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Volume 7
Part 1

The Leichhardt diaries: Early travels in Australia during 1842–1844

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Forest, Cunningham's Gap, 1856

IMAGES
Unless otherwise stated, images used within the book are sketches by Ludwig Leichhardt 1842-1844.

NOTE

A Guide to Authors is displayed on the Queensland Museum website qm.qld.gov.au

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Foreword

The disappearance of the German explorer and scientist Ludwig Leichhardt has become a grand Australian legend. Much more poorly appreciated, but equally mysterious is the precise nature of his character and achievements. Hovenden Hely described him as 'the most selfish greedy man I ever saw', while Henry Turnbull who was with Leichhardt on the same expedition urged for a memorial to be built 'not of bronze, however, but of marble—pure marble—pure as the unsullied reputation of the man whose memory it would perpetuate!'. The passage of time has done nothing to moderate the divergent impressions of his acquaintances and Leichhardt's polarized character has become magnified by the historical lens.

The ambiguities of Leichhardt's personality and motivations invite his reinvention. In 1959 Patrick White published a literary masterpiece about an explorer who pits himself against a merciless land. Throughout the novel there could be no mistaking the identity of *Voss* and the genius of White's choice. Not only did White have the drama of the expeditions at his disposal, but the quixotic character of Leichhardt was the perfect vehicle for dissecting the destructive force of obsessive pride and exposing the discord of the European psyche in the Australian landscape. Voss is a stoic, single-minded megalomaniac estranged from people, like a desert himself, and hell-bent on sacrificing his body and soul for the sake of his mission.

During the 30 months covered by the diaries he arrived in Australia as a diligent student from the lower strata of Prussian society without connections, capital or prospects; and by the closing passages he reveals his intentions to mount the first expedition across the north-eastern quarter of the continent. On his successful return from Port Essington in 1846 Leichhardt was heralded as a hero and his name would become imprinted on the minds of generations of spellbound school children tantalised by the romantic and tragic sagas of the Australian explorers. Given the eminence of Leichhardt in our cultural imagination it seems incredible that the most revealing archive from his first formative years in Australia has been essentially inaccessible for 170 years.

The Leichhardt of the diaries is far-removed from Voss. Here is a young man unburdened by the pressures and expectations of fame. He will be found in periods of depression and indecision, wrestling with his emotions and a developing philosophy of life. Like Voss he is introspective, but the Leichhardt of the diaries is intimately engaged with the world and the people he meets.

The diaries reveal how Leichhardt navigated his way through Sydney society and then found his confidence as a scientific traveller, along the way acquiring the array of skills that define a 'bushman'. The pages illuminate the state of European settlement, the nature of aboriginal culture and the geography of the Australian east coast with detailed observations on the natural world. His earnest intent as a scholar of science and his outstanding ability are demonstrated beyond all doubt. Amidst the detailed scientific notes are sections that allow an intimate acquaintance with the author. Without the affectation of his letters or the grandiloquence of his expedition journals the diaries bear witness to the essential character of Leichhardt.

In the period immediately after the diaries he wrote a treatise on Australian geology and prepared his substantial body of specimens and despatched a portion of them to Europe. At the same time he was exercising his charisma amongst the wealthier citizens of Sydney to secure financial patronage for his long and hazardous journey. This was a remarkable fundraising exercise for a foreigner with no family or business connections in a colony in the grips of a depression. Further he selected his party of men and purchased and prepared the necessary equipment. It seems almost impossible that these achievements were finalised in only three months between May and August 1844.

Leichhardt calculated a route to Port Essington that skirted the harsh desert environments and wove around the north-eastern quarter of the continent to the tiny garrison of Port Essington. The expedition was not without tragedy as the ornithologist John Gilbert was killed and Roper and Calvert were dreadfully wounded during an attack by Aborigines on the Nassau River in north Queensland. When their pack-horses drowned crossing the Roper River, Leichhardt had to abandon most of his botanical specimens and with them a large measure of his prestige as a scientist.

On return to Sydney, the rewards for the exalted Leichhardt allowed him to choose his future. Instead of resting on his laurels and developing his scientific interests he immediately begun planning a journey of outrageous ambition — an east-west crossing of the continent. With a full appreciation of geography this was a suicidal mission. His first attempt was an unmitigated disaster marred by appalling weather, errant livestock, plagues of insects and debilitating illness. The party achieved little more than retracing the previous route as far as Peak Downs in central Queensland before returning to the frontier of settlement on the Darling Downs. A side journey to the Maranoa District recovered some sense of achievement, but the more enduring legacy from this second expedition came from the derogatory stories told by his fellow expeditioners. Leichhardt was portrayed as selfish and incompetent, and devoid of the inspirational or commanding qualities required for successful leadership. More than any others it is these accounts that have propagated Leichhardt's derision.

Leichhardt was mortified but responded to his failure by re-equipping another party of expeditioners and headed out again as though the first attempt was merely a false start. They left the last outpost of settlement at Mount Abundance in April 1847 and were never seen again. The disappearance of Leichhardt, his band of men and their vast array of animals and equipment inspired a flood of historical inquiry, speculation and mythologising which continues to this day.

This publication sheds little light on the mystery of Leichhardt's death but reveals much about his life. The essays accompanying the diaries explore how the Leichhardt legacy has permeated Australian science and culture. These erudite analyses only scratch the surface of the material. Leichhardt's medical practice, his struggle to understand the culture and plight of the Aborigines, his experience with the fledgling winemakers, his zoological insights, his developing religious philosophy and his frustrated love-life are all fodder for future readers. Hopefully this publication will invigorate renewed interest in the misunderstood and brilliant, but ultimately mysterious Ludwig Leichhardt, as well how his legacy informs our history.

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Archer's Hut, Durundur, where Leichhardt stayed in 1843-1844. Charles Archer c. 1843
Image: Durandur, John Oxley Library, State Library of Queensland, Neg 4624

Translator's Introduction

The diaries translated here are the last five of the eight diaries written in German by Leichhardt and now housed in the Mitchell Library, State Library of New South Wales (Leichhardt, 1842-1844). The first diary was commenced in Berlin from September 1832 and together with his second and his third diaries covered his period in Europe. Leichhardt arrived in Sydney aboard *Sir Edward Paget* on 14 February 1842 and started a new diary on 1 April 1842 that continued to 27 December 1842 (hereafter Diary 1). In this he initially made mostly personal observations and notes about the people he met, though there were some scientific observations. This diary was transcribed and translated by George Laube for the Trustees of the Dixon Library, but never published. The German transcription of this diary has been considerably corrected and the revised translation published here. In addition to this first Australian diary, Leichhardt commenced a notebook that he divided under several headings, such as mineralogy, geology, birds, reptiles, ichthyology, molluscs and so on. He entered his scientific observations under these various headings for the first few months of his time in Sydney. This notebook, which is not included in the current publication, except for one page of notes dated 2 and 5 April 1842, was later used to make sundry other observations and also to write down the first draft of his paper on the geology of Australia. When Leichhardt went to Newcastle in September 1842, this scientific notebook seems to have been left behind and from then on he used his diary for all his records including his scientific observations. This first Australian diary was filled whilst he was at Glendon on the Hunter River and he commenced a new diary cum notebook on 28 December 1842, which he continued until 24 July 1843 (Diary 2). This is a quarto volume with half leather cover that he purchased in France as shown by a bookseller's ticket inside the front cover. The third volume of this group (Diary 3), covering the period 30 July 1843 to 20 October 1843, is foolscap in size with a soft leather cover. Dairy 4 is a similar format and covers the period 23 November 1843 to 26 March 1844. Diary 5 is actually a series of originally loose foolscap sheets that have now been bound into a volume with other Leichhardt items and covers the period 30 March 1844 to 17 July 1844. It is possible there are some missing leaves at the beginning of Diary 3, because there is no title page as in the previous two volumes and the text seems to begin abruptly.

Leichhardt's later surviving diaries were all written in English. These mostly cover his later overland expeditions and have all been published (Leichhardt, 1847; Bunce, 1859; Webster, 1986.; Sprod, 1989).

LEICHHARDT'S METHOD OF DIARY ENTRY

The Australian diaries were written in ink and it seems that Leichhardt wrote up the diaries at his camp or base on the night of the same day or several days after the events recorded. The diary notes or observations were based on pencilled notes made previously during the day or on his extensive short journeys. The paper used for the pencilled notes may have been loose sheets or torn from another book, perhaps the oblong notebook later used as his diary for the Maranoa journey (17 August 1847-14 September 1847), as this has over half the pages torn from it. In one instance Leichhardt used the blank pages

in a half-filled notebook from his time in Paris (Mitchell Library MSS C141). This is his account of his journey from Newcastle to Brisbane Water in November 1842. It consists of quite short pencilled notes that Leichhardt elaborated on when he wrote up his diary in Newcastle on 23 November. Whatever the case, once the diary proper was written up, the paper with the pencilled notes was usually carefully torn into rectangles about the size of large postage stamps and used for labelling the plants collected on his journeys. The specimen data on these plant labels were all written in ink over the original pencilled notes. This has been determined by matching phrases written in pencil on several of the original larger plant labels on specimens at the National Herbarium of Victoria with similar phrases in the diaries. Also one half page of pencilled notes forms the top half of the first page of Diary 5. The top half of the page is the first draft of what is written on pages 77 and 78 of Diary 4 for Sunday 24 March 1844. The bottom half records observations made on 9 April 1844.

Leichhardt left wide margins on the page allowing him to add additional notes sometimes long after the original entry. Leichhardt usually entered the date in the margin before he commenced a diary entry. If he was entering up the report of a journey of some days away from his base, the date was the day of writing up not the actual date of setting out on the journey. He usually gave the date of setting out in the body of the text and continued giving dates for each of the days he was on his journey. This is why the dates of the diary entries jump around in places. Leichhardt wrote manuscript calendars inside the covers of the first four volumes and crossed off the days as a means of keeping track of time.

At the end of Diary 4 Leichhardt commenced a catalogue of numbered wood specimens by inverting the volume and starting from the back. This catalogue was continued on the last pages of the next volume. The wood specimens were later sent to the Jardin de Plantes in Paris.

FATE OF THE DIARIES

The second, third and fourth of the diaries may not have been present with the rest of Leichhardt's belongings when they were presented to the Australian Museum in September 1853 by James Murphy, with whom Leichhardt had left them for safe keeping (Stephens, 2007). Leichhardt possibly gave them to the Rev. William Branwhite Clarke before he left on his last expedition, presumably to let Clarke read his geological observations, but more likely Clarke, as a Trustee of the Australian Museum, borrowed them when they came to the Museum, because diary three has an inscription dated 1854 with Clarke's initials indicating that the diary was removed from Sydney. How ever Clarke obtained the three diaries, he retained them and mentioned Leichhardt having given him 'a sort of mixed journal of his adventures, letters to myself and others and notes on botany and geology' in his introduction to George Ulrich's translation of Leichhardt's paper on the geology of Australia published in the *Australian Almanac* for 1867 and 1868, which Clarke had organised. These three diaries were eventually deposited in the Mitchell Library in April 1948 by Clarke's son along with the surviving papers of W.B. Clarke. The first and fifth diaries were presumably with the rest of the Leichhardt papers in the Australian Museum, which were subsequently transferred to the Mitchell Library in 1917.

TRANSCRIPTION AND TRANSLATION CONVENTIONS

Text in square brackets [ ] has been added by the translator. Page numbers written on some of the original manuscripts are not included. Doubtful readings are indicated by [?] and words that are illegible in the German original are indicated by [...]. Leichhardt's marginal notes are enclosed by curly brackets { }. These marginal notes have been inserted as close as possible to the place where Leichhardt included them. Significant words or sentences deleted by Leichhardt that might be of importance for understanding, are retained with a cross-through line. Leichhardt sometimes wrote in English, typically lists of species and aboriginal words with meanings. These sections have been transcribed as written, retaining his imperfect spelling and grammar, but punctuated where necessary to make his meaning clear. These passages are enclosed between asterisks * *. Leichhardt picked up the English word "brush" from the local colonists and used it in his German text for dense woodland or forest or rainforest. Sometimes Leichhardt merely jotted down a note without using a verb, usually a part of the verb to be. To make the text readable in some places an appropriate verb has been inserted. Many notes are unconnected with what went before or came after. No attempt has been made to expand Leichhardt's descriptions of rocks, plants and animals, which often consist of adjectival phrases without verbs.

Some difficulty has been experienced in transcribing Aboriginal words, because they are not necessarily recorded in any other published or unpublished work. Leichhardt recorded the sounds as he heard them and spelt them as they would be pronounced in German. He included accent marks, which are not easily reproduced and whose meanings are not clear as he provided no key. These have not been inserted in the translation. For this reason those readers interested in the Aboriginal words should check back to the original diaries.

WEIGHTS AND MEASURES

Weights used by Leichhardt are pounds and hundredweight indicated by lbs and cwt respectively.

Measurements given by Leichhardt are in feet, inches and lines (1/12 of an inch), indicated by ′, ″ and ‴ respectively. Ells have been used in a few places. One Prussian Elle is 66.69 cm, i.e. about ⅔ of a metre.

Money values used were pounds (£), shillings (s) and pence (d).

THE TRANSLATION

Leichhardt's handwriting presents a challenge for the modern reader because he used Kurrent script, the old German handwriting in use at the time, which shapes the letters differently from modern Latin cursive script. He also used his own system of abbreviations for common words such as pronouns, prepositions, conjunctions and some verbs. Abbreviated words are usually replaced with full spelling in the translation, except where Leichhardt abbreviated the names of his Aboriginal informants. These abbreviations have been retained, but the inferred name is given using square brackets, except in very long lists where the inferred informants' names are given at the beginning of the lists. Leichhardt had a prodigious ability to recognise the identity of plants in the field, relying on an excellent memory, but sometimes he did make spelling errors. Minor corrections have been made to errors in spelling of plant names, place names and people's names, or in some cases, the correct spelling has been included in square brackets. Adding to the difficulties of the translator is the fact that his handwriting can be difficult to read. For these reasons, there are bound to be some errors in the transcription

of Leichhardt's original German and hence in the translation.

Included within Leichhardt's notes and observations in the diaries are many drafts of letters, in English, German and French. These letters have been published in Marcel Aurousseau's edition of Leichhardt letters and are not repeated here (Aurousseau, 1968). For convenience page references to Aurouseau's publication are cited as the letters often complement the diary text. Leichhardt transcribed a letter he received from W.B. Clarke. This is reproduced here as it has not been published previously. As mentioned above, where Leichhardt wrote passages in English, these have been reproduced as written by him, except for minor additions of punctuation. Scientific names of plants are printed in italics.

