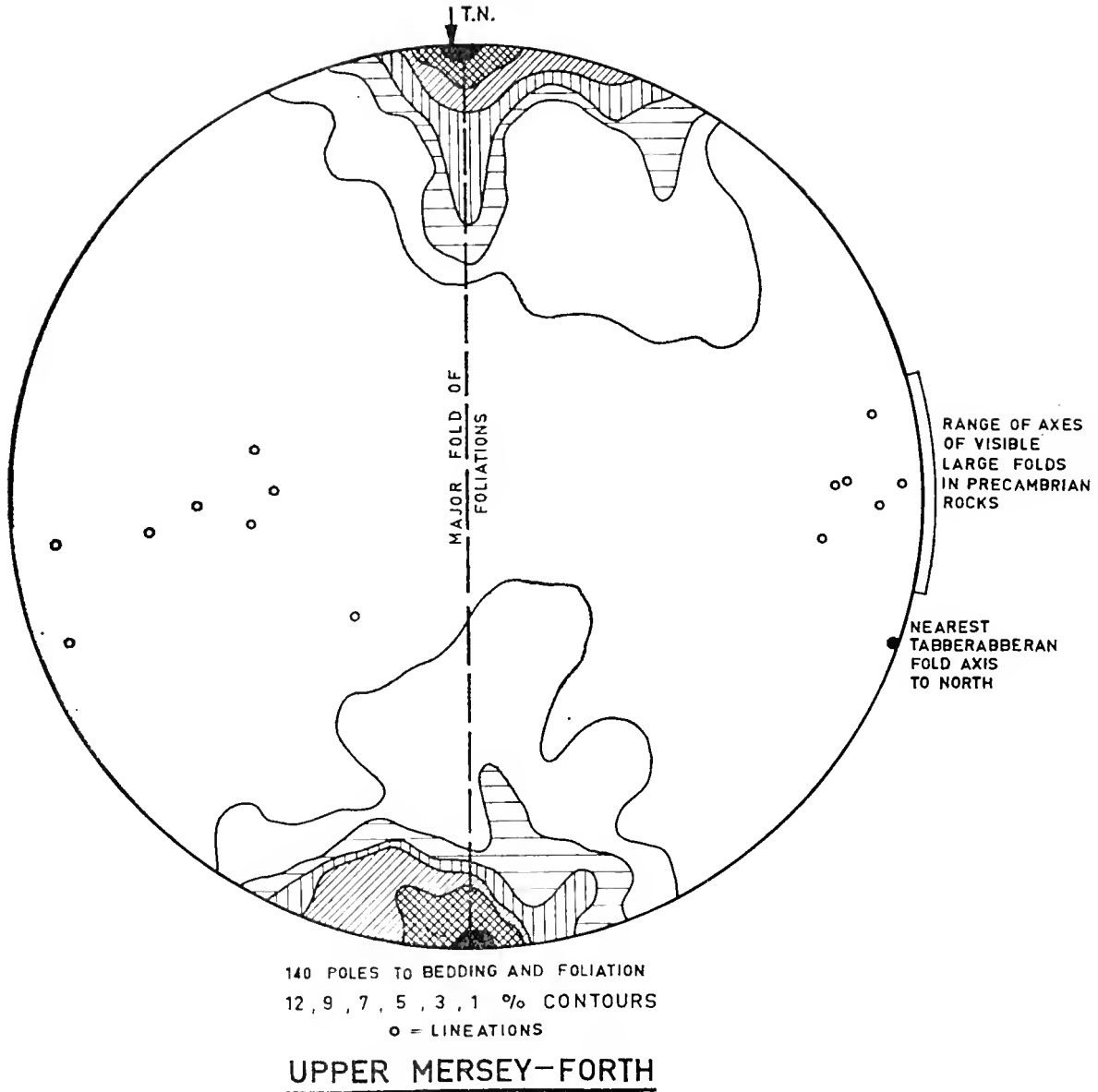


Fig. 3.—Stereographic projection of structural data for the Mersey-Forth area showing Devonian folding of Precambrian foliations.

(1) Lineations of different kinds and ages (e.g. L_1 and L_2) may have been grouped together. In several places it has been possible to see two lineations in the one specimen; one due to metamorphic minerals plunging west and a later coarse lineation due to crenulations of the foliation plunging east. In general the strongest lineation is parallel to the axes of adjacent small folds but the relations are not always so simple. A large amount of the crest of the overturned anticline beneath the Walter's Marsh bridge is exposed in the river. Two lineations run down the fold; one (L_2 ?) is parallel to the axis but the other (L_1 ?) is 10° away.

(2) The few available measurements suggest that the east-plunging lineations are confined to the southern part of the area, i.e. to the Howell Group around Walter's Marsh. It will be shown later that much of the large-scale folding took place in the Devonian so that the spread in the lineation direction may be due to cross folding on north-south axes. The fold axes in the Palaeozoic rocks to the north plunge generally to the E.S.E. so that it is possible that lineations which originally plunged westerly have been rotated around to plunge easterly in part of the area.

(3) Measurements of lineations in very small areas show that the rocks were originally not completely homoaxial. An exposure of Howell Group quartzite in a road cutting on the Forestry Road 2 miles north of the Arm River exposes a number of isoclinal folds. The folds are all of the same style and their axial planes are parallel, but fold axes only a few feet apart plunge west at angles ranging from 5° to 45° . A similar relationship has been found by Burns (pers. comm.) in similar metamorphic rocks on the lower Forth River.

TABBERABBERAN STRUCTURES

Faults

It is very difficult to recognise faults through the Precambrian rocks in this area but a number of minor post-metamorphism faults parallel to the major folds occur to the north and south of the Mersey - Arm junction. A number of other possible faults and fault directions were tentatively discussed by Spry (1958). Their age is not known but they are suspected to be Devonian.

Folds

Spry (1958, p. 136) indicated that the rocks were folded on all scales ranging from microscopic dimensions up to structures many miles across. Many of the tiny crenulations and shear folds up to a hundred feet or so appear to be related to the metamorphism and were described earlier as Precambrian.

The larger folds (first and second order folds of Spry, 1958) are probably Tabberabberan synforms and antiforms. The stereographic plot (fig. 3) of the foliation in the Precambrian rocks shows that the poles lie on a partial great circle which represents a number of folds with horizontal axes trending east-west. Large folds in the Precambrian rocks have been mapped in this direction (fig. 1 and Spry, 1958; Jennings, 1958) and the axis of the nearest fold in the Palaeozoic sediments to the north plots close to this direction. The major unconformity between the Precambrian schists and the overlying Cambrian or Ordovician sediments is not a strongly angular one. The dip and strike of the schists and sediments is similar and the Precambrian foliation must have been fairly flat prior to the Cambrian sedimentation.

The close structural relations between the Precambrian and Palaeozoic rocks might suggest that perhaps the metamorphism as well as much of the folding occurred in the Tabberabberan Orogeny but the following evidence shows that this is not so:

1. The contact between the Dove Schist and the overlying Palaeozoic sediments is sharp. Regionally metamorphosed schist underlies unmetamorphosed sandstone except where Devonian granite intrudes along the contact.
2. The Cambrian and Ordovician conglomerates contain pebbles identical with the underlying metamorphic rocks.
3. Cleavage in the Palaeozoic sediments is parallel to the axial surfaces of the large folds but the foliations in the Precambrian rocks have been folded by these folds.

Two of the largest structures were named the Mersey Syncline and the Fisher Anticline. It is proposed to change the name of the former to the Mersey Synform as its structure is even more complicated than originally thought. The synclinal form proposed by Spry (1958) has been confirmed by Jennings (1958) and Paterson (per. comm.). Dips are steep (commonly around 60° , rarely lower than 55° and many 85° to 90°) but bedding is clear in most exposures and dips are northerly in the southern part and southerly in the northern part. At least three smaller folds occur within the synform.

STRATIGRAPHY

Three separate lithological units have been recognized:

- Dove Schist
- Fisher Group
- Howell Group

The Howell Group appears to dip beneath the Fisher Group $1\frac{1}{2}$ miles north of Walter's Marsh, and also $1\frac{1}{2}$ miles west of the Mersey-Arm junction. However, the Fisher Group appears to dip beneath the Howell Group 2 miles north of the Mersey-Arm junction.

The relations of the Dove Schist and Fisher Group on the Mersey Forestry Road, north of the Mersey-Fisher junction, are difficult to understand. In general both rock types dip away from the contact. It is possible that although the foliation of the Dove Schist dips north, the bedding (not now visible) dips south beneath the Fisher quartzites. Detailed inspection of the contact zone along the Mersey Forestry Road, shows that as the contact is approached from the north, the foliation in the Dove Schist becomes steeper until it is vertical; there is a transition zone where thin quartzites are interbedded with schist and then as the dip becomes flatter (now to the south) massive Fisher quartzites appear. This is interpreted as part of an overturned contact near the hinge of the hypothetical Borradaile Fold as shown in the section in fig. 4.

Ripple marks are possibly sufficiently abundant in the Fisher quartzites to allow attitudes to be determined and detailed mapping may clarify the position although outcrop is sparse.

At present it is not possible to determine the true stratigraphic sequence but structurally the Dove Schist appears to rest on the Fisher Group which in turn rests on the Howell Group.

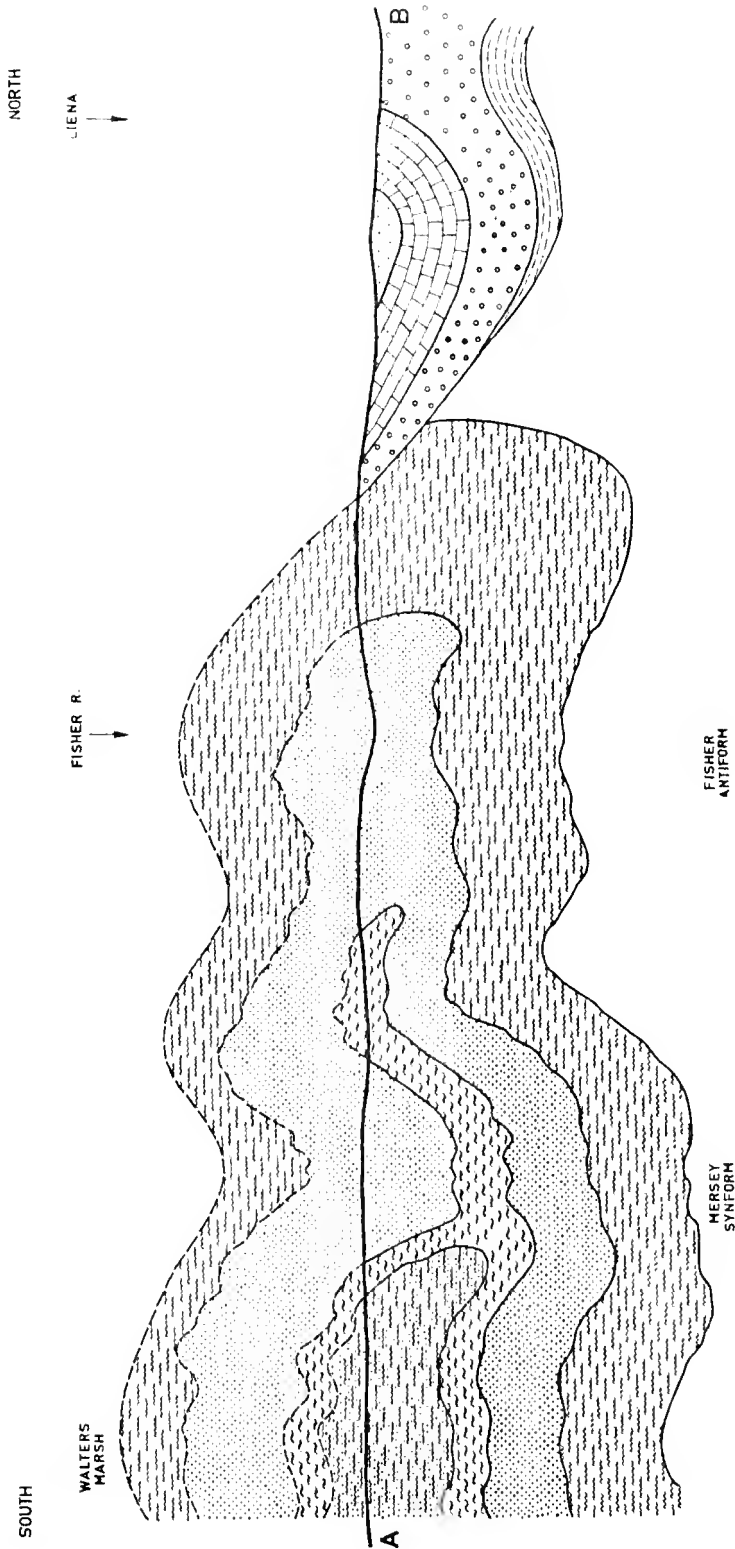


Fig. 4.—Cross section along the Mersey River showing Devonian antiforms and synforms superimposed on the hypothetical recumbent Borradaile Fold.

TABLE II

Chronology of Crystallization and Deformation of Schists from the Mersey and from Frenchman's Cap.

Deformation Stage	F ₁			F ₂		F ₃		
	pre	syn tectonic	post	syn tectonic	post tectonic	syn tectonic	post tectonic	
D O V E S C H I S T	quartz							
	muscovite							
	garnet							
	albite							
	biotite					?		
	chlorite							
	tourmaline			?		?		
	S produced	S ₁			S ₂		S ₃	
S folded	S ₀			S ₀ , S ₁		S ₀ , S ₁ , S ₂		
H O W E L L S C H I S T	quartz							
	muscovite							
	garnet							
	albite							
	biotite							
	chlorite							
	S produced	S ₁			S ₂		S ₃	
	S folded	S ₀			S ₀ , S ₁		S ₀ , S ₁ , S ₂	
F R A N K L I N S C H I S T	quartz							
	muscovite							
	garnet							
	albite							
	biotite							
	chlorite							
	kyanite							
	S produced	S ₁			S ₂		S ₃	
S folded	S ₀			S ₀ , S ₁		S ₀ , S ₁ , S ₂		

CONCLUSIONS

The Howell Group and Dove Schist are dominantly metapelites belonging to the quartz-albite-epidote-almandine subfacies of the Greenschist Facies whereas the Fisher Group is mainly quartzitic with minerals and textures more characteristic of the quartz-albite-epidote-muscovite-chlorite subfacies. Rocks containing the two different mineral assemblages are closely associated in the field.

The Howell Group and Dove Schist are thus similar in lithology and structure to rocks described previously from Frenchman's Cap (Spry, 1962b) and as the petrological and structural problems are the same they need not be discussed at length here. The chemical analyses in Table I show that rocks of similar compositions (e.g. slate No. 7390 from the Fisher Group and the garnet schists Nos. 7387 and 7388 from the Howell Group) are chemically similar but their mineralogy indicates that they have been metamorphosed to considerably different grades.

The structural simplicity and low metamorphic grade of the Fisher Group suggests that it might be younger than the Dove Schist and Howell Group. It has features in common with the younger Precambrian rocks (Spry, 1962a) as well as the older Precambrian Mary Group.

The fabric evolution of the albite schists in the Dove, Howell and Franklin Groups are compared in Table II.

As shown earlier the largest visible structures are a series of synforms and antiforms shown on the maps of Spry (1958) and Jennings (1958) but it does not seem possible to derive a *simple* structural explanation compatible with all the field observations. An earlier explanation (Spry, 1958) attempted to reconcile various conflicting points by postulating large strike faults. Later mapping by Jennings (1958), S. J. Paterson and the author has failed to confirm the existence of these faults.

An hypothesis involving a large recumbent fold is presented in an attempt to overcome these difficulties even though at present there seems to be no way to check its validity. It is compatible with all field observations of the attitudes of foliations, bedding and

contacts and is the kind of structure which has been found elsewhere in the world in rocks which are similarly metamorphosed and which have similar small-scale structures.

The large Precambrian recumbent fold has a core of Howell Group surrounded by Fisher Group then Dove Schist. The direction of the axis of this fold is related to the lineation and probably plunges rather flatly to the west but may be warped. The Fisher-Dove contact is interpreted as the hinge of the fold which is thus shown as closing to the north.

This is similar to the structure postulated at Frenchman's Cap and has a similar axial trend. A comparison of the chronology of crystallization and deformation of Franklin and Howell Group schists shows many similarities. The differences are:

1. The F_3 phase produced much more intense folding of S_2 at the Mersey than at Frenchman's Cap.
2. Biotite was formed during F_3 at the Mersey but there was no significant mineral growth at Frenchman's Cap.
3. Albite is restricted to the intertectonic period between F_1 and F_2 at Frenchman's Cap but may possibly have crystallized after F_2 in some Dove Schist.

F_1 , F_2 and F_3 do not necessarily mean the same thing in the two areas.

F_3 at Frenchman's Cap appears to consist mainly of Palaeozoic movements whereas that at the Mersey may be mostly Precambrian.

The correlation in Table II however, is preferred. It is based on detailed similarities between the nature of S_1 relics, and the fact that S_2 is dominant in the schists and is the axial surface of the minor folds.

It is considered that metamorphic mineral assemblages characteristic of chlorite to garnet grade were produced in large flat sheets of rock during F_1 and that these were folded into large recumbent folds during F_2 at chlorite grade.

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RECORDS OF THE QUEEN VICTORIA MUSEUM
LAUNCESTON

THE TICK FAUNA OF TASMANIA

by

F. H. S. ROBERTS*

* Division of Animal Health, C.S.I.R.O., Veterinary
Parasitology Laboratory, Yeerongpilly, Queensland.

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SUMMARY

Nineteen species of ticks are now known to occur in Tasmania. These are distributed among the various genera as follows: Argas (1), Ixodes (13), Amblyomma (2), and Aponomma (3). The presence of a species of the *Argas (Carios) respertilionis* group, of a representative of the *I. auritulus* group, and of *I. antechini*, *I. trichosuri* and *I. australiensis*, is recorded for the first time. Host and geographical records, most of which are new, are given for all species.



Prior to the commencement some ten years ago of studies by the author on the systematics of Australian ticks, only seven species had been recorded from Tasmania. Neumann (1899) described *Ixodes tasmani* from the Tasmanian mainland and *Amblyomma postaculatum* and *Amb. limbatum* from King Is., Bass Strait, and recorded the presence of *I. ornithorhynchi* Lucas. Nicholls (1922) noted *Haemaphysalis bispinosa* Neumann on cattle at Hobart. Taylor (1946) referred to "*Aponomma trachysauri* Lucas" (= *Ap. hydro-sauri* Denny (Roberts 1964)), and Seddon to *Ixodes holocyclus* Neumann.

Roberts (1960) increased the number of species of *Ixodes* to nine, namely *edyptidis* Maskell, *ariae* White, *kohlsi* Arthur, *pterodromae* Arthur, *ornithorhynchi* Lucas, *tasmani* Neumann, *facialis* Warburton & Nuttall, *cornuatus* Roberts, and *hirsti* Hassall. According to this author, *holocyclus* does not occur in Tasmania. The same author indicated that three species of *Aponomma* are present (Roberts 1964). *Ornithodoros capensis* Neumann, which is known to be associated with the little penguin, *Eudyptula minor*, in southern Australia, including Victoria, is probably also present on this host in Tasmania but as yet there are no records. *H. bispinosa* has not been seen since Nicholls' (1922) record; in fact, Roberts (1963) found the genus *Haemaphysalis* to be entirely unrepresented.

The present paper gives new host and geographical records for the species already recorded, with notes on species recorded for the first time. These records are based mainly on recent extensive collections made available to the author by the Division of Wildlife Research, C.S.I.R.O.

ARGASIDAE

Genus *Argas* Latreille

Argas (Carios) sp.

Hoogstraal and Kohls (1962) in their paper on larvae of the subgenus *Carios* from bats of the Australian mainland and New Guinea, consider these to belong to the *vespertilionis* group and to be possibly *pusillus* Kohls, or *australiensis* Kohls & Hoogstraal, or a new species. Larvae from *Pipistrellus tasmaniensis*, G.P.O., Hobart, 27.vii.1962, were not included in this paper, but Kohls (personal communication) considered that they also belong to the *vespertilionis* group. This is the first record of a species of *Argas* in Tasmania.

IXODIDAE

Genus *Ixodes* Latreille

I. edyptidis Maskell

Roberts (1960) recorded this species from *Eudyptula minor*, Little Green Is., Furneaux Group, Bass Strait.

Material since received and placed under this name includes: *Larus novae-hollandiae*, Wynyard, 9.ii.1959, R. H. Green (2 ♀). *Tyto novae-hollandiae castanops*, Lemon Hill, Jericho, 21.ii.1960, R.H.G., (1 ♀). *Eudyptula minor* (burrow), Port Davey, 20.xi.1959, R.H.G. (1 ♀). *Sula bassana serrator*, Black Pyramid, Bass Strait, R.H.G., (15 ♂).

One specimen from *L. novae-hollandiae* has a malformed basis capitulum and right palp. In both specimens the scutum is broader in relation to its length, W/L ratio 0.87 and 0.89 respectively, than in type material of *edyptidis*, W/L ratio 0.77 (Dumbleton, personal communication). As, however, Dumbleton intimated that he has encountered specimens from New Zealand considered by him to be this species with a W/L ratio similar to that of the Tasmanian material, which otherwise conforms closely to the description of *edyptidis*, the two specimens have been determined as this species.

The female from *T. n. castanops* can be given only a provisional determination of *edyptidis* as it differs in several aspects from other specimens determined as this species by Dumbleton (personal communication) and the author. The scutum is somewhat subcircular, about as wide as long, palpal articles 2 and 3 are without any obvious constriction and the anal grooves are parallel. The specimen could represent a new species, but more material is required before this can be decided.

The female from a burrow of *E. minor* and the nymphs from *S. b. serrator* appear typical of *edyptidis*.

I. auritulus Neumann

Material placed under this name comprised: *Strepera fuliginosa*: Saint Valentine's Peak, 13.vii.1962, D. Alexander (1 ♀); Maydena, 6.iv.1961 (1 ♂). *Sericornis humilis*, Maydena, 15.vii.1962, B. Maclean (1 ♂).

In both the female and nymphal specimens, palpal article I possesses a conspicuous, internal anterior horn-like process, and as there is no mesodorsal spur on this article, they have been placed in the *auritulus* group (Arthur 1960). The female has been compared with *a. zealandicus* Dumbleton by Dumbleton (personal communication) who considers it to differ in the longer, narrower, more strongly retrograde auriculae, in the shape of the porose areas, in the form of the coxal spurs and in the shape of the concavity between the spurs. The coxal characters are reminiscent of Arthur's (1960) figure of the South American form of this species. This female could be another subspecies of *auritulus*.

This is the first record of a member of the *auritulus* group in Australia.

I. pterodromae Arthur

In addition to the record from *Diomedea exulans*, De Witt I. (Roberts 1960), this species is now known from *Puffinus tenuirostris*, Bruni I., 1.iv.1962, T. O. Wolfe (2 ♀) and Fisher I., Bass Strait, Mar. 1963, T.O.W. (2 ♂).

I. uriae White

The only record of this species is "Tasmanian penguin," King I., Bass Strait (Roberts 1960).

I. kohlsi Arthur

Previously known from *Eudypptala miuor*, Kingston Beach and North Bruny I. (Roberts 1960). *kohlsi* is now recorded also from this host. Little Green I., Furneaux Group, Bass Strait, Jan. 1952. J. H. Calaby (8 o).

