

Memoirs of the Queensland Museum | **culture**

Volume 7

Part 1

The Leichhardt diaries  
Early travels in Australia during 1842-1844

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## Diary No 2 28 December - 24 July 1843

### (Hunter River - Liverpool Plains - Gwydir - Darling Downs - Moreton Bay)

[Inside the front cover are two newspaper cuttings of poetry, *The Lost Ship* and *The Neglected Wife*. Also there are manuscript stanzas of three pieces of poetry. The first in German, the second in English from *Jacob Faithful* by Frederick Maryatt, and the third in French.]

Die Gestalt, die die erste Liebe geweckt  
Vergisst sich nie  
Um den grünsten Fleck in der Wüste der  
Zeit  
Schwebt zögernd sie  
From the German poem of an English  
lady.

[The figure that awakened the first love  
Is never forgotten  
Around the greenest spot in the desert of  
Time  
Lingering it hovers.]

O that hallowed form is ne'er forgot  
Which first love traced  
Still it lingering haunts the greenest spot  
On memories waste  
Jacob Faithfull Marryat p. 231.

[This quote from Frederick Marryat, *Jacob Faithful*, 1838 edition, Richard Bentley, London, p. 231.]

Sur un écueil, battu par la vague plaintive  
Le nautonnier de loin voit blanchir sur la  
rive  
Un tombeau près du bord par les flots  
déposé  
Le temps n'a pas encore bruni l'étroite  
pierre  
Et sous le vert tissu de la ronce et du lierre  
On distingue – un sceptre brisé.  
Ici-gît – point de nom! demandez à la Terre  
Le nom? Il est inscrit en sanglant caractère

Des bords du Tanaïs au sommet du Cédar.  
Sur le bronze et le marbre et sur le sein des  
braves  
Et jusque dans le cœur de ces troupeaux  
d'esclaves  
Qu'il foulait tremblans sous son char.

[On a reef lashed by the plaintive wave  
the navigator from afar sees whitening on  
the shore  
a tomb near the edge, dumped by the  
billows;  
time has not yet darkened the narrow  
stone  
and beneath the green fabric of the briar  
and of the ivy  
one can make out ... a broken sceptre.

Here lies – no name! ask it of the Earth.  
The name? It is inscribed in bloody  
characters  
from the banks of the Don to the summit  
of Mount Sinai,  
on the bronze and the marble, and on the  
breasts of the brave men,  
and even on the hearts of those troops of  
slaves  
he trampled as they trembled beneath his  
chariot.

First two stanzas of Bonaparte by Alphonse  
Lamartine, *Nouvelles méditations poétiques*.  
Urbain Canal, Paris, 1823, p. 17]

Si vous êtes dans la détresse +  
O mes amis cachez-le bien;  
Car l'homme est bon et s'intéresse  
à ceux qui n'ont besoin de rien!

[If you are in dire straits,  
O my friends, hide it well,  
for man is kind and interested  
in those who need nothing!  
M. Hoffman, Quatrain. *Almanach des Muses*  
41 (1805), p. 246.]

Diary from 28 December 1842

Souvenons nous que du grand architecte  
L'oeil est fixé sur nos sages travaux!  
[Let us remember that the eye of the Great Architect is fixed on our wise work!]

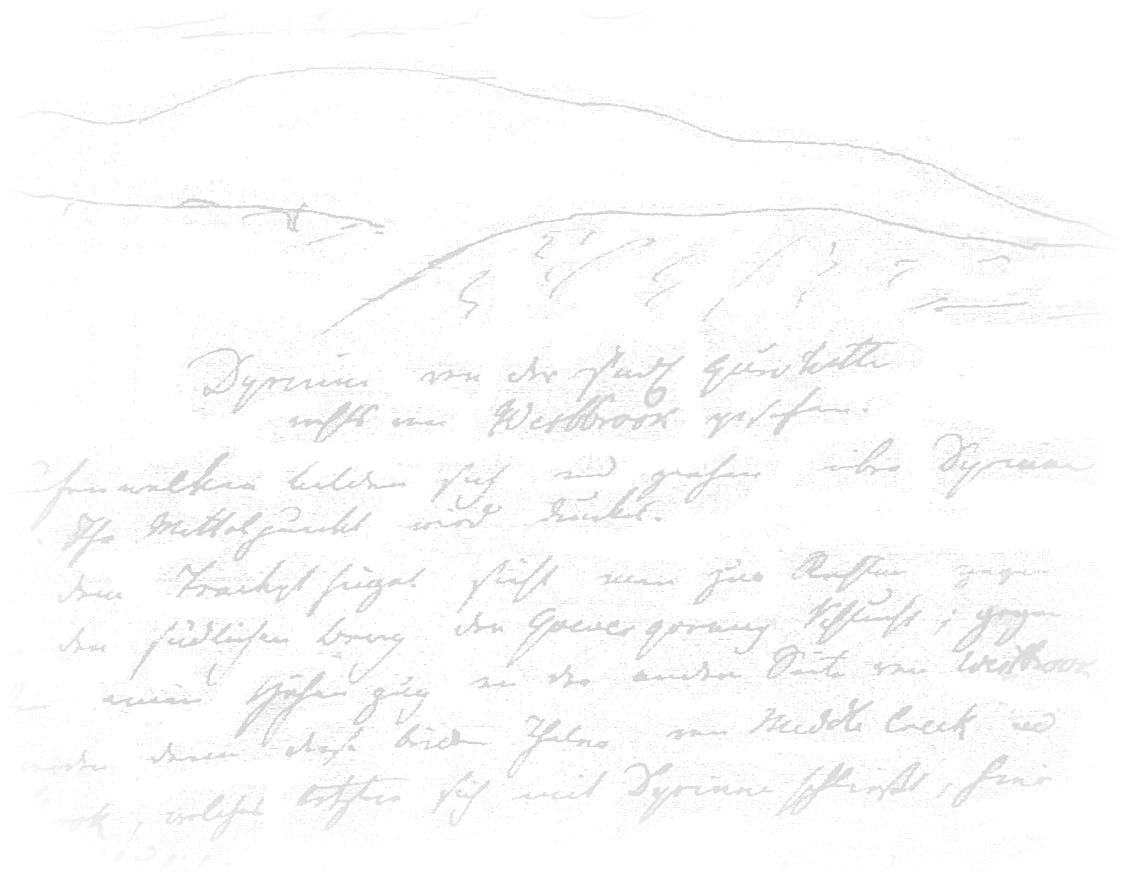
Part of the third stanza of La Lumière.  
Couplets maçonniques by P. Emile Debraux, Chansons nouvelles, tome 3, Roy-Terry, Paris, 1829, pp. 263-5.]

Sweet are the uses of adversity  
Which like the toad ugly and venomous  
Wears yet a precious jewel in its head.  
[William Shakespeare, *As you like it*, Act 2, scene 1, 12-14]

[One stanza of poetry in English in handwriting of W.B. Clarke and with his initials WBC. This is a rhymed translation of the stanza at the top of the page marked by Clarke with a cross.]

+

If you my friends in trouble be  
Your trouble always try to hide  
For man is good and always will  
To those who nothing need provide.  
WBC






White gum - Gwydir Station

\*White gum Gwydir Station\*

## 28 December

I will mention again that last Monday with Mr Glennie I saw a lizard with a crest along the whole length of its back. I was not so fortunate to catch it. It ran up a low *Casuarina* and as I was preparing to knock it down, it jumped down about 12' to the ground and quickly fled away.

Yesterday I rode to Mr Fereta's [Ferriter] property to investigate the steep banks of the Hunter behind his house. I found that they corresponded perfectly to those at Singleton. However, over the blue and yellow clay I still saw the loose sandstone, which also appears on the left of the track to Mr Fereta. The crystals are by no means so numerous. On the left of the track  Mr F. has had sandstone quarried.

The sandstone bed about 2½ feet thick is covered by alluvial pebbles and contains traces of shells (*Mytilus*). It dips towards the north at an angle of 20° and rests on conglomerate.

The joints in the sandstone at some places are covered by a crust of carbonate of lime. Ferruginous accumulations full of traces of shells show that the sandstone contains shells.

The transition of the sandstone and of the conglomerate becomes much more visible on the opposite northerly mountain where the rock also outcrops.

Three parallel hills trend here from south south-east to north north-west and curve a little so that they trend from south-east to north-west. They end freely in caps in the plains of the Hunter.

After you pass Fereta's fence and even inside it (towards Singleton) there are various broken[?] micaceous clays with rare impressions of shells (perhaps a *Limneaus* and a *Spirifer*). Veins of gypsum run through the rock horizontally and vertically. A yellow

efflorescence covers the surface of the small cracked pieces. The sun shines strongly against the wall and the smell of sulphuric acid was very noticeable. Where moisture and standing puddles are present, magnesia and saltpetre appear as efflorescence. I thought to distinguish three different salts. One was bitter, the other sour and attacked the teeth extraordinarily, and the third biting without taking the edge off the teeth. I don't know how far I am mistaken. These salts are on the surface of a micaceous rich, sandy, strongly cracked clay in the immediate vicinity of standing water exposed to the rays of the sun.

For botany my excursion was not quite fruitless. At the first quarry on the left of the track to Fereta's I found a small labiate with two filaments, with the lower lip very developed and trilobate, whilst the upper was very small and vertical (as in *Teucrium*). The filaments were simple with an appendix.

*Aneilema* (with three fertile, and two infertile filaments, the filaments naked) was in flower.

A small *Ruellia* studded with hairs and another similar plant with prostrate stem and hairy throat were found as I descended from the place and met the fence. It was a dry soil.

A kind of mason bee attracted my attention by the elaborate manner of its nest building. An exterior oblong case[?] formed from mud surrounded an inner case[?] which ended in a bent funnel. Between both is a horny layer. Usually three to four together. The larva is without feet.



Under the heap of stones I found a *Dasyuris mangii*, small, about 1' long, yellowish background with circular patches.

### 29 December

On my ride yesterday afternoon I found some very fine shells again below Bell's garden and behind it and I saw the continuation of the rock almost up to Jump up or Killmore Creek, while it begins from Wattle Pond Creek on the other side of the Hunter, which I investigated previously.

So far I have moved from house to house and from hut to hut and everywhere I have been received, not only kindly, but even lovingly. The time of great wealth has passed and everyone has more or less returned to a simpler, more economical housekeeping. Partly they have given up the thoughts of rapidly accumulating money and returning to old England or Scotland. Instead they are getting used to looking at this Colony as the fatherland, in which the young generation will put down roots freely and without concern, even if the older is still afflicted by feelings of homesickness now and then. {This feeling is by far more common among the respected settlers of the Hunter River than in Sydney.}

I have seen some very pretty young girls, who touched my heart wondrously and almost summoned back the old idea, now changed, of a squatter's life. They cleansed me of a peculiar raw animalism that uneasily haunted my brain and which was caused by [rest of sentence blacked out] It has often distressed me to find that such matters, from which I always strove to keep myself pure and chaste, seem to make a far greater impression on me than on others, who are less scrupulous with their morality. However, I feel that I am becoming more composed with increasing age and better at resisting impressions of this kind.

Miss Dawson was quite an idiosyncratic kind of young woman. She seemed passive, lazy, reserved, and proud and seemed to treat me as the foreigner rather than the

traveller, whom she was compelled to feed by the irksome custom of hospitality. Her brother was by far more open and courteous, but even he had no inner drive. Mr Porter differed exceedingly from both by his lively activity and by his eagerness for knowledge through seeking and questioning.

Mr Kelman's daughter was born in Van Diemens Land and therefore is a \*Currency lass\*. How many impressions she lacks, with which a girl of her age in England is conversant. She said she intends to go to England, about which so much has been said to her. She wants to see it and then return here.

### 8 January 1843 Poot-young-gun

On 28 December 1842 I left Glendon to study the geological conditions of Mr Scott's estate. I had the intention of following the streams, hoping to find most geological sections in the vicinity of the streams. The mountains, which later changed this plan, were still unknown. At the same time I wished to see if coal deposits or limestone were found, so that I combined the purely scientific interest for myself with the useful, which Mr Scott could draw from my investigations. The most significant stream is Glendon Brook, which higher up receives an equally powerful tributary, Westbrook, from the west. Above the junction with Westbrook, Reedy Creek, Merannie Creek and Webbers Creek carry down their rain water to Glendon Brook, which comes down from Tyroman as an insignificant water course. During the summer all these streams, water clefts (creeks) and chains of water holes are without water. A good shower of rain fills them very quickly, however, and the water rises in Glendon Brook often 12 to 13 feet in its narrow bed mostly formed from alluvial loam and sand, the bottom of which is covered with pebbles of the most varied composition and size. These pebbles have been either driven down from outcropping

rocks or just washed out from the pudding and perhaps the Diluvial strata.

From its entry into the Hunter up to Sawyers Point, Glendon Brook flows between sandstone and pudding, which often change with one another and is identical to the pudding on the Hunter River and below Bell's garden, where it contains fossils. At two places deeper rock layers have been raised up and not only carbonaceous clays with many fern imprints are found, but also the coal itself, which, however, is less suited for burning owing to its pyrite. The coal is in and under the bed of the river. At one place Mr Scott has had it quarried out. About three miles further carbonaceous clays reveal the presence of the coal at depth. At Sawyers Point, an extremely interesting spot, you see how trachyte changed the rocks and raised the beds upright very steeply. The clays are transformed into a kind of porcelain and the coal beds are raised up. From this point upstream the rocks take on a different character.

We entered into a basin, whose perimeter and proportions are best able to be discerned from the peak of Jack Shea. The south-western and southern edge is formed by a mountain curve, which begins with Taingerrig and ends with Tyroman. The former mountain slopes to a less high range of hills, Tolke Tolke, which, however, has another geological character. Both rounded mountain tops are formed from primitive rocks and it is very probable that the whole ridge shows similar rocks. In the north-west and north the curve is not so complete. They seem more isolated masses or mountain ranges running out from north to south towards the basin. Meranni as well as Jack Shea are mountain ranges. Both show the same rocks on their peaks, which we found on the previously mentioned mountain tops. From these prominent and generally visible mountain masses, extremely narrow, sharp

ridges descend to the basin, the rock of which is usually visible on the surface and splits into smaller pieces with sharp edges revealing its hardness and is immediately distinguished from the rounded sandstone and pudding masses. These roll-shaped mountains can best be compared with immense streams of larva, like some of those near Clermont revealed at first glance in their embankment shaped elevation. {However, this rock seems not to have flowed, but to have discharged simultaneously from long crevices, while the whole region was perhaps covered by water.}

The investigation shows a porphyry-like rock that includes white feldspar crystals in a grey, yellow, bluish and red groundmass. Sometimes these feldspar crystals become very small but I have always found them present. Besides the feldspar crystals the different streams now contain various other inclusions. In some pyroxene is present (small shining black crystals, completely smooth without the slightest striation), in others strange hornblende, recognisable by its striation, in others and very common is mica, sometimes black, sometimes as if covered by a golden efflorescence. In many there are traces of quartz crystals, which are often very large and distinct. ~~But I am still by no means certain about these quartz crystals, as I wished. The peculiar lustre and the often rolled topazes found make me doubt whether I have not to do with topazes here, which gradually separate from this trachyte, although they usually are combined very closely with the groundmass.~~ However, quartz and chalcedony are present in some trachytes as for example obviously in those of the Reedy Creek Range and topaz is found in a sandstone in the Blackguard Range (Bichum belong), which obviously is older than the trachyte.

Of these porphyry ranges (which I would have to call diorite ranges from the hornblende

present) I will mention the most beautiful here: Tolka Tolka with feldspar crystals in whitish groundmass. Hunts Range with an attractive blue groundmass, and Stockyard Range. These descend from Taingerring. Johnsons Main Range, Reedy Creek Range, North Reedy Creek Range, and Meranni Paddock Range all lie either obliquely before Meranni or come down from Meranni like the last named. These trachytes appear again at the junction of Blackguard Creek and Webbers Creek. Here a trachyte rock emerges from a coarse-grained sandstone on each side of Blackguard Creek, which the heat has converted to a very hard rock. On the northern slope of Myal Mountain, which descends towards Poot young gun, trachyte also appears. A fine stream is visible on the west and north-west side of the mountain of the dividing range next to Tyroman, and outcrops also on the east side almost at the foot over and under sandstone and pudding.

It is inevitable that the pudding rock and sandstone, which are of such great thickness in the whole region of the Hunter, also appear again everywhere here in the larger mountain masses. It forms the flanks of Taingerring, of Merrani and the secondary ranges of Jack Shea. It seems accumulated in the primary mountains. We find, however, on the one hand this rock sometimes extremely hardened in the neighbourhood of the primary rocks, and on the other hand its strata seem to sink towards them instead of ascending on the primary mountain and submerging it (in Webbers Creek and the Jack Shea rocks).

In the actual region of the volcanic rock, we meet a soft red conglomerate everywhere, which at times outcrops in the bed of the streams (Merrani Creek), and yet again composes the total mountain mass (Myal mountains, Dividing Range, Tyroman). It often alternates with pudding stone with pebbles of extreme size (e.g above the water

hole in Poot young gun and at the foot of Tyroman in the water course (Glendon Brook). Whether this rock is identical to the pudding and the sandstone belonging to it, or whether it has become deposited later in the valleys as detritus of the primitive rocks I have not been able to decide. It contains porphyry boulders, which, however, I seem to find in the pudding. I have not been so fortunate to discover fossils anywhere, despite being so numerous in the pudding on the Hunter.

The surface is covered with Diluvial pebbles. At various places they show a different character. Sometimes granitic pebbles are very abundant, as for example near Poot young gun. Quartzites are often found. The banks of the streams are formed from a rich soil, which contains sand and loam. Its clayey nature very often becomes noticeable to the tired traveller when rain sets in for a long time.

{Of mineral substances, I have to mention a seam of gypsum in the red conglomerate of Myall Hill and calcspar on the eastern foot of the mountain of the dividing range next to Tyroman. ~~If gold was to be found, it is in the rock of Blackguard Hill, which in some places has similarity almost with the clastic sandstone of South America.~~}

If I have now tried to sketch the geological make-up of this extremely interesting region in broad outline, I will only mention here that as soon as you descend on the other side of Tyroman in the dividing range to the Paterson, sandstone and pudding immediately appear. The Paterson carries basalt boulders. Between the Paterson and Alan Rivers on the track to Messrs Derbin [Durbin] and Way there are abundant traces of molluscs in a hard, blue, clayey, sandy rock. The same rock, without molluscs, but with the impressions of an aquatic plant, was found below the garden of Messrs Derbin and Way in and along the bed of the Allan River. Several miles further limestone

is found, which is very similar to this rock, containing much sand and clay, but seems more crystalline. The Allan River carries basalt boulders as well.

In respect to botany there remains little for me to mention. The continuing drought had destroyed all the plants and even the trees seem extremely tired and leafless. The heavy thunderstorms, however, which followed one another almost daily from 16 December, refreshed nature with their blissful showers and as with a magic wand aroused the roots enveloped in dust, from which the young shoots quickly developed, which covered the ground with the most delightful freshest green.

A small tree with clusters of white flowers and yellow fruits grew at the outlet of Glendon Brook. This was not noticed further in the trachyte region and here only *Casuarina* provide an often very refreshing shade. Over mountain and valley round Mr Penson's dwelling grew two legumes, of which one resembled the *Orobus* very much. *Gnaphalium* with small golden-yellow heads were abundant, the delicate reddish *Bellis*, a yellow composite smelling of celery, an *Arum* resplendent with a wide dark spathe, along the stream several grasses, *Hibiscus* on Taingerring, *Sterculia* as a large tree in the richest display of flowers, but without leaves, a yellow *Calothamnus*, a pretty substantial tree on the Allan River, an *Anthemis* on the mountains, a catkin bearing bush in Blackguard Creek and several unknown grasses are almost my entire botanical discoveries. *Campanula gracilis* was abundant, from time to time I noted extremely small flowers and I don't know whether it is a new species or a variety. A taller growing *Ruellia* studded with hairs was often observed. On the mountains and in the valley *Aneilema* was flowering and refreshed the eye with its sky blue flowers. *Epilobium* was often seen along the stream. *Polygonum*,

with which the natives are said to kill fish, grows everywhere at the water, *Nasturtium* in Webbers Creek, an amaranthacean and a green flowered composite smelling like camomile in Webbers Creek, several small species of *Geranium*, *Hydrocotyle* and various grasses, in which I took a much deeper interest as they now form the food of my locomotive.

One plant had a large number of bulbous swollen roots, which taste sweetish and watery and are said to be eaten by the Aborigines. The flowers belong to the Liliacae with six filaments densely studded with hairs. At Poot young gun I found a geometer moth under the ferruginous conglomerate banks.

Of four-footed animals I saw several wallaroos, darkly coloured kangaroos living on the rocky mountains. The dogs frequently flushed kangaroo rats of the size of a rabbit, which nimbly hopped away helped by their tails. In the evening at Mr Penson's place bats came into the living room and caught beetles and insects attracted by the light. It was a horseshoe nosed type. The boys lured one of them into the dining room and caught it there. I caught several possums with the help of a splendid small, somewhat shaggy scotch terrier, The Fairy, which often accompanied me and did not run past a hollow log, without rummaging after possums or wild cats. Wild cats, *Dasyurus manglei*, white spots on brownish background, were caught in loose heaped up masses of rocks. They were usually accustomed to defend themselves bravely. The herdsmen and settlers complained bitterly about their tendency to visit the chicken runs and to kill the young nestlings. Although I was told that many *Ornithorhynchus* are found in Glendon Brook, I still have not yet been so fortunate to see a living or even a dead specimen.

Of birds the magpie particularly aroused my attention. The bird is spotted black and white, has the deportment of a jackdaw, and the impudence of a tamed raven. It has a gurgling song and likes the vicinity of dwellings and gardens, seeking partly to nibble at fruit, partly probably to steal a young chicken and partly to take possession of the rubbish of the house. I have often heard the call of a bird that vividly reminds me of the nightingale and often after a long call of a simple note either stops with this or closes with a chattering like a finch call. I was never so lucky to see the bird itself. However, I saw a pair of lorries each morning looking for their food on the ground in Poot young gun. Today (9 January) a pair of hawks celebrated their meal on a struck down possum.

Although lizards surround me everywhere, they evaded my observation too quickly and I lack an intelligent dog to catch them. *Chlamydophorus* was very abundant on Glendonbrook and usually rushed into the water with raised head and tail, as I approached them. When I was at Mr Penson's place I saw a monitor climb up a *Casuarina* tree. The tree was low and with some attention the animal could easily have been caught. An old servant shot at it without hitting it and when I shook it down, both he and the dog were not quick enough to catch it. It plunged into the water and then saved itself in a hole under the high bank. This monitor had broad yellow spots over back and flanks, not regular transverse stripes, as I have described them on a previous one. Of snakes I have still only seen the black snake, which suns itself among the rocks and particularly likes rocks near water.

I cannot possibly mention all the insects I saw, but yesterday for the first time I saw the yellow cricket furnished with extremely long feelers and a small beetle with red thorax and red transverse bands over green elytra. The end points of the elytra also had a red dot.

Along the gullies I often saw very considerable holes beautifully lined with web, in which large spiders live, which, according to the statement of my guide, are caught by sticking a straw into the hole. The animal bites into it and can be drawn out.

A hornet had attached a cylinder of mud on *Casuarina* twigs. When I opened it I found two larvae, each provided with a dead spider that the mother laid in the hole for their first food. They seemed, however, extremely dry and I cannot explain how the young insects could draw much nourishment from dry spiders.



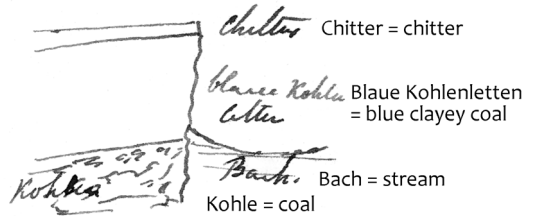
A small crab (a *Gammarus*) lives in the waterholes of Poot young gun.

Remarks that I wrote down on my march

**28 December**

On the first range of hills, in which Mr Scott's stone quarry is found, you see the sandstone strata with thin beds of pudding, accompanied by a 2" thick bed of clay. They dip 70° north by east and strike from west by north to east by south. A red clay covers them. The upper sandstone is coarse. Veins of limestone, no shells.

The spotted gum hit by lightning is not killed. The lightning ran around it in a spiral.



The coal is under yellow and then blue beds under the river bed. A weak chitter bed over them about 4' above the actual coal, dips towards west north-west. The hills strike east north-east. The fall is very gradual, of about 15°. The smell of sulphuric acid is

very strong in the waste heaps struck by the sun. Sandstone is found a few feet further on the other side. The difference of the temperature of the water on the surface and at the bottom is remarkable. I have often later had opportunity to observe this difference and I was accustomed to have only fresh water to drink usually dipping my cup down to the bottom of the water. Bathing in such cold holes during the hot weather must be extremely dangerous. Clay quarries are even colder than stone quarries, if my feelings do not deceive. I observed the difference of temperature best in Bichum bolong or Blackguard Creek in two very deep water reservoirs.

In a gully on the northern side of the stream there is pudding and sandstone obviously with the character of that on Wattle Pond Creek. Dips east north-east and strikes from west north-west to east south-east, dip 70°.

Excellent transition from pudding into sandstone. Masses of pudding stratified. Extremely large number of pebbles, little cement, pebbles for the most part pegmatite and sandstone.

A bar of pudding crosses the creek — south-east by south — sand heaps on both sides. A sandstone bank from west south-west to east north-east passes through the stream. Coal is beneath indicated by many leaf impressions.

Loose yellow sandstone and pebbles of pudding form the bed of the river. *Casuarina* and *Melaleuca* with linear lanceolate leaves, a small tree.

Up to the place where the track to the head station crosses the stream, pudding and sandstone banks appear repeatedly, over which the stream merrily gurgles. Then there are again hollows made water-tight by finely deposited clay and loam, in which water is perhaps found the whole year through.

Above the junction with Westbrook, Glendon

Brook is wide and deep (sheep wash). Its moderately steep alluvial banks are irregularly furrowed.

Is the small-flowered *Campanula* a different species?

The *Casuarina* is an attractive tall tree, *Angophora* in flower, *Melaleuca* beginning to flower, native tobacco, *Pteris*, *Aneilema* very numerous. A species of *Geranium* with rough leaves seems different, a reddish flowering *Bellis*, *Hydrocotyle* and two species of grasses, one very fine, another like a *Panicum*. *Oxalis* very numerous. An *Artemis*? but without flowers. Here I also found the leafy-barked *Melaleuca* of Newcastle again on the road to the Superintendent. Mitchells Flat previously covered with attractive ironbark trees.

A vein of a strange rock, white, chalky, stained, soft, fizzing very vigorously with acid.

The beautiful field of maize provoked my amazement. The plants were about 4' from one another, often nine feet tall in refreshing green.

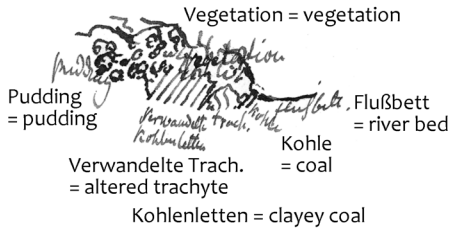
### 30 December.

I found a very pretty *Arum* with broad brown spathe, the female flowers with filamentous elongations.

Below the hut of Mitchells Flat, appear the first pieces of glance coal, which gradually become more abundant until finally you find a coal bed at Sawyers Point.

At Sawyers Point you meet the volcanic rock that I will call trachyte for the present. This has raised up the bed lying underneath the pudding and so brought the coal bed to the surface. The beds are uplifted 70°. They strike east south-east and dip north north-east.

The rocks were seen particularly in a gully. At the end of this gully is pudding, which conceals the whole of the relationships and seems deposited over it later.



Beautiful leaf impressions, fritted sandstone and finally at the corner the volcanic rock itself. The coal about 3' thick forms the bed of the creek.

A strange pudding stone on the west side of Glendon Brook is two miles from the station. Blue porphyry (trachyte) pebbles in a white-yellowish conglomerate.

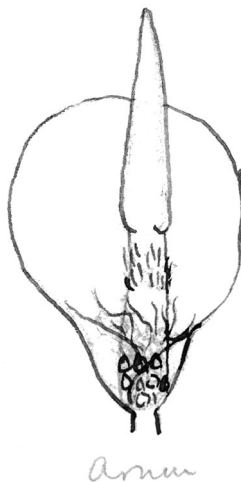
An elongated hill of attractive trachyte ascends to Taingerring. It contains feldspar and pyroxene(?). The joint surfaces seem to dip to the south-west and strike from south-east to north-east.

The Wolambi Range and Mt Danger (Forbes Plain is near it) are visible here.

Derynne — Meranni — St Laurenz is the small Meranni. Jack Shea — Tyroman, before it is the Worgan gunnii Range. Taingerring and Tolka Tolka.

A strange pretty butterfly was drawn by Madame Penson. A white collar over black wings, yellow and blue dots on the wing edges, red down on the feet.

The beds behind the house dip south-east.



### Track to Taingerring on 31 December

Behind the Stockyard Range I passed a gully and after this a flat in which a slight elevation arose that showed a rock like conglomerate, which was sometimes very decomposed and coloured red by iron and sometimes appeared very solid and grey as if exposed to fire. This rock becomes distinct on the second stream coming down from Taingerring and seems to strike from north to south, in the line from Taingerring to Meranni. A small legume-like *Melilotus* was found and a labiate (*Teucrium*) in the garden, the flowers in spikes.

On the other side of this second gully on the range descending from Tangerring towards the bottom there is that conglomerate or sandstone and at the top a rock like granite, which contains amphibole, feldspar, quartz and mica.

### South by west from Tangerring.

Soon fritted sandstone and then pudding stone occurs over the foot, which, however, seems penetrated by trachyte veins. {?? I do not recollect this circumstance. I never had the luck to find complete dykes of that trachytic rock so very obvious.}

My guide showed me caves, of which one is about 15' deep with two compartments, in the pudding. The beds are seen here clearly, as the harder ones defy the influence of the atmosphere and resemble compartments projecting into the caves. Kangaroos live in these caves and their dung is found in them.

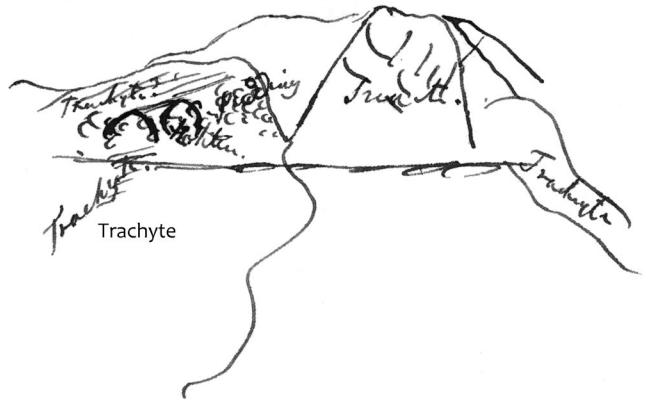
The pudding in the third cave, in which a shepherd had split straw for hut making (weed straw), contains very many granite boulders and pebbles.

One cave, over which there was another that smelled very strongly of wild dogs. A strange squeaking sound was probably caused by

bats. A very lively ant trail indicated that refuse was to be found in the caves. Oxen and sheep bones dragged in by wild dogs. I could not see them.

{I observed in Poot young gun an ant trail from an ant hill at least 50 ells<sup>1</sup> distant, which lead into the hut, in which there were meat provisions. They spurn bread, but the purple ant greedily falls upon every kind of flesh. On the other hand the very small black ant feeds on vegetation.}

A peculiar selenitic and white reddish rock (thermantide) outcrops over the pudding. It is an extremely attractive colour (similar but grey rock on Worgan gunnii over the lowest trachyte). A more sandy volcanic? rock forms a thick bed. On the top lies fritted sandstone. The actual mountain of Tangerring is very steep and covered with angular pieces of syenite (amphibole, quartz and feldspar). The whole mountain seems formed from it. Then here on the highest ridge I am sitting on a block of syenite writing these lines. It rained and the misty air prevented a distant view. It is not a rounded top but an elongate ridge. The *Angophora*, spotted gum and ironbark grow here. That leafless legume, which I first observed on my way to Minmy, also grows here, as well as the cordate-leaved one with pointed leaves. The kangaroo grass covers the mountain and another large-leaved one as well. An oval-leaved turpentine smelling *Eucalyptus* that I had already observed at Mrs Harper's place, *Hibiscus* with simple long lanceolate leaves, *Solanum* with lanceolate leaves with prickles on the upper side of the middle rib. A beautiful labiate is abundant on the rocks (blue flower tube). An *Antherium* (if I am not mistaken) without leaves. *Asplenium hispidum* among the rocks as well as *Cheilanthes*. The grass tree seems to like the heights everywhere. We saw a walluru [wallaroo?]. *Zamia spiralis* abundant.



A pretty *Sterculia* on the north-west slope. Steep rocky slopes.

\*Range above the lagoon a spur of Jack Shea turning round from ENE-ESE. Coarse Sandstone with the Elements of Granite — a kind of gneiss, almost in layers below, a fine red felspathic rock.\*

The rock behind the house changes extraordinarily.

## 2 January. To Meranni.

Behind the garden towards Meranni Creek there is a loose rock that is formed from the fragmentary pieces of the primitive rock, comminuted and decomposed hornblende, quartz crystals and feldspar, bound together very loosely. This rock corresponds to the pudding in places. The boulders of Meranni stream are very different in mixture and colour. Syenite and trachyte are the main ones. I think to have found even a piece of basalt.

Syenite is on the ridge of Meranni. The outermost pinnacle is a sharp somewhat curved ridge. Anagenetic rocks with the constituents of syenite are found below on an extremely long slope. This contains quartz, feldspar, mica and hornblende, sometimes the mica disappears, then the hornblende. In any case a groundmass is present, in which the crystals lie, but the rock differs

too much from trachyte. Somewhat lower is the long hole. The boulders of the stream are all feldspathic in nature, for the most part porphyry-like. Beautiful feldspar crystals lie in the most diversely coloured cements and these are more or less hard.

I found a bright red *Bellis* and again *Solanum* with prickles on the upper side of the middle rib. A sickle-leaved *Acacia* is in flower. An unpleasant rain is making the journey somewhat arduous.

Mrs Penson told me that hornets that build mud nests fill them with spiders, which later serve the young for food. {I have now had the opportunity to make the observation myself.}

I have not to forget the short excursion that I made to Hunts Range on 2 January. A large number of rock types are found in the stream — a bed of pretty clay. Hunts Range is a blue trachyte with white feldspar crystals that seem glassy in some places, in others prettily veined with iron.

### On 3 January to Tolka Tolka.

On the hills I found syenite boulders with sharp edges.

About 40' below the peak of Tolka Tolka on the north-east side there is a white feldspathic rock, which, however, contains no or very little feldspar here. This feldspathic rock slightly resembles that from Taingerring. You see that the easily decomposed or moisture absorbing surface is very favourable for vegetation, as not only numerous lichens of every colour cover the blocks of rock, but also bushes grow luxuriantly between them, which only do well on fertile soil. *Jasminium gracile*. I find here a reddish *Grevillea* with linear leaves. The fig is beginning to ripen. *Bursaria* is beginning to flower.

\*Johnsons Main Range goes from SE - NWest

Its SEast end passes through Reedy Creek, where the Trachyte is particularly hard and continuous in the ranges of Reedy Creek. Great variety of composition. Mica present and absent. The south west slope cut by a great number of small gullies going down to Reedy Creek.\*

Where trunks were burnt a pretty moss grows luxuriantly on the burnt areas.

A pretty large *Julus* with yellow middle stripe was caught and the hole of a ground spider observed.

The same trachyte rock is found in Reedy Creek Range and here as there contains quartz and chalcedony now and then. The Reedy Creek Range swells out in a south-easterly direction until shortly before the fencing and then drops again. Meranni Creek goes around it. It seems, however, that it carries through Meranni Creek and pulls up against Taingerring. Meranni (the curve from the large up to the small (St Laurenz)) resembles a crater, which, however, is only semblance, as the nature of the walls informs us otherwise. On the next hill towards Meranni (North Reedy Creek Range) there is a brown trachyte with few feldspar crystals. Inside the fence, only deeper, this brown trachyte outcrops everywhere, but it is more decomposed, softer, and more brittle. In the gully a loose rock is seen with separate, very large pebbles (red conglomerate). On closer examination you find that it consists of feldspar, quartz and mica and is an arkose, an anagenitic granite. The pebbles are syenite, granite?, trap and greenstone.

The attractive red-veined rock that I found in the stream on my Meranni excursion outcrops in the Meranni Paddock Range. It contains a feldspathic groundmass, which is coloured whitish red or grey and contains white or red feldspar crystals and black hornblende, no quartz. The whole slope

is strewn with platy sharp-edged pieces. Where it outcrops it is decomposed into a crumbly clayey mass.

The grey trachytic rock is found on the height of the hill that seems to run off like an arch from Meranni. It runs from north-west to south-east towards the middle of the Taingerring arc.

#### 4 January.

##### **My ride to the Paterson and Allan Rivers.**

The sheep have a very poor fleece.

After we passed the stream on the Paterson road, we came to a mountain on the left that is the continuation of the Stockyard Range. Further on a country covered with swelling hills with a red trachyte like that in the North Reedy Creek Range (in *Worgan gunnii* abundant). Where you pass Glendon Brook a red conglomerate outcrops.

Worgan *gunnii* stockyard: A red conglomerate in large red blocks, \*first rocky hill on the Paterson Road (after having past Worgan *gunnii*)\* grey and reddish trachyte.

Below Tyroman: Red conglomerate with pudding that contains very large pebbles, much mica content like that under Meranni. Fragments of trachyte containing quartz – syenitic anagenitic rock (which I later regarded as real syenite) everywhere in sharp-edged pieces in the stream.

Derbin and Way: Before you come to them you find indurated clay (a sandy clayey rock) with zoophytes and shells (crinoids?) behind their wheat field. On the Allan River a bank is exposed that dips west south-west at 17° and encloses faint traces of plants and shells. It is splintered into rhomboid pieces. A system of joints almost from south to north.

*Calothamnus*, an attractive tree was in full display of rich yellow flowers. Another species of *Cassia* with very long pods?

Large basaltic boulders are in the Allan River and small ones in the Paterson. The Allan River is a pretty clear murmuring stream. *Hydrocotyle* in large numbers, a rich vegetation.

The usual disease of the sheep is scab. It is recognised by them scratching and biting themselves. They are shorn and washed and separated from the flock and now washed again with a solution of sublimate from one to four days. Attention and cleanliness are the main things.

The rot is rare and only in low areas. Young calves and cows are exposed to black leg, a kind of general dropsy, if they have become fat on coarse pasture after rain that brings on fine young grass. ~~Incisions are made through the skin, but the trouble is ...~~ Either all calves are immediately bled or they are brought to poor pasture.

The limestone is not far from here and gives fine lime. The piece that I was shown reminded me immediately of the clay on the Allan River, only crystalline like the pseudomorph crystals of the Hunter. It seemed to contain clay and sand.

Mr Frederic Nainby, Upper Paterson, gave me his name as introduction at Mr Francis Cotton's place in Van Diemens Land.

Contrast the farmers and sheep breeders, the latter of whom would like to introduce American wheat.

I was told of a Black boy, who is to be educated at Sydney College.

\*Roman cement burns but it does not slack, but becomes hard under water.\*

The land is exhausted after a few years and the lessees then break up new tracts; a kind of purchase by cultivation. It is difficult to get good fertiliser, because it is too hot. The harvest is uncertain. The smallest flock of sheep has about 500 head.

The German village in Adelaide is excellent through cleanliness and tidiness. The German schoolmaster of the Aborigines, however, must seize the children and give shelter to win them over.

The shepherd's companion is a small black lively bird with long tail, which it constantly moves. It hops around on the backs of the sheep, in pigsties and in water holes and makes an insignificant chattering noise or whistles.

{I came to Poot young gun on 5 January.}

Here at Poot young gun I found firstly *Veronica* in flower, *Lobelia* again, *Goodenia pubescens*?

As you follow the track to the head station of Poot young gun (south south-west), you find on the next hill, which ascends outstretched towards the south-east, a trachyte with yellow, red and grey matrix, in which few pyroxene crystals and few feldspar crystals are found (like the outlet of the Myal Hills).

Three high mountains lie around Poot young gun. Myal Hill in the south-east, Blackguard Hill in the south-west and between both Worgan gunnii more to the south and at least separated from the small plain.



Towards the north is another hill of significant elevation. The heat of the sun, repeatedly reflected from all sides, is not moderated by any breeze, ~~but somewhat open to the hot north-west winds~~ in this cauldron through which a stream bed without water extends and which is somewhat open to the hot north-west winds, it becomes unbearable. You would like to undress completely. The sweat comes out in streams from all pores. In the morning no dew refreshes the ground or only after heavy evening rains. In the evening no cool winds moderate the hot air and earth.

Myal Hill is remarkable by its shape. It climbs very steeply upwards in long narrow ridges and on the opposite side descends again, while a steep foot hill runs out towards the south and allows a beautiful view in this direction. You see the cauldron of Poot young gun at the bottom, you see where Webbers Brook enters and leaves, whilst towards the south the valley of Glendon Brook becomes visible, to which gullies descend everywhere from Tyroman and the Popye range. Worgan gunnii blocks the view towards Taingerring. Myal Hill and the bases (the first ledge) of Worgan gunnii are formed from red conglomerate, that now and then becomes real pudding, the pebbles of which are granitic and trachytic. On the south-west side high up in a wall I found alabaster in very thin seams.

Three flocks of sheep are constantly grazing around Poot young gun. Each flock comes to the station in the evening. During the night a watchman is appointed, whose dogs, however, keep watch. Hunt told me that previously no dogs were kept and that the sheep became fatter, now they are leaner, because they are chased too much and frightened by the dogs. The latter is also correct. The dogs bark as at beginning of heat and chase the animals too much according to my thinking. The local sheep dog is a light long-haired dog with sharp head, with hairy tail and in external appearance comes extraordinarily close to the jackal. They are usually black and white. Some have a brown face.

Mr Penson thought that strong mares must be brought to full blood stallions to obtain a strong breed.

I have just heard a strange bird call, like I've not yet heard kikik kikik whistling.

A wild dog sprang into the water and leaned its head against a piece of wood to conceal itself.

### 3 January

The overseer, who has a large family, said to me that it was extremely hard for him to purchase the expensive goods from Mr Scott's store. He gave 5 shillings for 1 lb of tea instead of 3 to 4 shillings and 4 pence instead of two pence for a pound of flour. He did not cultivate his garden, because he did not know how long he would remain and that he was always intent on improvement, because under these circumstances he could not save.

### Journey to Tyroman on 6 January

Opposite Myal Hill in the dividing range there is a red trachyte with small feldspar crystals, very little pyroxene and rare glassy feldspar (quartz?). The groundmass is reddish mat. I found a definite crystal in it with two six sided pyramids, but in lustre quite different from quartz. On top the rock was grey. Amphibole more distinct. No quartz, fine feldspar crystals, also red sparry feldspar.

On this hill (the next highest hill from Tyroman) there is a very interesting relationship. The narrow ridge descends towards west south-west; the west side is covered with trachyte everywhere. A narrow moderately elevated embankment of loose pieces of trachyte descends towards west south-west? Over this and on the steep slope towards the south the red conglomerate is everywhere.

Whereas the west and north-west sides slope moderately, the south side is excavated into ravines.

The slope of the hill is scarcely 15°. Generally the trachytes seem to become grey towards the top, and red towards the bottom, also they are often more solid and the crystals are larger.

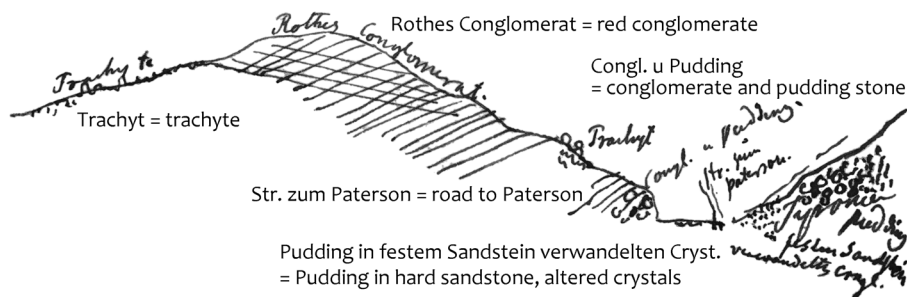
On the south south-east side towards Tyroman the beds of the red conglomerate dip towards the north north-west at an angle of 23°.

At the bottom on the east side of the mountain trachyte appears again. It is red and grey and contains black and gold-coloured flakes of mica. Underneath this trachyte a grey conglomerate and pudding appear.

At the foot of Tyroman there is a conglomerate changed into solid sandstone. Towards the middle of the mountain it was a pudding with large pebbles. These oft-mentioned narrow mountain ridges descend from Tyroman in all directions, which I have previously mentioned at the Sugarloaf. I do not remember ever having observed such narrow ones in European mountains.

The mountain is covered with fine kangaroo grass, which the sheep do not seem to like, whereas it is a desired fodder for horses.

On the peak of Tyroman there is an anagenitic rock of great hardness, of almost granitic aspect, probably altered by fire, probably in the vicinity of igneous rocks. A similar rock is found on Worgan gunnii and on Blackguard Hill as well, almost always on the peaks of the mountains.



On Blackguard Hill I found red conglomerate at the bottom. On the middle of the mountain further towards the south pudding and fritted sandstone, on the mountain ridge that anagenetic rock, which is almost of igneous nature, over this a fine-grained, soft, yellowish sandstone with small ironstone pellets and with cloudy patches. The cliffs are very picturesque. At the bottom of the northern hill of Poot young gun there is a pudding with extremely large boulders and so ferruginous that the burnt cement seems slaggy. Very many granitic pebbles and boulders cover the hills everywhere around Poot young gunn. Also I found a porphyry with feldspar crystals in the greenish-grey matrix without mica or hornblende (I found an almost similar rock outcropping on Worgan gunnii).

### 7 January

At the bottom and middle of Blackguard Hill towards the south there is a very hard conglomerate of grey colour, which leads us perhaps to the anagenetic rock on the peak of the mountain and of Tyroman. This conglomerate contains a large number of small topaz? pebbles, but not a single one of any significance. Also I noted some of them covered with a fine gold-coloured efflorescence. This rock lies under the fine sandstone of the top and forms the cliffs. The atmosphere and the water have excavated out deep holes in it.

Blackguard Hill extends from north to south and sinks in all directions. In the south an igneous rock appears with white feldspar crystals, small quartz dots and black crystals in the greyish-green matrix dotted by iron red.

At the junction of Webbers Creek and Blackguard Creek the cliffs of a spur of Jack Shea consisting of sandstone and puddingstone are visible at a defile overshadowed by *Casuarina*. Here rough whetstones for ordinary use

might be found, as also in the rock that forms the cliffs of Blackguard Hill.

The cliffs are covered by a long-leaved *Acacia* with *Smilax australis* and the native vine, which now has unripe berries. *Nasturtium* is growing along the water.

The direction of the trachyte stream on the west side is north-west-south-east descending to the creek, that of the east stream from north to south. Both streams meet at an acute angle. It is possible that the whole terrain is trachyte and that the creek broke through it.

\*Blackguard Hill leading to Jack Chea\*

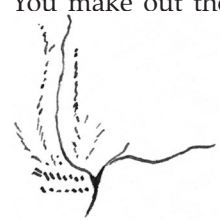
Where the trachyte touches the sandstone, traces of a golden metal are found in the sand, probably mica.

The sandstone itself is much altered. It appears red with fine black spots.

Blackguard Creek at the first waterhole is a romantic spot. Steep cliffs with prominent blocks ascend on both sides. Pudding at the bottom, sandstone altered by fire higher, between a bed of trachyte.

A deep water hole lies at a ledge about 8-9' high, over which a full stream would form a boisterous cascade. *Casuarina* give a shade too weak for this sun. The *Hibiscus* is always close to the water. The water cress also grows here and previous rains have produced tall grass between the blocks of rock, which fill the bed of the creek.

The locality at the entrance of the valley is very interesting. You clearly see how a stream of trachyte pushed forth through pudding and sandstone. You make out the stream up to one third of the mountain by the sharp ridges and blocks. Higher up sandstone occurs. At the bottom is the pudding or conglomerate.



*Typha* grew in a second waterhole of extraordinary depth. A little higher up the valley on the left hand at the same height of the mountain were caves in the pudding, probably forming from softer sandstone accumulations being washed out. Here kangaroos seem to have stayed frequently. We found their excrement. Swallows had built nests in them. One cave was shaped almost like a violin case and the echo of our voices was very strong. Just under the cave trachyte emerges between the pudding. Smaller blocks of rock had filled the valley bed and vegetation has established itself on them, while the water trickles between them.

### 8 January

Mr Penson rode with me to the foot of Jack Chea to show me picturesque rocks. I began to investigate the locality and the interest led me up to the mountain under the oppressive heat of the sun and despite the hot north-west wind. Webbers Creek runs around the cliffs.

On the east side of Webbers Creek there is a strange spotted yellowish sandstone. This forms the bed of the creek, which has rounded all the protruding blocks. In addition huge blocks with sharp edges, which have rolled down from Jack Chea, lie in the stream. A wild embankment of primitive rocks stands

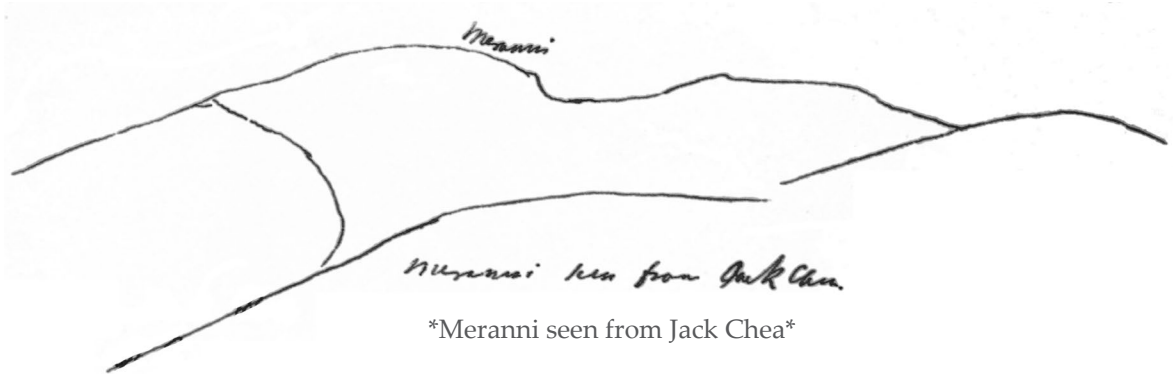
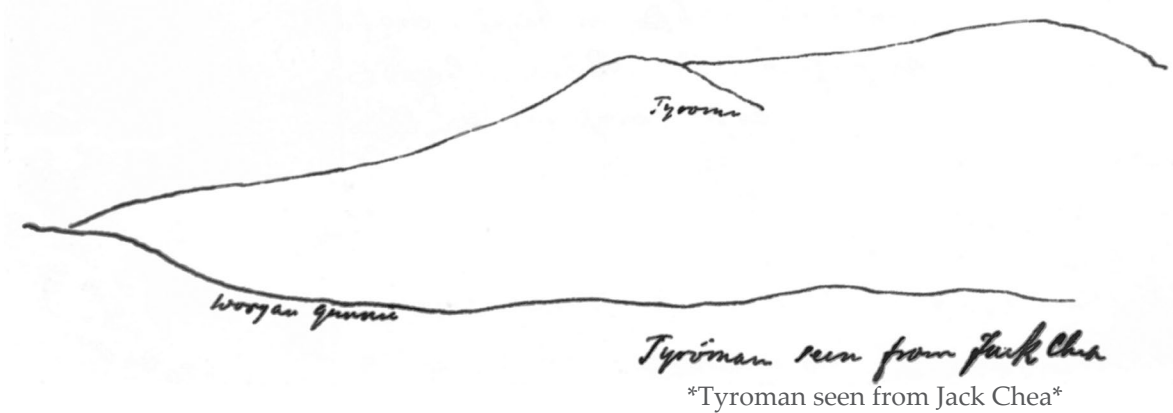
out on its west side in bold grotesque shapes. It is a granite with olivine.

The jointing of this rock is extraordinary. The joint surfaces are very smooth and the angle sharp.

On the rocks stands a tree with elliptic-lanceolate, dentate (crenulate) leaves similar to those of the tree on Ash Island that bears red berries. A fig tree also grows here. The whole mountain consists of the same granitic rock. A beautiful, very instructive view is enjoyed from its height. You see the basin, whose south and south-east edge is formed by a mountain chain that connects Taingerring and Tyroman with one another. It is probable that the highest ridge is formed definitely from granitic primitive rocks, as they are found visibly on Taingerring and probably also on Tyroman. Taingerring extends towards Tolka Tolka. The intermediate mountain heights show pudding, sandstone or red conglomerate everywhere. The northern arc is not regular. Rounded mountain tops project. Meranni has volcanic rock, Jack Chea is granitic. In the intermediate height from Meranni there is conglomerate or sandstone. At the bottom is red conglomerate. Subordinate ranges of hills are Worgen gunnii and a large number of roll-shaped ranges, which mostly are formed from trachytes or are raised up by them



\*Taingerring seen from Jack Chea\*



A very interesting place in the bed of Webbers Creek above the cliffs shows granite and sandstone almost in contact. A prominent sandstone bar comes down to the stream from east to west and as it were seems to dive under the primitive rock. The sandstone in the vicinity of the primitive rock is harder, dips towards the south at 16°. Between Jack Chea and Worgan gunnii sandstone and puddingstone is found everywhere.

9 January

I climbed Worgan gunnii. A long elongate mountain with undulating contours. These undulating lines correspond to the different rocks of this interesting mountain. The base, which is joined with Myal Hill, is red conglomerate. Over this comes a red trachyte and thermantide, on this a fritted sandstone and thermantide, then pebbles cover a large tract making the underlying rock invisible.

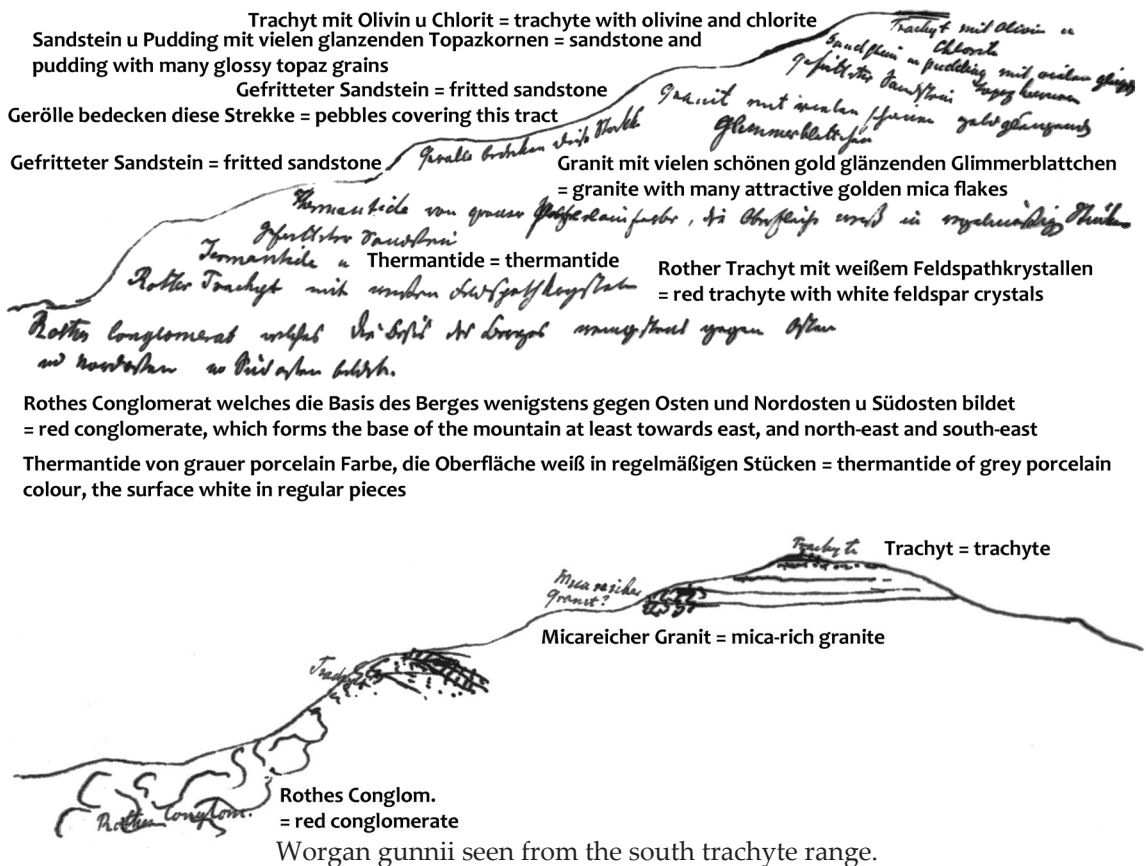
After that granite with many mica flakes, over it a thick brown sandstone, anagenetic rock or sandstone baked by fire and on the highest point a peculiar trachyte with many green crystals and yellow groundmass. Small feldspar crystals, and feldspar crystals surrounded by a green mass in the brownish and almost greenish groundmass. This decays into angular lumps.