For reasons of space endnotes have been limited to those that amplify Leichhardt's few literary allusions.

The reader, who wants information on Leichhardt's life, should consult the modern biographies of Webster (1986), Roderick (1988), Bailey (2011) and Finger (2002, 2013).

SKETCHES

Leichhardt sketched geographical profiles, geological sections and parts of plants. The sketches are included in the page margins or in the body of his text, sometimes inserted between words in a sentence where the sketch was small and simple. The sketches have been inserted as close as possible to the place where they appear in his text.

APPENDICES

To assist the reader Appendix 1 provides a list of rock and mineral names with modern equivalents; Appendix 2 lists the people mentioned by Leichhardt with brief biographical notes; Appendix 3 provides the localities of most placenames mentioned; Appendix 4 is a list of Aboriginal words. Appendix 5 is an unpublished letter of Leichhardt.

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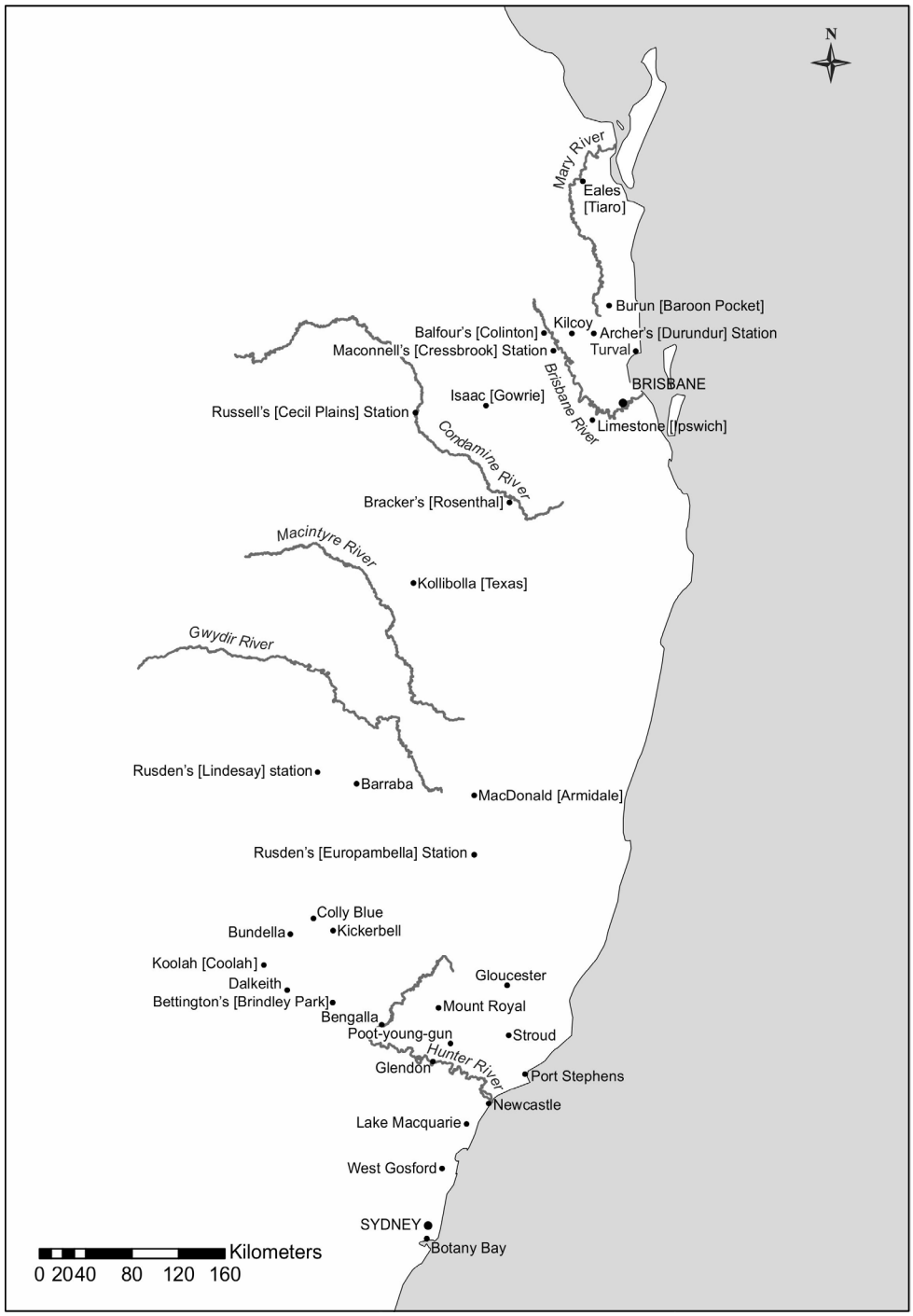


Important locations represented by Leichhardt's travels in the diaries. Current names are indicated by square brackets. A more detailed list of localities mentioned in the text is provided in Appendix 3.

Diary No 1 1 April - 27 December 1842

(Sydney - Hunter River)

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!

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

Diary from the 1st of April 1842 Sydney

I will sit down in the shade of the tall *Eucalyptus* and press my cheeks against its white bark and listen to the whispering of its lance-shaped leaves, which the refreshing sea-wind ruffles, while the carefree cicada sings its shrill song among them. So long as I have God in my heart and His Nature before my eyes, I shall always be content. And He will not forsake me!

1 April

On Monday I made an excursion in the direction of Botany Bay. I had heard much about the bush of Botany Bay and was a little astonished to have my expectations disappointed. Sandhills, like the dunes by the sea, yet with a solid sandstone core, lie confusedly beside each other, with no particular direction, enclosing trough-shaped hollows, at the bottom of which small ponds of water are found at this time of the year. The sand is white and looks as if it might well be sandstone ground down by the activity of a former sea. Towards the western slope, up which we climbed, everything was covered with *Pteris* (bracken). Gradually there appeared *Banksia* shrubs, low *Eucalyptus* bushes, and thin-leaved shrubs, on which mantis of various colours were crawling about. *Epeirus* and a very big *Linyphia*? with a silky-grey abdomen and yellow stripes behind its black feet had spun really strong webs. This is particularly so with the latter. Their young appear to stay close by or at least to live there temporarily, inhabiting the irregular forewebs. This is the first example of maternal care among spiders. Several distinctive types of caterpillar were found: the green red-tubercled *Bombyx* caterpillar, as well as a grey yellow-saddled, eight-tubercled *Bombyx*, a brown caterpillar with a slight saddle at the tail end, hairy caterpillars with two blackish tufts of hair, and a chrysalis, which has now changed into a wingless lepidopteran. Two green mantis, several small *Acridium*, and a small cricket. I mention here that one of the phasmids had caught a fly and was on the point of consuming it. These insects do not live exclusively on vegetable matter. On a pond, around which several dragon-flies were flying, I found some very interesting little plants: a composite, an umbellifer which seems to be a *Hydrocotyle*, and two species of *Juncus*. Some hemiptera were found in the moist sand. A myrtle plant with hairy fruit was common. The violet was also found, as well as *Melaleuca*, but it was rare. The new plant growth from spikelets of the *Festuca* can also be observed here. A plant, whose red flowers grow directly from the branches. *Solanum nigrum* seems to have been introduced.

[Letter in German to Dr W. J. Little, 25 March 1842. Aurousseau, 1968: 442-451.]

2 April

I saw Stewart [Stuart]. A loveable man! But alas, he showed me his expectorations. He had seen only the flocculent mucus, but I saw more: I noticed the white pyoid grains and purulent matter scattered on the ground. Must I come across the unfortunate plight of poor declining consumptives everywhere? He had painted a Norfolk parrot in water colours, an extraordinarily fine piece of workmanship. He was copying it in oils, and we had a long discussion on the respective merits of water colours and oils. The former can render natural softness best, whereas the latter is better for depicting roundness and richness of the colours and their gradual blending. I was also shown some wild pigeons with beautifully marked necks and a brownish, earth-coloured snake with protruding corners of the eyes and a sting on the end of the tail.

Before I went to Stewart, old Murphy came along with his little son, who had a large boil on his head. I lanced it at once, and a large quantity of thick, viscous pus issued out. I am surprised that Duigan did not lance it long ago.

On my return home I met Mr Clarke, clergyman at Paramatta [Parramatta]. He is a geologist and has seen a great deal of Europe and Australia, yet I think his training is not a sound one. His superficial nomenclature of rocks is intolerable. He seems to have wrong

ideas about the age of the various kinds of rocks. However, his knowledge is great and his acquaintanceship rather valuable. Then, again, he is fond of talking, speaking rapidly and not always clearly. His mind is not well-ordered and he does not expound with clarity to be readily understood in conversation. I think I disagree with him also on many points of non-geological questions. He gave me important information, for which I refer to my diary on the geology and meteorology of New Holland.

[Next three paragraphs inserted from Leichhardt notebook, Mitchell Library MSS C154, p.529]

Remarks on customs and on social condition

2 April

There is criticism that the immigrating English endeavour to preserve the habits of their cold fatherland even here, in that they divide a day in their employment in the same way, for example they mostly work during the greatest heat, and that they particularly eat meat, whereas all people of warmer climates rely on vegetables.

5 April

One can stay in Sydney for a long time without noticing that you are in a penal colony and that two parties are involved in a moral struggle. This however, is only based on the circumstance that people frequent, perhaps fortuitously, one of the parties exclusively — or that the affinity between both parties is so insignificant that the one party never learned who associated with the other. Men of some celebrity could never do this.

Mrs Kirchner together with her sister and the nieces of Mr Barker demonstrate to me the delicate constitution of the native born girls. They are often of very pleasant proportions, but small, bloodless, their features lean and slender. Likewise the young men are inferior to the English. Large stiff noses, bony, narrow features, a long delicate body are their very general characteristics. They are narrow in the breast and because I have heard that weak-lunged persons have a very sensitive nose, it seems almost the work of Providence that the flowers lack a scent. However, I do not want to drive this connection too far. The nieces of Barker certainly sang with a very small blowing machine.

5 April

Saturday evening (2nd April) I was invited to a dinner party at Sir Thomas Mitchell's. I was bidden a friendly welcome, but no sooner had I entered into a pleasant conversation with the mother and daughter, than the other guests arrived, separating us almost for the whole evening.

Mr Mitchell was very obliging. A young gentleman, Mr Makenzie [Mackenzie], who had been a long time in Germany, was very communicative. Doctor Nicholson was inattentive and pre-occupied with himself. He is a well-educated man, who propounds what he knows with clarity. But, as he is rich and independent, has perhaps an initial tendency to show this independence, only causing an indifferent self-indulgence that befits him very badly indeed. Mr Barker invited me to look over his garden, and I must admit that it is indeed very beautiful, as is the house where he lives. Barker is apparently a wealthy man, who cannot, though he shows good taste and the best intentions, tear himself away from worldly things, so as to devote some hours to literature and intellectual pursuits. He offered me his help in case I need it, and he certainly gives the impression of a man not only giving, but also keeping, his promise. Considering that he and his wife have not

apparently received higher education, it is astonishing how appropriately they know how to conduct themselves. Never mind a little vanity about their possessions; they would probably show them off less, if they did not want the subjects of good conversation. Their conduct, however, is so decorous, so genuinely friendly that you feel attracted to them.

Mrs Mitchell, too, is a kind lady, who gives her opinion with almost naïve outspokenness. Her daughter is a spirited girl, who is well educated and speaks several languages, which she certainly shows off at times. It is not the place to observe cordiality in such a gathering. However, the girl annoyed[?] me by suddenly commencing to sing a German song, very dear to me, at first with passionate emotion, then, after four lines, she began to laugh and flirt, throwing mud into the fire. It was most distasteful. We exchanged a few words in German with each other (she has started learning this language): the words she had sung were better than the ones she spoke. On arrival I had talked with Mrs Mitchell. Then she suddenly attempted a French conversation. She certainly did not perceive that this change was not exactly flattering to a foreigner, since it assumes that he does not speak their language well and fluently enough. Unfortunately, when she started, she made a mistake, which so disconcerted her that she continued in English.

Taking everything into consideration, I did not feel at ease in their company. Isn't it rather foolish to have a gathering of people in order to bore each other? Everybody must have felt about it like me. Why do they do it!

The smell of pine-apples is extraordinarily prevailing. Though the dining-room was filled with all sorts of odours, they receded before that of pine-apple, once the fine piece of fruit was carved and passed around.

It seems as if a new expedition into the interior of New Holland really is being planned, although without Mitchell, and that he is not pleased. Eyre is said to be on the point of coming to start the expedition from here. I must by no means stick to any particular person and shall use any opportunity of participating in an expedition. It is, however, certain that I shall not join as an official botanist.

On Sunday I made an excursion with Mr Lynd to the North Shore, which on account of the prevailing south-easterly winds is considerably greener and richer in vegetation because these winds constantly carry the moisture of the harbour over it. We found a large number of plants. Yesterday and today I worked at Mr Lynd's place identifying the plants. It is a laborious task; we are, however, making progress and shall soon have made good progress with regard to the present flora of Sydney.

Mr Sharpe's property, where we called on Macdonald, is extraordinarily romantic. So are the homes of Messrs Mitchell and Barker. Everywhere the ever-varying country, green with introduced trees, is joined by a blue bay of the wonderful harbour, which, like Mt. Vesuvius near Naples, features in almost all tableaux of the scenery.

The waterfall would be rather impressive if it contained more water.

Some remarkable geological phenomena can be observed here: the regular smooth jointing of rocks, the formation of blocks and round holes penetrating, as if drilled, into the rocks. The rocky gully is littered with square sandstone boulders, among which many ferns and eucalypts are to be found in luxuriant growth. The grass-tree, a kind of palm-tree, is seven to eight feet tall here and

largely contributes to give the place an exotic character. A very large goanna was scared from its lair, and raced at terrific speed over the boulders to the bottom of the gully.

Even now this place is a favourite one for picnic parties to have their rustic feasts. Once linked by a better road, it may easily become a much frequented pleasure ground.

It was certainly most interesting to see, in the hall of a rich villa, Apollo of Belvedere sculptured in Carrera marble side by side with a New Zealander's well-carved wooden battle-axe and his tomahawk and paddle, while in the high airy rooms an inlaid table in Florentine style, a beautiful Erhard pianoforte, tall mirrors, and wide-winged doors of mahogany-like, French polished, eucalypt-timber kept each other company. What a superb view presented itself to us from the flat roof of the house: the eastern sky suffused with a strange copper-red haze, the western sky in pure tints from the setting sun; the gardens in varied greens and the distant uninhabited wilderness in a greenish grey; several bays of the blue harbour visible.