I. ornithorynchi Lucas

Roberts (1960) noted this species from *Ornithorhynchus anatinus*, Bothwell, and Mt. Wellington, and from "blue-tongue lizard," Hobart. New records from *O. anatinus* include Westbury, 9.iii.1961, B. C. Mollison (1 o), and Maydena, 9.v.1961, T. Anderson (5 ♀, 3 o). The record from "blue tongue lizard" is probably erroneous, as this tick appears specific to the platypus.

I. tasmani Neumann

Hosts and localities previously noted (Roberts 1960) include *Sarcophilus harrisi*, Hobart, "wombat," Gretna, and "tiger cat," Arthur R.

Material since examined indicated that this species is extremely widespread and is undoubtedly the most common Tasmanian tick, occurring on a wide variety of hosts. These include:

Sarcophilus harrisi: Maydena, 5.i.1959, B. C. Mollison (2 ♀); Maydena, 5.ii.1960, B.C.M. (28 ♀); Maydena, 11.vi.1960, B.C.M. (2 ♀); Maydena, 2.ii.1962, B.C.M. (10 ♀); Hilltop, 24.ii.1960, B.C.M. (2 ♀); Rocherlea, 11.ii.1962, R. H. Green (4 ♀); Florentine Valley, 25.ix.1963, T. O. Wolfe (5 ♀, 4 o, 3 larvae). *Dasyurus quoll*: Tim Shea, 2.ii.1960, B.C.M. (1 ♀, 3 o); Mt. Wellington, 22.ii.1961, B.C.M. (2 o). *Trichosurus vulpecula fuliginosus*: Smith-on, 30.xii.1961, N. Marsh. (1 ♀); Mt. Styx, 19.ii.1957, B.C.M. (1 o); Kelso, 19.ii.1957, B.C.M. (3 ♂); Maydena, 2.ii.1960, B.C.M. (1 o); Maydena, 21.i.1960, B.C.M. (1 o); Hythe, 13.i.1962 (1 ♀, 1 o). *Vombatus ursinus*: Mt. Field National Park, 2.xii.1959, T. Anderson (2 ♀); Kelso, 5.ii.1960, B.C.M. (5 ♀); Green's Beach, 20.vii.1960, B.C.M. (5 ♀); Green's Beach, 20.viii.1961, R.H.G. (1 ♀). *Protemnodon rufogriscus*: Mersey R., near Woogera, 9.i.1957, G. B. Sharman (3 ♀); Maydena, 6.i.1959, B.C.M. (3 ♀); Maydena, 29.xi.1960, B.C.M. (1 ♀); Maydena, 15.xi.1961, B.C.M. (2 ♀). *Potorous tridactylus*: Maydena, 7.i.1960, T.A. (1 o); Green's Beach, 2.iii.1961, B.C.M. (1 ♀, 5 o, 7 larvae); Orford, 25.xii.1961, B.C.M. (3 o). *Thylogale billardieri*: Maydena, Feb. 1959, B.C.M. (3 ♀); Maydena, 31.i.1960, T.A. (7 ♀); Maydena, 5.ix.1961, B.C.M. (1 ♀, 1 o); Maydena, 23.xi.1961, B.C.M. (2 ♀, 1 o). *Perameles gunnii*: Maydena, 29.xi.1961, J. H. Callaby (5 ♀, 5 o, 8 larvae); Maydena, 29.xi.1960 B.C.M. (4 ♀). *Isodon obesulus*: Dunorlan, 9.i.1959, G.B.S. (3 ♀); Maydena, 17.xii.1960, T.A. (3 o, 3 larvae); Cascades, South Hobart, 5.vii.1962, B.C.M. & T.A. (2 o). *Pseudocherius*

convolutor: 19.x.1960, B.C.M. (1 o); Saint Valentine's Peak, 9.vii.1962, T.A. (3 o). *P. laniginosus*: Delamere, 2.vii.1959, G.B.S. (1 o, 3 larvae). *Bettongia canaliculus*: Green's Beach, 4.ix.1962, R.H.G. (4 o). *Petaurus breviceps*: Westbury, 8.viii.1960, R.H.G. (2 o). *Tachyglossus setosus*: Maydena, 10.ii.1959, B.C.M. (2 ♀); Antill Ponds, 17.iii.1960, R.H.G. (2 ♀); Scotsville, 16.iv.1962, R.H.G. (2 ♀). *Rattus norvegicus*: Hobart, 19.x.1961, B.C.M. (2 larvae); Woolbridge, 19.i.1961, B.C.M. (13 larvae). *R. rattus*: Maydena, 12.xii.1959, B.C.M. 2 o, 3 larvae); Maria I., 25.iv.1962, R.H.G. (3 o). *R. lutreolus*: Yolla, 16.ii.1962, B.C.M. (3 larvae). *Hydromys chrysogaster*: Sandy Bay, Hobart, 12.iii.1962, R.H.G. (3 o). *Pseudomys higginsii*: Waratah, 27.vi.1963, R.H.G. (3 o). *Homo sapiens*: Green's Beach, 14.x.1961 (1 o attached); Notley Fern Gorge, West Tamar, 24.xi.1962, R.H.G. (1 ♀ attached); Maydena, 6.iii.1961 (1 o crawling).

I. feicalis Warburton & Nuttall

Previously known from "tiger cat," Arthur R., and *Antechinus* sp. McIntyre R. (Roberts 1960), this species is now recorded also from *Dasyurus quoll*, Georgetown, 12.iii.1960, R. H. Green (3 o), and *Sarcophilus harrisi*, Maydena, 2.ii.1962, B. C. Mollison (1 ♀).

I. antechini Roberts

This species is recorded from Tasmania for the first time. Determination was based on the following material: *Dasyurus quoll*: Maydena, 9.ii.1961, B. C. Mollison (1 o); Icena Estate, 13/14.v.1961, R. H. Green (1 o). *Antechinus minimus*: Maatsuyker L, Aug. 1951 (8 larvae). *A swainsonii*, Maatsuyker L, Aug. 1951 (4 o).

I. australiensis Neumann

Previously known only from Western Australia, this species is represented by three lots of specimens from *Potorous tridactylus*, namely, Beaconsfield, 4.xi.1960, R. H. Green (2 o); Myrtle Bank, 16.viii.1961, R.H.G. (8 o, 4 larvae); Kelso, 6.ix.1961, R.H.G. (1 o).

The nymph of *australiensis* was described by Roberts (1960). The Tasmanian material agrees with this description except for slightly larger scuta.

I. cornuatus Roberts

This species was previously recorded from unknown hosts, Cox's Bight and Gordon R. (Roberts 1960). Specimens since determined from adults include:

Vombatus ursinus: Mount Field National Park, 11.xii.1959, T. Anderson (2 ♀); Mundunna, 25.ii.1961, B. C. Mollison (1 ♀); Kelso, 5.ii.1960, B.C.M. (8 ♀).

The immature forms of this species have not been described, and up to the present all immature material received has not been accompanied by any adults. Determination of the following immature specimens as *cornuatus* is, therefore, only tentative:

Isoodon obesulus: Eagle Hawk, 9.ix.1961, T. Anderson (1 o); Deviot, 28.i.1962, R. H. Green (1 o); Green's Beach, 27.i.1961, B. C. Mollison (5 o, 1 larvae); Burnie, 27.i.1961, B.C.M. (1 o); Green's Beach, 26.ii.1961, B.C.M. (8 o); Green's Beach, 16.ii.1961, B.C.M. (3 o, numerous larvae); Green's Beach, 9.iv.1961, B.C.M. (4 o). *Thylagale billiardieri*: Kelso, 17.ii.1960, R.H.G. (1 o, 1 larva). *Trichosurus vulpecula fuliginosus*: Kelso, 16.ii.1960, B.C.M. (15 larvae). *Bettongia cuniculus*: Green's Beach, 12.vi.1961, R.H.G. (2 o). *Perameles gunnii*: Green's Beach, 11.v.1961, B.C.M. (22 o). *Rattus rattus*: Green's Beach, 27.iii.1961, B.C.M. (20 larvae). *R. lutreolus*: Kelso, 19.ii.1960, B.C.M. (8 larvae). *Mus musculus*: Flowery Gully, 3.iv.1963, R.H.G. (1 larva). *Strepera fuliginosa*: Maydena, 6.iv.1961, T. O. Wolfe (1 o). *Cracticus torquatus*: Kelso, 19.ii.1961, B.C.M. (1 larva). *Colluricincla harmonica*: Green's Beach, 20.viii.1961, R.H.G. (1 o). *Scricornis humilis*: Green's Beach, 24.ii.1961, B.C.M. (1 larva).

I. hirsti Hassall

Roberts (1960) recorded this tick from "kangaroo," King I., and from an unknown host, Mt. Wellington. It has since been taken on *Trichosurus vulpecula fuliginosus*, Smithton, 30.ii.1961, W. Marsh (1 ♀).

I. trichosuri Roberts

This tick hitherto recorded only from Cheltenham, N.S.W., has now been determined in Tasmania in the following material:

Trichosurus vulpecula fuliginosus, Hythe, 30.i.1962, B. C. Mollison (1 ♀). *Bettongia cuniculatus*, Green's Beach, 12.vi.1960, R. H. Green (2 o). *Rattus lutreolus*, Flowery Gully, 3.iv.1963, R.H.G. (6 larvae). *R. rattus*, Deviot, 24.xi.1963, R.H.G. (3 larvae). *Scricornis humilis*, Hunting Ground, 28.xi.1963, T. O. Wolfe (1 o, 1 larva).

Genus *Amblyomma* Koch

Records of the occurrence of species of *Amblyomma* remain restricted to *Amb. limbatum* and *Amb. postoculatum* described by Neumann (1899) from King I., Bass Strait (Roberts 1964).

Genus *Aponomma* Neumann

Roberts (1953) referred to only one record of this genus, namely, *trachysauri* on *Trachysaurus rugosus*. A later paper (Roberts 1964) increased the number of species to three, namely *hydrosauri*, *auruginus* and *concolor*. In this paper it was shown that the species of inornate *Aponomma* from reptiles previously called *trachysauri* Lucas should be referred to the name *hydrosauri* Denny, and that from the echidna, *Tachyglossus* spp., previously determined as *hydrosauri*, should be referred to *concolor* Neumann.

Ap. hydrosauri Denny

Material determined under this name comprised: *Chelodina longicollis* (introduced): Green's R. H. Green (2 o). *Tiliqua nigrolutea*: West Tamar, 27.x.1959, R.H.G. (2 ♂, 5 o); Green's Beach, 16.ii.1961, B. C. Mollison (4 ♂, 2 ♀, 8 o); Kelso, 19.ii.1961, B.C.M. (4 ♂, 3 ♀, 4 o); Green's Beach, 22.vii.1961, R.H.G. (2 ♀); Sandford, 9.ix.1962, B.C.M. (6 ♂, 1 o). *T. scincoides*, Launceston, 17-20.xi.1960, B.C.M. (2 ♂, 1 ♀, 1 o). *Trachysaurus rugosus*, Launceston, 22.ii.1960 (2 ♂). *Amphibolurus diemensis*, Launceston, 15.x.1963, R.H.G. (20 larvae). *Devisionia superba*, Kelso, 16.ii.1961, R.H.G. (3 ♂, 4 o); Green's Beach, 24.iv.1961, R.H.G. (3 ♀, 2 o). *Notechis scutatus scutatus*, Lower Longley, 15.v.1962, B.C.M. (1 ♀).

Ap. concolor Neumann

This species was represented by five lots, all from *Tachyglossus setosus*. Details are: Deloraine, 21.i.1959 (3 ♀); Wynyard, 8.xii.1960, R. H. Green (2 ♂, 3 ♀, 1 o); Green's Beach, 7.xi.1961, R.H.G. (7 o, 4 larvae); Kelso, 17.ii.1961, B. C. Mollison (1 o, 6 larvae).

Ap. auruginus Schulze

This material includes: *Vombatus ursinus*, Tarraleah, 12.i.1949 (1 ♂, 2 ♀); Deloraine, 4.xii.1958 (2 ♀, 1 o); Gretna, 2.iii.1960, J. Rolley (1 ♀). Wandering in cave, Flinders I., Mar. 1960, J. Thomson (1 ♂, 1 ♀).

CLASSIFIED HOST PARASITE LIST

Classification and Name of Host	Parasite	Classification and Name of Host	Parasite
Monotremata		Vombatidae	
Ornithorhynchidae		<i>Vombatus ursinus</i>	<i>I. tasmani</i>
<i>Ornithorhynchus anatinus</i> (Shaw, 1799) platypus	<i>I. ornithorhynchi</i>	(Shaw, 1800), Tasmanian wombat	<i>I. cornuatus</i> <i>Ap. aurugianns</i>
Tachyglossidae		Macropodidae	
<i>Tachyglossus setosus</i> (Geoffroy, 1803), Tasmanian echidna	<i>I. tasmani</i> <i>Ap. concolor</i>	<i>Bettongia emiculus</i> (Ogilby, 1838), Tasmanian rat-kangaroo	<i>I. tasmani</i> <i>I. trichosuri</i>
Marsupialia		<i>Potorous tridactylus</i> (Kerr, 1792), long-nosed rat-kangaroo	<i>I. tasmani</i> <i>I. australiensis</i> <i>I. ? cornuatus</i>
Dasyuridae		<i>Thylogale billardieri</i> (Desmarest, 1822), Tasmanian pademelon	<i>I. tasmani</i> <i>I. ? cornuatus</i>
<i>Antechinus swainsonii</i> (Waterhouse, 1840), dusky marsupial mouse	<i>I. antechini</i>	<i>Protemnodon rufogrisea</i> (Desmarest, 1817), brush wallaby	<i>I. tasmani</i>
<i>A. minimus</i> (Geoffroy, 1803), little Tasmanian marsupial mouse	<i>I. antechini</i>	Kangaroo	<i>I. hirsti</i>
<i>Antechinus</i> sp.	<i>I. feccialis</i>	Rodentia	
<i>Dasyurus quoll</i> (Zimmermann, 1777), eastern native cat	<i>I. tasmani</i> <i>I. feccialis</i> <i>I. antechini</i>	Muridae	
Tiger cat	<i>I. tasmani</i> <i>I. feccialis</i>	<i>Rattus rattus</i> (Linnaeus, 1758), black rat	<i>I. tasmani</i> <i>I. ? cornuatus</i>
<i>Sarcophilus harrisi</i> (Boitard, 1841), Tasmanian devil	<i>I. tasmani</i> <i>I. feccialis</i>	<i>R. norvegicus</i> (Berkenhout, 1769), brown rat	<i>I. tasmani</i> <i>I. ? cornuatus</i>
Peramelidae		<i>R. lutreolus</i> (Gray, 1841), eastern swamp rat	<i>I. tasmani</i> <i>I. ? cornuatus</i>
<i>Isoodon obesulus</i> (Shaw, 1797), short-nosed bandicoot	<i>I. tasmani</i> <i>I. ? cornuatus</i>	<i>Hydromys chrysogaster</i> Geoffroy, 1844, eastern water rat	<i>I. tasmani</i>
<i>Perameles gunnii</i> (Gray, 1838), Tasmanian barred bandicoot	<i>I. tasmani</i> <i>I. ? cornuatus</i>	<i>Pseudomys higginsii</i> (Trouessart, 1899), native mouse	<i>I. tasmani</i>
Phalangeridae		<i>Mus musculus</i> Linnaeus, 1758, house mouse	<i>I. ? cornuatus</i>
<i>Petaurus breviceps</i> Waterhouse, 1839, sugar glider possum	<i>I. tasmani</i>	Chiroptera	
<i>Pseudocheirus convolutus</i> (Oken, 1816), Tasmanian ring-tail possum	<i>I. tasmani</i>	Vespertilionidae	
<i>P. laniginosus</i> (Gould, 1858), common ring-tail possum	<i>I. tasmani</i>	<i>Pipistrella tasmanianensis</i> (Gould, 1858), false pipistrel	<i>Argas (Carios) sp.</i>
<i>Trichosurus vulpecula</i> <i>fuliginosus</i> (Ogilby, 1831), Tasmanian brush-tail possum	<i>I. tasmani</i> <i>I. trichosuri</i> <i>I. hirsti</i> <i>I. ? cornuatus</i>	Primates	
		Hominidae	
		<i>Homo sapiens</i> Linnaeus, 1758, man	<i>I. tasmani</i>

Classification and Name of Host	Parasite	Classification and Name of Host	Parasite
Squamata		Procellariidae	
Scincidae		<i>Puffinus tenuirostris</i> (Temminck, 1835) Tasmanian mutton bird	
<i>Trachysaurus rugosus</i> Gray, 1827, stump-tail lizard	<i>Ap. hydrosauri</i>	Passeriformes	
<i>Tiliqua nigrolutea</i> (Peters, 1863), southern blue-tongued lizard	<i>Ap. hydrosauri</i>	Maluridae	
<i>T. scincoides</i> (Shaw, 1790), blue-tongue lizard	<i>Ap. hydrosauri</i>	<i>Sericornis humilis</i> Gould, 1838, brown scrub-wren	
<i>Amphibolurus diemensis</i> (Gray, 1841), mountain dragon	<i>Ap. hydrosauri</i>	Cracticidae	
Blue-tongued lizard	? <i>I. ornithorhynchi</i>	<i>Strepera fuliginosa</i> (Gould, 1837), black currawong	
Elapidae		<i>Cracticus torquatus</i> (Latham, 1801), grey butcher bird	
<i>Denisonia superba</i> (Gunther, 1858), copper-head snake	<i>Ap. hydrosauri</i>	Pelecaniformes	
<i>Notechis scutatus scutatus</i> (Peters, 1861), tiger snake	<i>Ap. hydrosauri</i>	Sulidae	
Testudines		<i>Sula bassana serrator</i> Gray, 1843, Australian gannet	
Chelidae		Charadriiformes	
<i>Chelodina longicollis</i> (Shaw, 1802), long-necked tortoise (introduced)	<i>Ap. hydrosauri</i>	Laridae	
Sphenisciformes		<i>Larus novae-hollandiae</i> Stephens, 1826 silver gull	
Spheniscidae		Strigiformes	
<i>Eudyptula minor</i> (Foster, 1781), little penguin	<i>I. eudyptidis</i> <i>I. uriae</i> <i>I. kohlsi</i>	Strigidae	
Procellariiformes		<i>Tyto novae-hollandiae</i> <i>castanops</i> (Gould, 1837), Tasmanian masked owl	
Diomedidae		Host not specified	
<i>Diomedea exulans</i> Linnaeus, 1758, wandering albatross	<i>I. pterodromae</i>	<i>Amb. limbatum</i> <i>Amb. postoculatum</i>	

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THOMAS BOCK'S PORTRAITS OF THE TASMANIAN ABORIGINES

by

N. J. B. PLOMLEY

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Thomas Bock, a portrait painter of distinction, is outstanding among those few who have given us a worthwhile pictorial record of the extinct Tasmanian aborigines.

The main sources of information about Thomas Bock are William Moore's *The story of Australian art* (1934) and Clifford Craig's *The engravers of Van Diemen's Land* (1961). Bock, born in England in 1790, was trained as an engraver and came to specialise in portraiture. He was transported to Tasmania after conviction for administering drugs to produce abortion, and arrived in Hobart on January 19 1824 on the *Asia*. He remained in the colony for the rest of his life, dying in Hobart on March 18 1855. In Tasmania, Bock continued to work as an engraver and also did portraits of many of those prominent in colonial society, working mainly in crayons and watercolours.

No detailed appraisal of Thomas Bock's work has yet been published. He was probably the most accomplished portraitist working in Hobart at any time in the nineteenth century, but his work is generally unknown and unrecorded and has sometimes been confused with that of his son Alfred (1). Alfred Bock (1835-1920) worked in Tasmania, Victoria and New Zealand as artist, engraver and photographer and, like his father, specialised in portraiture. He was taught painting by his father.

The portraits of the Tasmanian aborigines painted by Thomas Bock are of considerable anthropological importance. Other than Bock, the only competent artist to have left a useful pictorial record (2) of the natives is Petit, who portrayed them when he visited Tasmania in 1804 as a member of Baudin's expedition. The other artists of the French and British expeditions were concerned with scenes rather than portraiture, and the few portraits they painted were usually Europeanised in engraving them for publication, if they were not so in the original. Of artists working in the colony, only Benjamin Duterrau and John Skinner Prout produced anything significant, though there were a few amateurs who attempted to portray the natives.

Duterrau's work was technically not in the first class and his portraits therefore provide little precise information about the appearance and physique of the natives. On the other hand, Prout, a highly competent artist, only portrayed the natives as the captives of Flinders Island, most of the studies he did of them there in 1845 (3) showing figures clothed in shroud-like garments rather than individuals having the particular morphology of the Tasmanian aborigines. Duterrau seems to have worked mainly in oils, and Prout in watercolours.

Bock's watercolours of the Tasmanian aborigines have become well-known not only as portraits of an extinct race, but also on account of their rarity. In Tasmania they have been associated especially with Lady Franklin, a romantic figure there in the middle of the last century: Sir John Franklin was Governor from January 6 1837 to August 21 1843, and both he and his wife were patrons of art and science in the colony.

TECHNIQUE OF THE PORTRAITS

A survey of collections in Europe having brought to light a greater number of Bock's portraits of the Tasmanians than current ideas pointed to his having painted, and more being known in collections in Tasmania, it seemed possible that some of these paintings might be copies of Thomas Bock's originals by other hands. Attention was therefore given to the technique employed in each of the portraits, and in this the author was fortunate in having the advice and help of Mr E. Croft-Murray (Keeper of the Department of Prints and Drawings, British Museum), and of Mr G. Reynolds (Keeper of the Department of Engravings, Illustration & Design and Paintings, Victoria and Albert Museum). Portraits at the British Museum and at the Royal Anthropological Institute were examined first by Mr Croft-Murray. He considered them to be by two hands and to comprise:—

(a) a group of portraits in which fine dots were employed in shading, (4) and the use of blue was pronounced; and

(b) a group of portraits in which the shading depends upon dashes and lines, and reddish-brown predominates in the colour.

All the portraits at the Royal Anthropological Institute had the characteristics of group (a), and there was an inscription below each of them. The portraits at the British Museum, on the other hand, had no inscriptions, and belonged technically to group (b). In both groups the work was of a high standard, and appeared to be contemporary.

Later, and independently, Mr Reynolds saw the same portraits and came to the same conclusion. He also examined the portraits in the Pitt Rivers Museum Oxford and, finding that the technique of the painting was the same as that used in the portraits at the Royal Anthropological Institute, concluded from the evidence of the inscriptions that these two groups were the work of Thomas Bock. Moreover, Mr Reynolds came to the further conclusion that the Pitt Rivers portraits were Thomas Bock's originals, and that the portraits in the Institute had been prepared from them, being not so fine a set.

MANALARGENNA.

A Chief of the Eastern Coast of

VAN DIEMEN'S LAND.

TYPE A1 (R.A.I. "Hobson")

MANALARGENNA

A Chief of the East Coast of

VAN DIEMEN'S LAND

TYPE A2 (R.A.I. Franklin)

JENNY.

Native of Port Sorell.

VAN DIEMEN'S LAND.

DESCRIPTION OF THE PORTRAITS

For ease of reference in other sections of this paper, Thomas Bock's watercolours of the aborigines will be grouped as :—

- (i) the portraits common to the collections of G. A. Robinson and Lady Franklin;
- (ii) the profiles in blue watercolour; and
- (iii) other portraits.