{At some places a violet clay disintegrating into rhomboid pieces is found. The hardness of the red conglomerate in some places in the creeks shows that the igneous rock is nearby.}

An attractive greenish clay in a ravine not far from where it leads into Glendon Brook – alluvium like that in Hunts Creek. At the southern and south-eastern sides of Glendon

Brook opposite Worgan gunnii Hill, you meet a range of attractive trachyte. It runs parallel to Worgan gunnii and comes down from the dividing range. It is the longest, largest stream of trachyte that I've seen here. It runs from north north-east to south south-west. The joint surfaces are parallel to the line of strike. The joint planes dip towards the west, towards the stream and Worgan gunnii. The ridge is cut through several times by gullies. Red conglomerate adjoins towards the south-east.

At one transected[?] place, which is particularly rocky, a large number of attractive plants are growing, *Notholaena* in very pretty specimens. A new *Aneilema* with narrow stem leaves and violet colour was found.



## 11 January 1843

Yesterday morning I left Poot young gun, my body extremely exhausted and impregnated with illness. This exhaustion was caused partly by the extreme heat of the three days, on which I climbed the four highest mountains of that locality, but partly the excessive consumption of milk had harmed me, which acted on me like a laxative and in this case filled my stomach with flatulence. I had the intention of visiting Morroborah, but a misunderstanding of my guide led us towards Borrah or Coopers Flat and my indisposition had reduced my energy so much that I let him go freely, well knowing that this track brought me nearer to the flesh pots of Egypt again.

On the first hot day a thunder storm of little significance, which stirred the air, cooled about half past five o'clock; on the second (the Saturday) we had a severe storm accompanied by showers of rain; on the third day clouds formed in the west and south-west, but no rain followed. On the fourth (the Monday) clouds again and a few drops of rain, always at about six o'clock in the evening. Only on Sunday morning did we have a heavy fall of dew. Finally on Tuesday the whole sky became overcast, the clouds gradually descended about 9 o'clock and a very general rain fell in light drops. It was, however, of little significance. Now I still have to remark here that on those hot days, but particularly on Sunday and Monday, a hot north-east wind blew very strongly. In spite of this wind the clouds approached from west south-west and south, against the lower wind. ~~The question just remains why the cold south-wind comes from above in spite of~~ During these three days my body was perspiring extremely, the sweat flowing down in streams. My moist hand in writing let the drops of sweat fall on the book. From time to time, as a gust of wind came through the open window, my skin felt a kind of

shower, although pleasant, however causing light rheumatism. I would have taken off coat, waistcoat and stockings and most willingly would like to have worked naked. However, next morning I felt a pulling in my shoulder, that reminded me strongly of rheumatism and from which I only rid myself by cold washing in the early morning. {I did not rid myself by this; on the contrary I found that the washing constantly aggravated it again.}

By following a gully, which descended to Webbers Creek, I had the opportunity to see the red conglomerate outcropping in significant thickness everywhere. It often alternated with beds of pudding, which contained very large boulders and among them granite. At Bulumbelong, where the ruins of two huts called to mind a ghastly murderous deed, which shepherds here committed on an overseer, a wall of red conglomerate penetrated by vertical veins is seen, in which a white substance (lime) is found, which broke into rhomboids under the hammer like calcite, but decomposes into a white powder in the air. We now climbed over very considerable rounded hills, separated from one another by gullies and incised on their flanks, all formed from red conglomerate.

Jack Chea appeared as two mountain tops, the southerly with long southerly slope divided from the northerly by a saddle-like depression, which dropped off rather steeply to ranges of hills below. We climbed down over the continuation of these ranges of hills on the so-called Coach Road, on which the cattle grazing in the mountains usually go down to Coopers Flat and to drink from Meranni Creek. To our right we saw other mountains, which my companion called Butchers Hill and Windhams[?], and opposite us a mountain range arose independent as it were from the plain and beginning a new series, which Hunt called Whites Hill for the moment. Coopers Flat spreads out between

Jack Chea and Meranni, in which the sheep huts Boorah lie. We saw two flocks of sheep here, which graze on the young grass on Meranni Creek. I had said to my companion that we would remain in Boorah. He replied that the two huts were so densely occupied that it might be difficult for me to be quartered for the night there, while on the other hand in Hebel there were a large number of huts and that Mr Penson had a separate one for himself. I laughed about his intelligent statements and conscious of my exhausted condition, I let him lead me to Hebel. We now had to cross the steep Meranni Range, on which strangely I observed geological relationships analogous to Worgan gunnii. At the bottom red conglomerate, at the same height altered rocks, which I have probably named anagenetic rocks, but which seem to me to be red conglomerates, sandstones and puddings altered by fire. Over and under this trachyte and high over again pudding, which are visible in very far extension high over on the ridge in two parallel moderately sloping bars. On the height of the range we caught sight of the valley of Meranni Creek towards the east and towards the west the Reedy Creek or Bundelong Creek valley, the latter of which is distinguished by high mountains and deep ravines. In this valley the same relationships appear, only some very significant elongated heights of trachyte appear at the sheep station indicated on the map, between which I found an angular piece of syenite (by chance). From this valley we had had a very considerable height to climb again, which brought us into a new watershed, of less expanse and less sharp circumscription (into that of Gowergorang).

At Hebel I wandered around in the evening to orient myself a little. Following Westbrook towards the south I found trachyte in big blocks outcropping. A rock resembling wacke followed them and finally conglomerate and pudding towards the south. On the left side

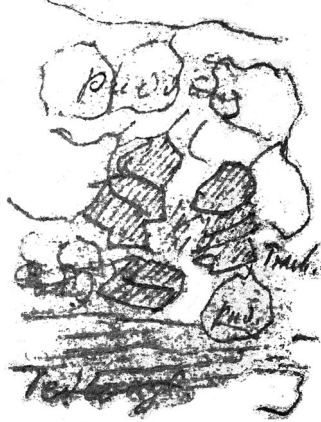
of Hebel a small round hill arose like that on the other side of Glendon Brook near Mr Penson's house, which consists of trachyte.

This morning I went to Yellow Rock, the most northerly largest elevation of Meranni Range. I have here to mention the trachyte height resembling an embankment extending from north to south, on the west side of which the road leads from Hebel to Mr White's station. After you pass Gowergorang Creek, you have to climb a high range on which conglomerate is found at the bottom and trachyte at the top. When you descend on the other side, the same mica-rich granitic rock is found, which I saw so beautifully in Worgan gunnii, but the golden gleam is less perceptible.

The Meranni range, to which Yellow Rock belongs, shows red conglomerate here at the bottom, in which many veins and aggregations of lime are found in the deep ravine next to Yellow Rock. Over these a yellow rock resembling wacke appears, which includes feldspar crystals in an earthy groundmass, upon that a trachyte with green groundmass and yellow crystals, finally altered sandstone and conglomerate, over which finally the unchanged pudding projects in bold blocks covered with various lichens. Now it is remarkable that the trachyte appears neither as a bed, nor as a dyke, but protrudes in a block mass out of the pudding.

This is the only place where I have seen trachyte in such direct contact with pudding. The contact surfaces (particularly those on the eastern slope of Reedy Creek Range) were always covered with vegetation and pebbles. This lack of sections makes it very difficult to find out the relationship of these rocks to one another. However, the superposition is found so generally that I am inclined to regard the pudding as the younger rock, and conglomerate rich in veins as the oldest, both broken through by trachytes. The syenites of Merrani and Tyroman were probably primary

and already in existence as mountains before the other rocks were deposited or arose.



From the Yellow Rock Dyrinne appeared in its full development, a very considerable mountain mass in darkest blue. All remaining ranges were seen very distinctly. Mr White's Road Range, Meranni Range and Jack Chea.

I found the flat places along Reedy Creek covered with beautiful grass, which has a very woolly flower spike. My horse preferred these, however, to the youngest shoots of the kangaroo grass, which now cover the slopes of the mountains after the bushfire and following rain.

My guide told me that Popye and Meranni were the best sheep pastures of the Scott estates. He added: These stations were good when Government men minded the sheep, now the stations are usually poor in grass. I was surprised at this obvious preference for his comrades, as he is also a Government man. He said to me that the immigrants were afraid of losing themselves in the bush and therefore always kept close to the stations, which soon were over grazed. When they became better acquainted with this region, they left to better their position. In this he was perfectly correct.

We caught a *Hypsiprymnus* (kangaroo rat) in a tree trunk and later a young kangaroo, which now gives me great pleasure on account of its gentleness and tameness.

### 13 December

Yesterday morning I ascended Gowergorang Creek, where the guide had promised to show me many rocks. At the place where one crosses Gowergorang Creek, an attractive blue trachyte outcrops, obviously the continuation of that trachyte embankment, which descends from the south-west here towards the creek and continues on the opposite side towards the north north-west. Here red conglomerate appears and then pudding in large expanse. A whitish pudding with very loose earthy cement forms an elongate hill on the north side of the stream. Here there is a small cave similar to those on the flanks of Taingerring, Blackguard Creek and Meranni. Butterflies seek refuge among the cool rocks. Higher up the cement becomes almost free of pebbles and very similar to a sandy calcareous sinter. Then solid pudding, fritted sandstone, fine-grained sandstone and finally primitive rock appear on the mountains. The relationships are very similar to those in Webbers Creek below Jack Chea.

The Gowergorang gorge is extremely wild. Water is present in deep rock basins the whole summer through and remains cool in the shadow of huge blocks of rock, which crash down from the top into the gorge. Between the rocks a large number of interesting plants proliferate. {*Arum* grows here abundantly and *Nasturtium* (watercress) of which Mr H[?] collected a whole[?] bunch for me.} I have only seen *Pittosporum* and *Dendrobium speciosum* here again. Creeping *Polypodium* and lichens cover the surface of the stones. On clambering up, lizards dart into the shallow water holes to escape the eye of the enemy, while snakes hide under the large pebbles lying in the bottom of the stream. In the upper gorge I found for the first time a vein filled with the same white mass that is so abundant in the red conglomerate.



Ideal section.

In the vicinity besides the green wattle another *Acacia* grew with large leaflets (pinnate leaves) and between each pair of leaflets a long projection (gland). {*Cassia*.}

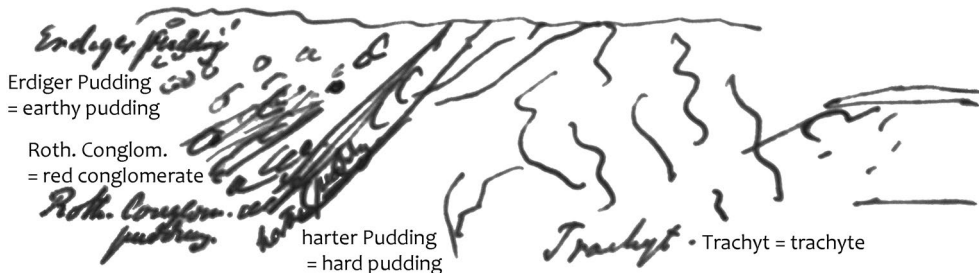
I have not observed the rock of the sandstone masses on the left side. You see little at all of the stratification.

In the afternoon I rode to the head station. After I passed several less regular ranges of hills, on which there were sharp-edged pieces of trachyte here and there, I followed a valley (The Chain of Ponds) very characteristic of this region in that no continuous stream bed exists, but only water holes are found that form a chain. If the cover of the diluvial or alluvial soil were not so deep and the rock lying underneath closer to the surface,

the floods would probably have cut out a continuous bed. Every hole is surrounded by green grass (*Danthonia?*). Closer towards Glendon Brook trachyte appears on both sides and it is probable that this trachyte is the large stream, of which I have already made mention under the names of Johnsons Main Range and Reedy Creek Range.

On 13 December I went up Westbrook and found several very interesting localities. First a pudding with earthy cement and a red conglomerate are found, and then the pudding appears evidently broken through by trachyte. It is indurated and it even seems that the trachyte has enclosed boulders. Thus an edge of hard pudding projects here in the steep bank of the stream. The line of contact is, however, unrecognisable.

The corresponding hill seems to extend from south-east to north-west.



Alluvium is on both sides of Westbrook between the mouth of Gowergorang Creek and Middle Creek. Only it appears that the underlying rock is red conglomerate.

At the junction of Middle Creek and Westbrook a blue trachyte that splits into large slabs continues through Middle Creek and then ascends southerly to a considerable height. {The slabs dip towards the north-east more or less steeply.} On the peak that forms the divide between both stream beds, the rocks are covered with a rich vegetation. In the stream bed itself *Casuarina* grows here as everywhere. A *Poa* growing in bushes, and on the sides *Luzuriaga*. The rock-labiata, *Aneilema*, the passion flower and other creepers not known to me, one with opposite lanceolate leaves and purple colour on its underside, *Hydrocotyle*, *Adiantum*, *Cheilanthes*, *Solanum*, and the unknown euphorbiacean.

The ascending trachyte range stretches from the junction of Middle Creek and Westbrook to its highest point a half mile upstream, then the range continues a half mile further covered with small red pieces and here a short transverse range appears, which contains reddish feldspar crystals in yellow groundmass and splits into small irregular tablets. On the peak of this diagonal hill you have a beautiful view of Dyrinne, which now powerfully excites my curiosity again.

Cumulus clouds are forming and drifting over Dyrinne. Their middle point is becoming dark.

From the trachyte hill you see the southerly mountain of the Gowergorang gorge to the right towards the east; towards the west a high range of hills on the other side of Westbrook. Thus both these valleys of Middle Creek and Westbrook, the latter of which has its head at Dyrinne, become very obvious here.

Mostly trachyte boulders in Westbrook, but also indurated sandstone. The trachyte resembles the others: reddish crystals in yellow groundmass, very hard, no quartz.

A peculiar reddish rock, which, however, belongs to the red conglomerate, was higher up Westbrook.

When we came back from this excursion and I had restored myself again, I wandered alone in an easterly direction from Hebel and as I [went] to the rising hills, trachytes rose up again with a strike north 10° west. I soon found that I was on the continuation of Johnsons Main Range, the south-east end of which I had already visited from Mr Penson's house.

From the top of Johnsons Main Range you enjoy a very beautiful view over the whole circle of mountains with exceptions of Tyroman and Jack Shea, which are concealed by Meranni. There is some similarity between south-east and north-west. As there Tolka

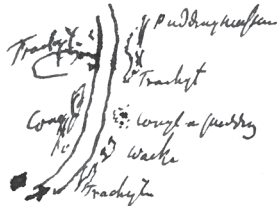


Dyrinne seen from the south transverse range right from Westbrook.

Tolka and Brooks Mountain lie in front of Taingerring, so here two smaller heights lie in front of Dyrinne. The latter corresponds to Taingering, but it does not continue in such a complete circle. Between me and Dyrinne lies Gowergorang Hill. Between Yellow Rock and Meranni, White mountain protrudes way over the range.

The top of Johnsons Main Range and probably the whole flanks are formed from red conglomerate and pudding, which is filled with a large number of calcite veins.

In the evening the moon appeared extremely yellow and surrounded by a wide halo.



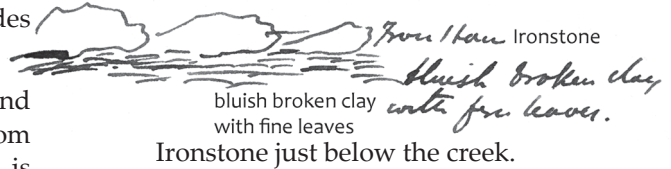
- Trachyt = trachyte
- Puddingmassen = pudding masses
- Congl. = conglomerate
- Congl u Pudding = conglomerate and pudding
- Wacke = wacke

On 14 December I left Hebel to return to Glendon. Trachyte outcrops below Hebel on both sides of Westbrook at various places, as well as conglomerate and pudding masses.

At one place the trachyte is externally very red, and yellow within, very jointed. This rock is very thick on both banks. Then on the east the altered pudding (anagenetic rock) appears next to the trachyte. Several hard beds are visible dipping towards the stream. Towards the east, however, this is difficult to determine. The dip is 25°.

\*Mundoa. Below the stockyard in the next gully fern leaf impressions are seen in a yellowish clay, which changes with a harder layer of about 1 inch and a half containing iron. The layers seem to fall to the west in an angle of 45°.

I suspect layers of iron near Mundoa and near Poot young gun, as all the pebbles are coloured black by an iron deposit and the water has a slight white tinge.



Lower down a bed of coal in the bank of Westbrook; it dips 40° to ENE. The coal looks rather dull, but this is only the surface.

In Mundoa Creek Pudding very powerful.\*

The heat was extreme. I had never felt it so much. After I saw the coal, I mounted my horse and then let it travel home at a snail's pace. As we crept along so quietly, we suddenly heard a very slight noise, whereupon we immediately saw a very tall[?] dry rotten *Eucalyptus* tree fall[?] and with loud cracking crash to the ground. It fell in a direction parallel with our track. Had it fallen crosswise over the track it must have killed us.

We soon entered the enclosure of Mr Scott, in which his mares graze with the foals. It is extremely picturesque to see these half-wild horses variously grouped grazing around on a green paddock shaded by solitary trees. Here I also found a perhaps more plausible explanation for the so-called devil devil land. I assume that a moderate fall is necessary for the perfect formation of such a terrain. Now if holes are formed at the top or in the middle of this somewhat inclined surface, then on the one hand with downpours occurring the next waters must fall into this hole, on the other hand such large masses of water forming gradually overflow and at first widen the hole, but then form a continuous depression completely to the foot of the plain.

## 16 January 1843

I have seldom seen a woman, who was as generally well-informed as Mrs Penson. She had read very much and thought independently. Her conversation was very lively and usually interesting. However, she did not have a friendly temperament and the sense of her knowledge has made her so apodictic that she treated every opinion not known to her as ridiculous and as nonsense. She seemed herself to feel the rudeness of this “of course and it is quite ridiculous and nonsense” or “nonsense!” and I heard exclamations of this kind less frequently on my second visit. She had five children and seemed to love them very much, but she had done nothing at all for their education. When I questioned her about it, she told me that she lacked the strength to compel the children to learn. Mr Scott had dismissed Penson from his service in consequence of great carelessness, and because he had lived with wife and children for a long period of years in Glendonbrook and had established a beautiful garden, his wife was extremely distressed to have to leave such fine handiwork. Penson himself was a quiet man of the world, very good natured, but perhaps very inclined to be self indulgent. I have met several men of his kind in my life. In addition he was quite an insufferable questioner, a man who knew how to pump the stranger to talk with Faust’s drinking companion. Often enough he was indiscrete, but wisely I was careful not to say too much to him.

My journey was coupled with many troubles. The heat was often astonishingly intense and my provisions were frequently very bad, even full of maggots. The last time, however, I felt toothache and I was afraid that this was caused by the hard meat dishes and by eating of heavy damper. As soon as I returned to lighter food again the pain disappeared.

In Glendon I was received as if I had never been absent. The difference between the

richly set table and the full orchard and the poor bush hut was unpleasantly striking to me. However, the shepherds or their wives could make their lives much more comfortable. They could establish gardens, cultivate vegetables and live very contentedly, if they would just decide to remain forever in the one spot. Instead they do nothing. The wives are extremely lazy and idly hang about in and around the hut and if they are asked why they do not establish a small garden, their usual answer is that they never know how long they will remain there and that they will not work for nothing. Mr Scott, however, replied to this that they stay at least one year at the same place and that therefore they could very well harvest the produce of the year. Fencing costs them nothing and the Glendon garden would furnish them plants and trees. But misfortune will have it that these immigrants always come here with such expectations of extraordinary wealth that their minds always restlessly strive beyond the limit of comfortable quiet life. The shepherd usually strives to become a cowherd, that is a stockman, a man who supervises a certain number of horned cattle. Such a position or that of an overseer is regarded more highly, because the stockman may keep a horse, whereas the shepherd walks behind his flock the whole day. The smallest number of sheep in a flock is 500 here. Mr Scott has now united two flocks into one almost throughout to reduce the costs of the shepherds’ wages.

Bennet’s Travels to the Murrumbidgee<sup>2</sup> is very pleasantly written and entertaining. He mentions the Black legs in young cattle and says that blood extravasation is found in the haunches and in the neck, that the intestines do not reveal the slightest trace of illness. It is a sickness which is also known in Ireland and which is prevented by blood letting and by bringing the cattle onto poor pasture.

[Letter in English to Robert Lynd, 16 January 1843. Aurousseau, 1968: 621-626.]

17 January 1843

The lemon and orange trees are flowering in the garden. The second fig harvest is beginning. The figs, however, are much smaller than those of the first harvest. Nectarines and peaches (slipstones) are fully ripe.

19 January

*Galega* is flowering, a yellow Inga! *Acacia* with red and white flower heads.

Yesterday I went to Jump Up Creek a second time to investigate the bed of zoophyte sandstone. I found several large bivalved molluscs and a snail, a kind of *Trochus*. A bed, which besides these bivalves, also contains crinoid stems, is so compact and has so much limestone that it could very well be used as such. {There are vughs with aragonite especially on the still preserved mollusc shells. At least I think that it is this substance, as it fizzes with acid. The small spheres show fine broken fibres, which all radiate from a middle point (like mesotype).}

On the way there I found a large number of very interesting plants on the mediocre pasture shaded by *Eucalyptus*; a labiate with four stamens, hairy throat, and five toothed calyx; the large and small star grass and a purple-coloured vetch-like legume. *Nasturtium* and an amaranthacean were on the decayed trees, which lay over the water. *Pimelea recurviflora* and *linifolia?*, *Polygonum (arvense?)*. An agreeable-smelling chenopod. A pretty *Hydrocotyle*. A pretty yellow legume with articulated fruit, with annual leaves.

*Mesembryanthemum (plantagineum Nob)* The plantain-leaved ground flower. {(this is a composite)} The flower stalks very small. The leaves lying wide over the ground like *Plantago latifolia*. I found a large number of grasses, to which I give the following names here: the purple-flowered silvergrass

(silvertail). A long silky hair surrounds the flowers. The pistil dark purple colour. The short radiating star grass (three barbs), two glumes, outer almost as long as the spikelet apex, inner transparent small. Spikelets biflorous, outer leaflets with an arista longer than the spikelet. The long radiating star grass 4-10 rays. The arista very much longer than the spikelet. Leaves two-rowed, as also in the previous one. The hairy Poa. Leaves covered with fine stiff hairs, the flowers and spikelets and spikelet stems finely haired (pubescent). The narrow paniced Agrostis? The lateral panicles all surrounding the main ear axis.

The serrate [...]. Spikelets sit with the serrate surface towards the ear axis, the glumen and valve apices very elongated with fine denticles marginate towards the apex. The plant on the whole rough.

The blue-flowered Aristida The three-barbed downy grass. Single-flowered spikelet, each covered with a large number of soft hairs. The external valves with three long soft processes.

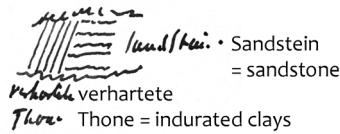
(Wool glume) The fringed-glumed spear star. Single flowered, the glumes almost equal, fringed with soft down, the valves smooth membranous.

The squarrose Milium? Spikelets single-flowered, glumes very small, particularly the inner, the valves almost completely protuberant from them. The panicles very spread[?], dehiscent. This grass is subject to smut.

22 January

So as to see the caves of Meranni, I rode to Glendon Brook last Thursday and from there to Boorah Station, over which there are many caves. We passed some very rough places over Meranni Creek thickly strewn with pieces of sandstone.

{In a gully between both the fields of stone there are indurated

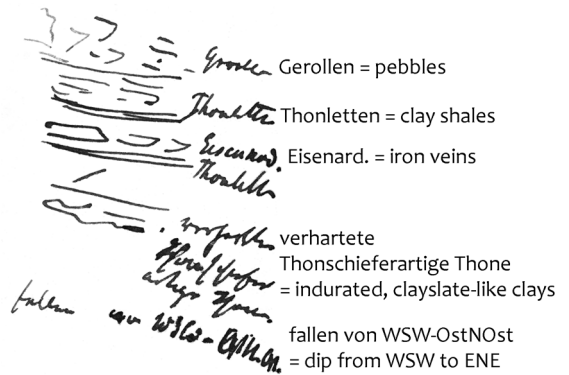


clay beds standing upside down in contact with fritted sandstone. This rock is in all probability the same that I found in the top of Branch Creek under the pudding.} From the first, I thought to have again found the granitic rock of Jack Shea and of the pinnacle of Meranni. About 500' up the pudding rests on a sandstone. The contact points of both have been less able to resist atmospheric influences and a large number of small holes of four to eight feet deep, a kind of recess, have formed especially in the pudding mass, which here perhaps enclosed looser masses of sand. The same parallel projecting bands of pudding, which I mentioned previously about my climbing of Yellow Rock, are also found here and indicate the place where the hollows are found. Vertical joints run through the rock and these are filled with calcite. Waters containing lime have filtered through here and have covered the sandstone and pudding more or less with a crust of calcium carbonate. Well formed stalactites are said to be found in some of the holes. In one hole that I visited there was a considerable mass of calcium carbonate, as if originally deposited in the pudding. It contains much sand. Under it lay a black ironstone and in it was a large number of iron stains, which led me to believe to have found leaf impressions.

Next morning I rode over the continuation of Taingerring to investigate blocks of a kind of marble on a station belonging to Mr Scott on the other side. Strange to say these are found under and in the same rich clayey mass of iron, in which the limestone bed in Black Creek was situated. Presumably they owe their origin to the same cause, but because igneous rock or rather wacke outcrops close to the marble blocks, this probably has

favoured the crystallisation of the lime in large crystals.

On the northern side of the Taingerring range in the bottom of the gullies and gorges there is a clayey, jointed, indurated rock under the pudding, which often resembles clay slate, although it does not show real slaty structure. Then clay shale is found between it and harder beds, all without fossil remains.



If we are now used to finding either sandstone or red conglomerate under the pudding, then the presence of this rock is a little confusing. Are they perhaps rocks analogous to those on the Hunter River altered by igneous masses?

On the green flat banks of Branch Creek many fat cattle were grazing, which slowly drew back into the higher gorges after they had stared at us for a while.

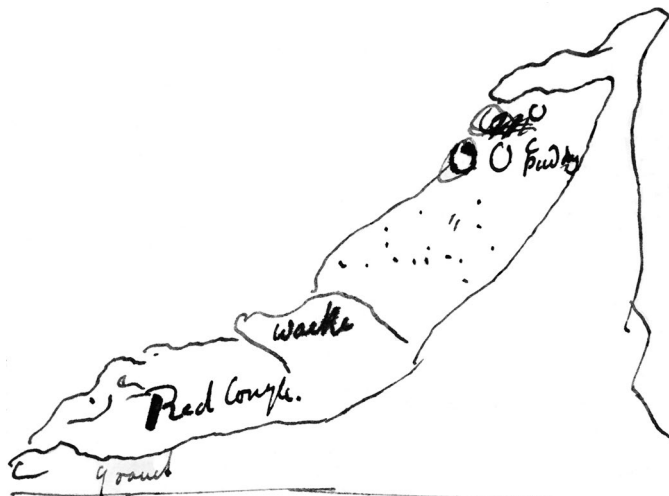
Underground holes are found in one of the earthy puddings with iron veins covering the clay shales, which probably were dug by the echidna.

**12 February**

On 23 January I made a small excursion to Meranni to visit the eastern[?] caves. I went up Reedy Creek, but found no caves, although the journey in other respects was not completely unfruitful. You see it led

me again over the north-west end of the Merrani Paddock Range, over a kind of wacke and finally over several tracts of the granitic rock about whose nature I am still not certain even today, as indeed I find the constituents of the granite, which seem to me less organically than mechanically combined so to speak. {The rock of this range of hills differs from that at the bottom especially by the absence of quartz. It strikes south 30° east.} Puddingstone and sandstone outcrop everywhere in the cave of Meranni. The granitic rock makes itself conspicuous in different ways. There were often narrow descending rocky ridges projecting from the actual Meranni mass, which were covered with hard angular pieces and blocks. No transition occurred from the sandstone into this rock, but the sandstone often seemed indurated, the conglomerate as well, as they were found in the vicinity of the former rock.

This lets me think that it is a veritable igneous rock and not to have to regard it as anagenetic or arkose, which develop by smelting[?] of old granitic components.



Ideal section of Merrani.

When I now returned tired and all pockets full to the place where I had left my horse, climbing out of the deep stream bed I suddenly came on an ox, which, as he caught sight of me, dropped his head threateningly. I had never been harassed by cattle on my marches and so I walked up to him fearing nothing, swinging my hammer at him, to chase him away. However, to my great horror he was not scared off, but rushed at me. I saved myself behind a thick tree, but he followed me and repeated his attack three times. On the third time I could not completely evade him quickly enough and so I took my hammer and gave him a blow with it on the head. Although I was actually between his horns, I did manage to get behind the trees again, I don't know how, where frightened and breathless I considered what was to be done, expecting a new attack of the wild animal at any moment. Not far away from this tree stood another in the same line with the first and I now pulled back to the second covered by the first and from there to a third tree, which removed me far enough from the bull, which stared at me at this distance almost indifferently.

So I then went down to the stream bed again, which completely withdrew me from his eyes and in a long detour I reached my horse, which soon brought me back to the road and to Glendon. {A pretty yellow *Acridium?*, *Opercularia* with pubescent stem. *Eustrephus* the filaments adnate not tufted[?], the fruits trispermous.}

On 24 January I began my journey to Mount Royal, whose cone I had already looked at longingly from several heights. Mr Scott sent along an old sawyer with me, who knew the area well, because he had felled and cut cedar in the dense scrub of Piri and Mount Royal for nine years. My first day's travel brought me to Captain Mayne, whose dwelling and little village lie on the north and

north-west side of Dyrinne. The track lay initially over a terrain filled with moderate hills and ranges, in which you can never get a general overview, because it is evenly covered everywhere by forest. Here we found the spotted gum, the ironbark and higher up the box and the stringybark, and in the small flats, which extend around dried up waterholes or stream courses, the apple tree (*Angophora lanceolata*) with its rich green foliage. Finally we arrived in the valley of Fallbrook, which is bounded towards east and west by high mountain ranges. I had already previously noted the trachytic rock several times. The ranges of Fallbrook seem generally to be sandstone and pudding, however, the granitic rock was observed in great thickness at a point between Bundock's and Captain Mayne and it occurred again several times, particularly at the junction of two streams, which besides these ~~granitic~~ **granitic blocks** was remarkable, in as much as large numbers of *Ornithorhynchus* lived in the banks of the deep waterholes. {An attractive feldspathic rock in an elongate height descending towards the south-east, which, however, forms an arc towards the north. This rock has much similarity with that under the Meranni Paddock Range.} My guide called the range of hills to the right Bundocks Hills, that to the left the Razorback. The mountain with almost vertical southern rock walls was called Bubock and Bebock and opposite it to the right rose Dyrinne, a very considerable mountain mass, as endpoint of the Bundock Range.

About two miles before Mr Bundock's, dwelling a pile of stones on both sides of the road, but particularly on the left, attracted my attention. Investigation showed a trachyte that contained reddish feldspar crystals in the earthy yellowish groundmass, no other inclusions. Very large pebbles of a conglomerate, which is coloured green here and hardened by fire, lie in the stream

between Bundock's and Captain Mayne. Pudding outcrops in the mountain. A new species of *Asplenium* was found among the rocks. Smooth striped lizards live between the boulders of the river bed.

The pebbles found in the pudding detritus are all one feldspar porphyry. There was a white radiating shining substance?

It was more a curiosity to see the black ironbark closely united with a white spotted gum.

Pudding was found at the sheep station at the foot of the mountain in the stream bed, on which a broad and a narrow-leaved *Cyperus*, *Xerotes fluviatilis* and *Juncus effusus* grew. *Mentha* was very abundant on the pasture.

Captain Mayne was not at home. His wife and his children received me in a somewhat odd manner, viewing the stranger slung around with collecting canisters and boxes in a strange, searching, cautious manner. Soon, however, I introduced myself through a letter from Mr Scott and they now treated me very warmly and hospitably.

Next morning I went up to Dyrinne. The bottom of the valley and the moderate hillocks that rise up towards the east and towards Dyrinne are red conglomerate. Mr Mayne's dwelling stands on one of these hillocks. As you reach the foot of Dyrinne, you find the primitive rock that I have already mentioned at the junction of the streams. Higher up is a pudding altered by fire. The combining mass of clay is changed into thermantide? The primitive rock is found again at the bottom on the horn descending to the north-east, then sandstone, which, however, I did not really find outcropping, then again projecting blocks of primitive rock and angular pieces of sandstone and of the indurated pudding and conglomerate lie on the ridge.

A rock with earthy fracture, which contains single free feldspar crystals, is at the foot of

a subordinate hilltop we reached by climbing. Now and then it is reddish coloured and shows grey shading as if from exotic conglomerate-like inclusions.

At the place from which Captain M[ayne's] dwelling is seen below so to speak, trachyte is found (a rock containing quartz and feldspar) over this indurated conglomerate. Higher a red rock like wacke, with earthy fracture, indistinct inclusions, porous, traces of crystals. The top of the mountain is formed from pudding, which frequently outcrops like a wall, like a terrace under the peak on the mountain slope.

On descending towards the west, you find the same projecting primitive rock mass (in

the top of the pudding). An apparent very confined accumulation of large sharp or moderately rounded blocks were put forth or the original primitive mountain was covered by pudding. Here the altered rocks evidently speak against this.

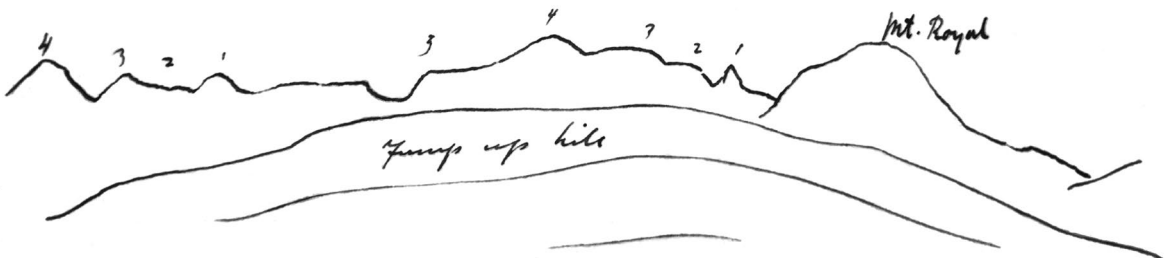
Southern walls of pudding are covered by rich vegetation. *Dendrobium speciosum*, *Polypodium rupestre* and several others, a large number of lichens and mosses abound.

You enjoy a very beautiful view from the peak. You see a large number of strange mountain ranges, which I have tried in part to draw.

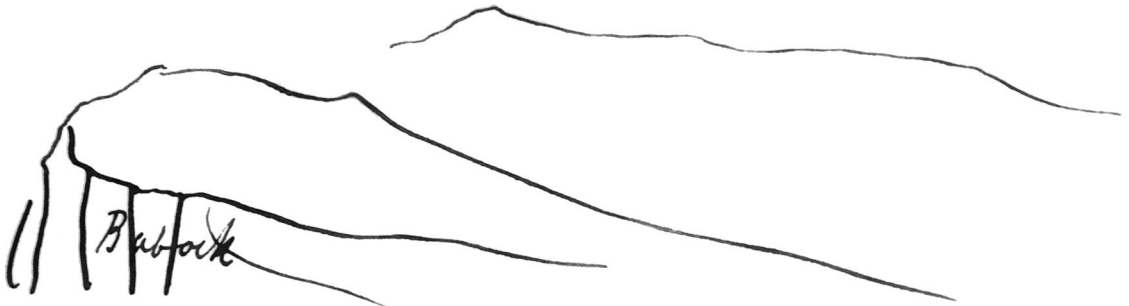
Babock rises from the north towards the south finishing suddenly with steep rock walls, which are all formed from pudding.



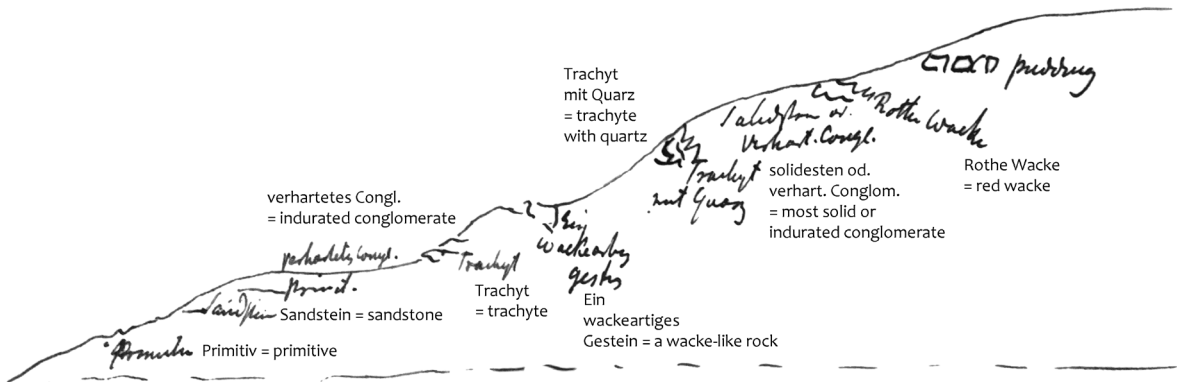
Mountain ridges towards the west and north-west from Dyrinne



[numbers on the peaks but no key]



Mountain ridges north from Dyrinne



Ideal section of Dyrinne



Mountain ranges north of Dyrinne [Mountain labelled Mt Piri is in fact Mt Carrow]

Captain Mayne has a very fine garden, in which peaches (an early and a late variety), figs, rock and water melons, pumpkins and cucumbers do extremely well. I saw here a large species of *Panicum*/millet, a melon of the size of an apple (orange melon), *Convolvulus* with flowers and leaves sprouting out. Beautiful vegetables, e.g. kohlrabi. Mrs Mayne told me that her lettuce sprouts with spiral leaves forming the head and seeds, until finally these were broken through and then the spiral stalk shoots up very quickly. The figs and peaches were attacked particularly by \*mutton birds\*, ravens and so-called magpies. Next morning the wheat fields were covered with flocks of white cockatoos, which rose shrieking at the slightest suspicion and now withdrew like a mass of snow to the neighbouring *Casuarinas* and *Angophoras*. One morning Mrs Mayne jokingly called me to look at an unknown tree with large flowers. In fact I thought I was looking at a mountain *Hibiscus* until suddenly the white flowers arose and flew away. A flock of cockatoos had so distributed themselves over the green tree that in the distance each resembled a large flower.

A large number of slab huts and comfortable cottages resembling a little village were situated behind Captain Mayne's house. The inhabitants were employed as field and garden labourers, as smiths and stockmen on the estate. Fallbrook was at the bottom with several holes holding water throughout the summer, its bed filled with sandstone pebbles, with pebbles of pudding, with basalt from Mt Royal and with trachyte and porphyry. Here for the first time I found traces of a noble metal (probably silver) in an indurated foot-thick drift. Whereas the widened valley, in which Captain Mayne's dwelling is situated, rests on red conglomerate, which composes the subordinate hills in all directions, pudding and sandstone occur on Bebock, which also form the Paddock Range

with some exceptions. Red conglomerate is found again in Carro Creek at the bottom as well, under which coal was indicated erroneously to Captain Mayne. About four miles from the dwelling, strata of a sandy or clayey limestone full of crinoid columns appears in the Fallbrook, the largest of which are 9" and perhaps an inch in diameter and of which some are compressed. Over these strata pieces of sandstone are found on the grass. A fossiliferous rock corresponding to this limestone occurs at Glennies Stockyard and even at the mouth of Carro Creek behind Jump Up Hill, which seems to form the lower beds of a rock resembling slate. It is a sandy clay, no mica flakes are seen. Higher up there are still a large number of beds often rhomboidally jointed and the joint surfaces coated, penetrated or stuck together by iron. Above these, perhaps 150 feet high, appears the well known sandstone, which also comprises the long mountain ridges, which the sawyers have called Jump Up Hill on account of its steep northern slope. Besides the crinoids there are many bivalves, many *Terebratula*, a fine gastropod and several others there. Also traces of vegetation were found. {Finely striated *Pecten*. At the hut the strata very generally dip towards the east, angle of dip about 13°.}

Ascending upstream in the valley of Carro Creek you frequently have to cross the bed of the stream that winds like a snake. At first you travel everywhere over small grassy paddocks, in which the silvertail especially and the red feathery oats were growing. *Poa* was abundant too. On the stream the *Casuarina* gives a pleasant dense shade, whilst rare ironbark, box and apple tree on the paddocks only provide moderate protection against the hot sun. Higher up, however, these paddocks discontinue, after the upper ones had manifested many more ferns between the grass bushes, and dense scrub (brush), formed by various rare trees,



Ideal geological plan from Captain Mayne's to Mount Royal

took their place. Here the nettle tree with its broad ventricose leaves, heart-shaped at the base, appeared for the first time, which is to be avoided so carefully because of its painful stinging. Also *Hibiscus* or curradjong, the rough-leaved fig tree, the smooth-leaved *Ricinus*, the Australian elder, *Arum*, *Caladium*, and hosts of ferns. On one tree I counted eight *Acrostichum*, aspleniums, polypodiums, notholaenas, *Aspidium* and *Nephrodium*. The creepers became very numerous; the native vine stretched from trunk to trunk and made the scrub almost impenetrable. Mosses hung down in long garlands from the branches, lichens covered rocks and living and dead plants.

Our path now led us uphill. We gained one terrace after the other, always sandstone covered by forest — shrubby *Trachymene*, the mountain balm (a *Plectranthus*), a *Correa* not in flower, *Xeranthemum*, prickly *Acacia*, wattle, and *Eucalyptus*. Finally the last ledge appeared and the sharp brownish pieces of rock revealed another soil. The hammer soon showed a bluish basalt that included abundant aragonite, characterised by olivine and by ilmenite (at least at Mt Royal). Piri, an elongated mountain ridge is completely composed of basalt in its upper part, which seems to have broken through the sandstones. It stretches from south to north and is joined with Mt Royal by an only slightly interrupted embankment, which stretches in the same direction, but significantly surpasses Piri in height. Both mountains are a spur of the Liverpool Range, which runs curving from south-west to north-east. An ideal section will perhaps make the relationships clearer.





### Notes that I wrote down on the march.

In a pretty scrub, in which the nettle tree with its broad leaves grows abundantly, a limestone bank outcrops that contains many shells. Here an insect larva had built small horns from a horny substance between the joints and fixed the trumpet-like enlargement to the rock. A white *Aneilema*, a pinnately-divided *Senecio*.

At the bottom seven miles from Captain Mayne's, limestone with fine fossils is found. The most interesting is obviously a trilobite? Also large numbers of a flatly depressed species of crinoid. Of plants, apart from the various *Polypodia*, there is a new slender *Dendrobium*, a *Cynoglossum*, a glossy-leaved euphorbiacean (*Ricinus?*). On the high place is growing: the native balm and *Trachymene*, a shrubby umbelliferan, which is also at Mr Scott's in the garden. The long mountain is composed of sandstone and pudding at the top.

The *Hypsiprymnus* has a tender palatable flesh[?], but it requires some spices.

A pale blue *Senecio* (the fennel-scented *S[enecio]*) grows on the mountain. The purple-feathered oats is also here, besides the silvertail. Further down in the creek I found the goldentail grass. Also the double acute *Cladium* from the mountain. The root part of the compressed stem is white and sweet. It is in flower. A sharp-fruited *Xerotes*  the leaf narrow, stiff,  canalicular, bicusate.

After we had now followed the hundredfold meanderings of the Busby Stream or Carro Creek far upstream below Piri and had consumed our *Hypsiprymnus* with good appetite at the foot of the mountain, (it tastes extremely tender, if it is roasted quickly by a very hot fire), we began to climb the more than two mile long, often extremely steep hillock, on which my guide, a cedar cutter in

the rich scrub of Piri and Mt Royal, prepared a sledge track on which bullocks pulled the cut timber down, a remarkable example of a New Holland mountain road. About two and a half miles from the place where the hillock began, a large number of fossils were found in the sandy lime, of which unquestionably the trilobites are the most remarkable. It seems that this limestone lies under the sandstone and pudding. It is just misfortune that we have no characteristic shells of the pudding and sandstone here, so that we could not identify it with that of Glendon and that of Harpers Hill.

My guide drew my attention to a large number of trees on our march and we may easily differentiate the following by their bark. The spotted gum, the blue gum and the forest gum have a smooth bark. The first sheds its bark in irregular scales, which become brown, whereas the bark is greenish white. This gives the tree a strange spotted appearance. The forest gum sheds its bark in long strips. The blue gum, which appears here as an attractive tall valuable tree, shows at Newcastle a strange plication or wrinkling of its branches, which often resembles the neck and the skin of the pachyderms. The box, the apple tree, the stringy bark, the ironbark and the blackbutt are not smooth. The box has a fine fissured, smooth bark, which has similarity with an elongated network. The apple tree was easily distinguished by its more luxuriant foliage, by the hairiness of its youngest twigs, by the form of its dentate calyx, which brings it under another genus (*Angophora*). However, its bark is also more crusty and long scaled than that of the box tree. The ironbark is easily recognisable by the bark fissured by deep elongate furrows. If these furrows do not overlap, but run almost parallel down the trunk, then the tree is easily split and then its timber is invaluable for fencing. If the furrows touch one another, it does not split.

The stringy bark has a soft brownish bark, which separates like rope and is often used by the savages for cords. This tree might be confused with the box and blackbutt, but the texture of the bark of the box is compact and hard, that of the stringy bark loose and soft, almost powdery between the fibres. It is more difficult to distinguish it from the blackbutt. Both were used for the construction of huts, as their bark is easily stripped. However, Edwards said to me that the young twigs of the blackbutt are smooth, whereas those of the stringy bark remain covered with uneven bark permanently.

We then stopped at the foot of Piri and because I carelessly had not insisted on the collection of the tether rope in Glendon, I tried to tie the horse at the bridle. However, the bridle tore and the horse ran away. This then cost me a whole day and yet it was a futile effort. I returned another way over Jump Up Hill, which consists of sandstone, to the entrance of the valley and after that made the tiring valley and mountain path a second time. However, on that mountain I found a very beautiful red orchid with hairy lip, five other leaflets and anthers, without leaves, and rootstalk without tubercles.

### 27 February

When I returned in the evening and had strengthened myself again with tea, I climbed up Piri. It is a range of basalt, which contains fine feldspar crystals. The west side of the mountain is treeless covered with the most beautiful grass and as if expecting the alpine cow herd. The east side is densely covered with brush and the highest rims were formed from a strong *Acacia* tree with many nervate phyllodes. Moreover a tree with white bark, and green, strongly scented, dentate leaves and a shrub with small greenish leaves, thorns and bluish berries is abundant. Between the grass I found a pretty little plant, which is probably *Symphononema montana*.

The view was extraordinarily beautiful. The sun was in the process of setting. A large number of ridges towards the northwest, all with prevailing direction from north to south. The twins, two breast-shaped cones, the massive Mt Royal.

As the sun sank, wallaroos came out of the thicket to graze on the beautiful grass. An extremely large white and black spotted horse fly pestered the horse extremely and was probably the cause of its running away. It has three pair of white patches on the abdomen. Another horsefly with metallic brown abdomen was seen frequently. They are said to be a particular bother in New England. Numerous blowflies and other things are flying around me.

A small white *Staphyllum* 1½" long was attracted by my bacon, just as a somewhat larger beetle, which seemed to me to also have short wing covers of yellowish colour.

I observed a geometer moth caterpillar. It is green, at the front and back pyramidal, fine black undulating longitudinal lines and spots on the back and venter. On the venter a white middle streak, fine similar ones with red spots on the respiratory holes on each side. It seemed to intend to imitate a twig, as it extended about 45° from the tree.

I describe the *Geranium* that was very abundant on Piri as follows: \*Stem weak rather prostrate, covered with retrussate hair, leaves 5 lobed, even lobe with 3 teeth, the basal one with 2 partitions, one 3, the other 2-lobed, 2 petioles with 2 bractea half way, one flower, the veins of the leaves 5, the middle one simple, the other bifurcate, teeth blunt but mucronate. Generally a little pink flower, but at Mt Royal almost without exception white (as also the *Epilobium* and often *Campanula*)

A little plant quadrangular sharp stem, opposite leaves, no stipules, leaves palmatifid - 3-5 lobes lobes with some teeth, blade decurrent.

*Rubus* with ternate leaf, white tomentose below, stem and petioles with spines and pubescent. — Leaflets lobatoserrate, stipules linear ciliate.\*

Below Piri I found *Epilobium* with denticulate leaflets in full bloom. *Geranium* is also very abundant. A *Hydrocotyle* furnished with stiff hairs on the lower and upper leaf surfaces. A perennial plant, which has almost the leaf of a gum or an *Agrimonia*. A reed-like plant, *Rumex* with lance-shaped leaves, three pistils, five stamens, fringed inner calyx leaflets.

*Agrostis spica-venti*? A pretty small reddish legume \*(prostrate stem, calyx bilabiate, leaves ternate, stam[ens] united, pistil hairy straight.\*

The most magnificent view on the peak of Mount Royal repays all the effort of ascending. It is most splendid. Mountain ranges, sharp-ridged summits. The course of the waters is so surveyable and clear. It is a sea of hills and ridges, which vanish in the blue of the horizon. The Fallbrook and Carro Creek come from the rich brushes of the flanks (at least of the latter). The Patison and Allan Rivers (not discernible) flow from the north. Mt Royal seems to be a dome. A sharp ridge richly strewn with basalt blocks, containing olivine, ilmenite and aragonite. Also at  $\frac{2}{3}$  of the height, a tendency to prism formation is found, but they are more irregular slabs. Also here, as on Piri, the eastern side is densely covered with rich scrub, whereas the western appears partly bare. The ridge becomes so sharp at the end that you have to clamber up over a wall of large granite blocks. At the bottom part of this wall covered with scroll work and overgrown with *Anthistiria*, I saw an olive green snake about 5' long, which frightened by the noise quickly slithered into the aggregate. Now whilst the lower part of the mountain is probably formed from massive basalt rocks, covered by a thin soil, the peak itself is formed from separated pieces of prisms often very regular, but

heaped higgledy piggledy over one another, between which much moisture is retained, which permits great assistance to the plant and tree life. So this rock wilderness is covered with a dense forest of bushes, undergrowth and low trees, between which the beautiful plants proliferate and especially large numbers of ferns (*Aspedium*, *Notholaena*, *Asplenium*, *Cheilanthes* and *Alsophila*). Arborescent climbing plants creep up on the trees and *Polypodium* and species of orchids with aerial roots cover the trunks. Long moss and lichen bundles hang down from the branches. I believe Mr Clarke already said to me that a south-east wind is always found on the higher mountains of the Colony. Now in fact a mild south-east wind has blown these last four days. In the morning this wind coming from the sea with moisture gives cause to dense fog and rain, which of course nourishes mainly the south-east slopes of the mountain and is therefore cause of that dense forest, which covers the east flanks of Piri and Mt Royal. It would be interesting to know at what height these winds are felt. I should think that they appear at about 1500', as the much lower Meranni and Taingerring only show an indication of brush formation.

The most striking trees of Mt Royal were only an *Acacia* with many nervate phyllodes, now full of fruit, and a *Hakea* just shedding its flowers with broad upright leaves — the fruit with many seeds.

*Acacia*. The phyllodes are elongate lanceolate with three main nerves (at least in the majority), connecting an elongated fine network. The inflorescence racemosa capitata (racemi gemini axillares). The pods are about 2" long, the black seeds furnished with a reddish seed stalk about four times as long curved back on itself.

*Hakea*. Leaves elliptical, bluntly dentate, the secondary veins connected by arches, over these other and different arches, an attractive transparent network between them. I see

three warts or scars at the lower end of the fruit stalk. The underside of the leaves pale green.

A climbing shrub with opposite, broadly lanceolate, sharply pointed leaves with peculiar brown dentate very small stipules opposite and continuous in the leaf axil and so encircling the whole stem.

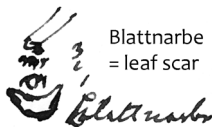


The secondary veins connected by arches but only one system of arches. Intermediate veins very small. The underside of the leaf pale, the young shoots finely downy (pubescent), four fibrous bundles in the pith.



A tree with opposite, broadly lanceolate or oblong lanceolate sharp-pointed leaves. Leaf stalk short. Leaf edge smooth. Secondary veins arcuate, anastomosing. Extremely fine attractive network. The twigs covered with lentilli. Inflorescence seems raceme-like, two to three and more embryos in an axil. The internodes compressed. The habit reminds me of *Notelaea*. Leaf stalk a remnant, tumidly swollen. No stipules.

On burning causes an extraordinary crackling. Fruit a one-seeded berry.



A tree with opposite, stiff, broadly lanceolate, sharp-pointed and ovate-lanceolate leaves, coarsely dentate with tumid leaf stalks, veins coarsely reticulate, upper side glossy dark green, under side pale, very many, very small transparent spots, also here at least two embryos appear in each axil. Faint camphor-like scent, no stipules, but the margins of the leaf stalks encircle the stem and touch each other. Pith slight, medullary rays less visible.

A tree with alternating, long-stalked, elliptical leaves tapered at the base. Leaf edge with distant blunt teeth. Main veins connected by arches and over these another system of arches, very distinct coarse network between the secondary veins, the upper side

dark green, the underside pale, stipules absent, medullary rays highly visible. This is essentially *Hakea*, although the leaves are not so upright.

A shrub with alternate long-stalked, oblong, sharp-pointed, smooth-edged leaves, heart shaped at the base with coarse vein mix, the upper side green, the underside, the round leaf stalk and the twig white, woolly, the youngest leaves in buds are on both sides, no stipules, no striking scent, 10 yellow spots around the white pith. Medullary rays not very visible, the wool or the tomentum stellate (*Astrotricha?*).

A shrub with alternating short-stalked, lanceolate, bluntly-toothed leaves. No stipules. Upper side greenish, under side whitish with single stellate hairs. Underside of leaf stalk and young twigs tomentose with stellate hairs. A very strong scent. Medullary rays very distinct.

*Cassinia?* with linear, 1-1½" long, lanceolate, leaves, the underside of the stalks and the young shoots covered with dense down, the upper side of the leaves greenish white. The flower heads are oval, whitish, membranous, partly transparent tegulate scales covering one another form the involucrem. They enclose five flowers, the pappus is dentate, an outer crown of scales around the pappus, the achene rough-haired. Receptacle seems bald. A small tree with alternating stalked, elliptical and elliptic-lanceolate leaves about one inch in length and ½ inch broad. They are smooth-edged, finely reticulate with pinnate secondary veins, very visible particularly from the under side. The upper side is dark green, matt. Underside, leaf stalk and twigs whitish and iron-coloured, tomentose. Fruit hairy, half coalesced with the calyx, whose teeth are deciduous. Trilocular, one-seeded. Seeds stand (stigma remaining). Usually unilocular (only abortive). Medullary rays less visible, leaves show no spots.

A tree with alternating short-stalked, lanceolate leaves tapered at the base, smooth-edged. Veins less visible, but full of distinct spots. The upper side glossy green, the underside pale, the bark scaling off and then appearing white, beforehand dark coloured, very strong scent. A myrtle plant, red triangular medullary rays less visible.

*Notholaena* simply pinnate leaflets alternating at the bottom almost opposite, oblong, heart-shaped at the base, sessile or very short-stalked. The rachis is scaly and covered with whitish rough uneven patches. A vascular bundle surrounded by the brown envelope. The leaflets are sometimes more sharply pointed and another species or variety seems to me to have few triangular large leaflets.

*Nephrodium* is doubly pinnate, pinnae trapezoidal crenulated, one mid nerve, secondary nerves dichotomous. Main and supplementary rachis deeply furrowed and covered with brown membranous lanceolate scales.

On 29 January (it was Sunday afternoon) I found my bread so far consumed that I decided to return to Captain Mayne to wait there for the arrival of my companion, who had gone to Glendon. At the same time I wished to track down my horse and so I descended between Piri and Jump Up Hill on the left side of a brush. In this brush I found a large number of plants, which it is true I had already seen in other neighbouring localities, but which I would like to have collected together, which is why on passing them I wrote down short notes about them.

\*Shrub with imparipinnate 3 jugal glossy leaves.

A small tree with alternate oblong elliptical glossy leaves, trace of teeth towards the apex\* — half tooth.

\*Shrub with opposite pale green elliptical lanceolate or broadly lanceolate leaves, the bark tough, stipules apparently absent - *Pimelea*.\*

*Melaleuca* or *Tristania* the leaves with three nerves already found abundantly.

\*Fennel scented *Senecio* — the broadleaved native vine.\*

The white *Helianthus*.

The sharp *Gahnia*. A little tree with very broad elliptical lanceolate, stalked, smooth-edged leaves bluish white on the underside. The two first secondary veins very visible, no stipules, buds.

A shrubby composite, leaves pinnatodentate, lanceolate, flowerheads with apparently simple involucre, about 15 to 20 small flowers, receptacle smooth, young twigs and underside of leaf brownish, tomentose.

A shrub with lanceolate [leaves] margins weakly dentate towards the apex, very small stipules, pale greenish flowers (5-5- stigmas bilobate, one disc ovary half inferior, fruit an elongate berry, one-seeded, \*embryo straight turned to the hilum- albumen none.\*

*Acacia multinervis*

\*The quinque palmate vine.\* Leaflets elliptical lanceolate or dentate towards the apex, dichotomous cirrhi. Buds two parallel valves. Harsh taste of the cirrhi

*Smilax* with five nerves, thorny, two cirrhi.