6 April

A rattling noise in the piano and an ensuing discussion with Daniels suggested to me, as it were, a mechanical explanation of the physiological fact that birds, whenever they hear music, will feel the impulse to sing: it is the simultaneous vibration of their larynx walls and vocal cords that makes them sing. That is also the reason for the ease with which we can sing in unison and octaves. {The rattling glass of the frame of Nelson's portrait was a most instructive and interesting example.}

Daniels is an intelligent man. He drew my attention to a strange phenomenon: when he cut a mahogany board the two planks would turn away from each other, standing convexly. 

When, however, he cuts cedar (*Eucalyptus*) timber, the convexities will turn towards each other. 

The dryness does not expand because, when the board is bought towards the fire, its concavity points towards the fire.

[Letter in English to Mark Nicholson 10 April 1842. Aurousseau, 1968: 459-462.]

{I did not tell him about my strange chequered love. I do not know myself from one day to another, and I do not wish to be afraid of unfavourable confessions.}

16 April

The continual occupation with the flora of Port Jackson freed me for some time from the violent emotions into which I was thrown by my growing passion, but I was again enslaved by them whenever I sat opposite the girl and looked into her roguish eyes and listened to the French sounds from her lips. I believed I was entitled to give myself to this pleasant infatuation, because I always strictly observed etiquette. In his moments of sweetest enjoyment man is enough of a sophist to do his utmost to make them last. But whereas I often anxiously counted the minutes until I could go to the girl to give her French lessons, not minding the most unpleasant task of teaching her sisters, I had, on the other hand, to admit that she herself was swayed by rather different feelings. French was a great burden to her and remained so. She was not afraid of telling me quite frankly how much she preferred having a walk in the park instead of boring herself with French. A very simple conclusion I ought to draw should tell me that the girl,

however much she might like me, certainly did not feel love for me, whereas she tortured me with insatiable yearning. And this seemed indeed to be confirmed in many ways and other respects. Pre-occupied with herself, her joys and sorrows, she will doubtless not give much thought to the absent one, but the absent one is a friendly figure to her. She holds him in esteem, because her mother does and enjoys his secret love, for a girl's sharp eye quickly perceives that the man, ever obliging and polite, yet earnest, is not indifferent. Were he rich and could promise her a happy carefree life, he would surely be a very welcome suitor, but her mind is still struggling with material things and is not likely to warm to his strangely isolated ambitions for higher things apparent in everything he does. Even her father is hardly given a farewell kiss when he sets out on a dangerous journey. How then, could the reticent lover expect more? And, after all, can you expect more of the daughter than of the mother? True, the latter is respectable, lady-like, a gentlewoman, but just the same very worldly, pleasure-loving, indifferent to nobler pursuits, and she looks after her worthy husband like a foster-son instead of loving him fervently and with self-sacrifice. Just as from the time of my youth when my ideals had been entirely different, the acquaintance with such an aberrant character requires that I repress the feelings, which were mightily stirred up in me by her beautiful form, her kindly smiling eyes, her musical voice, and many good moral qualities. I had to confess that it would be neither desirable to link myself with such a family nor strive to become one with a girl, whose nature was so opposite to mine. So I was very much torn between conflicting emotions and, in spite of the apparent calmness within me, real peace has not yet returned. I even fear it will not be restored until I have been relieved of my French lessons. A good opportunity for that seemed to offer itself when Captain Tait arrived one day saying that he intended to embark for New Zealand and that he would be pleased to take me as his companion. I listened doubtfully at first, not being greatly impressed: but when I reconsidered the proposal in my quiet room, it assumed for me so much importance that I entered into it heart and soul and began making plans. Tait was going to the South Island, which is not yet known, so I would be able to associate with the natives there, stay with them for six months or longer, observing anything of interest, then write up my observations and send them to William [Nicholson] for publication. I was considerably, almost feverishly thrilled, and had already started saying good-bye to my acquaintances and preparing to take off again, when Captain Tait announced today that nothing came of the undertaking and that he intended to go to Batavia. Had I gone to New Zealand, my connexion with the Marlows would have ended instantly. On my return six months later the old affections would have been buried deeply, nipped in the bud by new ones. Now there is still the same need, but how to approach it is a difficult unanswered question. Shall I go to the Hunter River, or to Moreton Bay, or to Port Phillip, to escape this embarrassing tie, which robs me of the power to think?

17 April

Previously I had been told that Eyre was undertaking an expedition from Sydney into the interior. I tried to find out about it for certain from the Governor himself. As I believed that Colonel Barney stood very close to him, I applied to him through the Marlows. I soon realised, however, that he is not so intimately connected with the Governor as is generally supposed, because he refused to put even a simple question to him. Mrs Barney treated me with great kindness, but it was not long before I felt that

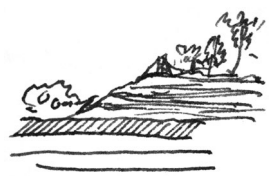
she was by no means wholly sympathetic. It is my misfortune that I am so carried away on the spur of the moment, that I usually give away and let myself go more than is desirable, and when I return home and recall to my mind what has happened, I often find to my annoyance that I have become too closely involved with heterogeneous people. I felt precisely like that after my last visit to Mrs Barney. She invited me to call whenever I desired and to rest assured that whatever support was in her power she would give me. "I am not altogether French", she said, "I have German blood in me – and you know that the Germans have much sincerity."

Beside agates, onyx &c, &c. I saw a fine fossilised lower jaw of a manatis, ~~dugong~~ {*Phascolomys mitchellii* Owen} which I estimated belonged to an animal of 5′. This lower jaw was found in the alluvial bed of Moreton Bay. Nine teeth on each side, no incisors, the teeth themselves simple semi-cylinders. The processus ascendens maxillae inferior is very small. I think it very likely the teeth, which Sir Thomas Mitchell showed me belong to the same genus, but belong in a larger individual.

20 April

Last Monday I went to Paramatta, going by the steamboat *Rapid*, to see Mr Clarke for a few days and to make excursions with him. Unfortunately the weather that morning was rainy and stormy, which nearly stopped me from making the trip. It cleared, however, by 9 o'clock, and I had a very enjoyable day. I arrived at half past twelve. We started discussing various questions. Mr Clarke showed me his thermometers, the one in the sun, in a wooden frame on a grey eucalypt pole about six feet from the ground; the other one on the veranda in the shade, the white-washed stones underneath it. A third one inside with the barometer. We talked a great deal about winds. His terminology is confusing, just as he is, apparently, himself rather a confused, vacillating mind in spite of his substantial powers of perception. It often seemed as if he wanted to "pump me" (an expression which he actually used); this became even more apparent when we went on to examine the rocks. He has strange ideas about winds. Reid's wind theory[1] has almost turned his brain, and he applies it to all winds, which is by no means permissible. According to him the warm dry air-currents rising from the equator create deserts, conditions permitting, anywhere from 15° to 30° of southern and northern latitude. He cannot, however, explain how they can possibly get to the ground, because the regular trade-winds blow beneath them. Buch, to the contrary, seems to believe that deserts are created by equatorial air-currents heavily saturated with moisture descending only as far as about 30° of northern latitude when the sun is in the south. King maintains that the south-easterly trade-winds do not touch the coasts of New Holland (*do not blow home*), but are deflected. If no trade-winds blow across New Holland – which, however, Clarke maintains they do by pointing out the north-westerly direction of trees in high places – the dryness of the warm winds could be explained by the fact that the winds returning from the equator flow at once in a high broad current across the highly moisture-absorptive land, yielding their moisture, so that they arrive here in a very dry state. Clarke told me that these winds are also felt as north-westerlies on the Banks Peninsula on the east-coast of New Zealand. I cannot believe that they are the same winds, since not only a wide stretch of sea, but also the high mountain ranges in the centre of New Zealand intervene. It is, however, surprising that sailors to the north-west of New Holland notice similar warm winds coming from the interior. The cause must, therefore, be looked for in the interior itself, which leads us to the assumption of great desert lands. Then Clarke thought about volcanoes again,

and so he vaguely jumps from one thing to another. It cannot, however, be denied that it is only in conversation that he so rashly and almost playfully lets himself go. In writing he shows greater calmness. After a lengthy discussion of these things, he took me to the other side of the Paramatta River to show me some strange geological phenomena. The sandstone outcropped in the river bed itself, showing the same strange jointing and often regular linear erosion, which I had observed at Fort Macquary and at the waterfall. The upper beds of sandstone seem to have formed an old sea-shore.



They are short oblique strata of very little thickness. Above them, in the first quarry, there was an almost plastic clay with ferruginous pebbles. Further on, on the river-bank, rise steep overhanging walls of bituminous and very saliferous clay. Salt, appearing as a thin efflorescence on the rocks, could be tasted everywhere. I believe I even tasted magnesia at another spot. In some places the rock was extraordinarily bituminous; but Clarke assured me it did not burn. So far no fossils have been found here. Some thicker strata were promiscuously interspersed with vertical and oblique joints, while the softer ones showed no joints. The sandstone was interspersed with two veins filled with wacke. At first I could not quite believe that this wacke was the result of the decomposition of a hard rock. However, these veins are very clearly distinguished from the sandstone close by, which is fritted very much and seems to have changed into a hard quartzite. A small gully corresponds to this dyke in the hill itself, and on the other side of Paramatta, behind the church by the roadside, both these fissures are found running in the same direction. They are filled with the same decomposed clayey ferruginous rock. The Pennant Hills, running in the same direction, are on the north side and appear to have been formed by a kind of phonolite.

It can, therefore, be asserted that those strange joints to a large extent result from seismic shocks from the interior of the earth and that volcanic masses have burst through the wide and deeper penetrating ones. These masses of sandstone seem to cover very volcanic ground and appear to have often been shaken by former earthquakes.

The quick and never tiring man showed me some more places, even when the sun had already set. The moon rose unusually bright and the basin of the Paramatta lay in deepest silence beneath the enchanting moonlight. Suddenly the shrill voice of a woman was heard from one of the isolated huts, abusing with the worst invectives a man, who only weakly defended himself. She was an Irish woman, who had been transported to Sydney and had finished her sentence. The incident made a very unpleasant impression. One had to admit that with these released convicts a very impure and immoral element had been introduced into this country and that it would take a long time before it would be eliminated. Mr Clarke made a casual remark that among all the European nations the Irish rabble had perhaps the lowest standing. He went on to mention that the common people in this colony had very little politeness. I replied that this might be the result of a feeling of freedom and independence, which is also seen in the United States, whereas the nations of the old continent had learned politeness through long serfdom. The first part of the evening was spent discussing what we had seen. Later he showed me his geological collection. He showed little taste in the shape of his specimens just as I had done myself formerly. True, I would recognise all the rocks that I saw again, but I remember only a few, particularly because the light obscured many characters. A

strange trachyte, beautiful impressions of ferns in the sandstone, *Equisetum* in the coal, strange fossils from Illawarra deserve to be mentioned. A feldspar particularly with oval grains of calcite (variolite or amygdaloid). An ophiolite: green matrix with white crystals of feldspar. He also showed me a specimen with crinoids.

A remarkable fossil shaped like a pyramid, a three-cornered fish tooth, which, however, might be a *Dentalium*.

Mr Clarke drew my attention to the change in the colour of his labels. They had been red, but on some of his sandstone specimens they had turned blue. This fact implies an alkali or a basic salt. Potassium aluminium sulphate (alum) could be the cause of it. The decomposed feldspar is visible everywhere between the quartz grains.

On the following morning the bad weather started again, spoiling our planned excursions. We observed, however, the strange courses of two superimposed strata of clouds moving in opposite directions, the lower one moving to the south-east, the upper one from south-east to north-west. It appears that the violent downpours of the day before yesterday, yesterday, and today were caused by the mingling of these two currents. Though the weather is unpleasant, the wind is by no means cold. It is a north-westerly. This very wind would, at any other time, absorb any moisture and parch the vegetation.

Mr Clarke seems to believe that the country is poor in trees of wide girth, suggesting that the dimensions of length and tallness prevail. It is highly probable that in a hot climate, in consequence of quick evaporation in the leaves, the upward flow of the sap is greatly accelerated and that, on the other hand, the descending flow of the transformed sap is slowed down since the cause of the flow is not *a vis a turgo*. The upward growth of trees will therefore prevail, giving the trees a uniform thickness and great height. This after all must also be the reason trees are more slender, striving upwards in dense forests. Light and warmth have a particular effect on the foliage, while the trunk is withdrawn from their influence because of the neighbouring trunks. It is true that this applies equally to warm and cold regions, to the latter even more, since warm regions usually have a greater separation of individual trees: I only claim that the impetus is greater in warm regions.

Mr Clarke was by no means satisfied with his social condition. He longs for England. One should, however, consider that he is married and that his wife and his three children have left him in order to return to England. He has collected material with a view to publishing it through the geological transactions and independently. He is very ambitious, very anxious about priority and jealous of any one's kindred strivings. I touched on these points several times, pointing out to him that in a colony like New South Wales each decade must bring forth new works, that scientific interest requires one to look forward with joyful anticipation to such work, and that he must content himself with laying the foundation-stone, on which other workers can continue building. However, the man has peculiarities in his character that I dislike. Money plays the principal part in his judgements. He started giving lectures, but actually gave only one because he did not receive payment. Shouldn't it be a pleasant task for a man of his talents to connect with the public by means of almost daily lectures? Surely he could have been able to gain gratifying credit.

20 April

While my visit to Paramatta and the talks with Clarke are dragging me like Rinaldo from my Armida's arms,[2] filling my bosom with ambition and restoring to me my old interest in science – the idea, the thought of happiness not enjoyed and the possibility of earthly bliss, is rising, like a strong swimmer in the waves coming to the surface again with powerful strokes. Am I never to be in the position to possess this being, who is so dear to me? And yet Clarke reminds me that here science and married life cannot go together. If, however, I drop the idea – what shall I do? Shall I spend what I possess now, while it lasts, shall I try to study New Holland scientifically as far as I can, or shall I attempt to make myself independent with the means still open to me and continue science as a side-line? If I choose the first, my ultimate aim will again be directed to Europe; if I choose the latter, an indescribably comfortable feeling tells me that I shall perhaps be able to make myself very useful in this new country. However, while I now think of the possibilities of gaining a footing here, I have to face the unpleasantness of a practical existence. I must perhaps leave my quiet room in order to follow a completely unscientific occupation for a long time. At times I have been thinking of marrying for money. But I would feel rather upset, if I voluntarily decided to abandon for good an inclination that has so much taken possession of me.