(i). The Robinson/Franklin series.

This series of portraits comprises those of which several sets are known and which have been referred to and reproduced in the literature as Thomas Bock's portraits of the Tasmanian aborigines. Their present location is given in Table 1.

The original paintings are probably those now in the Pitt Rivers Museum Oxford but Bock certainly prepared at least one other set of the portraits as well as other duplicates of some of them. The individuals portrayed were natives who accompanied G. A. Robinson on his expeditions of conciliation among the Tasmanian aborigines. Woureddy and Truggernana joined him in 1829, and the others in 1830 and 1831.

All the known portraits of this series have an inscription giving the name and some particulars of the native portrayed and, except in a number of those of the Oxford set, this inscription has been hand printed by the artist. The printed inscription is set out in three lines below the portrait, the name of the native in the first, locality and information in the second, and "Van Diemen's Land" in the third. The first and third lines are in capitals, but the second is in an italic which is characteristic of Thomas Bock's lettering, being found both in the usual form of his artist's signature and in the inscriptions on his engravings (Craig 1961). The capitals of the first and third lines are of three varieties, a rather broad plain capital (type A1), a modification of this with double lines instead of single (type A1/2), and a decorated capital (type A2).

If it can be assumed that the form of capital (and inscription) is uniform in portraits prepared at the one time, which is a reasonable likelihood, some suggestions can be made as to the origin of the portraits in modern collections. Thus, those in the Royal Anthropological Institute are all from the set prepared by Bock for Lady Franklin (the portrait of Manalargenna given her by Hobson is an earlier production), the portraits of Jenny and Jemmy in the Fuller collection were originally in the possession of Strzelecki, and those with a simple capital belonged to Robinson's set or were contemporary duplicates.

In many of the portraits of the Oxford set, the inscription is written in pencil, probably in the hand of G. A. Robinson (type B).

Only three of Thomas Bock's portraits are signed. In two of them, those of Jenny and Jimmy in the Fuller collection, the signature is in the italic referred to above, the same as that found in his lithographs.

T. Bock del.^t

T Bock sc.^t

Signatures : italic form.

However, in the signature to the portrait of Manalargenna given to Lady Franklin by Hobson (5) the letters are all type A1 Capitals.

T. BOCK

Signature : A1 Capital form.

Handwritten notes on the life and character of each native have been added in pencil to the Oxford set, beside and to the right of the inscription. The writer of these notes has not been identified, but the information given has clearly originated from Robinson, as it includes descriptive phrases used by him in MS, and particulars which only he could have known. Robinson provided Thomas Bock (August 1835) and Henry Dowling (December 1840) with biographical information about some or all of these natives, but they are formal biographies and do not give the character sketches found in the notes. One of these notes says of Jemmy, "Abt 18 (6) in 1839". The notes on the portrait of Larretong include the comment "dead about 3 years" — Larretong died on August 16 1837.

*At 3 yrs
dead - mother of old Joseph,
named Larretong. she never had
any commⁿ with Europeans till
went to Flinders.*

*The Widow of a Chief
and Native of Cape Grim*

It is probably safe to conclude from these notes that they were composed about 1839; they may have been inscribed by Robinson's clerk (7) at the Flinders Island settlement, whose handwriting resembles that found in them.

It is possible, of course, that the notes were added to the portraits some time later, but there is no evidence of this: the details given in them would not have been known to others, or readily accessible to anyone else. It is unlikely that the notes were added by Dr Barnard Davis after he bought the portraits from Robinson's widow in 1867 because he would not have had the information given in them; in any case, the notes are not in Barnard Davis's handwriting.

1. *WOUREDDEY* (8) (Plate 2).

The Oxford portrait is inscribed in type B — "Woureddy/Native of Brune Island", and that at the Royal Anthropological Institute in type A2 — "Woureddy/Native of Brune Island/Van Diemen's Land".

The notes on the Oxford portrait read: "husband to Lalla Rookh 2nd wife abt 40—2 sons—Robert and David Bruny by 1st wife".

2. *TRUGGERNANA* (Plate 2).

The Oxford portrait is inscribed in type A1 — "Truggernana/Native of the southern part of/Van Diemen's Land". The portrait in the Tasmanian Museum has a similar inscription.

The notes on the Oxford portrait read: "Lalla Rookh, wife of Woureddi aged 27, partl. good, saved Mr R's life at Arthur river by pulling log/ 2 spars/ of wood across river on which Mr R. was".

3. *JACK/TUNNERMINNERWATE* (Plate 3).

The Oxford portrait is inscribed in type B — "Jack Native of Cape Grim"; and the portrait in the Royal Anthropological Institute — "Tunnaminnerwate/Native of Cape Grim/Van Diemen's Land" in type A.

The notes on the Oxford portrait are — "about 24 'rather risible' md. to Fanny — no family — very good disposition".

4. *JACK'S WIFE / FANNY / WORTABOWIGEE* (Plate 3).

The Oxford portrait is inscribed in type B — "Jack's wife/Native of Port Dalrymple"; and the portrait in the Royal Anthropological Institute has in type A "Wortabowigee/Native of Port Dalrymple/Van Diemen's Land".

The Oxford portrait has the additional notes — "Fanny aged 30 rather well disposed, but rather petulant".

5. *TIMMY* (Plate 4).

The Oxford portrait has the type B inscription — "Timmy/Native of George's River"; and the additional notes are — "jawbone — md to Jenny — about 19 native of Cape Portland — travelled with Mr Robinson".

6. *JENNY/JINNY* (Plate 4).

The Oxford portrait has a type B inscription — "Jenny/Wife of Timmy/Native of Port Sorell"; and that in Captain A. W. F. Fuller's collection has a type A inscription — "Jenny/Native of Port Sorell/Van Diemen's Land", and is also signed "T. Bock delt."

The notes on the Oxford portrait are — "about 20 — rather facetious and loquacious, no children, don't live very amicable".

7. *JEMMY/JIMMY/PROBLATENA* (Plate 5).

The Oxford portrait has the type B inscription — "Jemmy/Native of Hampshire Hills"; and Captain Fuller's portrait has a type A inscription — "Jemmy/Native of the Hampshire Hills/Van Diemen's Land," and is signed "T. Bock delt."

The notes on the Oxford portrait are "same as the grey bust". (9).

8. *LARRETONG* (Plate 5).

The Oxford portrait has the type B inscription — "The Widow of a Chief and Native of Cape Grim", and the notes are "dead about 3 years — mother of Adolphus, named Larretong. She never had any commn. with Europeans till went to Flinders".

9. *MANALARGENNA* (Plate 6).

Four examples of this portrait are known. The one at Oxford has a type A1 inscription — "Manalargenna/A Chief of the Eastern Coast of/Van Diemen's Land"; and another in the Tasmanian Museum has a similar inscription. There are two examples in the Royal Anthropological Institute, one having a type A1 inscription, the other type A2. The former is signed "T. Bock" in type A1 capitals, and has associated with it the following handwritten note — "Mr Hobson, (5) of Hobart Town, gave me this drawing of Manalargenna on May 18th 1837. He told me that he had hunted with him, often, and that this was a very good likeness. It was taken from life. The artist is a German" (10). This note is almost certainly Lady Franklin's.

The notes on the Oxford portrait are — "dead — a powerful chieftain & considered a sage — sinews of kangaroo tail spun into cord around his neck."

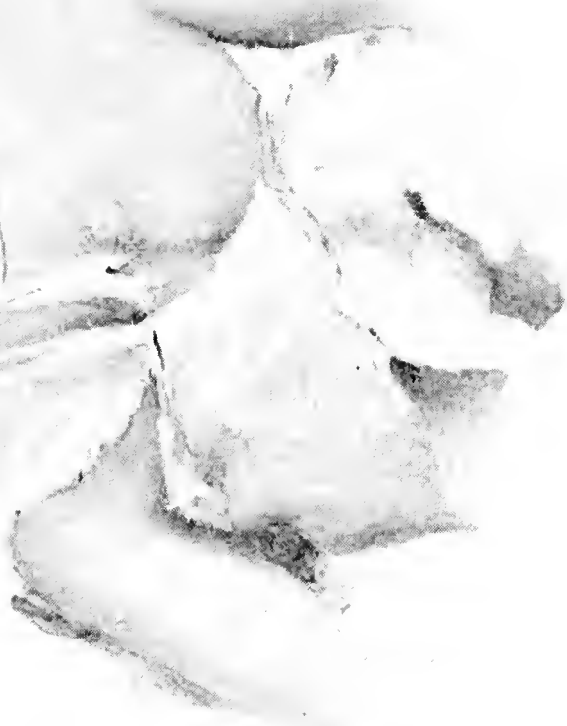
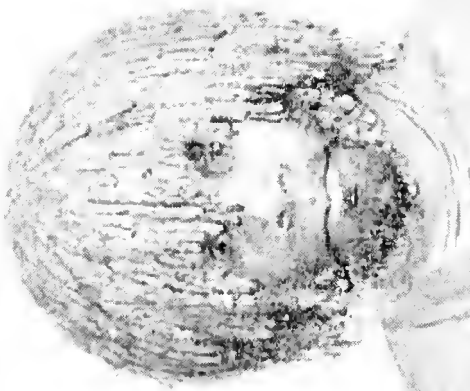
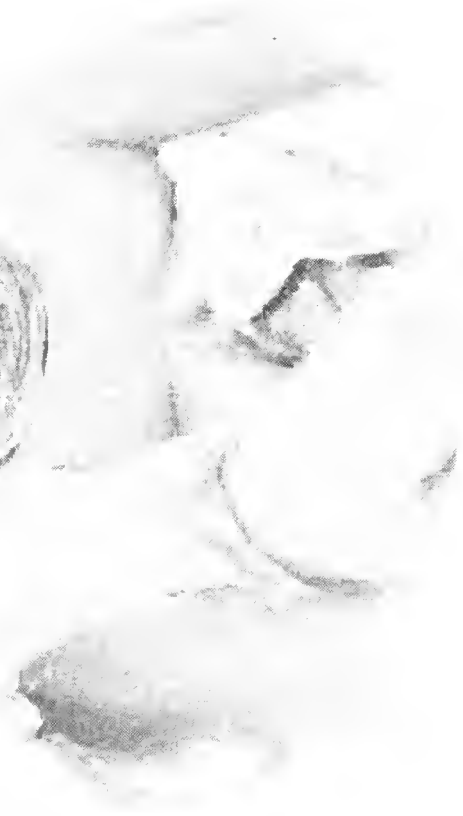
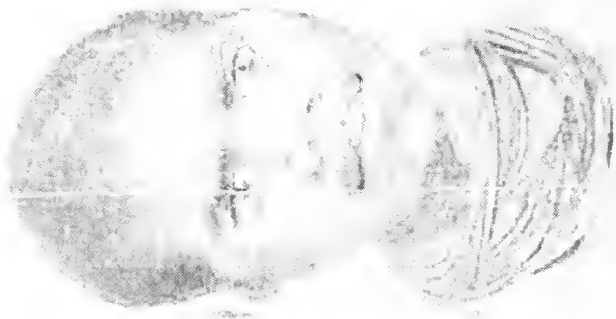
(ii). The Profiles

There are profiles in blue watercolour of five of the Tasmanians of the Robinson/Franklin series. These profiles show the head and upper part of the neck of the native. They are only known in the original in the Oxford series, but copies of them are associated with the copies of the Robinson/Franklin portraits in the British Museum and in the Tasmanian Museum.

The five profiles in the Oxford collection are labelled in handwriting (Type B inscription). They are:

- (10) Truggernana's profile (Plate 7).
- (11) Timmy's profile (Plate 7).
- (12) Jenny's profile (Plate 8).
- (13) Jimmy's profile (Plate 8).
- (14) Manalargenna's profile (Plate 9).

In addition the profile of Jimmy has the note — "travelled with Mr Robinson, married lately to Maria, who lived with a sealer — is very harmless, abt. 18 in 1839;" and that of Manalargenna has two notes, one in the same hand as his name (type B) — "The beard was removed to shew the form of the lower jaw", and the other in the hand of the explanatory notes of the other Oxford portraits — "dead at between 50 and 60. 5 ft 10".



WUREDDY

PLATE 2

TRUGERNANNA



JACK/TUNNERMINNERWATE



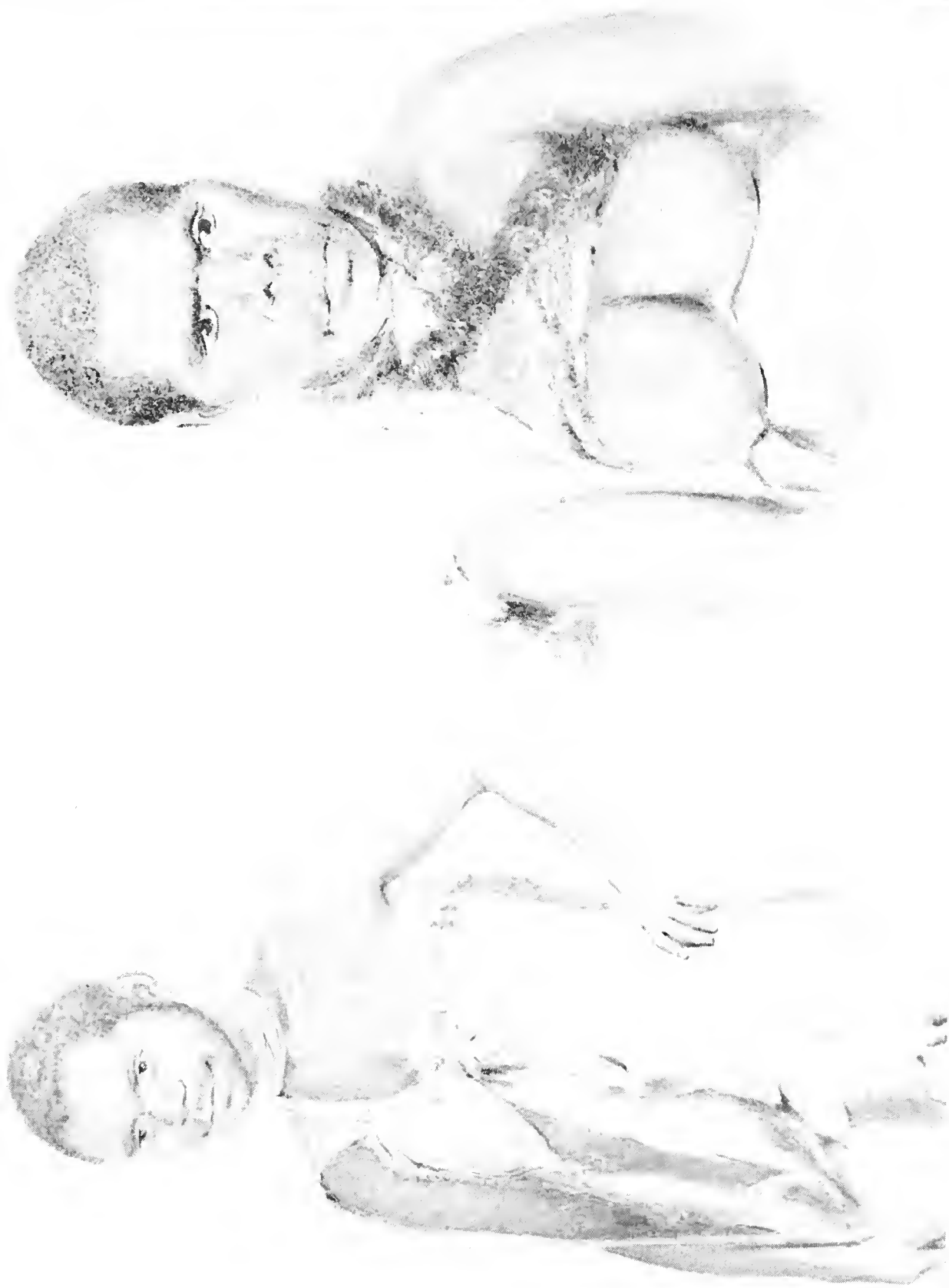
JACK'S WIFE/FANNY WORTAIBOWIGEE



JENNY



TIMMY





MANALARGENNA

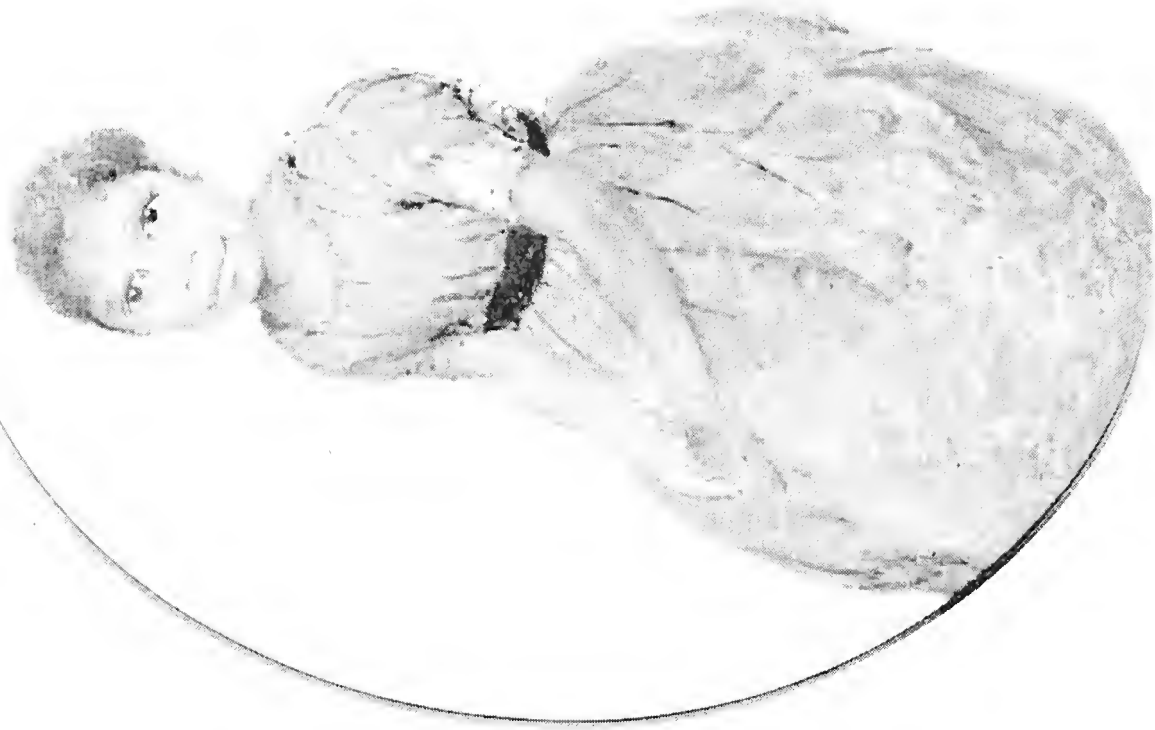
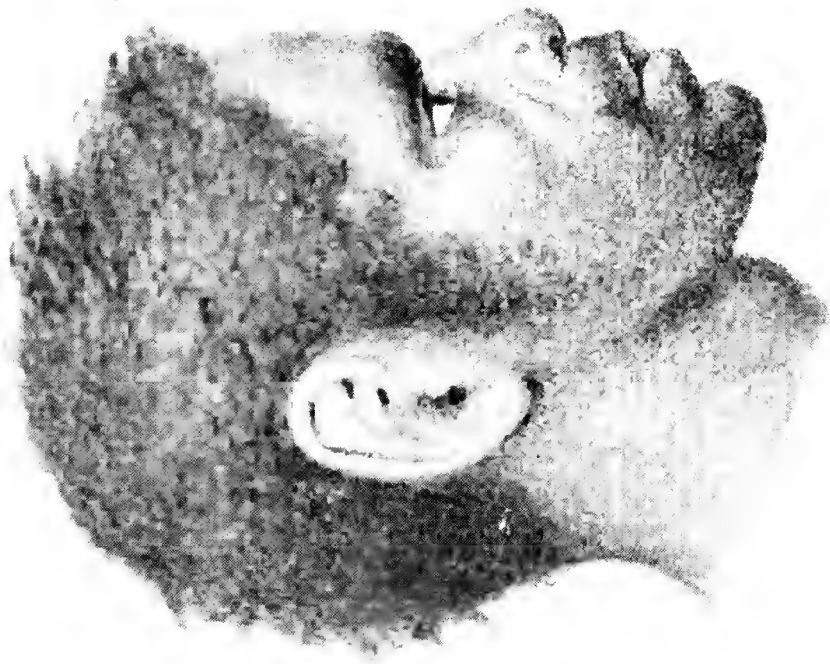


PLATE 6

MATHINNA



TIMMY

PLATE 7

TRUGERNANNA



JENNY



PLATE 8

JIMMY





PLATE 10

Top Left : TOGERLONGERTER
Bottom Left : UNKNOWN B

Top Right : UNKNOWN A TOMLABOMA (?)
Bottom Right : UNKNOWN C

(iii). Other Portraits

A. In the British Museum there are five portraits of natives painted by Thomas Bock, or copied from his work. Portraits 16 and 17 are unique.

15. *TOGERLONGERTER* (Plate 10).

The man's name is written on the portrait in G. A. Robinson's hand.

16. *UNKNOWN A/TOMLABOMA (?)* (Plate 10).

This is a copy by Alfred Bock of an unknown original by Thomas Bock. In the collections at the British Museum it is associated with a set of Alfred Bock's copies of the group I portraits.

17. *UNKNOWN B* (Plate 10).

This portrait is in the same style as that of Togerlongerter. The man lacks an upper incisor.

18. *UNKNOWN C* (Plate 10).

This portrait is also in the style of Togerlongerter.

19. *UNKNOWN D* (Plate 9).

The subject of this portrait does not show the leanness found usually among the Tasmanians; he was perhaps one of those natives with Robinson who had been brought up from infancy by settlers (41). The man has short hair rather than ringlets, his features are plump with a well-rounded chin, and his body and limbs are stout and fleshy rather than lean and elongated. Thomas Bock's original pencil drawing for this portrait, which is now in the Queen Victoria Museum, shows two poses of the legs; and has two marginal sketches of natives in European dress.

B. In the Tasmanian Museum, Hobart, there is a portrait of an aboriginal girl named Mathinna (Plate 6). Her age is six or seven years. She is wearing a red dress which conceals the body so that only the head can be seen in detail. The portrait is not signed, but it is clearly the work of Thomas Bock.

THE COLLECTIONS

The Barnard Davis Collection

The most important collection of portraits of the Tasmanian aborigines was that built up by Dr Joseph Barnard Davis (1801-1881), of Shelton in Staffordshire, a surgeon who became interested in the human skull. His was the largest collection of skeletal material of the various races of mankind in either public or private hands in the seventies of the last century. Associated with this collection were many articles of ethnological interest, as well as a large library. Barnard Davis acquired Tasmanian skulls from various sources, but most of his Tasmanian ethnological material came from G. A. Robinson's collection. Shortly before his death Barnard Davis disposed of the skeletal material to the Royal College of Surgeons of England (12). His library was auctioned by Sotheby's (13) on January 30 1883 and the two following days. It is not known when the ethnological material was disposed of, but as Tasmanian specimens from it have been traced to a number of different collections, (14) it seems probable that this part of the collection was sold by auction. However, attempts to trace an auction sale have failed.