*Doodia aspera* annual, less abundant *Notholaena* — *Eustrephus*.

*Gymnostachys anceps* with broadly linear, stiff, dark green leaves.

A shrub with ternate leaves, long-stalked, oblong-lanceolate and ovate-lanceolate and now and then obovate. No stipules. With umbelliferan scent and seems also with pinnate leaves and three to four pairs of leaflets.

A tree characterised particularly by its compressed twigs where the opposite leaves are inserted, many lentilli.

A shrub recognisable by its alternating oblong-lanceolate, dark green, smooth-edged leaves, the stalks of which seem twisted. The fine venation like that in *Notelaea* is very characteristic.

Box. Leaves finely veined, marginal vein very visible and complete. Spots very distinct, young twigs angulate, yellow with greenish spots.

The woolly *Aneilema*, the upper sheath margins crispate woolly.

*Rubus*. Leaf trilobed, the underside iron-reddish, tomentose.

A *Luzeriago* with fine linear leaves.

The fine-leaved *Pteris* in beautiful fructification.

*Rubus idaeus*.

A small tree with extremely broad, oblong-elliptical leaves. Veins almost opposite, studded with strong hairs, sometimes simple, sometimes ternate and notched, budding reddish-iron-coloured.

A *Pteris* unknown to me until now with fertile and infertile foliage.

Monday *Notholaena aspera* in the forest gully. The margins of the pinnae, which with the remaining *Notholaena* show similar consistency, are sharp and completely dentate (undulato dentata) on rocky ground. *Aspidium* is here too.

Among the rocks a *Plantago* with elliptical leaves running down along the leaf stalk,

trinervate, but the lateral nerve weak. The whole plant is studded with stiff hairs. The inflorescence a very separated spike. In more exposed localities the spikes are dense. A *Sphagnum* on the rock wall.

Yesterday in the brush a *Cymbidium* with narrow flexible leaves on a tree trunk.

A *Pimelea* in the form of a bush has lanceolate leaves. Width to length 1:4, the leaves opposite and decussate.

A highly interesting plant (*Dorstenia*?) grows very abundantly between the tree ferns over the soil consisting almost completely of decomposed plant matter, often also on rocks in deep ravines. Exposed more to the air it lays its heavy fleshy stem over the ground, they are very thick towards the root, however, quickly become thinner towards the top. The leaves are oblong-lanceolate, both the halves of the leaves are unequal, that closer to the root more complete and running down further along the short leaf stalk. The margins of the leaves are dentate. The underside of the leaf has dense protruding veins. The whole plant studded with short hairs, stipules lanceolate, deciduous, scars remain. The flowers in the axils united into an involucre, common flower stalk, but each floret has a very small one of its own. It seems female and male flowers united, the male with five stamens. Anthers two hanging down and diverging from the end of the filaments. The filaments are originally bent back on themselves, in the middle thick, narrowing towards top and bottom. The plant seems to be between nettle and fig. The vascular bundle in the lower trunk. Reddish spots in the parenchyma mass.

*Senecio* with broadly lanceolate, deeply dentate and probably sinuato-dentata and sinuato-partita leaves, grassy smell. Is probably the same as the real pinnato-partite *Senecio*.

A myrtle tree four sepals, four petioles, stamens numerous, coalescent at the base,

ovary bilocular, loculi polysperm, leaves glossy, elliptic-lanceolate and lanceolate.

A vine with opposite, elliptic-lanceolate, sharp-pointed, smooth-edged, smooth leaves, can be immediately distinguished from the other lianas by its scarious stipules which have coalesced mutualistically and in the axils.

A tree with alternating ovoid sharp-pointed leaves tapered at the base (like an earlobe at the base), smooth-edged, short-stalked, less visible veins. The fruit long-stalked, capsule unilocular, a lateral placenta, with two rows of seeds. On the side corresponding to the placenta outside a black suture, no stipule.

It is interesting to note that the shrubby *Pimelea* always has its pith one-sided and that the upper side is more developed. In the perpendicular stem it is more in the centre, but because the stem swayed somewhat the weather side was also more developed here.

I believe to have found a *Lactuca. Pittosporum undulatum* is growing abundantly in this ravine. The simple pinnate *Cassia*, which I have already seen in Gower Gorang Creek, I find here with a pod about 3" long. Between each jugum is a small glandular petiole. They enlarge towards the leaf apex. I counted five to nine juga (pair[?])

Also the hairy-stemmed forest *Galium* was found again on the rocks.

The nettle is extremely abundant. In the ravine as well as in the brush of Piri, where it covers the swampy courses of springs occurring with *Dorstenia*, the fern tree, *Gratiola* and *Callicomis*.

*Lobelia serrata*, *Viola*, the white *Geranium*, *Epilobium undulatum*, the legume with articulated pods grew together in the grassy plots of Mt Royal.

On Piri I prepared my bed in a hollow burnt-out tree trunk with *Pteris aquilina* and the long foliage of *Alsophila australis*. The end of a fallen tree trunk fed my cheery fire and the south-east wind bore the smoke somewhat sideways over me, in this way protecting me from mosquitoes. So I lay wrapped up in my blanket in a high mountain wilderness accompanied only by my dog. The nights were cool, the sky magnificently starry. As I arose in the morning and the fresh wind blew over me, I felt so happy, so rich and so satisfied that I often stretched my clasped hands to the sky and trembling with joy cried out: O God I thank you! I could master my feelings just as little when I enjoyed such a magnificent view on Mt Royal. Man must give voice to his innermost feelings; it is a simple language, the language with the master of the weather. We stammer with tears of the innermost highest joy in the eyes: God the Father, how great, how magnificent you are, I thank, I thank you, be merciful to me!

The last night in this ravine (29th-30th) was no less grand, picturesque and moving. I had descended Piri and after I crossed a thick scrub, in which the tree-like lianas obstructed my way, so that I often had to clear it myself with knife and hammer, I came to a forest ravine, which led down from Jump Up Hill to Carro Creek. It was filled by pudding and sandstone blocks, and trees were either driven down the river from the mountains and were piled up by floods or the storm winds had broken them down and they now lie across the ravine. They had pulled over the lianas that climb up on them and these stretch from one bank to the other like ropes, even if the original tree is already destroyed, as the lianas striving upwards had already twined around new trees again. However, it was so late and because the ravine widened somewhat and presented a dry rocky bed free from boulders, in the bottom of which beautiful water was found, I made my fire

with the wood of the nettle tree and with the dry foliage of *Acmena*, with which the heat had amply covered the rocks. Here I consumed my last piece of bread with a piece of bacon and a pot of tea. The night was dark, the ravine banks high, their edges crowned with tall trees, while lower growing bushes descend to the bed and cover the banks. The blazing fire moderately illuminated this forest scene. Sirius seemed to me lower. The ground cricket incessantly sounded its simple call. The flying squirrel chattered, then a gust of wind, which rustled through the crowns of the tall trees and the dry fallen foliage, through which small quadrupeds and lizards moved rustling here and there. In the morning parrots raise their incessant noise, the cockatoo sweeps screeching over the highest crowns of the trees.

If I had previously regarded it as impossible to be able to live solely on fat, such as bacon, I now found, because my bread had run out, that this was very easily done, provided you take only small quantities at the beginning, so as not to suddenly overfill the stomach.

At Glennie's stockyard gums in flower, as well as two polygonums along the creek. The upper part of these so-called creeks or waterless streams does contain some moisture the whole year through and is therefore covered almost impenetrably with dense scrub of various uncommon trees and plants. In these creeks and mountain brushes magnificent cedars were found. Rosewood, mahogany and bluegum are also valued by the cutters, who fell trees for years either on their own account or employed by others. So my companion had worked for nine years in the Mount Royal brushes and there was no brush between the Hawkesbury and Port Stephens and the Liverpool Range that he did not know. As you gradually descended to the valley and the valley floor widens, small grassy flats occur, here mostly covered with the silvertail, purple pinnate oats and a fine-

leaved *Poa*. The various species of *Eucalyptus* occur in place of the brush plants, ironbark, stringybark, and spotted gum. *Angophora lanceolata* is very abundant in such localities, also box and forest gum, while the bed of the creek is shaded by richly green *Casuarina*.

The *Polygonum*, which grows so abundantly along the streams and which the Aborigines are said to throw into water so as to stun the fish, has long lanceolate, pointed, smooth-edged leaves that run somewhat down along the leafstalk, the raised margin of which extends into the ochrea and as it were forms a new order of veins. The middle nerve and the main veins are very prominent on the underside of the leaf. The upper side of the leafstalk and the middle rib are covered partly with stiffish hairs turned back adjacent to the tip, with weaker hairs over the remaining veins, and over the lower and partly over the upper leaf surface. Stem bare, inflorescence a compressed spike (white spongy pith).

*Pimelea* was found in Glennie's stockyard. The leaves stalked, lanceolate, obtuse or with indication of obtuse teeth, whole plant pilose. Bracts wide, cordate. Tip recurved, edge fringed with stiffish hairs. Stem almost prostrate. Outside of the calyx roughly hairy on the ribs, smooth towards the stem.

*Anthemis*(?) has not only smooth-edged leaflets, but also leaflets dentate at the base and apex.

*Solanum*. Plant herbaceous, upright with many branches. Leaves with long stalks, ovate, approaching triangular, pointed, at the base with two to three coarse teeth, running down along the leaf-stalk. The flowers in umbels. The common flower-stalk rising from the middle of the internodes. The calyx with three blunt teeth half as long as the small whitish corolla. The colour of the leaves a bluish green. The whole plant covered with down.

*Geum*. Leaves elliptical, pinnatipartite, the divisions small and large, lanceolate, smooth-edged or dentate and lobate dentate, the end lobe the largest, rhomboid lobate dentate. Leaf stalk furrowed (canaliculate), margin changing into the elliptical fingerform incised stipule. The whole plant covered with more or less separate hairs. Towards the top the lateral and end lobes of the leaves become more lanceolate and instead of three pair only one or two.

{A small *Oxalis* with orange colour on the claws of the petals — a variety?}

An upright legume without branches, almost woody stem, wire round with fine furrows, leaves ternate, leaflets oblong, mucronate, smooth-edged. Stipules brown, bristle-like, flowers short-stalked, three to four in each axil, calyx pentamerous, teeth elongated into long bristles, stamens diadelphous (9-1) stalk straight, stigma capitate, the whole plant grey covered with short soft hairs. It is on the pasture of Carro Creek with *Pimelea*.

At Captain Mayne's the children brought me a blue-flowered *Convolvulus*, which the falling rain drops had spotted red, a sure sign that the rain contains acid probably nitric acid.

The sunflower does not follow the sun, as in Europe, therefore does not merit the name here.

A second species of *Geranium* has almost without exception two flowers on a common flower stalk, the texture of the leaves is rough, the hairs more upright.

The river millet has no ligula, inflorescence a compressed compound panicle (coarctate), the small panicles concentric with unilateral flowers. The flowers have long stiff brown bristles. The secondary rachis covered with long hairs, particularly where it is inserted in the main rachis.

*Sisymbrium* with oblong pinnately-divided leaves. Pinnae dentate, leaf-stalk somewhat

limbate, calyx leaflets blunt, petals smaller, yellow. Later the first ones fold together again until they fall off, pods about 2" long, 1" wide, with short rostrum hardly 1", inflorescence a compound raceme. Small yellow seeds. In the tributary creek up to Captain Mayne's house.

*Haloragis?* or *Callitriche?* pinnately divided leaves, pinnae subulate.

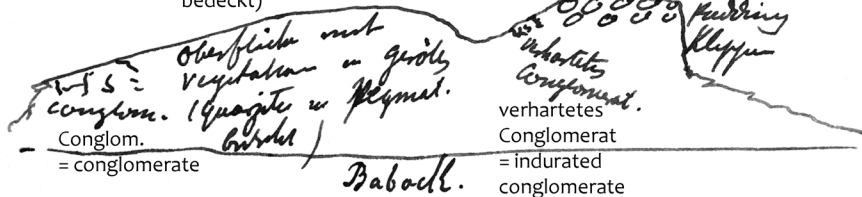
A *Sonchus oleraceus*, which shot up all the flowers of a flower head in a little plant, very similar to the *Convolvulus* in front of Captain Mayne's house.

A strange little plant is in the stream with blue florets, four filaments, a valve-like membranous stigma. The leaves are almost spatulate, the little plant prostrate forming dense turf, sending shoots through the sand. The leaves opposite, four equal calyx teeth, five a little unequal corolla leaflets. Capsule bicamrate, many-seeded, a scrophulariacean on account of the number of stamens, four, and the parts of the corolla five.

A plant belonging to the family of the Butomaceae. Three green calyx leaves, three white corolla leaves with purple at the base, nine stamens, six styles and stigmas, the capsule unilocular, all walls covered with seeds. I recollect that *Nymphaea* also has the walls covered with seeds. Leaves oblong cordate at the base, longstalked, floating.

\*At the bed of the Fallbrook creek and at its westerly bank ascending Babock the red conglomerate is found with veins of carbonate of lime.\* Higher up the inclusions of the rock generally become larger and on the peak pudding is found, but the inclusions rounded and rolled. At several places the rock is indurated, which circumstance reveals volcanic rock close by and here a green-coloured chloritic substance appears abundantly.

Oberfläche mit Vegetation u Gerölle (Quarzite u Pegmat. bedeckt) = Surface covered with vegetation and pebbles (quartzite and pegmatite)  
 Pudding Klippe = cliff of pudding



Sud. = south Nord = north  
 100° 10' Ost. 110° 10' West.  
 Ost = east



Sporn von Babock.  
 Spur of Babock

Of grasses I noted *Anthistiria*, the fringed millet, the large star grass, and purple pinnate oats. They are not in flower now and a bush fire has destroyed the old blades and young shoots are only now shooting forth. The cordate-leaved legume (a shrub), the pods with more than two seeds (?) is very common here, as well as *Bursaria*, the potato of the Aborigines, also a lily. Another lily, which Mrs Mayne had previously shown me in the garden, is growing here on Babock. Liverworts below along the rock walls. Spotted gum and stringy bark, particularly the former.

A thin snake with black rings on yellow ground, in any case poisonous, very visible fangs, black head scales.

Under the steep cliffs towards the south and west grow *Correa*, *Scaevola*, two species of [...],

the downy *Acmena* abundantly, and a *Baeckea*. On the cliffs themselves a large number of lichens and mosses and *Dendrobium speciosum*, a *Dendrobium* with angulate stem, *Polypodium rupestre* and a shrub with narrow leaves and celestrine flowers were also found. *Kennedyia monophylla*, *Scaevola pubescens* and *Bellis* with reddish flowers, *Cheilanthes*, *Adiantum hispidum* and *formosum*, *Xerotes* with narrow flexible leaves, and *Commelina*.

Here the sections of the trees in the valley of Fallbrook below Captain Mayne's house show that the west side is usually developed the most. Very much depends on the position of the tree and on neighbouring ravines. Thus I saw a tree just where a ravine descends from Dyrinne. The side against this ravine was as strongly developed as the direction of the main stream towards sunset (WSW).

A vinous climber with articulated stem with alternating stalked leaves without stipules. The leaves palmate-digitate, leaflets linear five to six, 1/2-1 1/2" long, inflorescence a shortened raceme, fruit a berry, three-chambered, each chamber single-seeded, hard outer skin enclosing the white embryo and seeming to penetrate even into the greenish albumen \*(fine leaved palmate vine).\*

I found another climber that differed from the previous only by the broad coarsely dentate, lanceolate leaflets. I have a conclusive transition between both, so that they are only to be regarded as varieties.

An *Opercularia* with lanceolate leaves, covered with accumbant hairs, like the whole plant, with flexible stem, is perhaps different from those I have seen previously.

A shrub with linear-lanceolate leaves, dentate towards the apex, very short-stalked. Flowers axial, 1-2-3-4 on a common flowerstalk, five-fold flowers, disc around them, free ovary, stamens alternating with the petals. Stalk simple, stigma capitate, aestivation imbricate, no stipule.

*Baeckea* a 4' high shrub with elliptical, half inch long  $\frac{1}{4}$ " wide leaflets, strongly spotted, three veins less visible, short-stalked yellow leaf stalk lying close to the stem. Flowers apical in pairs, threes or single on a common flower stalk.

The most interesting find was without doubt a *Sonchus*, which had each flower of its flowerhead transformed into a new shoot, which now itself bore a head again, which began to show the same phenomenon. In some the pappus was perfectly distinct and the corolla was a green hood from which the green shoot was sent forth again.

On 2nd February I returned to Piri again from Captain Mayne. I had found my horse again after much trouble; it had fought its way in some inexplicable manner to the valley and had joined Captain Mayne's mares there. Having returned to Piri, I began to collect and dry my plants, but I had to struggle with a good many difficulties. The trees in the brush are extremely tall, so it is almost impossible to identify leaves, stem and fruit, if you are able to get the fruit and leaves at all.

A small lizard had taken possession of my hollow tree, which my zoological curiosity compelled me to kill. It was very smooth with brown back and blackish flanks. Edwards had killed a 5' long snake, which showed bright yellowish transverse stripes on brownish ground colour. It had two poison fangs on each side. I saw a small red beetle

with black patches and a spider with red feet and red thorax and black abdomen under the tree trunk. A small kind of fly swarmed over the horse dung, red-headed with black apices on the wing. The large magpie horse fly had disappeared almost completely. Also I found a grey grasshopper with very long antennae. I don't know whether it crawled on me in the bush or on the mountain. Up here there is a yellow-winged tan-coloured *Acridium*. In addition a green one.

Rarely had I met so many misfortunes in such a short time. Almost every day brought a new one. On Monday before I left Glendon a wild bull attacked me, on the following day my horse fell with me. Having arrived at Piri, it ran away from me, and my provisions ran out. Rain set in, then the horse ran away a second time. During one night, one of those large *Alsophila* leaves fell out of my tree into the fire. The fire ran along it into the tree and then the blanket and tree were on fire. Fortunately I was awake and could protect myself from burning, by throwing everything from me and jumping out of my camp. Then only two quires of paper and a shirt were burnt and finally I lost my pencil. This probably could have discouraged a man. In addition I had to wash, to cook, and to wait for my horse until the rain drove me into the hut of the sawyers, who took over that duty for me. However I felt extremely happy and cheerful and now pulling rheumatic pains in the small of the back alarm me. Only the limited extent of my resources distressed me. Everywhere I felt[?] the scantiness of my resources with the existing abundance. However, I brought down many an interesting object with me.

In that bush lived a species of rat that disturbed us particularly at night, which, however, I was never in a position to observe closely. {Edwards spoke of a small black animal like a mouse with a foot for jumping and bushy tail, which lives on the trees.}

One day I saw a very broad flat animal with triangular tail coming out of a narrow fissure in a tree, however, could not get hold of it. One of the birds on the mountain frequently attracted attention. It usually called che a che a che aura. The lyrebird mimicked the call of other birds and the sawyers. Usually it is a simple call like that of a running hen. The native turkey is here as well. Green told me a lizard lives here that once it bites in, it never lets go, therefore the Aborigines shun it. Crabs live in the damp ground. A crowd of insects in the decayed wood, small leeches with three yellow stripes over the back creep along it, when you go through the bush after the rain. Ticks were ready to attach themselves to almost every animal from humans to insects.

Whilst nature on all sides now attracted the attention of the naturalist, the life of the sawyers in this solitude was no less interesting to the observer of men. Both men, 40 to 50 years old, had been shipped out as convicts. Both had suffered their punishment and were now free. Green had experienced much and seen many parts of the colony. George was a newcomer. The former usually entertained us partly in storytelling and partly in being ready with questions. George sang well and had his own songs peculiar to him that often seemed to me to be composed by him. However, they were not very hard working. They got up late, prepared the day's work, then had breakfast and afterwards puffed their pipes entertaining themselves with accounts of old adventures. Then they would work until 3 o'clock, after that lunch, after which only a little happened. They drank tea just before sunset and now had their pipe smoking until 8 to 9 o'clock relating much business. There are people, who know how to be economical with their subjects of conversation. Green was such a man, I am not. Green always had something to tell and I was often surprised where he got it. His companion was more

passive and readily satisfied with listening. In addition all subjects were discussed that we find in higher society; religion, state, class differences, absence of experience among the rich people, moderation, teetotallers &c &c.

[Letter in English. Arousseau, 1968: pp. 626-9.]

### 17 February

{My bitch has been together with a half bulldog, half terrier. However, I fear she is not satisfied with one [mate].}

I have the opportunity to observe two kinds of eye disease. One is blight, a swelling of the outer part of the eye, especially the eyelids, in consequence of the sting of a small fly. The second, conjunctivitis epidemica afflicts old and young, but especially children, particularly in hot weather (to the end of January and beginning of February). The latter is either an effect of the wind, which carries fine dust particles with it, or an effect of chilling in consequence of rapid temperature change. I am inclined to accept the former. Two kinds can be distinguished. One attacks more the conjunction, which covers the sclerotica, the other more the part that lines the eyelids. The former is often called gravelly ophthalmia, because the feeling of sand grains in the eye is much stronger. The secretion of a yellowish green mucus is very considerable. The disease lasts three to eight days and the best drug against it is silver nitrate, which Dr Glennie uses in natura[?].

The Merton tribe, about 30 men strong, with the old Gerry as king arrived in Glendon today. The young people were happy, playful, and many very well shaped. They were for the most part wrapped in possum cloaks. They told me that they cannot understand the Aborigines from Glendon and Newcastle, just as little as those from the Clarence River. They have long scars on the shoulders and are well covered in hair on the breast, back and whole body.

### 18 February

The very ripe burgundy grapes were picked on 16 February and crushed with two rollers acting against one another and brought to fermentation in vats. One of these vats (a wine cask holding 120 gallons), the bottom of which was knocked out, was set up in the cellar, which was laid out in the vineyard according to De Vonge's plan, the other in the cellar under the house. The latter was much warmer and therefore the fermentation has just begun in it. The other now has a temperature of 68°. Yesterday about 75° I still observed no trace of fermentation in it. The undertaking itself allows me to understand a large number of things, which I could not understand previously; thus the influence of the rain, which contains nitric acid, the principle of drawing off, and purification and sulphurisation.

### 19 February

The guy and sweetwater grapes, vantage and oporto were picked yesterday, 18 February, cooled and brought to the casks. Despite the expenditure they had made, nothing is in the correct place. We had endless trouble far into the night, whereas a good arrangement, a bringing together of all casks in one place, would have made it child's play. Unfortunately yesterday it began to rain, which probably will not stop again for the next 14 days. It seems to be that moderate widespread rain, which I observed on my arrival in Sydney. The thermometer stands below 69° — fermentation will hardly begin in the cellar. What is more the rain penetrates in everywhere[?].

[Letter in English to Robert Lynd, 19 February 1843. Aurousseau, 1968: 629-636.]

### 20 February

One evening as I went along on the highest ridge of Piri, an eagle passed over me in tranquil flight. It moved in circle upon circle around me. Finally it stopped right over me and now descended, probably to overcome me. The sun had set, but the sky was still light and clear, not a voice enlivened the stillness of the forest and mountain. I felt uneasy in the presence of this animal. I was not apprehensive, but could not bear this state of fearful suspense, so I put my stick against my cheek like a gun and puff the animal showed his fright in sudden quivering of his wings, which it immediately spread again to peacefully float further in the still air. It moved along the mountain, perhaps it was waiting for a wallaroo. Perhaps it had hunted the whole day in vain and was now very hungry. It returned again, circled around me again and finally left after a long sweep as the darkness became denser.

Today I observed that the surface of the blanket (woollen cover) that I spread over the burgundy must tasted very sour while the underside was sweet. The explanation seems as follows: Besides the carbonic acid the warmth of the fermentation drives alcohol from the liquid as well, which is evaporated with the water vapour. As the alcohol contacts the air, it is changed into acetic acid combining with the carbonic acid of the air.

The clay that I brought from Mundaia is very white and gives a porcelain-like slag.

### 21 February

{I wrote to Kirchner.}

In Mr Mayne's family I saw a young 18 year old woman, who captivated me less by her outward beauty (although she was by no means ugly) than by compelling me to acknowledge her higher perfection by

her intellectual liveliness and activity. They called her Miss Minny and I heard later that her father's name was Macviti. She was born in Ireland and had lived for many years in Canada, which she loved above all else. Seldom have I found a girl, who strived so eagerly after perfection and so carefully took care of herself. She sang very well and is musical, in short she would make a very desirable spouse and house wife.

### 23 February

Yesterday we picked those berries, which were almost spoiled in consequence of the rain. Also this morning we not only filled two casks with grapes, which we only crushed with the intention set out of making wine vinegar, but also two barrels of figs with the same intention. Because the figs were not juicy enough, I added a bucket of grape juice to each barrel. I am curious to see what they will give.

### 24 February Friday

The oporto is becoming quiescent, the burgundy is also becoming quiescent, but both are still fermenting in all their parts. A small yellowish fly is swarming around the spigot, and which laid its eggs on the linen wound around the spigot. Insects already now live safely on the woollen cover, which lies over the fermentation casks, thus especially a small black beetle and a black kind of spider with pincers.

Yesterday evening a mole cricket was caught and I am now convinced that this little creature makes the loud noise sitting before its hole in the ground, which I have so often heard on a beautiful evening on the pasture in the Government garden. They live in larger numbers in the banks of the stream and move directly over the water and the angler knows its residence so well that he obtains plenty of bait without trouble.

Mr Scott told me that a gentleman, who lives in the neighbourhood of Bathurst, has regular attacks of asthma, as his business leads him from his highland to Sydney and this usually at a particular place on the road. He was therefore a living barometer.

Mr Thomas Rusden, the brother of Mrs Scott, was in Glendon for some time. He is an open, tough, good-hearted sort with the single fault that he is too positive. I will visit him in New England. He has much experience, but he is satisfied with nothing and criticises every person and every establishment in a manner easily insulting to decisive, sensitive men. I got to know a Mr Hentig. He is a very different person, a person who takes care of himself very much, taciturn, withdrawn and polite.

Much was spoken about the great power of the Commissioner, who represents the magistracy on the boundaries of the colony, but never can impose more than a £5 fine. I am curious to know whether Rusden's remarks are well-founded.

Mr Scott graded his hay in the following manner, oaten hay, lucerne hay, barley hay, wheat hay; the first for horses in full activity, the second the most nourishing.

### 26 February

Yesterday evening I heard the plaintive howl of the dingo (native dog) for the first time.

Sunday 25 February the fermentation of the burgundy must finished and I brought the young wine to new casks. The wine still had a sweet pleasant taste, as was to be supposed by the richness of the must. It seems that the small reddish flies, which laid their eggs on the spigot and the black spiders and beetles crawling around safely on the woollen cover indicate the time of drawing off (two to three days later).

The oporto wine had become quiescent long ago and indicated a lesser sugar content.

## 28 February

Yesterday the 27 February, my oporto wine and vantage wine was run off, the fermentation with a siphon. Extremely alcoholic smell is still a little noticeable. The vantage wine is stronger and more characteristic. Both not very clear. The siphon fermentation indeed seems to change the saccharine matter contained in the must completely into alcohol, but becomes less clear because of the available press, but this means nothing. The complete clarification will take place later. If you mix the sugar rich wine that has stopped fermenting with [...] wine the fermentation begins again immediately until all sugar is changed.

The wine that I got from the bad, burst grapes is indeed much weaker but very tolerable and has by no means an unpleasant taste.

## 2 March

The wine drawing is finished. All casks are in the cellar, some with tubes, and some without them. I have now made the following experiments in total.

1. I gathered very ripe, often dried Burgundy grapes. They were crushed with rollers and gave a very rich must at 12°. I brought the smaller more liquid part to fermentation in a cask about four feet high and very wide at the top and covered it with a woollen cover in the cellar under the house next to the kitchen. The other half, which contained far more stalks, was put into a large 6' deep wine cask, from which one end was taken out and this was put up in a 6' deep roomy cellar covered with boards, to which the outer air and warmth from above was accessible through the laid boards. The fermentation began in the latter somewhat later, however, continued in both steadily and ended in the cellar under the house somewhat earlier (here in nine days, in the open

cellar in ten days). Because I drew off the former on the tenth day, I noticed a slight acidity, but the must had been so rich that the fermentation gave a sweet wine. Both were put up in separate casks and provided with tubes. The open cellar cask still fermented slightly, the one in the closed cellar almost not at all. I think I may expect a very good wine here especially in that of the open cellar.

During the ten days we had almost incessant rain. The water penetrated into the cellar and formed puddles, however, the last two days it was very warm and on Saturday we had a heavy storm. Thermometer the first eight days between 68° to 71° and on the last up to 76°.

We probably owe our good success to the even temperature.

2. Two days later we picked guy and chazelas (sweetwater). It began to rain, but we sought to keep the grapes dry by covers. They were crushed with rollers and the skins and stalks brought under the press. We put the must into a large wine cask, laid it transversally and put a bent tube in the otherwise airtight closed opening, of which one end communicated with the cask while the other stood in water. The fermentation soon began, proceeded very quietly and ended on the 28th February (ten days after the filling up). It gave a richly alcoholic, very aromatic, young wine. The fermentation also proceeded in the open cellar.
3. On the same day we picked some oporto and some vantage grapes, which we crushed, pressed and brought to fermentation without stalks and skins. The fermentation soon began in both and they finished on about the 25th

of February in the oporto, whilst the vantage continued fermenting in a very small barrel longer than any other cask. Both gave good alcoholic wine. Both fermented in the cellar at the kitchen.

4. Heavy rain set in and spoiled a large number of grapes. So as not to lose them completely, we picked them to make vinegar. We had three casks, a very small one and two very large. Stalks, skins and juice fermented together. The fermentation was strong. On the last days the thermometer in the open cellar was 76°. Nevertheless they had not ended within eight days with the exception of the small one.

In the two small casks we had a weakly alcoholic wine. In the large cask some acidity was present, the circumstances (i.e. the lack of casks) forced me to fill a part of this wine together with the guy and sweetwater. I would be grieved if this spoiled or made the fine wine unbearable.

Under these circumstances using the tubes seems to me very effective. I thought at first the wine did not become clear so completely with the tube as without it. This, however, is by no means the case. I have not been able to notice a difference. If you are forced to ferment with the stalks and skins, the bottom of the cask must be set after you have casked the mass. Whether the tubes on the outflow pipe can be used later on with advantage, we will see later. For this purpose I have conducted some experiments. You have it in your power to dip the end of the tube in as much water as you want.

[Letter in English to Robert Lynd, 2 March 1843. Arousseau, 1968: 643-4.]

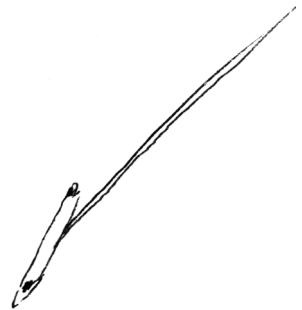
It seems favourable to wait as long as possible with the gathering of the grapes.

The burgundy grapes, however, could be collected earlier, although they would then probably not have given a sweet wine.

I found the box (*Eucalyptus*) in flower. The young twigs angular, on the upper side red, on the lower white; the operculum pointed almost as long as the calyx. Umbels axial and apical, compound, each in 1, 2, 3, 4, 5 flowers, 3, 4, 5 umbels on a common flower stalk. Leaves thick-skinned, marginal vein distinct, few distinct secondary veins, and many very small spots. Leaf stalk twisted 3-4, 5" long and probably longer.

### 15 March

On the 4th March I left Glendon to go up to the Liverpool Range, where Mr Scott has another very extensive property. The evening before I left Glendon I saw for the first time the beautiful comet, which now arouses our admiration each night. At that time it was very close to the sun and was noticed for the first time on Thursday (2 March), but only the upper end of its tail. This tail is very long and probably reaches from the horizon half way up to the zenith (would therefore occupy 45°). The first quarter of the moon appeared at the same time and as the moon gradually filled and the comet went further away from the sun its light became fainter and now it appears like a phosphorescent light or a narrow streak of the milky way. It is very probable that it is a completely new unnoticed comet, that of 1811 being by no means so long. On Friday evening, when I saw it for the first time, we noticed a long narrower tail that made a very acute angle with the actual tail of the comet. Can this light have an equally unknown origin with the zodiacal light?



My first destination was Ravensworth, the property of Doctor Bowman. I passed the Hunter, the water of which was somewhat swollen by the preceding rain, Fallbrook and Foilbrook and arrived at the end of my journey late in the evening after some searching. Fallbrook, Foilbrook and the Hunter, which I observed some days later at the junction of both these streams, were without water. The waters of the Hunter at Singleton came from the Goulburn and from the Wollombi Range. (I was told of Cockfighters Creek, which seems to be above the Goulburn). It is strange to note how less universally the rains fall here and how one region is almost flooded, whereas others dry up. For the most part this is determined by the position and height of the mountains.

As I rode through the bush between Singleton and Ravensworth, I noticed several *Loranthus* on the trees. On the ironbark there was one with long flexible, drooping branches, with opposite or almost opposite leaves. The latter were very long, about 3''' wide, with very indistinct veins. Leafstalk about an inch long, flowers in compound umbels, three to four umbels from one point or the common stalk. On each little umbel a bract, on each flower a large bract. The teeth of the calyx are indistinct. Border rather membrane-like, ovary seems pentagonal.

{A new caterpillar!}

On the forest gum I found a large number of *Bombyx* caterpillars, 8''' long, 2''' wide, black velvet, with four rows of yellow tubercles, four brow tubercles on the head, in addition yellow spots.

The forest gum, long peeling bark, young twigs less angular, upper side red, marginal veins distinct, few, but visible, secondary veins like those of the box. Umbels axial, one every four or five flowers, the fruit capsule with three or four teeth. Leafstalk up to one inch long, not twisted.

As you pass the Hunter at Singleton, you come into an ironbark forest, which extends over a terrain changing into low rises; these rises are separated from one another by shallow gullies. I was told that ironbark usually reveals a stiff clayey or loamy soil, whereas the box reveals the presence of calcareous concretions. However, I have not found the latter confirmed everywhere.

On a young box sapling (the leaves of which have a very strong turpentine smell, are broad, densely membranous and provided with a distinct, but somewhat irregular marginal vein), I found a whitish caterpillar with yellowish patches on the back, five scalps over one another, directly behind the head joint, two black spots behind the head.

Two small legumes with ternate leaves are distinguished as follows: the one with a long, prostrate stem, has wide spatulate root leaves. The stem leaflets very narrow. The other has them more oblong, rougher and dark green. The inflorescence in both is a loose bunch, the flowers of one white, calyx without scales, the flowers of the other blue with two bracts. This latter has the stem provided with recumbent hairs. The white one has an almost smooth stem. Both are monodelphous (or didelphous?). The leaflets (foliolo) of the blue one have long adjacent stipules, those of the white one have none.

If you cut into the wood, the turpentine gum (box?) immediately shows the red gum issuing out. The wood inside this is slightly sweet; the gum itself is not so astringent. {This tree alone and with some *Sterculia* (kurrajong) forms the thin woodland that covers the basalt plains of Cassilis.}

You climb a rather long range of hills, on which box, ironbark and spotted gum grow. It is composed of a loose sandstone. On descending from the hill you find the ground covered with small shining pebbles

of ironstone, many of which show the impressions of well-known fern leaves.

5 March Sunday. Yesterday evening I found Dr Bowman's dwelling after a long search. The comet was gleaming extraordinarily in the evening sky, an extremely interesting phenomenon.

Dr Bowman is already an elderly man, very attentive, with much experience, of good observation. He loves to communicate his opinions. I did not think that he would tolerate contradiction gladly and for long, and that he would doggedly engage in discussions. He is a mature man, who can learn nothing more or little more. In the treatment of his people I really must agree with him in the end, although he seems to me to be very selfish. Thus he seems to speak even harder than he acts. You must praise many things, criticise some things and here the sad state of the Colony serves as a good excuse. He lives very moderately and privately. Had he so lived from the beginning on, he would be a rich man now.

Dr Bowman showed me his wine. His casks are small. He had covered the holes with paste and clay. He informed me of a letter from Macarthur. After you pour warm water into the casks, you smell the acidity better. You fill them with lime water for 24 hours. You rinse them out with boiling wine. They are sulphurised, but they must not be damp. This would form sulphuric acid and give the wine an unpleasant taste. He advised putting quartz pebbles in the partly filled casks. Of necessity you must keep them full. Busby advised washing the casks with saltwater.

On 5 March I rode with Mr Macpherson to Sandy Creek, 20 miles from Dr Bowman's dwelling, where he had his head station. Never had I seen cows and bullocks of such a good breed, so fat and so quiet. The rain had covered the wide pastures on both sides

of Foybrook with young green grass. Here the cattle had flocked together in hundreds, driven down from the mountain valleys by a grey fly. We rode between them, they looked at us quietly and only now and then a bullock shook his broad head belligerently. As we came into the real mountains, whose ravines and basins were resplendent with still beautiful grass, volcanic rocks occurred, which intersect the elongated range of sandstone and pudding. These volcanic rocks were without exception a feldspar porphyry with red cement, which I have always called red trachyte in the Glendon collection. The red conglomerate was found everywhere higher up and especially around the dwelling of the inspector, frequently very indurated.

The other side of the Needles, two high rocky horns, my companion drew my attention to a spring that seemed to contain a very small amount of carbonate of lime.

### 7 March

Mr Sproule drew my attention to a peculiar roaring in the valley during the calm, which according to Cunningham supposedly indicated rain. The roaring of the creek.

I saw Peter Cunningham's book about Australia for the first time and although it is old (1827), it does seem to me to contain the most and best observations on New South Wales.<sup>3</sup>

Cunningham denies 'flyblowing' on the shearing cuts of the sheep, but Mr Sproule assured me that it exists even here. A dense cloud stands over Piri, light patches detach themselves from it and drift from south-east over to us.

7 March. Yesterday I rode to Roachel Brook and beyond it to Scrommolo. The hills around Sandy Creek are formed of sandstone and red conglomerate. The

Roochel Brook with a fine wide bed shows the sandstone and higher up the red trachyte/feldspar porphyry in great extent. In a ravine on the left side calcareous sinter is deposited in large amounts. The liquid containing the carbonate of lime issues from the joints of the trachyte/feldspar porphyry. {Moss and grass stems were petrified by this calcareous sinter.} Whether it comes from above or trickles up from below is difficult to determine. Golden mica was very abundant on the pieces of trachyte exposed to the air and bush fires. Pebbles with shells and pieces of basalt were very abundant in the whole bed of the stream. On the highest station these pebbles become sharp and numerous. The shells are the same that I found in Carro Creek. The lower half in Scrommolo is sandstone, the two exposed flat cones are basalt, sometimes decomposed, sometimes containing the white substance distributed in real veins.

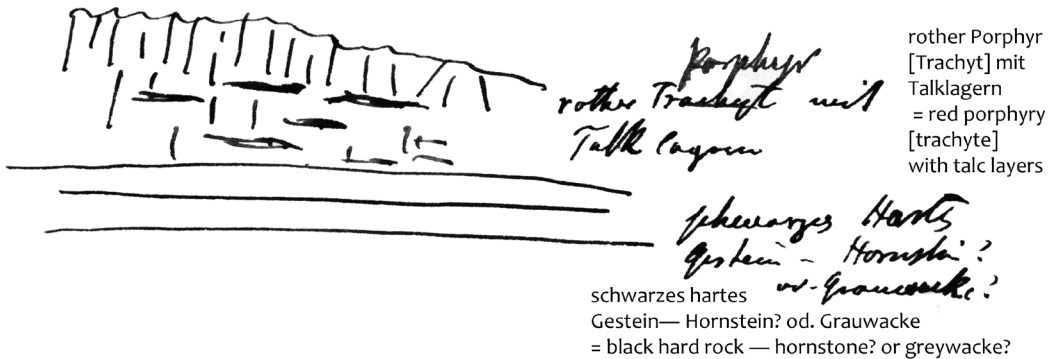
Over the highest station in the stream bed itself we found a clayey, conchoidal rock with fossils crumbling in the air.

I found a grass on the lower Roochel and a labiate above the highest station, which, however, unbelievably I have lost. It had a strong smell, oblong-lanceolate leaves, flowers in whorls like a lamina.

An elongate, greyish, unsightly fly is extremely troublesome for the horses here.

**8 March**

Yesterday Mr Sproule guided me to a rock bank, whose upper vertical cliffs are formed of red trachyte, which encloses talc nodules and layers. Below a bank of dark hard rock appears without fossils, the nature of which, whether volcanic or sedimentary, I venture not to determine. It seems a kind of hornstone. The layers of the bank are almost horizontal.



\*Gauls flat above the Needles in Bowmans Creek.\*

The nests of hornets were abundant in the sheltered holes of the rock wall and one especially attracted my attention by its regularity.

Only one of the seven hollows lying next to one another had an opening to the outside. The larva seemed destroyed by beetles. In the remaining compartments a large store of spiders was found.



After this we rode through deep ravines over very steep hills up to some scrub, in which Mr Sproule wanted to show me a strange tree. In a small scrub we found the tall *Acacia* and in another brush a tall tree with glossy leaves, that I think not to have seen yet.

**9 March**

Yesterday on 8 March I returned to Ravensworth. Before I descended to the valley and even before I arrived at the 'Needles', I crossed a ravine in which the feldspar porphyry (red trachyte) enclosed pebbles resembling a pudding stone. These pebbles are also of a porphyritic nature, only darker. This is a very interesting rock. Coarse sandstone appeared everywhere further down, but which becomes fine grained above Ravensworth and furnishes a fine hard building stone, but difficult to work. Of new plants I have only a woolly-leaved *Aneilema* to recall, which I found on the mountains around Ravensworth.

Mr Sproule drew my attention to a small yellow composite (a *Bidens*), which is so detrimental to the wool by the dry seeds attaching themselves.

The soil of Foybrook valley seems a light clay richly impregnated with sand, superb for cultivation. Mr Macpherson said the water is good, it flows constantly and water is found in the bottom of the stream bed at every season. However, I do not believe this, although it probably is the case in the bed of the Hunter.

At Ravensworth there is a spring above the stream bed not far from the house. It seems that the water, infiltrating through the upper sand, finds a bed of clay, which conducts it to the bottom. {This bed of clay perhaps belongs to the coal.} The restricted space is, however, striking. The water is a little whitish, as if it contained horse urine[?]. It tastes very good mixed with a little wine.

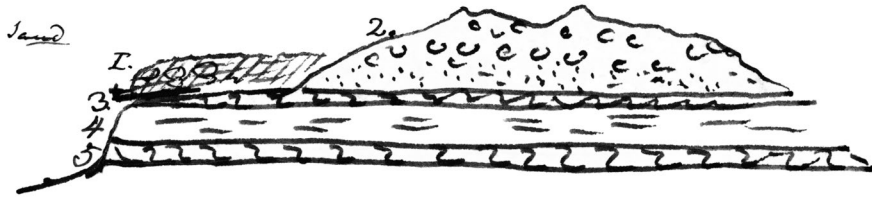
The garden consists of sandy, clayey soil. The orange trees are now very lush, but in general the trees are sickly. The apple and pear trees are flowering now like those in Europe, perhaps in consequence of rain.

{Day of my march to Ashton}

*Stipa* is growing in tall bushes along the stream, but it does not help to form the grassy patches of the plains. Here it is mainly the large star grass, *Aristida*, the squarrose *Milium* and two new grasses, one of which seems to be another species of *Stipa* and the other another species of *Aristida*. *Pimelea recurviflora* is abundant. A small scrophulariacean was found. *Hypericum* appears everywhere with its golden flowers.

*Ajuga* was found, three panicums, the thickly paniculate *Agrostis*, and *Fimbristylis*.

The coal at the junction of Foybrook and the Hunter lies a little over and in the bed of the stream. It is an upper seam, about a foot thick and a lower one, perhaps two foot thick, is separated from it by a thin bed of carbonaceous clay, which contains a large number of indistinct leaf impressions. Sandstone of varied composition and

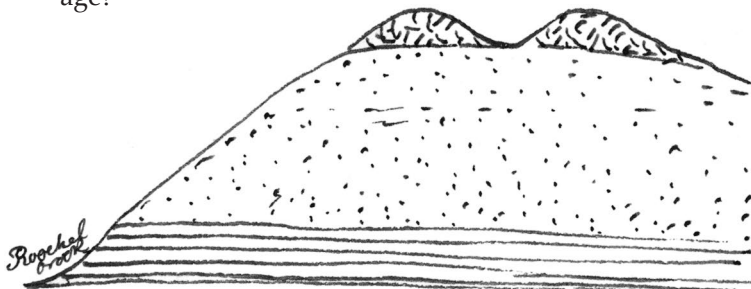


pudding lie over the coal. This is plain on the opposite western side of Foybrook and on the northern bank of the Hunter River between Foybrook and Fallbrook. Water appears everywhere over the coal, very fine in a continual little stream in Foybrook just before the mouth. The water holes in the wide, otherwise waterless bed of the Hunter seem to fill up here also over the coal. These deep water holes are full of fish, mullet, which now seem to run.

1. Sand detritus from the sandstone hills and pebbles from the stream washed down during high floods.
2. Sandstone hill, pudding at the top.
3. Clayey coal (Chitter)
4. Shale
5. Solid bed of coal

The pudding stone lies at the top, under it the sandstone becomes finer and finer, but this seems by no means general.

If I have now found the fossiliferous greywacke or the crinoidal limestone as well as the coal covered by sandstone and pudding, the next question to be solved is the relationship between this blue greywacke or shale-like rock and the coal. Are they very different in age, or formations of the same age?



*Basaltische Kuppen*  
Basaltische Kuppen  
= basaltic caps

*Sandstein*  
Sandstein  
= sandstone

*Sandiges Thongestein sich muschlig zerklüftet mit Versteinerungen.*  
Sandiges Thongestein  
sich muschlig zerklüftet mit  
Versteinerungen  
= conchoidal fractured,  
sandy clayey rock with fossils.

*Idealer Durchschnitt des Scromolo aus Roochel Brook*  
Ideal section of Scromolo to Roochel Brook

Yesterday I saw an earthy brown bird of middle size. The point of the tail is white and also somewhat white on the head. It lives in communities. Its noisy cry is ka! ka! (I saw this bird shot later by Mr Owen). In general it is earthy brown with a white head, long curved beak, and white-tipped tail.

I left Dr Bowman on Friday 10 March and rode to Bengala. On a ridge (called the Big Hill), I found a tribe of Blacks, of whom one showed me the way for a piece of tobacco. They belonged to Bathurst, from where they travelled here in four days. Among them was a robust woman, Maria, who seemed, so to speak, to be the queen. Her head was peculiarly decorated with a diadem of feathers. I traversed a box forest and the box, now in flower, spread a very pleasant scent. At the place where I boiled my tea and let my horse graze a bit, I found a beautiful caterpillar, which nimbly crept up an apple tree (*Angophora lanceolata*). It was generally grey haired, had two long black bunches of hair, the antennae like a snail on the head. It had a red saddle of hairs on the front half of the body, on the sides at each segment a bunch of grey hairs.

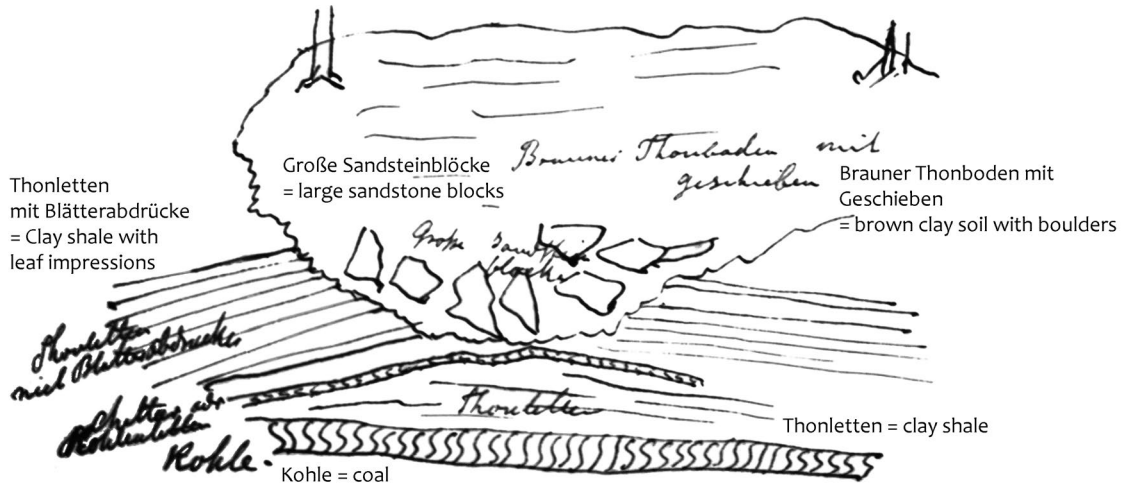
Captain Scott received me very courteously at Bengala and immediately made me known to my compatriot Mr Luther, who was on the point of laying out a vineyard for them. Captain Scott lived for 14 years in the East Indies and his bodily constitution was extremely weakened by the climate there. He came to Australia, where almost all members of his family lived, and wanted to improve, not only his health, but also his monetary circumstances. He purchased land, cattle and sheep for a high price, which he now sees brought down almost to nothing by the unfortunate circumstances of the Colony. He married the daughter of Colonel Barney, a charming girl. Two years ago in consequence of a bath, he had the misfortune to get a nasty rash on the face, which troubled him

extremely. He seems a mild, benevolent, educated man, perhaps the most unassuming of the whole family. He is now endeavouring to be elected to the Legislative Council, which he certainly should refrain from doing in his present financial circumstances.

Mr Luther is every bit a German! An open noble, benevolent person, who under the somewhat rough exterior of a bushman, hides the finest feelings for justice and the tenderest of brotherly and human love. He made me homesick as he put the noblest Germanness before my soul so kindly. He had married here. His wife seems a good well-bred woman. They live happily with one another. Used to comforts, she has, however, followed her husband into this wild life and although sometimes she unconsciously acts according to the former way, nevertheless she stands at the side of her beloved husband cheerfully striving in the management of their little farm.

Captain Scott introduced me to a Dr Owen, who lived for 20 years as a surgeon in India, and who in consequence suffered from fever of the spleen and has come here to improve his health. Used to moving many slave hands with a word, he has so made a habit of this commanding tone that even now he continues it. He has a rough, hard nature. However, it possible that in the depths he protects a stout heart and certainly a strong will. He has occupied himself with botany. He is on the point of going to New Zealand.

Some days ago we went to a hill in a north-westerly direction from the dwelling. To my surprise I found *Sterculia* here, a moderately tall tree about 25-30' tall abundant between box and forest gum. I also found a *Panicum* on the ground covered with sharp ironstone. He shot a treecreeper, back earthy brown, a yellow strip over the wings, a black one over the tail, elongated weakly curved beak, and hairy tongue. Also a small wedged-tailed parrot with red ring at the base of the beak, a



Section in a ravine on the Hunter two miles below Captain Scott's dwelling.

pale brownish band behind the head, green on the back and grey under the wings.

Over the shale lies a long series of thin clayey sandstone strata, which I am hardly in a position to compare with any previously seen. However, I think that they are identical to the sandstone of Ravensworth. The shales over the coal are rich in fern leaves, which seem to correspond to those of the highest coal bed at Newcastle. In the Hunter there are many basalt boulders, indurated sandstone, some pebbles of pudding, and some porphyry boulders with yellow feldspar crystals.

The same red loamy soil that I found at Black Creek and at Stanhope with pieces of carbonate of lime is also found here with larger or smaller calcareous concretions. Towards the north-western hill (Allmans Sugarloaf) a clayey rock changed by fire several times, thermantide, occurs, which seems to lie over the sandstone and forms Allmans Sugarloaf.

We found several plants belonging to the Chenopodiaceae, also a prostrate plant similar to the *Ruellia* on the pasture at the deep pool of the river, also *Galium*. On White's farm I found a *Solanum*, leaves and calyx studded with long prickles, with vanilla smell. In addition a plant like the one which I pulled out of the hair of an Aborigine at Glendon, only broad-leaved and purple-coloured. The other white-flowered, narrow-leaved species is here as well. Also the sensitive plant is on that hill. Here there are some small-flowered *Oxalis*, a fine-leaved, small-flowered *Campanula*, besides the usual species. A violet-coloured *Aneilema* on the sunny hills.

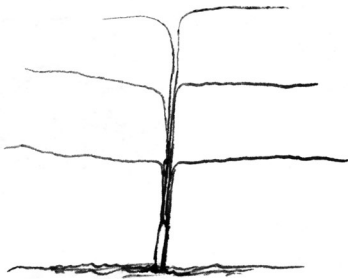
{Wine}

Mr Luther told me many instructive things about the cutting of the grape vines. Above all in the first year you must look at the formation of the little heads. For this purpose you cut all the eyes out and then let random buds develop on the apex. Of these you let four to six stand, each according to the

number you need and now draw them like a trellis or bind them together in a pyramid, which besides spares the vines. He taught me a good way to cover an arbour'd walk.



You draw up these limbs on one another and then bend them round sharply in autumn and continue them horizontally. This takes place in autumn as then the vines are most flexible. Should you break a vine, you leave behind an axillary eye under the bend, which you draw up in case of a break.



The soil that he chose contains much lime, but I feared that it is too rich in clay and too poor in sand, at least in some places. On the northern or north-western slopes is a perhaps more favourable soil. *Sterculia*, box and ironbark are the prevailing trees. He told me that this is the soil of the Mark plains[?]

Mr Luther has supplied the Johannesburg vine, and has high hopes of it, especially to bring forth a good fragrance. I clearly see that I have made several mistakes, that I should have selected the grapes more carefully, and that under no circumstances should I mix the bad wine with the good wine! Nevertheless one cask will turn out well, that I know definitely!

It was extremely hot the first three days of my presence here. This was interrupted by a cool day with overcast sky. Then on Monday followed an extremely hot day again. In the evening the sky clouded over, and in the

night a heavy thunder storm. Thunder even continuing on Thursday, rain even still today (on Wednesday), wind from the south.

### Sunday 19 March

On 16 March I left Bengala. The rain clouds, still speckled and low, floated over the landscape from the south-east and from time to time sent down light showers, but gradually they packed together in firm outlines into cumulus clouds and I concluded that I would have fine travelling weather. After I came on the road to Cassilis at Bettington's my way led me over an average rich loamy soil, from which the coarse sandstone frequently emerges. Up to the second settlement the track appeared covered with a large number of pieces of thermantide, all of which were full of leaf impressions. These closely resemble those on the height at Dawsons Lagoon. It is very probable that about 10 Ells deeper coal is found; indeed perhaps it lies here not even so deep. A coarse sandstone appears everywhere over this rock. As I drew near to the Wybong, conical hills attracted my attention. I climbed one of them and found it consisted of pudding. Here this pudding, as in all the other hills I passed, contains predominantly small quartz pebbles. The atmosphere and water, which once must have moved around these hills, have eroded large numbers of cavities and often eaten away large masses almost completely from the mountain. This appears from the foot to the peak like timber gnawed on and through by insects. Often an elongated ledge lies before the very regular cone, which seems formed from blocks heaped over one another and yet they are not really blocks, but the eroded rock mass itself.



After passing the Wybong, you approach a ridge that does not seem to promise a way through, but suddenly the track turns and leads over a low gap into similar trough-like valleys, which are all connected to one another. Thus you cross Dartbrook and several other deep stream beds, some with a rock layer of pudding. {Without exception they all carry basalt pebbles and only these!} At Gammon Plains the stream seems to have carved its way just through the alluvium and the bed resembles more a canal than a New Holland creek. The streams on Hamilton's sheep station and about two miles before Cassilis are similar. {Here casuarinas are almost completely absent.}

As you ride over the last sandstone spur, you find yourself on a grass-covered plateau. The soil is black, sharp pieces of basalt are abundant everywhere. A small breast-like elevation indicates the beginning of this new terrain. The woodland is very thin, almost exclusively formed from turpentine box. Here and there a *Sterculia* appears. The understorey is completely absent, even young box saplings are absent. It is very probable that these moderately undulating surfaces are basalt plains, which are connected with the Liverpool Range. Now and then they are interrupted by sandstone and the latter is indicated by a yellow loamy or sandy soil. At Coleroy, as you descend to the stream, you see rounded bulging caps that probably form the boundary of such a basalt plain. True basalt rocks outcrop at Mr Scott's station. Very regular prisms appear here in two places, all vertical, with heads at the surface.

On the Wybong hills strange plants grow, which I had not yet come across previously. Thus I found on the top of the hill that I climbed, *Callitris*, as a tree about 25' with horizontally extended branches, forming almost a pine-like pyramid. A transparent yellowish gum hung on the tree and lay around it. The tree is



presently in flower. Male and female flowers on the same individual. A *Xanthorrhoea* was very abundant as well. Also a new species of *Eucalyptus* seems to grow here. *Acacia* with rhomboid pale leaves and with long linear green leaves.

{At Bettington's second dwelling there is a sickle-leaved *Acacia* abundant on the thermantide soil.}

In the narrow pass that leads through the Wybong range, there are three species of *Acacia*, the one with rhomboid pale leaves, another with linear pale leaves and finally one with bipinnate pale leaves, the phyllode of which is commonly widened like a leaf. *Dodonaea* also grows here, whose leaves are furnished with three apices. {An unknown shrub with glossy leaves.} On a similar hill about 10 miles further on I found another pinnately cleft *Dodonaea* as a very low shrub. A scarlet red *Dillwynia* in small shrubs. Another of the *Epacris*-like shrub. On one of the pale green acacias with simple phyllodes, I found a pale green *Loranthus*, the flowers of which stand in threes on a level. A small hairy *Campanula* with very delicate stem was found as well. A shrub with broad leaves, like a *Grevillea*. A true *Grevillea* was also found. A *Banksia* too, which was an unexpected appearance at this distance from the coastal belt. It formed shrubs or small trees about 10-15' tall. *Zamia* were very abundant on the sandstone rock.