24 April

When I was teaching French to the Marlow children on Friday evening, I suddenly heard Mr Marsh's voice and he came into the room almost out of breath, hurriedly asking for me. When at last he saw me, he said rather solemnly: "Mr Leichhardt, Mr Ray wants to speak to you; he has an important piece of news to give you." I went outside to see the two gentlemen and heard that Mr Ray had just received word that his friend Anderson, Superintendent of the Botanical Gardens, had died. Mr Ray immediately thought that I might like this job. I had to leave no stone unturned, and must go to Colonel Barney and see Dr Nicholson immediately and make every effort to be the first to apply. I immediately went to Barney, who kindly promised to have a word with the Governor the following day. Next day I called on Dr Nicholson, who also promised his help and gave me letters of introduction to Macleay and Dr Thompson, and promised to take me to Deas Thompson [Thomson]. I went to see old Macleay, who really wanted to give Anderson's job to someone else, but when he learnt my circumstances he became more favourably disposed and promised me his help. Dr Thompson argued that a gardener was needed, and that it was not their intention to employ a botanist. He did not, however, discourage my application. Colonel Barney told me that the Governor did not yet know whether he was going to fill the position again. This was certainly very discouraging news, which reduced my hopes very significantly. Deas Thompson, however, thought the Governor would leave the matter entirely to the committee. This seems to me the more likely, as it would really be a great shame to completely give up such an important position for the sake of economising. The same day I was quite delighted to hear from Mr Clarke, who immediately wrote the following friendly letter from Paramatta:

*Paramatta, Saturday.

My dear Sir,

I see that Mr Anderson, Superintendent of the Bot. Garden, is dead. Would this appointment suit you. If so, I believe the application should be made to the Governor through the committee of the Australian Museum and Bot. Garden. If on enquiry you find, that such is the case, direct a letter to the Committee

and forward it to me as Secretary. But I advise you see Mr Macleay about it and that directly. I hope you have enjoyed the late gale. I told you it would last 3 days. I registered 9.95 inches of rain between Tuesday Morn and Thursday night. The rain fell for some time 26 – 28 at the rate of 7 2/10 inches per hour. Yours truly W. B. Clarke.*

Upon Macleay's advice I had, a short while ago, written to Mr Clarke explaining to him what I had done. He will undoubtedly do his utmost for me. Today I drafted a long letter to the Governor and took it to the Marlows. Cpt. Marlow, however, thought it was not advisable to write long letters to a man of few words and that it would be better to lodge a brief and formal application. Mrs Marlow then helped me to compose a letter, which surely gives credit to this lady for its brevity. Although it seemed to me that a thinking man would be more easily persuaded by my detailed explanation. I shall show these letters to Dr Nicholson tomorrow morning and ask his advice.

When I received the news, I was sitting beside the girl so dear to me. She was translating short sentences from English into French for me and often a more or less significant meaning, perhaps understood by both of us, made me smile. Was it surprising if the sudden prospect of obtaining a secure and independent position immediately associated itself most intimately with her and I was dreaming almost restlessly not about the place and what I had to do, but about the happiness of soon possessing her? I was very restless the whole evening and when I lay down in my bed, rather late, while my mind tired itself out with conjuring up all sorts of images; even very carnal desires sprang up polluting the chaste and cheerful images, which kept hovering within me. The following morning I had sobered down and even when I saw the girl again, it was easy for me to be reserved and circumspect. Today the pure interest in science is indeed regaining the upper hand and it makes me think about what will be required of me in the new position. And there is no doubt about it; much indeed will have to be done. I feel the importance of the post. I think that Providence wisely willed it so – I must have the post. Yet how easily man is mistaken, when in his arrogance he believes that Providence should forsake its eternal laws to act forcibly on his behalf.

25 April

I went to Dr Nicholson to show him my letters. He was as kind as ever, advising and helping as best he could. I then called on Mr Macleay, who, however, appeared much colder than I should have expected after my first visit. He told me that a Mr Bidwill had applied for the position of botanist and that the Governor had replied to him that he did not want a botanist but a gardener; he had heard that I had applied for the position and he will give it to me. Macleay said: "You see, you have the post, but bear in mind that it needs confirmation from England." I replied that it was perhaps possible for me to get confirmation from Sir William Hooker, since I had brought a letter of recommendation to him from Barker Webb. "Where does this Mr Webb live now?" asked Macleay. "In Paris," I said. Could it be that I have put a weapon in his hands he could use against me? Can this Macleay be the naturalist?

30 April

I have lived through the week in the constant expectation of an answer. However in vain! For two days I was busy with Mr Lynd, a man forever dear to my heart, classifying our plants. During the other days the insects were put in order, and minor affairs were settled. I received an invitation from Mr Wooll, Thomas Parker's son-in-law, to pay

him a visit. This shall take place next month, if my position here has not been fixed. My passionate love has cooled off considerably. Isn't man a strange being? Yet such a change must necessarily take place, if on the one hand complete understanding and appreciation are lacking, and, on the other hand, new contacts engender other inclinations.

5 May

Flattering though it was to receive an offer of help from Mr Clarke, it is very unpleasant now to see how he seems to withdraw before the wishes of the old Macleay. He was in Sydney without calling on me. And yet how very important his word or advice would have been! I do not want to be rash in my conclusions, but just as the man at first acquaintance appeared to me superficial and unsteady, so his character as well as his scientific pursuits must be subject to selfish interests and to the impressions of the moment. I almost regretted having written the first letter to him. However, I expressly mentioned that I had written it on the advice of the old Macleay.

6 May

Marianne would certainly make me unhappy and vice versa. She is an overbearing, cold-hearted creature, who can apparently only feel sympathy and consideration for herself. This overbearing seems to have been engendered and fostered as a result of the power she had been granted over her younger sisters. Her warm affection for siblings, careful watch over them and loving treatment of them is beyond question. I have been restored to my own self: physical charms must never even temporarily palliate moral shortcomings, whose entire repulsiveness will, after short-lived passion, be thrown into even bolder relief. {Oh how weak, how very weak is man! 18th May.}

7 May

Mrs Barney has gained considerably in my esteem. She is more profound and loveable than one is inclined to believe on first meeting. She seems to be quite a perfect mother. The eyes of her children reflect that expression of gentle sweetness, which is so comforting to the heart and makes me see friends in these strangers. She seems to be happy. Two of her daughters are happily married. Mrs Scott, the second daughter, is her favourite one.

Marsh also comes unexpectedly to my aid, in these vexations, consoling me: "Never mind, dear L.," he said. "If you don't get the position in the Botanic Garden, I'll make you my gardener. Don't keep worrying about it." I must admit that I had thought the man too selfish to be asked even one favour.

11 May

Last Saturday Mr Clarke wrote to me that the Governor has left the filling of the position to the committee. Its leading members (Macleays) were disinclined to give it to me, intending rather to have a man sent out from England. I was almost willing then to forgo all further claims. I did, however, see Dr Nicholson to seek his advice and he again encouraged me. He was even so obliging as to draw up for me a letter to the Committee, which certainly would be capable of rousing favourable feelings in unselfish men. Yet, as it seems that the Macleays have decided to exclude me from the position, so the letter will not be of much avail. I must even admit it could easily cause me harm, because I told them in the letter that I would get testimonials from Sir W. Hooker and Lindley. I can surely get these through Little, Webb and Durando. If I did not get the position and do not use their help, people might think that I was only trying to bluff them. It seems, however, that things are not taken so very seriously in this colony.

On Sunday Mr Lynd and I made an excursion to the swamps to the right of the road to Botany Bay. I found many new plants, especially during the last part of our walk. *Cycas media, Sprengelia; Blandfordia, Utricularia* (2 species), *Phylidrum*, several ferns and grasses; a *Ranunculus*, and *Erythraea*.

13 May

I have been studying the *Tasmanian Journal* these past few days and have found several worthwhile contributions to the knowledge of the country of Australia. My body had, however, been affected by I don't know what and weakened by diarrhoea. On Wednesday particularly I was racked by violent pains. Instead of refraining from food, as was my custom, I enjoyed a hearty meal, which only increased and prolonged the pains. I meant to find relief in a brisk walk, but the pains only became more and more violent. Just as I was standing by the statue of Richard Bourke, gripped by the most exhausting inward pains, the sun set behind a gleaming crest of clouds and purple vapours veiled the distant islands, deep blue the near islands and green shores of the harbour. It was as if Death were shaking me and the Gates of Heaven opening. I fell into a sort of trance and, in spite of my suffering, I enjoyed intensely the beauty of Nature, because of the extremely sensitive state of my nerves. Never would my soul have left my body more content to soar above this landscape: never did the link between body and spirit appear to me so weak, never the attraction from beyond so strong.

While the separation from the Marlows and the distressing observations of Marianne's ungenial character stifled my love leaving the heart dreamy and joyless, the blackest hypochondria made itself visible, making me look ill-humouredly upon my own doings as well as on those of my fellow-men.

I received a letter from William, which reminded me of the joyful and, by comparison, self-satisfied period of our studies in Paris. He said he wished he had my perseverance and my joyful, happy optimism. Oh, I wish that he had seen this sudden night throwing its shadows on me! But my dear friend's compliments were pleasant and encouraging, and I reluctantly took courage and hope once more. Yesterday I received an invitation to the Marlows. I went, arriving before the rest of the party, in order to talk with Mrs Marlow about discontinuing the French lessons. She, like the girls, was busy with her toilet. Marianne was dressed simply, but in very good taste. I had not wanted to see her, but I did. When we were sitting together in a close circle, many a jesting word was exchanged, which again involuntarily brought me under the influence of the girl. When I was leaving, I pressed her hand more vigorously than ever before! Poor man, who cannot command his own will-power, should you not rebuke yourself for yielding to the physical charm of the lovely girl?

16 May 1842

On Friday I received a clearly negative answer to my application for the position in the Botanic Garden. It has been given to a gardener, a certain man named Robertson. The salary has been reduced to £120, and the Botanic garden itself will probably be changed into a kitchen garden. I am not going to go on fretting over that. The garden fever has run its course normally and I have now recovered from the subsequent exhaustion. Not so the fit of love; it takes new roots again and again and God knows how it will end. Mrs Marlow appears in a new, less pleasant light. She had always shown a certain fondness for scandal, at any rate repeating, embroidering and exaggerating it. This tendency was perhaps further fed by

delusions and by neglect experienced and imagined, and it was most awkward and unpleasant to have to listen to her gossip about otherwise respectable persons. Mrs Macready was usually the chief topic of her stories, and although she pretends to despise her, she nevertheless keeps repeating her slanders and spreading them. Likewise she spares neither the Mitchells nor Lady Gibbs [Gipps] nor Mrs Barney, who nevertheless treated her so kindly. As regards Marianne, it is as if I saw my own principles emerging in her anew, and I flattered myself that this was due to my example and speech. It is most pleasing to hear how she would like me to see this or that person, so that I may form and give my own opinion of them, while I, desirous to know the secrets of a congenial girl's soul, involuntarily experience a similar desire to hear her opinion about any problem I might raise.

Last Sunday Mr Lynd and I made an excursion to the other side of Darling Harbour. Having crossed the peninsula, botanizing, we called on Captain Maclean, inspector general of the convicts, where we were given a friendly welcome and treated to a good meal. Then taking a bush-track, we returned to the harbour beach. While following the shore-line we caught several kinds of crabs, which were hiding in open round holes in the sand or were walking about amongst aquatic plants that had been washed ashore. Before reaching the first houses, we found a tall *Styphelia* with green flowers. There were many *Tetranthera*, and perhaps another *Laurinea*. Behind the houses, where a small streamlet descended into the harbour, we found *Philydrum* fully developed. On the shore there were *Samolus*, *Salicornia*, and several *Restio*. The boys brought me the infructescence of a *Callistemon*. Four species of crabs were caught. *Arca* shells, *Pectunculus*, the large and small oysters, a *Venus*, *Cerithium* and *Trochus* were found in large quantities, particularly in one place, because on one side the bare rock prevented their accumulation, while on the other they were probably buried under layers of sand. The rock in this place was covered with black clay or humus, which had come from a burning *Xanthorrhoea* tree. We climbed the hill through dense scrub. Under the overhanging sandstone ledges a small *Asplenium* and an *Aspidium* with a horse-shoe cross section grew in profusion. The wild place was rich with the magnificent red flower spikes of *Epacris longiflora* and *Styphelia tubulosa*, while *Epacris riparia* and *microphylla* and *Lysinema* in full white blossom contributed in no lesser degree to the pleasant variety. *Xanthorrhoea* with their magnificent tufts of huge long linear leaves as well as *Banksia*, *Lambertia*, and *Eucalyptus* gave the bush its peculiar character. When at last we got back to the negotiable road again, the common tea-tree (*Leptospermum*) surrounded us with less diversity. Captain Maclean's garden, however, showed us many a rare plant we had not seen nor known of. Among others there was a thick-leaved plant, related to the *Plotus* of Norfolk Island, *Oxalis* from the Cape, passion-flowers on the verandah, several legumes, the native *Hibiscus*, and a creeping composite from the Cape. Pine-apples were grown in a hothouse, but it was intended to try to grow them in the open. On the lemon-tree lived a large green caterpillar with white stripes on its sides, which when touched put forth two red horns on its head. These horns were probably organs, which excrete a volatile poison, as on returning home, when I examined the caterpillar more closely, I felt a mild sting on the conjunctiva of my eyes when the horns came out. We were shown *Croton tiglium*?. *Mesembrianthemum* was seen in native and foreign species. Next our kind host took us to the tip of the peninsula where we found the native cherry *Exocarpos* and a second species of *Casuarina*. The *Exocarpos* is a beautiful tree, almost like a *Thuja* or a Juniper. From

the sandstone rocks, partly boulders piled on each other, partly forming larger unbroken masses, the Paramatta River could be seen with the bays cutting into its banks. Mr Lynd drew our attention to the fact that the bay on one side always corresponds to a peninsula on the other. However, since the bays were too deep and too close, this formation could hardly be explained by the water power being reflected from one side to the other. In a solid mass of sandstone we perceived several trough-shaped hollows and two in particular, shaped like armchairs, caught our eye. We could not help sitting down in them and imagining that 52 years ago a wild native chief with his gin might have enjoyed the view from here across the surface of the water, or a lovely sunset. Two white goats were climbing about the rocks – animals very similar to man in as much as they love heights and vistas – rather fitting symbols for tourists and geologists! On the other side of the house, we were shown the fowl-yard in which Malayan roosters and fowls from Cochin China (one in particular with fiery eyes) were enjoying life. The peculiar melancholic call of the Malayan rooster had already roused my attention in Marsh's yard. Bees were still very busy carrying honey and it seems that, although the flowers are odourless, there is nevertheless a rich treasure of the sweetest honey hidden in them.