Barnard Davis does not seem to have known G. A. Robinson before 1862. On February 5 of that year he wrote to Robinson saying that he wanted to buy Tasmanian skulls, implements, etc. and this letter began a correspondence which led to the two men meeting. Robinson died on October 18 1866, and in the following March Barnard Davis acquired his portraits of the Tasmanians and other ethnological material, paying the widow £30 for the collection. In a letter to Mrs. Robinson, written about April 15 1867, and now in the Mitchell Library, Davis said:—

... The chief things to me among the curiosities were the skulls & the portraits, but, finding I must purchase the whole, I strove to the best of my ability to estimate their money value — no easy task. I believe I know better than any one else the price of the skulls, from being the great skull-purchaser of recent times. With respect to the portraits, I some years ago acquired a knowledge of the 12 best and most carefully executed of them, which were executed by Mr T. Bock, of Hobart T. & I now have before me a letter of his son's Mr Alfred B. written May 14. '56, upon the subject of these very portraits. Mr T.B. executed them for the late Mr Robinson but, as Mr Robinson told me, Bock did another set for another person. It happened that in 1855 seven out of the 12 drawings of this other set, which cannot in any way be distinguished from those of Mr Robinson's, were purchased by a London printseller in the Strand, who lives a few doors on the Temple Bar side of Norfolk Street. When he had purchased these drawings, he offered them to Mr Rd. Cull, then Secretary of the Ethnol. Soc. a gentleman well known to the late Mr Robinson, and Mr C. bought the drawings of this London dealer . . . for two guineas, and they are now in the library of the Ethnol. Soc. . . . (I have in my possession) very carefully executed copies of 7 of them.

The material which Barnard Davis bought from Mrs Robinson is listed in the notebooks now in the Royal Anthropological Institute (15). There is a list of the whole collection, (16) in which many of the portraits are grouped together, and another list in which the portraits are each described. The following Tasmanian portraits are mentioned in this second list, which is dated October 21 1867:—

1. Bust of "Woreddy", a native of Brune Island. Executed by B. Law. Hobartown.
2. Bust of "Truggernanny," a Tasmanian woman, a native of Sullivan Cove, the second wife of Woreddy. Executed by B. Law. She accompanied G. A. Robinson on his expeditions, and saved his life on one occasion, when the natives were about to murder him, by swimming before him across a river. He could not swim.
3. Oil painting of "Woreddy", or "The Doctor." 3 ft. 1 in. by 2 ft. 9 in. This painting is framed in a beautiful Tasmanian wood.
4. Fine coloured drawing of "Woreddy" ♂. By T. Bock, of Hobart, who made this series of drawings with very great care and exactness for G. A. Robinson, who was much displeased that Bock subsequently supplied Lady Franklin with copies of some of them.
5. Fine coloured drawing of "Truggernana" ♀. By Bock. Truggernana presents the natural colour of the skin. I have no doubt she was a native of Brune Isl. Shell necklace.
6. Fine coloured drawing of "Wortahowigee". By Bock. Native of Port Dalrymple. Has kangaroo skin dress, and wheels on the arm, but is not ochred.

7. Fine coloured drawing of "Jenny" ♀. By Bock. Native of Port Sorell. Kangaroo skin dress. Wheals on the arm. Not ochred.
 8. Fine coloured drawing of "Problatena" ♂, nearly full length, with a spear by his side. Native of Hampshire Hills. By Bock. Problatena is not ochred, and therefore presents the true and natural colour of the Tasmanians. Has kangaroo skin dress.
 9. Fine coloured drawing of "Tunnaminna-wate" ♂. By Bock. Native of Cape Grim. Kangaroo dress on. Ochred. Wheals on the arm.
 10. Fine coloured drawing of "Manalargenna" ♂. By Bock. A chief (?) of eastern coast. Carries a firestick.
 11. Fine coloured drawing of a Tasmanian ♂ seated, pointing a spear. By Bock. Not ochred.
 12. Fine coloured drawing of a Tasmanian ♂. Ochred, and wants an upper front tooth. By Bock.
 13. Fine coloured drawing of a Tasmanian ♂. Has his head shaved, is in kangaroo skin dress, not ochred. By Bock. This is "Tomlaboma". G.A.R.
 14. Drawing of a Tasmanian ♂ on the reddish tinted paper.
 15. Fine coloured drawing of a Tasmanian ♂. Has a human jaw suspended round his neck as a charm. Has a fire stick and a waddy. Is naked, but ochred. By Bock.
 16. Fine coloured drawing of a Tasmanian ♀ (grave looking). Has a skin dress and wheals, but is not ochred. By Bock. Bock was an artist who lived at Hobarton. He was most scrupulously accurate. I have some account of him in a letter from his son in the portfolio "Galerie Anthropologique".
 17. Larger drawing of a Tasmanian ♀ on a reddish tinted paper. She has a skin girdle tied round her chest, above her breasts.
 18. 2 drawings of a Tasmanian ♂ and a ♀ on same paper. Both have the hair ochred and clotted.
 19. Drawing of a Tasmanian ♀ on same paper. The upper part of her head is whitened. A mourning custom among Australians.
 20. A fine drawing of a Tasmanian ♂, "Togerlongerter".
 21. Another fine drawing of a Tasmanian ♂. Unnamed. These two drawings were most likely executed by Bock, but I don't know.
 22. A drawing of a Tasmanian ♂ with clotted hair. The upper part of the figure is in outline.
 23. A drawing of a Tasmanian ♂. The hair in this drawing is evidently growing in spiral tufts. This and the three following are heads only.
 24. A drawing of Tasmanian ♂. Head.
 25. A drawing of Tasmanian ♀. Head.
 26. A drawing of Tasmanian ♀. Head. These five drawings are executed in a bluish sepia.
- (27-31. Portraits of Australian aborigines).

32. Coloured drawing of an Australian in a sailor's dress. By W. B. Gould.
- 32a. Daguerrotype of three Tasmanians.
33. Coloured drawing. "The natives of Tasmania bewailing the loss of their country." A design for the "Finis" of G. A. Robinson's proposed work on his missions.

Nearly the whole of this collection has been located. The portraits by Thomas Bock are:—

Group I — items 4-10, 15, 16.

Group II — items 22-26.

Group III — items 11 (unknown D), 12 (unknown B), 13 (? unknown A), 20 (Togerlongerter), 21 (unknown C).

It is unlikely that Robinson's collection contained any but original work by Thomas Bock. Alfred Bock was born in 1835, so that the 50's would have been the earliest date for his skilled copying of his father's work, and by then Robinson had retired to England. However, before he acquired Robinson's collection in 1867, Barnard Davis undoubtedly had obtained a set of copies from Alfred Bock, and the set in the British Museum seems to be it.

Pitt Rivers Museum, Oxford

In the collections at Oxford there are fourteen coloured drawings of the Tasmanians, comprising the portraits of groups I and II. Although none of them are signed and there is no record of their source, there is little doubt that they were painted by Thomas Bock for G. A. Robinson, and were among the portraits acquired by Barnard Davis from Mrs Robinson in 1867: the technique of applying the watercolour shows them to be by the same hand as portraits now in the Royal Anthropological Institute which were originally in the possession of Lady Franklin; the particulars concerning the natives are either in italics of the style found in the portraits from Lady Franklin's collection and in work known to be by Thomas Bock, or are written in a hand (type B) which is probably Robinson's; the annotations, though not in Robinson's hand, could only have been written by someone given the information by him or having access to Robinson's MSS. Technically they appear to be the originals from which Thomas Bock prepared others.

British Museum, London

The British Museum contains a large collection of Tasmanian material, including many portraits of the natives. Much of this came from Barnard Davis's collection and was apparently obtained for the museum by A. W. Franks, sometime keeper of the ethnological collections. Such material is usually marked "J.B. Davis coll.", and with Franks's name, but none of the portraits have any reference to Franks. The museum's records do not give any information. None of the portraits are now framed, but some are marked as having been so. This collection includes all the known Bock portraits, but while some are original paintings by Thomas Bock, most of them appear to be copies by Alfred Bock. The original portraits of groups I and II which Barnard Davis obtained from Mrs Robinson are clearly not among them.

The other portraits listed by Barnard Davis are also in the British Museum, with the exception of the daguerrotype of three Tasmanians (item 32a). There is no information in the museum's records relating to the husts of Woureddy and Truggernana which are there, but there is no reason to doubt that they formed part of the Barnard Davis collection. The oil painting of Woureddy (item 3) is by Benjamin Duterrau. Items 14, 17, 18 and 19 are five crude pencil and crayon sketches on tinted paper by an unknown hand. The coloured drawing by W. B. Gould of a native in sailor's dress (item 32) is almost certainly an Australian⁽¹⁷⁾. The artist of the vignette (item 33) is not known.

In addition to the portraits of the Tasmanians which Barnard Davis obtained from Mrs Robinson, he also purchased a number from John Skinner Prout, which that artist had painted on Flinders Island in 1845.⁽¹⁸⁾ With these watercolours and pencil sketches Davis also obtained from Prout one of the boards painted with figures which Governor George Arthur issued about 1829 to show the natives that justice was equal for black and white. Prout's watercolours and sketches are now in the British Museum, but the painted board is in the Museum of Archaeology and Ethnology, Cambridge.⁽¹⁸⁾

Royal Anthropological Institute, London

References in the literature⁽¹⁹⁾ and in Barnard Davis's papers show that Richard Cull, Secretary of the Ethnological Society, bought from a London printseller in the early 1850's⁽²⁰⁾ seven of Bock's portraits of the Tasmanians, and added them to the collections of the Society. There is little doubt that these seven portraits had formed part of the set Thomas Bock prepared for Lady Franklin: she had informed Barnard Davis in 1856 that some of hers were missing, and the inscription associated with the extra portrait of Manalargenna in the Institute is undoubtedly Lady Franklin's. Moreover, Barnard Davis, when writing to Mrs Robinson in April 1867, stated that the seven portraits which Cull bought had formed part of a set, and there is not much doubt that he was referring to the one which had belonged to Lady Franklin. By chance, it is possible to say with some certainty which portraits these seven were. There are in the British Museum seven copies by J. Gray of Bock's portraits, the subjects being Woureddy, Truggernana, Jack, Jack's wife, Jenny, Jimmy and Manalargenna. These copies come from Barnard Davis's collection and are evidently those he refers to in this correspondence.

There are now only five original portraits by Thomas Bock in the Royal Anthropological Institute, those of Manalargenna (represented twice), Woureddy, Tunnaminnerwate and Wortabowigee. The portrait of Tunnaminnerwate and one of those of Manalargenna are marked on the back "Purchased 13 Jan'y 1880": the style of the inscription is uniform with those on the portraits of Woureddy and Wortabowigee, so that they could well have been among the portraits originally in the possession of Lady Franklin, acquired by Cull, later dispersed during the formation of breakaway groups from

the original society, and subsequently re-acquired unknowingly by purchase in 1880.

Only one of the portraits in the Institute is signed, namely the one of Manalargenna which was given to Lady Franklin by Hobson. It must be concluded, therefore, that Barnard Davis's statement that Cull's portraits were signed (letter to Alfred Bock of September 30 1855), probably means no more than at least some of them were signed — none of the Oxford series is signed, so it is clear that Thomas Bock did not always sign his work (and it follows also that the Oxford portraits were not Lady Franklin's set). There is no doubt that the portraits are all by Thomas Bock, the technique of the painting being the same in all five and the inscriptions by the same hand, with type A1/2 capitals in the Hobson portrait and type A2 capitals in the others.

Fuller Collection, London

In the collection of the late Captain A. W. F. Fuller there are two of Bock's portraits of the Tasmanians, those of Jenny and Jimmy. Both are originals, both are signed and both have type A1/2 inscriptions.

These two portraits were at one time in Edge-Partington's collection,⁽²¹⁾ and possibly were originally in Strzelecki's possession (see below). Both these portraits were recently presented to the Mitchell Library, Sydney.

Crystal Palace, London

The late Captain A. W. F. Fuller informed me that he recollected having seen many years ago a series of Bock's portraits among the permanent collections at the Crystal Palace at Sydenham. Presumably, these were destroyed when the Crystal Palace burnt in November 1936. They are likely to have been some of Alfred Bock's copies of his father's work.

Tasmanian Museum, Hobart

This museum has a set of copies of the Robinson/Franklin portraits (group I) and the profiles (group II), evidently prepared by Alfred Bock. Although supposed to be originals, possibly because of Fenton's statement (see below), they are technically not Thomas Bock's work. Moreover, they are recorded as being copies in the letter by which the government gave them to the museum:—

From Chief Secretary's Office, Hobart to Alexander Morton, Curator, Tasmanian Museum, Hobart. April 5 1889.

I also beg to forward a series of facsimiles of Bock's drawings of Tasmanian aborigines which the Government desire to present to the Trustees for the Art Gallery.

Although these portraits are copies, one of them, that of Woureddy, is inscribed "T. Bock delt." in small capitals. Photographs of this set, by J. W. Beattie of Hobart, are fairly common in collections.

There are also two original group I portraits by Bock in the collections. They are not signed, but have type A1 inscriptions. These portraits, which are of Truggernana and Manalargenna, were acquired by the museum in 1949 and had belonged to Miss E. M. Scott of Hobart.

Thomas Bock's portrait of Mathinna was presented to the Tasmanian Museum in May 1951 by Mrs. J. H. Clark, of Wellington, New Zealand, the elder daughter of William R. Bock, who was the second son of Thomas Bock.

Queen Victoria Museum, Launceston

In 1956 the museum acquired some papers relating to the Bock family, which had been in the possession of two of Alfred Bock's sons. Among these papers are some letters to Alfred Bock from Barnard Davis, biographies of Trugernanna and Woureddy in G. A. Robinson's handwriting and dated August 13 1835, and a number of pencil sketches of the aborigines.

The pencil sketches comprise:—

(1) **Unknown D.** The head, trunk and arms are shaded, but the legs are indicated only in outline and are crossed asymmetrically. On the same sheet are outline sketches of (a) the right foot, (b) the legs, which are crossed symmetrically, (c) the head of a native and (d) two natives in European dress seated with their legs crossed. The paper is watermarked "A Cowan & Son/1831". There is pencil rubbing under the central figure; and many of the outlines and salient features have been emphasised in pencil, but this does not seem to have been heavy enough to obtain a tracing from it.

The pencil sketch differs from the coloured portrait in the British Museum (Plate 9) in detail: in the latter the legs are crossed symmetrically (as shown in the outline on the same sheet as the sketch), and the lips are open, showing the teeth.

(2) **Unknown C.** (Plate 10). This sketch is coloured with brown and grey wash, and colour trials with splashes of pure colour, partly overlying one another, grey over brown, are on the same paper. The drawing has no tracing lines or pencil rubbing; part is torn away.

(3) **Togerlongerter.** (Plate 10). Pencil sketch, shaded. There is pencil rubbing on the back, and outlines and salient features have been gone over with a sharp pencil, but evidence that tracings have been taken from the sketch is not definite.

(4) There is a series of outline pencil sketches of Fanny, Jimmy, Jack, Trugernanna, Woureddy, Larratong and unknown A (?Tomlaboma), and also of Trugernanna, Jimmy, Jenny, Manalargenna and Timmy in profile. It is quite clear that these sketches have been used for making tracings; the outlines are indented with a sharp pencil and there is not only pencil rubbing behind each sketch but the tracing lines are evident. Moreover, the sketches of unknown A and of Woureddy are accompanied by tracings on a thick creamy-white paper. The outline sketches are on a fairly heavy whitish paper.

Samples of the papers of the outline sketch and tracing of unknown A, together with the paper of the same portrait in the British Museum, which is almost certainly Alfred Bock's work, have been examined in the laboratory of the British Museum, and Mr Baynes-Cope has reported on them as follows:—

I have examined these samples (and the portrait of 'unknown A') and find that they are all cotton-linen rag papers which, though differing slightly among themselves, offer no information on which dating could be based.

The papers, therefore, do not provide any evidence as to the authorship of tracing, outline sketch and finished portrait, nor indicate when they were prepared.

It is unlikely that the sketches in the Launceston museum are original studies: they are merely outlines. If they are Thomas Bock's work—and the best evidence for this is Alfred Bock's letter to Barnard Davis in which he states that he has "none but mere outlines", and clearly is referring to his father's work—then they are not the original sketches for the portraits but outlines prepared from them for the purpose of duplicating the portraits. This will explain why the duplicates of the various portraits are so closely similar. The fact that Alfred Bock had only "mere outlines" of his father's portraits, will also explain the differences in colour between copy and original, the colouring of the copies being not only uniform and without the individual distinction found in the originals, but also having a reddish-brown tint for the skin rather than the blackish-brown tones of the originals.

REFERENCES IN THE LITERATURE AND IN MANUSCRIPT

The Literature:

There are but few references in the literature to Thomas Bock's portraits, and most of them deal with the portraits in the Royal Anthropological Institute, London. In 1856 the Secretary of the Ethnological Society, Richard Cull, showed to members of the British Association⁽¹⁹⁾ seven portraits of the Tasmanians by Thomas Bock which he had bought in London. These portraits were also mentioned briefly at the time in the Journal of the Ethnological Society as being in the collections of the Society, and there have been other and more recent references to them in the Society's publication.⁽¹⁹⁾ There is little doubt that they had all originally been in the possession of Lady Franklin.

Lithographs of the four remaining portraits in the Royal Anthropological Institute, prepared from copies of the paintings by Miss E. M. Roth, sister of H. Ling Roth, were published in the latter's *Aborigines of Tasmania* in 1890. These portraits of Manalargenna, Tunnerminnerwate, Woureddy and Wortabowigee were reproduced in reduced size and by photo-lithography, in the second edition of the book in 1899.

P. E. de Strzelecki, in his *Physical description of New South Wales and Van Diemen's Land* (1845), published lithographs of Bock's portraits of Jenny and Jenny. Strzelecki was in Tasmania from August 1840 to September 1842 and became a close friend of Sir John and Lady Franklin. H. M. E. Heney, in her biography of Strzelecki,⁽²²⁾ quotes from a letter written by Lady Franklin to her sister in March 1843 which refers to these portraits:—

Do not forget to offer him Mathinna's (see note 23) portrait to get engraved. I have given him the portraits of two Tasmanian natives for the same purpose, they were quite savages.

The form of the inscription reproduced in these lithographs, with type A1/2 capitals in the name and type A1 capitals in "Van Diemen's

Land", is the same as that of the portraits of Jenny and Jemmy in the Fuller collection, a combination not found in any of the other known portraits. The evidence of this lettering and of the composition of Cull's purchase shows not only that the Fuller portraits were those given to Strzelecki by Lady Franklin, but also that she gave him two obtained from Bock especially for him and not ones from her own set.

In James Fenton's *History of Tasmania*⁽²⁴⁾ there is the following note concerning the lithographs after Bock's portraits of Jinny, Timmy, Truganini and Jack (*sic*) which were used as illustrations in the book:—

The portraits of Tasmanian aborigines were taken from life, by the late Mr Bock, for Lady Franklin, who permitted the artist to make copies for Henry Dowling, Esq., in 1838. The Tasmanian Government, in whose possession the portraits now are, has kindly allowed selections to be engraved for this volume. Mr Dowling says:— "From my personal acquaintance with the subjects themselves, during the years 1831-1833, I can confidently speak of the faithfulness of the portraiture".

Fenton's reference to Bock's portraits is not only confusing but has given substance to the Tasmanian legend associating their painting with the patronage of Lady Franklin. His statement comprises several parts — (a) the portraits were taken from life by Thomas Bock and (b) were painted for Lady Franklin; (c) duplicates of these portraits were prepared by Thomas Bock for Henry Dowling and (d) those duplicates were later acquired by the Tasmanian government; and (e) Dowling, from acquaintance with the subjects of the portraits in 1831-1833, could affirm the faithfulness of Bock's portraiture. Of all this it may be said that while Thomas Bock certainly painted the original portraits, he produced them for G. A. Robinson and not for Lady Franklin; that while Thomas Bock might well have prepared duplicates for Henry Dowling, none of them has certainly been identified in any collection, the portraits owned by the Tasmanian government (now in the Tasmanian Museum, Hobart) being copies of Thomas Bock's work; and that Henry Dowling was acquainted with some, if not all, of the natives portrayed while they were with G. A. Robinson, whom he knew personally.

Manuscript sources of information:

A good deal of light is thrown upon questions relating to the origin of the portraits and to the source of those in the various collections by contemporary records and correspondence. In G. A. Robinson's papers in the Mitchell Library, Sydney, there are references to the portraits and correspondence about them; and in the Robinson papers at Sydney, in the Barnard Davis MSS in the Royal Anthropological Institute, London, in the Department of Ethnography of the British Museum, and in the Queen Victoria Museum, Launceston there are letters and memoranda by Barnard Davis which relate to the portraits.

There seems little doubt that Thomas Bock painted all the portraits in the early 1830's. The following memoranda by Robinson⁽²⁵⁾ make this certain at least for some of them:—

Dec 21st 1832 . . . paid Bock for 2 drawings of nt. chiefs 2. 0. 0

(March 8, 1833) Recd this week the beginning the portrait of Ehumarah (see note 26) from Bock

In addition there is the following receipt signed by Thomas Bock:—

Received of Mrs Robinson, June the 29 1833 the sum of ten pounds fifteen shillings being the balance due for painting a portrait and 2 drawings of native chiefs.

And in a letter dated November 7 1864 written to Dr John Davy Robinson stated:—

In 1832 I had the portraits of a number of Tas. abg. pt. of both sexes painted from life by an eminent artist at Hobart Town with their profile in neutral tint.

This last note, written so many years after the event, may be thought unreliable, but as other parts of his letter to Davy contain quotations from his papers, it is clear that he was not relying solely on recollection in composing the letter.

There is also indirect evidence that the portraits were painted in the early 1830's:—

Manalargenna died at Flinders Island on December 4 1835, Togerlongerter on June 20 1837 and Larretong on August 16 1837 (dates of death of the other natives either not known, or later than 1837).

On May 31 1834 A. Schayer (superintendent of flocks, V.D.L. Co., Circular Head) wrote to Robinson as follows:—

Pray let me have the portraits of 2 of your aborigines a male and a female, I should wish either the old chief and his lady or Jemmy and his wife, I shall with pleasure return the expense, they only need to be in water colours the price of which you stated to be a guinea a piece. For I see it will be some time till we set out with the aborigines for Berlin and so I want to give my friends an idea of what they have to expect.

A year later, on May 28 1835, Thomas Swayne (clerk and woolsorter, V.D.L. Co., Circular Head) wrote to Robinson to acknowledge receipt of portraits of the natives sent for Schayer and himself, for which he sent Robinson £4. 4. 0 to be paid to the artist.⁽²⁷⁾

It is clear, therefore, that some at least of the portraits were painted as early as 1832. In three cases, the date of death fixes an extreme point for the painting of a portrait, even if this point were not set for all the portraits at October 1 1835, when Robinson left Hobart to take charge at Flinders Island, and was accompanied by all the aborigines not already sent there (except only a few children who remained for a time in Hobart at the orphan school).

There is no evidence, therefore, for Fenton's statements in his *History* that Bock painted the portraits for Lady Franklin. The Franklins did not arrive in Tasmania until January 1837, by which time Manalargenna was dead and the other natives exiled on Flinders Island. There is no doubt that Lady Franklin did obtain a number of Thomas Bock's portraits of the aborigines, but these were duplicates based on the earlier work done for Robinson.