*Mimosa terminalis* grew abundantly on the black basalt soil and a species of clover that I had never seen previously.

In the stream at Coleroy there are two strange grasses, also *Hibiscus* and *Solanum vanillae*[?] were very common here along the fence, as well as a prickly chenopodiacean. In the creek besides *Casuarina* was the *Melaleuca* from Glendonbrook. The small plant that I always ascribed[?] to Rubiaceae covers the ground everywhere here.

20 March

The drought has greatly reduced this region. The streams are without water, the plains and hills without grass, but the last rains have produced scanty vegetation. A calcareous spring is near Mr Scott's station, its water has a peculiar smell and tastes very soft.

They have tried to cultivate wheat, but they can only count on a harvest every seven years. You feel sorry for the inhabitants, who live on the richest soil without being able to reap the benefit from it, which it promises on first glance. They have never seriously tried to cultivate the vine, and yet this basalt soil should give a good wine. Here in the garden despite the drought, the kitchen vegetables do very well. But the temperature during the winter and even now during the night is too low and night frosts damage the vines or destroy them.

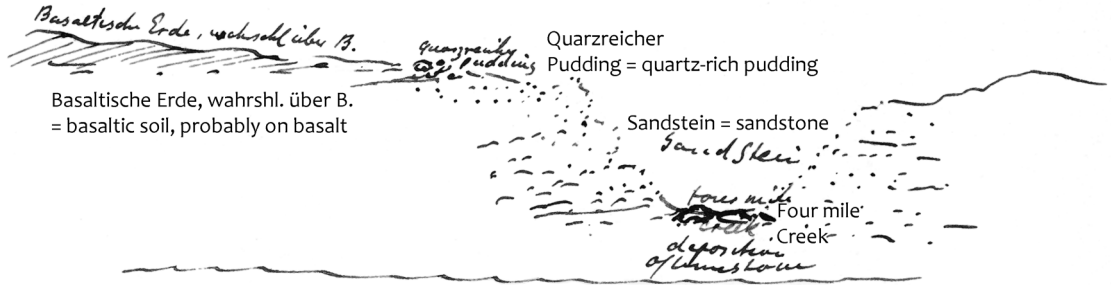
I saw an extremely handsome man among the savages, who form the tribe from Cassilis.

I camped two nights in the bush, the first time at a stream not far from the station of Captain Pyke [Pike]. A grass, similar to that which I found on the Hunter near Dr Glennie's place, grew here in the stream bed. {I found it also on the Severn.} The second time was in the light woodland three miles before Coleroy. When I made up my fire here, a herd of cattle approached grazing. They formed a circle around me and seemed extremely astonished. So they worried me for some time until finally at first the bull and the whole herd after him moved away.

The sheep lamb twice a year, winter lambing and summer lambing, now and then one and the same ewe lambs twice. This must of necessity be harmful to its constitution and have an effect on the wool.

Yesterday Mr Barkleay [Barclay?] showed me a small lizard that to judge from its toes belongs to the geckos. It was already destroyed too much for me to be able to investigate it properly. The body seemed marked with blue clouds.

Yesterday I went with Mr Barclay to see the quarry that has produced the building stone for the house. We followed Four Mile Creek, on which the residence lies. Below the garden basalt prisms are seen. On the right are medium hills covered with black soil and angular pieces of basalt. A limestone bed (travertine of very earthy nature) about three foot thick was deposited in a pond-like excavation. Not far from this in the stream itself a loose sandstone and larger pieces of travertine with *Limnaeus* and perhaps *Paludina* appeared. Then we strode over a fine piece of devil devil land with deep furrows. This land is very common here in the loose black soil on moderate slopes and even on almost perfect plains. The furrows all run towards the valley, sometimes in an oblique direction. On this ground an *Acacia* grew about 30' high, but very rare, which the Blacks call sister of the myal, as its wood also has a very pleasant scent of violets. The leaf is a simple, thick-skinned, lanceolate phyllode with one not very distinct gland. In the small flat on the stream, I was shown the turpentine gum, white, long peeling, with soft wood, thick box-like leaves and the striped box with a network of gum vessels, which, however, do not completely envelope the tree, but appear in large separate patches between the bark and the youngest wood, but such that it remains adhering to the youngest wood on peeling of the bark. The bark outside this network is very moist and the moisture has a slightly sweet taste. This seems to indicate two systems of vessels with different liquids and herewith concurs that the savages know how to draw sap out of *Angophora lanceolata* in great quantity. However, I have not yet observed the latter myself. A man said to me, however, that this sap is found especially in the apple-trees that lean to one side and show swellings here. If you cut



Ideal section above the quarry.

off such a swelling, the sap comes issuing out quickly and you can easily fill your tin teapot with it. However, it tastes bitter and it is not pleasant. The savages drink it as a medicament.

The quarry lies a little further along the creek, where Captain Scott's property adjoins the Crown land. An attractive white sandstone, not too coarse-grained and easy to work, which hardens in the air. Above it on the hillock lies a quartz rich pudding, the pebbles small and milky white quartz or grey quartzite.

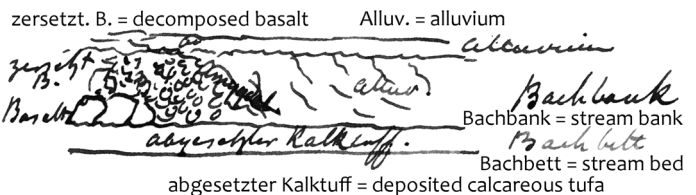
This sandstone is said to extend to the Goulburn.

The striped box loses the bark and shows the gum network. The *Eucalyptus* with roundish, pale green leaves and the turpentine gum, which bears single umbels with 2, 3, 4, 5 flowers, has a white bark, peeling off in strips. Distinct marginal veins, distinct secondary veins, distinct spots, leaf sides unequal.

A shrub like the olive tree, linear-oblong leaves. Young twigs, leafstalks and lower side of the leaves woolly, upper side of leaf dark green. Stipules at the youngest leaves. Fruits no berries!

I followed the Four Mile Creek upstream. At one place a fist-sized piece of massicot had been found. I found nothing similar. The high bank of the stream was formed from a much decomposed basalt and amygdaloid, which enclosed many long rounded grains of a white crystalline substance. Over this amygdaloid lay alluvium with sharp pieces of basalt and travertine. The latter were often coloured yellow by iron ochre. Violent downpours of rain now seem to have washed out the massicot from this alluvium. God knows how it came there. The lead mines in Auvergne are not in basalt but in gneiss as far as I recall. A little higher on the creek basalt outcrops again and is very decomposed.

The other bank of the stream is a flat covered with black earth, which shows the devil devil land very well.



Below the garden is a similar bank. The amygdaloid is full of elongated irregular vesicles, which are filled partly with a green-yellowish substance, able to be cut with the knife, and partly with transparent crystals, which are pointed at both ends, resembling two flat cones, which combine at the bases. Shining faces were not to be distinguished. The cement or groundmass is red, very iron rich with small crystals. It is decomposed to about one foot deep and can be cut with a knife even deeper still. Somewhat deeper on the stream this mass is very rich in yellow iron ochre, with which the savages paint themselves yellow.

I noted under the basalt lies a wacke rich in rock butter (a soft talc) and in crystals of an unknown substance. In addition there are small shining red crystals in the clayey groundmass. In consequence of magnesia, which all the springs in the neighbourhood contain, I suffered a light diarrhoea today.

The top of the range, which extends left from the dwelling in a lateral south-east cap, is a perfect plain, covered with large pieces of basalt, between which a red loam is imbedded everywhere. Besides the forest gum (turpentine) *Sterculia* is growing here. Even *Angophora* climbs up high.

All ridges in this district are supposed to show flats on their peaks, on which the cattle stay mainly during the winter frosts. This is cited as proof that the heights in this colony are usually warmer than the valleys. Here the winter frost, which often covers the stream with ice and even freezes the water in the house, would stand in the way of the wine-grower.

I saw a small cockatoo in Cassilis, grey with yellow orange-coloured patches on either side, yellowish-green crest, white wing feathers. Last year they were seen for the first time near Maitland.

In the stream I found parsley, which at least according to the smell corresponds perfectly with our garden parsley. In this area the wild carrot grows in the spring, which often protects the sheep from starving in very dry years. A grass that I found already in the stream at Coleroy, I found here again. It is a compressed panicle(?), the spikelets single-flowered, under each a wreath of brown upright hairs, longer than the spikelet. The outer glumes are unequal, the inner valve seems very small. *Lotus* grows here too, at least I think that the three leaf, with leaf-like stipule, with red flowers in threes together about a foot high is a *Lotus*. The style under the stigma two hairs!

At present they are sowing wheat here. They try to get it in the ground before drying up of the rain. Water melons and rock melons do poorly, peas, beans, and asparagus especially do very well, cabbages not well, as the latter in general never seem to like a very rich soil. The vines have a short miserable wood. The wild arboreal vegetation is also poor, no tree reaches significant size or breadth. Of wild mountain grasses I have only seen the hairy star oats (or gold oats), the rays of which do not spread, but lie together. The remaining grasses are unidentifiable. The strange grass along the stream has nothing to do with turf formation. A *Gnaphalium* with linear, green, sticky leaves is abundant. On the mountain *Trifolium heterophyllum* is growing and *Cheilanthes* seems the sole fern here. Even *Pteris esculenta* has disappeared here, yet which was so abundant on the basalt soil of Piri.

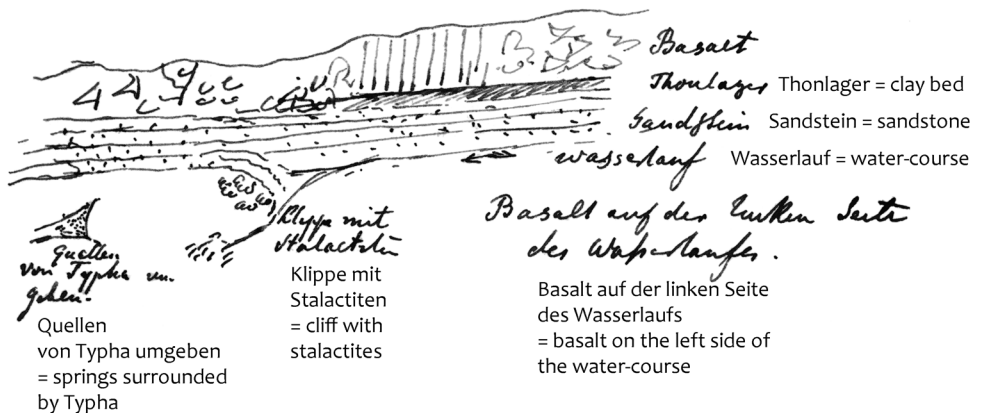
## 22 March

Yesterday I rode with Captain Wilkinson over to the plains on the banks of the Talbragar, where Mr Scott has a cattle station, which the Aborigines call Bennigelliroy. At first we crossed a ridge to reach Rock Creek, where a well had been dug, which contained a red wacke with golden shining decomposed

crystals. Travertine is everywhere in the stream bed. After this we rode over the dividing range of the Counties of Bligh and Brisbane, which has a flat top like all these elevations and finally came to the valley of the Talbragar, which is flat with very slightly rising slopes resembling wide ploughed fields. You see groups of trees only here and there. The soil is black and loose. The well at the cattle station is 32' deep and produces about 2-300 buckets of water daily. This number of buckets is, however, very reduced during the present drought. The tree vegetation on the heights (box with vessels) is very poor. This is probably caused by the thin surface soil in which they grow, the basalt pieces breaking through to the surface everywhere. Captain Wilkinson told me that he found this area covered with the most beautiful grass like a park, that the three year drought, however, had destroyed the turf, growing thinly here, almost to the roots. If Mr Robert Scott was induced to the purchase of this land by the plentiful flowing waters and by the green grass, the poor tree vegetation should have restrained him from it. This is perhaps a more certain criterion of uninterrupted fertility of a region. The cattle like the pure fresh well water and gather round the hut daily. In addition these cattle are just the

fattest and I have seen some very heavy oxen here.

We rode from the station to the springs, which are found about a pistol shot from Mr Scott's property on the crown land. The locality is extremely interesting. Sandstone outcrops (soft and coarse grained) in a small ravine. Sandstone rocks form a steep slope, from which a fine waterfall rushes down during continuous rain. From this sandstone cliff, which time has gradually hollowed out, water containing carbonate of lime continuously drips down. It forms stalactites and stalagmites and whilst mosses coat the moist ends and sides of these calcareous formations, for its part the lime encrusts these mosses, and you see strangely formed petrified moss masses forming, which often preserve the texture of the mosses very accurately. Besides the mosses there are freshwater sponges, which are undergoing the same process of petrification. Also pure limestone formations are in the joints of the sandstone. If you now climb higher up over this cliff, you see basalt with prismatic columns or in loose pieces over the sandstone. Between both is a rock resembling wacke, probably decomposed basalt and debris, if it was not a soil layer covering the sandstone (?). Until now I have not yet observed the superposition so clearly.




Section of the stalactite springs near Bennigelliroy.

Yesterday evening the sole married man of the station came and requested a horse to fetch the doctor, as his wife was expecting her confinement at any moment. I sent word to her that I would deliver her, should the doctor not arrive at the right time. This is what happened. I delivered the delicate woman safely of a healthy boy, for whom I carried out the duties of nurse at the same time, as no women assisted the poor woman on her childbed.

Today I went to Cassilis and on my way from there I found a white crystalline substance in the bed of Two Mile Creek and the Mumurra, which seemed to be mesotype according to the arrangement of the crystals.

On the mountain I found a new species of *Convolvulus* with linear, downy leaves.

### 23 March

A *Charadrius* was shot this morning. About 10" from the beak to the end of the tail, 1¾-2' wingspan, back earthy brown, light metallic head, black with white lore, wings black with white cross bands, rump white, lower half of tail black, stomach and lower wings white, breast black with two lateral stripes extending to the beak, throat white, beak vivid yellow, cuticular red fleshy lobes before the eyes. yellow-skinned eyelids, yellow iris. Feet cherry red, medium toenail curved outwards, tail gland with a tuft of down. 

In the stream under the garden the wild parsley grows, the wild parsnip[?] and a species of *Hydrocotyle* with glossy trilobed leaves, each lobe with two to three incisions, each incision with two to three and more blunt teeth.

In addition a plant not in flower, half prostrate, stem indistinctly quadrangular, leaves opposite, each leaf sessile unequally pinnately cleft, pinnae linear mucronate, end pinna the longest. The edges of the whole plant studded with stiff hairs.

### 27 March

Thursday 23 March, I left Dalkeith and in company of Mr Mawson [Lawson] went to Rotherwood, the property of Captain Steele [Steel]. Some young men wished to accompany me to the Liverpool Range, among whom were two doctors Messrs Macarthy [McCartney] and Nicol. The latter were two quite strange figures. Both were concerned about making money and argued about their science like the physicians of Molière during the consultation.<sup>4</sup> The venereal diseases gonorrhoea, shanker and bubos are the only ones that pay and they seemed to regard the pitiful women, who come into this district from time to time and infect the men, as their allies. The conversation of these men always seemed just to turn around on the same pivot and that was lechery in all its breadth, whether they talked of their actions or teased each other with their success with shepherd women. They used sulphate of zinc, nitrate of silver and hydrate of potash. Their universal purgative drug is jalap.

The banks of the Talbragar, along which we rode to Rotherwood, are also surrounded by plains, which previously must have formed a lake bed. In Rotherwood I saw a poor planting of vines. The grape vines were small and wretched. The winter frost of last year had destroyed the young shoots and the present shoots were weak with short internodes, without grapes. The ground was not trenched. They had not used the slightest care of it at all. Beans were doing well.

We left Rotherwood late on 24 March and went up Norfolk Island Creek. It was late and we could not find the path over the western range and bivouacked at the hut of two sawyers with a herd of sheep, which Mr Mawson was taking up to the Liverpool Range. It began to rain and I went into the roomy cosy hut, in which one of the sawyers, a former forester, told me much about the coal mines of Staffordshire. Thus he told

me that there was a coal bed 26' thick. The hospitality of these people has frequently astonished me. It is perhaps the most pleasant thing in the Australian bush. The mixture of people from all districts, classes, good and bad, convict and immigrant is of the greatest interest as well. {At the spring that the sawyers had excavated, I found for the first time the solid amygdaloid rock with zeolites and with hairlike crystals. On the Liverpool Range at Mr Mawson's station it is very common everywhere.} They were splitting blackbutt or forest mahogany for fencing. Next morning we cleared a way ourselves to the summit of the mountain range. This was a perfect plain. Next to the summit the slopes are usually very steep and formed of loose sharp pieces of basalt, which rolled to the bottom under our footsteps. These flat tops, which I have already mentioned previously in the district of Dalkeith, and which I found again here and over the whole Liverpool Range, seem peculiar to the basalt formation. Perhaps the basalt masses came to the surface of the earth under great water pressure and thus were flattened at the top.

The prevailing trees on the Liverpool Range are the blackbutt or forest mahogany (as the sawyers called it yesterday), which resembles the stringy bark in its bark. {The white gum has its fresh bark covered with a kind of whitish dust.} The white gum is also very abundant, especially on the low depressions of the highland. (The peak of the Liverpool Range is three miles wide). The bastard box is on the slopes. This tree has a very broad whitish-green leaf in the young shoots. *Angophora lanceolata* is itself abundant on the peak of the range.

Below the peak and on the peak we found abundant springs that all contained deposits of carbonate of lime. Were these springs properly cleaned, they would all deliver a greater volume of water. At Mr Mawson's station the rocks surrounding the springs and

the water courses are basalt and amygdaloid with at least three different substances (all zeolites?), but no trace of garnets or metallic substances.

Around dried up water holes, where a grey-leaved *Leptospermum* grows abundantly in small bushes, there is a small polygonacean, a scrophulariacean with blue flowers ~~{at least the plant belongs to the family of the Scrophulariaceae}~~. Of small bushes you see an *Acacia* with lanceolate phyllodes abundant, which are red on the insertion position at the stem. The gland seems to be absent. In addition a *Hakea* with linear, often almost wire-round mucronate leaves. Then a small shrub with thick linear, perhaps half inch long leaflets, mucronate, the apex a little recurved. Another shrub with stiff vertical somewhat compressed awl-shaped, mucronate, pale green, sessile leaves. Finally a fine-leaved *Xeranthemum*, a *Gnaphalium*, a *Galium* and probably an *Epacris* with stiff, sessile, sharply-pointed  $\frac{1}{2}$ - $\frac{3}{4}$ " long leaves, the apex bent outwards.

On the creek I found the following plants: \**Campanula* with long linear leaves. *Veronica* with lanceolate serrate leaves, a large *Opercularia* with lanceolate serrate leaves, a pubescent *Galium* on the rocks. *Plectranthus*, *Xeranthemum penneroyal* (perhaps a different species). *Geranium* with a large blossom, a prostrate stem. *Senecio*? *Pimelea* of the section of *recurviflora*.- Several compound shrubs.\*

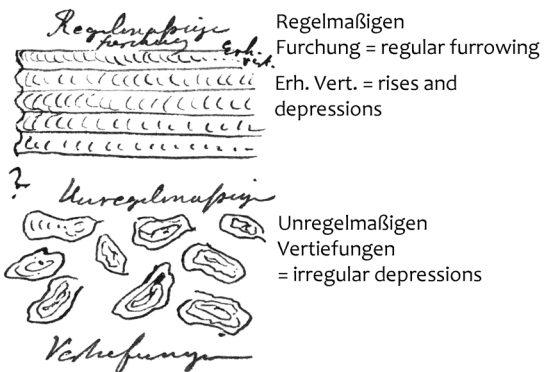
We left Mr Mawson's Koolah station on 25 March, descended the steep north-west slope and followed Bowen Creek downstream. Then over the mountain range on the right hand to Mr Bayly's station. As we rode there on the north-east side of the mountain, I noticed a red rock, like sandstone. I investigated it and found a white crystallised substance in this rock, which seems to be a very iron-rich decomposed basalt.

At Mr Bayly's station a well was dug, which produces beautiful water, but this water purges, like perhaps that of the whole Liverpool Range. While going from there to the valley, we had several views of small tracts of the Liverpool Plains. Myall woodland, the black trunks with their drooping branches and leaves resemble dark weeping willows, the young saplings and bushes with stiff grey-green leaves. On the myal trees there are nests of large hairy caterpillars, which live together in families and which are said to travel from one tree to the other in lines. The taste of the leaves is salty and bitter. In addition the box grows between the myal, whose dry broken branches make the pleasant violet scent noticeable even in riding past. The young trees of the box, a kind of white gum, shed their bark. We crossed a very interesting bush, many new plants or shrubs, many with fleshy leaves, like those on the sea shore. An interesting shrub with large yellow flowers with many filaments, with a long-stemmed ovarium. {*Capparis mitchelii*}



On various stations wells were seen, so for example on Mr Windham's [Wyndham]. They dig through the clayey earth and came to basalt pebbles, however, at 30' still had no water. Mr Mawson had dug several wells and lifted the water out with a balanced cross-beam, then it filled 23 troughs, to which the sheep come to drink. Under the clay bottom he found lime, very solid, but deposited like that at Black Creek (probably deposited in a lake bed or swamp). {In the lime bed he found fragments of bones and a freshwater mussel (*Unio?*).} Here he found water at a depth of 25' and it is so abundant that the well is filled up to 10'. He found salt water in a well, which, however, became sweet by use. The above mentioned lime bed was noticed near Wiseman's station close to the surface in a gully.

Everyone who sees these plains is spontaneously struck with the idea that they formed the bed of a former lake that probably contained salt water and from which the conical mountains, for example Mori devil and Mr Mawson's range and many others, protruded as islands. They rise isolated from a horizontal plain. The devil devil land is here in the greatest perfection. However, a remark of Dr Glennie perhaps verifies that this surface formation stems from the various constituents of the soil. We found a light yellow soil in the rises, in which innumerable rats had dug their holes. In the depressions there is a stiff clay. Sometimes the furrows and rises are regular over a long distance, sometimes they are round, irregular unconnected troughs. The horses sink deeply into the former, in the latter their hooves leave behind only slight tracks. There are many deep holes for which the rider must look out. It is difficult to say what cause is the basis for them. The depressions are more richly provided with grass and the whole plain is now covered with several species of composites.



Highly interesting in the myal forest were the greenish *Loranthus* on the myal, and a really articulated plant parasitic on the *Loranthus* and on the yellow leaved shrub.

**31 March**

After we had been detained in the dwelling on Monday and Tuesday by a generally superficial widespread rain, which only now and then was interrupted by heavy showers, I used the fine Wednesday to visit the range rising behind the dwelling. These hills consist of sandstone as well as those towards the north-east on the north side of which Mr Blaxland has a station. The sandstone is coarse and soft, composed of broken angular quartz grains. Previous waters, which lay over and around these mountains, agitated the rocks and washed the sand downwards to the plains. The mountains therefore are surrounded all the way round by a zone of sand about one to two miles wide, whilst at other places, where the sandstone rocks only just emerged above the surface, isolated oasis-like beds of sand are spread out. Now as far as these sands reach so far extends the tree vegetation. It begins at its outermost boundary and ascends up to the flat tops of the mountain range. From high points, which permit a general view over the plains, you see only partly wooded and bare hills, mountains and mountain ranges, partly bounded by mostly rounded or oval forest islands, between which the real plains spread out covered with grasses, composites and some legumes. The soil of these plains is powdery, or in wet weather miry. It contains a very small portion of sand grains, but at some places considerable calcareous concretions. It seems to me that its main constituent is clay and humus. During dry weather it is mild and easy to work, while in wet weather the animals sink in too deeply to be able to work with them. It is difficult for me to find the difference between rises and depressions in the devil devil land. Both soils are powdery; the rises perhaps contain a little more lime.

The abundance of water and the depth of the wells probably also now depends on this geological surface formation. Water is found everywhere in relatively shallow depth, that is

at 25 feet, on the edge of the sand beds. In the middle of the plains the level of the standing water probably lies significantly deeper.

On the different soils various plants also grow now. It seems to me that the forest, which spreads out around the mountains gradually descends from the mountains to the bottom. However, shrubs grow in this lower zone, which I never found on the mountain range itself (however, on very limited excursions). This is the case with the thread-leaved *Acacia*, with the bipinnate *Acacia* and with the biflorate chlorgrass.

On the sandy soil behind Mr Mawson's dwelling grow a narrow-leaved *Xerotes*, the biflorate chlorgrass, the woolly glume, which I previously called fringed star grass, *Aristida*, the star glume, as the glumes (*Danthonia*) end in stiff starshaped, spreading, pinnate bristles. *Dillenia* with pretty yellow flowers, and an *Anthericum* with very large flowers. The white gum, and *Casuarina* with short disc-like cone. *Banksia*, the green leaves downy on both sides, the upper green, the lower white with iron-coloured mid rib, apex broad with four weak teeth, the mid rib extended into a weak tooth, which does not exceed the four lateral teeth. {The old leaves are not downy.} Young bark faintly reddish, height of the small tree 10-12', young wood shows a network of fibres. Closer to the mountains *Callitris* and a *Eucalyptus* appear, which I have not previously seen. I call it 'scaly gum' with shield-shaped broken bark and leaves that remind me of the spotted gum of Newcastle. Ironbark, and stringy bark(?) are here too, as well as box. An *Acacia* with flower heads in bunches (racemo capitate) in filamentous phyllodes, and another with linear-lanceolate, dark green on top, glossy, sticky phyllodes, and a third with long sickle-shaped, green, three and more nerved phyllodes. Here grow *Styphelia* with red, somewhat short, somewhat expanded flowers, a small prickly and a white-

flowered three foot high epacrid, *Hovea*? in four foot high shrubs with flexible, small stems spreading all around. A *Xanthorrhoea*, light trunk, flower cylinder  $\frac{1}{4}$  of the flower stalk, a second with trunk 2-3', the flower cylinder longer than the flower stalk. *Zamia*, *Bursaria* and several other plants. *Dodonaea* is found here, like on Blaxlands Mountain.



{Caterpillar}

On *Hovea* a caterpillar with red horny head, with green body, black lateral patches, in each of which a shining white spot and a white lateral line. Black spot on the legs and long but sparse hairs. The caterpillar that Mr Mawson showed me was green mingled with black, very thick on the thorax segments with four pretty eyes, the foremost the brightest. On the last segment a horn.

On the flat top of the mountain a very stiff-leaved grass is growing in thick bushes under the ironbark. In them a *Goodenia*.

The soldier ant was very lively after rain. They wandered about over the sandy soil everywhere and I was covered with them, I know not how. Five stung me and I hardly need to mention that I jumped about like crazy to shake them off.

On the north-western slope I found a curious shrub with stiff semisessile vertical leaves or phyllodes, no flowers or trace of fruit. Here also grows the round-leaved *Acacia* with yellow flowers and the *Acacia* with pale phyllodes. And a new *Persoonia* with spatulate, downy, sharp-pointed leaves, a small 3' high shrub. On the flat top a host of interesting plants. A *Hibiscus*, a *Sida* probably different from the previous, although yellow flowered, a *Solanum*, a *Stackhousia*, a fig-leaved *Convolvulus*, several composites (various species of *Erigeron*, if this is the name of the genus). A tall shrub with two filaments, four leaves (each pair around

a filament) - *Notelaea*. An epacrid (*Melichrus*? in flower - small bell flowers), three species of *Leucopogon*.

*Ajuga*, which grows on the eastern mountain slope and on the plains, produces lateral shoots (sarmente), has a gland under the ovarium, the coarsely-toothed leaves are almost triple nerved. Flowers in the axils from four to six, young plants covered with heavy down. This plant, which resembles *Ajuga genevensis* so much, is found not only here but also on Piri. A shrub probably belonging to the Euphorbiaceae. Leaves alternate, short stalked, oblong blunt, smooth margined with distinct alternating secondary veins, pale green on the lower side, stipules small pointed, membranous, flowers axillary, single, stalked (flowerstalk like the leafstalk). Involucrum/perianth five- to six-leaved (two to three small outer, three larger inner). Female flowers three styles, three simple stigmas, three seed reservoirs. Seeds many(?) placenta in the centre(?). The shrub is found on rocky places (here towards the north-east on sand rocks. I found it in the brush of Piri. I did not notice milk).

Yesterday I found several *Acacia*, all in the form of shrubs.

1. One with filamentous long phyllodes, yellow flower heads in bunches.
2. Another with linear-lanceolate, sticky shining green phyllodes, flower heads geniculate[?], axillary.
3. One with roundish, inequilateral, somewhat pointed phyllodes, yellow flower heads in bunches.
4. With long broad, almost sickle-shaped, pale green phyllodes as if covered with mildew, without predominating nerves (not in flower).
5. One with green almost sickle-shaped drooping, about three or more nerved phyllodes (not in flower).

6. One with linear spatulate (lanceolate blunt) pale, inch long phyllodes. If I am not mistaken, inflorescence in flower heads.
7. One with linear-lanceolate stiff phyllodes about 1-1½" long, the young phyllodes pale, the older green (not in flower) (very like the sister of myal, but in shrub form).
8. One with double paired pinnation (two to three pinnate pairs of leaflets), the pinnae with 5, 6, 7, 8 pairs of leaflets (seven seems predominate). A gland always before the first, not so common between the third pair of pinnae, rarely between the second. Pinnules oblong, inequilateral 3''' long, 1''' wide, pale green. Flowers in flower head, the latter in long racemes.

*Calytrix* flowers stalked between two membranous bracts, which are half folded, toothed on the keel. The leaves linear, prismatic, one flat side towards the stem, the other two covered with transparent hairs and glands, particularly on the edges, apex bent towards the stem.


The biflorate chlorgrass with glumes, which completely cover the two florets, the outer valve of the outer floret ends in a strong arista. Three filaments, two stigmas, colour of both purple.

Woolly glume. The glumes covered with long wool on the ribs surround the seeds, the wool extending on ripening and so serving for its spreading. The valves horny, smooth, enclosing the seeds, the latter oblong, radiating compressed spikes.

Star glume. The outer glumes with nine and the inner with nine pinnate bristles, woolly, enclosing the oval seed surrounded by the smooth outer valve and the membranous inner valve, which do not enter into the husk of the seed. Leaves broadish, on the

upper side with hairs, ligula a series of cirri, members with a hair crown. Sheath also downy, compressed cylindrical panicle.

*Festuca reflexa.* Spikelets 10 and more flowered, glumes equal, valves paniculate, fruit a small round grain. Plant perennial, leaves broadish, ligule some hairs in bunches (tufts), inflorescence compressed panicles, when the seed is ripe, the secondary axes are bent downward.

The seed vessel of the reddish verbenacean has two chambers, each chamber with two seeds, the embryo with long radicle, which is bent back towards the edges of the cotyledons. 

Yesterday, 30 March, I went to Blaxlands range. As I cut through the bark of a thick *Angophora*, I heard a hissing like that of the air penetrating into an airless vessel. It was very strong and I noticed it in all the trees, box, and white gum, which I began to cut. After some time if I cut over or under the previous cut, there was no longer a noise. This observation is interesting in so far as it reveals airless or relatively airless empty spaces under or in the bark of the tree. These spaces must have the form of frameworks and the penetrating air must quickly spread up and down.

I killed an iguana (monitor?) about 2' long. I don't think it is different from the one between Minmy and Maitland, but the underside is whitish with scattered black scales. A yellow stripe on the neck passes from behind the eye over the ear to the shoulder, over it a second very faint one. Indistinct faded yellowish patches form transverse stripes on the back, very distinct bright yellow patches on the extremities, distinct transverse stripes over the carinate tail. Underside of the tail is yellow towards the back. A black point on many scales.

In the stomach I found a small lizard with a white stripe on each side, a large tan-coloured *Acridium*, a small grey spotted frog, smaller acridiums, and a spider, which they call tarantula here.

Liver bilobed, heart free, chambers separated, white worms in the stomach. Hint of a caecum. Intestine wide, duodenum alone somewhat narrower, the whole digestive system from mouth to anus hardly body length. Long ribbon-shaped fallopian tubes. Egg-store with eggs the size of sparrows eggs, filled with a transparent fluid, 12-20 in each, in the right more than in the left, fallopian tubes joined in a kind of uterus, before they discharge into the cloaca. Ureters open into the place of discharge.

I was told several times that the Liverpool Plains were full of bulbous plants. Today I found the first and only one, long *Crinum*-like, rib-shaped, drooping leaves, bulb very large, a large number of spiral vessels on breaking the herb.

On the north-western side of the mountain range there is a loose, coarse-grained sandstone, which is cut through on the flat top by a basalt dyke, which has spread over the sandstone towards south-east and east. The basalt is greyish, contains small yellowish olivines that are red on the decomposed surfaces, and fine black hornblende? needles. The mass is grey, the fine splinters whitish. The beds of sandstone were almost horizontal, that next to the basalt was indurated.



On the top grow box and among miserable ironbarks, *Callitris* and the pale green *Acacia* with broad, long phyllodes, *Zamia*, *Xanthorrhoea*, which refreshed me with its delicate sweet leaf resin, a rue shrub

(*Boronia?*), *Westringia* with filamentous leaves, a shrub with hard yellow berries. *Bursaria* is a very widespread plant — a *Dampiera*. {Stinkweed. An *Opercularia* with linear leaves.}

From this mountain you have a beautiful view over the plains.

{We had three days of fine rain from the south-west. Yesterday (28 March) the clouds came back from the south-east and we had a little rain again. Mr M[awson] said that this was usually the case.}

After a very warm day cumulus clouds formed on the whole horizon and why? Hot air streams ascend under the almost vertical sun and as they fall (swirl) down in height to all sides, the haze condenses and appears as clouds always in the area of the hottest centre. If a wind now comes from the weather side, the clouds that are becoming heavier and heavier go to the centre and these fall as rain, if the hot surface of the earth does not disperse them again by its radiation. This was the case yesterday evening. The wind brought the clouds over from the east and south-east. It rained in the distance, a light fine rain fell here, which soon stopped again, as the clouds rose and remained for a long time in the sky, always increasing in the sharpness of their outlines.

{Yesterday we had the same spectacle, only even more striking. In the afternoon heavy clouds drifted up from all sides to the zenith. It rained very locally in three, four, or five different, very distant places. However, gradually the wind from the east became stronger and led some rain clouds away over us towards evening. It is very natural that the wind from the east predominates, as the colder air streams to the centre of the hottest sun, this moves to the west, therefore for us the air must follow it from the east.}

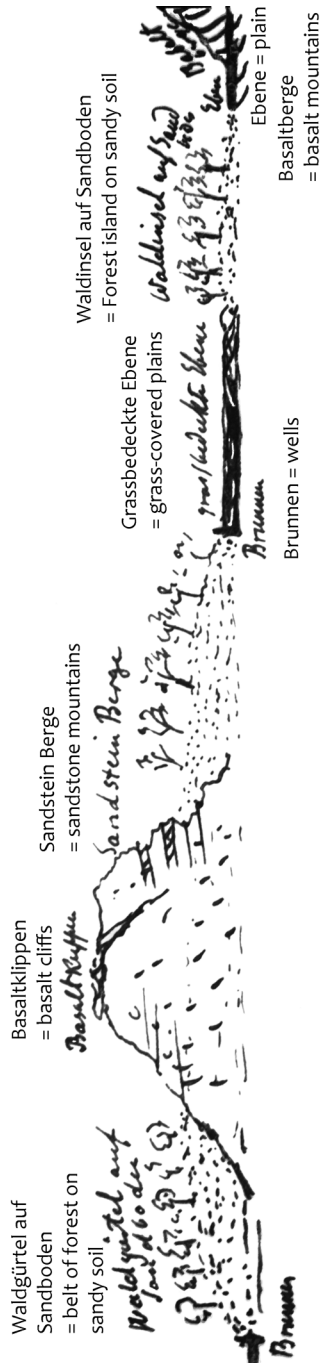
Around Mr Mawson's dwelling swarm a large number of *Milvus*, drawn by the

throwing out of the slaughtered sheep. Ravens are very abundant too. {*Milv[us]*. Forked tail, third wing feather the longest. Yesterday and today 3rd and 4th April heavy easterly storm!}

As we rode over from Windham's station, my horse almost trod on a jew lizard (*Chlamydophorus*), which being the grey of the ground knew how to avoid notice by its immobility.

{*Milvus* 4' wingspan, 1½' body length, 3rd wing feather the longest, forked tail, beak without tooth, yellow cerigerous feet below and with feathers over the knee, scaled, black talons. Head light tan colour, each feather with black blazes from the middle, green ends. Shoulder and back dark greyish tan colour, pinions black, tail grey-black. Belly side light tan colour and feathers in the middle black. Throat white.}

Mr Mawson brought me a piece of clayey sandstone (or sandy clay shale with mica flakes and black patches of fragmentary vegetable matter). It came from one of the wells. This corresponded very well with the coal on the Peel.



Ideal section of the plains (Liverpool Plains), Blaxlands Mountain and Mawson's paddock.



1 April

Mr Mawson said to me that he found a piece of coal in a stream that comes down from the Liverpool Range, about 30 miles from here. Furthermore this is found on the Gwydir, on the Namoi and in New England (Garamon Creek).

Plants of the myal brush.

1. A shrub about 4' in height with long lanceolate-linear leaves. Leaves alternating, short-stalked, smooth-edged, running down along the leafstalk. Middle rib distinct, secondary veins feather-like, small tertiary veins passing on the stalk side, no marginal vein, no stipules, 3-4" long, 3''' wide.
  2. A shrub with alternating leaves. These are linear-lanceolate, sessile, smooth-edged, pointed (some mucronate), middle vein indistinct, secondary veins invisible. In the dried leaves protuberances of glands — transparent gland spots, flowers axillary, stalked, single veins in pairs. {One lanceolate-linear and linear often 3''' long, 2''' wide.}
- No. 1 and 2 seem very similar, but the consistency of the leaves, which are more thick-skinned in no. 2 and the transparent spots distinguish them sufficiently.
3. A shrub about 3-4-5' tall, the leaves alternating, long leafstalk 1", simply pinnate, pinnae linear, pointed. In the dry state the margins rolled up towards the upper leaf surface. Two pairs of leaflets, a large gland between the first pair. Stipules small, linear (1''' long), flowers yellow. The flower, which I did not investigate, reminded me of *Cassia*.
  4. The myal. A tree 25-30' tall, ½' in diameter. Branches drooping, flexible (like the weeping willow), youngest branches yellow, phyllodes alternating

lanceolate-linear, somewhat sickle-shaped 2-3" long, 2½''' wide, the nerves less visible, about six, one in the middle somewhat stronger. One gland. The phyllodes have a kind of stalk, a somewhat roundish lower part, about 1½''' long. Flowers in September.

5. *Loranthus* on the myal. Drooping bunches[?]. Leaves alternating, stalked, lanceolate, blunt, smooth-edged, a visible middle rib, one very indistinct vein on each side, colour pale green, about 1¾-2" long, 3-4''' wide. Inflorescence axillary, one petiole has two secondary flower stalks, each of these has three flowers, of which the lateral is stalked, the middle one sessile. Each of the flowers [has] a bract-like projection. At present not in flower. Fruit an ovate berry truncated at the apex with persistent stalk. Embryo turned over {(most clearly seen!)}. Cotyledons very small (but two distinct) in a glutinous sticky mass. 
6. A shrub 6-12' tall. Its green bushes attract attention in the myal forest. Leaves alternating, stalked (4''') lanceolate-oval (greatest breadth 6-7''' towards the apex) length 1½", smooth-edged, blunt, the larger number of the leaves distinctly mucronate. The latter are the leaves of the young branches. The underside is generally pale. In old branches the leaves are only 9-10''' long and relatively broad, blunter and without mucro. Secondary nerves are less distinct. Wood is very brittle. Flowers stalked (1"-10'''), an outer green capsule split (two sepals). {Flower stalk thicker towards the top racemose (horizontally compressed) 

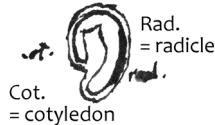
{*Capparis mitchellii*}

Inside these two less green-coloured sepals are alternating with these four broad sessile yellow petals (aestivation imbricata convoluta). Young petiole is woolly externally and towards the base. Very many filaments, very long, and peculiarly folded.



Anthers terminal, upright, two lobes, open in a longitudinal cleft. The ovary long stalked, the gynostyle almost 2½" long, sitting more to one side, while on the other side between the filaments, which are more numerous here, a kind of saddle protrudes on the inner sepal. {This saddle in respect to the shrub is towards the apex.} Stigma sessile, perhaps with four weak tubercles, ovary single-chambered (unilocular), lateral placenta, but I cannot say exactly whether two or four. Fruit roundish and ovoid, like a walnut, containing the seeds in a yellow, fleshy sweetish tasting pulp. Seeds brown, almost kidney-shaped, outer husk brittle, no albumen. Embryo bent, radicle very long.

Cotyledon short, a little undulating, plumule almost invisible.



7. A parasitic jointed plant on no. 6 and on the myal. Resembles very much a *Corallina*. The fully grown joints are about ½' long and 2-2½''' wide, they are broad and truncated towards the apex, a large number of branches develop from the apex out of the lateral axes. I notice round bodies, but I do not know whether they are buds or fruit. It is a strange plant and because I do not have the flowers and fruit, I don't know to which family it belongs.

{*Kochia brevifolia?*}

8. A plant, about 1-2' tall, very twiggy, shrub-like with small fleshy claw-shaped leaflets about 4''' long. Leaflets alternating. Flowers axile, perianth simple, five leaved, capsule single-chambered, single-seeded, embryo curved. As the seeds ripen, the leaflets of the perianth develop into membranous projections of whitish colour, which have the appearance of a flower. The plant probably belongs to the Chenopodiaceae.

{*Rhagodia hastata*}

9. A shrubby very twiggy plant. Leaves alternate, stalked, triangular, base running down against the leafstalk a little (or *folia hastata*) (base like the height about ½"), corners blunt. Flowers in terminal clusters, five leaflets of the perianth. Stigmas two (?) male and female flowers, the former around the latter, that is several male to one female. The perianth leaves become fleshy and surround the ovary. The small berries yellow at first, then attractive red. Berry single-seeded, embryo curved (chenopodiacean).

{*Salsola*}

10. A plant with long linear alternating leaves, sessile, widening towards the base, grooved (or vaginating). Flowers axile, between two leaf-like bracts, a male and female. Perianth leaflets of the female flower membranous, transparent. Filaments without anthers, two stigmas. I am not certain whether the sexes are separate. Five perianth membranous. Filaments seem to be opposite the perianth leaflets. Style with two thread-like stigmas. Also a Chenopodiaceae.

{*Rhagodia*}

- 11. A shrubby plant, which has all the characters of 9 with the exception of the leaves, which are not triangular or hastate, but linear. The berries red, the seeds black, kidney shaped. (On the *Sterculia* of the myal forest I found a whitish-yellow, transparent, tasteless gum, which hung on the dried fruits).

{*Enchylaena*}

- 12. A low woody plant with few twigs, alternating fleshy linear leaves. These and the fresh twigs are woolly. Fruits axile, stigmas two, threadlike (one style), also here surrounding five fleshy perianth leaves of the seed capsule. Embryo black like horse's hoof[?].

{Butterflies}

I saw here only a small yellow and a blue butterfly very abundant in damp places, thorax blackish, abdomen and wings bright sulphur yellow. The forewings have broad black patches on the outer corner. Inner wings have grey cloudy patches on the under side.

Plants of the plains

The gold oats. Glume single-flowered, represented by a wreath of hairs, valves equal, three filaments, two stigmas, one strong three times as long. The bristle originates at the base of the ovary. Perhaps this is the rudiment of the outer valve, the inner would then be absent, and the outer thick-leaved were the glumes surrounded by yellow hairs. Spikelets stalked, two spikelets arise from a place of the rachis, this has three axillary rays and the rays are articulated. Golden yellow hairs are also on the articulations.

{*Ruellia*}

A new plant. Perennial, opposite sessile leaves, lanceolate-oblong, smooth-edged and with two coarse teeth on the middle of the leaf margin. Stem quadrangular. Flowers

singly-stalked. Calyx deep, five-toothed corolla short-tubed, edge expanded with five deeply concave almost equal lobes. Both those against the stem stand further from one another and the style lies between them. Four equal filaments. Style simple with two stigmas. As far as I can see the style rises from the apex of the ovary. The plant has almost no smell at all. It belongs perhaps to the Verbenaceae.

*Marsilea*. In the dry stream bed, the foliage four-leaved like the *Oxalis*. Each leaf resembling a sector of a circle, edge smooth, densely covered with contiguous hairs on old plants on the underside, in the young on both sides.

{*Rhagodia*}

The prostrate *Chenopodium*. The slender stems lie widely spread on the ground, leaves alternating, spatulate or lanceolate-oblong, irregularly dentate, or smooth-edged, covered on the underside with white oblique teeth. Flowers male and female axial are together in fascicles. Male five perianth leaflets, five filaments, no trace of pistil, female with two sharp-pointed scales, which gradually merge together, becoming fleshy and enclosing the seeds, in which the curved embryo lies without albumen.


Composites. The narrow-leaved braided[?] gold flower head, very twiggy, 1' tall, leaves linear, sessile, they and the whole plant covered with white wool. Involucrum cylindrical, apex of the bracts brownish bent down. All florets hollow, receptacle without bracts. Pappus simple, weakly pinnate. Stigmas on the end of the forks

The cluster everlasting, perennial, upright, twiggy. Leaves sessile, spatulate, linear, very pointed. Flower heads terminal in longer or shorter racemes. Involucrum cylindrical, bracts externally green, interiorly yellow, with the apex separate, tegular receptacle, smooth pappus pinnate, simple with eight bristles, florets all hermaphroditic(?).

The broad-leaved braided[?] gold flower head differs from the narrow-leaved only by having its lanceolate-linear leaves four times as broad. It is not so twiggy and has larger and fewer flower heads.


The silver everlasting, perennial, twiggy. Leaves sessile, lanceolate-linear, underside and stem of white wool shining like silver. Many small flower heads enclosed by a leaflike involucre. Involucre cylindrical or conical. Receptacle smooth. Pappus not plumose. Florets hermaphroditic(?).

The mulberry everlasting. Flower heads in the form of mulberries compressed, leaves linear 1" long, ½"-2" wide, not yet in flower, whole plant and leaves prickly.


The golden ball. Leaves sessile, linear-lanceolate, smooth-edged, blunt, covered with woolly hair like the whole plant. Flower heads compressed into a pretty bright yellow ball (a beautiful plant). Involucre formed of few transparent scarious leaves, receptacle naked, pappus pinnate, each pinna with an end gland, flower tube widened into a bell-shape. Stigmas on the truncated fork ends. 

These six plants belong to the family of the everlastings and are all covered with long wool hairs, which give them a whitish silvery appearance. The following composite is peculiar in its kind:

The plantain-leaved ground flower. Leaves elliptical, 1¼" long, running down an approximately 1" long leafstalk, smooth-edged, underside silver white, upper side green but covered with woolly hair.

Flowerstalk scarcely 9" long, usually the flower is so concealed that you must raise the plant from the ground to see the flowers. Involucre leaf-like, receptacle scarious. Pappus absent. Stigma covering the whole fork end. 

The lanceolate *Scorzonera*. Leaves sessile, lanceolate, indistinctly toothed running

down a middle rib protruding on the under side, tomentose. Flowerstalk short, one or two flowers (a small plant). Involucre cylindrical, convex[?] behind the flower, some bracts on the bulbous base. The involucre bracts almost coalesce. Receptacle bare, pappus seems doubled, thick, silky, hairs appear knotty, not plumose, stigma of the tubular florets at the end of the long fork ends. 

## 2 April

A strange grass, which I will call testicle oats/two man oats. The two male florets stand over the female flowers at each side of the bristles so that if you turn them over, they almost resemble two testicles.

{Hermaphrodite or female flowers. A crown of hairs. The glume similarly membranous, the inner valves membranous, the outer only present in the bristles. Two styles and pinnate stigmas. The inner valve is also found in the male flowers.} The glumes are only indicated with weak, short hair-tufts. The valves are equally membranous. A folded bristle four times longer than the floret rises from the base inside. (The question arises again here, whether they are not the rudiments of true valves and what I call valves are glumes, but two stalked male florets arise from the same hair, of which the styles are almost as long as the hermaphroditic flowers. Three filaments and two pistils are in the latter. Inflorescence is a moderately expanded panicle of faint purple colour. The nodes with a crown of hairs, the ligule long bushy fine hairs, leaves broad, plant pale green. It has a strong smell like the small green ant.

Silvertail, single-flowered. Spikelets surrounded by long silver hairs. Two glumes equal, valves finely membranous, transparent (the inner very small), two filaments, two pistils.

### 3 April

I found the following plants in the neighbourhood of Mawson's last sheep station:

1. *Labiata teuchroides*, perhaps different from the previous.
2. A small *Iberis*-like cruciferan.
3. The rough saw clover.
4. A long-lobed, white-flowered labiate (probably different from that mentioned under 1 April).
5. A fleshy-leaved plantain.
6. An *Acacia* (*racemo capitata*) with stiff whitish phyllodes in bushes on basalt soil.
7. A round-leaved *Sida* with tuberculate seed vessels.
8. An *Oxalis* (perhaps not different).
9. *Commelina*.
10. *Pimelea* in shrub form (of the class of the recurviflorae)
11. The dentate-leaved cluster pod.
12. *Ruellia* tastes like clover and gives the sheep rich milk. The shepherds around Gammon know this very well. Dr Macartney.

### 4 April

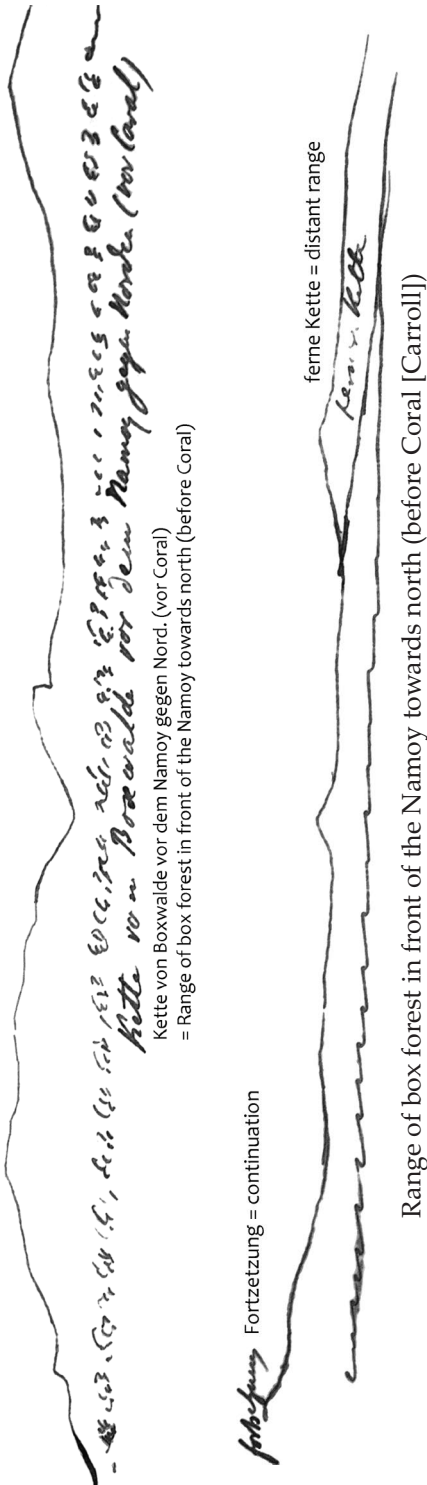
On Sunday I rode with Mr Mawson to the various sheep stations on which he has had wells dug. He found salt water on the next station and had therefore to dig another well about 50 Ells further in which he got freshwater. On another station he is now up to 30' without water. Here he worked through a red clay that contained small almost decomposed pebbles and lime and which is glossy grey-white on the surfaces of separation (which look almost like slides).

On the last station he had to bore through the sandstone, under which he came on a clayey stratified sand with fragmentary indistinct leaf impressions. Besides sand and clay this also contained white mica flakes. Water issues but slightly from this rock, however, it is salty. {It seems to me that the myal brush always indicates salty water.} It seems to me that at a certain depth under this rock coal and perhaps fresh water would be found. A cover of basalt extends over the sandstone, which runs around a deep basin of the plain like a high bank, whereas two miles further a high basaltic mountain rises. Under this mountain Mr Mawson came on solid basalt at 30' depth, which prevented digging deeper.

In the myal scrub I found a strange *Scincus* (sleeping lizard), which made itself conspicuous by large scales and conical tail. On the plain we saw two native turkeys, in their external form and appearance very similar to the *Otis* bustard. Hundreds of plovers flew and whistled everywhere around us. Also a kangaroo was seen. On the last station several interesting plants were found that I have already mentioned yesterday.

Yesterday I found a new labiate with red flowers again. The distribution in relationships is interesting. The transplantation over the plains. Messrs Mawson and Macartney showed me the plant so poisonous for the sheep. It is the woolly golden ball, which hardly differs from that found here. Also a pretty *Portulaca* was brought to me.

{\*Rusden's station at the head of the Gwydir, 11 April.\*}



On 4 April I left the hospitable house of Mr Mawson, who seemed to me to be the best type of New Holland practical sheep breeder, and pursued my way through the Liverpool Plains to the Gwydir. On my ride to the Mokkei, I had opportunity again to observe the peculiar distribution of the plants in their groups. Here I also found the succulent plant with four yellow petals and with four angular fruit capsules. {This plant with unijugate leaves grows between the round bushes of the prickly-leaved chenopods.}

Even before I came to the end of the Blaxland forest island, I saw a cruciferan in large bushes covering wide tracts of the plain. A strange Polygonaceae with almost fascicular stems grew here in separated shrubs; the ochrea is very distinct, five perianth leaves (three outer and two inner), eight filaments, very small deciduous anthers, two to three stigmas, triangular achene (a twisted stalked ovulum). A *Chenopodium* with little clusters of flowers in racemes. Many male flowers surround a hermaphroditic flower.

As I rode over the plain, cone-shaped isolated mountains and hills emerged out of it everywhere on the western horizon, which made it easy to find the way. Thus towards the south Mori devil appeared, whereas *Briza* is present towards the north and in the blue distance a third mountain mass of the same shape appeared.



A pleasant scent, which I had already noticed days before in the myal woodland, is spread over the plain. It seems caused by the fresh grass put forth after rain, and by the large numbers of composites, which form the flora of the plains everywhere. Here the golden *Tribulus* spreads its vine-like stem lying on the earth, there grows the yellow and the broad-leaved shooting *Anthemis* and the gold ball. The brown gold oats and the woolly oats form grassy patches in some places, under the trees *Campanula* colours the ground blue

and the fine-leaved *Anthemis* cheerfully mingles its white flowering bushes as well. The *Eucalyptus*, which grows on the sandy soil, sheds bark in strips. A pale shrub with opposite leaves grows on Blaxland's run.

The Mokkei flows in a deep bed excavated in alluvium, when abundant showers of rain make it flow. {Its water holes, like those of the Namoi, are covered by thousands of wild ducks. (Widgeon?) They frequently put down on the high banks.} Presently it is a chain of water holes, along which a large number of skeletons give the traveller terrible news of the drought of the past three years. Here, as well as on the Namoi, hundreds and thousands of cattle and sheep died from lack of water and pasture. The poor creatures drew back to find their meagre food from the completely grassless plain to the mountains, on which at least some withered grass was to be found. However, on the mountains there was no water, the animals stayed as long as they could, often three or four days without drinking. Then they had to make a long march of five to six miles to the nearest water. They arrived exhausted, the wild longing drove them into the deep mud, their strength failed to free them from the mud, they sank down and died and polluted air and water with their decaying corpses. Often, so Mr Howe told me, the poor animals lay down in the water, ants crawled on them and they began to consume the living bodies. They were not in a position to free themselves of them by rolling and wallowing and died an agonizing death.

In the late evening I came to the cattle station of Mr Andrew Lang. The superintendent was not there and the stockmen gave me a very cold reception. They had two Black women, with whom they made not very edifying, smutty sport in the evening. The custom of the stockmen and shepherds of keeping Black women is becoming more and more general towards the boundaries

of the Colony. Frequently you see yellow children, often of very good and noble form. The moral condition of the population of the far bush is very unsatisfactory. Where shepherds and cowherds marry, and usually they take immigrant girls, you see with sorrow that the young unmarried gentlemen apply themselves very earnestly in seducing these women.

Virtuous women and girls, Mr Mawson said to me, become whores really soon here. Public opinion is lacking to restrain them within the bounds of decency and surrounded by a host of unmarried men of a higher class, they are incapable of withstanding the temptation of the persistent opportunity offered. You see therefore with great regret that only a few of these men are married and that the women of these few very generally lead an immoral mode of life. This would be very different, if all shepherds and the young gentlemen themselves married. Public opinion would gain ground and power, but it is extremely difficult for Government men to find women. {Mr Rusden said to me that in general they prefer Government women, although at the same time they well know how difficult it is to find a good wife among them.}

~~They rightly do not want any imported Government woman, because for the most part they were acknowledged whores before they left England and because the average moral character of the convict women stands far below that of the convict men.~~

The free immigrant women on the other hand do not want to marry convicts and so the latter are obliged to a certain extent to satisfy their animal passions with Black women. This often has most unhappy consequences. The Blacks, who perhaps initially were in friendly association with the white settlers, saw themselves deprived of their women and sought to take revenge on the Whites. Now by not distinguishing between the offender and the innocent Whites, they kill

the first person, who falls into their hands, or spear and scatter cattle and sheep herds. Now on their part the Whites try to take revenge, shooting the Blacks and getting up to every misdemeanour. The watching eye of the law and police fails to keep this abuse in check. The Government protects the Blacks against the Whites, however, permits them constant contact and thus becomes on its part the cause of continual bloody friction.