Tired we then entered the hospitable home, and made ourselves acquainted with some men, who had not taken part in our excursion. Among them was an elderly man, with head slightly bent, an unusually broad forehead, a mild expression and intelligent eyes. He talked softly, choosing his words carefully, and I never wearied of looking at and listening to him. The man, named Grant, was Captain Maclean's and the former Colonial Secretary Glenelg's brother-in-law. Once extremely rich he lost not only his property, but also his respect as a result of an unfortunate inclination to drink. {He lost his fortune because of his political opinions. Later he took to drinking.} He was obliged to leave his wife and children and his country with a view to starting a new life in the Antipodes. Provided with good letters of recommendation to the Governor, he was appointed by him as a magistrate. Incapable, however, of resisting his passions, he indulged in such open excesses that in the end the whole colony demanded his dismissal. A man, who had known the highest and best-educated society in England and who had enjoyed a very good education himself, saw himself here suddenly reduced to the saddest degradation. Lady Gibbs, who knew of his sad situation, invited him along to her parties; but even here he could not control himself with regard to drinking and was soon again unable to converse with the ladies. He is now one of the sub-editors of the *Sydney Gazette*. The humanitarian is deeply pained to see such a noble character go to ruin through such a weakness; our self-esteem is humiliated at having to realise that the well-educated person, who has such abundant sources of mental nutriment at his command, yields to a physical desire, to a tickle of the palate, which he does not dare to resist, even after the most painful of experiences, after separation from wife and children and fatherland, after the loss of a great fortune and his fellow-citizens' respect.

But ought not such a man, on recognizing this deficiency of his character (*une faille*) and the reproach thereof, be able to gain victory by a clever maneuver! Each of us has experienced to a greater or lesser degree how an uncontrolled urge may rapidly develop into an evil, irresistible desire. Submission to careful self-control and company that dispel any pretexts for indulging in those desires will gradually make us immune to certain temptations and restores us to our mental equilibrium. I have experienced that

on various occasions. Self-control is less certain than submission to control; if left to ourselves, it is best to avoid all temptation.

This morning I saw Mrs Barney. She regretted the loss of the position. She told me that her husband was overburdened with work. It seems that she has a greater preference for her second daughter. She is a woman of good, profound principles and liberal, benevolent impulses. She has suffered a great deal: married at an early age, she followed her husband from one country to another, giving birth to her children at great intervals. She has more recently been prone to miscarriages. However her constitution seems to have strengthened now. It seems that she has reached the climacteric period of her life. But she complains of a swelling in her abdomen. She thinks it is the liver, but her complexion is too healthy. I fear it is connected with her right ovary. But she has had it for many years, and it has grown very little.

[Letter in German to Mark Nicholson, 17 May 1842. Aurousseau, 1968: 463-468.]

26 May 1842

On Sunday I made an excursion with my good friend, Mr Lynd, to Kissing Point on the north shore of Pt. Jackson. We crossed the bush and soon found ourselves in the midst of the most primitive virgin wilderness. Usually in those narrow gullies, during the rainy season, a small water-course descends to the harbour or the Paramatta River. *Banksia*, *Acacia*, *Tetrantheras* and several laurel-like trees. *Zieria* with its supple branches, a large number of ferns, among them three new species here: *Lindsaea linearis*, *Hymenophyllum tunbridgense*, and *Grammitis australis*. The grasstree, *Xanthorrhoea*, is often 5 ft. tall. *Eucalyptus* with many insects under the bark. I also found two scorpions there. The most interesting insect, however, was a wingless female, which had two genital orifices and was being mated by two males. The latter had wings and a tuft of silky hair on their body and a long fork-like penis at the end. The *Styphelia tubiflora* with its red flower-sheaths is found here in great numbers.

The banksias and nearly all the trees and shrubs are perforated by insect larvae in all directions, and I suffered very painfully for my confidence in a green *Banksia* branch, which broke as I tried to climb on it, causing me to fall onto poor Lynd, who saved me from a dangerous fall.

Last night I was at the Debating Society. This society was founded with the purpose of giving young men an opportunity of practising free discussion. This is indeed what they do. However, so little attention is given to the manner in which the young men treat their topics that I feared they might lose instead of gain. Still, the institution is good and must be cultivated. I am convinced that something useful must come eventually. The topic under discussion was "Are dreams prophetic?" After three discussions (during three evenings), in which quite a number of well-known people participated, a decision was finally reached by the audience with a show of hands. This decided in favour of dreams not being prophetic. It was ridiculous to see men, who claimed to be fully educated in the sciences, nevertheless give their approval to such superstition.

Today is Queen Victoria's birthday. The Governor gave a levee, at which all persons of note filed past him, in order either to bow, shake hands, or exchange some words with him. In the evening there is a great ball to which all respectable people of the colony are invited.

For the next debate the following question has been set: "Is the reading of novels useful or harmful?" I have already pondered on the pros and cons. The question is very simple, and it would be desirable that the young men, who intend to debate on it analyse some novels.-

1. Just as bad company is harmful to morality (since we adopt the morality of society), so bad books will be harmful.
2. Just as good company cultivates the mind and ennobles character by awakening and forming new feelings, so good books will have an ennobling effect on our morality.

Therefore good books must definitely be recommended!

However, another rather different question is: How should one read them?

Works which cost their authors years of careful compilation and work are read through in one day and then discarded. This is very commonly the case. Is it desirable that young people and old alike should read novels in this way? Should they be permitted to read them at all, if they only wish to read in this way? The answer is a definite No.

Do not give your children a novel to read unless you can supervise the reading, or if you notice that they tend to read superficially. If you can, be careful in the selection of your books, never let them read too much and make what they have read the topic of discussions. A third point: There are excellent novels, which are suitable, however, only for more mature ages, for example Ernst Maltravers.[3] One ought to be careful not to give them to children, just as we cannot give Locke, Newton, Kant, and Leibnitz to beginners.

Our judgment on lending-libraries must follow such considerations. They must be supervised by men who can judge the value of novels. If they only follow the momentary amusement of the crowd, they are most harmful and are not to be favoured.

{149 664 souls 31 Dec. 42
17 955 Pt. Philipp.
Now 150000}
{*Coryanthes fimbriatum*}

25 May

Last night I went to the ball given by the Governor in honour of the Queen. You take along your invitation card, and, on being shown in, walk past the Governor with a bow. The rooms are small, and the crowd was considerable. People danced a lot, mostly quadrilles, only rarely changing to waltzes and gallopades. It was quite interesting studying a crowd of strange faces; many rather interesting, more pretty women and girls than I had expected.

Although I was impressed by nothing in particular, the profusion of impressions crowding in on me had given me a sort of balance of mind by relegating previously predominant sentiments to the background; temporarily of course. Monomania ought to be cured in this way. These balls are important inasmuch as most of the colony's respectable people are assembled there. It is, so to speak, a great review, which the Governor makes of the colony. I again had an opportunity of talking to Grant. He was too long in the refreshment-room, and he was slowly becoming drunk: his head was drooping and his voice becoming thick.

26 May

At Dr Nicholson's I was introduced to a clergyman, a well-educated man, who did, however, display his English religious zeal with regard to German theology. {He is Mr Rusden, preacher in Maitland, whose daughter married Mr Hel. Scott.} I

do not think that he was too pleased at my remarks about our approach to study. He knew Tholuck, which was enough for him! Neander might have value. The rest are a dangerous lot. It is astonishing that he has not heard anything about Strauss.

27 March

Mr Lynd today kindly made me the offer that I might live in his house. I wanted him to have time to re-consider his offer, but I could hardly conceal my joy over it. So another worry has been removed. I wonder how Mr Marsh will take the news.

To Mr Dove in Berlin with weather observations from South Head.

[Letter in German to Heinrich Wilhelm Dove, 27 May 1842. Aurousseau, 1968: 472-477]

It is evident from the South Head observations that the wind blows mostly from north – north-east, but this wind is less associated with rain. The real weather quarter lies between south-east – south-west and perhaps it is the south winds, which bring the most rain.

29 May

I find more and more what a worldly-minded woman Mrs Marlow is. Last night we had a long conversation about Marian and Mrs Barney. Above all she claimed that outward conduct helped and advanced you more than intellectual perfection. Mrs Barney's retired life was unbearable to her; she called her a stingy miser.

1 June

When I told Mr Marsh of my intention of accepting Mr Lynd's offer, he very obligingly understood my viewpoint and in no way indicated that the decision was either agreeable or disagreeable to him: he seemed to have only my own interest in mind. When his wife had left us, he told me his life-story and about the unhappy alliance with his first wife, who deserted him and is now dead. I told him about my inclination for Marianne, and he so rightly touched on all the doubts, which I had myself that I had to admit almost dumbfounded that I had yielded in such a very foolish way to an inclination, which would hardly give me joy and happiness if I really had won the girl's hand.

These last few days we have had strange misunderstandings among the artists, arising for the greater part from an excess of self-esteem, too little indulgence, and over-sensitiveness. Mr Marsh had been provoked some weeks ago by a thoughtless word from old Nathan; there ensued an exchange of letters, and then they broke off their connection with each other. Likewise he had broken with old Bushell and his wife a long time ago, and they had not hesitated to do him the greatest possible harm. Monsieur Gautrot, a capable violinist, and his wife, an excellent singer, had been engaged by Mr Marsh for his concerts. They appeared to be friendly, unpretentious people, but the day before yesterday, when they came to Marsh's for a rehearsal, Marsh excused himself to have his lunch, and they felt offended by the length of the meal and returned home. Monsieur Gautrot wrote a sharp letter to Marsh. I made an attempt to appease him, but he was not at home when I called, so the breach between him and Marsh became an established fact as well. Mr Proud [Prout], Marsh's brother-in-law, is a small, active, quick-tempered man, who, no doubt, sees clearly what has to be done, as long as he is not guided by his own prejudice, but who is himself at loggerheads with all these people and therefore incapable of guiding Marsh and giving him good advice. Mrs Proud is a charming, easy-going, cheerful woman, but she is too careless and too imprudent to estimate the disadvantage, which may result from over-sensitiveness.

There are other men, like Mr Rae for example, who although sensible and calm seem not to be tactful enough to give advice. Mrs Marsh makes conditions even worse; she often eggs on her husband where he might have kept silent. Afterwards, when the brew has been concocted, she likes to withdraw, leaving the others to enjoy it. Mr Marsh told me that he felt rather happy with his wife, although he quarrels more with her than with his first wife. Nevertheless I clearly see that these two people are ill-matched, indeed, they remind me of Socrates and poor Albrecht Dürer. In my opinion, neither he nor she is happy, since he is extraordinarily irritable and she inconsiderate of his irritability. On the other hand he does little or nothing to help her in her efforts by his attention.

Seeing how these people join into a little clique antagonizing others not unlike themselves, I am afraid of being near them and of getting involved in their squabbles almost against my will. Everyone decries everyone else, but none thinks of mending his own ways, busy friends support the wrong ideas, wrapping the squabblers in a peculiar atmosphere, from which they can find no way out.

However, just as I used to try to find out about the changing inclinations of the children on board the ship and discern the motives of the actions of my adult fellow-passengers, so here, too, I take pleasure in rendering myself an account of my house mates' behaviour, and in discovering the same laws in all of them. Man has himself to thank for the greatest part of his misfortunes. Man is only happy and at ease when he is at one with himself, when he examines his own thoughts and feelings, and through admitting his own weaknesses becomes just and indulgent to his fellow-men. But when he thinks himself superior to the rest and believes he cannot err, the others will be exasperated by his unfairness to them and will try to avenge themselves and embitter his life.

9 June

I have now been living with Mr Lynd for a week. Just as a ship enters a safe, calm harbour after a severe gale and suddenly, in the most pleasant way, experiences the intoxication of quietness; just as a traveler jostled about by the motion of the carriage feels a strange oscillating stillness on the sudden stopping, I now feel the same way in this peaceful household of the bachelor and scientist after my six months' journey through the unpleasant bustle of society. Mr Lynd is indubitably a most respectable amiable character. Since 1814 driven from coast to coast, he has seen many countries and come to know the customs of many nations. First he was sent to Dominica, the beautiful though circumscribed nature of which he still likes to remember; he then returned to England; later on to be sent to the East Indies, Bombay, and Persia, from where he was transferred to Van Diemens Land and eventually to Sydney. He has a scanty salary and has never married. But given at an early age to the observation of Nature, he filled his spare time with botanical excursions and accumulated a great amount of material, though without any order. When I met him, I especially urged him to systematize and continue his collections in order to create a complete herbarium. This was indeed gradually brought about, and we have already achieved rather satisfactory results. In his spacious flat in the Barracks he has a small room with old cupboards, which we use for accommodating our collection.

He is a gentle and friendly man, but as a result of having lived for so long by himself, he has acquired that kind of interest in his own body, which, by attaching great importance to insignificant symptoms, eventually brings about hypochondria and haunts his mind with terrible visions. Occasional pains in the side make him fear a disease of the liver, a catarrh – consumption, and strangury caused

by diarrhoea – stones in the bladder. He is a man, who could be talked into anything by well-timed casual remarks. Just as he interprets such ephemeral phenomena in his own way, so he is also his own physician and takes more and more medicine. Dover's powder, salts, pills – he has everything at hand, and when his own pharmacy does not suffice, he applies to Dr Macdonald, who like a brother supplies what is wanted. Dr Macdonald is also an amiable man, modest, reserved, of few words, and these often uttered at great intervals. However, where he can help, he is prompt to do so, and he takes delight in surprising me with gifts of specimens.