There is no reason to doubt that the seven portraits which originally made up the Ethnological Society's collection had formed part of Lady Franklin's set, nor that those now at the Institute are representatives of it. Lady Franklin's collection possibly comprised a set of group 1 portraits obtained from Bock, and an extra portrait of Manalargenna obtained from Hobson on May 18

1837. Sir John and Lady Franklin visited the aboriginal settlement at Flinders Island in January 1838 and while there they told Robinson that "They had the set of portraits of the nt. by Bock for which they paid him 30 guineas" (journal of G. A. Robinson, January 25 1838, Mitchell Library). It is not clear whether "set" meant only the nine group I portraits, or whether the five profiles were included, but probably the former was the case because no profiles have been identified as having been originally in Lady Franklin's possession.

Fenton's statement, however, that duplicates of the portraits were prepared for Henry Dowling is almost certainly correct. The Dowling family came to Tasmania in 1830 and spent a year or two in Hobart, where Henry Dowling was on the staff of the *Hobart Town Courier* before settling permanently in Launceston. There the father, Revd. Henry Dowling, became the first Baptist minister and his son Henry a newspaper proprietor and man of affairs. Correspondence in the Robinson papers in the Mitchell Library shows that Robinson knew both father and son, and that they supported him in his work among the aborigines and in his claims for reward for his services. Among the papers there is a copy of a letter from Robinson to Henry Dowling, dated December 3 1840 from Melbourne, sending biographical notes on the subjects of Bock's portraits. It contains the following:—

The aboriginal natives referred to were my travelling attendants . . . and now altho' many are dead yet do they live in my recollection and in my gratitude. Larcuiker is the young man with the long spear. Smalboy is the fine young man with the waddy I think the same you call Timmy.

Although the letter which Dowling wrote to Robinson on November 8 1840, to which the above was the reply, is missing from the Robinson papers, it is clear that Dowling was familiar with Bock's portraits, and probable that he possessed a series of them. However, no portraits of such origin have been identified in any modern collection. Henry Dowling's portraits may have passed to his brother Robert, who prepared oil paintings based on Bock's portraits, and it is possible they may yet be found, some of Robert's vignettes having come to light in England some years ago.⁽²⁸⁾

The further history of Bock's portraits can largely be followed, though not absolutely determined, through the correspondence and papers of Barnard Davis, which not only refer to the portraits in the possession of Robinson and Lady Franklin, but point to Alfred Bock's hand in the preparation of copies of his father's work.

Barnard Davis apparently knew of Bock's portraits of the Tasmanian aborigines through Richard Cull, Secretary of the Ethnological Society. In one of his notebooks in the Royal Anthropological Institute there is the following entry dated December 22 1854:—

Saw Cull. Showed me 7 small coloured prints of natives of V. Diemen's land issued he believed by Mr Robinson now or lately Prof. of Aborigines there or in N.S.W. He bought them about 3 years ago for 2. 2. 6 of Palliser Strand, who says he cant get more.

(In a later note, T. Bock is named as the artist).

This inspection of Cull's portraits seems to have led Barnard Davis to try to get some for himself—he was an indefatigable collector—and he wrote to Lady Franklin, and also to Alfred Bock in Hobart.

It is not clear how Barnard Davis knew that Lady Franklin had some of the portraits, but possibly he found this out by enquiries concerning Cull's purchase. At any rate, he had no success with Lady Franklin:—

Lady Franklin to Barnard Davis. December 5 1856.⁽²⁹⁾

Lady Franklin presents her compliments to Mr J. Barnard Davis, and in reply to his note, begs to say that she possesses only a portion of the drawings of the Aborigines of Tasmania made for her by Mr Bock, their number having been unfortunately diminished in consequence of lending them.

Lady Franklin regrets therefore, that it will not be in her power again to allow them to leave her, and that she will also be unable to shew them to Mr Davis, as they are packed up with others, in a place not at present accessible to Lady Franklin.

Barnard Davis's importunities were apparently more successful with Alfred Bock, for it is likely that Alfred sent him a series of portraits which he had prepared from tracings of his father's originals, colouring them similarly but not identically. These copies are probably those now in the Department of Ethnography of the British Museum. The relevant correspondence is as follows:—

Barnard Davis to Alfred Bock. Shelton, September 30 1855.⁽³⁰⁾

A friend of mine who resides in London about two years ago bought at a print-sellers a series of 7 small drawings of natives of Van Diemens Land, for which he paid two guineas, considered by him a great price. They are only small. Any of them would go on the page I am writing upon. But they are very nicely coloured, I conclude the correct colour of the natives. They are signed "T. Bock".

When I returned from London I mentioned this subject to my friend Josiah Spode, Esq. a gentleman now residing in this neighbourhood, but long a resident at Hobart Town, and well known there. (See note 31). He immediately informed me that he knew the artist and showed me a newspaper containing the announcement of the exhibition of his works, and also your advertisement as a photographer in behalf of your mother, Mr Bock's widow.

I am very desirous of procuring some of your Father's coloured drawings of the natives of Tasmania, or of other southern regions, if you have any such, or can procure me them. The 7 Tasmanians would be most acceptable to me. And if you have your Father's original sketches or copies of those I have seen I should be glad to have them. Pray let me know if you have any such, or can get me them from any one who has them. The colour of the drawings of these people is considerably lighter than we generally suppose it to be from the common name of "Black people", but I presume your Father would colour his drawings from nature, and make them as correct as possible. Pray explain to me whether this is so, or not . . .

Alfred Bock to Barnard Davis. Hobart, May 14 1856.⁽²⁹⁾

. . . With regard to the drawings, I am sorry to say they are the only ones, I know, of his having completed. I believe they were executed for Lady Franklin; they were drawn and coloured from nature, and it was one of my father's hobbies to make them as true as possible; I have none but mere outlines, with which I should not like to part; and I have not had sufficient opportunity to copy them for you at the present time, but will as soon as the winter sets in, and my leisure allows, I would advise you to endeavour to get the drawings from your friend and have them copied as they are the only authentic ones now extant of this race of people, and they are rapidly passing from off the earth, I believe there are but 6 or 7 remaining.

. . . Your friend ought to be very proud of the set of drawings he has got, and he had them for a mere nothing, if I mistake not, my father had four guineas each for them; and I would willingly have given £2 each to have them back. Do you think you can obtain copies of them? If so, will you have a set made for me also . . . P.S. Try and get the drawings, if possible. I will send you the copies of the outlines I have by the first opportunity.

(Annotation by Barnard Davis — "Son of the late Mr T. Bock, who made the 7 drawings of Tasmanians in the hands of the Ethnol. Soc. London.).

Barnard Davis to Alfred Bock. Shelton, October 4 1856.⁽³⁰⁾

. . . I am also very much obliged to you . . . for the promise of copies of your Father's outline drawings. Before saying more on this subject, I must tell you that I have made every effort to get the beautiful drawings, or to procure copies of them, for which purpose I engaged the services of a friend, an excellent artist. All my efforts have hitherto proved in vain, I believe from the fact that the present owner of these interesting drawings intends to publish them ere long. We shall then get lithographic copies, of which I shall send you an example . . .

I am hoping that you will have found time to make me copies of the outline drawings during your winter, and that they are now on their way to me. They will be very acceptable . . .

SUMMARY AND CONCLUSIONS

1. Portraits in watercolour of a number of the Tasmanian aborigines were painted by Thomas Bock about 1832. These portraits are here designated for ease of reference, as groups I (9 portraits), II (5 profiles of group I natives) and III.
2. The portraits were painted for G. A. Robinson, the natives being for the most part those who accompanied him on his missions.
3. Subsequently duplicates were prepared for Lady Franklin and others, the latter probably including Henry Dowling, J. Swayne, A. Schayer and P. E. de Strzelecki. Only duplicates of group I portraits have been located.
4. Robinson's set of group I portraits is almost certainly that now in the Pitt Rivers Museum, Oxford. Some of Lady Franklin's set and a portrait given her by Hobson are now in the Royal Anthropological Institute.
5. The only known original portraits of group II (profiles in blue watercolour) are those in the Pitt Rivers Museum, Oxford, and are almost certainly the originals painted for Robinson.
6. The portraits of group III are known only from the examples in the British Museum, from the unique original of Mathinna in the Tasmanian Museum, Hobart, and from the tracings and sketches in the Launceston Museum. Some of those in the British Museum are originals, but at least one is a copy.
7. Thomas Bock used outline sketches in preparing duplicates of the portraits so as to obtain close similarity. These or similar tracings formed the basis for copies prepared by his son Alfred, of which those in the British Museum and in the Tasmanian Museum are examples. Just as others of Thomas Bock's duplicates of the portraits may possibly be located in the future, so also may other copies by Alfred Bock come to light.
8. Anthropologically, Thomas Bock's portraits are important in giving us information about the

morphology and culture of the Tasmanian aborigines. They are probably as useful in this regard as available photographs, since the photographs are nearly all those of old people, long inactive. The busts are probably unreliable also.

Thomas Bock's treatment of skin pigmentation is likely to be more reliable than any other sources of information, and in this regard care must be taken to use Thomas Bock's originals rather than the duplicates he prepared, and still less the copies by Alfred Bock and others.

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Grateful acknowledgment is made of permission given by the Curator of the Pitt Rivers Museum, Oxford, the Trustees of the British Museum, the Director of the Tasmanian Museum and the Director of the Queen Victoria Museum to publish portraits of the Tasmanian Aborigines by or after Thomas Bock.

NOTES AND REFERENCES

1. Who is the Robert Bock to whom some pencil and crayon portraits in the Mitchell Library, Sydney, are attributed? These portraits seem to be in two hands: one group may be by Thomas Bock; the other, comprising some portraits in crayons, may be by Alfred Bock. One of the latter is dated 1855 and the signature is said to be "Robert Bock", but the Christian name is unclear and could as well be "Alfred". But if this is Alfred Bock's work some of the portraits must be copies from other earlier work, for the series includes a portrait of Sir George Arthur who was in Tasmania as Governor only from 1824 to 1836.
2. If busts are included, those of Dumoutier should be mentioned, though it is very doubtful if he modelled any of the subjects from nature. Dumoutier visited Hobart in 1839/40 with Dumont D'Urville's expedition, but by that time one of his "models" was dead, and at least two of the others were then in Victoria with G. A. Robinson. Altogether, the whole question of Dumoutier's busts needs clarification. The busts are listed by Plomley N. J. B. (1962) *Rec.Q.V.Mus.*, Launceston, N.S.15.
3. There is a companion series of portraits by F. G. Simpkinson (de Wesselow) in the Tasmanian Museum, Hobart. They are dated 1845 and it seems

probable that Prout and de Wesselow visited the Flinders Island settlement together.

4. Mr E. Croft-Murray describes the technique as "stippled watercolour of the professional portrait-draughtsman in that medium in the early 19th century".

5. Probably Dr Edmund Hobson, an amateur naturalist, but perhaps his son Edmund Charles Hobson, M.D. E. C. Hobson died at Melbourne on March 4 1848, aged thirty-three.

6. The ages of the natives cannot be used to fix dates. The age ascribed is often little more than a guess, and there is sometimes a wide discrepancy between an age recorded on one occasion and that recorded on another.

7. This man was probably B. McSweeney, 2061 Norfolk.

8. Some notes on the aborigines of Thomas Bock's portraits are given on p. 22.

9. This cast has not been identified. Perhaps it was one by Duterrau, who modelled several of the natives. Some of his casts are now in the Tasmanian Museum, but examination of the catalogue of the sale of Duterrau's pictures and other work after his death points to there having been others.

10. Why Lady Franklin should have thought Thomas Bock to have been a German is not clear, unless she considered the name Bock sounded germanic.

11. It must be kept in mind that there were natives of many races in Tasmania at one time or another, both convicts in the colony and seamen visiting it. Negroes and natives of the Pacific were among them, as well as Australian aborigines; and sometimes their portraits were painted in the colony. Thus, W. B. Gould painted a Sydney native at Macquarie Harbour in 1832, and J. S. Prout painted a native of the Isle of Palms and several New Zealanders when he was in Hobart. However, in the present case there is little doubt that the subject was a Tasmanian aboriginal.

12. Almost the whole of this collection was destroyed when the Royal College of Surgeons of England was bombed on the night of May 10/11 1941.

13. Sotheby, Wilkinson & Hodge. (1883). Catalogue of the library and engravings of the late D J. Bernard Davis, F.S.A., F.R.S., &c., of Shelton, Hanley, Staffordshire. Part of the collection was later resold by Bernard Quaritch by his Rough List No. 63, February 28 1883.

14. Tasmanian material from Barnard Davis's collection has been seen in the Department of Ethnography of the British Museum (portraits, baskets), Pitt Rivers Museum, Oxford (necklet), Brighton Museum (ground stone axes said to be Tasmanian), Museum of Archaeology and Ethnology, Cambridge (signboard). Ref:— Plomley, N. J. B. (1962) *op.cit.*

15. The Barnard Davis papers in The Royal Anthropological Institute include (a) a series of notebooks recording visits relating to his scientific interests (August 1845-October 1860), (b) a notebook labelled "Notae Ethnographicae".

16. This list is quoted by Plomley, N. J. B. (1962) *op.cit.*

17. W. B. Gould was a convict at Macquarie Harbour at the time G. A. Robinson was using the Settlement as a base for his mission to the aborigines of south-western Tasmania in 1833. Robinson records in his journal for May 28 of that year that "Gould the artist painted me a view of the Settlement shewing my return with the Port Davey tribe of aborigines and their landing at the penal settlement of Macquarie Harbour". Robinson had this and some other views of the Settlement in his collection (Barnard Davis MS). At this time also, Gould would have painted the portrait of Towtrer (Towterer), chief of the Port Davey tribe, which is now in the Mitchell Library. At about this time also, Gould could have painted the native wearing the blue jacket whose portrait is item 32 of the Barnard Davis list. Some "Sydney natives" were at Macquarie Harbour with a party led by A. Cotterell in May 1833, and among the stores they had were blue jackets, the garment worn by the native in Gould's portrait.

18. A short description of this board has been given by Little, K. L. (1945). A British proclamation of justice to the Tasmanians, 1815. *Man*, 45, p.1, pl.A.

19. (a) Cull, R. (1856) On some watercolour portraits of natives of Van Diemen's Land. *Rept. Brit.Ass.Adv.Sci.*, 25, p.142. (See also *Launceston Examiner*, January 8 1856.)

(b) King, R. (1867) (Exhibitor of watercolour drawings of natives of Tasmania) *J.anthrop.Soc. Lond.*, 5, p.xxxii.

(c) (Purchase of paintings of Tasmanians) *J.anthrop.Inst.*, 10, p.435 (1881).

(d) (Bock's portraits in R.A.I. library). *Man*, 38, p.82 (1938).

20. This date is given by Barnard Davis variously as (a) "About two years ago" (letter to Alfred Bock of September 30 1855), (b) "About three years ago" (note dated December 22 1854), and (c) "In 1855" (letter to Mrs Robinson of April 1867).

21. (a). Australian prints, drawings, etc. in the collection of J. Edge-Partington, Esq., Beaconsfield. (1926), (b). Francis Edwards Ltd. (1934). Catalogue of the Australian collection of books and pictures formed by the late James Edge-Partington.

22. Heney, H. M. E. (1961). In a dark glass, (Sydney).

23. It is unlikely that the portrait of Mathinna which Lady Franklin is referring to here is the one now in the Tasmanian Museum. The latter came from the Bock family and is therefore clearly a duplicate of the one which Thomas Bock painted for Lady Franklin, which must be regarded as missing. (The statement by Heney in footnote 15, p.242, referring to Lady Franklin's letter, quoted on p.140 that the portrait of Mathinna "is one of the illustrations in the Physical Description", is not correct.)

24. Fenton, J. (1884) *A History of Tasmania*, (Hobart).

25. The information referred to in paragraphs (a) to (f) is to be found in the Robinson papers in the Mitchell Library.

26. The portrait of Umarrah, who died on March 24 1832, has not been traced. It may be unknown A or B or C of the British Museum collection.

27. It is possible, though not at all likely, that the portraits which Robinson obtained for Schayer and Swayne were painted by Duterrau, who had arrived in Hobart on August 16 1832 and who had also portrayed Robinson's "sable friends." But Duterrau's work was in oils, not watercolours; and oil paintings would certainly not have been sold for "a guinea a piece", the price paid by Schayer and Swayne. In a letter to Robinson dated October 8 1832, Schayer informed him that he had forwarded to Berlin an account of an exhibition of native dancing, "for a friend of mine who is the editor of a newspaper and a journal of travels". If this were the friend for whom Schayer wanted the portraits, it may be that they are still in existence and will be found in some German collection.

28. Plomley, N. J. B. (1961) Pictures of Tasmanian aborigines by Robert Dowling. *Bull-nat.Gal. Vict.*, 3, pp.17-22.

29. Original letter in the Department of Ethnography, British Museum.

30. Original letter in the Queen Victoria Museum, Launceston.

31. Mr. Henry Allport of Hobart has informed me that Alfred Bock states in a letter to J. W. Beattie that Lady Franklin allowed Thomas Bock to duplicate the portraits for Josiah Spode. This is most unlikely, for there is not the slightest hint of it in Barnard Davis's correspondence. It must be remembered that Alfred Bock was only twenty when his father died and would have had, at best, vague recollections for details of events occurring when he was a child. This vagueness is apparent in his correspondence with Barnard Davis.

NOTES ON THE ABORIGINES OF THOMAS BOCK'S PORTRAITS

The identification of the Tasmanian aborigines portrayed by Thomas Bock presents several difficulties, not the least of which arise from the use of English names and from variations in the spelling of the native names. Although all the natives whose portraits Bock painted seem to have been associated with G. A. Robinson on his expeditions at one time or another, or had been captured by him, it is sometimes difficult to determine from his journals and papers who a particular native was, even though there may be many references to such a one. To add to the confusion, in January and February 1836 Robinson bestowed romantic names on the natives at the Flinders Island settlement (marked "FI" below) and they were often known by these names from that time. However, sometimes the new names were not used: in any case, it is often difficult to find out what native names they replaced and still more so to distinguish between the duplications of Maria, Jack and so on in the earlier records, so that it may become well-nigh impossible to sort out some piece of confusion, particularly when there is little doubt that Robinson himself was at times forgetful and made mistakes in recording names.

The notes which follow summarise what has been determined from the records available, taking account, in so far as possible, of the causes of error referred to above.

1. WOORADY (♂)

Other spellings: WOORRADEY, WOUR-EDDY, WOREDDY, and other variants.

Other native names: MUT.TEEL.LEE and variants.

English names: "The Doctor"; Count Alpha (FI).

Native of Brune Island.

Wife: (a) first wife (name unknown) died at Brune Island c. September 1829, leaving two children DROY.YER.LOIN.NE and MY.YUNG.-GE., later named Peter Brune and David Brune; (b) second wife TRUGERNANNA.

Associated with G.A.R. from May 1829.

Died: July 1842.

2. TRUGERNANNA (♀)

Other spellings: TRU.GER.NAN.NER, TRUCANINI, TROUKANINNY, TOOKER-NENNY, TRIGENHANNA and other variants.

Other native name: LYD.GUDG.GEE and variants.

English name: Lalla Kookh (FI).

Native of southern part of VDL (Port Esperance).

Husband: WOORADY.

Associated with G.A.R. from April 1829.

Died: May 8 1876.

3. TUN.NER.MIN.NER.WAIT (♂)

Other spellings: TUNNERMINNERWATE and variants.

Other native name: PEE.VAY and variants.

English names: Jack, Cape Grim Jack; Napoleon (FI).

Native of Robbins Island ("Cape Grim").

Wife: Fanny (WORTABOWIGEE).

Associated with G.A.R. from June 1830.

Hanged with MAUL.BOY.HEEN.NER at Melbourne on January 20 1842 for the murder of two sealers (?) at Westernport in October 1841.

4. WORTABOWIGEE (♀)

Other spellings: ? WATERPOIDEYER.

Other native name: PLON.NOO.PIN.NER.

English names: Fanny*, Jock.

Native of Port Dalrymple.

Husband: Jack (TUN.NER.MIN.NER.WAIT).

Associated with G.A.R. from (?) 1832.

With G.A.R. at Port Phillip; sent back to Flinders Island July 1842. Died: (?)**

* There seem to have been at least three natives named "Fanny".

** Fanny was alive in 1845.

5. MAUL.BOY.HEEN.NER* (♂)

Other spellings: MAL.BOY, MALBY, MAL-LEY, ?MAI.LA.PO.WAY.NER.ER.NER.

English names: Timmy; "Small Boy"; Robert** (FI).

Native of Georges River (?=Georges Rocks); ? Cape Portland.

Wife: Jenny. (After Jenny's death he married Rebecca, who died of dysentery on April 29 1841).

Captured by one of the roving parties: possibly he was one of the natives whom Robinson saw in gaol at Richmond early in October 1829. He accompanied the expedition to Port Davey but seems to have been one of those sent back to Hobart from Port Davey in April 1830. If so, he probably rejoined Robinson in March 1831.

Hanged (with TUN.NER.MIN.NER.WAIT) at Melbourne on January 20 1842 for the murder of two sealers (?) at Westernport in October 1841.

* Writing to Henry Dcwing from Port Phillip on December 3 1840, Robinson said in a biographical note — "Small Boy the original name given him by his parents but which it is evident is only a compound of the Engl adjective small and substantive boy". However, the name MAUL.BOY.HEEN.NER is found in a note made about December 1833, and so the above statement should be treated with some reserve.

** Not to be confused with Robert, the "civilised aborigine" who died at Launceston in March 1832.

6. NUM.BLOO.TE* (♀)

English names: Jenny (Jinny); Semiramis (FI).

Native of Port Sorell.

Husband: Timmy**

Died: February 28 1839.

According to a statement by Robinson, "Numploote and her husband attended me in all my wanderings", but there is no clear evidence that she accompanied the Port Davey expedition, and she does not seem to have been associated with G.A.R. before 1832.

* Robinson states that "Numploote in the language of the district is the name for a bat i.e. the bird so called".

** Timmy was her second husband, her first having been shot by one of the armed parties.

7. PROBELATTER (♂)

Other spellings: PROBELATENA and variants.

Other native names: LAR.CUR.KEN.NER*; LACKLAY(?).

English names: Jemmy (Jimmy); Isaac** (FI).

Native of Hampshire Hills.

Wife***: Matilda (FI) = PY.TER.RUN.ER (? = NATTEPOLENINER).

? Drowned at Westernport (Victoria) c.1840. Captured by a boy by one of the armed parties. He has not been identified among the natives with Robinson earlier than 1831, and probably he was among those sent to Robinson from Launceston in March of that year. Remained with Robinson thereafter.

* There is a statement by Robinson that "Lar-curkenner in the language of the district is the name for a pigeon".

** Not to be confused with Isaac a native woman who lived with the sealer Mansell.

*** The note associated with the profile of Jimmy that he was "married lately to Maria, who lived with a sealer" is very difficult to interpret. There are three possibilities: (a) "Maria" is a mistake for "Matilda", (b) Maria is an alternate name for Matilda; and (c) "lately" means "formerly", i.e. Maria was then dead. It is almost impossible to check on the third explanation because of the number of native women, at least six, who had been called Maria by the sealers. None of them seem likely except one who had lived with the sealer Kelly: She was a girl who seems to have died soon after she arrived at the aboriginal settlement (? c.1833-34). Of the three explanations the second seems the most likely.

8. LAR.RA.TONG. (♀)

Other spelling: LARRETONG.

English name: Queen Andromache (FI).

Native of Robbins Island (? Sandy Cape).

Husband: WY.MUR.RICK.

Joined G.A.R. in July 1832.

Her only (?) son TIME.MER.NID.IC (Tommy); Adolphus (FI) was sent to Lady Franklin in January 1839.