{The boulders on the station indicate quartz porphyry, also further on to the myal brush. The mountain Briza is basaltic.}

On 5 April I continued my way to Coral under constant rain, which made the ground soft. A short distance from the last station, I came into a myal bush, in which a small tree with rough bark drew my attention. I found now only a green flower husk with a bicameral, many-seeded capsule. Later on I found that the white tubular flowers had fallen off and that this tree probably belonged to the Scrophulariaceae. The leaves had a strong aromatic smell.

The valley of the Mokkei is enclosed by a northerly and a southerly range of hills. The southerly are either isolated flattened masses or elongated, little incised ranges. The northern range on the other hand is very jagged and wild according to its appearance. The vegetation on both banks of the Mokkei is very strange. Round three to four foot high bushes of a *Chenopodium* with stiff leaves sharpened into spines grow on the black humic soil over a boundless area. In addition you see the prostrate *Chenopodium* with fleshy valves around the fruit, and the fleshy-leaved *Chenopodium*, the five perianth leaflets changed into red fleshy collars surrounding the seeds. However, no grass as far as the eye reaches. The bank itself is not as usual covered with *Casuarina* but with white gums. On the north bank you gradually come to a myal forest, in which several grasses occur, particularly two (a star grass different from

the well known), a *Panicum* and probably an *Agrostis* with very expanded panicle. At one place the chenopod vegetation dwindled away completely and you saw only the foot high or prostrate *Hibiscus*; on another depression only the wire round *Polygonum*. I found a very pretty broad-leaved *Sida* and a *Cassia* with very long pods in the bed of the river. In addition a lanceolate-leaved amaranthacean, the prostrate *Amaranthus* and *Portulaca*, both very pleasant to eat, particularly the latter with pleasant tart taste. (Dr Macartney informed of this first). As the sandy soil appears towards the Namoi, all the grasses, some *Gnaphalium* and the box appear, but this box, which has no gum vessels under the bark, seems different from the true one in the flower. I found a *Tribulus* here with the habit of the previous, but with very small flowers (*Tribulus minutus*).

Towards evening the rain stopped somewhat, but it was striking, not only here but also in the course of my journey, that the evening and the nights remained without rain or had only light showers, whereas in the morning, as soon as the sun rose somewhat higher a fine lasting rain fell. Was it the change of higher air streams, because the lower easterly and south-easterly remain the same and indeed they were usually very light, or was it the evaporation caused by the sun on the upper side of the cloud masses, which resulted in a cooling and rain formation from the underside? About the time of the first quarter Tuesday[?] the sky cleared after that, the clouds became heavier and more frequent and the sun gradually won the upper hand. Often I had the opportunity to note how a mantle of rain and fog lay not only around the mountains and on the mountains, but still covered the neighbouring landscape five miles and more to the side of the whole range of the mountains.

In the box forest before Coral, where I let my horse refresh itself in the richest grass, I found

an interesting bulbous plant, which enclosed three to four embryos in one seed. The pale green star grass was very well suited to turf formation. It is perennial on rich sandy soil in the Box forest.

{In Coral I found a small flowering, blue *Geranium* extremely abundant. Couch grass is beginning to spread.}

On 6 April I left Coral, where Mr Howe received me very hospitably and rode under constant fine rain to the next sheep station.

{Mr Howe, who had just come back from the Macintire confirmed that those stockmen, who treated the Blacks too peaceably, later had the most to suffer from them.}

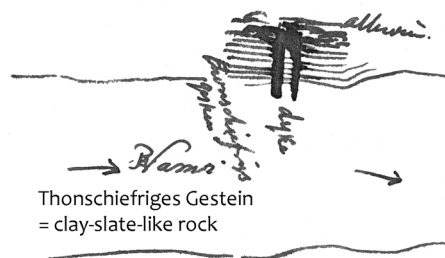
I was told in Coral that the barley-grass was very well suited for turf formation and that it grew especially on the mountain ridges. I asked the shepherds; they knew it well, but they could not show it to me on account of the rainy weather and the distance. I think it is the same grass that I call woolly oats.

{One of the shepherds was sick. He had broken his foot and small fistulose openings with puffy edges would not close. Probably splinters are still in the foot. He helped himself by alkali baths, which doubtless was the best that he can do. In addition the poor man had gonorrhoea, because he had slept with a Black. He had mixed a decoction of *Campanula*, *Plantago* and *Rumex*, which caused severe purging and colic. Penny royal is a good laxative.}

Before you come to the station, you ride over low rises of basaltic rock covered with yellow soil. Before you cross over the Peel, you find a pudding with porphyry boulders outcropping in great thickness. The box forest through which you ride from Mr Howe's station to Keep It (William Bell) is generally covered with boulders, probably derived from the pudding. This pudding is obviously cut through at many places by

basalt rocks. About three miles from Howe's station there is a fine sand and a decomposed wacke-like rock or conglomerate(?). Here the woolly glume is not woolly or only little so. I found a more radiating gold oats.

Further on the pebbles are of a feldspathic nature (granitic) and I also found some basalt ones. Between Keep It and the Namoi a conchoidally fretting clayey slate-like rock of dark grey colour appears for the first time. It outcrops everywhere in the bed of the Namoi, contains, as far as I saw, no fossils and shows horizontal stratification. In the bed of the Namoi, about three miles before the ford, this rock is cut through by a broad dyke of volcanic rock. This dyke bifurcates and encloses in its fork the same rock, only very indurated. I thought to have detected traces of a metal scattered in the rock. The direction of the dyke is from west north-west to east south-east. It contains many mica flakes and the sides exposed to the air show quartz with mica, but the interior part reveals a volcanic nature. The dyke seems to dip somewhat to the south. Thick alluvium covers the rock and forms the banks. It is a rich, yellow loam. In the bed there are many quartz boulders, some resembling jasper, pretty red with white venation.



Shortly before the ford, you cross a peculiar woodland. The trees are not too high, between 30 and 40'; the trunks about 5/4-6/4' thick, the bark dark with deep longitudinal fissures like the ironbark. {*Eucalyptus pulverulentus*.} The leaves are opposite, obtuse ovate (almost like

*Angophora cordifolia*), pale green, as if covered with mildew. This colour gives the forest the characteristic appearance. It is formed exclusively of this species of *Eucalyptus*, whereas shortly before *Angophora lanceolata*, the box and white gum grew together. On the other side of the Namoi there is the same species alternating with other species, as well on the trachyte mountain near Huskisson's [Hoskinson] dwelling. The people called it white-leaved ironbark. The box at least towards Borah is bastard box.

At the Namoi I met Mr Davidson, who said to me that his wool wagon would come to the Namoi this evening and that I could stay the night with it, because Borah itself was 14 miles distant and would be hard to find. Therefore when I came to the other side of the Namoi, I stopped and awaited the arrival of the wagon. This came accompanied by a flock of sheep. Such a dray makes a particular impression on the lonely traveller. The heavy two-wheeled wagon is loaded high with wool packs pulled by 16 wide-horned, heavy bullocks (eight pairs yoked behind one another). They were driven under oaths and raging by a bullock driver. \*Damned bloody bugar\* is a very usual endearment of these rough men. An overseer, a shepherd and a Black, who well understood stripping the bark from the box with his small axe (the tomahawk) to prepare a roof protecting against the nightly rain and dew, were the remaining companions. The observant inhabitants of the bush, whether they be servants or whether they keep servants, are always pleasant companions. They have many stories, because their travels lead them through wide tracts of country. They have usually lived a life full of changes and have therefore a rich store of observations, adventures and anecdotes. After much speaking about this and that, I stretched out next to the fire and slept a large part of the night through quite peacefully. The sheep

were penned up next to me. Once I had to get up and as I did that, wrapped in a white woollen blanket, the sheep were frightened and violently rushed through their hurdles. I woke the savage, who slept next to me completely wrapped in a blanket, and with great trouble he detained the timorous woolly beasts to the hurdle.

On 7 April I rode to Borah, which, however, I did not find, and following a second road came to the dwelling of a Mr Huskisson. Before I passed Borah, I examined the grasses of the box forest. *Stipa* was in small bushes, a seven-fingered star grass, the small smooth *Milium* (or *Panicum*), the woolly oats, the gold oats, the squarrose *Panicum*, *Danthonia*, and *Anthistiria*. The rough fine-leaved *Poa* in dense bushes, perennial. *Aristida* with rough geniculate stems (thread-like), a *Bromus*. *Portulaca* is also here. It really seems to be an indigenous plant. The rock is a porphyry pudding.

The slaty rock of the Namoi appears in nearly all ravines. On it lies a coarse loose sandstone, which probably changes upward into pudding. In the bed of the creek is coarse sandstone (in Mr Huskisson's creek) and a hard rock with splintery fracture, like (hornstone?) The boulders are all encrusted with carbonate of lime. In addition there are boulders of carbonate of lime (concretionary). The fissured rock, hornstone, which seems to me the same rock only indurated, with white veins of carbonate of lime. {In Huskisson's Creek I found the impression of a branch, which seems to me to be a species of *Lycopodium*.}

On the northern bank, volcanic rock outcrops (trachyte, blue matrix with feldspar crystals). The mountain range stretches from south to north. The creek winds around it toward the south. Several springs are at the level of the stream.

{On the mountain a rough-leaved legume (from Cassilis), the *Goodenia* that puts out shoots, a thistle-like composite, broad-leaved ironbark}

From the peak you enjoy a very beautiful view, towards the south and east hilly country, without distinct mountain ranges, between which the Manilla River passes. Towards the west a wide plain through which two strips of forest stretch down from the distant mountains. Groups of trees were here and there on the verdant pasture. A mob of horses of about 200 head and cattle were grazing everywhere. The smoking bush huts on the southern foot; in front of them a magnificent field of maize.

While nature delights the eye with its green garments in picturesque changes of pasture, forest and near and far hills, the unfriendly reception in the bush hut of a Mr Huskisson was more than a little humiliating for the traveller. A young well-made man with sharp eye, about 21 or 22 years old permitted me to stay the night with his people. Because I did not know the area, no choice remained. I was not in the slightest ashamed of living with the servants, as I had daily proof of great good will and hospitality from similar men, but it was the feeling of disdainful treatment on the part of the young inexperienced man, which hurt me. Although I could only overcome this feeling with difficulty, I felt obliged to the people, who kindly gave me food. They knew how to inquire and to narrate and so the time passed quickly. The small hut was full. We slept on the ground; I with the hut keeper under a woollen blanket. The poor man was prepared to share this with me, whereas next day I had to beg his master for food and drink when I came back tired from an unsuccessful march. The puzzle was later solved for me. This young man is the son of wealthy parents, probably emancipists, and they have completely neglected giving him a basic education. He can neither write nor

read and had such an imperfect idea of the geography of the region and the country that he said to me the Baron and Namoy flow towards Moreton Bay. It is now very probable that he must feel very awkward in my company, as I constantly had to question him. This taciturnity and apparent reserve that I noticed in him was no less visible in one of his people, a strong young man. He had the same bashfulness and the same lack of topics of conversation. I said to myself: these young men must be native Australians and so they were. What a difference between them and even the most uneducated hut keeper! How much rougher he was in opinions, in general knowledge! We have here to compare the most insignificant product of an old country and the better one of a young colony.

{Between the 4th and 8th April the comet became invisible. It disappeared in the distance towards both southern stars of first magnitude in Orion. This comet had also made a great impression on the Aborigines and they asked me what the big fellow signified.}

On 8 April, after I had looked in vain for my mare for a long time and one of the people finally was so fortunate to find it, I left this inhospitable dwelling to find my way over to the Gwydir and firstly to Ogilvie's station. I lost the way, rode over mountains and finally on night falling came to the peak of a range where the darkness compelled me to stop. My sulphur matches had become damp and it was impossible for me to make a fire. I had to spend the cool night under threatening rain on an exposed mountain range.

I chose the lee side of a 3' thick *Sterculia* tree, whose dense leafy roof promised to protect me from the rain, as camp for the night, while in turn I tied my mare to the neighbouring box tree, which was surrounded by rich grass. The night was cold, my bitch lay cowering and shivering at my feet, a shrill, staccato cricket call, that I heard here for the

first time and the distant howling of the cattle grazing about on the mountain range broke the silence. Later on a short shower of rain woke me. However, even here I did not hear the mournful howling of the wild dog, of which they told me so much and which I had heard only once in Glendon. Next morning I let my horse have the rein and it brought me back to Huskisson on an easy detour. From here I followed the road to Collets, who keep a kind of eating-house here and a Black, King Stephie, showed me the way over to Ogilvie's, where the hut keeper most kindly fed me in the absence of the master.

In the Manilla Creek that runs through Huskisson's run, as well as in the Manilla River at Ogilvie's, the cleaved, clayey, slaty rock outcrops everywhere in regular almost horizontal stratification. In Manilla Creek it is very frequently cut through by veins of carbonate of lime. Over it is sandstone and pudding. In the south of Ogilvie's station, volcanic feldspathic rock has cut through every formation. Trachytic (porphyry) boulders are abundant in the creek. I was told that the clayey slate rock produces beautiful fine whet stones where it is hardened under the influence of volcanic rock. I have found large slabs myself that had a fine grain, however, they seem to me too hard. They give a fine sound, when lifted up and hit with the hammer. From the outside they also resemble the platy phonolite, from which, however, they are different in any case, because the transition into the cleaved clay slate is seen very clearly. I call it clay slate, but the latter has a rhomboidal cleavage, the rock of which I speak has an irregular conchoidal fracture.

I found a *Caladenia* in flower in the grass that grows under box trees on the trachyte soil. On the always damp watercourse is *Cynoglossum*. Along the Manilla River a new *Acacia* with short, somewhat fluted, lanceolate phyllodes with axillary flower

heads (almost like *Acacia pendula* in the botanical garden) and *Correa viridiflora* grew on the slaty rock. {*Acacia undulifolia*}

On 10 April I finally rode over from Ogilvie's to Rusden's station, where Mr Hentig, whom I had the pleasure of meeting at Glendon, received me very kindly.

{Stringy bark and box were abundant as well.} On my way there, which led me up my steep mountain and along its ridge, I found a new species of *Eucalyptus*, which resembles that on the Namoy according to the general appearance, but differs from it in the form of the leaves, the buds and flowers. The leaves are long lanceolate, long-stalked, pale green with branching venation. {(In some *Eucalyptus* the secondary veins run parallel without branching, e.g. in the spotted gum, in *Angophora* — in others strong anastomosis occurs, the secondary veins usually lie not so close to one another. This is the case in the majority).} The perfect leaves that I have before me are almost all mucronate. The calyx opercula are as long or little shorter than the calyx and pointed (elongated). On the dry calyx you see four to five weak ribs. The bark is deeply fissured like the white ironbark and the ironbark. Leaves, buds and twigs are all pale green. The smell of the dry twigs and leaves resembles dry lemon peel. A *Eucalyptus* grows around the dwelling of Mr Hentig, which almost resembles the *Angophora* tree in its bark. They call it peppermint gum. The bark, whitish grey with shallow, short, longitudinal ridges, peels off in short loose pieces. The wood is soft and useless. The leaves are alternate, lanceolate, mucronate, sessile and long-stalked. Veins form a dense network, the solitary umbels axillary, the calyx operculum pointed, shorter than the calyx, some with laterally curved point. The youngest twigs are round, young twigs deep green. Bast tolerably tough, but the bark of the old trunks does not peel and the wood



does not split. On it lives the *Coccus* with white wax cone, like that on the white gum of Mr Mawson.

Mr Hentig showed me his garden, his field and pasture ground. Along the water, which remains the whole year through, is a rich black humus soil, like that on the Mokki, further on the soil becomes more clayey and sometimes strips of almost pure clay run through the field. Decomposed grasses, however, have made this stiff soil milder. Maize does well, as well as vegetables. The potatoes are watery, but the cabbage is not full in the humus soil, but soft and tasty. Water melons in great abundance! Good wheat harvest in dry years. The soil is very shallow, rock directly under it, this seems basaltic in nature, but the feldspar crystals become abundant and large, it seems therefore to change into the phonolite, but iron-rich. Where the downpours washed the soil a little, you see shining spots of iron (augite) everywhere.

On the pasture ground in a circumference of 1600 feet we counted 16 grasses, two *Juncus*, 1 *Fimbristylis*, 1 *Carex*, and 1 *Cyperus*[?]. The grasses are as follows: 1. The woolly oats (with two rays). 2. The *Poa* from Coleroy with reflected spikelets (7-8-17 flowered), 3. The fine-leaved oats {*Festuca reflexa* under 31 March.}

4. Fine-leaved *Agrostis* 5. The Foxtail (also in Coleroy with no. 2) 6. The paniculate gold oats ~~the large twoman grass~~ 7. The green foxtail *Agrostis* 8. *Anthistiria* 9. The brown-haired foxtail *Agrostis* 10. The broad squarrose *Agrostis* 11. The fragrant two man grass 12. The winter *Poa* 13. The reed 14. *Juncus cf. fusus* 15. *Carex* 16. *Scirpus* 17. *Fimbristylis* 18. *Cyperus*.

{The bristles of *Anthistiria* arise inside the inner valve of the fertile floret.}

In addition the yellow-flowered Scrophularaceae. The prickly bush of the Liverpool Plains, *Hakea* with awl-shaped mucronate leaves, single-seeded fruits, and *Leptospermum*.

Both the gentlemen were not a little surprised to see so many different grasses together in such a restricted space, their unpractised eye regarding all as one plant.

The paniculate gold oats: Glume single-flowered, equal outer glume covered with adjacent hairs, stiff, inner glume horny, perianth (valve) unequal, outer valve membranous, inner valve represented by a strongly twisted bristle. Inflorescence a panicle, a hermaphroditic, sessile spikelet and an empty stalked spikelet rising from the same point, the empty spikelet alternating from the right and from the left side of the hermaphroditic. The little stem of the empty spikelet hairy like the outer glume. Grass 3-4 foot high and higher. Nodes with dense crown of hair, ligule short membranous, root leaves on the margins and on the ligule with long hairs.

The fine-leaved oats. (no 3). Glumes long, equal, four-flowered. Perianth unequal, inner valve blunt, membranous, outer valve with two long projections, from their fork a somewhat twisted, somewhat long bristle rises (perhaps 1½ times as long as the perianth). Insertions point of the perianth with fine hairs. The fourth floret seems infertile. Grass perennial, 4-5['] (in the garden). Nodes smooth, leaves linear rolled together towards the upper side. Ligule of the stem weak, that of the root leaves hairy.

10. The broad squarrose *Agrostis*. Glumes single flowered, almost equal, outer valve with twisted bristle rising from the middle(?), covered with fine hairs, seeds elongate. Panicle very wide trichotomous, stiff, broadish, sharp leaves, ligule long, membranous, blunt.

12 April

No. 4. The fine-leaved *Agrostis*. Glumes single-flowered, keeled, pointed, valves equal, pointed but without bristle. Few expanded panicles, sharp, stiff, pointed, at the base about 1" wide. Ligule long, membranous, perennial (florets about 1½" long).

No. 9. The brown-haired foxtail *Agrostis*. Glumes almost equal, keeled, elongate (florets about 3" long), outer valves slightly incised on the apex, bristle arising under the fissure, twisted, on three sides toothed, lower half brown, upper white, somewhat more than twice as long as the floret. Panicle adjacent, appearing somewhat loose by the separated bristles.

No. 7. Green foxtail *Agrostis* (not really *Agrostis*) {(stands between *Agrostis* and *Phleum*[?]) the concentric panicle green.}

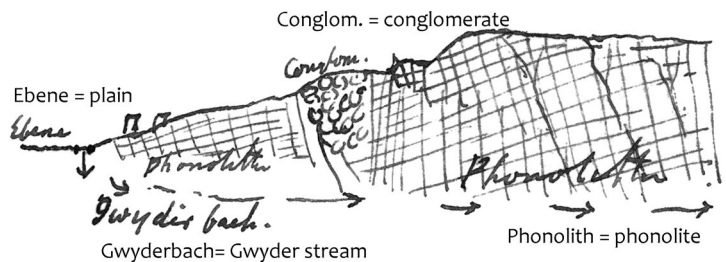
Glumes single-flowered with the remains of a second, keeled, green, almost equal, enclosing the florets. The outer valve slitted above, with a somewhat long bristle rising under the middle inner valve transparent, the empty floret with an outer valve very similar to the hermaphrodite and bristle, so that in each spikelet two bristles protrude only slightly from the glume, a closely adjacent panicle. Grass 2½ foot high, leaves about 1" wide, smooth, stem likewise smooth, long pointed ligule.

The winter *Poa* has about five florets in each spikelet, stiff leaves standing in bushes.

At midday today I ascended the eastern mountain rising behind the house. At the bottom I found a greyish rock observed sometimes on the Liverpool Range, which, however, encloses large feldspar crystals here, there olivine and augite. Over this occurs a conglomerate with small components. This forms, so to speak, the first terrace. Over this a small hillock bulges with loose sharp pieces of phonolite (as I want to call the rock phonolite, although the large feldspar crystals assign it perhaps more to trachyte, however, the denseness of the groundmass and the lack of pores determine my name). Over and behind this the mountain still rises significantly, always showing the same rock.

Here you see a strange situation, the conglomerates enclosed by volcanic rock from the front and back and probably raised up by this.

Of trees *Angophora lanceolata*, white gum, peppermint and stringy bark grow here and several shrubs, a broad-leaved *Hakea* and *Pultenaea*. A *Kennedia* is in flower, it is monophyllous with blue bunches of flowers, but different from *K. monophylla*. A new legume, small with pinnate leaves, blue flowers, fleshy pods. Several plants belonging to the *Gnaphalium* family. The heaped together golden ball, the large truncate gold everlasting, the flat retroserrate *Tragopogon*. *Viola gigantea* mihi, two species of *Goodenia* (one with dentate leaves, the other

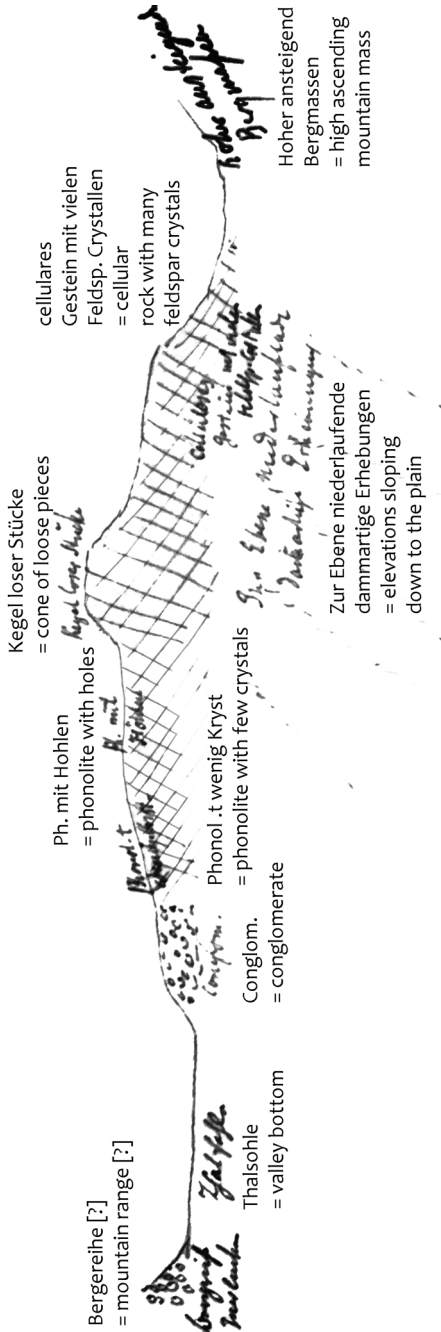


Ideal section of the geological conditions easterly behind the dwelling.

with leaves and [...] felted). A felted *Dillenia*. A *Xanthorrhoea*, the flower cylinder of which was as long as the flower stalk or half as long, grew on the conglomerate and only on this. Two to three *Xerotes*, but one quite new with broad leaves, thicker crinkled[?] margins. Of grasses a *Bromus* was found. A *Stylidium* with dentate, broadish, stiff leaves was observed on my ride here from Ogilvie's. A shrubby legume with pinnate leaves is not yet in flower.

14 April

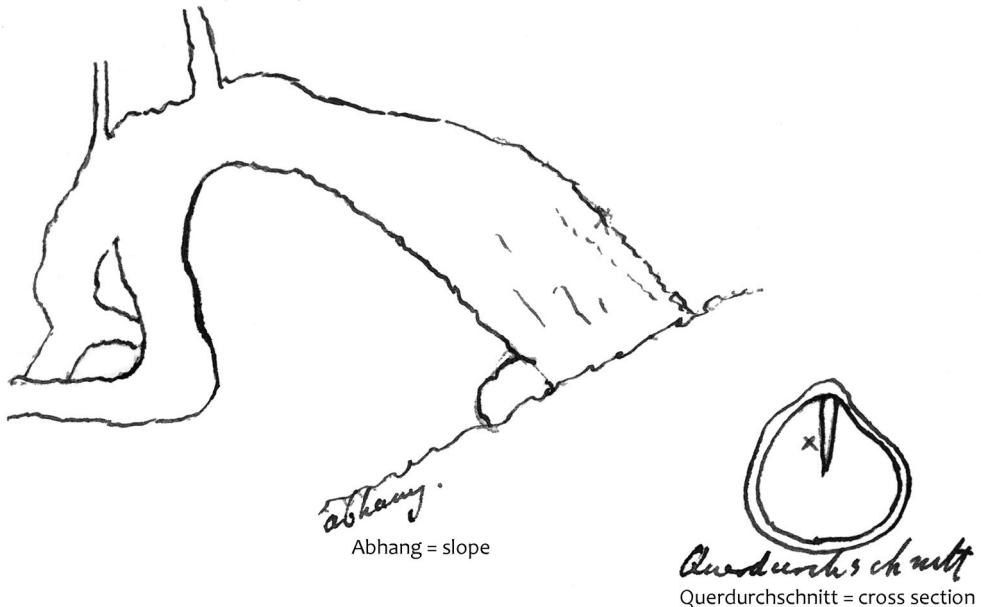
Yesterday I made a journey to the western range, which extends to the west of the house almost from north to south. At the foot where I ascended it, I found conglomerate again and here the red porphyry boulders in very close mixture with the remaining rock masses. Higher up phonolite occurred. This rock changes extraordinarily. It shows a dense structure at one place, holes covered with crystals at another, and at a third is vesicular and porous with attractive white feldspar crystals like the lava stream of Arso in Ischia. All these rocks belong to a mass of bulging elevations running down towards the east into the valley and seem to have been streams like the basaltic lava streams of Clermont (Grovenoir). Terrace-like ledges are also here. The following would be a section of the relationships that I saw yesterday.



Below on the damp deep valley ground two *Epilobium* were growing and a pretty large-flowered *Geranium*, the large, soft-leaved gold everlasting, the heaped together gold ball, *Hakea*, and a *Senecio*. Higher up between the kangaroo grass, woolly oats and a pale-leaved grass were *Caladenia*, a species of *Bursaria* (prostrate little shrub), the anther bonnet, *Kennedia* with compressed flower clusters, and a black-jointed legume (perhaps a *Bossiaea*) and finally the previous pinnate shrub legume. On the slope I finally found an *Angophora lanceolata*, from which cutting with the axe, a large quantity of reddish sap gushed out. The trunk was bent down towards the north-east, with a longitudinal swelling on the upper side, a narrow hollow, which penetrated far into the interior of the

tree, the inner wood blackish, decayed, and seemed previously exposed to fire. The side walls of the hole covered with a red, moist, dirty mass of gum.

The water is astringent, empyreumatical, perhaps 3 quarts and more. The hole seems completely filled. The liquid has nothing to do with the vessels or with the rising sap of the tree. I think that it was a burnt out hollow in the tree, which gradually was grown over by bark and filled up previously with liquid as a consequence of rain. The hole is on the upper side of the tree. I was told that the savages drink the water for venereal disease. However, I think possibly without great success. Nevertheless this combination of empyreumatic and astringent would be of advantage in the medical chest.



The above sketch shows the position and form of this strange tree, whose trunk and branches were bent awkwardly like a knee. In the cross section X is the hole with water.

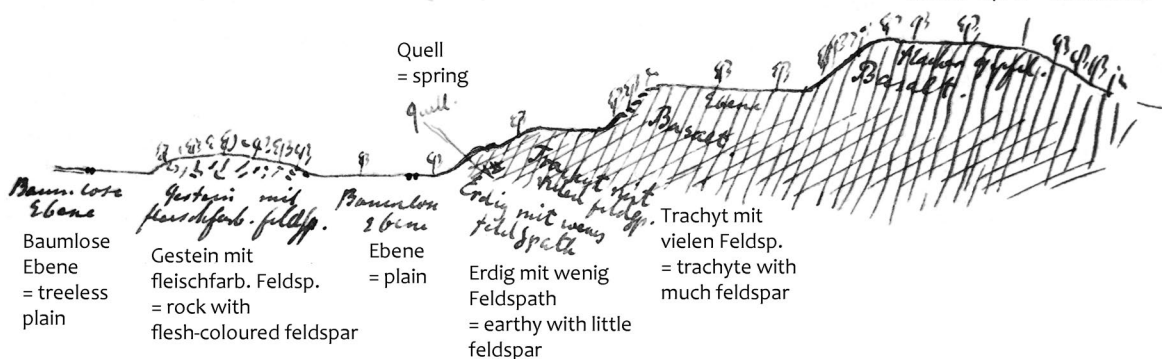
### 14 April Evening

My excursion today led me in a north-west direction, first over hard meadow land without trees, then over a moderate elevation that consists of a rock, the nature of which is not quite clear to me. You see distinct flesh-coloured feldspar crystals, but then irregular, rounded, grey inclusions also appear. From there meadow land again, then a range before me. On ascending this I found three very distinct well-formed terraces. The lower rocks showed a few small feldspar crystals in a ferruginous earthy cement, those of the middle level showed a vesicular feldspar-rich trachyte of grey colour. I must say, however, that this rock lies more in the upper half of the lower level. The second very steep slope covered with sharp fragments shows ferruginous crystals and feldspar in grey and dark blue cement and the uppermost level corresponds to the rock of the Liverpool Range previously called basalt by me.

Now should these levels really belong to different periods of time. The difference between the rocks is very strange and similar relationships to one another seem to be observed in the neighbouring hills.

For botany this excursion was important in so far as I found the buds of the white gum, which show long blunt calyx operculae. The diversity of the leaves in the same tree is extraordinary. I found a new handsome perennial grass on the meadow land of the second level, where the woolly oats flourishes luxuriantly. My giant violet was found again on the second tree-less meadow land. Many beautiful mushrooms were seen and I intend to collect them. Also *Pteris esculenta* occurred again on the third level after a long absence. If I am not mistaken, I have not noticed it since I left Bengalla. *Tecoma* and the pinnate bushy umbelliferan were on the third level. There also *Aspidium* {*Asplenium flabellifolium*.} *Cheilanthes* is almost the only fern that does well on dry soil. A broad-leaved *Hakea* or *Grevillea* is abundant everywhere on the mountains. The reddish *Bellis* with incised root leaves is a dainty little plant and delights the eye on the mountains. A broad-leaved native potato and an almost garlic-leaved plant with thick root were found between the basalt fragments of the third level. The foxtail grass grows directly along the water and very abundantly at springs. Such a spring is found at the foot of the mountain (about 15 paces above the valley floor, but blocked).

Flacher Gipfel = flat summit



I saw and caught a large *Lycosa* with black venter[?] and whitish longitudinal stripes with lateral rays on the thorax, whitish grey transverse bands on the back of the abdomen. Feet strong, grey and blackish spotted.

Under a large rock on the mountain I found two scorpions, one of which was 1" and the other almost 2" (1¾") long. The abdomen had two respiration holes on each of the four first rings (8), the two [...] were only small. Five wide segments, six tail segments, the latter with seven keels, both the upper ones the most distinct, dentate, running out to a point, the strong claws with five ribs, colour of the whole body pale horn colour.

**15 April**

The springs on the flat top of the Liverpool Range are very interesting and perhaps indicate a high inland.

**16 April Easter Day**

Yesterday I followed the river to the paddock and found a pudding with porphyry trachyte boulders outcropping and later a rock that I often spoke of before as primitive or seemed to me, however, anagenetic. You see mica and quartz in a brown groundmass, as well as feldspar crystals here and there. The pudding seems to belong to the same

formation and I must confess that I am finding great difficulty in the determination, as I step over the terrain, whereas at home the hand specimens would all be arranged in different groups, if you had not returned home with the conviction that nature formed them together. Today I followed the range of hills that stretches almost from north and south (south from the Gwydir). After I had strode almost three miles over a tolerably narrow ridge, it descended and a higher mountain lay in front from north-west to south-east. This consisted of the phonolite or trachyte rock. This rock also posed some difficulty. Had I found iron and olivine, I would call it basalt, had I found rich feldspar crystals in a porous groundmass, I would call it trachyte, had I found feldspar crystals in a solid groundmass it would belong to the phonolite. However, here the previous remark is valid. All these rocks occur together. I could not test them yet with the blow pipe. The single observation that might serve to differentiate them according to their occurrence is that the more solid cement appears on the highest ridge and the porous one at the bottom. However, this is also not without exception.

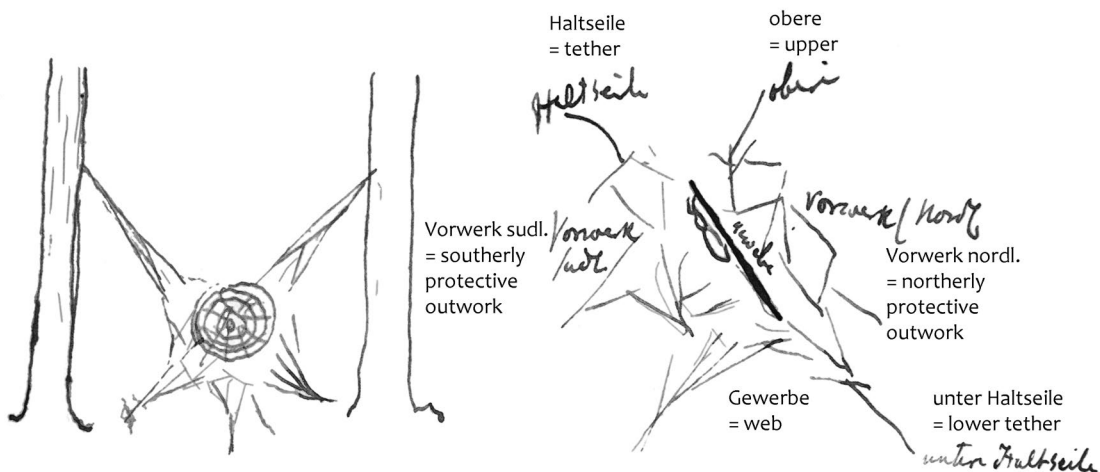
I have to repeat here that the basaltic (or trachytic) ranges of hills have very extensive flat tops. At the foot of the sandstone hill rounded hills of that rock spring forth, so to speak, and their shape reveals the formative rock.



I observed the web of a large silver-grey *Linyphia* with black spots on the thorax. It was between two trees, which stood about eight feet from each other. It was spanned as follows: threads were attached at a height of about 10 feet on each tree, which descended diagonally towards the middle of the space between to a height of 3'. They held the net at the top. The latter was regular and inclined somewhat to the north. In front and behind were a large number of irregular threads drawn like a protective outwork. Below was a foundation, so to speak, formed of similar threads and this was further tied to the end in four to six directions with several threads. These threads were usually attached on low bushes and strong stemmed plants.

The spider sits under the net. The direction of the net is not from a particular point of the compass, but probably dependent on local currents of air. Usually one to two very small male spiders are with the female. They appear young, but because in the present season no young spiders are present, it seems to me probable that they are very diminutive males, as I believe to have observed this several times in New Holland entomology.

Here too in this lonely station I have my Easter celebration and my devotions. The day was so bright and sunny, the air so refreshing, and the forest glade so green! And now the brightest, clearest full moon pours its enchanting light over the forest and over the mountain ranges near and far. I made a small excursion over the southern mountains. The green broad-leaved gold everlasting gilded the sides of the mountain. After all I used to make corn flower wreaths and decorate my father's house with spring flowers, should I not now decorate the unadorned bush hut with a wreath of everlastings on the blessed Easter day? And I did it and was as happy as a child over my work. In Paris the box tree branch blessed on Palm Sunday in Notredame remained over our chimney the whole year through. It remained fresh and the Catholic Marie, our servant, prophesied happiness for the next year for us. How long will these everlastings remind the inhabitants of the hut of the German traveller? I see with wonder how the years slip away under my feet. Last year in Sydney, two years ago in Florence, three and four years ago in Paris,



five years ago in London, six years ago at home with my dear father! Oh he has gone already and my dear Mathilde, at whose marriage I was present, too! Nevertheless we live forever. Both of them and I. If this were not the firm unshakeable belief, one would almost have to go crazy over the shortness of this life! Often I ask myself why has fate, which so benevolently helped me forward in my education, why has fate denied me working on a grand scale and carrying out my plans in accordance with my education? I often feel sorry for myself, when I see myself compelled to beg the inhabitants of the bush for paper for my plants, or even to ask them for a crust of bread for myself!

Never do I feel better than when I roam around alone in the mountains. My hammer and some paper to immediately enclose the plants and a pointer bitch are my only companions. The young people often believe they oblige me when they give me companions to show me the way. So Mr Hentig sent a small Black boy with me, but even he was disturbing. In himself he is such an interesting figure for me that I see my attention distracted from nature. However, as he doesn't understand and speak English, our conversation is tiresome for me. I feel irritated. Alone I travel a good stretch forwards and as I gradually become tired and prepare to return, the songs and poems of home come to me and I sing them from a full breast into the forest. My song would probably make musicians and even non musicians laugh, but the Australian birds are not musical and my bitch is not particularly interested and so I alone then have the advantage of encouraging, of edifying my soul, if not with melody, yet with old memories, with beautiful German poetical words! So I sing every poem, whether it ever was sung or not and it almost seems to me that natural man would have always sung poetical outpourings from Homer to Burns.

17 April

The following shrubs and plants were from the phonolitic wall to the west of Rusden's station. Two *Dodonaea* (one pinnatifid). *Calytrix*, a narrow-leaved *Leptospermum*, an *Acacia* with woolly, long linear phyllodes (two to three glands) (inflorescence racemose capitate), a second *Acacia* lanceolate, unequal sided phyllodes, one gland (jugum 1½" long) or 9" long in older shrubs (inflorescence capitate racemose), a third *Acacia* with somewhat sickle-shaped, lanceolate, multi-nerved, mucronate, phyllodes with single gland. Inflorescence capitate and racemose capitate, flower stalk and young twigs tomentose (or strongly downy). A *Leucopogon* with 1-2-3 florets in the axis. A composite in shrub form, spatulate pointed leaves, apex bent back, lower side white, upper side green (deflorate). A *Senecio* pinnatifid with large yellow flowers. A shrub with green, round, sharp-pointed leaves narrowing at the base, stipules growing together, stem as if jointed.

A new composite in shrub form with small brown glossy flower heads and greenish linear leaves.

The mountain *Lotus*, the mountain *Ranunculus* An *Opercularia*, pinnatifid *Bellis* (red).

The narrow-leaved resinous head everlasting. *Pelargonium*.

A *Leptospermum* was found and three new grasses, of which one was five to six feet high and has not formed bushes, whereas both the others, a species of oats or a *Poa* form large very long-leaved bushes. The leaves are narrow linear and with a longitudinal furrow below in consequence of reflexed or swollen leaf margins.

A *Stegania*, another known fern.

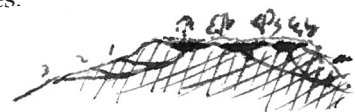
## 18 April

In the west from here you see a mighty rock wall high over an apparent basin-like valley. Yesterday I decided to go there and investigate the rocks composing it. When I passed by a mound of the soldier ants in the forest, I cut into it with my axe and was not a little startled, when I pulled out a shining snake from the ant heap. It was a blind worm with very small eye spots, very small almost toothless mouth, of silver grey colour on the back, white on the belly, completely covered with scales. The body is cylindrical of equal thickness, the tail very short, with a small spur on the end (several scales joined or a single one with a small process). I found that it had only one lung and that its stomach was full of ant larvae. A small white oval-shaped body was on both sides of the anus. When I removed the skin, I found that a kind of fat vessel ran along the whole length of the back. I showed the animal to the Aborigines and they called it moon (mun), and said as I also supposed, it is not poisonous and good to eat(?) {Several denied this.}

The ants had built their dwelling in rich red loam, where they usually mixed leaves and pieces of twigs and which they usually heap around low shrubs. The rock was rich in feldspar crystals and formed a wide stream descending towards the plain, which seems to begin with a round hill before the mountain range. I found here a completely white, real trachytic rock and found when I later went along through the ridge of the range, a piece of the dark basalt-like rock melted by bush fire, the small melted globules were white. Therefore I am coming gradually to the true nature of this rock. The range of hills goes from north-west to south-east. It descends towards the rock wall and a kind of saddle is formed, in which the rock of the same composition outcrops but in foliated jointing. Here another [type of] vegetation suddenly appeared. The stringy

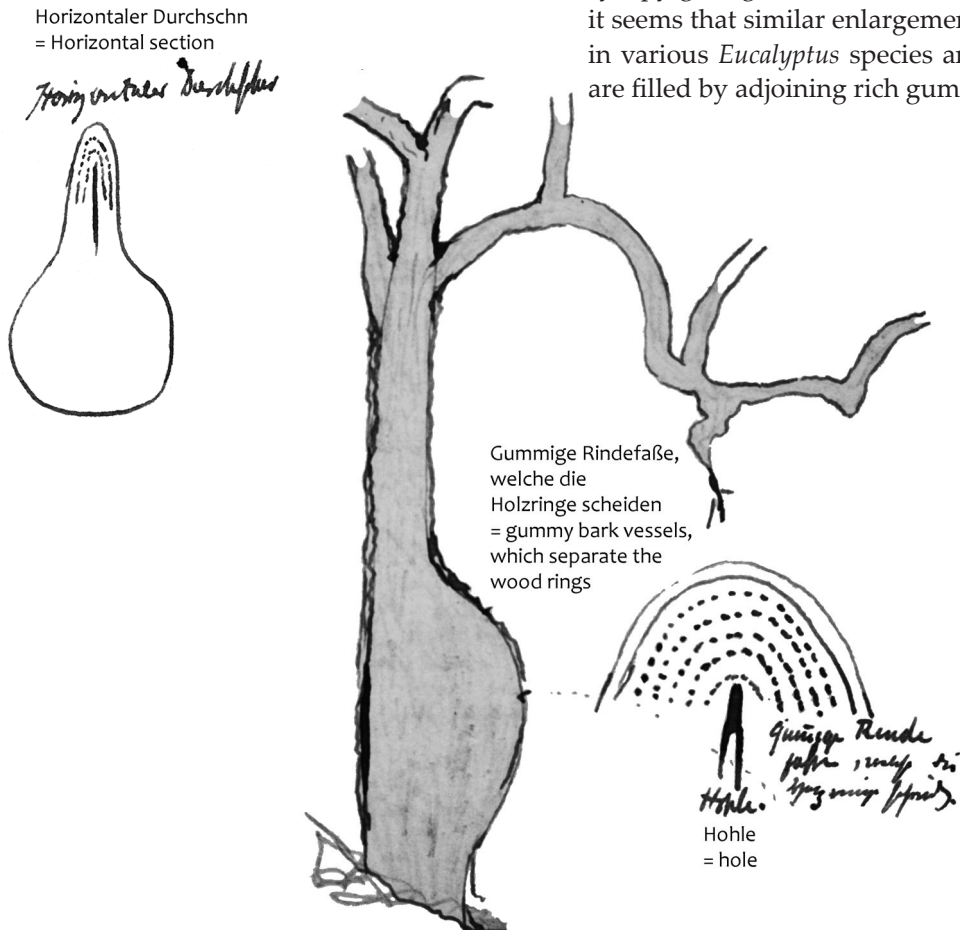
bark and box disappear, the white gums become small and shrub-like. Two *Dodonaea*, acacias, *Leucopogon*, two new composites, the sparsely goldhead everlasting, *Calytrix* and many other plants appear. (I have mentioned the majority under yesterday's botany). This appearance of other plants on and against the bare rock walls is supremely interesting. They are not plants that follow moisture, they are always found on bare rock masses even if in small measure. I had found the *Dodonaea pinnatifida* on similarly dry ground near Mt Dangar. The same rock forms a sharp ragged ridge further on and finally a 50' high rock mass about 20 feet wide and a half mile long with vertical walls emerges out of the peak of the mountain and caps this by bending slightly towards the west. It seemed to me as if the fissures all run from north-east to south-west. I did not notice any dykes, although I looked for the dark rock of the remaining peaks with particular attention. It is a very feldspathic trachytic rock. Massive blocks, which in the course of time have broken loose, lie on the sides of the mountain and especially in the saddle in front of the rock wall. The Aborigines told me that you get up to the peak on the north-west side, and that water is found up there in rock basins, which slowly percolates out through the fissures on the sides. At such places *Stegania* and *Aspidium* were growing, also *Pteris* here and there, and *Leptospermum* between the rocks.

This appearance of water on the rock and in consequence of which on the side walls, offered me a good explanation of the springs of the Liverpool Range. The water collects in basins on the broad peak under the soil layer, sinks from these through the rock fissures and then appears as a spring in the deeply incised ravines.



I saw several *Angophora* trees with water. They forced me to give up the generality of my earlier explanation. They were vertical on other mountain slopes with slender, widely protruding vertical outgrowths, but these outgrowths are really only enlargements of the tree itself, and do not differ from it by bark or other characters, and are not diseased. The bark is the same. As you penetrate deeper, the wood shows rings of gum vessels and finally a fissure of significant vertical extent. This fissure or narrow hole contains the water. The watery gum itself now seems to be definitely of this water. The walls of the hole are covered with red sticky gum, but no trace of burning or previous opening.


This sketch shows the often fantastic shape of the branches of this tree. When I cut the lower opening, the water gushed forth like a fountain from it. It was very cool, but by no means drinkable. However, I tasted it frequently and washed my hands and it was strange that, although I had breakfasted early and did not return before six thirty, yet I felt no appetite afterwards. I have never experienced this. Is this only a post hoc? At the very least this remains for subsequent testing. Trees of this kind were very common on the western slopes, all with cold water. When I cut into a similar but more spherical enlargement on a box tree, a large quantity of syrupy gum gushed forth from it. However, it seems that similar enlargements are found in various *Eucalyptus* species and that these are filled by adjoining rich gum vessels.



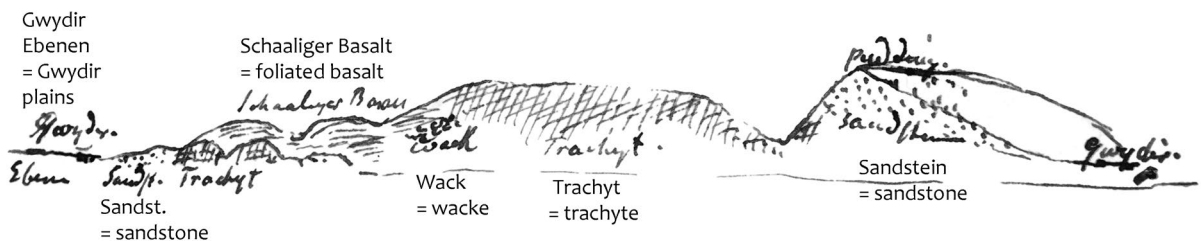
### 18 April Evening

The hills and mountains behind the house have the following compositions. Firstly sandstone (or conglomerate) very restricted. Then not far behind the stockyard trachyte with many large feldspar crystals in a white cement. Over it appears the dark rock with basaltic appearance with fewer crystals in foliated jointing. This forms rounded foot hills. Climbing up further I found in a gully a completely decomposed (now clayey or decomposed) trap rock, from which I could pick out irregular masses and grains of feldspar. Then the foliated basalt appeared again and finally right at the top feldspar rich trachyte with a greyish almost glassy shining fracture. The flat tops towards the east and south-east and south all consist of this rock. It appears again in deep gullies, which descend towards the north. A sharp high ridge lies in front towards the east, at the eastern foot of which according to my opinion the Gwydir flows. This mountain is composed of sandstone, conglomerate and of pudding

right at the top. Here red feldspar masses in thermantide are found. I do not know whether this thermantide stems from bush fire or from the neighbouring volcanic rock. The bush fires must in any case exert a great influence on the surface rock. Frequently I have found slag that either originated from the action of fire on the ferruginous loam lying around the bottom of tree trunks or were slaggy fragments of the mass, with which the termites fill the high trees.

In the water course I noticed an interesting social spider about 2½''' long covered with grey hairs. Eyes are in two arcs with the concave side towards the back.  The abdomen raised towards the front into a hump with four tubercles. I distinguished four spinnerets and a spinneret-like process at the back. Many of these little creatures had joined their little nets, in the center of which they hold on by irregular transverse threads. They were put up between blades of grass and plants on the sides of a damp ravine.

I found *Notholaena* here (not in fruit).



Section from Stockyard in an easterly direction.

**19 April**

The conglomerate outcrops behind the paddock in great thickness. At first the Gwydir flows over it towards the west, then turns northwards[?]. Large rocky blocks of pudding, conglomerate and indurated rocks that resemble almost primitive rocks are everywhere. However, this locality evidently shows that even that previously mentioned rock with flesh-coloured feldspar is the product of induration and fire, and that we are dealing with a kind of thermantide. I think we will distinguish it most easily from the feldspar porphyry by the apparent crystals projecting sharply on breaking and not giving complete surfaces. It is surprising that this rock, surrounded as it is by volcanic rock, does not show dykes over an extent of more than three miles. It is at the same time extraordinarily jointed and in fact by two systems of joints, one from north-west to south-east, the other from north-east to south-west. The very steep beds lie towards the south-west. On this rocky soil in the bed of the stream there were again several new plants. Thus a white-flowered labiate, a small prostrate plant with fleshy opposite leaves, monosepal, four petals, four stamens, four pistils, four capsules (many-seeded). Then a plant with linear opposite leaves, monosepal with one to two black berries. An *Acacia* with pinnate leaves and broad phyllodes. Two *Melaleuca?*, and shrub-like, jointed legumes in flower. On the mountain the black-stemmed, pale calyx *Eucalyptus*, which I have seen already when I came from Ogilvie's. In a ravine an *Acacia* with multi-nerved, green sickle-shaped, long phyllodes. Capitata (in racemose cap.?).

The Aborigines are by no means without inclination to music. Their songs ring out in the morning and late at night. Their singing, however, is only a change of few closely connected notes. The women often change with the men and their voices are

more tuneful. Those of the men resemble a jew's harp. I have noticed several times that the Aborigines pronounce many words of English like the Italians. Their speech is very rich in vowels like Italian. Perhaps this gives rise to the similarity. The working people speak a barbarous English with the Aborigines, but to good understanding on both sides and very fluently.

**28 April**

Yesterday on the southerly and south-westerly slopes of the western range I saw a forest of stringy bark trees of exceptional height and beauty. The slender trunks shot up to 60 feet high and higher, before they give off branches. At the same time the bark fissures were linear, which indicates to the wood splitter that they were trees, which are easily split and worked. In that forest a *Eucalyptus* was growing with white bark, which peeled off. This was covered with manna, a white-grained sugary material. The man called it mountain gum (perhaps he meant manna gum). It was too tall to see its leaves. That man had worked in Brisbane for a long time, had seen the bunya bunya tree and told me that they split the moreton pine there especially. In New England the box and ironbark grow. A very drinkable water is in the ironbark, much more drinkable than that in the apple tree. *Verbena* is a good drug for venereal disease (a strong decoction, a wine glass full three times a day). {and decoction of the bark of the wattle tree (*Acacia decurrens*).}

Mr Rusden, who arrived here on Friday evening, is an active well-educated, enterprising young man. He is occupied with improving his station. Stockyard plans, fencing, paddocks, wheat and maize harvests are the subjects of our discussions. {hundred days corn 280, the grains much smaller. In another 540.} Eventually I will myself get behind the secrets of a New Holland settler. The maize harvest is very bountiful. It is

Indian corn. The other 100 days corn will perhaps be more advantageous to cultivate in this cold region, because it ripens in 100 days. {The Indian corn with straight lines of grain was especially valued, 672 grains — 48 in each line — 14 lines.}

#### 24 April

The light in cat's eyes is just reflection, because the slightest movement of the head makes it invisible again. The animal must look at us straight on to distinguish this light well.

The mornings are very cold; a heavy cold dew and frost covered the pasture. Against the rocks there was no white-frost on the grass, as the radiating warmth of the rocks prevented the necessary cooling.

The soil is a mild humic soil at some places mixed with the small broken grains of phonolitic or trachytic rock. Cold ground with many springs at several places, which make the soil infertile.

Mr Rusden gave me a very good idea of the connection of the mountain ranges in the great watershed. Between the Liverpool Range and the Blue Mountains, the watershed is the dividing range between [the counties of] Bligh and Brisbane. In the east of the Liverpool Range, a range ascends towards the north (New England Range), which goes up to Moreton. From this arise towards the east, the Clarence, the Macleay and the Brisbane, and towards the west the Bantara/Gwydir, the Macdonald/Namoi, Severn and Condamine. He said to me that on the Isis, a tributary of the Page, there were limestone caves and that a hot spring was near Gummon Creek. Not far from here limestone outcrops in rocks near Brown's.

Baldwin can make neither butter nor cheese, because his pasture grass consists only of weeds or very few grasses, and these weeds are not favourable to the butter. Exposed to

the air it very quickly becomes rancid and unusable.

In Yass is the Baron Mountain, slaty with fine crystals of agate and quartz. Once Mr Rusden found four beautiful topaz crystals (yellow and four sided) in the pocket of a Black. The Aborigines knock out the teeth of the young men with the quartz crystals. This custom does not prevail in this area, whilst it is found everywhere from Moreton to the Shoalhaven.

Yesterday evening we visited the savages in their camp. Six fires burnt at various distances under the peppermint and box trees. The Aborigines lay and sat around each of these on sheets of stripped tree bark (box). They either smoked or talked a bit or perhaps made remarks about us. At one fire sat a blind man, who had lost his eyes through small pox. He is a jovial singer, who sounded his humming songs often deep into the night. Mr Rusden had given them the empty sugar sacks and they washed them out in water so as to drink the sugar water so obtained. The blind man was now quite particularly occupied here and it gave me not a little pleasure to observe with what satisfaction he sucked the sugar mat. Tobacco is now everything to them, after they have satisfied their stomachs to some extent. Three women live with these men. The Whites have taken most of the women away for their own use and I could very well perceive how deeply they felt this loss and how inclined they were to revenge, from which only awareness of their weakness restrained them.

A stockman on the neighbouring cattle station of Mr Bundock had taken one of the gins for himself and drove the Blacks away from his place with threats and the hounding of vicious dogs. Now when Mr Rusden had indicated he was not willing to permit his people carnal intercourse with gins, the Blacks came to him and told him how Cole, Mr Bundock's stockman, dealt with them,

and they were very pleased when he told them he would notify the Commissioner. I understand perfectly how men in a state of nature like these Blacks must be provoked to the highest degree by their women being taken away. They have nothing against sharing their women with the White men for a pipe of tobacco, but they will always freely acknowledge the latter take their women away completely and so rob them of the possibility of satisfying their animal desires. {Mr Prior told me that the Blacks only sleep with their women once a month and that the coupling occurs in a strange way, by the man sitting on his feet and by the gin sitting on his lap and putting her feet around his flank.}

The Aborigines remain awake until far into the night (10 o'clock). They speak with one another or sing and some of their songs are not bad. Mr R[usden] told me that one song (Jocul) was known almost all over the whole continent, whereas others were limited to a single tribe. The children are merry and playful. The parents play with them and show much love, whereas after birth the mothers often have no scruple about killing and throwing their child away. Tommy, my little companion, is a wide awake, cheery boy.

### Sunday 7 May Rocky Creek Station of Mr Pringle

I have much to make up. My ink ran out and I found myself compelled to record my remarks with the pencil. On 25 April I rode to Mr Ottley's station. The track led us up an arm of the deep basin, which forms Mr Rusden's station. We passed a stringy bark forest and arrived at a place in the mountain range, which almost alone permits communication with the northerly situated station.

{Stringy bark seems to like a light loamy soil, yellow colour hardly keeping the impression of the hand (this in dry weather). The underground trachytic.}

Here the feldspathic rock is outcropping everywhere in great thickness. On descending on the northern side you see a bed of carbonate of lime(?) in a ravine. At the foot of this mountain the terrain changes and conglomerate appears with a wide distribution. Bundock's station, Bell's station and Pagon's (now Pringle's) extend for the most part over coarse sandstone, conglomerate and pudding. The stunted ironbark is here and is the characteristic tree of the forest especially of Bundock's cattle station. I have, however, already mentioned previously that two species of *Eucalyptus* with ironbark bark and pale green leaves attracted my attention. One is more on the plains such as on the Namoi, the other on sandstone or conglomerate mountains, such as at Ogilvie's and Rusden's easterly mountain range. That of the Namoi is already long ago finished flowering and is now in fruit. That of the mountain range was in full bloom 14 days ago.