Last Sunday I made an excursion into the sandhills and the intervening swamps on the road to Botany Bay. I have already mentioned previously the peculiar formation of those low hills and trough-shaped depressions, which so vividly remind me of a recently risen sea-bottom. They have started to dry the bogs or swamps by cutting ditches underground, thus providing sufficient fall. Fertile kitchen-gardens have taken the place of several of these swamps, and it is extremely gratifying to see luscious fruit and useful vegetation in most cheerful, peaceful tranquillity among the waste sandhills. On our excursion we found some new plants: a *Briza*, a yellow *Juncus*, *Polygonum*, *Callistemon rigidum*; *Epacris paludosa*, and an *Erica*-like plant, which I have not been able to identify yet {*Cryptandra ericifolia*} and *Sprengelia incarnata*, which is beginning to blossom now, and a combretacean(?) {*Genethyllis diosmoides*} represented in two very distinct species, as the leaves of one are linear and those of the other fleshy, triangular and whitish-green (glauca).

In the swamps themselves a cyperacean (*Gahnia melanocarpa*? or L*ampocarya aspera*) was common and characteristic with its tall black panicle. The ground was covered with *Gratiola*, *Polygonum*, a golden-yellow *Juncus*, and larger specimens of *Triglochin procerum*. *Goodenia stelligera* with little stellate tufts of hair on their small petals was in full blossom. {Also *Boronia poygalaefolia*, a red, not very tall, somewhat woody little plant.} Between the *Callistemon* shrubs there were fully developed *Gleichenia microphylla* and *Pteris vespertilionis*. The sandhills were characterised in particular by the following plants: *Isopogon anethifolium* and *anemonifolium*, *Petrophile pedunculata, Persoonia lanceolata* and *salicina*?, *Correa speciosa* in full blossom, a superb herb. *Lysinema pungens*, *Epacris microphylla*, several non-identified species of *Eucalyptus*, and *Grevillea sericea*. {*Eriostemon – Philotheca australis*.}

Banksia latifolia and *paludosa* grew in the swamp proper. In the immediate vicinity *Banksia serrata* or *aemula*. The small combretacean was growing extremely rankly, extending low across this infertile soil.

I could not refrain from comparing this loose sandy soil and its vegetation with the open forest tracts in my homeland. The heather is represented here by species of *Epacris*, while low shrubs of *Isopogon* and *Petrophile* remind me of the low-growing shrubby pines, and the combretaceans, though not prickly, of *Juniperus*. The supple branches of *Eucalyptus* with their trembling leaves recall to mind certain open forested parts covered by *Populus tremulus, Betula alba* and *Pinus sylvestris*. *Banksia* with its hard rigid leaves is the representative of our oak-trees.

16 June

A poem by Mr Lynd, which in a very fine way, shows the delicacy of his feelings and richness of his beautiful concepts of nature:

*Come wander with me in the glowing spring
When the world is so green and gay
When every mountain and valley ring

With hymns to the leafy happy May.
When over the leaves of the budding rose
Soft soft be the gales that roam
For each louder blast that old winter knows
Is asleep in its mountain home.
When the earth is glowing with sunny showers
Neath the glittering rainbow's span
O these be the dews that Mercy pours
To brighten the hopes of man.

Come wander with me in the living spring
When the butterfly takes his way
Like a blossom swept by the breeze's wing
From the crest of some beautiful spray
We'll follow the wild bee over the mead
And will mark to each floweret belle
As she opens her fragrant bosom to heed
What that pilfering rogue may tell.
We'll follow them home at the twilight hour
And his moss hid cell we'll see
When we've learned the tale that each pretty flower
Has been told by the gossiping bee.

Come wander with me in the loving spring
T'is the time, t'is the time of love
The linnet is loud in the glen below
And the lark in the cloud above.
Let us gather the roses that hang on the bough
Let us chace every thought of pain
Let us garland our brows with the blossoms now
We may never see bloom again.
Certain alas! Is our mortal doom
And short may the season be
Ere the poet may rest in his grassy tomb
And his harp on the willow tree.*

On the death of Mrs Nathan, who died in childbed.

*In her woman's hour of anguish
Passed her gentle spirit by
Like a flower too sweet to languish
Born in blossoming to die
Tho' thy beauty pale and broken
Lies upon the mouldering clod
There be radiant portals open
Leading to the pure one's god
Israel's mighty one shall greet thee
Faithfull servant of his hand
Judah's sainted mothers meet thee
In the bright, the promised land.*

[Letter in English to W. B. Clarke, 16 June 1842. Aurousseau, 1968: 482-485.]

17 June

I met Mr Roemer. His facial expression is not unpleasant, though one might read in it niggardly anxiety. He was friendly and invited me to his place. He touched upon my pecuniary position. The fact I stayed at Mr Lynd's seemed to set him at ease. I wish I could interest such a man in my science.

18 June

Living together with Mr Lynd has removed me from the former circle of my acquaintances. I see less of the Marlows. Marianne, since she fascinated me with no other quality but her pretty face and beautiful figure, is losing her sway over my imagination. On the other hand I begin to like Kirchner's family more and more, and the thought of associating with them more closely, if it were possible, is pleasant to me and fills me with cheerful hopefulness. Just as I formerly esteemed Mrs Sterling, I still esteem her now and even more so, as I know her peaceful and quiet spiritual life better and better. Could I win her hand, I

would surely propose to her fairly soon. But the uncertainty of my position gives me so little manly backbone that I very much loathe the idea of making a proposal in my present situation.

Yesterday I went to the School of Arts and attended the lecture of a lawyer, Mr Michey. He talked on Political Economy in rather a desultory, but entertaining manner, and his audience seemed to be sufficiently amused. I am the first to contemplate a regular course, and I hope to satisfy the people. My present position enables me to prepare well, and the interesting plants of the vicinity of Sydney will probably arouse attention.

[Letter in French and Italian to Gaetano Durando, 23 June 1842. Aurousseau, 1968: 485-492.]

23 June

Mr Lynd received a parcel containing impressions of leaves from the small Nobby Island at the mouth of the Hunter River. Beside the oblong, lanceolate leaves, narrowed at their base, there were small round impressions, which just seem to be fruits; in addition oblong, pointed, almost conchoidal bodies, which equally looked like fruits, and finally a small round glittering body with an opening as if it had been bored through, about whose nature I am completely in the dark unless it be a seed. The substance, in which these impressions occur, is argillaceous marl. The leaves have a central rib, which is very distinct at its base and in the stem(?), but in the upper third becomes almost indiscernible. The nerves rise obliquely, parallel to each other, and then turn upwards. Each nerve divides once or twice. They are very close to one another (perhaps four in one line). Occasionally anastomosis is found. Though these leaves have much similarity with the arrangement of nerves of some ferns, I am inclined to believe that they belong to certain Proteaceae, Myrtaceae or *Acacia*, although I am not able to trace them back to species that occur here. The small bodies accompanying the leaf-impressions, which I take to be fruits, like-wise contradict the assumption that they are ferns. {I am now convinced that these leaf impressions are those of ferns.} I have sent some drawings to Durando, who is to pass them on to Brogniart [Brongniart].

Mr Lynd was seriously ill and is far from having completely recovered. He had caught a cold and started coughing; a short time afterwards he caught another cold, and then both the first and the second cold appeared to affect the windpipe and the larynx, and a continual irritating cough alarmed the poor hypochondriac man in quite an astonishing manner. At first I thought he was suffering from pulmonic asthma; later, that indigestion was causing symptomatic coughing; eventually, however, the affection of the larynx seemed to be the most probable explanation. Dover's powders 15 grains, tinct. camp. comp. 2 drams [compound tincture of camphor], mixt. Camph. Comp 3 drams [compound mixture of camphor] were given, but without avail. Baths, a mustard-plaster and finally embrocations with Tart. stibiati unguent. [ointment of tartarated antimony], and Dr Macdonald gave him pills of calomel 1 grain and colocynth 3 grains(?). These seemed to work best of all for the relief of the bowels. Now the man is so extremely irritable and he does not take any trouble to conceal this that I must maintain all my self-composure to withstand his nervous restlessness. Reflecting on my present state as guest of this otherwise so friendly man, I could not rid myself of the distressing feeling that I, who had come here with the thought of independence, found myself again in conditions like those, which I had, though with regret, yet inwardly content, left behind me in Europe. I secretly almost

reproached myself for having entered into circumstances, which might suit the rich all right, but in which a poor man cuts a miserable figure indeed and from which he can rarely extricate himself without loss of face. Had I come here like that Bökkin [Boecking], I might have chosen a lower kind of occupation and by patience, independent from the beginning and making a living, worked my way up higher and higher. I am well aware how many advantages I derive from my present position and, in the end, the way opened up to me by my very education seems to be the best after all.

I am getting to know the Kirchners better and they are always friendly. The young girl is not Mrs Kirchner's sister but an outsider – perhaps a housekeeper, Miss Wolcott? From what I can see of her, she is charming and in an unostentatious way combines a taste for knowledge with the care of the household. It is not likely that Kirchner will have children, though this is rather dogmatic. His wife married too young and must be careful not to become consumptive.

On Monday I went on a little walking trip to Bondee [Bondi] Bay near South Head. A certain Mr Devontree (Daintree?) [Daintrey] accompanied me. He is an unpretentious, well-educated young man, who had originally studied medicine, which, however, he gave up, applying himself to jurisprudence; at least now he has a post with the Judge. Plenty of new plants were in blossom; in particular *Epacris obtusifolia* was very delightful. It is really surprising how many brightly coloured large flowers grow here so close to one another; *Boronia, Correa speciosa* and *Correa alba*, *Cryptandra*, and a host of others, which we have seen frequently, again and again.

As we approached the sea, we heard the dull roar of the surf, and as we crossed the last loose dunes richly covered with *Correa alba*, the infinite blue, hardly ruffled surface, with its gently curved line lay before us. We found patellas with deeply incised edges and *Haliotus* but no other conspicuous shells. Eight-armed starfish of different colour-tones were common in the pools of water left by the sea in the hollows of the rocks; several kinds of actinias, particularly a cartilaginous one, were in the rocky crevices. *Ascidium microcosmus*(?) was likewise very common. A very large *Grapsus* {*Grapsus variegatus*. Milne Edw} lived in the deepest rock holes and dashed into the water, when it perceived danger, if it could not get to its secure hiding-place. The Devils Cave is a narrow crevasse, filled with boulders; high rocky masses with vertical walls resist the brunt of the waves, thus forming a rugged, inhospitable coast. South Head is covered with low heathy vegetation, consisting, however, of the most varied and beautiful plants. Just as the uninviting dangerous coast lets the sea in small openings into the safest and most beautiful harbour, thus making permanent colonization possible, so also the interior of New Holland, which appears[?] to us so hot and inhospitable, may nevertheless include fine and fertile tracts and pleasantly disperse our apprehensions.

I must add some more remarks on Mr Lynd's quaint bachelor habits. Though he is nearly all the time concerned with himself and inner impressions, his attention is just the same attracted by external circumstances: he will follow them up for some time, as if wakening from a dream, and then after this relapse into himself. So he paces up and down the room, often staring vacantly in front of him, abruptly ejaculating a word, which is closely connected with his last thought, for instance: "Barracks! Water!" Similarly when addressed in a firm voice, he almost awakens from his dreaming and comes back to earth, then sees me busy with the plants, often takes them playfully and absent mindedly in his hand, goes through the whole pile, gives

his opinions, and carries on like that for a long or short while. Then he coughs, or feels an internal pain – at once his introspections re-commence, and again he paces up and down with an introvert eye. When asked a question, he often gives no answer for some time. Usually I don't ask him more than once under such circumstances; often enough the answer will come later, as if you had been calling into a far distance and the echo came back only after a long time. Like many old bachelors, he lays extraordinary stress on his appearance, and the other day he very naively asked me whether I know how to keep the skin of the hands white and how to get rid of freckles. He has a lot of cosmetics, and in his dealings with ladies he even tries to give his voice a kind of sweetness which is, however, unpleasant for men. Just as some people place very great value on cleanliness and good manners and yet in some respects offend against all propriety of conduct, so other less clean people often pay great attention to those very points. Mr Lynd does not consider how bad-mannered it is to cough in a person's face opposite him or do so across the dinner-table, while in all other respects he is very clean. Little Murphy, on the other hand, who is far from being excessively clean, carefully turns aside even if he is only blowing his nose.

Since Mr Lynd is a dogmatic ~~positive~~ man, whom the flattery of his comrades has perhaps made vain, with the result that he is irritated when contradicted, I have observed as much as possible a reserved and reticent manner, although it sometimes happens that I have to defend my opinion against his.

24 June 1842

Mr Lynd had made quite a good translation into English of "The Fisher" by Goethe:-

1.
*The bubbling tide came swelling on
The fisher by the brim
Intent his angling gear upon
Nought else might trouble him.
When lo! In every charm arrayed
That woman might beseem
The Naiad raised her dripping head
The genius of the stream.

2.
The dulcet notes she sang to him
Oh fisher is it good
That man should bring their human wit
To flay my finny brood!
Knewest thou what joys my fishes have
In their cool haunts below –
To pleasant days beneath the wave
Full quickly wouldst thou go.

3.
The sun beloved of all that lives
Loves in the deep to lave
His beauties brighten as he breathes
The freshness of the wave
Do not the heavens images fair
In all their humid blue
Invite thee: see the shadow there
Does it not beckon too?

4.
Along the rustling waters roll
And bathed the fishers feet
That song had moved the fisher's soul
As the voice of true love sweet
Her wily lay/song the mermaid/maid plied
Ill bode the fisher then –
She drew him fainting down the tide
Whence neer came he again! – R Lynd.*

25 June

Last Friday I visited Mrs Barker. Of all the women, whom I have met here in Sydney and indeed of all the many others I met in Europe, I like none better than her. Quiet, modest in spite of her wealth, she is such a thoughtful woman, full of good taste, which she shows not only in the arrangement of her house and her sumptuous drawing-room, but also in her friendly unobtrusive manner and her way of dressing. She showed me her garden again and below the moist, over-hanging rocks grew three kinds of fern, which I did not know besides many others I did. Various fruits were ripe, the lemons and oranges in all their golden garb were embedded in the most beautiful dark leafy green.

A great many flowers abound with fine honey: among others *Lambertia*, from whose tufts of flowers you have to strip the outer involucral leaves, and bite the base to suck out the honey. *Styphelia*, *Epacris*, and *Banksia* are all well provided with it. I also found it in a shrub-like *Salvia* in Mrs Barker's garden.

30 June

Last Sunday I made another trip to South Head without, however, collecting significant treasures. Just the same I found *Marsdenia rostrata*?, *Melaleuca viridiflora* and a peculiar *Loranthus* on *Banksia integrifolia*, which sends a runner down the tree: the latter attaches on the bark from place to place.