Died: August 16 1837.

LARRATONG and her husband WYMURRICK were in Hobart in November and December 1832 (after which they were sent to Flinders Island), so that this was almost certainly when the portrait of LARRATONG was painted by Bock.

9. MAN.NER.LE.LAR.GEN.NER. (♂)

Other spellings: MANNALARGENNA and variants.

Chief of an unidentified tribe of the east coast.

Wife: TAN.LEE.BONE.YER (Sall; ?Sarah).

Associated with G.A.R. from November 1830.

Died: December 4 1835.

15. TOE.GER.LONG.ENT.ER. (♂)

Other spellings: TOGERLONGERTER, TOUGELOUCHTER, TONGERLONGETER.

English names: Governor; King William (FI).

Chief of the Oyster Bay tribe.

Wife: Queen Adelaide (FI).

Captured by G.A.R. (with MONT.PE.LI.AT.TER, chief of the Big River tribe) on December 31 1831.

Died: June 20 1837.

16. TOMLABOMA. (??)

The only known portrait of this native is one in the British Museum, which is a copy by Alfred Bock after an unknown original by Thomas Bock (there is an outline sketch for the portrait in the Queen Victoria Museum). The native of the portrait is not named, but seems to be TOMLABOMA of item 13 of the Barnard Davis list (the shaven head suggests a female rather than a male). No one, either male or female, is known by this name, but if one uses similarity of sound for identification rather than spelling, it is just possible that the name is TANLEBONEYER (TAN.LEE.BONEYER).

This native was the wife of the chief MANNA-LARGENNA. She had been living with the sealers, but was brought to Launceston by James Parish about September 1830 to act as a guide at the time of the *Line*. In 1831 she was again at the islands, either with the sealers or at the aboriginal settlement, but she joined Robinson at the beginning of September and, with her husband, accompanied him on all his expeditions thereafter. She died on May 1 1835.

The above identification receives some support from the fact that TANLEBONEYER was one of the natives portrayed by Duterrau. (Some information about her was included with the biographies which Robinson sent to Henry Dowling on December 3 1840, but it is clear that her portrait was not included among those which were probably in Dowling's possession.)

17. MATHINNA. (♀)

Mathinna was the daughter of Towterer, chief of the Port Davey people, and his wife Wongerneep. Both parents were natives of Point Hibbs; they were captured by Robinson in June 1833. Mathinna was born on Flinders Island but the date of birth has not been determined. However, in a letter to her sister Mrs. Simpkinson in February 1843 Lady Franklin remarks that in the portrait which Thomas Bock had painted Mathinna "looks there like a girl of 12, but is only 7". This and other evidence suggests that Mathinna was born between July 1834 and June 1835.

Mathinna's mother died in September or October 1840. The child apparently went to the Franklins about July 1841, either directly from the Flinders Island aboriginal settlement or after having spent some time at the Queens Orphan School, Hobart. She remained with

them until they returned to England, living with Eleanor Franklin and her governess. In July 1843 Mathinna was sent to the Queens Orphan School, and in February 1844 to Flinders Island. J. S. Prout saw her there in 1845 and made a sketch of her which is now in the British Museum. When the Flinders settlement was abandoned she was again sent to the Queens Orphan School (in October 1847). In 1851 she went to the settlement at Oyster Cove and on September 1 1856 she died there by misadventure when drunk — she was then twenty-one or twenty-two years old.

G. P. Gell, when writing to his father in November 1841, remarked that the name Mathinna signified "necklace". Such a derivation is possible, *méta* being the word for "sinew" or "cord" in the eastern dialect (the western word has not been recorded), and sinews were used in making necklaces. The name Mathinna does not appear in the Flinders Island records of the Robinson era (and no other detailed records have been seen): she was known there as Mary. Other sources of confusion are the renaming of her father as Komeo and of her mother as Eveline at Flinders Island. Towterer died on September 30 1837 and Wongerneep later married Parlin, another western native, who appears in Robinson's records under the name Hannibal.

Note added in proof: Examination of some papers of Dumoutier in the Musées de l'Homme (Paris) suggests that (a) Sir John and Lady Franklin had a full set of Bock's portraits, including the "blue profiles", and (b) Sir John allowed Dumont D'Urville to take copies of his Bock portraits (and others) during the visit in December 1839. These copies have not been traced; it is just possible that they were yet another set of replicas obtained from Bock.

Table I: THE ROBINSON/FRANKLIN SERIES OF PORTRAITS OF THE TASMANIANS.

Present known distribution of originals and copies.

PORTRAIT	ORIGINALS				COPIES		
	A Pitt Rivers. Oxford	B Roy. Anthrop. Inst.	C A. W. F. Fuller Coll.*	D Tasm. Museum Hobart	E British Museum Alfred Bock	F Tasm. Museum Alfred Bock	G British Museum J. Grey
Woureddy	1	1			1	1	1
Truggermana	1			1	1	1	1
Jack	1	1			1	1	1
Jack's Wife	1	1			1	1	1
Timmy	1				1	1	
Jenny	1		1		1	1	1
Jimmy	1		1		1	1	1
Larretong	1				1	1	
Manalargenna	1	2		1	1	1	1

* Now in Mitchell Library, Sydney.

ADDENDUM

The identification of the series of Thomas Bock's portraits of Tasmanian aborigines now in the Pitt Rivers Museum, Oxford, as being the original set painted for G. A. Robinson, has been shown to be incorrect by the recent discovery of material in the Musée de l'Homme, Paris. It is now clear that the Pitt Rivers set* belonged originally to Sir John and Lady Franklin; that the set painted by Thomas Bock for G. A. Robinson has not been located; and that the original owner of the portraits in the Royal Anthropological Institute, except the one bearing the inscription referring to Hobson, has not been identified.

The new material comprises some photocopies of drawings found among Dumoutier's papers and originating in Dumont D'Urville's expedition, that is, the material relates to the period 12 December 1839—25 February 1840 in which the *Astrolabe* and *Zélee* paid their two visits to Hobart. The relevant pieces in this collection are (1) an outline sketch of the chief Manggalargenna, and (2) a rough sketch of portraits of Larratong, Jenny and Jack. The sketch of Manggalargenna is clearly Thomas Bock's work, and is identical with his other portraits of this man; the conclusion reached that Bock obtained exactness of reproduction by working from outlines is therefore strengthened (see page 17).

The sketch of Larratong, Jenny and Jack is readily identifiable as having been made from Thomas Bock's portraits of those three natives. It has the additional interest of having inscriptions associated with each of the portraits which are those found on the Oxford set. These inscriptions, moreover, clearly were dictated to the sketcher, so that, for example, the notation on Larratong's portrait "she never had any commun. with Europeans till went to Flinders", has become "chi never haid eney communication vith Europeans and till flindern"; and there is also a free translation of this notation into French.

It is known from Dumoutier's papers in the library of the Musée de l'Homme, that Sir John Franklin had a collection of pictures, busts and "miniatures" relating to the Tasmanian aborigines, and that Lady Franklin gave Dumont D'Urville permission to copy the "miniatures." The notations on the sketch in the Dumoutier collection clearly associate Dumont D'Urville and the Pitt Rivers set of Bock's portraits; and in the absence of any known, or possible, contact with G. A. Robinson at that time — he had been at Port Phillip since February 1839, and Dumont D'Urville did not visit that place nor any other on the Australian mainland except Port Essington — there is no alternative to the view that the Pitt Rivers portraits were those seen by Dumont D'Urville in Sir John Franklin's collection.

Having thus identified with some certainty the Pitt Rivers portraits as having belonged to Sir John and Lady Franklin, it is now necessary to revise some of the previous conclusions as to the provenance of the various portraits:—

(A). Statements linking the Oxford portraits with G. A. Robinson's original collection are untenable, but in no way depreciate the descriptions of the portraits in the various collections, or the conclusions on matters other than original ownership. Thus, the conclusion reached from the content of

the notations on the Oxford set that they were composed about 1839, is now nearly certain; but the supposition arising from that conclusion that the notations may have been inscribed by Robinson's clerk is now open to some doubt, although the fact that the type B inscriptions are probably in Robinson's hand does not make it impossible — in view of the known meetings, both at Hobart and at Flinders Island, between Robinson and the Franklins there is no argument against the latter. (B). The conclusion that the portraits in the Royal Anthropological Institute, with the exception of that with the inscription referring to Hobson, had belonged to the Franklins, is of course untenable. Lady Franklin's excuse to Barnard Davis for not lending him her set of the portraits for copying must now be seen in more restricted terms, with perhaps only the Hobson portrait missing. The origin of the other portraits in the Institute cannot yet be determined and we can only deduce from the records relating to Cull's purchase that they all came from the one collection. None of the known sets seems to fill the bill — they are certainly not part of Robinson's original set, which Barnard Davis later acquired; it is unlikely that they had belonged to Henry Dowling, for his brother Robert did not reach England until 1856 at the earliest²⁸; and Schayer and Swayne seem to have had only four portraits altogether, and Schayer's were probably sent to Berlin. Possible sources of the portraits are:— G. A. Robinson (no evidence that he had portraits in addition to his original series, and no evidence that he disposed of any in London between his arrival there in September 1852 and departure for the Continent in June 1853); John Skinner Prout (may have obtained copies from Bock during the four years he spent in Tasmania (1844-1848); returned to England in 1848); Josiah Spode (returned to England in 1854; no evidence that he had any of Bock's portraits, except for Alfred Bock's statement in his letter to J. W. Beattie³⁰, and the Barnard Davis correspondence does not support this). Prout is the most likely of these.

(C). Lastly, it must again be pointed out that Robinson's original set of portraits, except for the group (iii) portraits in the British Museum, has not been traced. Barnard Davis acquired the collection from Mrs. Robinson, and presumably it was sold after his death in 1881, but there the trail peters out for most of the portraits; and unless the missing ones were those said to have been in the Crystal Palace, nothing further can at present be said on the matter.

Paris, June 1965.

N. J. B. PLOMLEY

* Each of the Oxford portraits is now framed, so that it is not possible to inspect the back, or the margins of the front. However, close to the upper margin of the portrait of Manggalargenna the words "House of Assembly Hobart" are written in pencil; and on his profile, partly obscured by the frame, what appears to be "Mrs G. . .". No explanation of these notations can be offered; the "House of Assembly Hobart", the lower chamber of the legislature in Tasmania, was not set up until 1855; its first members were elected in 1856.



RECORDS OF THE QUEEN VICTORIA MUSEUM
LAUNCESTON

Two Skink Lizards Newly Recorded From Tasmania

by

R. H. GREEN,

Queen Victoria Museum,

Launceston, Tasmania.



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ABSTRACT

Rhodona bougainvillii Gray, and *Leiolopisma delicata* De Vis, are recorded from Tasmania for the first time. The extent of local distribution is given, measurements of five specimens of *R. bougainvillii* and nine specimens of *L. delicata* are tabulated and observations on their Tasmanian distribution, habitat, behaviour, breeding and food are recorded.

INTRODUCTION

Until 1962 only eight lizard species were recognised as occurring in Tasmania. Concentrated collecting has since revealed the presence of two additional species, *Rhodona bougainvillii* and *Leiopisma delicata*.

Specimens of *R. bougainvillii* were sent to Mr. A. J. Coventry of the National Museum of Victoria, Melbourne, for comparison with specimens from the Australian mainland.

Specimens of *L. delicata* were sent to Dr. J. L. Hickman, of the University of Tasmania, Dr. H. G. Cogger, of the Australian Museum, Sydney, and Miss Carina Clarke, of the Sydney University for determination. Miss Clarke confirmed Dr. Cogger's opinion that they are *L. delicata* (Clarke, in press).

A brief account of these two species is given below.

MATERIAL AND METHOD

This record is based on the collection and examination of 15 specimens of *R. bougainvillii* and 41 specimens of *L. delicata*. In addition 11 eggs and 40 hatched shells of *L. delicata* have been studied.

Observations were also made on numerous individuals of *L. delicata* kept in captivity for periods up to three months.

Measurements of ovaries were taken from alcohol preserved specimens and those of eggs were made on fresh material.

Measurements of lizards were made on specimens preserved in 70% alcohol and were taken as follows:

Total length — Snout tip to tail tip.

Tail — Posterior edge of anal flap to tail tip.

Snout to ear — Snout tip to centre of ear opening.

Fore-limb — Body to base of claw measured posteriorally.

Hind-limb — Body to base of claw measured posteriorally.

Head — Width at ear.

Body — Width at mid-region.

Rhodona bougainvillii Gray.

LOCAL DISTRIBUTION AND HABITAT.

In correspondence with Mr. A. J. Coventry of the National Museum of Victoria I was informed that the Museum's register shows that, in 1933, one specimen of *R. bougainvillii* was taken by Mr. D. J. Mahoney on Swan Island, twenty miles to the east of Waterhouse Island, off Northern Tasmania.

Worrell (1963) includes Bass Strait Islands in the distribution of *R. bougainvillii* but does not give details.

In the course of two days spent on Waterhouse Island in August 1962 the opportunity was taken to collect representatives of the lizard fauna. The island, situated about two miles from the Tasmanian mainland, is two miles long, half a mile wide and rises to about 100 feet. The soil is sandy with parts of the island being very rocky. Trees are absent and low scrub, tussock grass and rushes cover much of the island. Pasture improvement has taken place in suitable areas.

Sixty-five lizards were collected and found to include five species, namely *Egernia whitii* Lacepède, *Leiopisma metallicum* O'Shaughnessy, *L. ocellatum* Gray, *L. trilineatum* Gray, and *R. bougainvillii*. In every instance *R. bougainvillii* was found half buried in the sandy soil beneath stones. Twelve specimens were collected, all of which were in a semi-torpid condition but became active after handling.

The presence of the species on the off-shore islands indicated the possibility of its occurrence on the adjacent Tasmanian mainland. In June 1964, lizards collected at Cape Portland by Mr. Lance Wilcox included three *R. bougainvillii* thus confirming the earlier suspicion of their presence in north-eastern Tasmania. To date, they have not been collected in Tasmania beyond these limits.

The species is adequately detailed by Waite in "The Reptiles and Amphibians of South Australia" 1929, and the following particulars are given for comparison.

The three specimens collected at Cape Portland were typical of the species and consisted of one adult male (total length: 105 mm.) and two juveniles (total length: each 45 mm.). (See Table 1).

REPRODUCTION.

The ovaries of *R. bougainvillii* collected at Waterhouse Island showed no evidence that maturation of the ova had begun. However those of the other species collected from the island had obviously commenced development.

Table 1. DIMENSIONS OF FIVE *R. BOUGAINVILLII* (in mm.).

Q.V.M. Reg. No.	Waterhouse Island			Cape Portland	
	1964:3:9	1964:3:8	1964:3:7	1964:3:6	1964:3:5
	♀	♂	Juv.	♂	Juv.
Total length	126	118	62	105	45
Tail	65	64	30	52	20
Snout to ear	7	7	4.8	7	4.7
Fore-limb	7	7	4.5	6.5	3.5
Hind-limb	12	12	7	12	6
Head	5	5	3.2	5	3
Body	6	6	3.2	6	3
Rows of body scales	22	22	22	20	22

Leiopisma delicata De Vis.

LOCAL DISTRIBUTION AND HABITAT.

This lizard was first suspected as being a species new to Tasmania in the spring of 1963 when, upon examination of captive specimens, characteristics were noticed which served to distinguish it from *Leiopisma metallicum* O'Shaughnessy with which it had previously been confused.

Following further collecting in the summer and autumn of 1964 and a re-examination of specimens of *Leiopisma* in the collections of the Queen Victoria Museum, it became obvious that those previously determined as *L. metallicum* included specimens of *L. delicata*.

To date, *L. delicata* has been collected only from northern and north-eastern Tasmania, localities being Gladstone, Moorina, Launceston, Exeter, Deviot, Flowery Gully, Green's Beach and Badger

Head. Throughout this area it is a comparatively common lizard and has been taken in habitats ranging from open sandy heath to pine forest and thick bush. Though it is not suggested that its range is limited to this area it has thus far not been collected from areas beyond these limits. No Tasmanian specimens were located in collections outside the Queen Victoria Museum but it is intended to lodge examples in the Australian Museum, the National Museum of Victoria and the Tasmanian Museum.

When disturbed it readily retreats beneath any available cover and has been found under timber, stones, old iron, cement blocks, dried seaweed and accumulated vegetation. There is no evidence of burrowing apart from the removal of some soil to facilitate its access to a retreat. Though it is an excellent climber in captivity it has not been found to ascend more than a few inches above the ground in its natural habitat.

Table 2. DIMENSIONS OF NINE *L. DELICATA* (in mm.).

Q.V.M. Reg. No.	1964:3:17	1964:3:16	1962:3:10	1964:3:15	1964:3:14	1964:3:13	1964:3:12	1964:3:11	1964:3:10
Sex	♂	♂	♂	♂	♂	♀*	♀	♀	♀
Total length	90	105	105	83	102	76	92	100	50
Tail	56	64	64	51	61	36	55	60	25
Snout to ear	7	7.5	7.8	6.5	7.5	7.5	7	7.5	5.4
Fore-limb	7.5	10	9.5	8.5	9.5	9.5	9.5	8.5	6
Hind-limb	11.5	13.5	13	11	12.5	12.5	11.5	12.5	7.5
Head	5	5.5	5	4.6	5.6	5.7	5	5.5	4.5
Body	6	6.5	6	5.5	6	6.5	5	8	4
Rows of body scales	27	26	26	27	28	28	26	26	26

(* Regenerated Tail).

Table 3. RANGE IN NUMBER OF SUBDIGITAL LAMELLAE OF NINE *L. DELICATA*.

Digit	Number of digital lamellae	
	Fore-Limb	Hind-Limb
I	5 - 7	6 - 9
II	8 - 10	10 - 14
III	9 - 14	13 - 20
IV	11 - 16	16 - 25
V	7 - 10	11 - 15

BREEDING.

A specimen (with head and body length of 41 mm.) collected at Green's Beach on 15/9/63 was found to have two eggs (each 1.7 mm. in diameter) in each oviduct. Another (with head and body length of 38 mm.) collected at Exeter on 1/1/62 had one egg (5.5 mm. x 4.5 mm.) in each oviduct.

From December to March eggs, at various stages of development, have been found in crevices in the dry ground and in chambers beneath stones, wood, and loose earth. Eggs are oval in shape with a milky white soft skin-like covering. A lizard collected on 30/11/63 and showing obvious signs of pregnancy was kept in captivity, and produced four eggs on 4/12/63. These eggs averaged 7.5 mm. x 5 mm.

A set from Green's Beach on the point of hatching averaged 11 mm. x 6 mm. The size difference between newly laid eggs and eggs on the point of hatching indicates fluid assimilation with volume increase. A similar development was noted by Mitchell in his observations on *Leiopisma guichenoti* Dumeril and Bibron (Mitchell, 1959). If the eggs are only partly developed when removed from the cavity of deposition they rapidly dehydrate but, if advanced, they easily hatch. Total length at hatching is 37 mm. to 43 mm. In colour and appearance the young lizard is similar to the adult except for the head which proportionally is slightly larger. Nest chambers from which the young have emerged sometimes contain more than 20 empty and shrivelled shells. This communal breeding habit is closely allied to that of *L. guichenoti*, (Mitchell, 1959), and *Leiopisma trilineatum*, (B. C. Mollison — personal communication).

FOOD.

Examination of the stomach contents has revealed in most instances the remains of insects belonging to the orders HYMENOPTERA and DIPTERA. One specimen collected near the high water mark at Green's Beach was found to have its alimentary canal distended with remains of small crustaceans.

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OBSERVATIONS ON THE LITTLE BROWN BAT *EPTESICUS PUMILUS* GRAY IN TASMANIA

by

R. H. GREEN

QUEEN VICTORIA MUSEUM
LAUNCESTON, TASMANIA

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ABSTRACT

The results of three years' (1962-1965) observations on the Little Brown Bat, *Eptesicus pumilus* in northern Tasmania, are recorded.

The diurnal roosts of five maternal colonies are described and observations on their exit and entry flights are given.

The three main methods used to capture specimens are described and 206 *E. pumilus* were collected by these methods. Of this total 83 were examined and processed into the collections of the Queen Victoria Museum. The remaining 123 were banded and released and of these 86 were subsequently recaptured 216 times on 34 trap nights.

The longest distance recovery was three miles and the longest time lapse was nineteen months.

Colonies will use more than one diurnal roost at the same time and interchanging by individuals between these roosts is usual.

Colonies are at their greatest numerical strength in January but autumn dispersal greatly reduces the colony during the winter months. A build-up occurs in the spring and parturition takes place between the end of November and mid December with a single birth being normal. Post-partum copulation and seminal storage is indicated by the structure of colonies and seasonal behaviour of males.

The growth, pelage, tooth eruption and behaviour of young are described and progressive mensurations tabulated.

Pelage variants are not indicative of sex but appear to be influenced by age and possibly local environment.

Tooth wear is apparently associated with age and in some cases has been found to be extremely severe. Body weight generally increases throughout the first year of the bat's life and from six months of age the weight of females usually exceeds that of males.

Observations are recorded on feeding, drinking, flight, swimming, voice, excreting and toilet.

I. INTRODUCTION

This paper is based on data collected from various sources as opportunity permitted over a period of three years. The study was commenced in February 1962 with the banding of a colony at Green's Beach. These were the first bats of any species to be banded in Tasmania.

Four more colonies were located and subsequently the occupants of two were banded and released and most of the occupants of the other two were collected and processed into the collections of the Queen Victoria Museum. Odd individuals came to hand over the same period.

Retrapping was carried out at the three banding sites on a total of thirty-four evenings, observations were recorded and some individuals retained during the breeding season for cage study and dissection. This interference, particularly during the breeding season, was apparently the reason for desertion of the roosts by each of the banded colonies. Consequently it has not been possible to make repeated observations on any one colony for two successive years and much of the

data acquired has in itself created additional questions.

Much more work still remains to be done before the life cycle of *E. pumilus* is completely known but its small size, hidden roosts and shy habits makes the study on free living colonies most difficult. The results of the past three years' observations therefore are little more than an introduction and are here recorded for the use of future workers.

To avoid confusion, certain terms used in the text are defined here as follows:

Juvenile: Dependent young, from birth to about 60 days by which age the bat is flying and changing to an insectivorous diet.

Sub-Adult: Independent but sexually immature, covering the period from commencement of flight at about 60 days until the approach of the following breeding season at about nine months of age.

Adult: Having attained puberty, in excess of nine months of age.

Morphological differences between these categories are discussed later.

II. DIURNAL ROOSTS

Although a number of reports have been received of bat colonies in buildings, trees and caves, most have proved valueless because the site was destroyed or abandoned by the bats before it could be visited and in every case the species was not positively identifiable from the description.

During the course of study, five major diurnal roosts have come under my notice. All were in wooden buildings and were subsequently found to house maternal colonies. They are briefly described as follows:

"Green's Beach" colony, at Green's Beach on the western side of the mouth of the Tamar River, reported 1: II: 1962, was found to be housed in two separate roosts about twenty-five feet apart. One roost (designated A) was in a three inch wall cavity of a shack, the bats gaining entry by way of small gaps between the window facias and the cement sheets covering the external walls. The other (designated B) was in the roof of a paling hut near the shack. The shingle roof had been covered with heavy tar paper and the colony was occupying the narrow space between the two materials. Bat faeces were found adhering to the outer wall in the vicinity of the entrances and the owners of the buildings complained of an offensive odour during the summer months. The painted surface of the inner wall of the shack was stained with urine and faeces were regularly falling through the shingles in the roof of the hut and fouling its contents.