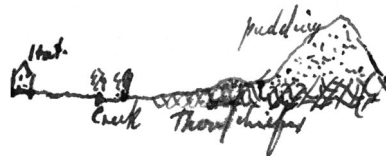
We stopped at Bundock's station to induce the Inspector ~~Superintendent~~ to give back a gin, with whom he was living, because the Aborigines appeared very offended and because it seemed to us only fair to let them have their women. Cole (this is the name of the man) told us that he saved this Black, who did not belong to any one of the local Blacks, but came from the Big River, from the nulla nullahs of the men, by whom she had almost been bashed to death and that he certainly would not hand her over again to these barbarians, unless she requested it herself or her lawful husband came and asked for her. There is no doubt that the man with all his compassion thought only of the Black, who kept herself well dressed, and was doing very well for herself. No one can deny that the feeling of the White man is deeply wounded by the barbaric treatment of the women on the part of the men. On Mr Rusden's station there was a Black, Susan,

on whom old Jerry struck such a wound on the head with his nulla nullah that the brain was completely visible and it is a miracle that this woman, who was pregnant, not only did not abort, but had recovered again in about 12 days. Later she received a heavy blow in the flank by the king of the tribe, because she had left the camp to go to the Namoi. I don't know what consequences this will have, but it is unbelievable how quickly their wounds heal, although they seem almost to succumb on receipt of them in cases where I was present. Now I even know of instances where gentlemen have intercourse with Black women and they assured me they by far preferred them to the local [white?] women. They said to me, however, that they by no means experienced the sensual satisfaction or even just the pleasure, which sleeping with White women afforded.

We found Mr A. Bell occupied on his station ~~occupied with separation of cattle~~ separating the cattle belonging to him from those of his brother and relatives. It was a general muster. The stockmen came from all the neighbouring stations to take delivery of their lost cattle. A thousand or more head of cattle in a confined space, pressed together, bellowing and chasing around is quite a strange spectacle. They had left them two days already without water and several very fat cows had died as a consequence. This short time was very surprising. In the night I had an attack of rheumatism in the foot, which kept me awake and made my bed hell. The night was very cold. To ease my pain I left the hut and limped up and down in front of it. About a mile towards the west a mountain range runs from north to south. Its outlines were visible in the starlight. {Mars shone in a red glow in the eastern sky.} The sky was magnificently adorned with stars, the cattle bellowed lamentingly and the echo resounded ricocheting and fading away far in the mountains. The wild

dogs howled a short distance around the hut, to which the smell of dead cattle lured them. Their howling was answered by a full chorus of dogs, which tried (as the people here say) to frighten the wild dogs by some peculiar variable or singing barking. It was just the night that you will not forget all your life, as the bodily suffering made the mind susceptible to a degree that the impressions are most deeply imprinted.

In the morning I went with a young Frenchman, Mr Wyatt, who spoke English like an Englishman, to the mountain range.



Thonschiefer = clay slate

At the foot of the mountain we found the cleaved clay rock (a kind of clay slate) frequently cut through by carbonate of lime veins and higher up pudding. A large number of grasses together in families, among them two, from the seeds of which the savages prepare a kind of bread (the squarrose smooth *Panicum* and the squarrose *Festuca*, the latter with small reddish seeds).

On 27 April we passed the Gwydir. On all the stations they are now beginning to cultivate maize. On Ogilvie's station one of the heaviest fruit cylinders held 48 x 14 seeds, 14 rows, 48 grains in each row (672). From Ogilvie's to Otley's [Ottley] station you ride through a region, which strongly resembles that between the Mokkei and Coral. The sole difference lies in the stunted ironbark, which here forms the forest everywhere in small bushes and moderate trees. Mr Rusden showed me the yellow box as well, which at first I regarded as a white gum, but the crinkly peeling bark and the yellow bast distinguishes these trees. We found the devil devil land again and the same grasses in company together. Myal.

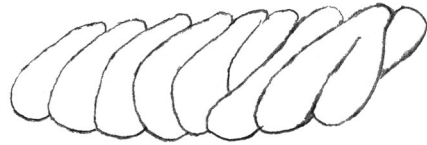


green, under wing grey, throat yellow with isolated black patches. At each corner of the mouth an attractive blue patch (moustache). Beak has fine toothlets. White iris. The toes weak, lives on the ground from seeds of the squarrose *Panicum*, of which the savages make bread. They were very numerous ~~and they resembled glowing~~ and it was always very pleasant to see ten or more flying from the ground to the next tree, where they often wait five in a row for the passing of their intimidator[?].

Spencer shot an unknown bird belonging to the family of the nine-killers (Laniidae). 5" from beak to tail, 14" wingspan, beak strong, conical, end somewhat curved, on the point a tooth. Feathers come to the small lateral nostrils. The tail is short; the feet are short and insessorial. Head, back and wings bluish ash-coloured, rump white, tail darker ash-coloured, whole belly white, second wing the longest, 10 developed tail feathers (two seem undeveloped). The bird is of stocky build.

A five foot long snake was shot as well. Head scaly with an intermaxillary scale, simple nasal scale with the nostril between the nasal scales, an anterior and posterior pair of frontal scales. 14 lateral scales in the upper jaw (the three anterior like the intermaxillary with an impression, 20 on the lower jaw, outside the middle scales, seven towards the posterior end with impressions). Pupils narrow, vertical, iris white and blackish-veined, this not in both eyes. Tongue a little split at the tip, jaw and pterygoid with sharp teeth, which become smaller posteriorly, the maxillary bone with few free teeth. On the side of the anus are two nail-shaped processes, the anus about 10" from the end of the tail.

Two rows of joined or separate unequal white patches on each side of the back on olive-brown background, whitish patches with black border, more or less coalescing with the upper lateral line. Belly white with blackish scales on the margin. Belly with



Snake kidneys at natural size.

simple row of scales, behind the anus a double row. I saw only one lung, the alimentary canal 1½ feet longer than the body. There are two intestinal worms. It has a long liver divided by a mid line. Kidneys are strangely lobed.

In the river grew the green-flowered camomile, the lanceolate amaranthan (*Gomphrena?*), the yellow-flowered *Nasturtium*, and *Polygonum temulentum*. There is a new plant creeping along over the ground (in the water and on damp ground) with white spongy bark, with oblong leaves, the latter with small stipules. The umbelliferous flowered *Thlaspi* grows with a rough-leaved *Hydrocotyle* on the apple tree flat of the other side. Here also a new plant with digitate leaves, a kind of pod and yellow (almost like an Oxalidaceae). On the next mountain west of Otley's station you enjoy a good view over the far Gwydir valley that stretches here from south to north. You catch sight of the opposite eastern mountain arc and another westerly range from which you are separated by a deep valley. This wide valley filled with pale green *Eucalyptus* affords a very strange sight. A new composite with *Verbena*-like leaves is growing on the mountain. The receptacle covered with large scales. {In the middle of the valley stunted ironbark, towards the foothills box, on the river apple tree, on the mountain solitary *Sterculia*.}

A woolly twin grass and a grass that at first hides its strong bristles in the adjacent spike, however, on ripening they are displayed. Three *Goodenia* on top of and on the side of the mountain. On top of the mountain the one with white lower leaf surface, on the mountain side the shooting and the lanceolate leaved ones. In addition

a goodeniacean with broad fringed leaves. There is the grasstree and *Exocarpos* and a solitary beautiful *Sterculia*. The mountain are all uniform ranges without projecting or with moderately projecting tops. The broad-leaved saw clover, a rough-leaved clover with regular pods, the narrow-leaved saw clover, the rough twin two[?]leaved clover. *Ruellia* is very abundant, as are many everlastings.

You heard the octave bird everywhere. It sounded its call foi foi foi a at first in low, then in higher register. My ear is too bad to distinguish whether it is a fifth or eighth, perhaps it is both alternating. {A little grey bird flits through the branches and sounds a trilling [...] bird call always from the next tree. Wind north-east, already clouds on the whole horizon. *Panicum* on the same hill, *Bignonia* and the yellow *Sida* (large flowered), the rough mountain *Panicum*. It is also on Mr Rusden's station and in Rocky Creek.} On a western hill I sat under a shady *Sterculia* tree on a block of sandstone and looked over the peculiar greyish valley that extended far before me towards the north. The western main range descends from the north-west with low foothills and hollowed-out flanks. In the north a distant low range.

A thistle plant belonging to the division of corn-flowers on the left bank of the Gwydir, with long pinnate, irregularly dentate leaves, scales of the involucre in part scarious. *Casuarina* with drooping, downy twigs and leaves is also along the Gwydir. *Hydrocotyle* very abundant, leaves large, kidney-shaped, five-fold-lobed, lobes dentate, long-stalked covered with scattered hairs. The flowerstalk is 1½" long up to 3".

*Nicotiana* (native tobacco) round, smooth, shining stem, leaves lanceolate, sharp-pointed, sessile, upper leaves small and linear, flowers in loose compound bunches. Flower stalk and calyx and the outer side of the 2" long corolla covered with hairs.

\*The Native Cucumber.\* The leaf long-stalked, broadly heart-shaped, inch in size, elongate round fruits. Ten vascular bundles are in the stem. It was said the Aborigines eat it. I found the plant in an elevation in the waterless bed of the creek.



At about 8 o'clock in the summer, a brisk wind comes from the north-east and the east from the New England highland. The thunder storms come from the south-west and west. At midday today a north-east wind blew, towards evening the sky suddenly clouded over with a uniform cloud cover with a south-westerly wind.

The fertilisation of the pumpkins is very necessary here on account of the absence of bees.

Red gum in the vicinity of the dwelling. I have not seen it.

Mr Otley has a boomerang of myal wood, for which the Blacks have offered him even their women. {Mr Prior had a nulla nulla for which the savages asked him very earnestly as well.}

The Black women eat the eggs of the white ants.

The trees, namely a small peach and an apricot tree, are not doing well. This soil cannot tolerate drought, although at present it is covered with very nutritious and fattening grass and herbs (probably chenopods). The *Mimosa terminalis*, the small yellow *Sida*, and the rubiacean are also growing here. The heat in summer is 103°. It is strange that those hot winds of 7th, 8th and 9th of January were also felt here, but this does not argue against my assumption that the *Eucalyptus* forest in New Holland, as we know it, serves for an explanation of these winds. {On the eastern side of the eastern mountain is a vine brush.}

A caterpillar almost 2" long, greyish with blackish markings, two long horns above

the third pair of feet. A tubercle on the penultimate segment of the belly yellow, the sides with greyish hairs as if tufted. We put it in a flask with earth. It did not go into the soil but spun its cocoon over it.

I found the larva of an enormous moth, which stood ½" out of the ground like a young shoot. The butterfly can only just have left it.

{The couch grass tolerates neither heat nor cold and does not seem to suit this region. The light frost some days ago killed a small patch in the bed of the river. The kangaroo grass is 7-9' high.}

On 1 May we returned to Mr Rusden's station, where I occupied myself with the drying of my plants, he with the sowing of the wheat and with the breaking in of young horses. Mr Hentig brought me a letter from Mark [Nicholson], who is remaining in New Holland and invited me to visit.

The warri is the fleshy root of the *Hypoxis*, which the Aborigines eat.

Among the Blacks, who have now pitched their camp in the neighbourhood of Mr Rusden's station, is a blind man, another has a protruding tibia (poorly set break), another lacks the toes of one foot (Billy mandos - footprint) and two others squint a little. Maladies of the latter kind in the eye seem very common. {Tommy is a wide-awake youth. All know how to beg if they want to.}

Wednesday 5 May. Today's journey led me to the so-called Second Water, which breaks through the mountain range more northerly and falls towards the east into the Gwydir (the head of the Gwydir). Climbing the mountains I noticed the same three stages, of which I have already spoken previously. Where the Second Water turns towards the east you see prisms of 4-5' diameter, five to six sided, irregular, and somewhat compressed in a deep hole that must form a good waterfall with abundant water. Above the waterfall

you stand on the heads of these prisms, whereas below you see the 20 and more feet high pillars partly complete, partly in ruins. The components of the rock are the same, it contains many feldspar crystals and some blackish augite in a green matrix.

This morning a little bird, about 5" long, 1½" wide, strong bill, ridge somewhat curved with tooth in front of the point, feathers projecting into the round nostrils, root of beak forming a featherless indentation against the brow. Root of beak bluish, point black, the wings long, first feather the longest, forked tail with 12 feathers. Strong insessorial feet. Body colour a bluish green, a white stripe on the front side of the second, third, fourth and fifth wing feathers, five outer tail feathers with white patches, two middle black and longer, the under side of the wings also white. Iris red-brownish. Oral fissure extends up to the beginning of the eye.

Both the mountains A and B form, as it were, the landmarks of this region. They are the highest points and the form of B is particularly interesting. Mr Rusden told me that Sir Thomas Mitchell named one Mount Riddel.



Seen from the eastern mountain range over the waterfall of Mr Fr. Rusden.



Outline of the mountain mass south-west of Rocky Creek seen from the mountain that lies west of the hut.

On 9 May, the day before I left Rusden's station, a loud shouting behind the house called me from the room. I went and saw our Black guests fully in hand to hand combat and a gin, on whom King Stephy had dealt a hefty blow in the flank with his nullah nullah. The poor woman was far advanced in pregnancy and she filled the air with penetrating lamenting cries. Finally she was led to her fire and the men continued the fight. Morris a handsome young man came out of the crowd with another, armed with heliman and nullah nullah, and they applied themselves calmly almost casually to the fight and began by turns to direct sustained hefty blows with the nullah nullahs on one another, which they parried with the helimen. After three or four blows Morris's opponent tumbled down and Morris fled a good way off followed noisily by the remaining men of the tribe, while the women and the blind man collected around the fallen one with loud penetrating lamenting cries, laid his head in their laps, wiping the blood from his wound and shooing away the flies from him. The blow had split the upper lip and crushed the lower lip

bloodily, but the upper jaw was not broken, as we feared at first. During this time Morris had to withstand a severe struggle. However, others took his part and so a crowd of blows fell on all sides almost without exception given from behind, while the enemy crept up from behind and then directed his blow towards the head of his opponent. Gradually, however, the shouting crowd broke up and several regular single combats took place. Thus King Stephy, an extremely strong and well-built man, fought Jimmy with spears, boomerang and nullah nullah. After the spears were thrown without having hit, the hissing boomerangs came flying over to us. As it seemed to me, they were thrown at the feet of the opponent and both fighters knew how to avoid them by springing into the air. The boomerang then rose into the air considerably and fell down behind the opponent in the far distance. After the boomerangs were exhausted, the combatants approached with their nullah nullahs (without helimen) and threw these.

~~Tommy was, however, lightly hit by a boomerang and~~

{A boomerang hit Tommy and cut out a piece of his skin just[?] under the ankle joint (below the lower head of the tibia).}

With this the fight seemed to be set aside for the moment and other battles drew our attention. At the same time the women always interceded screaming to separate the combatants. However, when they found that their efforts were fruitless, they calmly waited for the outcome. Few of these men came away from it without wounds, many were covered with blood making them look like cannibals.

The cause of this fight was the following: Susanne a Black women from the Big River tribe had received such a blow from old Gerry on Bundock's station that she remained at the place seemingly lifeless. Cole had taken her into the hut and people, who were going

to the Namoi and passed Cole's dwelling wished to take her with them, after she recovered somewhat. However, she could not go further than to Rusden's station and she was given a place before the fire in the hut there. When Mr Rusden came, Jacky his Black told him that a young man, Morris, desired to marry Susanne, who was advanced in pregnancy. Mr R. therefore ordered his people to banish Susanne from the hut. This took place. However, Susanne wanted no association with this tribe, by which she was so badly treated, and decided to continue her journey to the Namoi after complete recovery. However, Morris and Soy[?] waylaid her and brought her back to the camp. King Stephy seems to have punished her for her escape and this hard punishment now seemed to cause the general fight. Fights of this kind, which must frequently take place with wild people, whose passions cannot be discharged against hostile neighbouring tribes, will soon devastate the male part of the Black population. During the fight and whilst the wounded lay around everywhere or limped about, the Whites formed idle onlookers and prevented me almost unanimously from examination with the words, "let them beat themselves to death, then we will be rid of them — the more the better!" I have found similar battles over the whole Colony and it seems to me that one has to criticise not the White settlers for this but the Government.

In the evening of the same day, Mr Rusden slaughtered a young cow. She was shot. Although it was only small, she was very fat especially in the epiploon[?] and around the kidneys. Mr Rusden's young cattle, which are born on the station, are very fine, although the meat is somewhat coarsely fibrous according to the opinion of competent persons. {On skinning the animal I had the opportunity to observe the long continuous [...] in the fibres of the muscles of the skin and in the rest of the muscles.}

Country like that of Mr Otley and on Rocky Creek make the cattle fat and the meat tender, as I myself tasted it, but the soil cannot withstand the hot winds in the drought and is therefore less certain than Mr Rusden's, which is situated very high and has much water, and indeed probably may have the most to fear from rain.

Now after I had carefully packed my plants and rocks together, I saddled my good horse again and accompanied Mr Prior to Rocky Creek. You see Mr Prior had the intention of going overland to Moreton Bay and I wish to accompany him there. However, he cannot do it before the end of the month, therefore I will strive to use my time here as much as possible. With this good opportunity I gave up my journey to New England, because the winter there is very cold and therefore did not promise me a rich harvest of plants.

The yellow box grows especially around Rocky Creek, which differs from the other white gums and similar trees by its curled peeling bark, by its less astringent gum (small drops) and by its long calyx opercula. I found a plant here, which has much resemblance to the *Xanthorrhoea*. The leaves are as those of *Xerotes*, the flowers in two separate cylinders, white tubular, the three outer lips smaller, six filaments, the three inner shorter. {Besides the true box and the stunted ironbark, a tree also grows here, which looks very similar to the true ironbark.}

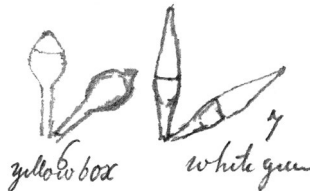
Yesterday about 800 cattle were brought in. Stockmen rode all over the run and cracked their long heavy whips. The cattle assembled in their camps (20 to 30) and the various mobs were now driven together to one place (\*the bedding ground\*). Then the whole mass was set in motion and with much trouble driven to the stockyard. Here they were then let out singly and mustered. The calves were branded and castrated. The calves of very young cows (heifers) were killed, so as not to take too much nourishment from the mother.

{I wrote to William, Mark and Lynd on 10 May 1843.}

In the pudding below the stockyard are a large number of granitic pebbles, but these mostly consisted only of feldspar and mica. This pudding forms the whole region, whilst, however, merging into sandstone. This sandstone appears towards the western mountains and forms them. On the mountain I found it intersected by a quartzite lode about 10" wide and the latter by inch wide quartz veins. The lode runs from 60° east to south 60° west. Five feet easterly and parallel with it is a quartz vein. The mountain, about 1000 feet high, offers a beautiful view over the run of Rocky Creek and over the southerly high mountain masses. I have drawn their outlines on the previous page. This region with broad flat-bottomed valleys seems so suited for the formation of mountain lakes, and yet small outlets were found everywhere that take out the water and drain the valleys. Probably the nature of the rock has done its part. The opening of this valley is very narrow and from the mountain you would never guess it. The basin of Mr Rusden had three outlets.

In the creek I found the water plant with elliptical leaves, yellow flowers, five petioles, ten stamens, and simple seed vessel, which I saw in the bed of the Gwydir on Otley's station. Under its leaves a beautiful green caterpillar, 1¾" long, grass-green attractive eye spots, two on each segment of the abdomen, particularly on the first two, a small black spot on the sides, and four pairs of auxiliary feet. It seems to want to dig in moist sand. The savages eat it.

The flax is everywhere on the mountains and ascends high up onto its flat top.



*Dillenia* appeared again on the top and several composites, an unknown shrub with lanceolate, almost fleshy leaves and transparent spots.

Mr Pringle's superintendent, Mr Prior, is a young man of good family, who enjoyed a good education in Brussels and speaks French very well, but he has no solid moral principles and seems to have a weak unsteady disposition. However, he dealt with me very hospitably and I will probably see even more of him, because I intend to go with him to Moreton Bay. He reminds me very much of Leyard.

### 10 May

Mr Prior had 900 head of cattle together in a poor stockyard. They were in it already for two days. At midday today, as I botanised in the stream bed near the stockyard, I suddenly heard the cracking sound of breaking wood, then a rumbling clangour and at the same time I saw the whole mass of cattle like a wild stream breaking out of the opening made and taking off at full gallop. A mob turned to the water; another went straight to the old camp. A third drove sideways. It was very unpleasant for Mr Prior, but it was an interesting spectacle for me.

### 16 May

The star grass appears in islands and clustered in low separated grass plots lying against the ground. Stem and sheath compressed, root sprouting from the nodes. I have seen it patchily forming almost connected grassy patches, which withstand the first winter frosts very well. It does best on loose soft soil. If prolonged, drought kills it, it shoots up again wonderfully quickly after the first rain, so it often forms six harvests. Around Glendon this grass is very important. It is at Coral. On Otley's station near Bell's it is everywhere on the soil lying on the loose slaty rock.

It is strange that boivists shoot up everywhere here around the hills of the purple ants. These fungi are in general very abundant here, as also the edible fungi after rain.

{\*The prostrate *Ajuga*.

The wax scented white Everlasting.

The four toothed capsell Berg [mountain] [...]

The little shrubby [...] grass.

Elliptico lanceolate Balm.

White gum, Yellow box.

Linear leaved gold Everlasting.

Woolleaved Daisy.

Lanceolate cylinder everlasting

Redflowered *Stackhousia*.

Broad seeded *Antheria*.

The yellow navel Camomile.

The pale coloured cluster Rush.

The yellow five petaled water *Onagra*.

The pinnatifid *Senecio* (without smell).

The keeled *Pimelea*.

The broadtoothed water Labiata.

The lanceolate shrub Composite.\*

The dentate-leaved upright green camomile.

The finely haired *Pimelea*.

The linear *Euphorbia*.

\*The bearded *Persicaria*.\*

The ground flower (the leaf stalked).

The root clover.

The six [...] smooth *Galium*.

The end-lobed *Goodenia*.

The oblong linear horse thistle.

The glossy-leaved *Cynoglossum*

The small glume.

The geniculate-furrowed *Senecio*.)

The woolly daisy with smooth elongate seeds is very abundant on the sandy soil towards the east. The woolly oats (or bearded oats) also seems to like sandy hilly soil especially just like the radiating gold oats. The silvertail is in far fields in islands on the small flats along the water courses. The settlers call this grass blady grass, because its leaves are so wide.

On the foothill of the eastern sandstone mountain, a small cylindrical-leaved *Senecio*, and the fennel scented, pinnately divided *Senecio*, an *Ipomoea*? (small with small blue florets), *Jasminium*.

On the hill lying to the north I see the stunted ironbark ascending on the mountain in long lines. Towards the west a pinnately-cleft/lobed *Goodenia* and a rough-leaved clover, which lies on the ground and sprouts roots from the leaf rudiments, appear. The ground flower seems specifically different here. The mulberry everlasting appears here again.

On the 13th I rode with Mr Stoney, whose acquaintance I made here, to Ogilvie's station. He is superintendent there. The young man, who enjoyed a college education, did not make a good impression on me then, as to him the poor Prior could do nothing right. Later I altered my opinion. He exceeded in fundamental knowledge all the young men, but assuredly his very decisive voice pleased nobody. They have called him O'Toole or the Irish tutor for this,<sup>5</sup> but where he played the host himself, and if you knew how to involve him in interesting conversations and were willing to learn from him, his nature seemed to change completely and he engaged in quiet discussion, like the most unassuming scholars of Socrates striving after knowledge. He had observed things properly throughout and he often gave his observations clever explanations. I must acknowledge that I

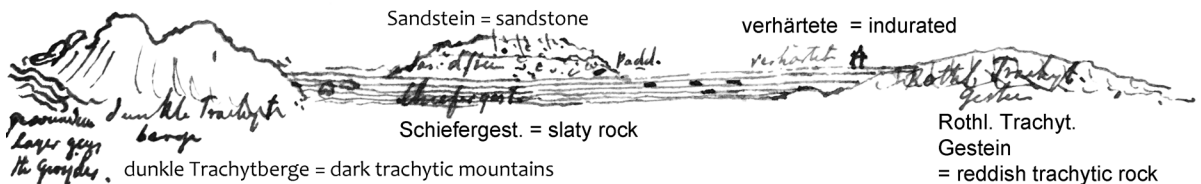
had found no more powerful a mind in the Colony since Lynd than Stoney. He told me that he had found fish impressions in the Manilla River and this so excited me that I decided immediately to accompany him. I found indeed that his fish impressions were just impressions of fossil trees and plants, which, however, were no less interesting for me. The impressions in the indurated slaty rock were: 1. an *Equisetum*, 2. a *Lepidodendron* in the sandstone below the paddock and finally another impression similar to the *Lepidodendron*, but wider than high. Furthermore many indications of branches were found that contained more or less iron. In a small ravine below the stockyard carbonate of lime is deposited, which not only covers the sides of the ravine, but also encrusts its pebbles. In addition you find many calcite veins and in the creek below the house are pebbles of white fine pipeclay that sticks to the tongue extremely strongly.

As you follow the river downstream, you see how the hard slaty rock is covered by a clayey sandstone that becomes purer towards the top, but appears in the surrounding mountains as pudding and conglomerate. {The sandstone is very well suited for building.} Even deeper where the slate rock had probably escaped the action of the volcanic rock towards the south, it is more earthy and irregularly cleaved. The strata dip at an angle of 8° towards the west; in the creek the angle is 20°. In the ravines through which you arrive from Ogilvie's on Bundock's run and in the area of the Gwydir,

these strata are irregularly bent and twisted and the rock itself is covered by trachytic rock. Irregular, often lenticular masses of fine grain, lie in the slaty rock at the paddock. The whole Manilla River and the Gwydir run through the same slate formation. Mr Stoney found similar impressions of very wide stems on the Gwydir at Pagon's station.

We went along the creek and finally arrived in the middle of the bush on a treeless pasture, from which two gullies ran to the creek. It was a rich black clay soil. The vegetation was formed almost exclusively of the palmate-leaved vetch (from Mawson's station). *Verbena* was growing abundantly here. The cattle that have chosen this place to camp seemed to like this palm-leaved vetch. Why had a tree never grown on this restricted space? The trees that surround it are about 25-40 years old. Millions of seeds fall down annually. Not a single one germinates. The neighbouring soil is in any case more sandy and looser. It seems the same conditions prevail here, which determine the distribution of trees on the Liverpool Plains.

In the steep banks of the creek and river at two places I saw the hollows that the cattle had formed by constantly licking in the clay bed. They were often one foot deep, 1½-2 feet wide. Indeed in some regions they are said to have formed hollows that already now take a whole beast. The clay is grey, stiff, plastic with grains of a white friable substance (which I regarded as pure clay). It has perhaps a softer taste, but by no means tastes of salt or saltpetre. Mr Stoney



gewundene Lager geg.  
the Gwydir = twisted beds towards the Gwydir

Probable section from the paddock to a small water course south of the house.

imparted to me many interesting things about this practice of the animals. Already on Mr Rusden's station, I noted how the cattle and horses daily and nightly came to the hut and licked the soil around it, as much salt fell on the ground in salting the meat, and probably the urine and the saltpetre forming there attracted the animals too. Often they made a quite unbearable noise, snorting and breaking the fences down and so forth. On the pasture they have some clayey damp places in which they trample around. The water collects in their foot prints and then they come and drink up this water. On clayey stream banks they form licking holes and this tendency, which probably is connected with the salt licking, from time to time becomes unhealthy. Usually two or more cows in a herd almost never leave the licking holes and eat the soil feverishly[?]. The latter are then usually very emaciated. After some years they restrain from it and then become fat and strong. {In the myal forest grows a shrub that the cows eat with great appetite, although they can live off the myal. The leaves of this shrub are always covered with salty parts. A similar thing could be seen in Telligerry, when the animals change the pasture.} The dung of these animals is runny and highly yellow, as if earthy. This desire for salt or salty or alkaline earth exists also in sheep and for these it is mostly very dangerous. If they once get used to eating earth, the ewes also eat their lambs, as they first lick off the salty water on the new born lambs and then begin to chew at the tail. This region is therefore not favourable for sheep raising. {A man on a neighbouring sheep run knew a good expedient against this tendency of sheep and this consisted probably either in an alkali or in saltpetre.} In dogs something similar appears. When Mr Stoney fed a wild young dog continually with liver, entrails and soft animal feed, he saw to his surprise that the dog swallowed clay where ever he could procure it. When Mr St. later fed him with

bones, this stopped. It is very probable that the clay soil contains soda or potash and that this binds the developing carbon dioxide gas in the rumen of ruminants or in the stomach of the grass-eating horses. {Thus even the myth is explained that the wolves eat the earth when they are hungry.} However, the desire for salt also seems explicable as an aid to digestion and finally a certain quantity of salt is utilised as a constituent of the blood and it is easily conceivable that in case of prevailing low salt content of the grasses and herbs, on which they live, their animal instinct understands how to find this quantity of salt in soil.

The native dog usually holds his tail upright, but as he flees, he lowers it. That of the yellow dingo of Mr Stoney fell with the tip to the left side. Opposite the dwelling lay a dead cow and the wild dogs came in dozens and howled heart-breaking songs over it. Mr Stoney's tame native dog answered them without, however, leaving the hut and the young kangaroo dogs had already learnt to accompany it. Once in a pitch-black night Mr Stoney found himself surrounded by about 20 howling dogs and naturally he did not feel very comfortable in their vicinity.

I have never heard so many interesting things about the Aborigines. Their insight, and their quick answers are often funny. One of the boys, whom Mr S. brought from the Hunter, came to a White and the latter said to him: \*'Well Darky — Well Pipe clay!''\* replied the Black. The same boy said to another, who did not belong to a local tribe, \*'You bloody black cattle killer.''\* — Jack answered very softly and respectfully, \*'Why -- you not white fellow Jimmy!''\* The same boy said to Mr Stoney, when he asked him where his friend Jack was — "Friend? Do you think I am friend of that Black? That filthy creature. What can you be thinking?" They make their fire permanently on the same place!! It seems that this belongs to their idea of cleanliness,

constantly making a new fire. Mr Stoney explained to a boy that it was not right to swear and that those who swore went to hell. When another young gentleman came to Mr Stoney with cattle and continually swore, Jimmy said \*‘‘That fellow go to hell!’’\*

He communicated the following about their religious views to me: Poyami, who made them all, lives in the far west and is at present sunk in deep sleep. His heavy head rests on his elbows, which match the body of a horse in thickness. He is pressed into the ground and the raised sleeper will awake, when the elbows begin to decay, then he will arise and stride to the east and all the plains will then fill with water again. He has a wife and some sons, of whom the eldest goes hunting kangaroos with tall spears. {He is a handsome young man with black curly hair.} {Morris and the other Blacks called him Bayanni. They made no trouble admitting everything that Mr S told me. If you could speak their language, I am convinced you would ascertain many an interesting legend from them.} A younger son once went to catch possums and because he returned covered with possum skins, the toothed wild dogs of the Aborigines followed him and killed him. Hereupon Poyami ordered his wife to wander about in the bush and submit herself to the Aborigines. Many enjoyed the body of the gin of Poyami but all died from it. Thus the creator of the world avenged the death of his son. {Mr Stoney remarked that this probably is a myth of the wise men to restrain the youths from too early carnal intercourse with gins.} Poyami ordered the great waters to come to him. They rose higher and higher and higher, then ebbed back and left fishes on the ground for Poyami. In any case this shows the ebb and flood.

If the Blacks do not hold their corroborees regularly, then Poyami feels angry and sends the pox to kill them. This comes in the form of ibis flocks and the wise men see

them. The Blacks then hold corroborees in the early morning when they become aware of their mistakes and Poyami calls the ibis back. The latter then sit on the branches of the trees and set up a terrible cry of anger (they roar) that they were not allowed to kill the Blackfellows.

Some years ago grasshoppers had destroyed almost all the grass in this region and the Blacks said that bullocks had disturbed Poyami in his rest and that he now had sent the grasshoppers to punish the entire bullock family. Mr Stoney said to his Blacks, he would go and visit Poyami. They answered him, if he did that he would die. Mr St. answered, when he came to P., he would say, ‘‘How are you Poyami, here is a pipe of tobacco.’’ The Blacks laughed and then replied, ‘‘Poyami has tobacco and sheep and cattle and horses.’’ They were in the country before the Whites came, but Poyami felt angry towards the Blacks and killed them all. As proof of this, they claimed that they always imitated bullocks in their corroborees, the horns of which they represented by their fingers on their heads. Thus they imitate at present the movement of the emu, kangaroo and of the flocks of sheep and it is extremely interesting to note how acutely they observe the habits of the animals.

Poyami heaped the rocks one upon another on the sea coast to keep the water from the land and he piled up a large amount of honey in some rocks in the neighbourhood of George Blaxland and Newcastle. These rocks are so well described that you recognise them even in the words of those, who have never seen them (Stoney).

A Black of the tribe of Gammon Plains was absent for three months and he was regarded as lost. After this time he returned and said he saw Poyami. He had you see followed a bee and this had lured him further and further and finally he recognised that this bee was the spirit (Mongwe) of his dead

father. Thus he had come to the place where Poyami slept and there he had seen Poyami surrounded by skeletons of dead cattle and Whites and a dray. His father had prevented him being killed.

{Degrees of relationship of the Blacks. They call brothers Hippencombo. Ponai (the degree whose meaning I do not know). The sister Hippita. It is not at all certain whether these words indicate relationship or friendship.}

They spare the possum during the breeding season.

The Blacks have sorcerers and doctors. Each of the sorcerers has his own animal that lives in him and that he can send out to kill his enemies or to harm them. If any kind of misfortune happens in the tribe, they know immediately that the sorcerer of a neighbouring tribe was the cause. Darby had a large snake and another had a bullock. When the Blacks of the Namoi sat in their camp, they saw this bullock jump through their camp and fight with the bulls of a neighbouring herd. The wise men of the tribe knew immediately that this bullock belonged to the distant sorcerer and that they would have to expect misfortune. And so it was, because a large number of the Namoi tribe, who saw this bullock, died. To become a doctor, they go for weeks into the mountains, where they profess to live without food. Wanda wandas (woman, small manikin about one to two feet tall) carry them from mountain to mountain and often they fall asleep on one mountain and next morning find themselves on another. According to their assertion their bones are changed into transparent crystal and only after their death do they take on the condition of bones again. The magic words are not known to the women. Everything that has reference to doctors, sorcerers and wise men is a deep secret. The women may not see the transparent quartz crystals, which

the doctors carry with them. {The ceremonies of the Borah as Mr Prior told me are fables. Sacrifice[?] of an old gin eating her excrement. Mr Otley repeated to me, however, that they had eaten the excrement of a gin, before they were permitted intercourse with her. He asked how many times they tried it and they showed two to three fingers and thought it was "very nasty".} The real name of the Blacks is a secret as well. The young men of 14 to 23 years may eat only few foods, but it seems so arranged that they only recognise the distinctions when they already have the animal in their hands, which then belong to the elders. This seems the intent of this arrangement. Mr Stoney thought and very probably his opinion is the correct one that the young men in this way become used to the activity of collecting the necessary food for the elders at the same time. On the Hunter the young people up to 20 years old are not allowed to speak to the gins.

### Dialects

They speak Commalaroy (Commal-wal is "no") on the upper Hunter, Goulburn, Mudgee and Bilah. On the Peel and Namoy they speak Walaroy (a dialect of the same language). On the upper part of the Manilla River they speak good Commalaroy, on the Gwydir and Big River Walaroy, on the lower part of the MacIntire good Commalaroy, on the upper part of the MacIntire Piccumbill (Yuccumbill). There are various dialects in Bathurst. Some Blacks speak various dialects (Jimmy 7) and they boast about it. On the boundaries they usually speak both dialects or at least understand both.

The MacIntire is wide and abounding in water at its mouth and becomes narrower on the plains. Here branches break off from it that often run parallel with it and then join with it again. So for example the Bommoy goes off from the MacIntire where the latter receives the name Baron.

All coroborees and singing come from the west. Mr Stoney gave me a song, which is sung very generally, without being understood by the singers.

{Song}

Winga dyagga dyarago (a second time)  
 Bogen darra gadgero  
 Ningala gudyon gronmangala  
 Eumana darria ulbona mandjir mandjir  
 mandjirri  
 Gunga monnora manangela (a second  
 time)  
 Gagan maldona milganda milgandangoi  
 Camgadye wirro wirro wirro  
 Cayambar galiwora (a second time)  
 Ningala gudyon gemmangala  
 Enmana darria ulbona mandjir mandjir  
 mandjirri

The water of Wolombada, a rock in the vicinity of the Page, which can be climbed by the blacks only with great trouble, tastes of lime water and the Blacks drink it for venereal disease.

The Blacks judge the fatness of an animal, for which they keep on the lookout above all things, in various ways, thus a possum according to the fat that they feel around the testicles and flanks. They bend the snakes at the anus and the penis of the male usually springs forth immediately. They say that the sleeping lizard walks constantly in a straight line, never returning to the place, and hatches its eggs in its stomach. The former is very doubtful, the one that I saw had crept into a hollow tree trunk and it must inevitably go backwards to go out.

Mr Stoney distinguished two species of shepherd's companion, one moves the tail up vertically, the other horizontally, one has a black patch on the throat.

The great flood was in January 1840. It had filled the water holes with sand and pebbles and the water level after it is much deeper

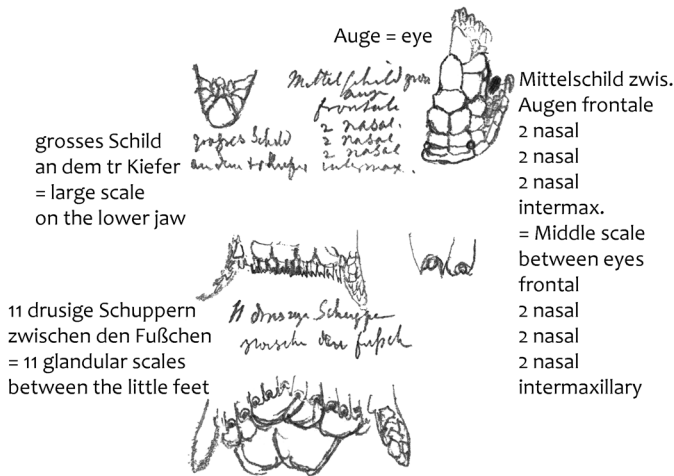
than before it. The water level even changed in the wells; in one of them in Brodys Creek (?), which comes from the Liverpool Range, they had to dig the well 20 feet deeper to come to the same water level.

Mr St. told me of a carpet snake, which had eight young in its belly and an *Ornithorhynchus* in the stomach. *Ornithorhynchus* are in the Manilla River.


On the steep banks of the Manilla River near Ogilvie's station I found the *Acacia* with somewhat curved, inch-long phyllodes and a gland.

In a watercourse on Bundock's run a new grass, two feet tall, here and there strong branches from the main blade, broad-leaved. It is very easily recognised, as the glume is formed of eight stiff prickles that are provided with small hooks at the apex and have a bunch of soft hairs under the apex. It is biflorate, one flower empty, the other with stiffly membranous valves curved inwards.

The black duck is 2' long, 2¾' wingspan (approximate estimation) bill 1½" - 7" to 8" wide at the end, very little wider than the root, as high as wide, but rapidly reducing and then flat. Nostrils perforated ([...]). Inner edge of upper bill[?] dentate, somewhat outside of the lower. Tongue with a longitudinal furrow, and a thin leaflet at the tip, the whole body black grey. Back somewhat darker, each feather bordered dirty white. Over the eye a yellowish stripe, through the eye a black stripe, under the eye a yellow stripe, then a pale blackish lore and a yellow throat. A green and blue metallic pattern, black feathered. {Pattern 10 feathers}. The outermost ends of the feathers with light white stripe. The tail stalk-shaped, but sharply cut out in the middle. First and second pinions the longest, the second perhaps a little longer. The feathers under the wing white, particularly a kind of white double [...] under the arm bone. Iris brown.



A weak edge on the inner toe, thin about 5'' long, with small claws. Presently whitish-grey down.

\**Pseudopus* Durugul (bail bite him, merry quiet fellow)\* 1½' long, ⅓"-5'' wide, head ½'' long of similar thickness to the body. An intermaxillary scale, three paired scales behind these, then two simple (frontal and occipital), the last a pair. Nose is not in but between the scales. Teeth small,  in a simple row in upper and lower jaws. Tongue a little split at the end. Ear-hole opening is in a line with the mouth opening. Back brown, olive coloured behind the tail. A row of small black patches about 3'' from one another on each side behind the eye. Under the eye a little black stripe through the corner of the mouth. Ventral side reddish-white, under the tail more mottled. Behind the head three to four blotchy stripes descend to the front. Two rows of broad scutes on the venter. The foot[?] stumps at the anus are small elongate round plates (or platelets) externally with four rows of scutes, towards the body with numerous small blackish scutes. 11 glandular scales are between these platelets. These glandular scutes seem to have a hollow apex in which a small body lies. I found this animal at the foot of the Castle mountain in Rocky

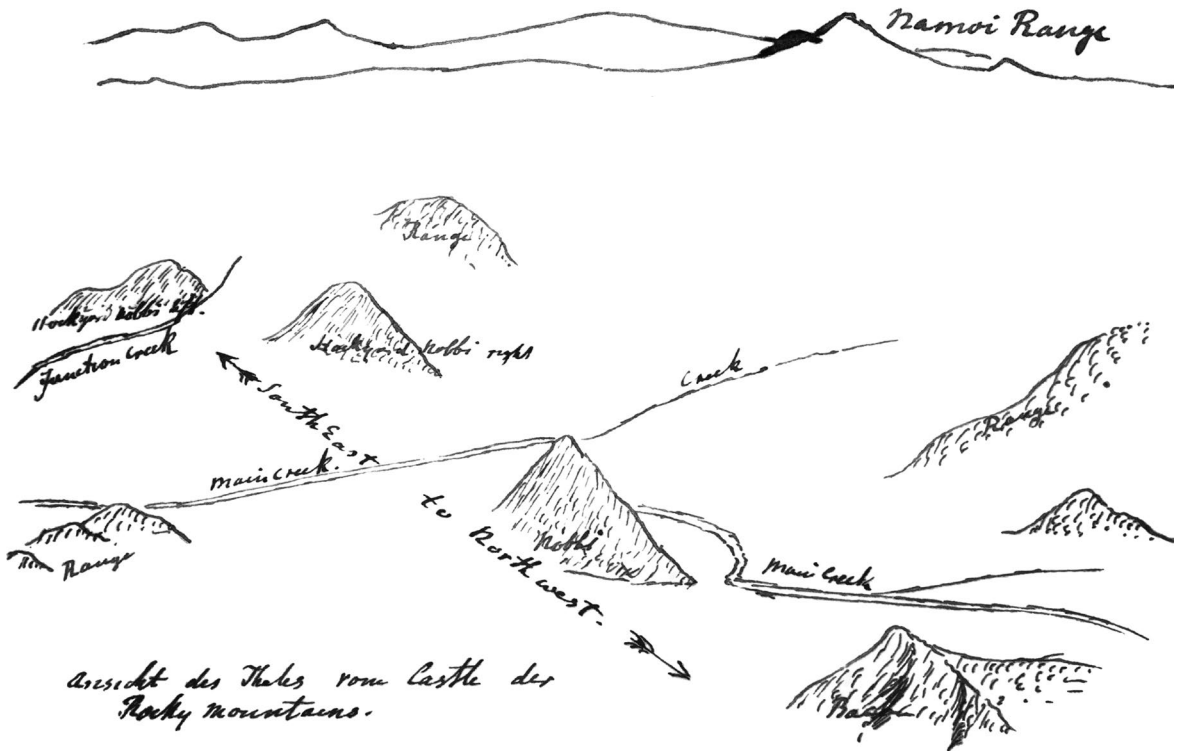
Mountains in kangaroo grass, as it tried to escape me with a snake-like movement. A blow and the heavy movement broke the tail in two different places. Later on the dogs found another between the MacIntire and Frasers Creek, which, however, escaped only leaving his much darker coloured tail behind. When I showed it to the Blacks, some were frightened by it and said it was very poisonous, while others assured me it was not and the anatomy agrees very well with this. It shows, moreover, that the Blacks only have very precise local experience.

18 May

{31 May 1843. On the banks of the Severn on Mr Coxe's [Cox] station Bulurn 103 miles from the Gwydir.}

I have to add another excursion that I made with Mr Prior to the Rocky Mountains, which border his creek in the west and south-west. The bottom of the valley is very open and wide. It was enclosed towards the north and south by sandstone or conglomerate ranges, which are all covered with silver-leaved ironbark. Towards the east the stream breaks through the mountains and it becomes evident from the eastern height that the bottom of the valley once had been a lake bottom. Three main creeks are distinguished; the Back Creek, Junction Creek and Main Creek, which all have joined with one another shortly before the eastern outlet (the Junction Creek much higher). The yellow box and the apple tree cover the valley, which is covered with rich grass upstream, whilst the lower part holds more water and nurtures kangaroo grass on conglomerate heights.

Westwards the valley appears to widen and here trachytic rock masses protrude

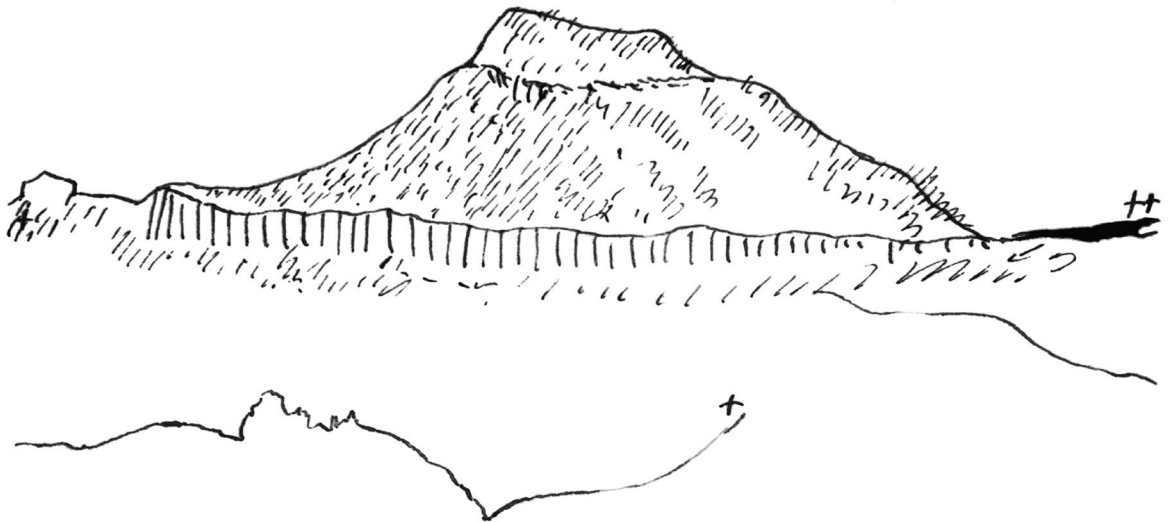


View of the valley from Castle of the Rocky Mountains. Stockyard Nobby left, Stockyard Nobby right, Nobby, Bacon.

from the flat bottom, which in certain views appear as pointed cones, but all are somewhat elongated masses. Some contain a trachyte without feldspar crystals, similar to the domite of the Puy de Dom, the others have rough feldspar crystals and small spheres of iron here and there. These mountains of the plain are undoubtedly connected with the western mountain masses, as they not only strike in the same direction but the nearest also show the same rock characters.

As I indicated on the view, these elevations, at least the three or four of the most important, stretch from south-east to north-west. You ride around these mountains in a perfect plain. From the Bacon, which lies closest

to the western mountains, an embankment runs to the Castle, which ascends to perhaps 1500' over this plain in steep terraces. From the top you enjoy a very wide view to the south over the valley, to the north over the wide plains, through which the bed of the Big River meanders. These plains appear yellow now, because the grasses that cover it were ripe, but dark shadows extend between these yellow fields of grass and these are the myal scrubs, whose herbs and shrubs give the cattle pasture on the Big River such extraordinary fattening properties. Towards the west a mountain mass ascends, which also exceeds the Castle mountain in height. The following is the view of it from the top of the Castle.

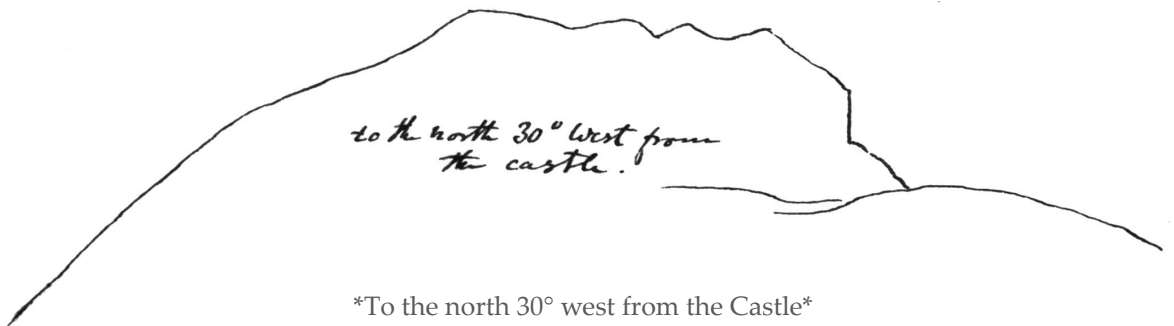


View of Rocky mountains with the continuation of the range + and ++

The rock was not stratified, not tabular, but cleaved. Steep vertical rock walls stood to 300 feet high, on the western side narrower. On the opposite mountain such a terrace was visible on the side towards the east, but it seemed less high. Several valleys descend to the Big River.

The Stockyard Nobbi is a high rock of whitish trachyte with blackish fillings. Calcareous waters percolate through the fissures and form small concretions in the wall, similar to those that you find in the black soil of Liverpool Plains and Byron Plains. Here a vertical wall bounds a secluded valley,

whose stream carried boulders and pebbles of conglomerate and violet trachyte. The trachyte of the rock was without crystals and very hard. Several brush plants grew here, for example the shrubby umbellifer. Swallows had built many beaked nests together in the hollows of the rock wall as in colonies. On the less steep, sunny slopes the woolly rue was growing and the worrah heath (first seen on Rusden's mountain Worrah) was in flower.



*to the north 30° West from the castle.*

\*To the north 30° west from the Castle\*

On the Castle there is trachyte or rather domite, an earthy cement with feldspar crystals. These crystals are rare or completely absent in Nobbi and are completely absent in Stockyard Nobbi. The rock has much similarity with that of Sarconi in Auvergne. The upper part of Rocky Creek widens into a valley with completely flat bottom from which four to five conical hills about 8-900' high protrude. It seems that the mountain ranges that enclose the valley on the south-east, south and south-west all belong to the same rock. Lower down the valley the sandstone and conglomerate occur. The Castle has several terraces, the highest forming a kind of castle with steep almost vertical slopes towards the south-west. Those hills have received the names Stockyard Nobbi (right and left), Nobbi, and Bacon, while the highest mountains are called Rocky Mountains.

I found the grass tree in abundance on the Castle (compare the last page of the book, where I sketched one [p. 261]), an *Acacia* with long phyllodes as a small tree, the pine, a *Eucalyptus* with white bark, with crinkly stripping bark, *Solanum* with prickles on the middle rib on both sides and on the calyx, a grey-leaved and a fine-leaved *Dillenia*, *Monotoca*, the prickle shrub as a legume in flower, a really stiff-leaved grass (*Stipa?*), leaves on one side hairy, the golden-flowered *Acacia* and several other *Acacia*, a grey grass with smooth leaves rolled together at the top, the fine-leaved *Cassinia*, and the woolly rue. At the foot I found another rue bush, which is very close to *Correa*.

When we came home in the evening, Morris said to us that the Blacks intended to hold a corroboree in the night. I was very curious to see this national dance of the savages that is distributed almost over the whole of New Holland. The night was dark. The Blacks had chosen a flat place just under the north-east mountain, far away from the huts, because

one of them feared Mr Prior's presence. A large number of fires shone through the dark bush. We came to the first and found King Peter with his gin, whom I had already seen previously on Rusden's station.

King Peter had painted himself with white clay (pipe clay). Soon several gins and two boys came, all with similar white stripes, but each different from the other. They were somewhat restless and as if prepared for a festival. Two fires were lit in the middle of the place and four gins sat down at one, rolling up their possum cloaks and pressing them between their thighs in their laps. Now they began their singing, hitting on the possum skins with their flat hands as on a drum. The first song was Koorinda braja, which Mr Nathan in Sydney had set to music. From a more distant fire came seven young men all striped white forming a semicircle around three gins, who began a strange dance. All joined in the song Koorinda braja too and the boys danced with the men. The gins danced with moderately bent bodies, jumping elastically from one leg to the other, accompanying these demonstrations with arm movements. The arm was bent approximately at a right angle and they moved it back and forth. The men had boomerangs in their belts and danced around the gins, now one and now the other, hopping twice on each leg. They did not hold their bodies upright, but bent forward, as were their feet. They did not follow the rules of the European art of dancing and though their movements were not graceful, they were interesting, entertaining and clever. I knew beforehand that this dance imitated the kangaroo hunt, but I would not have guessed this corroboree from the mere show. Gradually the circle of men contracted, the gins approached the fire and finally slid out of the circle to have a rest. In the case of the second dance not Koorinda braja, but Boyal bedunaga was sung, in the third Wondära

wondäre and Bugara unaga, Bugara unaga. The onlookers sat and stood at a second fire, while the dancers withdrew to a third. When the Black boy stoked the main fire with an arm full of branches and the nearest trees stood out in full illumination against the night, which covered the background, the white painted dancers seemed ghostly creatures, as they performed the fantasy of the poets and artists before us on the stage. There sat the Black of the Namoi tribe and from Big River and looked at the dancing as experts on matters of art, while other Blacks, one clothed with a shirt, the others with trousers, formed the transition to the white onlookers, who were astonished and delighted by the strange spectacle. Three dances were danced, but although the accompaniment changed, the actual dance was still the same. It was a small corroboree, as I was told that often it was danced by 50 and more.

On the following day I arranged my plants and rocks and prepared myself for the journey to Moreton Bay. Mr Pringle and Mr Barnett came and Mr Pringle had even brought his wife with him.

Mr Low, the superintendent of the station on the Big River, told me the following about this river (on 18 May 1843). The Big River flows through wide plains, from which you see the Rocky Creek Mountains in the far distance. The soil is black and rich; after rain an impenetrable mire, into which the animals sink and so impeded on escaping, easily become the prey of the Blacks. Tall reeds are a characteristic of the damp places. The oat grass grows to the height of a man and higher. At some places no grass grows, but various plants succeed through the year, thus the native *Malva* (similar to the Coral *Hibiscus*), which the cattle like and the fruit of which the Aborigines eat in thousands. After the frost kills the native *Malva*, the native carrot appears that now shows a small rootlet. After this come other herbs; the white and yellow

lily in abundance. Myal scrubs give the plains pleasant variation. In the driest season the cattle become fat there, if only the savages leave them in peace. The emus and the native companions (*Grus stanleyanus?*), which sound their call morning and evening, the whistling duck, which betrays the presence of the savages in the rushes by fluttering up, lay on the water in 500s. Mr Low saw a reddish-yellow parrot and a pretty large dove, similar to the bronzewing pigeon, but larger with blue head and in 400s, the cockatoo pigeon, the myal dove and the budgerigar, which the Aborigines eat. The cattle become fat quickly and in consequence very quiet, quieter than any other herds. The savages drive them in the rain through the damp ground, the mud comes between their hooves and makes them lame. Hall's cattle are the best, then Crawford's and Bettington's. The cattle are heavy and of larger breed.

{The fat cattle of the Big River, however, lose more fat only on the march to Maitland than fat cattle from grass stations. The cause of this is: 1. the change of food, by the animals coming from herb pasture onto grass pasture. 2. The soft plains, which makes their feet sensitive against the hard road. 3. Finally the nature of the fat and the muscle fibre is incapable of standing the tiring march.}

Mr Prior had a large black water hen and a *Plotus* with whitish lore and white-clouded shoulder feathers. A snipe with yellow eyes on the tail, white through the eye and a kingfisher with white black-bordered neck band.