Mr Braim spoke to me about lessons in botany at Sydney College. Dr Nicholson said: "Only do it, if you are adequately remunerated." He made some strange remarks about the Kirchners, or he made them in a peculiar way. Thus he said: "Miss Wolcot is not a full sister!" I don't understand him, but shall ask him again when the occasion offers.

2 July

Last night I gave my first public lecture on botany. On the part of the School (the School of Arts) so little attention had been paid to these lectures that they had not even thought it worth while to announce on each occasion what topic would be dealt with and who was going to give the lecture. In spite of that, the room was fairly full, and I tried to make myself as clear as possible. Though I was not timid, I did not feel completely at ease, and because I did not really talk quite from my heart as I would myself have desired to, it seemed to me as if my words did not go to the heart either. Indeed, it almost appeared as if they listened more to the expression and pronunciation of the foreigner than to the subject he was treating. But even if I was not as forcible the first time as I would have liked, a start, on the other hand, had to be made at some time, as well as experience gathered. I do almost regret that I forgot to mention many points, which I had meant to discuss, but not to have discussed them is just as bad as having discussed them without making an impression, and perhaps the former is better than the latter. They said I had not spoken loudly and slowly enough; I shall try to remedy this failing as I gain greater freedom in expressing myself. I find it is pleasing to have a kindly disposed person before me; on the other hand it is unpleasant to face unfriendly people, who are constantly on the watch for mistakes.

5 July

On Sunday an excursion in the swamps to the side of Botany Bay behind Montgomery's property. *Euphrasia paludosa* in flower, *Marsdenia rostrata* on the Surry Hills in fruit. *Bursaria* diagonally behind Montgomery's. Mr Devontrie noticed a grey snake and killed it. I think it is venomous, and, to judge from Guerin, it belongs to the *Trimeresurus*. On the edge of the swamp *Desvauxia billardieri* is common.

The vegetation commences: new flower-buds in *Monotoca elliptica*. Formation of new shoots also in *Casuarina*. The newly commenced month will most likely rouse all the dormant forces. Some plants, for example *Ficus macrophylla*, seem to vegetate all the time, without developing shoots. I am anxious to see when our introduced trees, which have all shed their leaves, will begin to bud.

10 July

*It is not beauty I demand
A crystal brow the moon's despair
Or the snows daughter a far land
Or mermaids yellow pride of hair
These are but gauds, nay what is less
They are but empty shrines of pride
He who the mermaids hair would win
Is mostly strangled in with tide
And what are cheeks but ensigns oft
That wave hot youth to fields of blood
Did Helen's breast t'was ere so soft
To Greece or Ilium much good?
Whom with a loyal mind ~~temptation~~ I could trust
One in whose faithful bosom I
Could pour my secret heart of woes;
Like the care burdened honey-fly
That hides his murmurs in the rose.* [4]

Last Friday I gave my second lecture on the inner structure and elementary organs of plants. I had made some tolerable diagrams to make the obscure position of the plant organs obvious. There were about 25 to 30 people attending. I spoke more easily and loudly than the first time. I felt I had made significant progress. It is, however, extremely difficult to arouse in other persons the same interest, which we ourselves take. We have made it the subject of long studies, and often only after prolonged efforts come to a complete and satisfactory understanding. Here we want to achieve immediately in the superficial lecture what we were able to achieve in ourselves only gradually by persevering mental efforts. I think it is necessary to pick out only the more familiar points, then set out from them, and use them to illustrate some general laws.

Mr Lynd is still troubled with a bad cough, and as he continually broods on its possible causes, he aggravates the trouble instead of lessening it by diverting his mind. His conduct towards me is equally friendly, and I patiently put up with the often disagreeable peculiarities of the aging friendly bachelor.

16 July

Yesterday I gave my third lecture. I had only a small audience. As however, I had some very interesting points to discuss, and interspersed as many physiological facts as possible at the same time, I sustained attention for at least the first half of the lecture. That my lectures in Sydney are attended by only about 20 to 25 persons, cannot surprise one, who has seen Brogniart's, Mirbel's, or Kunth's often poorly attended lectures, to say nothing of Flourens's and Serres's lectures.

When, last Sunday, the weather made me break off my botanical excursion, I went to church kneeling[?] in prayer there in the quiet to bring memories of my beloved family again vividly before my mind. I saw my dear mother, my sisters, brothers-in-law and brothers – and the agonizing thought struck me: Will you ever see them again in this life? – I have never dared yet to say "Never!" Whenever a friend bade me farewell, I parted from him in the hope of seeing him again, wherever he might bend his steps.

But the traveller gradually becomes tired; he longs for a quiet place, and this weariness, this longing for quietness may then induce him to settle in his turn in the lonely distance

and, pre-occupied as he is with his own feelings and ambitions, to allow the memory of his far-away friends and family to fade away. Will this happen to me too? While in Sydney I have been swayed by various sentiments. The inclination to M.M. made me brood constantly over the possibility of making myself independent as soon as possible. The quietness of the Botanic Garden led me extremely close to this possibility, but my time had not yet come. My contact with Clarke and Lynd again raised my scientific projects above all others: my connection to M. was looser, I rarely saw the girl, and since no advance had become obvious to fasten my liking, the impressions, perhaps only sensuous, gradually receded into the realm of night where even now it caresses the sleeper with pleasant dreams. On the other hand the acquaintance with the Kirchners had given rise to several plans, which rapidly possessed my whole mind, putting it in a kind of fever, but gradually after its critical stage fell back into minor limits again. Mr Braim, the Director of Sydney College, roused similar ideas; my lectures in the School of Arts had been started with sanguine expectations as well, and several fortuitous circumstances had on their part contributed to that state of agitation, in which my mind had been during these last two months, but in spite of this movement into dreamy moments most of my time had been devoted to study and work. Each Sunday I made botanical excursions with Mr Lynd or Mr Daintrie, which yielded abundantly at first, later on poorly, of course, as we gradually collected a larger quantity of plants. Preparing the lectures had also required much time, and then molluscs, birds, and reptiles had required my attention from time to time.

A relative of Mr Lynd, Mr Robertson, a magistrate from the Hunter River (in Mushelbrook) had sent along his 14-year-old son to us, so that he could attend Sydney College. The boy, with his ideas, had already matured into a young man, and too much attention given to him by his parents had filled him with excessive self-conceit. But he is a good, straightforward person of great promise, once stricter discipline has polished his rough uncouth manners somewhat. Here again it is interesting to observe an old bachelor's conflict with an open-minded boy, who feels himself independent. It would often have been extremely ridiculous, had Mr Lynd's illness not put him in such a state of irritability that it often grieves me very much to see him objecting to the bad habits of the boy. On the other hand, I often feel sorry for the boy when Lynd most cold-bloodedly hurts his vanity. To what extent these two people will derive any benefit from their living together is not yet clear to me. Here my own mitigating hand, which is available to both sides as a comparative remedy, seems necessary in order to achieve just the happy medium.

I have frequently seen Mrs Barney again. She has treated me in a very friendly manner, and he has given me signs of goodwill. Whether she would treat me as a friend in an emergency is a different question, which I do not want to answer, although I admit that I believe she would. I respect her and hold her in high esteem and would do my utmost to be helpful to her. People have raised doubts about her; calling her superficial, – her virtue only put in mere sounding words. Why should I doubt a person unless I have been convinced by obvious proofs of the invalidity of his or her virtue. Poor unlucky Macconochie would unfortunately answer me with a shocking example, but he really ought to have had doubts – his trust was overhasty!

Dr Macdonald (surgeon at the military hospital) shows an inclination for botany, and I like the simple, modest, unpretentious man. I like such a man even better than Lynd.

It often seems to me as if Lynd becomes edgy whenever I know something as well as he does, although I do take care to avoid any semblance of pretention or coquetry. I gladly concede every man his right, and it is a pleasure to me to recognise the fine knowledge, which Lynd possesses, for example. But why should I not claim the same for myself? After all he does know what infinite pains I have bestowed on learning and making progress.

17 July

A change in the weather has set in with the last change of the moon, first quarter and we have an extraordinary amount of rain the last two days instead of cold, dry healthy weather. The precipitation seems to take place in each air molecule, just as on my arrival in Port Jackson in February.

[Letter in German to William Nicholson, 17 July 1842. Aurousseau, 1968: 498-512.]

5 August

I specify further here what I have already mentioned in the letter. The Kirchners introduced me to Mr Walker Scott; he in turn to his sister, Mrs Mitchell. I saw the three brothers: Robert Scott and Captain Scott. While Walker fascinated and amused me by his kind good humour, I felt that in Robert I faced a thinking man, whose life is always directed towards the practical side, which, however, he seeks to grasp and command with his mind. He is called no other than 'mad Bob'. Why? – is not clear to me yet. He has done a great deal to acclimatise the industries of the Old World on Australian soil, and as he has extensive properties (80,000 acres) on the Hunter River, this was easier for him than for others. Practical men of the like have attracted me at all times. Am I deceiving myself, if I believe that I could be of greater avail in the practical field? Mrs Mitchell is an extremely friendly and obliging woman, but in her, too, I feel the coldness, which has now and again alarmed me in Mrs Barney. Though she was so good natured, I should almost say obligingly kind to me, and although Mrs Mai also spoke highly of her friendliness, there was a coldness towards the latter, which was, under the circumstances, very unpleasant for me.

20 August

Last night I read 'The Lady of the Lake' – and the description of Rodrigue and the scene with Graeme on the island must have left a vivid impression.[5] In fact I had a very strange dream which caused me to wake up, immediately repeating it to myself, whereupon I dreamt it again. The dream was like this: I had the intention of going to the Marlows. As I arrived at the door of the room, I did not find the family; they were in fact at lunch. For a joke I took the trunk of a young tree and put it across the door and as I went through the gate, I did the same. I turned to the left through a small garden, and as I walked away, the children entered by another gate. I greeted them, particularly Marianne, whom I embraced most amicably and caressed: she suffered it in silence without responding, however. Soon afterwards she returned to the room. I stayed and jested with the children. At this moment I saw a young man paying his attentions to Marianne, and she was talking with him in a friendly way. Suddenly I was seized by jealousy and wished to be off. I could not find my hat. A young man gave it to me and I dashed away like mad, down a steep hill. In the valley there was a city with very busy streets. I had a cigar in my mouth; as I hastened up towards a steep slope, the cigar dropped from my mouth. Endeavouring to look for it, I whirled around towards the slope, grabbed a solitary overhanging tree, which bent over the slope taking me with it – I swung over

the precipice – then the tree swung, and I fell down!! The first time I really fell down!! But at the bottom I saw a tree, which I hoped to grab on to, but before reaching it I woke up. I thought it over and over again, wishing to grasp the psychological connexion, which likely existed. On the other hand, however, I wanted to learn a real lesson from this apparent disaster. I told myself that this old infatuation, if I did not take care of myself, might lead me onto a precipice from which nothing could save me. If I wished to cultivate this passionate love or inclination, I must wait at least until the girl really showed me her true, sincere affection, so that neither I nor she herself should be undone as a result of one's own passion.

29 August

I lent old Murphy £50 (in words: fifty pounds) on 29 August 1842.

4 September

I have now put Lynd's botanical collection and my own in order as much as possible and identified the plants except for a few. With the duplicates I sought to win friends for science, and everywhere they have started small collections, to which I added the names of the plants. So the daughters of Proud [Prout] and Barney, the younger Murphy, Dr Macdonald, Dr Nicholson and old Rennie have rather pretty collections. I made several excursions with the pupils of the Australian and the Sydney Colleges, and many of the boys showed a keen interest, which will, however, quickly cool down unless it is carefully nursed. I am now on the point of going to Newcastle to live there for some time with Mr Walker Scott. By chance I heard that the little girls of the Kirchner family are very close friends of his.

In this colony our plans are perhaps more subject to constant changes than in any other part of the world. So I do not in fact know yet how things will be in Newcastle. At first I thought the Mitchells would leave Sydney for Newcastle. Now, however, they appear to want to stay in Sydney. Mrs Mitchell wants me to be tutor to her two children. I have made her no promises, but if I return to Sydney, I shall probably accept the offer. Mr Braim asked for my assistance at Sydney College, but as I know so little about my future, I am not in a position to give him any definite reply. If it is not possible for me to obtain a secure, fixed position here, all my activity must again be concentrated on home; I must work so that I shall be remunerated there on my return. If, however, it is possible to become established and useful (in fact I consider the two terms almost identical) in a delightful climate and in a little-explored country, I am quite willing to renounce the idea of seeing my dear ones back on home soil again.

As I was ready as early as a week ago for the journey to Newcastle, I said good-bye to the Marlows last Saturday week. Although they knew I was coming, Marianne was out. She had accepted an invitation. My inclination for the girl was subject to constant fluctuation. Whenever I met her, my passion was stirred again and often inflamed the mind to unrestrained frenzy. After such a fever I would gradually sink into less agitated brooding, which often made me think that I had become master of the foolish inclination. Often I went to the Marlows full of joyous hope, with overflowing heart, and, when I saw the cold, seemingly selfish girl and pressed her hand, all possibility of further love suddenly appeared to be extinguished, and the radiant glow was reduced to a mere brotherly or amicable feeling. But as this condition was changing and fluctuating, I became deeply convinced that such a girl was unsuited for me. I wished I had never seen her, or never again had to associate with the

Marlows, for never did an acquaintanceship cause me such frequent and deep pain. When I arrived on Saturday and did not meet the girl, I felt terribly hurt.

However modest a man may be, he still believes he is certain of some attention; he makes light wistful claims and is grieved when he does not receive the attention expected. So it was here: I was fond of the girl and hoped she would at least so esteem me that a simple farewell would matter to her. On the contrary, she showed that she preferred a genial evening in perhaps rather shallow-minded company. I could have listened to many other insinuations of my injured vanity, but I repressed any ill feeling and was as friendly and cheerful as possible. But my affection for Marianne seemed to be over for good. I was sad and disappointed, yet I felt free in a way. Her mother invited me for tea on the following day: I did not go! She told me that on Monday Marianne would be at the Barneys'. I had the intention of taking leave of Mrs Barney on Monday, but now fearing a meeting with Marianne, I put my visit to Barneys' off until Tuesday! This lady had always received me amicably, but occasionally on parting, she gave me such a peculiar look that I began to think that here too I had to deal only with outward festoons of words and verbosity, and when I had turned my back, sarcastic remarks might have ridiculed the foolish man, who had endeavoured to win the fresh hearts of the children for his science. Often when I came down from Cumberland Plain with plants for Miss Jane and stopped just below Mitchell's house, fascinated by the lovely view across the harbour, I wondered: How will people interpret your friendly zeal? Will they not say: you came to flatter the rich, to win their favour, to seek goodness knows what! I always replied to myself: do I not also help the poor? Do I make the least distinction between Murphy and the Prouds and Barneys? I would indeed go to the Prouds much more regularly, if I was not stopped from doing so by the family's peculiar eccentricities. After such soliloquies I always concluded with the philosophical consolation that I was working for my science and that, like Socrates, I was going 'man-hunting' for its sake! So I went to the Barneys, and they gave me a friendly and warm reception as usual! The girl was so friendly, so sincere, so considerate, so content and then busy in the house, and sympathetic at parting; every corner of her face seemed to be animated by so much warmth and kind and lasting childlike feeling, without relapsing into that empty apathetic look, that I felt very much attracted by her that I was very good to the girl and could have kissed her! Since a man cannot live without love, why should I not take possession of the lovely girl, faithfully keeping and cultivating her memory within me in the same way I once loved Lottie or Lucy and that in a much more ideal way? And should she not safeguard me against a demon, which for ever disturbed my peace of mind, which never gave me satisfaction and which very surely was largely carnal desire?