Squeakings and rustling noises could be heard in the roosts at most times of the day, particularly in the roost on hot sunny days when the heat immediately beneath the tar paper must have been intense.

The shack owners told of a similar occupancy during the previous summer when quantities of bat faeces were found to have accumulated in crevices.

and upon examination from the inside with the aid of a torch a number of bats were seen retreating from the light into the crevices between the roofing material.

The employees working in the building had no previous knowledge of the existence of the colony, though accumulated faeces indicated that it had probably been in use in a previous season.

"Lilydale" colony near Lilydale about ten miles north of Launceston, was discovered in the roof on an old shed when it was about to be demolished on 10: IV: 1964. Fourteen bats were collected by the owner and sent to the Queen Victoria Museum and were subsequently processed into the collections.

"Robigana" colony at Robigana on the west bank of the Tamar River was reported in October, 1964. It was occupying a small space where a verandah roof joined the weatherboards of an old wooden house. Entry was gained by way of the open verandah and the roost was reported to have been occupied during the previous summer.

The owners complained of fouling of the wall and floor by the faeces of the bats and had made several attempts to wash the colony out with a garden hose. Though bats had been dislodged by this means they could not be deterred from returning at a later date.

"Sheffield" colony, two miles south of Sheffield, was examined on 18: XI: 1964 and found to be occupying the space beneath a single corrugation of a sheet of roofing iron, where it capped a board on the end of a verandah roof in an old weatherboard house. Entry was gained from outside the verandah by way of the gaps between the sloping board and the weatherboards to which it was fixed. Bats could be heard inside the roost and it was reported to have been occupied the previous summer. A mist net set on the same evening captured twenty-four bats which were subsequently processed into the collections of the Queen Victoria Museum. Although some bats could still be heard in the roost at the cessation of netting activities, the roost was found to be deserted when the roofing iron was lifted on 5: XII: 1964.

A few solitary individuals have been collected at various times from roosts in sheds and timber stacks, or collected in flight at night.

Though bats have been reported flying in cave entrances no diurnal bat roosts have been discovered in Tasmanian caves.

III. EXIT FROM AND RE-ENTRY TO THE ROOST

E. pumilus colonies have been found to commence leaving their roosts at dusk and continue to do so in a haphazard manner for about half an hour. There is no indication of a mass exit as a time lapse varying from several seconds to several minutes takes place between the departure of individuals. Chattering and squabbling in the roost is accentuated as the bats prepare to leave, but, if a light is flashed on the exit, activity is depressed and the bats are reluctant to leave until darkness is restored.

Limited observations have not shown that *E. pumilus* has any notable preference for any particular weather conditions. However, on the evening of 13: X: 1962 when light rain was falling, bats began to return to the roost before exit flights had ceased. Of thirteen successful nettings, six were in exit flight and seven in entry flight. Three of the latter had not been taken in exit flight on that evening and appeared to have come from another roost.

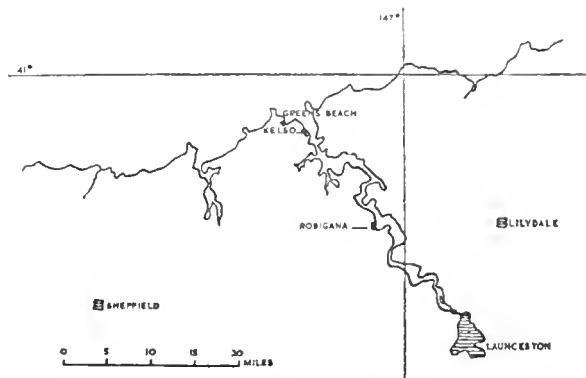


FIGURE 1. Sketch map based on the Tamar River showing the relative positions of the sites of the diurnal roosts mentioned in the text.

"Kelso" colony at Kelso, near the western side of the mouth of the Tamar River and about three miles south of Green's Beach colony was discovered following the finding of two juvenile *E. pumilus* on 8: II: 1964. The colony was located beneath the tar covered flat wooden roof of a substantial brick building. The bats were found to be living behind the facia boards and among the converging mass of wooden roof supports. Entry was gained by way of the corrugations on a lower roof which ran beneath the facia boards.

The bats could be clearly heard from the outside

When leaving the roost the bats drop from the exit hole to gain momentum and then usually quickly ascend.

Individuals can be seen flying in the vicinity of the roost for a few minutes after leaving but appear soon to move away to more distant places.

Dawn observations of entry flights have shown that the colony may return to roost either in a massed flock or staggered over a period of time.

A year before the study was commenced a massed pre-dawn entry was observed at Green's Beach in February 1961. This roost (designated C) was in a shack roof and entry was gained by the bats dropping into the spouting and crawling along the corrugations beneath the roofing iron to enter a four-inch space between the ceiling and the roof. In the half light of dawn bats were noticed flying in every direction over the roof and garden area of the shack. They appeared so numerous and their flight so irregular that they reminded the observers of a swarm of bees. The number was difficult to estimate but it was thought to be about fifty. The light was not sufficient to follow their flight except when they were silhouetted against the sky and within a few minutes they had completely vanished. Unfortunately circumstances at the time prevented further observations and it was not until sometime later that the roosting site was discovered. It was subsequently abandoned for no apparent reason and has not since been occupied.

Overnight trapping in the "Green's Beach" roost (A) in February 1962 indicated that movement in and out of roosts continued haphazardly throughout the night. In the same month a dawn entry was watched and about a dozen bats were seen to return in the quarter hour before daylight.

At this roost flight terminated in an upward sweep with the bats losing momentum as they reached the vicinity of the entrance in the wall of the shack. If the initial grip on the wall surface was not secure they dropped away to circle and again repeat the attempt. When a satisfactory foothold was obtained the entrance was quickly located and the bat disappeared within the roost. It is, when making these attempted entries, that the bats deposit the faecal pellets which are to be found adhering to vertical surfaces in the vicinity of roost entrances.

E. pumilus were found to fly in the vicinity of their roost for only a few minutes after exit and it was most noticeable to the observers that they soon moved further afield.

When disturbed from their roost or liberated in day time they showed no apparent concern at an enforced

diurnal flight. Welcome Swallows *Hirundo neoxena* took interest in their presence and hawked round them as they flew but no other bird or animal appeared disturbed. Some of the bats would return within minutes to re-enter the roosts while others gradually moved away and vanished from sight.

IV BANDING

(a) Methods.

All the bats collected alive have been secured by three methods:

- (i) Wall panels or similar coverings have been carefully removed and bats collected before they could move away. This method has been used as little as possible because of the greater risk of disturbance.
- (ii) Mist netting has proved successful when the net was strung across the flight lines opposite the entrance to the roost and bats have been taken by this method when leaving or returning to the roosts. *E. pumilus* has been found to become net shy when subjected to repeated netting and will take evasive action if an alternative escape is possible. If nets are well set and completely contain exit routes the bats have been found to mesh well and to be easy to extract if removed soon after netting. In the Kelso roost the bats were captured by laying the mist net over the roof and entrances in a semi-horizontal position to blanket the area and prevent escape. Here the net hung within six inches of the exits and the bats became entangled in the loose netting instead of being properly meshed behind a shelf string.
- (iii) Tin traps have been used with success wherever exit holes were suitable. A standard four gallon kerosene tin with the top cut out makes an ideal trap but any smooth sided container is satisfactory provided the sides are high enough to prevent the bats jumping out when attempting to fly. The trap is suspended immediately below the exit hole in such a position that the bats will drop into it as they start their exit flight. The advantage of this trap is that it can be left unattended and cleared at the convenience of the operator, provided weather conditions are satisfactory or the trap suitably shielded from rain. It was found that the trap had to be removed during the night as otherwise the entry flight of the bats was obstructed and they experienced difficulty in locating the entrance to the roost. Thin plastic bags are not satisfactory for traps or containers as bats will chew holes in the material and escape.

TABLE 1. TOTAL BANDING AND RECAPTURE STATISTICS

Banded Between	Times Recaptured							Total Recaptures	
4 : 11 : 1962 - 1 : 1 : 1965	0	1	2	3	4	5	6	7	
♂ ♂ 30	13	11	2	0	2	0	2	0	35
♀ ♀ 93	24	25	11	16	6	6	3	2	181
Total 123	37	36	13	16	8	6	5	2	216

Bands were supplied by C.S.I.R.O. Division of Wildlife Research. Initially these were standard size 020 bird bands and were found to be quite satisfactory. Special bat bands of a slightly different design are now in use. Bands were placed round the radius without piercing the propatagium and were large enough to move freely and not bind on the skin.

(b) Results.

Banding was carried out in the Green's Beach, Kelso, and Robigana colonies between 4:II:1962 and 1:I:1965. A total of 123 bats were banded and of these 86 were subsequently recaptured 216 times on 34 trap nights. (See table 1).

With the following exception all recoveries have been at the place of banding. A female banded at Green's Beach on 6:IX:1963 was recaptured at the Kelso roost on 25:IX:1964. The intervening distance is about three miles and the terrain is undulating coastal plain carrying light scrub and stunted eucalypts.

The longest time lapse between banding and recovery is for three females banded at Green's Beach on 4:II:1962. They were recaptured at the place of banding together with eight others on 6:IX:1963, nineteen months after banding. Two had been banded as sub-adults but the third was still showing evidence of recent lactation when banded.

Banding and retrapping has indicated that more than one roost site is used by each colony. The Green's Beach colony used at least two roosts sited in buildings about 12 feet apart and recoveries showed an interchange of occupants: on some days the whole colony occupied one roost, while on others both were occupied.

Netting of banded bats from other colonies has likewise shown the number of occupants to fluctuate daily and individuals present on one evening may be partly replaced by different bats the next, or they may reappear on subsequent occasions. Consequently it was necessary to set nets for several evenings, before all members of a colony were caught and banded. Counts of bats leaving the roost on evenings when netting was not

carried out has shown similar fluctuations.

Two sub-adults removed from a roost site at Green's Beach in the mid-afternoon of 28:II:1965, banded and released, were seen to enter a small hole 4 feet above ground, in a stone chimney about fifty yards distant. Netting at this site on the following evening resulted in the capture of five bats and accumulated faeces indicated that this alternative roost was well used.

(c) Seasonal Changes In Colony Structure.

All the roosts examined have produced less than fifty individuals. In those whose occupants were banded numerical strength was at its peak in February following breeding when all the sub-adults were still present, but decreased in the autumn and reached a minimum during the winter months.

In spring the numbers increased until, by the end of October, a full complement of pregnant females was in occupancy.

The spring build-up in the Green's Beach colony in 1962 did not occur till the latter half of October, but in 1963 it started in September. In 1964 the Kelso colony was at its full breeding peak by the end of September but the Robigana colony did not appear in strength till mid-October. There was no apparent reason for these variations but the use of alternative roosts may be responsible.

Of 49 bats captured from the Green's Beach roost (A) in February and March, 1962, 23 adult females were still lactating or had just ceased to lactate. The remainder were 15 females and 11 males, all of which appeared to be sub-adults. Of these 3 adult females, 1 sub-adult female and 1 sub-adult male were killed and processed into the collections. The rest were banded and released.

It is not suggested that the preponderance of sub-adults over adult females indicates twinning but rather a failure at the time to catch all the adult females. Subsequent trapping of this colony in the following spring recovered many of these banded bats and produced the highest number of recaptures from the older females. (See Table 2).

TABLE 2. BANDING AND RECOVERIES AT THE GREEN'S BEACH COLONY

Banded		Recaptured	
Feb.-March 1962		Oct.-Nov. 1962	Nov. 1962 only
As Adult	♀ ♀ 20	19	14
As Adult	♂ ♂ 0	—	—
As sub. Ad.	♀ ♀ 14	9	6
As sub. Ad.	♂ ♂ 7	4	1
Banded	As Adult ♀ ♀	5	0
Oct.-Nov. 1962	As Adult ♂ ♂	0	—

TABLE 3. BANDING AND RECOVERIES AT THE KELSO COLONY

Banded		Recaptured	
February, 1964		Sept.-Dec. 1964	Dec. 1964 only
As Adult	♀ ♀ 24	17	8
As Adult	♂ ♂ 0	—	—
As sub. Ad.	♀ ♀ 9	2	0
As sub. Ad.	♂ ♂ 9	4	3
Banded	As Adult ♀ ♀	6	3
Sept.-Dec. 1964	As Adult ♂ ♂	6	6

The proportion of males decreased as the breeding season approached and was at its lowest numerical strength in early November. This roost was deserted in mid-November and no further observations could be made.

A somewhat similar fluctuation in population structure was found to occur in the Kelso colony in 1964 with the highest number of recaptures again amongst the older females. (See Table 3). None of the first year females remained to breed in this roost in the 1964-65 season, the last recapture being made on 29: XI: 1964, apparently in non-breeding condition.

Of the 9 first year males banded at Kelso 3 remained in the colony over the following breeding season but it was found that from the commencement of parturition in late November, to the end of December, 6 new unbanded males joined the colony. Previous trapping has failed to find any adult males in colonies after January.

The portion of the colony collected at Sheffield on 18: XI: 1964 produced 17 pregnant females, all with embryos at an advanced stage of development, and 7 males.

A somewhat similar sex ratio was found to occur in a maternal colony of *Chalinolobus gouldi* near Melbourne in December, 1961, at which time the colony contained both lactating and heavily pregnant females. (Simpson 1961).

The portion of the colony collected at Lilydale in April 1964 produced 11 females and 3 males, the latter being almost certainly sub-adult.

Trapping at Robigana roost in November and December, 1964, produced 18 females and 6 males.

No explanation can be offered to account for the disappearance of bats from the roost over the winter months. However, winter occupancy by some bats at least and an extended period of use by a high summer population seem to indicate that the roosts in question are not just temporary breeding sites.

One case of species association was recorded when a single *Chalinolobus morio* was taken with *E. pumilus* in a mist net set at the entrance to a roost at Green's Beach in April, 1963. Although it cannot be stated positively that this bat was roosting in association with *E. pumilus*, the limited roosting space available and its suitability make this a strong possibility.

V. OBSERVATIONS ON BREEDING, GROWTH & DEVELOPMENT

(a) Breeding.

From the observations made on seasonal changes in colony structure it appears that there is an influx of additional males into a roost immediately prior to and during the period of parturition, but that these males abandoned the colony before the juveniles take flight. It therefore seems reasonable to suggest that this influx is for the purpose of copulation, which may occur soon after parturition, with seminal storage taking place in the females. Post-partum copulation was observed in a colony of *Myotis lucifugus* in Chicago, U.S.A., by Dubkin (1952) and observations on seminal storage in vesperilionid bats in the eastern United States of America have been summarized by Wimsatt (1945).

The supposition that this is the pattern in *E. pumilus* is further supported by a pronounced seasonal variation in the size of the testes in the male. The testes of 5 males taken between the end of January and the end

of October ranged between 2 x 1 mm. and 1 x 1 mm., while the testes of 9 males taken from three different colonies during November ranged between 4 x 2 mm. and 2.5 x 1.5 mm. Enlargement in terms of testes volume is, of course, much greater. Thus the testes are of maximum size and therefore presumably at a peak of spermatogenesis at the time the young are born.

Embryos of 3 to 5 mm. total length were noted in dissected bats collected in the last week of October and abdominal distension was obvious by mid November. During advanced pregnancy the skin of the abdomen became stretched to such a degree that a patch of skin free of fur, about 7 x 3 mm., appeared immediately above the vagina.

Observations and dissection of pregnant bats indicates that breech birth may be customary. The body of the unborn foetus is considerably broader than the head and upon its expulsion the female relaxes and allows the young to withdraw its head by its own efforts. The tail and the uropatagium of the female are held in the position of a "safety net" to support the new born young. Observations of *M. lucifugus* (Wimsatt, 1945) have shown a nearly similar parturition procedure.

A breech birth in which contractions ceased after expulsion of the foetus, and in which the new born young removed its head from the vagina unaided, was noted by the author in the case of the second of twins of *Nyctophilus geoffroyi*, born 20: XI: 1964 (unpublished data).

The young of *E. pumilus* were produced over a period of about three weeks, between the end of November and mid-December. All the material so far examined has indicated that only a single young is produced annually, although McKean and Hall (1964) quoting Dwyer (personal communications) recorded twinning in this species in the New England district of New South Wales.

At none of the colonies visited was a young bat ever found attached to an adult. The 5 juveniles taken from the Kelso roost were all found unassociated and no adult netted in exit flight was ever found to be carrying young. A juvenile bat placed on the breast of a lactating female would quickly attach to a nipple but the adult often became annoyed and removed the juvenile by pulling it away with her teeth.

Although the thumbs and hind feet are used by the young to retain its hold of the parent, they appear of secondary importance to the mouth. In captivity, young bats were often noted to lose their "foothold" and swing attached by the mouth only. They fasten tenaciously to the nipple and some effort is required to remove them. The nipples of lactating females are about 2 mm. long and are surrounded by a 3 to 4 mm. radius of bare skin. In lactating females netted at dusk, this mammary patch was pink, but in those collected from the roost on the mornings of 2:1:1965 and 8:1:1965, the subcutaneous glands were distended and appeared a milk-white colour. In the evenings lactating females were found to emerge from the roosts over a more extended period than at other times of the year, though this may have been due to net shyness after repeated netting.

Two pregnant females were collected and removed from the Green's Beach colony in November 1963 and twelve from the Kelso, Robigana and Sheffield colonies in November 1964 in an endeavour to observe birth in captivity. They were held in small cages of about five cubic feet capacity, supplied with water and fed on live house flies and small moths. Most individuals died after 3 to 5 days, only 2 surviving to give birth to their young

and in both instances these were stillborn. One was found dead on the floor of the cage on 16 : XII : 1964. It weighed 0.83 gm. and had a total length of 34 mm. (See Table 4). It was naked with the eyelids closed. Skin colour was primarily flesh pink with the eyelids, nose, lips, ears, fore and hind limbs, tail and patagium grey. A few mystacial and supraorbital vibrissae were present. Milk teeth had begun to erupt, with those on the upper jaw being most advanced. The pes and thumb were noticeably well developed in relation to the other features, the fingers appearing under-developed by the same comparison. General appearance gave the impression that this bat was not a full term foetus.

The birth of the other stillborn bat, on 26 : XI : 1964, was observed by Mr. J. W. Swift of the Museum staff who recorded the following details :

At 0955 hrs. the female was noticed clinging to the wire front of the cage in a head upward position. Her tail was curled upward ventrally to form a pocket and the rump of the young bat could be seen protruding from the vagina. The female's body was heaving irregularly and the young was gradually expelled as far as its head, its body being contained within the curl of the tail. The female rested in this position until 1030 hrs. when she was removed for examination and the young found to have been born dead. The head of the young was easily withdrawn from the vagina and the umbilical cord was cut.

By 1130 hrs. a placenta approximately 5 mm. x 3 mm. had been completely expelled but the bat was of a lethargic disposition and made no attempt at toilet. The female's weight after parturition was 3.84 gm.

The stillborn young, Reg. No. 1964 : 1 : 304 ♂, weight 1.11 gm., total length 38 mm. appeared in fresh condition and was apparently near to a full term foetus. (See Table 4). The body colour was a pinkish grey, darkest dorsally. The fore and hind limbs, ears and lips were a dark grey and the patagium when folded appeared a similar colour but when spread was a transparent grey. The nasal glands were prominent and paler than the surrounding skin. The eyes were closed and the claws sharp and stout.

It was born apparently naked but under microscopic examination short hairs were visible in the region of the nose, on the toes and thumbs particularly near the base of the claws, on wrists, forearm and darkest parts of the ears. Mystacial, supraorbital and interramal vibrissae were present and slightly longer than adjacent pelage hairs.

The canine and incisor milk teeth had erupted, those on the upper jaw being most prominent. Cheek teeth were still contained within a swollen jelly-like gum.

(b) Growth and Development.

Five juvenile bats were collected from the Kelso colony in early January 1965 from which the following successive stages of development were recorded. (See also Table 4).

(i) Reg. No. 1965 : 1 : 2 ♀, collected at 10.30 a.m. on 2 : I : 1965, weight 1.35 gm., total length 42 mm. Right eye was open, left eye still closed. Skin colour a grey flesh dorsally, pinkish ventrally. Nose, lips, eyelids, ear tips, toes and distal parts of the patagium, dark grey. The stretched patagium a paler transparent grey. Nose glands almost milk white. Body naked with only a few short microscopic hairs round the nose on the chin, ears, lips, and under tail. A few vibrissae were visible. The finger bones were soft and flexible.

Both upper and lower canines and the milk incisors

had fully erupted and two milk premolars in each lower jaw had just broken through the skin. All other cheek teeth were still contained within the gums.

The upper incisors were slender and well spaced, each with three cusps, the middle cusp being the longest. Three pairs of lower incisors had just cut the gum surface and their form was not clearly visible. The upper canines were strong and well developed. The lower canines were short, stout and had three cusps. The two cusps of equal proportions were formed on the anterior part of the tooth while the third cusp, much shorter and less prominent, was situated posteriorly. All teeth, particularly the upper incisors and lower canines, were strongly curved inwardly and posteriorly giving the impression of claws or hooks, an adaptation which no doubt assists the young bats to maintain their hold on the nipples and fur of the parent.

This bat was very active and continually sought seclusion. It hung head down when at rest in the manner of adults and was an efficient climber. On dissection the stomach was found to be empty but the intestines carried a bright orange fluid through which was dispersed a small amount of fur, apparently from the body of the parent.

(ii) Reg. No. 1965 : 1 : 6 ♀, collected at 11.30 a.m. on 8 : I : 1965, weighed 1.86 gm., total length 47 mm. Both eyes open. Skin colour grey dorsally, pinkish grey ventrally. Nose, lips, ear tips, fore and hind limbs and patagium noticeably darker than the rest of the body.

Body fur emerging and just visible to the naked eye on the dorsal surface where it was about 0.5 mm. long. Hairs on the chin and lips noticeably longer than those on the rest of the head and body. Vibrissae becoming prominent, with supraorbitals reaching to 2 mm. Body fur emerging on the ventral surface but not yet visible to the naked eye.

Teeth slightly more developed than in the preceding specimen, the 3 pairs of lower incisors being well spaced, each with three prominent incurved cusps. One upper and two lower milk premolars erupted on each side, one of the latter possessing a small anterior cusp. (Fig. 2a).

The bat was active and continually sought seclusion. Its intestines contained orange fluid.

(iii) Reg. No. 1965 : 1 : 3 ♂, collected at 10.30 a.m. on 2 : I : 1964, weighed 2.92 gm., total length 55 mm. Head and body covered with dense soft grey fur 2 to 3 mm. in length, shortest and palest on the ventral surface. Dorsal fur extends sparsely onto the anterior half of the uropatagium. Hairs on lips and around the nose, well developed. Vibrissae prominent with supraorbitals longest and reaching to 3 mm. Naked skin on fore and hind limbs, tail, nose, ears and patagium almost completely black. Finger bones soft and somewhat flexible; finger joints not prominent.

The three pairs of lower milk incisors had been lost and were being replaced by permanent teeth, the centre pair being well through the gum. These were stout and broad without inter-spaces; the three incurved cusps being represented in the permanent teeth by a three crescent shaped cutting edge. All other milk teeth still in place. The one pair of upper and two pairs of lower milk premolars well through and appearing as very small needle-like structures. Their setting was irregular and they appeared to be rudimentary. Gums distended by molar teeth which were just erupting (Fig. 2b).