{Mr Stoney went three days without lunch, because he did not want to sit down at the same table with stockmen. They asked him to come to dinner, his answer was "bye and bye", but the hutkeeper cleared the table and Mr Stoney went out empty. This is a very ridiculous behaviour; you can very easily keep these people in their bounds, they are all reserved and when they venture

questions, they do it in a very modest manner. Mr Dangar knew how to handle them properly, but he seems to me to chatter with them too much.}

The following scene is not uninteresting, as it shows the pretensions of the various superintendents and their relations to the stockmen. When I was at Rocky Creek, one day about midday, I returned from an excursion. I found a man of about 38 to 40 years in the hut, whom I lightly greeted. He had taken a seat in the armchair and was reading. I packed my plants in paper and as this drew his attention, we exchanged a few insignificant words. Finally Mr Prior came; the man rose to shake hands with him, but Prior rebuffed him so coldly that the man quietly sat down again. The hutkeeper came and served the midday meal. Prior went out of the hut and as I followed him, he said to me that Waterford was a convict, who seduced a girl, whom a friend expressly placed under his protection. The man came out of the hut. Prior said to him, "Mr Waterford I regret that I cannot be more hospitable towards you, but your midday meal is served in the hut". "Explain yourself", said Waterford. Prior replied "I think I am not of equal rank with you". With a "Thank you" Waterford went back into the hut and as we came back from the garden, he had saddled his horse and had ridden away, without touching his meal. This treatment of Waterford was now very generally discussed and ran like a wildfire through the bush. When I passed Heatherington's [Hetherington] station 100 miles further on with Mr Dangar, someone said to my companion that they would bolt the door on Prior and set a dog on him. Waterford himself said to Dangar that he had never been so insulted as by this young fob and that he would have revenge on him. Should he not be able, his son would do it. I should not be surprised if Prior's future progress was substantially

damaged by this. This had very unpleasant consequences for me, although I agree with Prior, to make a scoundrel feel his contempt, not for his atoned life, but for his unatoned. Many thought, however, that he could have done this much better and finer, because commonsense just dictates being careful in this country and not to know the errors and crimes of its inhabitants. Every stockman, every hutkeeper took Waterford's side and they forgot Waterford's crime, as they only think of his insult as a convict, which indeed they are themselves.

On Monday 22 May I left Rocky Creek. The young man embarrassed me with confessions of a frivolous life, which came little short of Waterford's. Although I repeatedly said to him that my principles were very different, he still thought he had to amuse me with his life's adventures. I am reminded here of Silvio Pellico's exchange of letters with one of his fellow prisoners<sup>6</sup> and I understood and understand his indignation perfectly. When I passed the Gwydir I found a legume with small reddish flowers in bunches on the pebbles forming the old bed. It had almost completely finished flowering. It had a simple yellow root and prostrate branches spreading over the ground. In addition I found that *Oxalis* from Otley's [Ottley]; on the high river bank *Cassia*, grasses and *Angophora*; along the water a hedge of young *Casuarina* and rounded bush of *Leptospermum*. Further on the distribution of the silver-leaved ironbark and the box is interesting in so far as the former occurs everywhere where the indurated conglomerate outcrops in small hills. The horse trod on my poor little dog, a son of the pointer bitch and a bull terrier, probably burst a vessel in the lung or liver. The poor little animal died in the night at Otley's.

Mr Otley had already said to me that an easterly slope of the eastern mountain range had a rich scrub. I visited this on 23 May. On my way there I found that the so-called

oat grass differed very substantially from kangaroo grass in the following points: 1. by the long-stemmed flower bundles, 2. by the longer slender hairless leaves, 3. by the longer ligule, 4. by the densely-haired seeds (valves that enclose the seeds), which for the most part is quite smooth in kangaroo grass. {I think to have found even a third species of *Anthistiria*, which has the flower bundles of the kangaroo grass.}

On a prickly round-leaved shrub are the most beautiful black berries that I have tasted from indigenous plants. Three *Acacia* in flower: The grey-leaved, the green with long phyllodes and finally the green wattle. These are on the west side. In addition there is a shrub with *Digitalis*-like flowers and a shrub with yellow berries. On the east side an asclepiadacean, a small tree in full white bloom, *Cassia* abundant, a dense paniced *Panicum*, *Notholaena*, a shrub very similar to it, the larger *Euphorbia*, *Solanum* with small edible reddish berries, another thorny with large green or yellowish very sharp [berries]. The composition of the bush on the eastern side of the mountain range is very interesting. Several grasses (*Panicum*, *Stipa*) cover the ground, then *Cassia*, the umbel cruciferan, *Euphorbia*, the red-berried *Solanum*, the prickly, green-berried one, the yellow-flowered *Malva*, the upright *Sida*, then the low shrubs, two euphorbiaceans, of which one forms almost a small tree, a tall leguminous shrub with leaves like the olive tree, then *Notelaea*, with *Cynanche?*, then several acacias (but these on the west side), the black berry, a shrub with broad lanceolate leaves, underside silver-white (abundant near Sydney), the pine and finally the stunted ironbark. Several creepers (also *Tecoma*) with white sap, probably *Leonsia*?, a *Melaleuca* at the beginning of a gully. Whilst these plants grew on the schist hills, I found some grasses and small flaccid plants (*Hydrocotyle*) in the damp gully and on the

east side of the basaltic hill, the lanceolate-leaved shrub composite, the narrow-leaved *Cassinia*, a new *Correa* as a middle sized[?] bush. The diversity of the plants was almost as great as the diversity of the soil.

{A small tree with yellow or red berries almost like on Ash Island}

{When you go from Otley's dwelling to the mountain, you find at first the yellow box, then myal scrub and silver-leaved ironbark; after that the true box, which extends up to the foot of the mountain and then makes room for the mentioned plants. Towards the west *Angophora* covers the plains next to the Gwydir. As soon as the conglomerate soil begins, a scrub and forest of silver-leaved ironbark appears, which goes to the foot of the mountains, which are covered with box.}

A large number of paths, which the kangaroos made, led through the dense thicket. You saw not only the three toes of their hind feet, but also the impression of their tail very clearly in the sand.

On the western side I found a hard rock of slate colour in a neighbouring creek, which contains many crinoid columns and impressions of bivalves. It slightly fizzes with vinegar showing its carbonate content. I am convinced that this rock differs from the shale of the plain and from the sandy rock of the hill only by the large number of fossils, which give it its lime content and hardness. The hill seems much sandier. Basalt appears in the eastern ravine, the bed of which is covered with calcareous sinter. This calcareous sinter probably comes from the lime content of the mountain. Later I heard that the southern end of the eastern range of hills contains a very considerable deposit of pipe clay, which Mr Dangar used to whitewash his hut at Derra Derra (Mr Cox's station). The northern mountain, which terminates the mountain range, continues, however, towards the north in a slight rise,

and is as already mentioned a porous basalt (or trachyte). It is covered with pieces of quartz on its eastern slope.

I left Mr Otley on Wednesday 25th May and rode to the Big River. {Leaves opposite pale lanceolate.} I found a greenish grey-leaved shrub in flower and fruit and another bush with samara fruits (2 or 3), its leaves are broad, linear, blunt. The silver-leaved ironbark is the prevailing forest tree, on rich soil box, in depressions *Angophora*.

The Big River has, so to speak, two beds, a narrow one in which water stands and runs, which is surrounded by a hedge of *Casuarina*, and a very wide one covered with pebbles, in which some very large gum trees grow. I saw huge trunks washed up and indeed to a considerable height. I already mentioned I saw the same formation on the Gwydir. It is found as well on the Macintire and on the Severn and probably on all those rivers, whose beds are not enclosed by very high banks. The thickness of the trees growing in the boulder bed shows that large floods occur only at long intervals, although along the Severn I saw very clearly that the flood completely uproots all the trees, which it finds in the bed. Thus I saw huge trees standing on a bare root scaffolding near Mr Dangar's hut, the flood having only washed them and not washed them out. The bed of the Big River shows quartz sand, ironstone, jasper, thermantide, very hard conglomerate, and hard shale. In Norris Creek quartzite pebbles all dark and hard (or indurated clay rock).

From Beattie's to Norris's myal bush and silver-leaved ironbark and box; some places very rich in iron — violet humus. The oat grass is very high. Norris Creek is quartzite. From Norris's to Dangar's station on Myal Creek firstly silver-leaved ironbark ridge, then rich black earth plains with basaltic base covered with box. It has the character of Cassilis. It is a beautiful run, very vigorous grass growth.

From Myal Creek (Dangar's station, Hunger Station) open undulating country with myal and box, oat grass, wool oats, black basaltic soil, pieces of basalt visible everywhere. The track led to a range of hills. In Myal Creek basalt, blue clay slate, thermantide, pieces of quartz. Opposite the hut basalt outcrops, commonly vesicular.

At the resting place a wide plain, black soil, devil devil land, calcareous concretions, dense grass vegetation (oat grass, *Danthonia*, the digitate-leaved legume, the narrow-leaved globe everlasting). A damp water course runs through this moderately undulating lake bed. Then between this plain (Dangars Plain) and Byron Plains an iron-coloured rich soil covered with box. Sandstone or conglomerate appear everywhere between Waterford's (Byron Plains) and Mr Wyndham's [Windham] station on the MacIntire, but towards this river rich black box plains again occur. Here the distribution of sandy soil with tree vegetation and black marsh soil with grass appears very similar to that, which was described near Mr Mawson's sheep station. {Here I had the misfortune to lose my hammer.} {Mrs Waterford makes extremely fine fat cheese. It is so fat that you cannot roast it. It melts before the fire. Those I tasted were not salted enough. Cheese is made on nearly all these stations. Walker, Heatheringtons, and Blaxland all make very tolerable cheese.}

Although the sun had already set, the scene between Waterford and Prior caused me not to remain on Waterford's station, but to continue my way to Mr Windham's station. The darkness fell over me suddenly and the track was only visible when my white pointer bitch proceeded on it in front of the horse. It was night when I arrived at Windham's station. Here Mr Samuda is superintendent and since I had never seen him and brought no letter of introduction with me, I decided to make use of Mr Windham's name to

introduce myself to him. Therefore when I found him, I addressed him in the following way. \*My name is Leichh[ardt]. I am a German traveller and come to you with Mr Windham[']s compliments.\* The man was polite, but probably my blue wool jacket confused his comprehension and he somewhat familiarly ushered me into the kitchen, said to me that this was completely at my disposition, ordered the hut keeper to give me something to eat and left me alone. I thought he had visitors and did not want to introduce the unprepared traveller to well-clothed company. Therefore I remained quiet, ate heartily and warmed myself. But I found that he was taking tea with his overseer, a young man and his wife and therefore perceived that he did not regard me as a gentleman. This annoyed and insulted me, because I thought to have made provision to prevent such a misunderstanding. My vanity was deeply hurt and I could only gradually master my feelings. I stepped up and down in the cold starry night at the hut, which was allocated to me, and sought to divert myself by recounting my journey. After about an hour and a half Mr Samuda came. I went to him and said that I used the name of Mr Windham to introduce myself to him as a gentleman of Mr W.'s personal acquaintance and did not think that he had treated me in an honourable manner. He was embarrassed, excused himself on account of the darkness of the night, bad surroundings, and confined dwelling and said to me that Mrs Samuda would be pleased to make my acquaintance. In a word, the man treated me in a very friendly way and his wife did the same, nevertheless I could only gradually put aside my irritability. I repeat what I said previously: It is not the contact with a lower class of society, which embarrasses or offends me, but I feel the disregard by that society, to which my education entitled me, as strongly as any other person.

Thursday 25 May



Next morning I went down the MacIntyre for about five miles. About a quarter of a mile below the house, a layer of basalt boulders lies over the basalt, which outcrops in the bed of the river, in a strange yellowish friable almost talcose mass. I found veins resembling asbestos in it. The basalt contains quite fine feldspar crystals. Further down towards the south, grassy plains lie along the river, towards the north first basaltic then conglomerate heights arise and five miles below Samuda's the river is turned towards the south by a conglomerate ridge, whilst on the south side about one mile from that mountain a conical basalt hill rises up. {This rise about 20' high afforded me a wide, but uninteresting, view over the plains and low ranges all around.} Under the bank of basalt pebbles appear the heads of basalt columns, as at Rusden's waterhole, although not quite so distinctly. Along the river *Melaleuca*, *Bursaria* (not prickly), *Hakea*, a *Hovea*-shrub, a shrub with the leaves of the rosemary, but without its scent, and *Xerotes* are growing abundantly. The chlorgrass, which on bending shows a mealy or powdery stem and is probably different from Mawson's, is very abundant here and everywhere along rivers. A lanceolate-leaved *Grevillea*(?) was also found and seems quite new to me. {I found regular

quartz crystals (very small), a feldspar crystal of orange colour and a beautiful piece of agate nodule in the bed of the MacIntire here.}

On the very long deep waterholes of the MacIntire you see large numbers of black ducks, the black water hen and two small grey grebes. In addition black swans, platypus and tortoises were in large numbers. It was pleasing to see the water hen and the grebes gliding silently past in the quiet clear pond edged by aquatic plants, *Melaleuca* and reeds under the shadows of dark basaltic cliffs, whilst the ripples behind them sparkle in silver patches of sun. The shy grebe watches the slightest movement and disappears and appears again and so plays its game until it is convinced that I harboured no hostile attitude towards it.

It is a rich country, besides the apple trees, the yellow box towards the south, in addition a white gum (probably that of the Big River).

I have often noticed the difference of temperature, when I rode alternatively over treeless plains or forested hills after sunset. The plains are very cold, the heights pleasantly warm. The horses prefer to remain in Prior's paddock on the warm grassless height, instead of going closer to the water and grazing. Even forested plains are colder than the heights and even the shallowest water courses (perhaps 7-8-10' deep), although they have not contained a drop of water for months, blow on the rider with cold air. The cattle and horses go in full freedom to the heights with the beginning of night. In the morning they come to the valley as the dew disappears. {In winter the cattle retire to the heights and it is then difficult, if not impossible to complete a full mustering.} It seems that the sandy soil is the warmest. The dark rich clay soil is much colder under otherwise equivalent circumstances. Now whether this is so the whole of the night, I don't know, since it may depend on the rapidity with which the warmth radiates and

this would bring about an equal temperature after a certain time for both places. Observations with a thermometer would be very interesting here.

Mr Samuda showed me an *Ardea* (heron) with black brown wings and white neck and a brown water hen (rail) with only lightly or not fringed toes. It lives particularly on the edges of the rivers and waterholes.

On Friday 26 May our track led through narrow-leaved ironbark, box, and white gum, at first basalt ranges of the MacIntyre, then conglomerate from whose termination we glimpsed the mountains of the Severn. We descended and had a blue conglomerate on the right, a creek with waterholes on the left. Here again yellow box, box and more beautiful trees and *Angophora* sometimes very tall and attractive. The kangaroo grass is somewhat bluish here. Under the ironbark a new species of *Acacia?* and the leafless legume from Minmy (*Viminaria?*) – *Casuarina*. In the creek a porous sandstone.

We drove our herd of cattle through Frasers Creek over conglomerate elevations to Wilks' station. Here I had the opportunity to hear a stockman speak about the advantages of the life of Sydney chaps to that of the bush. "During the day they go through the streets and gape at the girls or stare into the beautifully decorated shops. In the evening they go to the theatre, have rum and brandy and grog in abundance and in the night a girl. In the bush it is enough to eat and tobacco is the only comfort." In fact tobacco is a great comfort in the loneliness of the bush, when the intellect is either never accustomed to its own activity or when the fatigue of the body does not allow intellectual activity. Here the bushman fills his beloved short pipe with negrohead, which is cut small beforehand and rubbed soft in the flat of the hand, and then sinks into a pleasant dream or converses with his comrades about the adventures of the day, about the qualities and excellence of

the herds, of bulls, about the branding of the calves, about mustering on other runs and so on. Then how he has seen this G.P. or M.P. &c and if stockmen strangers are present, he knows to tell them whether any head of their herd is on his run. Then opinions are given about the various coves (or superintendents) and about the bloody swells, who despise the convict and would not like to sit down with him. The excellence of their horses is a very usual topic of conversation and the Blacks are not spared by their tongues, particularly now.

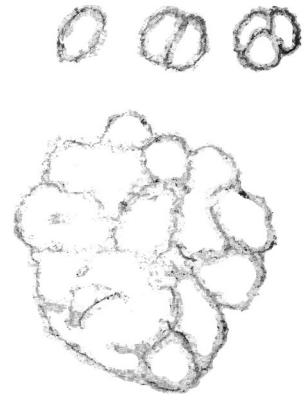
On Saturday we crossed Beardy Creek, which comes down from Beardy (a part of New England) and has large chasms. Beardy Creek, Frasers Creek, the MacIntire, Myal Creek and the Big River all come from New England, where they bear different names, however. Thus the Big River is called Bantara, and the MacIntire the Macdonald. Beardy is a particularly well-watered country, excellent through the quality of its mutton and Beardy Creek and Frasers Creek get their rich supply of water from there.

From Wilks' station to Blaxland's at first some boxtrees and apple tree flats, then silver-leaved ironbark and sandstone ridges, finally box forest and various grasses, woolly oats, rare kangaroo grass, squarrose *Milium*, *Danthonia*, radial yellow oats &c. Small doves (the dove pigeon), which were extremely tame and let us come so close that you could kill them with the whip, walk around between the dry grass blades. Then they flew off and settled on the next apple tree in twos and threes, so that the hunter could bag his midday meal really easily.

On Sunday from Blaxland's to Heatherington's. Quartz and mica appeared clearly in a yellowish indistinct crystalline mass in the rock of Frasers Creek. The exterior reminded me of granite, but it will probably only be the well-known arkose.

When you pass the creek, the track to the left leads to Macdougall's [McDougall] and that to the right to Hetherington's.

In the silver-leaved ironbark woodland peculiar large ant heaps with swellings attracted my attention. I have noticed them frequently from there to Dangar's dwelling and in fact at every age. The ants, which, however, I could not find, build a long round bulge in the first year, then next to this a second, then between one a third and so forth, until the pile occupies a very considerable area. They work on one bulge and then another and therefore the bulges appear in large heaps and more fused. Often the purple ant spreads its surface dwelling, which is covered with lumps of ironstone, before or on these heaps.



The soil on the conglomerate heights is not really sandy soil, but ferruginous angular pieces the size of a pea lying in a fine clay dust. Silver-leaved ironbark prevails. From time to time box in the dark earthy depressions. Rock is conglomerate.

Mr Hetherington's Station. I remarked previously that two species of box could be distinguished along the Gwydir, one with roundish, shining green leaves, the other with pale lanceolate leaves or roundish only during the young state. Here the green-leaved box grows abundantly on sandy, ferruginous soil. Also sister to myal is here again. Now we are on the banks of the Severn. This arises with the Richmond and Logan from the same mountain, but it falls into the MacIntire, the Richmond into the Clarence and the Logan goes to the bay. Here are beautiful open apple

tree flats on the left bank of the Severn. The boulders of the Severn are quartz porphyry, with transparent quartz crystals and yellow feldspar crystals in a flesh-yellow cement. Pebbles of clayslate and conglomerate. On the apple tree flat along the Severn the radial yellow oats, woolly oats, and here and there kangaroo grass, which becomes more abundant as the soil becomes sandier and rises towards the heights.

## 1 June

{*Villarsia*}

In the waterholes of the Severn a plant grows, which has the leaves of *Nymphaea* but smaller. Its flowers are on the leaf stalk close under the leaf together in a bunch. In addition a grass-like plant and another with fine pinnately-divided leaves, the flowers unattractive in the axils. A gum tree with long, almost sickle-shaped stiff leaves, with crinkly peeling bark.

On 30 May loose clouds appeared on the horizon, on the 31st the whole sky was overcast and did not clear again in the night, as it did on the 30th. In the night a fine general rain began, which lasted today 1 June and will probably continue for several days. Before this rain we had uninterrupted fine clear weather. The nights were very cold. In the morning often white frost, and the water in the hut was often frozen (Myall Creek). On the MacIntire there was ice under the basalt cliff. This coldness made the journey somewhat unpleasant, as the huts, in which no fire is kept up during the night, are colder than sleeping by a large fire in the free night air. During the day the heat is very great and it was very oppressive particularly behind a herd of cattle, whose walking stirred up clouds of dust.

{The rain lasted two days and the sky only gradually cleared again (on 3 June). The air was still, the lightest puff of wind came from the east. I have observed this rain so often now, in

Sydney on my arrival, in Glendon and on the Liverpool Plains, and it was always the same character, fine rain with still air or easterly air currents lasting two or three days to eight days to four weeks. Saturday was fine, as was Sunday morning. At about 10 o'clock the sky suddenly filled, although gradually, with a light veil of clouds that became thicker and thicker and finally brought rain in the night. Monday had alternating showers. In the night from Monday to Tuesday was heavy rain. Thursday (6 June) morning the wind turned a little to the north, it cleared somewhat, but the wind swung back, or the light current of air and the cloudy sky threatened more rain.}

The Aborigines generally were kept away from the stations here. Several times they have attacked the cattle and especially Mr Macdougals herds. The stockmen joined forces and pursued the Blacks to their camp, where they found thousands of boomerangs and spears, which they broke into pieces. Nevertheless they always keep a Black boy on this station, mostly from the tribes of the Hunter, and he is extremely useful. He knows how to find lost horses the quickest way, to milk cows, and to tend cattle. Tommy on Mr Hetheringtons station is a clever, skilful boy. He plays draughts very well, and invariably beat Mr Danger, and me several times. He knows all brands, as well as the stockmen, is a skilful rider, knows the ABC and is very keen to learn. Every boy turns out well, as soon as he can be removed from his tribe.

I have had the following experiences about the driving of herds of cattle. Young cattle must not drink before the drive begins, even for older cattle it is better to graze first. Fat cattle become \*giddy (they have the staggers)\* if they drink in the morning and very frequently die during the heat of the day. It is good to have a break at this time. Dogs, if not well trained, do more harm than good. The rough-haired sheep dog is the cleverest and teachable; some do not bite, others bite \*(they

heel the cattle)\*. Cows with calves are better driven without dogs, as they constantly turn towards the dogs to protect the calves. The bulls travel laboriously, soon tire, remain behind, become unwilling \*(sulky)\*, and then cannot be moved. Some of the cows and heifers had established a real friendship and mutually defended themselves against the dogs. Several cows seem to have pulled their tail to one side in consequence of cramp of the lateral muscle and so have anus and vagina free (gymnopygie). {Many cows have more than four teats.} The calves are all branded at two months old here. The heifers are kept for three years on a separate station and then brought to the bulls. They then grow the whole fourth year and become very large and strong. Should a heifer calve before this time and should it not be full grown yet, the calf is killed or raised separately by the hut keeper. Bulls in a herd are changed every three years to avoid \*close breeding\*, which spoils the breed and makes it smaller. The cattle graze particularly at nightfall and in the morning. During the heat of the day they assemble at their resting places, which are usually close to water under shady trees. In winter they go to the mountains and in summer they come to the plains. The fatter the beast, the quieter it is. It is advantageous to muster every two months, to unite the herd in the stockyard. The cattle are tamed and although they suffer somewhat from hunger, this is of less importance. When the whip crack sounds the scattered grazing cattle walk to their resting place, from there they are driven to the bedding ground and to the stockyard. It is better to separate the stranger calves from the herd at the bedding ground, as in the stockyard misunderstanding can easily arise and calves branded that belong to another.

A herd that comes onto a new run must be watched for several weeks and then one must ride over the run daily to see that no beast returns to the old abode, as cattle as well as

horses usually return to the place where they were born, and they do this with admirable exactitude by the shortest way.

A good cow has the following qualities: a small head, short horns, a short neck (?) not becoming thinner behind the neck. Back and neck forming a straight line, the tail making a right angle with the line[?] of the back, broad between the pelvic bones (ossa ilii) \*broad between the pins\*, ribs arching out, heavy body, short feet. The cow must have those parts well developed that are principally rich in muscle and are sought mainly by the butcher; the parts that the butcher does not need must be small.

In a horse: a small head, wide chest, long cannon bone \*(long points)\*, strong bones, rear surface of the cannon bone flat, ribs arching out and broadly gripping towards the back, shoulder bones and humerus forming a shallow acute angle, shoulder and pelvis not too far apart. Not sloping too much from back to tail. The colour simple, the feet black. The elastic gait of the horse reveals whether it is quick or not, whether it rides well or not.

The flies, which still swarmed around me in thousands in Rocky Creek, are absent here.

The most common vegetable, which you find on all stations, is the pumpkin, which tastes[?] dry and pleasant. Everywhere they have large numbers of poultry, rarely ducks and geese, rarely swans. Dogs are everywhere in annoying numbers and good ones are rare. The kangaroo dog, between greyhound and mastiff or greyhound and bloodhound is very useful, by attacking the wild dogs and holding them. The shaggy shepherd dog is a very good dog and they sometimes have good cattle dogs (nice cross with the native dog). The Aborigines have swarms of dogs and the most miserable creatures that one can imagine, but I was told that they are extremely vigilant, which I observed myself several times. The

native dog is everywhere in large numbers and its howl sounds the whole night through, particularly just before sunrise. When I rode out from Otley's on Wednesday morning one of them accompanied me and kept a distance of about 50 paces. It was large and well built and was by no means afraid when my pointer bitch barked at it.

open in the water, as the direction of the flower stalk is so, but this cannot be, because in each case a strange modification was found on the flower. This as it is, however, is a real air and light form. At the same time new leaf shoots sprout with the flower bunch and long chains of leaves spread over the pond.



### 3 June

We rode down the Severn to MacDougal's station. Apple tree plains of large expanse on both sides. Beautiful pasture, excellent cows, mostly with red flanks, and white backs. One had a white face, small, of hereford breed. One cow gives one bucket of milk and Mr Dangar is convinced that nine pounds of butter per week could be made. The butter of these grass plains keeps, that of the herb plains on the Big River does not.

In the river a loose earthy rock crops out, from which little could be made out at first. It has rolled down into the river in large blocks. Further on a slate-coloured, very hard rock (hornstone) with iron pyrite in small dots. A northerly range of hills has here reddish syenitic rock with white masses of quartz, which contain quartz crystals. I have often met this rock and I have often called it thermantide. The former seems one with the stratified rock near Ogilvey's station on the Manilla Mt Misery. {It is covered with silver-leaved ironbark and forms moderately sloping hills. Paddy the stockman told me that in Munda Creek, 16 miles from here at a certain place there is a large amount of quartz.}

In the river a *Villarsia?* has five calyx teeth, five fringed corolla lobes, five filaments alternating as well. Two fringed stigmas, ovarium monocular, three marginal placenta. *Cassia* with half a foot long linear pods in pairs in the river bed. These *Villarsia* have a flower bunch under the leaf and it seems as if the flowers

The cod of the western waters belongs to the family of the perch. An undivided dorsal fin, 10 spines and 18 rays, in the caudal fin 18 spines, in the anal fin three spines and 13 rays, in the ventral fin one spine and five rays, in the pectoral fin 18 rays, and seven bronchiostegi. Fine file teeth in the upper and lower jaws, in the vomer and in the pterygoid bone. The body covered with fine scales. Operculum and praeoperculum as well. Operculum ends in a small point. The head is as wide as the body, towards the front horizontally depressed. The eyes protrude somewhat,  $\frac{3}{4}$ " from one another. (Below the lower jaw two small gland-like holes). The colour is greenish — dark specks on greenish-yellowish background. The lateral line is the whole length of the body. They live for a long time in the air.

### 4 June

The jewfish belonging to the family of the *Silurus*. Head wide, fleshy lips, four barbels about 2" long underneath, two lateral, two above and within the nasal openings, which are somewhat prominent[?], lower jaw wide with tessellated teeth, upper jaw with teeth, whose outermost row is somewhat larger and sharper. The upper jaw juts far out over the lower jaw. Dorsal fin I with strong spines and four rays. Fins before the middle of the body combine over the whole rear part of the back, tail and below up to the anus, ventral fins 11 rays, pectoral fins a stronger spine and eight rays. Lateral line with slight rise before and over the ventral fin, almost

vanishes posteriorly. Colour, blackish patches on greenish-grey background. (Like the shadows of the aquatic herbs on the floor of the pond). {I found a large number of red intestinal worms in the two-chambered swim bladders of this fish, which hung with their disc on the mucosa. They were in every fish that I opened, often in astonishing numbers.}

Bream belong to the family of the perch. Dorsal fin nine spines, 11 rays, caudal fin 17 rays. Anal fin three spines, eight rays, pectoral fin 14 rays. Complete lateral line, preopercle and opercle with scales, preopercle with fine teeth, the lower larger more separated, marginate at the bottom, opercle ending in a point. Seven branchiostegals. Very fine teeth in the lower jaw, upper jaw (which is somewhat thrust forward), on the vomer and on the pterygoid. Very rough gill[?] arches. It has the greenish-gold colour of the perch with dark spots. Twelve caeca around the stomach, flesh-coloured liver, short alimentary canal. These fish live in the shallow, scarcely more than 2' deep water holes of the Severn. When the water sinks, they are often extremely numerous. The cod often gets to 70 lb in weight. It is interesting to observe how the Black boy catches it. He takes a stick about 4 or 5' in length and makes it very sharp and wades slowly through the water hole with his sharp eyes scrutinising every dark hole, plant and bush. Then he bends down slowly, grabs into the water and brings forth the fish, which he throws on the land or he stabs with his spear and catches the fish, pierced through on its point. He drives the fish out of holes and tree trunks that he cannot look through with the other end of his spear, whose point he renews after every strike. He is a Namoy boy, where they are expert fishermen. In the Hunter the Blacks make fences of *Casuarina* branches and drive the fish from a wide circle into a narrow space, where they poison the water with crushed *Polygonum* herbs. The fish come

up gasping to the top and lie on their backs. Near Glendon they had a kind of trident for spearing. The White man is never so skilful, because his white colour frightens the fish, even if he had the same eye.

The barking bird (*Caprimulgus*) sounds his wau wau in the still night very often here.

Mr McDougall has a clever cockatoo here, who amused me not a little with his \*pretty cocky, pretty boy, a bit of bread for poor cocky, what the devil are you speaking about poor cocky\*. As the day begins his conversation is heard, which often then changes into the hoarse screeching of his wild brothers. He barks like a dog, grasps his enemies by the heels, when he is ordered \*(heel him!)\*, follows his master from tree to tree and knows how to turn and twist and to have himself tickled and scratched. Also a crimson-winged parrot is here fi fi fi fi screech screech.

## 6 June

The ride to the northern range of hills, which is in front of the real Severn range, afforded us a magnificent view over the wide apple tree plains, through which the green stripe of the river bed passes in slight meanders. The hills also show quartzite here. In some places you see that the rock consists of quartz grains fused together so to speak. This became particularly clear at the foot where the pieces broken loose are again combined into a crude conglomerate. Silver-leaved ironbark covers the hills. Now where loose pieces of rock are heaped over one another, no grass grows, but bushes appear at these places almost without exception. *Tecoma* lays its vines over the rock, and a grey shrub with opposite leaves is abundant. It seems to me that rocks and loose masses of stone have greater power to attract the vapours of the atmosphere and that the humus lying underneath keeps moist for a longer time. This greater moisture gives the

shrubs opportunity to settle and to remain. Legumes and grasses (as for example the woolly twin grass) were very similar to those on the western hills of Otley's. The silver-leaved tree of Sydney grew at the bottom over the ravine. A *Loranthus* with bulbous branches on the silver-leaved ironbark, and another *Loranthus* with long drooping leaves on the yellow box. On the mountain side some slender apple trees are growing that I regarded as a *Eucalyptus* not seen, but it appeared later, when I compared the leaves, that I was dealing with the true *Angophora*. The two-leaved legume was growing here as well.

Mr Prior came yesterday. He told me that he saw *Banksia* and spotted gum as he rode from Blaxland's over sandy plains to Macdougall's.

At about 5 o'clock in the evening, with the sun setting, there was one complete rainbow (red externally) and three inner with red, yellow, blue (much weaker, but distinctly seen by Mr Danger, Mr Prior and me).

## 7 June

Yesterday evening beautiful sunset; the overcast sky cleared quickly under the influence of the full moon that stood very high. This morning at 5 o'clock thick fog, at 7:30 clear sky, cold air, completely calm. The smoke climbed vertically into the heights, then turned towards the south-west.

{The missionaries at Moreton Bay. 22 June}

After a long tiring journey I find myself at last in the small, friendly, cheerful room of Mr Schmidt to organise here in peace the whole host of impressions, with which my mind was enriched during the last fortnight.

Mr Prior arrived on 5 June at Cox's station. On the 6th we were again forced by rain to take a rest day. On the 7th we continued our journey together. We rode along the banks

of the Severn over grassy plains covered with *Angophora* via Macdougall's (5) and Brown's station (6) to Hargrave's (6 miles). Between the latter granite and a kind of mica schist(?) and flintstone (or hornstone) was outcropping. The granite contains an equal mixture of mica, feldspar and quartz. The mica schist consists of very fine friable flakes of mica. I met the granite here as an outcropping rock for the first time since I left Newcastle. I heard later that the Moonboys and the Page are granitic as well. {Granite is also said to be in the area of Cunningham Gap and in the Bunya Bunya district. Hudson.} The brickelow scrub appears in the distance, but the track did not lead through it yet. It is the place of refuge of the Aborigines, after they have killed cattle. They consume their booty in it. We found barbed[?] spears, which had penetrated 6-7" into the flesh and from which the animals had ultimately freed themselves. The green-leaved box occurred towards Hargrave's, and a kind of white gum was very abundant. Low ranges of hills bordered the valley of the Severn towards the north.

On Hargrave's station that loose sandy rock, which I had already found on Coxe's station in the river bank, was used for paving stones and fire places and was admirably suited for it as it dried uniformly and did not split. {Macdougall's station is called Kollibola (Double water), Allibola (Hargrave's), Gunyan-Bullurn (Cox's), Kollatalpa (Hetherington's). I was shown the fruit of the moreton bay chestnut on Hargraves' station.}

On Thursday (8 July [June]) we came 25-30 miles through a flat region, in which *Casuarina* scrub alternated with three or four species of *Acacia* and the tree labiate from Briza and the yellow-flowered shrub of the myal scrub (native lemon tree) with box woodland, then ironbark forest and silver-leaved ironbark and apple tree flats. The largest part is not usable on account of the thick underwood. The soil is for the most

part sandy, particularly where ironbark and *Casuarina* are growing. At the Macintyre Brook, where we camped overnight, there are, however, beautiful box and apple tree plains. Between Brown's and Hargrave's I had already seen a gum which is covered about five feet above the ground with black crusts, while higher up it appears completely smooth and white. {It is called the moreton bay ash on the Downs.}

We made a huge fire here and the most shining starry sky spread over us. Mars rose at sunset, Jupiter about 11 o'clock, Venus about 5 o'clock. As day broke, small species of birds awoke, whose morning call I had frequently heard before. One was a repeated ti ti ti ti, the other voi voi. Then the octave bird, then the crow. A dense fog hung around the trees. I observed large yellow ants, delicate, without sting, in funnel-shaped ½' high nests with a crater-like depression in the middle.

Friday 9 July [June]. At first an open, free, box woodland, then bricklow thicket. The bricklow is an *Acacia* with long stiff sickle-shaped phyllodes. I found no indication of flowers. The bricklow scrub consists of several species of *Acacia*, particularly one with long, pale green and green phyllodes (the bricklow), the tree labiate from Briza, foxglove, Otley's shrub with the samara fruit, spotted gum?, moreton bay ash, and sometimes ironbark.

The plains were interrupted at many places by various winding water courses. Mosquito Creek is the most important. Here a coarse-grained sandstone outcrops. At the end of the journey (the ridges), hill ridges of quartz-rich schist (Lydian[?]). The servant told me that beautiful stones for sharpening razors have been found at some places here. Flint rock with beautiful milk-white quartz. A kind of talc schist (?) at last night's camp on the north side of the range. The Aborigines stay particularly on these ranges and they usually harass travellers here, if they find them

without escort or fire arms. The soil was in part sandy, partly a black sand, partly a rich loam. Usually you could judge the nature of the soil from the colour of the white ant hills, which are in extremely large numbers and characteristic here. {On the Moreton Bay side (of the range to the Bay) these hills are in unbelievable numbers and you can scarcely imagine how such an extraordinary large number of creatures get their food.} The pine appeared today and yesterday here and there and I regard it as a new species.

A parrot rejoiced in large swarms on the flowering box trees. Flying squirrels in the night. Clouds in the sky towards evening and during the first part of the night; completely clear at 11 o'clock. On Saturday (10 July [June]), we arrived at the station of Messrs Pitts, Bonnivent [Bonifant] and Adams. {Parrots (wedge tail green and red).} The rock was at first siliceous schist again with large masses of the whitest milk quartz covered with bricklow scrub and box woodland, then sandstone with ironbark, sandy soil, white ant nests, ironbark woodland, open green *Borreria*[?]. The sandstone is loose. A tree with yellow fruit about 12-15' tall, with spreading branches, dense foliage, dark green leaves, underside pale, on sandy soil with spotted gum.

The upper part of Canal Creek is a perfect plain covered with yellow box, apple tree and white gum. Later *Casuarina* appears again.

Some ranges (flint rock) lie to the right of the road, pieces of rock like from a highway.

Ten days ago a shepherd was killed on Pitt's station. He had failed to take his gun with him. It is strange how people, who hear daily of tragedies of the kind, can be so careless and apathetic. Two tribes of Blacks combine here at Canal Creek, one from the west and the other from the Severn. They flee from one area into another, after they have killed cattle or shepherds. We were told much of

their cunning, their treachery and then again of their unexpected kindness. One day they showed an unarmed shepherd the way to his lost sheep, whilst some hours later they attacked[?] Mr Adams killed another.

{A large number of *Unio* in Canal Creek and in all waters that I crossed from the Severn to the Bay.}

Pitt had 1500-2000 sheep in the flock. He keeps two hut keepers on each station at £27 per annum. He undertook to keep a store and to fetch the goods from the Bay for £8 per ton (£20 from Maitland).

The flying fox with golden yellow neck comes at the beginning of the night to water. It often comes in flocks. *Sorex*, which fled into a hollow trunk, has the testicles before the penis, therefore probably belongs to the Marsupalia. {Mr Pitt showed me a small *Remora* from the Pacific Ocean that had attached itself to a shark.}

Mr Gore on the Condamine dug a well 35' deep. It was a sandy soil (silty?). The fossil bones were found in the creek on Mr Skogel's [Scougall] station. I was already told here that coal was found on the Downs in the creek near Alford's.

The sea wind begins here usually about 12 o'clock (perhaps it must be called the Downs wind).

Towards evening, despite the danger, two bullock drivers went into the camp of the Blacks to sleep with Black women. A friendly Black told them that they would be beyond saving and murdered during the night and that therefore they must leave the camp as quickly as possible. The Black women are said to have a very unpleasant smell. They smear themselves with snake fat and with any kind of fatty substance that falls into their hands. This gives them an attractive bronze colour. {The whole region around Mr Pitt's station consists of flintrock.}

Cross weaning. The lambs of one flock are brought to the other and those of the latter to the former. This saves a man. The best lambing time is August and September. Shearing time October. They intend to try winter lambing, because the lambing in September encroaches too much into the shearing time. The waterhole is excellent for washing. The banks of the holes are a short yellowish loam, which touched with the tongue tastes sour.

They have tried to raise some fruits, but the drought has damaged their hopes and they have lost all heart.

When they brought their flocks to the station they lost only 60 sheep from 5000. They purchased them in Bathurst. The average of the yearly wool 2½ lb. (young sheep dye the white wool yellow), wethers 2lb, ewes 1¾ lb. They have one ram in 100 sheep, but this is too little. They have them together for seven weeks. The more rams the better, the lambs fall together more. Sheep washing 6 shillings per day, shearing 3 shillings 6 pence without grog, dry provisions, meat 4d. {\*Sheep only would pay an half and scarcely so.\*}

It is better not to give grog. They have four soaking pens, close supervision that the sheep are well washed is not necessary. Footrot is sometimes on the plains. Scab common from the Peel upstream. Travelling sheep spread it. This shows the great disadvantage of being too near a road. \*Mercurial ointment every year makes the staple grow enormously in England (there applied against the heels[?].\*

Rams in England have 13-16-18 lb wool. Here some fleeces to £5, 18d per lb pays the business of sheep raising. 1 shilling and 14d. does not pay. Shepherd's and the hut keeper's pay £27 per year. {\*The bale of wool to Sydney per steamer 17 sh.\*}



On Sunday we went up the nearest mountain and had a beautiful view over the plains. In the north-east we saw the height on which our road to the Downs passes. A long extended mountain Rubieslaw on the right and a Sugarloaf on the left.

For two long days we had to look for our horses, which probably had been hidden by Mr Prior's stockman, as he attempted to get some rest days for his horse. In the evening Mr Bonnivent wanted to amuse us with a \*native dog biting\*. We went to the trap in which the poor rogue was imprisoned. Four or five large dogs accompanied us, the portcullis was opened, the dogs rushed in, but instead of quickly killing the enemy, we heard a continual barking. Mr Bonnivent listened more closely and saw that the prisoner was a good sheep dog, who defended himself valiantly. The dog was immediately driven out of the trap and Mine Jacky took off, but the animosity was so great that the kangaroo dogs did not want to let him go. In order to finish this unfortunate day well, Mr Pitt shot a beautiful fowl, while trying to bag a flying squirrel. The latter was shot later and we found a young one in its pouch.

#### Thursday 13 June

At last we continued our journey. It was a perfectly flat region, at first box forest, then a small plain with few gum trees, then the deep, narrow, waterless bed of the Condamine,

which, however, was furnished with high and deep substantial water holes. {(In the plains black soil with calcareous concretions) (I found a small tree here, probably *Persoonia* and *Banksia*)} Then a broad plain with gently sloping surface. Conical hills of volcanic rock (phonolite). The grass tree in this rich grassy surface of significant girth, 1' in diameter and probably more, 3-6' tall. The flower stalk three times shorter than the fruit cylinder, seed capsule wedged, black compressed seeds.

So I am on the Darling Downs then. It is an open undulating region, broad surface, valleys with or without streams bounded by low ranges, with cones here and there in the distance. The heights with moderate tree-growth, for the most part kangaroo grass in the plains, along the water reeds, and[?] silver tail or blady grass a little higher. *Unio* abundant everywhere. {The Downs are 1450' above sea level according to Cunningham. Mitchels Mountain about 4000' high.}

These outlines show the form of the elevations. You see that these three are little different from one another. Coal is found in a creek south-west of Alford's. Incidentally the whole region is basaltic or phonolitic. I didn't have the time to observe the stratification of the coal.

Moreton bay ash was growing on the hills, whose fruit differs substantially from all

*South of Alford's.*

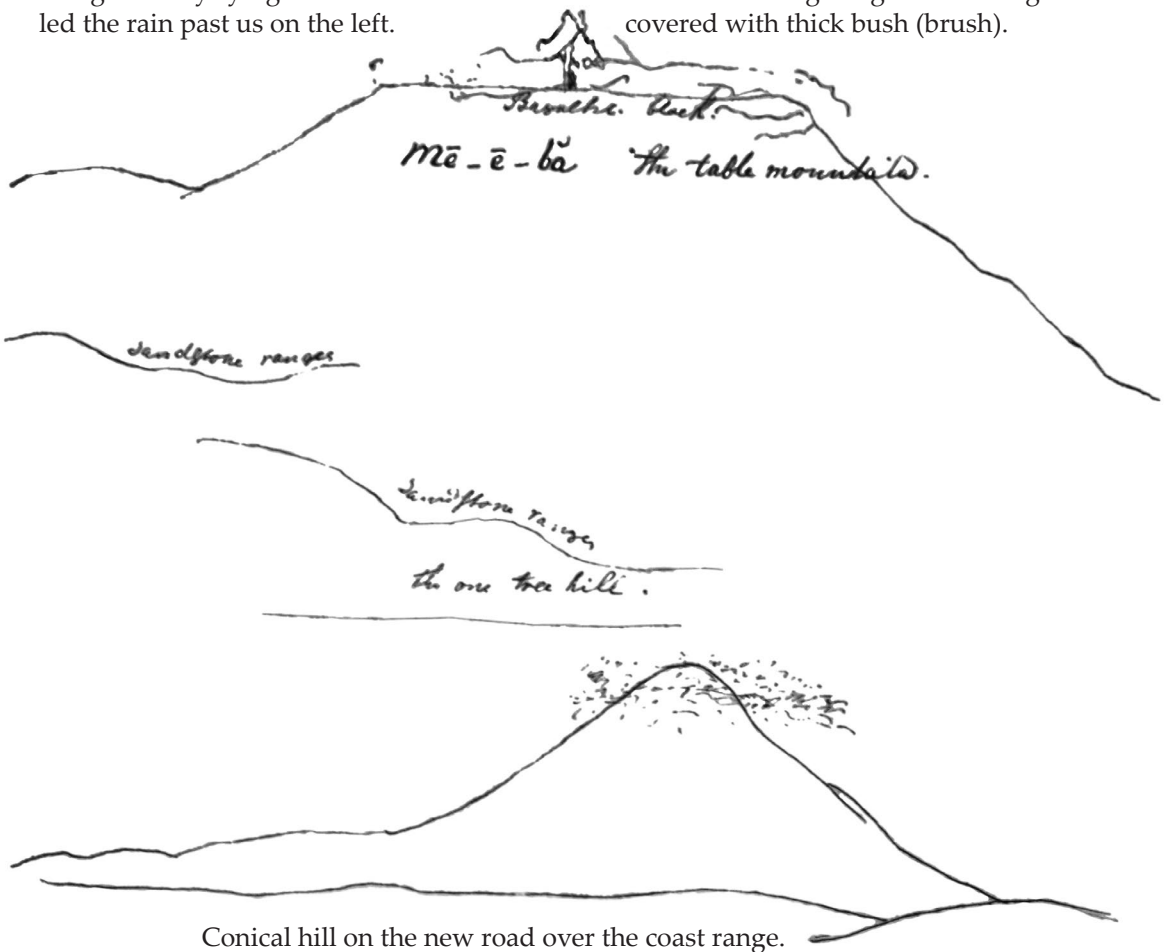
*South East of Alford's.*

other species seen until now. Also the box that I found here has a different calyx. It seems therefore that more than two species of *Eucalyptus* have the bark of the box. {Two men were killed on Russel's [Russell] station. During one year 22 on the Downs and in the Moreton Bay district.}

*Angophora*, which is probably not *lanceolata*, grows here very poorly on basalt hills. It seems as if this tree is growing weaker and weaker, as you approach the sea air. The north-east brings moist air and clouds. The ranges have an important influence on the air currents. Thus rain was before us the whole day, but a current of air that moved along a valley lying towards the north-east led the rain past us on the left.

\*Alford's House of Accommodation\* is very well run and it is very pleasant after the wild life in the bush to find oneself surrounded by some comforts again.

We rode over the range on Wednesday. From Alford's moderate, almost imperceptibly sloping with varying depressions, at first free box wood, then moreton bay ash, then denser, larger tree vegetation; blackbutt, bloodwood, ironbark gum, *Casuarina*, and several *Acacia*. The soil rich and black, basaltic, the grass rich. We descended a narrow mountain spur to the eastern foot. On the last mile downwards, loose sandstone. Sandy soil of One Tree Hill and the conical hills were the most interesting ranges of the region. Both covered with thick bush (brush).



Deeper down the white cedars appear decked with their yellow winter foliage and several other small trees. *Acacia* in bud. {(this *Acacia* was in full flower in Brisbane).} Finally dense brush. Lianas and creepers make it almost impenetrable. Sandstone and basalt alternating, very broken ground. Hills constantly up and down, the latter all sandstone. Before Pearce's a deep waterhole with a sandstone wall, in which were some hornstone pebbles. Lokiers Creek silver-leaved ironbark and spotted gum appear here still. Along the creek *Casuarina* and *Calothamnus*.

{In fact it is remarkable that this tree does equally well on such diverse soils and under such diverse conditions, although it does not form such separate woodlands as between the Namoy and the Condamine.} I was told that the moreton bay chestnut grows here, as in all creeks on this side of the range. In Pearce's garden the pineapple is raised in the open. The wheat grows too luxuriantly, but maize is said to do well (five cobs, each of 35 grains in 14 rows on a stem). From Pearce's again almost exclusively rich sandy soil with some beautiful plains with black soil. The grass growth was rich, although always under the teeth of the sheep. Ironbark, spotted gum, apple tree, but in richer places box. We passed Mocatta's station, Smith's accommodation house and at last came to Bell's station on Ledleys Plains. {A real mouse in Mr Pearce's dwelling.}

Ledleys Plains on one side of Ledleys Creek forms the model of a sheep station. Small plains without tree-growth are separated by light belts of forest, towards the east bounded by a sandstone range, which is covered by ironbark, gum, and sometimes moreton bay ash. 2000 sheep can be very easily supervised by one shepherd. The sheep were very fat and are completely healthy, although there were some cases of foot-rot at the beginning. The cows are

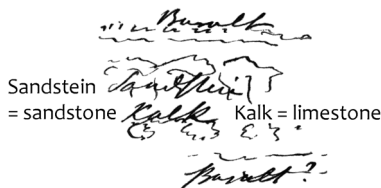
just as fat. The grass growth is very dense, kangaroo grass is, however, predominant. When I asked Mr Kent in Limestone whether he thought that the grass growth could bear the constant grazing for a long time, because at first the Hunter River was surrounded by similar rich pasture, he answered me that he had observed this pasture now for as long as 12 years and that he had still not noticed any changes. The remaining grasses were not in flower or fruit, but I thought that a species of *Poa* had an important share in the formation of the pasture. {The general impression of the region from Pearce's to Bell is that of the region between Glendon and Maitland. The grass, however, is always rich by frequent thunderstorms bringing rain during the summer and new vegetation.}

The rain accompanied us from our departure from Alford's in light showers and in fine soaking drops. The air is almost completely calm, perhaps only light easterly air currents (this the drift of the clouds). The rain is warm, the difference in temperature on the Downs and on this side of the range was very great, however, I was told that even here it was very cold before the rain. The opinion of the settlers is decidedly against the effectiveness of the missionaries.

On Mr Bell's station I made the acquaintance of Mr Hodgson, a friendly young man, who collected several curiosities on the Downs, which I will see later, if it pleases God. He told me that the moreton bay lemon is covered with small tubercles. {Bell told me that a strong current streams southerly along the coast and brings a ship to Sydney in four days.}

Sunday. We rode from Owens, where we came the evening before in deepest darkness on a bad track, to Chamber's about 25 miles further on. We rode over rich plains, on which the road was scarcely passable in consequence of the rain, rough grass growth, park-like tree growth. Mr Neale

has begun a very friendly public house at Ipswich. At Limestone there is a house of accommodation. Mr Kent was kind enough to climb up to the limestone hill with me, which seems piled up like a cone on basaltic soil. The limestone is partly pure, partly penetrated by veins of flint and frequently masses of chalcedony and marl are found on and in it. This rock has a remarkable resemblance to the Calcaire silicieux of the Marne. The basalt is vesicular. The limestone seems deposited by springs, although in some places it appears(?) in regular strata. If you stand on the highest point of this limestone formation you see sharp ridges, and carved out valleys descending to the north-east. You have a beautiful overall view of the mountain chains. \*The Coast Range\* is \*North by West to South by East.\* This direction also in the limestone hills. One of the series nearer the coast is parallel to the main chain. We find therefore two probable basaltic chains, between which is sandstone. Basalt appears, however, on various points again and in a belt lying closer to the coast you see chalk hills deposited on the basalt.



I had a view here of Cunninghams Gap 4500' high. Wilsons Range was towards the south-east. It is there that the Logan has its source. On Monday we rode to Brisbane. The trees of the coast gradually became evident, thus *Banksia* and a species of *Eucalyptus?* with simple separated calices. The *Acacia*, which we saw higher up only in bud, appeared here everywhere in the fullest yellow flowers.

The Brisbane River is a fine stream (perhaps 300 yards wide), and so deep that the steamer can come up to the settlement. During the rainy season the water is fresh. I found it so myself. Tides are not very high (I think not over two feet). Brush on the river bank (Moreton Bay *Bignonia* and several other shrubs).

Mr Marryatt had the kindness to offer me his boat and to bring me up the river to provide an indication of the rich harvest that awaits me. I remained two days in Moreton Bay to put my collection in order again, which was grievously damaged. You see I had purchased a young horse to support my mare and because I laid the things on my mare without a pack saddle and could not tie them up properly, they slipped down with the movement of the horse. The latter became unsettled, ran away and broke plants and crushed stones and seeds and fruits. The day before yesterday I rode here to the mission community, where Mr Schmidt and his dear wife received me in a very friendly manner. A small flat extended before the little village, through which a little stream flowed. The little village itself is built on a rise. The houses are built almost after the German kind.

**Tuesday 27 June**

The Mission. All members are imbued by their lack of success. At the beginning the Blacks seemed to join the missionaries. Children attended the school, some houses were built in which the Blacks began to live and they even made some attempts at horticulture, but deaths occurred, and superstitious fear had them leave the dwellings, weeds overgrew the gardens, the roofs were taken to build rough humpies and the posts and boards of the walls used for fires. Only some women and random male individuals put in an appearance in the mission. A child seldom attends school. Yesterday two boys were here, who of course

expected food as payment. The Blacks keep more to the settlers or are spread over the whole region in small groups, some occupied with fishing, others with possum hunting, others perhaps as honey hunters or diggers of roots. The settlers give and are able to give more than the missionaries, who, particularly in the past, had to summon all their strength to support themselves. The settlers also give tobacco, which the Blacks love exceedingly, but which Mr Schmidt does not allow, or can allow, because the provisions of the mission are so limited. Mr Schmidt does not encourage corroborees, and I think he is in error here. However, his religious conviction cannot approve of pleasures of this kind and he scorns dancing among the whites as well as the corroborees of the Blacks. If the latter is a religious ceremony, concerning which Mr Schmidt has never seen the slightest indication among the Blacks, the earlier Christians would perhaps have linked it with Christianity. But to suddenly draw the Blacks over from the fullest sensuality into a perfectly spiritual religion will always be impossible. At present Catholic missionaries have arrived on *Amati* and I should not be surprised if they would provide quicker entry to Christianity with their outward ceremonial service. I am convinced that the Lutheran mission under present circumstances can make no progress and because the lay brothers are hard-working people, who all undertake horticulture, it would be desirable that the Government recompenses them for the last five years of suffering by small land grants and gains the example of quiet activity and domestic virtue for Moreton Bay. Mr Schmidt and Mr Epper [Eipper] would be more useful as teachers for the Colony. I have, however, seen little of Mr Epper, although his appearance reminded me immediately of the German pedagogues.

On the mission there are five lay brothers and two preachers, the latter Mr Schmidt and Mr


Epper, the former Messrs Hausmann, Nikke [Niquet], Zillmann, Hartenstein and Wagner. Four married and the latter a bachelor. Altogether they have 22 children, who are carefully educated and are making good progress. Mr Nikke told me, when I spoke of the shift of the mission to White [Wide] Bay. "We have to care no longer just for ourselves, but for our families". They were reproached for selling the products of their garden. The answer is: Who gives us shoes and clothing and such necessities any more? Mr Schmidt went barefoot for a long time, because he had no money to buy shoes. Now they have perhaps 40 head of cattle and some sheep, each fattens his pig, and they know how to make excellent sausages. I am convinced that if each one had to provide for himself, every one would quickly become independent and make themselves comfortable.

A Black complained that the settlers gave so much food and tobacco, while the missionary brothers gave only small items. Then he stood up, took a piece of paper, which lay on the ground near him, and continued: The settlers give so, holding out the whole piece, the brothers give so and now tore small strips by strips and handed it to us. Nothing could be more demonstrative.

### Saturday 23 June

Today I made a small excursion around the mission. Sandstone heights (coarse quartz grains) arise behind the mission and the little village itself is built on a sandstone deposit. The gardens lie towards the south-east on a slight downhill slope. Further on a grassy plain spreads out, through which a water course overgrown with reeds scarcely flows during the rainy season. In the garden swede turnip, kohlrabi, cabbage, sweet potatoes, pumpkins, pineapples, peaches, guava, and grape vines are growing. The night frost often kills the shoots of the sweet potatoes and blight (cold wind?) kills the grape

vines in the middle of summer, or at least the young bunches. In addition lanceolate teatree (*Melaleuca*) is a tree here that is easily recognisable by its bark. It is formed from a large number of small spindle-shaped bodies, which are already distinct in the exfoliating bark. *Banksia*, *Persoonia*, *Viminaria?*, then the apple tree, ironbark, spotted gum and *Casuarina* with stalked fruits, *Acacia* (gum with a little violet scent) in flower and the grasstree. {A new species of grasstree with the flower stick three times longer than the flower cylinder, very slender.} Among the grasses were the kangaroo grass, the scented grass and the twin grass (the latter not woolly). Reeds in the depressions filled with water. The grass growth is extremely rich and dense. Yesterday I saw a specimen of the bunya tree. The systematic name is *Araucaria bunyabunya*, the cones are egg shaped.

In the bushes, which cover the banks of the Brisbane above the settlement, the Moreton Bay *Bignonia* immediately drew my attention. In addition there are a large number of other shrubs, three *Solanum*, an umbelliferous shrub with black, somewhat fleshy fruits on a wide panicle, and a climbing shrub with peltate leaves, with berries, which  enclose a horseshoe-like knobbly kernel. I tasted the native grape and it was not bad. *Pandanus/Dracaena* 6-10 foot high. Mr Schmidt showed me a stick that was probably also a species of *Pandanus*. He brought it from the Bunya Bunya district. {This is a thoroughly different plant in Archer's scrub.}

I celebrated last Sunday with my compatriots. In the morning a sermon was preached in German and in the afternoon another in English. When Mr Epper finished his prayer, some of the brothers began their prayers. It was a stammering[?] with the infinite universal father. Their prayer lasted for a long time. Touching and edifying as it is, to see these good men engrossed

in prayer and praise to God, nevertheless I cannot depart from my own path, and from my own experience, that man, when he turns to the Most High, only finds few words, the deep trepidation in the presence of God, the deep devotion, the immersion in incomprehensible ideas can only be short. Long prayers wander over the same ground and the end turns into expanses, which echo the emotions like a faint reverberation. The beautiful full German words of God fell into my soul like refreshing morning dew. It was a beautiful day. I have never felt so relaxed in New Holland, so happy. It is so good to be among good people.

They told me various things about the area that they had seen. Thus Wagner told me about an edible root that the Aborigines roast for three days over a fire, then native cherries, which, however, consist almost only of skin and shell. They told me they often hear a noise like that of a steam ship coming, which, however, as in the example of Mr Schmidt, seems to be only the rustling of the tree tops in the approaching east wind.

The sweet potato is liable to frost. They cover them to have shoots again in good time for transplanting.

## 5 July

I saw the following shrubs, trees or plants in the brush.

1. A small tree?, \*leaves elliptico-lanceolate, lower side tomentose, the upper smooth, 2 large veins one at each side of the midrip from the base, two glands at the base of the leaf (particularly visible in the younger ones) long petioles yellow tomentose, without stipules.\*
2. The passion flower, \*rough pedate leaves.\*
3. A small shrub with compound leaves, each leaflet very long, linear-lanceolate.

4. True citrus leaf, oval, dark green, punctate, stem articulate, spines in the leaf axil, strong citrus fragrance.
5. A young tree, leaves doubly compound (the lower pinnae ternate), leaflets oblong, lanceolate and elliptical-lanceolate, leaves without stipules.
6. Climbing shrub. Leaves cordate-ovate. Lower side of leaf stem and twigs hairy. Leaves alternate without stipules.
7. Climbing shrub. Leaves opposite, at the place of the stipule small white spots. Leaves soft, elliptical-lanceolate, heart-shaped at the base. Stem and green twigs long-haired.
8. Climbing shrub. Leaves ternate, leaflets inverted, oval, pointed, somewhat tapering towards the base. A tendril is opposite the leaf. Indication of previous stipules.
9. Shrub with opposite leaves, ochrea. Leaves soft, smooth, elliptical, running down along the leaf stalk, pointed. Fruit black berries in short clusters.
10. A small shrub, upright, broad, lanceolate, sharply excurrent leaves, two thorns at the insertion of the leaf stalk.
11. Climbing shrub with opposite, fleshy, broad elliptical leaves, at the base of the middle nerves a kind of gland. Stipules are indicated by small brown spots.
12. Shrub with long-stemmed, smooth leaves, somewhat peltate, but in form like *Populus tremula*.

The map of Moreton Bay by Dixon was shown to me by Mr W. Kent. I will just make the following remarks here. The western main chain is the Coast Range, which consists of basalt, which has broken through sandstone. Parallel to this chain northerly from Brisbane is the Glasshouse

Range. The Brisbane River turns around it near Limestone and arises from the west side of the Glasshouses. The Stanley comes from the Coast Range and seems almost the greater part of the Brisbane. A spur of the Coast Range goes from west to east southerly from Logan to the sea and shuts, so to speak, the Moreton Bay basin from the coast line of New England (Clarence River). On this spur are Mt Warning and Mt Gipps. Low ranges lie between these main ranges and mountain chains. The Tweed has a very short course, the Logan is more important.

I made an excursion from the mission towards the sea with the idea of reaching the coast. The silvertail, kangaroo grass and squarrose scentgrass grow on low ground. Also several small *Panicum* — *Aneilema*? A white gum with arched crown, and swamp oak. A shrub of the *Euonymus* family, a climbing plant with the character of the cucumber plant, a violet-coloured labiate (*Teucrium*), even ironbark and apple tree. *Smilax*, *Oxalis* with thicker root stock and *Hydrocotyle*. Everything is covered with water further on. {*Crinum* has a white sap.} Small bushes lie a little higher. Here almost 2" thick *Crinum*, the prickly shrub with long pliant twigs, the large heart leaf, a shrub belonging to the *Ricinus*, and passion flower. A tree with large sharp-pointed leaves, leaflets alternating? The following trees were shown to me by Mr Epper. The bloodwood (bunnah of the Aborigines) rough dark bark, often with exudations of gum resembling blood on the skin of the Blacks. The blackbutt *mundeli*, stringybark (turra turra?), the bark fibrous, elongated worm bark. This worm bark (tabil palla) with broad, lanceolate, shining leaves was later called blackbutt by him. (He called it white blackbutt), ironbark (tandurr), then the red gum, the blue gum and white gum (the wood gradually becomes quite white). The wood of the bloodwood is red, attractive and useful. The moreton

bay ash (gurran). The red gum has a violet colour. The characters of the gums here are very unreliable.

{\**Hibiscus* (Coorjaong) Kaya Kurrilii-i-dall

*Dracaena Pandanus* Dindilli

Nettle tree Burrigan

Wurm Eucalypt Tabil-palla

Ironbark Tandurr

Bloodwood Bunnah

Forestoak Burrndah

A kind of gum Grey gum Dambirri

Gum with foliaceous bark Bull ortu?

A k[in]d of gum Gorr gorr

Blackbutt (like Stringy Bark) Turra Turra

K[in]d of Spotted gum Urgorka

*Gymnostachys* “ “ pan

Billah Swamp oak}

{Appletree Dandorro

Breadfruit or Chestnut Mai

Moretonbay Ash Gurran

K[in]d of gum Gurrar? (Gorgor?)

*Acacia* Tarri

A k[in]d of Ironbark Kanei perah

Box Gnarran (nasal)

Spotted gum Mangorra

Blue gum growing in the brush Hanbru-call

A tree of the brush Kolu

*Crinum* Dongall Kall\*}

A Black woman was recently delivered of a white child, which she killed immediately. In consequence of this her breasts are very swollen and hard and she says there are “many stones” in them. The dillies of grass or bark are very artful and well made. The Amati Blacks are particularly skilful in this.

The man (Baker), who lived for so long among the Blacks, speaks three languages. That of the Downs is the most dissimilar from that of the coast. The Pine River has many moreton bay pines, particularly in its upper course, like all the other creeks (it is also called River Eden). Redcliffe is clay with ironstone, which was tested for iron by Petrie. The native yams have been mentioned to me several times, like the bramble, raspberry and native cherry.

Bakers Pass is the one, over which I descended from the Downs. The other White, who lived among the Blacks for a long time, is now on Mr Simpson’s station and is called Durham Boy [Durambois].

Mr Schmidt told me a terrible story, which proves that the savages roast dead children, eat their flesh and carry their bones with them. The father opened the abdomen, took the liver out, which was covered with white patches and pointed to these as the cause of death. Many examples of anthropophagi were mentioned. Enemies were eaten. The gins are not permitted to eat human flesh, nevertheless they do it underhand. The Whites, who lived with them, were received in a friendly manner; they were taught to find their food and then left to themselves. Baker said he became a Blackfellow not only in food and way of life, but even in intellectual respects, as the superstitions of the Blacks involuntarily took hold of him. The man now suffers extremely from rheumatism.

Let me also now look back on the quiet life, into which I entered at the mission with the family of Mr Schmidt. In the morning the

blessing was spoken over breakfast. Then psalms were read and a long prayer was orated by Mr Schmidt. In the evening before we went to bed, hymns were sung, the letter to the Galatians and then to the Romans read and again a long prayer followed. One could justly say that the good Schmidt was a prayer personified. Although in the English language, the words of the scripture are completely at his command and he prayed with great fluency. He called me a natural man with justification. At first as the novelty aroused my attention, I followed his words with great interest just to discern the way he chatted in such endless abundance of words with our great Father. It was praise and thanks and pleas and nothing could be said against the many good words. At the same time I was well aware of one point, I could not swim with that stream of words, but not wanting to appear to criticise that stream of feelings, I returned to my old form of not saying much and remained with it. We had many religious discussions with one another. I found much in the upright man, which I had to call in secular words bigoted narrowness. He railed against singing, against dancing and pleasures of every kind, a reaction not found in Jesus' life. He seemed not to want to accept anything noble in human nature. Everything was filth and sin and what was noble was so only to the extent that God became the subject. So he would not even allow corroborees by the Blacks, which in general are really only amusements and very innocent pleasures. I am convinced that he was persuaded that he had emerged victorious from all our religious battles, an easy assumption, because he had an opponent before him, whose hands were tied behind his back and whose tongue was almost silent. Have I not lived long enough in the world to know whether or not there is any advantage in arguing, and who has ever argued about religious subjects with advantage, when every one regards himself

as the chosen and enlightened one? Schmidt is a good, upright man and his religiosity, the deepest portion of all his feelings in his worship of God, cannot be doubted. However, he is not suited as a missionary. He would be an excellent preacher, a model to his congregation in his homeland. What shall I say of his dear friendly wife? She is kindly disposed, affectionate and resigned to God's will. I will never forget the hospitality of both towards me. The other brothers all had open benevolent natures, and for their standing, were very well educated and easily and intelligibly communicated what they saw.

My time on the mission was very much restricted. I could do little during the day and yet I made some useful excursions to the brushes, which cover the banks of the Brisbane between the settlement and Eaglefarm. *Aegiceras* and *Avicennia* are growing here in the salt water as on the Hunter and in Telligerry Creek.

On 3 July (Monday) I returned to Brisbane, where Mr Lynd had obtained a little room in the barracks for me from the barracks sergeant. Mr Jones and his family are very friendly and obliging and I feel less restricted in my time than on the mission. The day before yesterday, like yesterday, I went to Three Mile Brush (or Scrub, as it is falsely called here) and collected many plants. Unfortunately the majority are not in flower. The chestnut is interesting and also a massive gum tree hanbru-call and the silver oak (*Grevillea robusta*). Although two Blacks accompanied me, I still could only get a branch from the one tree.

Today the 5th July we have heavy rain again. Yesterday was a warm day. Around evening a cool wind began from the north-east, clouds approached, the sky became overcast and it began to rain, while the wind became still. Today scarcely a breeze stirred.

Sergeant Jones showed me pumice stone, which was brought to him from Mr Makenzie's station, and limestone, which is said to come from Archer's station.

\*The Brushbalm.\* Calyx bilabiate, upper lip-four toothed, lower round, leaves roundish with coarse teeth, a long leafstalk running down somewhat.

A plant about 2-3' high with opposite leaves, four-sided stems, flowers in long separate spikes or racemes, at first upright then up to maturity turned to the ground, closely adjoining the stem. Five dry bristles form the calyx, the corolla from five dry lanceolate leaflets (in the flower violet). The stem and stigma are simple. Fruit is an achene, from which a kind of lid seems to stand out until maturity. The leaves are turned over, oval, narrowed towards the base and sharp-pointed.

Shrub from Eagle Farm brush. Leaves broad, lanceolate, running into a sharp point, edges dentate, upper side green covered with glands, lower side downy with protruding nerves, leaf stalk  $\frac{1}{3}$ " long. The fallen stipels leave scars.

\*Climbing plant.\* Leaves long-stemmed, between pinnately-divided and palmate (five lobes), lobes lanceolate, no cirrae.

Hairy crown *Panicum*. A small hair crown under the single-flowered spikelet, spike stem of the axil also hairy.

A tree that was growing in front of Mr Hartenstein's house at the mission. I only saw it there and do not know whether it is introduced or native.

Brush fig. Leaves, oblong, sharp-pointed heartshaped at the base, very sharp on the upper side, with prominent network on the under side. The small fruits are densely haired. Gnau wan of the Blacks. It is edible.

{Panicum low-growing blades lying on the ground, hairy sheath, scarcely 1' high.

Climbing plant. Leaves blunt, three-lobed (emu foot). Cirrae from the leaf axil.

*Oxalis*.

*Cyperus* (poor specimen)

Bristle *Panicum*. Broad leaves, glume extended in the bristle, scarcely 1' long, half decumbent.

*Acacia*. Racemes capitate, phyllodes with branching nerves.

Native *Centaurea* with violet flowers, lanceolate blunt, coarsely dentate or smooth-edged leaves.

*Euonymus*-like shrub in the brushes of Eaglefarm.

A gumtree in the low plains (with arched veins[?]) mongorr (of the Blacks).

The blue *Mimulus* in wet places.

A single-flowered, 1-1½ foot high, smooth grass with one line wide or less wide leaves. Glume backs serrate, perianth bristles long and serrate.

A *Loranthus* on a native cherry tree.

A species of *Croton* in the small brushes of Eaglefarm.

Feather pistil, a 2"-3" high plant with broad, lanceolate, dentate, woolly leaves, female flowers in the axils, three loculi, three seeds, pistil crowned with three feathered stigmas. Male flowers in catkins.

\*Native Yam.\* Leaves triangular at the base, somewhat arrow-shaped, edges with coarse teeth. A long-stemmed male and female flower in every axil.

Tree? or shrub with lanceolate or elliptical 2-2½" long leaves, smooth-edged, finely netted, smooth and dark green on the upper side with prominent network and pale green on the underside. Leaf stalk thick, somewhat arched  $\frac{1}{4}$ " long, indication of stipules.

Climbing shrub with compound leaves, six juga and unpaired leaflets, oblong, somewhat sharp-pointed, slightly emarginate at the point, somewhat unequal-sided.)

Broadly paniculate *Panicum* with paired stemmed spikelets. One small stem longer than the other. 2-3' high.

*Paspalum* single-sided, single-flowered spikelet (flatly compressed). About 1½' high.

Upright-leaved *Milium* with hair ligule, short upright leaves, stem thread-like, branched, sheath hairy. Ligule with long cilium.

A biflorate reddish grass, glumes sharp pointed. Perianth with a bristle-like elongation. These in the forest behind the mission.

The downy-leaved *Milium*. The upper side of the leaf is covered with dense silver hair, the underside smooth, the leaf rolls together upwards.

*Velleia* with lanceolate leaves running down the leaf stem, leaves somewhat fleshy, pale green, flat bordered seeds.

*Aneilema?* with hood and hairy sheath opening. From the depressions in the scrub around Eaglefarm.

Violet with kidney-shaped, obliquely dentate, long-stemmed leaves from the depressions around Eaglefarm.

*Acmena*. Leaves elliptical-lanceolate (almost opposite), shining, dark green, punctate middle veins, pinnate, distinct marginal veins.

Rock types, which Mr Epper collected on his journey to the Bunya Bunya region. They were generally only found as pebbles in the stream beds.

1. A clay-slate-like rock with conchoidal jointing, like I found on the Gwydir (on Mr Ottley's station).

2. Granite with regular fine-grained mixture of three components. Resembles the granite of the statue of Richard Bourke. Mr Mackenzie spoke of a reddish colouration.
3. A rock that seems to be dioritic, very decomposed (white feldspar crystals powdery, black hornblende)
4. A clayey rock that seems to have been exposed to the fire (thermantide) and which encloses quartz grains in some small pieces.
5. A coarse-grained sandstone with large quartz grains.
6. An impure sandstone of brown colour.
7. Flint in quartz that probably comes from veins of other rocks.
8. Jasper (brown and bright red mixture).
9. Ironstone.
10. Basaltic scoria.

Besides these Mr E[pper] gave me a real flintstone of smoky colour, which had been found in the plain in front of the little village.

## 7 July

Yesterday Mr Jones gave me a kind of button worked from clayey rock and inlaid with silver, which he took from the neck of an Aborigine here, who had no contact with travellers. This stone was perhaps found on the coast.

Yesterday I botanised in Breakfast Creek. A large number of interesting bushes are found particularly along the river. The tall trees are still unknown. I saw some with their high bushy green crowns rising from the surrounding shorter trees, but the Black boy could not climb up. *Ipomoea* the native cucumber and some other climbing plants cover the shorter, but often 12-15' tall, bushes

and trees with their green foliage. *Myoporum* is in flower. A new *Asplenium* was on the ground and four-edged orchids in flower on old trees. Two species of *Melaleuca* (tea plant), which are also differentiated by the Blacks. A marshy rich soil covered with reeds and *Polygonum* 8-12' high. At some places thick *Crinum* stems.

### 9 July

I had the pleasure of seeing old Baker, who had lived 14 years with the Blacks. He escaped from the settlement about 1826 at an age of 26 years. Presently he is 43-44 and suffers extremely from rheumatism. He has small mischievous eyes, but is well behaved and had made himself useful by discovering a new road from the Downs to the coast. At first when he left the settlement and travelled towards Limestone, all the Blacks, who saw him, fled and none wanted to come near him, so on the next day he stood behind a tree and waited for an old man. He jumped out towards him and he could not now flee. At first he trembled, but as Baker showed no hostility, the whole folk assembled around him, took him to their camp and prepared a bark hut for him for the night. However, on account of his security Baker had to move further away from the settlement, where 300 lashes awaited him and he met another tribe after he crossed the Brisbane, who had their seat between Mt Forbes and the Range.

Fortunately the idea exists among the Blacks that the Blacks change into Whites after their death and an old man, who had just lost his son, thought to recognise the departed again in Baker and cries of joy sounded around him from the sisters, brothers and relatives, when the old father made the find known. {A corporal in the settlement was once recognised again in this way.} Baker then lived for a long time with these Blacks. Later he went over the main range to another tribe, who stood in blood relationship with

the Blacks of this side. You see the young men of the tribe are not allowed to marry the daughters of the tribe. They must seek women of another tribe and give their daughters and sisters also to other tribes. A man has two or three wives, indeed as many as he can get, because the more women he has to look for food, the more comfortably he can live. Close ties of affection exist between son, mother and father. The woman appears submissive to the man. The women often go without eating meat for 18 months in cases of death, the men only for three or four days, then they begin to eat possum meat and Baker said that he once went for nine months without kangaroo meat, that he, however, always got the tail and generally had the finest bits. When Baker lived with the Downs Blacks, he learned that his old father had died, he was highly worked up and threw his boomerang in amongst the tribe, so that he nearly killed a nephew. This seems to be a general expression of mourning. The Blacks, who later came to the settlement, did not want to tell him that his children and his wife were dead from fear he might shoot them. And who knows, said Baker, whether I would not have taken a gun and shot them, because I was so deeply sunken in their superstition and customs as they themselves. Baker later returned again to his Blacks on this side of the range and was hardly a month absent from them again. {I must ask how he came back to the settlement.} He said "I was so used to them that I felt homesickness if I did not see them". They are full of superstition. They believe in spirits of the dead and often they woke Baker during the night asking him whether he had not seen the spirit and then they pursued it, pretending to drive it away and often returned long afterwards in a full sweat. They believe in a being, which they call Budscha, an old man. He lies reclined on his elbows or against a tree and his wife and son travel to him from time to time. He has long teeth and a kangaroo is only a small bite

for him. His son is a wonderful[?] kangaroo hunter and his father sent him over the main range to bring the pox to the Blackfellows, as Budscha sends the pox when he is angry and the Blacks die like flies, young and old. They were more than a little astounded with such an epidemic to see Baker escape without pox. Baker of course was inoculated for the pox.

Once Blacks came too close to Budscha's camp (Bayami is perhaps also the proper name here) while hunting kangaroos. Budscha turned them around with their faces before him and changed them into trees, which are still seen today, leaning obliquely away from the place where Bayami (or Budscha) rests. Other Blacks, who were further away, saw the fate of their comrades and fled. Often the Blacks have pretended to have come up to that place, which at one time they place towards the west, and the next to the north-east. Baker said that he never heard the name Bayami from the Blacks, but that he learned it from corroboree songs. These corroboree songs were derived alternately from Budsche, from his sons, and from his wife. Baker once journeyed 100 miles with his tribe to be present at a Budsche corroboree near Limestone. He did it much against his will, as he just doesn't seem to be a roving fellow. Often he quarrelled with his friends. Also I think he may not have been present at a corroboree, as later a young Black came with peculiarly shaped boomerangs (sharply pointed with a knob on one side) and told him these boomerangs were magic boomerangs from the Budscha corroboree and every one towards whom they were pointed, particularly the women, must die immediately. In spite of this remark, Baker took the boomerang and pointed it towards many Blacks and women and because it had no effect, the Black said that they only have their effect for those who have attended a Budsche corroboree, then they should kill every kangaroo and that such dead animals

may not be eaten by the women. Baker ridiculed him for it and made his superstition the joke of the tribe.

The Blacks towards the Condamine speak the Combal language (combal no!). The Downs Blacks say weerri for no, that of the tribe with whom Baker lived yagarra (their language Yagarrajul).

I asked Baker the names of the animals and at first explicitly four-footed animals:

\*Allgull native dog (Bu-keen other side of the Range)

Himim native cat, tabby with yellow spots, big and small. The blacks will not allow their dogs to bite them, for fear the dogs loosing the hair.

Kimi (rabbit rat amongst the rocks in scrubby places (Kimam at other side of the range)

Bradscham (Kurriel) a little mouse, not certain w[h]ether it has a pouch.

He never saw a water mole (*Ornithorhynchus*)

Echidna Kokkerah living on piss-ants, in scrubs, very rare, very fat, tastes like pork, often 2" of fat on the ribs, draw themselves up in a round ball.

Merrang-pi the native bear on gumtrees is numerous in forest ground.

Kuppi Opossum (gunnal female widdiging male)

Copalla a large opossum darker than the common one.

Meberu like a squirrel, no lateral expansions, tail 5/4' long.

Bong-ku flying squirrel.

Dscheberu little grey squirrel.

Kiddemmon (flying fox- a word very difficult for pronunciation)

The following are the Kangooroos Baker saw here.

Bogoll, black wallobi in the scrubs (female)  
goodjawn (male)

Crowmen	he	}	Forest Kangooroo
Parra	she		

Tallum	she	}	grey creek kangooroo (in little scrub)
Kiddibon	he		

Wonggerri blue kangooroo with black at the back and shoulders little bigger than Tallum, tremendous tails and runners at Mt Walker.

Parrun Kangaroo Rat

Yaye Bandicoot

Körril Paddimelon (female) Wongoon (male)

Kiddewamm	male	}	in the scrubs little dark grey Kangooroo
Pau-i	female		

Koolembe	he	}	keep company to the Kiddewamm bluish colour. <del>Darker colour</del> <del>than any kangaroo</del>
Gumang	she		

Gunde at the other side of the range.

Dscham-pan flat tail, tail of an eel, black mark along the back and shoulders. At the other side of the main range.

The she ones of all the Kangooroos are the fattest.

Laidwood is a kind of black wood, which once lighted keeps the fire, without giving any smoke, this enables the blackfellows to use it in hunting the Emu, which is allowed to have the sharpest eye in the bush.

Dschinbikri (Bottle tree at Mr Perces, the young trees with big roots, which they eat

Kolgoro grasstree

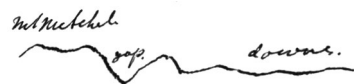
Yogwai Blecknum (eatable fernroot)\* (the boy said Yuba) {Tangba Char[ey]. Tangwann Nikki}

The Black, who accompanied me to the other side of the river, gave me the following names. Kummur kummur (*Acacia* on the water with long green phyllodes).

{Taloballong?} Tuncann. A strange species of fig, which grows extremely tall there. Bar, a small tree with the underside of the leaf shining silver.

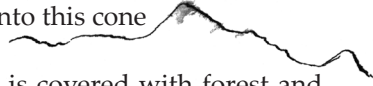
{Gunanguli (Charley)} Kulli oguli, white cedar. Kakrakall, the *Acacia*, which was in full flower on my arrival in Moreton Bay, yellow, twinned racemes in each axil. Toro, *Pteris*; kalgripin the reed, which the Blacks use to make necklaces (a kind of string of pearls of small cut pieces of reeds); mie mie, *Exocarpos*; mundeli, blackbutt; dullundjula, the broad-leaved *Persoonia*; gargar karger, forest gum; dei-e, mountain *Acacia* with pale green phyllodes; tunball, the pine (as the boy pronounced it. Baker called it dschun voll) (comar is another expression, which seems more to indicate young trees, Baker); darkan, *Pandanus*; balann, the climbing broad-leaved vine. {warredo, a tree that I do not know yet.} bannvamma, another.} {[illegible] bracken[?]}

From Taylors Range you enjoy a magnificent distant view. You see Amati Point towards northeast by east. Two blue islands can be distinguished towards it in the Bay. Brisbane Town is towards the east. A distant blue range with few marked elevations and indentations towards the south south-east. It seems to sink towards the south, if the distance does not deceive. Another range appears closer towards the south, and even closer a range, a not very high ridge, over which the further one looks to a very significant mountain, but the closer range also rises to a point. Just to the south-west Cunninghams Gap appears in a series of heads, from which the Coast Range continues.



Taylor's Range consists of a stratified gneiss rock, whose components, however, are quartz and talc. The gorges are deeply incised; the range itself consists of high heads, which rise about 100-200 feet above the connecting mountain bodies. The height above sea level amounts to perhaps 1200' or hardly so much.

next range rises into this cone



The whole range is covered with forest and the most eminent forest trees are ironbark (tandur), turra turra (a stringy bark, but not with yellow interior wood), mundeli (blackbutt), dambirri (short-barked gum), urgorka (fibrous), garger karger (a kind of forest gum), gurrar, fibrous bark with [...]yellow resin containing benzoin, burro fibrous bark, and dei e mountain *Acacia* with grey-green phyllodes. Mangorra with smooth shining bark seems to like water more.

### 10 July

I had a second discussion with Baker. I asked him about various points and he gave me the following answers: When a young man dies and he is very fat, they bury him immediately, if he is not too fat, they skin him, prepare the skin, cut it into long strips, roll them together and lay them in dillis. They clean the bones from the flesh, consume part of the flesh and then carry the bones, not all but skull and extremities, with them in the dillis. If a dilli is too old, they make a new one. The women carry these dillis, but sometimes young men as well. It is an honour or a good deed. The women never eat meat as long as they carry these dillis. They never kill children, on the contrary, they love them immensely and mourn them for 12 months after their death, but the woman, who has no husband probably kills her child, as soon as it is born, however, even this is a matter of condemnation. No one may go near them

when they give birth. Few die (only 12 during his stay among the Blacks). He saw twins only once in 14 years.

Their medicine is very simple. They know no herbs. Everything is simply treated with cold water, sucking and cutting with sharp stones (in case of rheumatism). They suck so hard as if they want to draw out the bones, as Baker expressed it. Their illnesses are few. The most dangerous is the pox, which Budscha sends through his son. Once nearly all Blacks would have died, had not they brought Budscha's son tomahawks as presents. Frequently they catch colds (Callopel — a bad cough), never or seldom deadly. Many suffer from rheumatism in neck, shoulder and knees. As previously stated, they use flint (firestone) to make incisions in the sick parts. Baker well knows how to judge whether a snake is fat by seizing it under the head, stroking it down with the other hand and then biting into the place of the heart. If the heart is surrounded by fat, the animal is completely fat. The following reptiles are known to him.

{For the most part German pronunciation.} Guana kju-e. Jew lizard nera. The fat in two small spots in the abdominal cavity. Water dragon with red abdomen, maggil/ (dunam Charley) (twice as large as the jew lizard). {\*Goragan Sleeping lyzard, name of the short legged lizard.\*} {\*Chelbrarah small lyzard (of which they say that there is no difference).\*} Yuen a small snake-like lizard, which makes a man sleepy by its bite, but does not kill.

Two species of black snakes. The one with slaty-coloured abdomen, kallinda, very poisonous, the one with red abdomen jongo. The carpet snake or diamond snake kobbel, Death adder monolkung. \*Pinking the water tortoise\*/(narimbamm Charley). A lead-coloured snake bocudscha very poisonous. \*The Whip snake.\*

The following fishes form the food of the Blacks on this side of the Coast Range.

{Dogo. Codfish, doko (this fish is by no means restricted to the westerly waters.) Tayan, eel; wakan, jewfish; andäkel, mullet.

The still uncivilised Blacks, who killed Mr Stapleton [Stapylton], were caught, sentenced and hanged. Their Black brothers were not present at the execution and thought both the poor sinners were changed into Whitefellows and ate white bread and the beef of the Whites in Moreton Bay.

A large number of tribes live on this side of the Range. The Geri Blacks from Eaglefarm to Amati Point. The Bodschella to the Bunya Bunya region. They are extremely quick. The region from here to Breakfast Creek is called Megandsin (Jimmy), Makandschin (Baker). Warrilpon, the Canoe Creek Blackfellows. Brogoa is the upper part of the Brisbane. Dscherwampon the lower (Amati Blacks).

{\*From the Road 15 miles to Buollian first place; thence about 16 miles to Dunpoore a scrub, then 20 miles to Daaren, a scrub then in 2 days to Mow vallen and Buol, leave all the scrubs to the right.\*}

Baker went from Mr Skugel's station on the Condamine towards the north. Although he did not follow the river, he saw plains that extended to the north and which also seemed to indicate the course of the river.

Thirty miles from Schambi (Skugel's station) an important mountain Maw vellan rises and behind it northwards Buel, which seems to have no connection with the range. The plains (Nangamgennem) are formed from white sand Mampo. Woolmerum is a long narrow mountain range. {Tillilma is the name of the Blacks for the black loose basalt pieces.}

Baker called the bunya badne (only simple). Jimmy called the fruit boanje.

The Mampo parra Blacks catch the water in hollow trees, in which they make a hole at the ground, which they open when they need water.

Where rosewood grows, the scrub is thin and light. Baker once went to the Bunya Bunya district. The badne has fruits once in two or three years and then the fruit lasts six months, during which time the men fight almost continually, whilst the women collect the fruit. Kalgoro, grass tree, tamm (the yam).

{Darrum (Bunya Blacks)} \*Taroom similar to an orange about 2" in diameter, tree prickly, leaf dark green, fruit green, when ripe, which is about December with soft yellow sweet pulp.

?Tungin larger than the above, green and soft, when ripe with a rougher skin, yellow pulp, prickly and leaves like the orange, ripe in December. — Both these are sweet.

{Dram (Nikke) which he found at Biroa} Tam a kind of yam grows to the height of a yard and more in the ground and about the size of the wrist. Leaf heart-shaped, yellow *Convolvulus*, flavor similar to an English potatoe.

Goolgul— the principal root called Boondore grows above the ground and about 9" below the surface. Plant similar to cotton with larger leaves, much the same shape. Acrid unfit for food till prepared. Blossom red, grows on the banks of creeks. {Grom[?] Nikki Gurrwah (Charl) I believe he means *Caladium*.}

Maai low shrub, sometimes a considerable tree, bearing pods like the bean, containing 4-6 seeds about the size of a chesnut, these are roasted, pounded and immersed in water tied up in grass 3-4 days, then taken out, pressed and eaten, very good food, long broad leaf, dark green and single.\* {This description agrees with the fruit, but not with the leaf, which is compound.}

\*Tigell Vine similar to the Tam with rough black [bark?] when old. Sends 4-5 roots to the

depth of 5' into the ground, about the size of the thumb and less. Like a potatoe in flavour, gets very hard when cooled. {Dal (yam root Dikkah (Nikki)}

Kullkollka *Polypodium blechnoides* found in the gullies of Taylors Range.

{Guelim fungus growing on a tree. Progul Progul Bovist. Yägei Orchis growing in the mould of hollow living trees.\* Kalla tree with hairy tripartite fruits.}

It seems characteristic that turra turra (stringy bark) has the fibres of its bark connected with fine cross leaflets, whereas in the blackbutt they are more separated or are only pressed close to one another. It is very difficult to distinguish between the bark of both these trees.

Baker. Because the Blacks travel continually over their territory in which they have regular camps like the villages and inns of the Whites found in other countries, they know the localities extraordinarily exactly. In the morning they order the women to set up camp at a determined place, never forgetting to indicate the side of the creek, and then go looking for food in separate groups or singly through the forest in the direction of the camp, to which the women immediately set out. These camps are only little distant from one another and they journey only a short stretch during a day. However, if they intend to make a long journey, some can walk probably 25 to 30 miles from morning to evening. If deaths occur in a camp, they avoid it for a long time, for 12 months and longer, but if they do return again they are probably in the habit of staying there by preference. Mr Schmidt told me that the Geri Blacks break the branches of the surrounding trees to indicate to other Blacks that a death occurred there.

Baker was with the Downs Blacks as a guest and several times he scorned and offended his hosts. These Blacks, however, tolerated

him patiently, as if they felt that they must not be so particular with a companionless man. However, when the tribe to which Baker belonged came, he had to settle his former offences.

## 11 July

The following pigeons are distinguished with names by Baker:

Mimmogul (whampo pigeon large and pretty with yellow feathers on the wings).

Parrabum cockatoo pigeon with a red crest.

\*Tumbarah (pigeon with white spot on the head).

Coolun (Vanga Vanga pigeon).

Coolamberoon small whistling dove.\*

I saw the following pigeons and turtle-doves at Mr Nicol's place: \*the Whampo pigeon, the green winged pigeon, the Bronze winged pigeon and the Vanga Vanga (and the Cockatoo pigeon?) the Zebra dove, the pinkeyed dove, the pinkheaded dove.\* {Hr W. Kent told me that he once shot a completely copper-coloured pigeon in his brother's garden.}

Of other birds the white-necked crane, the dragoon, the velvet-coloured flycatcher and another bird, which has a striped breast like a cuckoo, particularly attracted my attention. ~~Besides the true rosella~~ They have a blue rosella here (which really should be called bluella). A completely green parrot was previously never seen here. The king parrot, the red shoulder and the rosella are the most abundant.

{Afternoon}

I saw Mr Macgregor [Gregor]. He told me that beautiful cubes of iron pyrite are found in the neighbourhood of Maitland. He regarded it as copper. He told me some peculiar things of the Blacks' corroborees heard from Baker.

They have four kinds. Besides Budsche, Baker mentioned two other ghost-like creatures to McGr[egor]. One lives in the water and is said to devour Blackfellows. The other gets honey, the fattiness of the possums, the snakes and so on.

In general we were in agreement about the moral condition of the Colony and the squatters. He said, however, he approved the behaviour of Eels' [Eales] people leaving their sheep to the Blacks without fighting. I cannot condone this. He had suggested to the Bishop founding a Church of England mission on Frazers Island, which is situated in front of Wide Bay. Although I think that an island is better than the mainland, yet I do not think that missionaries have influence on Blacks, who come in contact with Whitefellows.

He showed me a coarse-grained sandstone (with pebbles of flint and talcschist), furthermore ferruginous fine-grained sandstone from Limestone.

### 15 July

Pinky the Black boy knew to some extent how to determine a number greater than four. He laid the pieces together in threes and if it was an odd number, then the last heap had only two. Bobby, about 18 years old, had no idea of subtraction or addition. We took 12 maize grains, let him count over them, then took various amounts away and tested whether he could determine the absent numbers. He was almost never able. Pinky took each grain in his hand and made an impression on the ground with his finger and laid the grain down in it. So an immediate reminder seemed to help him. But we mixed the grains up or in a heap and he very frequently made errors. He was rather certain with five spoons. He laid a spoon on each finger and now knew by the number of untouched fingers to determine the absent spoons. No

Black can count in English words over five numbers without help. They have only words for 1, 2 and 3. They have an expression for five, which probably is identical with hand. They were extremely surprised at the certainty with which Billy indicated the absent numbers. They checked the pieces or grains with great attention by raising their fingers. Bridgeri pitne was usually their expression "you know it well". I thought at first, when I saw Pinky lay the pieces together three by three, they had a very restricted triadic number system instead of a decimal, but soon saw my great mistake. A Black, who had many potatoes, may know that someone has stolen some, but he never knows how many? The limitedness of this natural man is therefore extreme and surpasses by far that of the Greenlanders, who at least know how to count to 20 with hands and feet.

Yesterday I travelled in a boat to Normanns Creek, which goes about 10 miles from Brisbane towards the south-west or west. The sides, like those of Breakfast Creek, are alternatively covered with open forest and bush (scrub). I found few new things, but a dioecious shrub, the male and female flowers in long thin hanging racemes (or spikes).

Furthermore *Acrostichum grande*. The latter small prickly shrub with fruits, the other with nettle leaves in fruit and flower. The scent of the latter is very pleasant.

The rock, which forms the cliffs on the west bank of the Brisbane and before you come to New Farm, is a conglomerate of faint violet colour, which seems to enclose pieces of talc. It seems to be connected with the coarse sandstone or the conglomerate that you find on the road to Eaglefarm. If this sandstone were younger than the talcschist, you should find more pieces of milk-white quartz, which is so abundant in the talcschist. It must then be assumed that the veins and layers of milk-white quartz penetrated the talcschist later when the conglomerate was already formed.

However, then the fissures of this would also be filled with quartz, which are thickly covered with iron. {Mr Petri [Petrie] showed me petrified (silicified) wood.}

In the Government Garden sugarcane is growing, and particularly bamboo in magnificent large bushes. Plantain and bananas, citrus trees (moderately well), the guava well, loquat well (in gathering the fruits the young shoots must be broken off). The cotton plant is on too dry a sandy hillock. The *Acacia* from the Logan scrub is a beautiful tree. *Grevillea robusta* also. A beautiful native thorny legume that Mr W. Scott indicated as coming from New Zealand. Two trees were shown to me, one of which is covered with a red show of flowers in March, the other with a yellow. I have samples of the twigs with the observation in my herbarium. A leguminous shrub with very thin pods is also said to be very bountiful in the flowering season. Scab and fungus also kill the citrus trees here.

[Letter in English to Mrs Catherine Marlow, 13 July 1843. Arousseau, 1968: 660-661.]

### 17 July

It is interesting to see the Blacks climbing. On small trees, which they can grasp with their hands, they go up, not by putting the thighs around the trunks and so keeping themselves sliding up, but by climbing with their feet against the trunk and holding themselves with their hands. They put the flexible vine of the scrub around thick trees, which they lift up higher by jerking. Of course they hold an end of the vine in each hand. If they want to rest, they clamp the ends between the hollow of the knee. Thus they climb a tree of 18' diameter.

Last Saturday week the impending change in the weather was heralded by the fleecy clouds becoming denser and by their peculiar arrangement in the area of a triangle with its point towards the north-

east. Already in the night it began to rain and dense continuous rain persisted on Sunday, Monday and Tuesday. The same conditions as previously. Hardly a breath of wind stirring, or just fleeting air currents, the clouds low, dispersed, fluffy or woolly, and washed out. On Wednesday it cleared in the night of the full moon. The weather was not as wet as this for many years. Is this perhaps connected with the comet? It is noticeable that the really low Taylors Range exercises a certain attraction on the clouds. The point of the triangle was turned towards Taylors Range. On Friday before the rain we observed a beautiful, very wide halo around the moon. It was at least 30' wide and probably wider. Gradually it opened and disappeared.

### 18 July

Archbishop Polding has baptised three Black children and it is said he is on the point of taking 110 Black children to Sydney. This would be very good, if it is confirmed, but such a good and rapid result would itself arouse the jealousy of our pious brothers and I know not what else would have the Church of England, the Presbyterians and the like shouting and making a noise. It is certain that they will not fail to increase his trouble as much as possible. {Nothing but talk! He sent three children to Sydney, but he had to send them back again with one of the next steamers, because the Blacks from Amity Island threatened to murder the missionaries.}

Mr Petrie told me that coal had been found on the west side of the Brisbane below Eaglefarm. I will make a search for the locality later.

Society in Brisbane is also of a particular nature. The so-called gentry: Doctor Ballow, the Police Magistrate Captain Wickham and John Kent seem to be exclusive. Then there are the unmarried young men, who

stand between these and the wild crowd of jackaroos, as they are accustomed to call the squatters here. To them belong Mr Marryatt and Lieutenant Johnston, whose reserved behaviour, however, already almost placed him among the exclusives. Then there are some respected merchants here (store keepers), who almost all have gone through the whitewash, such as Mr Lord and Mr Le Brittain. The former is a friendly handsome man. Mr Macgregor the clergyman belongs of course to the whole community and I think that he is an upright friendly benevolent man. Mr Mackenzie is the only substantial man of the place and I hope that he comes through the hardship of the time happily.

#### 19 July Thursday

I left Brisbane at midday yesterday, after looking for my horse, which had been let out of the paddock, for 1½ days. I found Mr Archer, to whose station I intended to go, with the missionaries. Today I waited for shoes and I had a long religious discussion with Mr Wagner the shoemaker, while he kept working valiantly on my shoes. He is a simple thinking, warm-hearted person and he is for me a very curious phenomenon. His occupation allows him time to ponder over things, as while the hands continue working like a machine and the body is resting, the intellect retains its full freshness. With his pious faith in Jesus and in the holiness of the Bible, he judges the conditions in which he lives quite rightly and lives contentedly, as neither family nor relatives necessitate greater effort for worldly comfort. However, the lack of order, excessive consumption of fatty foods and incorrect use and misuse of water have often brought about ruined stomachs, excess of gall and indisposition. Towards men like him and Schmidt, I feel the impossibility of any convincing on my part and theirs. It always seems to me that I am superior to them in so far as I base

our connection to our heavenly Father on rational belief and on conviction by induction, whereas they depend generally on authoritarian belief, to which they unconcernedly adhere. They have biblical answers to all my rejoinders. How can I respond to them, I who regard belief in the Bible only as an unnecessary belief in authority? Meanwhile it has become clearer to me than ever before that the pure doctrine of Jehovah, from such an early period like the earliest times of the Jewish people, shines forth out of polytheistic darkness like a glorious light, a true shining light from God.

#### 24 July

[Letter in English to Helenus Scott, 24 July 1843. Aurousseau, 1968: 661-665.]

\*Bulburri Appletree (Nukkur of Jimmy).

Wanga— Gurrán.

Bunairr— Bunnah (Bloodwood).

Manderoljan— ? Gerur its brown bright gum turns yellow when stripped.

Worabill *Banksia*.

Ngarrabill— Bolorta.

Manborri— Mangorra.\*

You see large numbers of apple trees with growths containing water.

\*Buddul— fluted gum of the colonists— a valuable wood.

Bumbungkall a vine.

Mammull *Pteris*.

Tangba a pinnate fern (this was not *Blechnum*, which has the same name and of the rhizome of which the Blacks live in wet weather).

Durro Ironbark but the wood is not red but whitish and very tough.

Kangarall *Acacia* (Kakarkall).

Mingagaburri Native cherri.

Mangagaborri *Angoph[ora] lanceolata*.\*

Gnatangbill tree fungus.

\*Boa a tree very like Bolorta.

Nguddur lanceolate tea tree.\*

Up to the Pine River we passed several sandstone rises with the character of the sandstone at the mission. The flat valleys were damp with stiff clayey soil and hard grass. The Pine River has *Casuarina* and brushes on its banks. The small-leaved violet and the small tripartite *Hydrocotyle* is in flower. This side of the Pine River clayey talcschist appears, which might be called a talc slate, as it often perfectly resembles the white slates, which are also wrongly called clay slates in Europe. The grass is becoming finer, extremely high and abundant. It is a very hilly country. We crossed three other streams, of which one is called Reception River, another Cuthbertsons Creek. About seven miles from the station sand appeared covered with grass trees. Here we found a piece of syenite. The sand seems to be only decomposed syenite or granite. We enjoyed a beautiful view of the Glasshouses (the large and small 40 in number) from several hills. On the point the northern end of Moreton Island and the southern end of Brieves Island were seen. Near Archer's station the above mentioned trees, the large *Belonia*[?]-leaved violet and several brush plants were observed. On the sheep station there is hornblende rock, in the valley pieces of granite and sandstone boulders.

The gnauwan. A small tree with finely-fissured bark, soft white wood. In the scrub.

The mummujom. Small tree with spongy corky bark, soft fleshy wood, spiny branches, ternate leaves. {This is not the right nature of *Erythrina*. It is gundilbill. no. 114}

The gundil, dense sappy, but grainy short bark, which breaks into pieces easily, white fibrous wood.

Ballal a climbing milking shrub with dense whitish wood without medullary rays.

Kindurall, a broad-leaved climbing shrub, fissured bark, distinct medullary rays, very visible pores.

Darrum, a small tree with long shooting branches, two strong spines on each leaf stalk {\*The native lemon.\*}

Bundall, a monocotyledonous (endogamic) creeping shrub with internodes and spines. {*Ripogonum*}

Jidni, a reed-like, high-climbing plant, the leaf sheaths densely studded with spines, the leaves pinnately split, large palm-like. {Yidni Nicke}

Manderoljan, a gum tree, which resembles manborri very much in its shining bark, but it grows on the hills, whereas the latter seem to prefer damp plains. The gum is cherry red, the fruits are roundish like peppercorns. The timber is not particularly good.

Kurranga (kallirwill Charley), the little yellow pieces of reeds that the Blacks wear around their necks.

Dedembi (dallbirr). *Xerotes* of whose leaves the Blacks here plait their dillis.

Ngarrabill (bullorta Brisb. \*Ngarrai Jim between Brisb. and Archers.\*

Manarm, a gum tree with greyish spotted bark covered with depressions, cherry red gum, large fruits somewhat resembling the *Angophora*, soft useless timber, which Archers call white gum here. This tree shows lateral growths like the *Angophora*, in which it contains either thick cherry red gum or water coloured by gum. It may be that the original gum hole is connected with the atmosphere from above and the rain penetrates into the

hole dissolving the gum. The painter could not wish for a more beautiful colour, were it not soluble in water. It stands in sun light very well, as I have often seen beautiful old cherry red gum with the original colour on the trees. The tree was growing on Archer's run on arkose hills, which are in front of syenitic or granitic hills.

*Diuris flava* or *maculata* (dingam, Jimmy).

Gubbebi sleeping lizard valued by the Blacks very much as food. Uan (Bunya Bunya Black).

Binni *Chlamydophorus* also very good eating (kungo Jimmy).

Boppul (Bunya Bunya Black— climbing up on the tree).

Wai-i climbing up on the tree. (Iguana) warrill Jacky.

\*Barrang large fellow not ascending trees and not Iguana Charley (Uarram Jacky, Dunnam Brickm., Narram Simon.\*

Nununn the small species of lizard. Kirrai Jacky small lizard.

Kinkum *Diuris albus* the root good to eat (robbon talto).

Guannor guannor (gannor gannor) shrub with hazel leaves and purple berries.

Tirrom spiny shrub with broad elliptical pointed leaves (two spines) Euphorbiaceae.

\*Däl (Charley) Diia Paddys son. The Yam root

Garran broadleaved *Eustrephus*\*

Mundirall Charley. Mundiri *Notholaena*

\*Bungall the broad leaved toothed vine.

Darrum the stiff leaved toothed branch. No. 18.

Bungundolwall Charl. Bundei Bundei (Ubbi) the tripinnate immense leaf\* No. [...] Catalogue of edible Substances.

Gnarrangam opossum lives in the trees.

\*Gna (duck).

Gnarimbam turtle.

Uallwall (Tsibburr flying squirrel).

Ganbi (Eel) Bangurr Codfish.

Babbarä small flying squirrel.

Ballah Jew fish.

Dudurro Shag.

[List rewritten in vol. 3 List here originally written in pencil and overwritten]

Diäl (Dikkah) Yamroot

Ding (Marri) old male grey kangaroo Gurruman

Boal Wallobi old man

Gummang Padimelon

Guivir (Wollan) Wallobi belonging to Rocky places

Guang (Wangei) Diamant snake

Jauui (Turncull) Bandicutt

Gummulbi (Bei) Barrunga Paddi. Kangooroorat

Gnandäl (Nandaya) Bream or mullet

Kambo Cobra in the wood of saltwater

Dundurr (Buyum) Grub in Dunti in Swampoak

Dunbä (Dunbann) Grub in Dunti

Gniddar Gniddar Cobon Koolah

Birriwill (Birwi) little oblong fruit called breadfruit like a long narrow egg.

Wauwall (Wauwa crow)

Banam sit down Dunti, liken Padimelon.

Kimman Kangoorat (like it)

Gutta (Gillah) Honey

? Gabbia (Gabbai) In trees

Darragh and Fensham

Domgo (Molo) Mullo Blacksnake

Battia (Baddoran) like Possum

Guppe, Kuppi (Gurrue, krui) Sit down Dunti  
liken possum great tail

Dam (Dram) in Dunti (Yam root but different  
from Dikkah)

Dunbä (Dunban) ~~Wairui~~ Guana

Gummurr (Gumburr) ~~It seems to be the fruit  
of a small shrub~~ + Grub on the Grass Tree  
[substituted].

Yarredam (Yarrandam) Dunti Robon fellow  
and Narrang (Bail talto)

Dinnbir Grass hop[p]er

Uaiah (Waragangurr) brother belonging to  
padimelon Boppul.

Wangunn Mary Wayah.

{ Dallopn (Dallum) Kobon fellow kangaroo.

{ Mutti Grey Kangaroo

Danball Wallobi

Dun patä (Dunbadovan) native cat?

Uannanar (Bangann) old men eat it, not  
young men.

Gullah (Gudlah) Tunti koala native bear.

Bulbann (Bauvann) in waddi and humpy  
mouse.

Gimmundarah

Gilli (Moburr) Sorex

Geiar (Geom) Kakatoe

Mammäh (Mammoa) Pigeon

Buanball (Ton) Ubi Ubi brother to  
Kangooroorat

Dinangbunnball (Binnanda)

Gnauwall (Buddarr

Kakkaqualidum (Kanga)

Murrnguding

Dilli

Moddä (Dompi) Grass tree

Dullwill

Dingidngirri

Wau wall (Wauwa) Crow

Gubebi Uan Ubi sleeping lizard.

Binni (Boppul) Chlamydophorus

Binangulum

Wallambarbi (Wallambarun)

Bin ~~Seaforthia~~ Bi Nicki Bir

Banyi (Bunya Bunya)

Dunnam

Gayarr (thick grub?) + Ger Bottle tree

Barrah (Yimmar) Kangaroo

Wauwunn scrub turkey

Drebin quail

Gengi native porcupine

Gundillbill the 3 leaved Leguminose

Gummang (Opossum) (Tunti sit down)

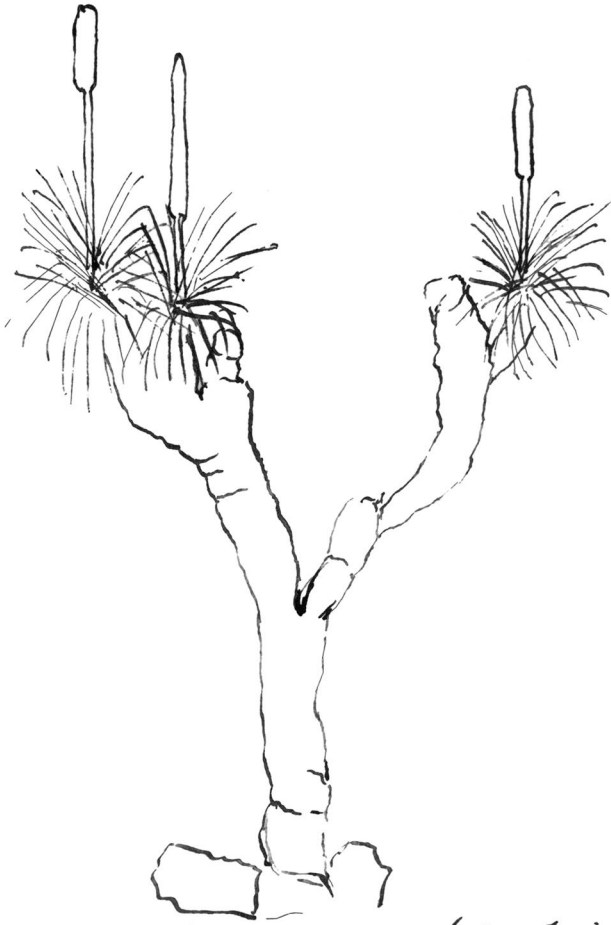
Djibburr flying squirrel eaten by full grown  
men

Buji

+ Kayarr (Gir Paddy) the bottle tree

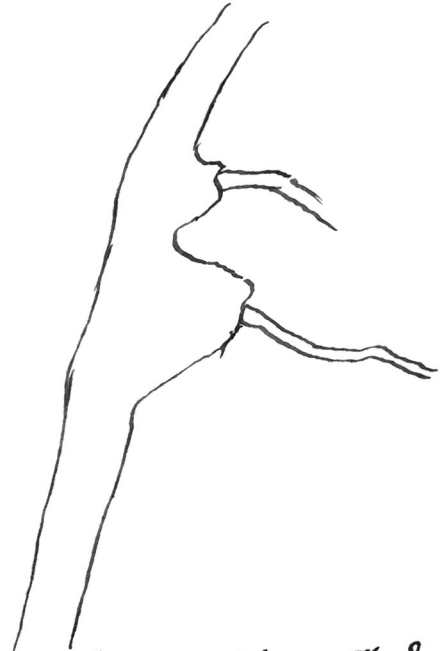
Gnunti *Zamia spiralis* (eatable)

Maddä (orchidaceous plant living on trees)\*



ferntree seen at The castle Rocky Mountains  
*Moddä (Dompi)*

\*Ferntree seen at The Castle Rocky Mountains Moddä (Dompi)\*

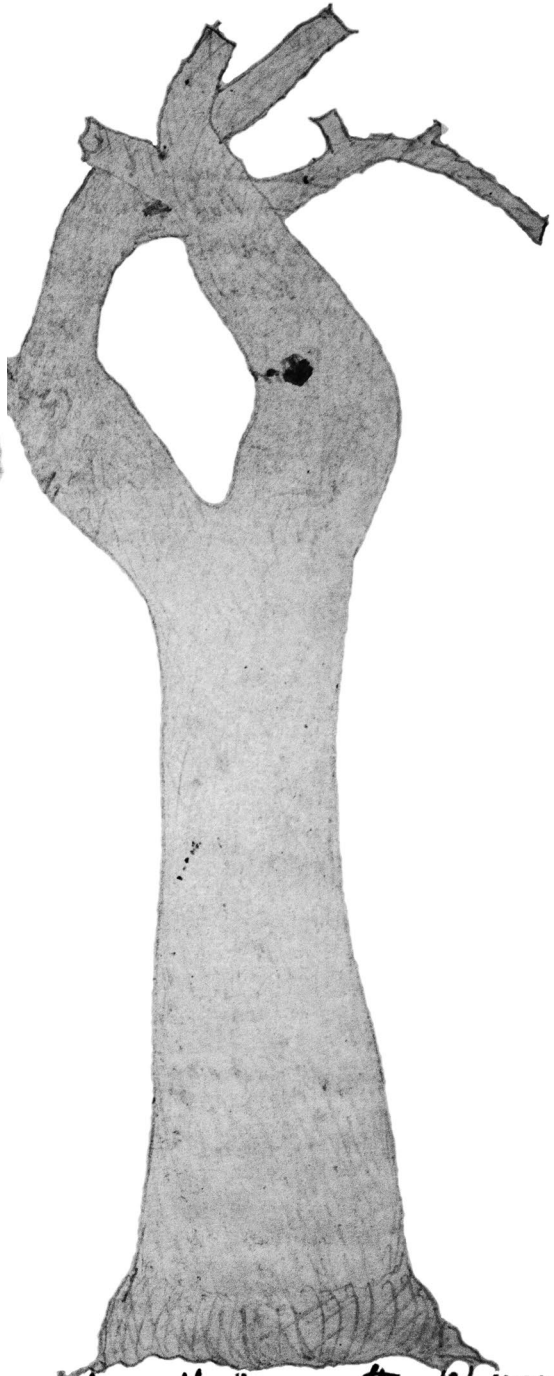


Trunk of an Appletree with dry branches in the enlargement showing the usual cause of the latter.

\*Trunk of an Appletree with dry branches in the enlargement, showing the usual cause of the latter.\*



\*A stringy bark tree.\*



*A venerable Box more than 12' circumference  
at the base of the trunk probably in consequence of the thin soil.*

\*A venerable Box more than 12' circumference the marking at the root probably in consequence of the soil.\*

[Inside back cover with a sheet of paper pasted over a manuscript calendar, a newspaper cutting on climate of South Australia and financial notes written inside the back cover]

WSW Sandstone 20° N near[?] Fereter's under conglomerates (Between[?] J & Singleton Spirifer).

11tn \*Hills SSE to NNW slope SE to NW [...] [...] in [...]

(Magnesia and Nitre in the Sandstone)\*

[inside back cover]

\*Uang leaf

Yarra fruit\*

[Calendar January - 24 June with days marked off to 17 June]

A check to Mr Scott for my shoes 4 shillings.

I sent a packet of plants and stones from Dalkeith. Another from Dr Bowman. Plants with Mr Luther. I sent stones and plants from Mr Mawson's via Windham's to Rev. Mr Rusden. From Mr Rusden plants and stones in a box.

A check for shoes (Murphy Buhtock's [Bundock?] station 2 shillings.

A check for new shoes Mr Ottley 16 shillings.

From Mr Stoney (Ogilvie's station). The impressions of plant stems with the address of Mr Rusden. I left Mr Ottley the plants that I collected in Rocky Creek for some stones also[?] the skin of the flying squirrel.

\*At Alfords to Mr Lynd 7 sh. 6 p.

At Dillons 1 pound

Bell 11 sh. 6 p.

The horse 23 £

Trousers to Mr Schmitt 2 £

Smith for shoeing 6 sh.

Smith for shoeing 5 9d.

to the Commercial Bank to Mr Lord 2 £-8

to the Commercial Bank to Mr Kent 1 £ 10 sh.

to Mr Edmont for a bridle 7 6d\*

**End of Diary 2**

## □ ENDNOTES

1. Prussian ell = 66.7 cm
2. Bennet, George. 1834. *Wanderings in New South Wales, Batavia, Pedir Coast, Singapore, and China: being the journal of a naturalist in those countries, during 1832, 1833, and 1834*. Richard Bentley, London.
3. Cunningham, P. 1827. *Two years in New South Wales; a series of letters, comprising sketches of the actual state of society in that colony; of its peculiar advantages to emigrants; of its topography, natural history, &c., &c.* Henry Colburn, London.
4. Molière, J. B. 1665. *L'Amour médecin*. Paris.
5. Dr O'Toole, a character in a play by Richard Butler, earl of Glengall, called *The Irish tutor*, first performed in 1822.
6. Silvio Pellico (1789-1854), an Italian author, who was imprisoned for eight years on suspicion of belonging to a secret revolutionary society. He published his prison diary in 1832, which became a best seller.