This bat was very active and would hang from objects and initiate pre-flight movements. However,

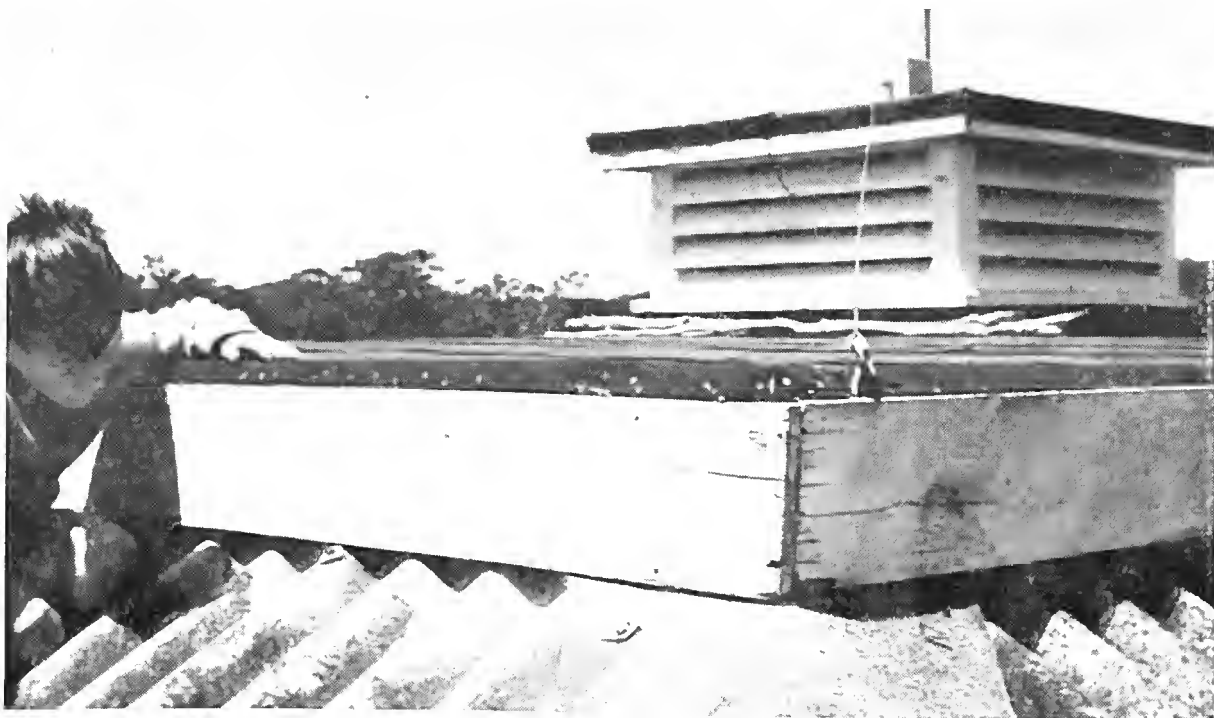


Plate 1. (Top). Site of the diurnal roost at Kelso. The bats were living behind the fascia board and entering by way of the corrugations on the lower roof.
(Bottom). Adult female *E. pumilus* and suckling juvenile at about 7 days.







Plate 2. (Top). Adult female *E. pumilus* showing band on left radius.
Juvenile (1965 : 1 : 7) at about 45 days.
Juvenile (1965 : 1 : 6) at about 18 days.
(Bottom). Stillborn *E. pumilus* (1964 : 1 : 304). Almost a full term foetus.





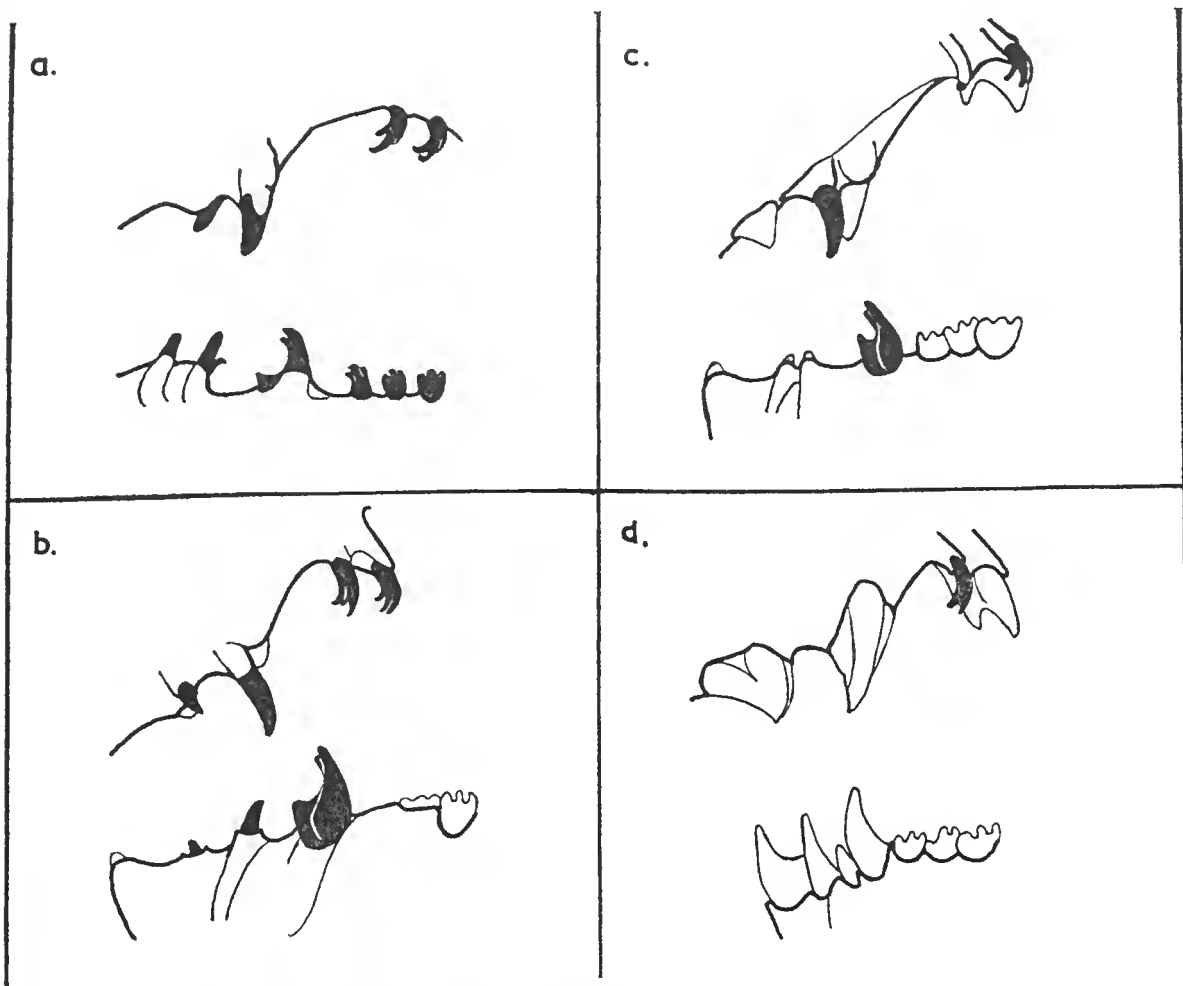


FIGURE 2. Showing the progressive replacement of the deciduous milk teeth (black) by the permanent teeth (white) in right side jaws of *E. pumilus*.

- (a) Reg. No. 1965 : 1 : 6 at about 18 days.
 (b) Reg. No. 1965 : 1 : 3 at about 32 days.
 (c) Reg. No. 1965 : 1 : 8 at about 39 days.
 (d) Reg. No. 1965 : 1 : 7 at about 45 days.

it made no voluntary attempts at flight and when dropped its actions were feeble and completely ineffective. On several occasions the bat was seen to clean its fingers and prepatagium, using its lips and teeth for the purpose.

The stomach contained some curdled milk and small clusters of fur and the intestines contained orange fluid.

(iv) Reg. No. 1965 : 1 : 8 ♀, collected at 11.30 a.m. on 8 : I : 1965, weighed 3.2 gm., total length 61 mm.

Fur colour dark grey to 3.5 mm. dorsally, slightly shorter and paler ventrally. Fur extending sparsely on to anterior dorsal half of the uropatagium. Supra-orbital vibrissae to 4.5 mm. General appearance more adult than the preceding specimen, the fingers being much better developed and the finger joints becoming noticeably prominent.

The two pairs of upper milk incisors were still in place but were being pushed out by the eruption of the central pair of permanent bicusped incisors. These were very much stouter and stronger, each cusp erupting behind a milk tooth and the new tooth occupying the space of its former two counterparts. The three pairs of permanent lower incisors now completely erupted and occupying all the space available. The upper milk canines still in place but being replaced by permanent teeth which had erupted anteriorly. The lower milk canines still in place and firmly attached; the permanent canines evident only as lumps in the gum on the inner side of the milk canines. Both upper and lower milk premolars absent and replaced in the upper jaw by one pair and in the lower jaw by two pairs of permanent premolars, the single cusps of which had just erupted. All molars had erupted with the cusps just clear of the gums (Fig. 2c).

This bat was very active and would bite at the hand in its endeavour to escape. It made several attempts to fly but its actions were too feeble for it to become airborne.

The stomach contained some curdled milk and the intestines orange fluid with some greyish dirt-like particles.

(v) Reg. No. 1965 : 1 : 7 ♀, collected at 1130 a.m. on 8 : I : 1965, weighed 3.6 gm., total length 67 mm. Fur colour grey, to 5 mm. on the dorsal surface, slightly shorter and paler ventrally, anterior dorsal half of uropatagium sparsely furred. Supraorbital vibrissae to 5.5 mm., mystical vibrissae to 4 mm. Except for size, the bat was superficially adult in general appearance, but with fingers stout and finger joints prominent.

One pair of upper milk incisors still present but loose and pushed well forward by the permanent incisors which were well advanced and extended beyond the tops of the milk incisors they were replacing. The lower milk canines had been replaced by well advanced permanent teeth. All cheek teeth well advanced, with the body of the teeth emerging above gum level (Fig. 2d.).

This bat was very active and made numerous attempts to fly. None of these were successful but it was obviously very near to achieving flight and becoming independent.

The stomach contained a little curdled milk and the intestines orange fluid with greyish dirt-like particles.

An examination of the skulls of juvenile bats taken from the same Kelso colony on 23 : I : 1964 and 5 : II : 1964 (total length 68 mm. and 73 mm. respectively) showed both carried a complete set of fully erupted permanent teeth.

The removal of the fascia board covering the Kelso roost resulted in roost abandonment in January 1965. At this time the young bats would not have been sufficiently developed to fly, though some would have been semi-furred and weighed in excess of 3 gm. Their removal from the roost must therefore have been effected by the parent females. A similar case of roost abandonment with removal of the young was noted by the author in the case of a colony of *Nyctophilus geoffroyi* at Green's Beach at the end of November, 1964.

The young become independent of their parent at about 60 days, usually during the month of February.

Sub-adults are morphologically similar to adults except that the finger joints are conspicuously enlarged until the bats are about four months of age. Where this criterion fails, pelage colour and complete absence of tooth wear usually distinguish the sub-adults.

The enlargement of the finger joints does not become noticeable until the young bats develop to the flying stage and it has been found to be prominent in sub-adults collected in Mareh.

The phalanges of pre-flight juveniles appear relatively thick and soft but as the bats develop and become able to fly these bones harden and become more slender. The extremities and finger joints appear to be the last parts to contract and at this stage the joints appear swollen. By September they have become reduced to their normal adult size.

The hind foot is remarkably well developed before birth, (see Table 4) and little or no variation occurs in the length of the pes after the foetus nears full term. Though the foot appears of secondary importance to the mouth in enabling the juvenile to retain its grip on the fur of the parent, it is vital to its safety within the roost. Observations have shown that juveniles move freely about the roost soon after birth and have

been found to hang up by themselves in the same manner as adults, supported by the claws of the pes.

The eruption of vibrissae precedes that of the pelage hairs by several weeks. Embryo Reg. No. 1964 : 1 : 274 (Table 4) was found to have mystical and supraorbital vibrissae just above the skin but the interramal vibrissae were not visible.

Young *E. pumilus* do not usually reach a weight of 4 gm. in the first six months of their life and there appears to be little difference between the sexes at this age. After six months the body weight of females usually exceeds that of males. The heaviest males taken were those collected from colonies during the breeding season when they were found to have enlarged testes. The greatest weight of a male was 4.9 gm. Females reach their greatest weight during advanced pregnancy, the heaviest recorded being 5.8 gm.

The heaviest female taken outside the breeding season was collected on 17 : VI : 1964 and weighed 5.1 gm. (See Table 4).

VI. PELAGE AND AGE

Pelage colour and texture vary greatly in both males and females. It is in no way indicative of sex but does appear to be influenced by age and possibly by local environment. The fur grows to a length of about 7 mm., the sub-fur being considerably darker than the outer. The ventral surface is always paler than the dorsal.

Sub-adults of both sexes have a soft grey pelage which changes by varying degrees to dark grey and brown as the bats age. The fur of several aged females with extensive tooth wear had taken on a rusty or sandy-brown colour.

Tooth wear is very noticeable as the bats age and this wear is most easily recognised in the incisors, canines and premolars of the upper jaw. By the end of the first year the cusps on the larger incisors are rounded and blunt and the canines and premolars also show signs of wear. This has been observed in banded bats of known age. (See Fig. 3b). In older individuals wear subsequently removes the incisor cusps entirely and the tooth takes on a flat tip, the canines shorten and the premolars are reduced by heavy scalloping of the posterior edge (Fig. 3c, d and e).

Towards the end of life the teeth are reduced to stumps and in one instance an old female was found to have the upper premolars worn through in the middle leaving two independent stumps in place of each of the double rooted teeth (Fig. 3f).

Although there appears to be a correlation between pelage colour and tooth wear there have been some remarkable exceptions to the general rule. One male taken at Winnaleah in north-eastern Tasmania on 28 : II : 1962 was a deep chocolate colour though its teeth were unworn. Only one male has been found with considerable tooth wear and it still retained its sub-adult grey pelage and weighed only 4 gm.

Deep chocolate pelage was unusual in the bats of Green's Beach and Kelso colonies, the colour of adults usually being grey-brown, or rusty brown. However, all bats of both sexes taken from the Sheffield colony, with tooth wear ranging from slight to medium, had deep chocolate pelage. When a series of skins from these areas were placed side by side the locality variation was conspicuous. Both Winnaleah and Sheffield are inland areas — whereas — Green's Beach and Kelso are coastal. Sufficient suitable study skins are not available at present to define the full range of geographical variation.

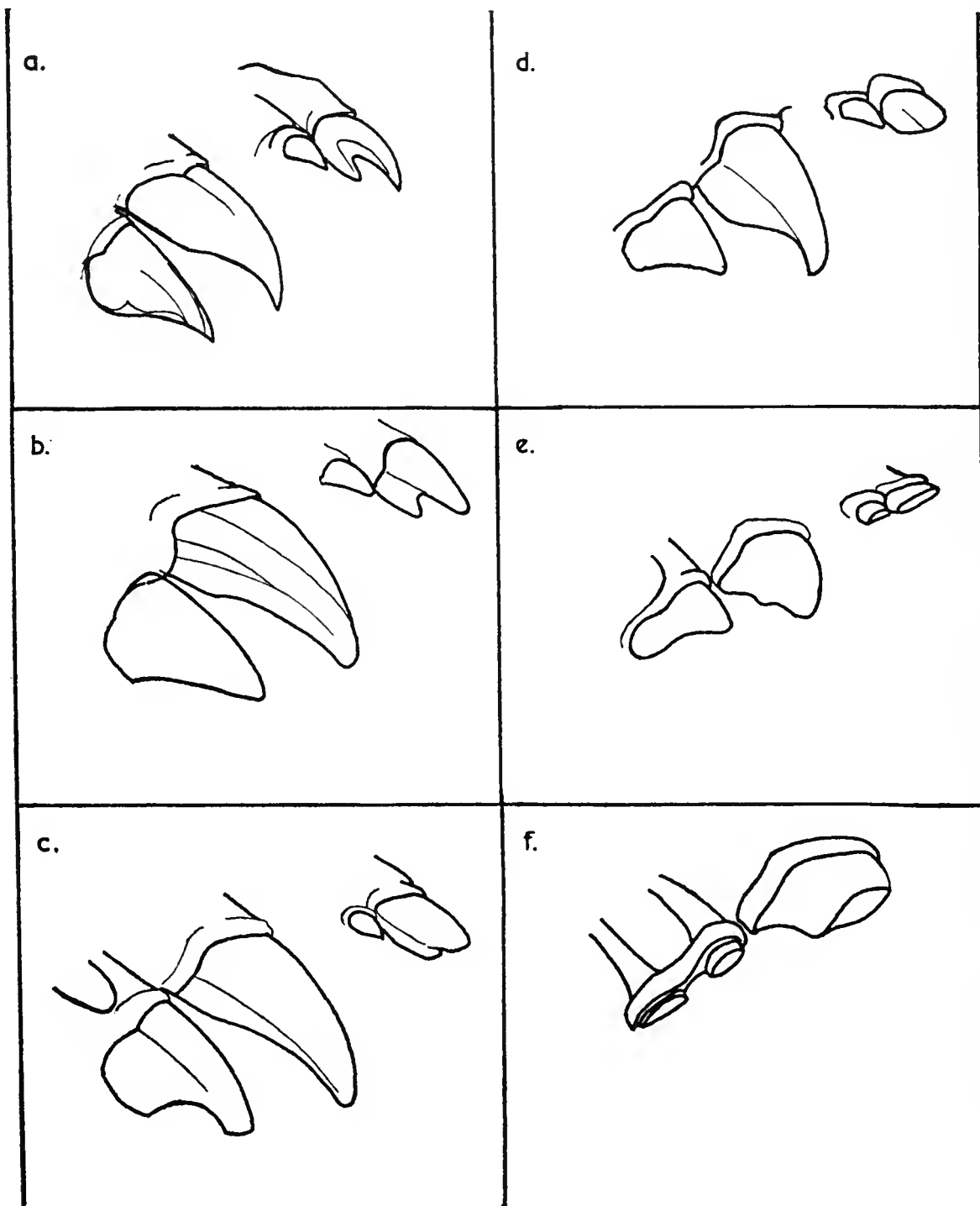


FIGURE 3. Showing progressive wear in the right upper incisors, canine and premolar of *E. pumilus*.

(a) At 3 months old when the teeth have just fully erupted.

(b) At 11 months.

(c, d, e and f). Progressive tooth wear at an unknown age.

VII. FOOD AND WATER

Observations on free-flying *E. pumilus* have been limited but indicate that they do not ascend much above the tree-tops. Most activity seems to be concentrated below the leaf-canopy and the bats evidently feed on insects which fly about the less dense vegetation. On one occasion a bat was seen to hover five feet above the ground beside a eucalypt sucker as if in pursuit of an insect. It appeared to be hesitant about entering the dense foliage and hovered for 5 to 10 seconds beside the outermost leaves as if trying to locate its prey. Similar behaviour by *Eptesicus serotinus* in England was noted by the Earl of Cranbrook (1964).

There is no evidence to suggest that *E. pumilus* obtains food from the surface of the ground and there does not appear to be any preference for pond, river or lagoon areas when they are hunting.

A captive *E. pumilus* which was liberated in a large room at night to exercise, was often noticed taking small moths attracted by the electric light. These were seized in mid-air, the bodies devoured and the wings discarded in a few seconds, without any apparent alteration in the bat's mode of flight.

An *E. pumilus* which showed no signs of pregnancy was successfully kept in captivity for several months on a diet of live flies and moths. Mince meat or dead food of any kind was always refused. If live insects were placed in the cage while the bat was sleeping in a semi-torpid state, the activity of the insects appeared to slowly stir the bat and within five to ten minutes it would be actively pursuing the insects about the cage. Smaller insects were seized in the mouth and quickly devoured, but large flies and moths or anything difficult to handle was seized in the mouth and forced onto the bat's belly and held in a pocket formed by the animal sitting on the lower part of its back with the tail forward and with the uropatagium and patagium forming a pocket. Here the insect was easily handled and devoured at leisure. Only the more succulent body parts were eaten, the wings and legs being rejected.

Even in confined spaces sight appears to play very little part in the bat's location of an insect as on many occasions it was seen to grope for a fly only an inch from its face as if uncertain as to where it was. While the insects remained still, the bat was less inclined to take them, but when active the bat hunted more determinedly.

Water did not appear to be taken in any quantity by captive animals. It was never seen to be acceptable in a saucer-shaped container but when spilt the animals would sometimes lick it from the floor. Bats often became wet as they accidentally blundered over a small container of water and would later be found cleaning themselves and licking the moisture from their fur. These habits suggest that in the wild state they do not drink as most other mammals do, but lick surface moisture from foliage, etc. and no doubt assimilate a limited amount when cleaning their fur following nocturnal flights on wet nights.

In the autumn of 1964, the moth *Dasypodia selenophora*, Guen., was not uncommon in the Green's Beach area. It is a handsome brown insect with a wing span of up to three inches and is often found inside houses. On a number of occasions it was found inside the paling hut in which the Green's Beach roost (B) was located. Wings of this moth were also found scattered about the floor and on one day 16 individual forewings were

collected. Evening observations consequently revealed that *E. pumilus* often entered the hut when in exit from its roost in the roof and spent some time flying round inside before departing by way of a space between the roof and walls. Though the bats were not observed feeding on these moths it seems possible that they were as no other insectivores were known to enter the building. However the possibility of the predator being a bat species larger than *E. pumilus* cannot be disregarded.

VIII. MISCELLANEOUS OBSERVATIONS

E. pumilus is noisy when active in the roost and utters a sharp "chzit" rapidly repeated. It is used in anger when an active bat is restrained and the bat continues uttering the sound while biting. Similar utterances can be heard coming from within roosts in hot weather and when the bats are squabbling at the exit holes prior to their evening flight.

They sleep head downward, sometimes individually, sometimes clustered together to form a mass and even clinging to each other. To urinate and defecate they turn head upwards, but do not move away from their resting place. Only a few drops of urine are passed at a time and the bat soon returns to its original position. The whole process takes one or two minutes. Neighbouring bats in the cluster do not appear to be soiled by this habit.

Toilet of the fur is usually carried out during the settling period following flight or disturbance. The forelimbs, patagium and tail are cleaned with the lips and tongue, the fur is licked and often scratched with the feet, following which the nails are cleaned with the teeth.

Flight is initiated with ease from a horizontal plane by an upward jump which carries the bat clear of the surface before the wings are brought into use.

When placed on water *E. pumilus* was found to be able to swim vigorously. The wings are semi-extended and beaten in a series of rapid short jerks just beneath the surface of the water. The tail and uropatagium are held fully outstretched and the head held high. The sub-fur does not wet easily but the bat is unable to take off from the surface of the water. It swims to nearest object and elicits free without difficulty. Wet fur is licked and the bat flies when only partly dry.

N. geoffroyi has been observed to swim in a somewhat similar manner. (McKean and Hall 1964).

Ectoparasites have been collected from *E. pumilus* and lodged with the National Insect Collection, C.S.I.R.O., Canberra. Mites and louse-flies were found to be plentiful, particularly during the breeding season and a few small fleas were also present.

Ectoparasites were not found on the naked juveniles but they became established once the fur of the host reached about 2 mm. in length.

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