*R.Lynd. Esq.,

Barrack Master

Sydney.

In an envelope for the

Barrack Sergeant, Newcastle.

Please forward this letter as usually*

*MDF [My dear friend] I take the liberty of sending you the drawing of a mushroom, which was found by Mr Lynd at the commencement of April in the […] Sidney. I shall add an explanation of the different figures, pp [and so forth].

No. 1. Natural size: the pileus is divided into 8 rays, each of which is ~~deeply divided~~ bifurcate, the divisions being drawn out very finely and twisting a little. The centre of the pileus is perforated by an irregular hole ~~by which the hollow stem which~~ by which the

cavity of the hollow stem communicates with the atmosphere. A dark brownish moist matter covers the upper part of the disk: the rays are of a fine bright scarlet, the stem and the lower surface of the rays of a beautiful pale rose colour. An attentive observation with the glass, shows minute holes at the base of each ray, which communicate with the large holes immediately below the upper layer of the disc. (5.) The stalk of about 1½" high is hollow as shown in figure 7., the walls being composed of a simple series of long stretched cells, which enlarge towards the upper part of the stem and in the disc as shown in fig 6. and 5., both being vertical sections in that part of the stem joining the disk and the disk itself.

The stalk is surrounded by the volva to half its length, the ~~volva is above walls of the volva~~ ~~volva is composed by three distinct~~ In making a vertical section of the volva, as shown in fig 3. I distinguished an external and an internal membrane, between which a mucous substance was found from the point of connection of the stalk and the volva 7 white bands eradiated at the inner surface of the volva which were connected at its upper part by lines. The roots were cylindrical of loose tissue anastomosing with each other.

The fungus grew on rotten wood not 15 yards from the seaside. Long continued rain had preceded its development, the month of March and April corresponding to Septbr and Octobr in England

fig 1. the fungus in its natural size. A the hole by which the hollow stem communicated with the athmosphere

b. the brown matter covering the disc

c. the base of the rays with little holes, which open into large cavities in the disc

d. the divisions of the rays

e. the stalk

f. the volva or wrapper

g. the roots.

fig 2. a view of the disc

fig 3. the volva α. the external β. the internal membr γ the mucous substance between both, δ the eradiating white lines at the internal surface, ε the point of insertion of the stalk.

fig 4. a birds eye view of the radiating lines of the internal surface of the wrapper

fig 5. a vertical section of the disc and a ray, showing the large cavities in the disc and their communication with the athmosphere.

fig 6. vertical sections of the stalk showing the cells with wavering walls, enlarging towards the disc.

fig 7. a horizontal section of the stalk

fig 8. the anastomising roots

fig 9. a horizontal section of disc and rays showing the large cells, the fine wavering lines expressing the conspect or undulating appearance of their walls (as in fig 6.)* [6]

Monday, 5 September

Today I received a letter from Mark; he is on the point of selling his cattle and returning to England: he has apparently had a sad, but instructive experience. Just as William laid aside old family prejudices on the continent, so has Mark shed his in New Holland.

Leyard came to me on Saturday with the object of introducing me to Dr Ward[?], whose sons studied medicine in Paris, then accompanied a scientific expedition from France, were shipwrecked on the coast of South America, and eventually, after many hardships, reached New Holland, became lawyers and are now well-to-do people. The man told me he had first used colchicum for gout and later introduced the use of

stramonium for nervous diseases and […]. We discussed here and there a great many things, which I least expected, particularly about religion, on which he advanced rather liberal opinions. He has certainly turned his hands to many things and seen a lot, but his restless mind has never allowed him to settle down and, for all his constant making of plans, he seems to forget about steady creative work. He brought out French labourers, to whom he promised an Eldorado. Once they were here, he left them and conceived the plan of going to New Zealand to join a native tribe and make observations on the medicinal properties of the plants there. This man asked me to accompany him and work with him. Naturally I have no liking for such a reckless fellow, such a groundless reckless fellow, whatever a reckless fellow I may be myself.

A week ago last Thursday, I was invited to lunch by Mrs Mitchell with the intention of being introduced to a Mr Bidwill, who gives some attention to botany and had just returned from a trip to New Zealand. He told me several interesting things about New Zealand, for instance about a dwarf *Dacrydium*, a creeping or climbing *Metrosideros*, about the absence of leguminous plants, and the abundance of composites. He had brought a peculiar genus of fern with broad leaves, the fructification being on the leaf edges. He showed me several other strange plants, the names of which I have forgotten. During the conversation he told me quite a number of other odd things. He is now attempting to obtain hybrids of related genera and species, e.g. *Araucaria excelsa* and the one from Moreton Bay. He has succeeded in growing hybrids of *Haemanthus* and *Crinum*, which, however, still needs to be confirmed.

However, I do not like the man; he seems to be insincere, putting up a certain reserve, as if he were trying, by silence, to appear wise, and when he was communicative, he was so in an unpleasant manner. Nevertheless, I do not want to yield to an unjustified and hasty feeling of antipathy.

Another acquaintanceship was useful to me. The father of little Murphy knew Dr Bowman's gardener, Mr Newman. John took me along to him, and he appears to be an honest and friendly busy man. He sent me a large number of unknown plants, which I have partly determined and I shall determine the others as time goes by. There I met Dr Bowman's son, a sickly asthmatic boy, who is, however, interested in botany and to whom I am greatly indebted for many interesting plants.

When I finished my lectures, I announced to my audience that I would with pleasure give them any further possible information, if they wished to join me on my botanical excursions. Mr Rennie, former Professor of zoology at King's College, at once accepted my offer; likewise another young man; the headmaster of Sydney College and Australian College sent along their boys, and so public botanical excursions were tried for the first time in Sydney. Although I did not like old Rennie at first, I have come to like him very much since.

6 September

My dearest mother. I have not copied the letter. I wrote to my mother that I shall forward to her a work for publication and that I shall leave the royalties from it to her.

7 September

I had a very remarkable conversation with Mrs Mitchell. Just as I was about to leave, she called me back and said that some days ago she had had a conversation with another lady, who had claimed that although the Prussians and Germans were a well-educated, enlightened and virtuous

nation, they were free thinkers and had no religion. Now she asked me what I thought about it. I answered her that, if she believed that you should attend church twice or even once every Sunday and should neither sing, play, nor dance, she would no doubt find less religion in Prussia than in England. If, however, she analysed the character of a people or of an individual more carefully, she would soon find out that we had as much religion and possibly more than any other nation; that above all, we lacked that religious hypocrisy, which is surprisingly common in England; that we believed in the existence of God and in immortality, but that perhaps a great number of us did not look upon Jesus as God, but as a God-sent prophet; that we put greater accent on the moral doctrine than on dogma. Though Mrs Mitchell really agreed with me on many points, I realised on the other hand, that the dogmas of her church were most intimately connected with her religious convictions and that she was unable to abstract more general religious truths from them. This made me extremely uneasy and I do not know whether I could ever undertake the education of her children, at least here in Sydney. On the other hand, I must admit that this would be very advantageous for me and that the family is so agreeable and kindly disposed that I should certainly find nothing but pleasure in their midst.

When I told her that I had made up my evening prayer myself when I was 10 years old and that I had not found it possible since to improve on it, she asked me to write it down for her. How strange it is to impart to another person the words, with which I have addressed the Almighty for twenty years, in deepest silence, in the quiet of night! However, I will write it down here in German and then try to translate it as well as possible.

> Dear heavenly Father, I sincerely thank You for having so kindly protected me this day. Give me protection again this night, and protect my parents, my brothers and sisters, and all my kinsmen and fellowmen. Be gracious to us and forgive us our sins, of which we sincerely repent and strengthen us with Your Holy Spirit, so that we shall become better and better and more like You and hear our prayer. Amen.

It seems so poor and so brief, and yet I feel that I have said every thing and my head sinks reassured on the pillow.

7 September

Yesterday I visited Mrs Mitchell. Once more we looked all over the whole garden for interesting things, and again we were lucky enough to find several interesting things, particularly beetles and butterfly larvae living in the wood, and several spiders. The eggs of the *Acharista* on the vine-leaves. Mr Walker Scott came and after helping us as best he could, we went to the Kirchners together, where he showed me fossils and the bore-tunnel of that annelid, which he has already given me. He also showed me a drawing of the interesting spider, which I had found in Mitchell's garden a week ago. One of the little girls passed him the objects from the other room, and to my great astonishment she called him father. Now here a great secret or mystery is revealed, for I could never understand the relationships there were between Mrs Kirchner, Miss Mary, and the little girls Harriot and Helena. It now appears that perhaps they belong to three fathers, and that Miss Maryanne acts as a sort of governess to her younger sisters, if she is a blood relative of theirs at all, because Kirchner called her mostly Miss Wolcott. The children are well brought up and I like the family very much, but it always struck me as strange that the mother was never seen in the

midst of the children. With the exception of the Barney children, I have never seen better-behaved children.

12 September

Yesterday the Mitchells with the two children accompanied me to the North Shore, to one of its wildest gullies. On the shore, and washed by the tidal waters, *Aegiceras fragrans* grew adorned with its stiff, green, membranous leaves, and its decumbent, broad-rooted trunk that puts out branches. As we climbed up the rough bush track, we were surrounded by *Pultenaea daphnoides*, this beautiful legume, between which *Pultenaea liniphylla*, *comosa*, and *stipularis* (equally beautiful) raised their yellow flower-heads and spikes. *Caladenia carnea* and *alba*, *Glossodia major* and *minor* were glistening like blue and white drops among the evergreen. *Eucalyptus* and *Banksia integrifolia* formed the taller vegetation. Higher up on the sunny rocky surfaces, appeared *Dillwynia ericifolia*, a fine-leaved variety perhaps. Beneath the moist shaded rocks, *Gonocarpus teucrioides* was about to open its small, insignificant, greenish flowers; there were large numbers of *Epacris grandiflora* and *microphylla*, *Styphelia triflora* and *longiflora*; *Grevillea linearis* and – rarely – *punicea, Boronia ternata,* and *Crowea saligna*. As we descended to another bay, *Thelymitra ixiodes* was found. *Dodonaea triquetra* formed almost a forest. *Lyperanthus suaveolens* was spotted by the keen eyes of little David. On the opposite slope of the wild narrow gully, which now lay before us, we discovered a large number of the magnificent, deep-red flower-heads of *Telopea speciosissima*, and on the dry terraces of the hill, exposed to the ocean breeze, often in their shaded crevices, appeared the magnificent whitish-yellow flower-clusters of *Dendrobium speciosum*. At the bottom of the gully *Phebalium* was covered with white flowers. I have forgotten to mention *Ricinocarpos* on the sunny ridges, which for more than two months has attracted the eye of the nature-lover by the profusion of large white flowers, and contributing considerably to the enlivenment of the bush. *Leucopogon ericoides* is not less so and both are shrubs 2 to 3 ft tall. {*Astrotricha floccosa* is also very characteristic).}

The Compel brothers rowed us back to Sydney again and I selected a large number of flowers for the sisters, which they put between paper to dry to make a small collection.

Robert Scott asked me whether I could distinguish tannic acid from gallic acid. The wattle-tree, an *Acacia* from Van Diemens Land (*A. mollissima?*) contains an abudance of tannin, which is sent to England as an extract, where it gets a high price. Rob. Scott intends to cultivate this tree. ~~He told me that that whenever a large tree of this species (or another one) was burnt, in the burnt area~~ He told me that the young saplings of this *Acacia* will shoot up within the burnt area of a mature tree, as if considerable heat were needed to make the seeds sprout. They had tried, but without success, to achieve the same result by burning heaps of grass.

I asked him whether it was true that horses here did not like to eat English clover, as Dr Macdonald had told me, He replied that it was only yesterday that his horse had feasted on clover at Camden. Dr Macdonald had told me that in the barracks the tufts of clover rise conspicuously over the short grass, because the cows and horses spurn the clover owing perhaps to its inherent bitterness. However, they eat it dried with the other grass.

15 September

This morning I was present at the dissection (the anatomical investigation) of a brain. The brain was a very large one, and as Dr Macdonald had preserved it in alum water for a day the soft parts had become harder.

The connection between the lateral ventricles and the third and fourth, the fornix, the three commissures of the velum, the pineal gland, and the aqueductus sylvii were quite distinct; I had never seen them as clearly as on this occasion. These inner cavities with porous membranes, with their probable vaporous secretions are really extraordinary. Shall we never understand their functions properly?

Let us suppose that the end of all nerve-fibres terminate at the wall of these cavities and that they impart a sensation to them and from these lead the impulse for activity to the muscles. Wounds inflicted on the outer substance of the brain have been of no consequence. Those reaching the ventricles were always fatal. I realise the limitations of such an idea. I see the dense darkness that surrounds us about the function of this organ with the exception of Flourens's experiments.

Mrs Barney received me today, whereas yesterday she was too unwell to see me. In her attitude to me, she has given signs of her unremitting favour, although she has never tried to make me a close friend of her family. I will not reproach her for that, as it was much more agreeable to me. On the other hand an invitation to tea or lunch would have shown their desire for closer acquaintanceship. How the Mitchells have received and treated the complete stranger! Mrs Mitchell is such an attentive, open and benevolent woman! It has indeed always been comforting to find better and better people, and although I should not be taken in by outward friendliness, I cannot deny that this attention has greatly benefited me. Man is after all often like a little child. He wants to give love, yet feels so warm and so at ease to see that he is being loved and respected. Mrs Mitchell seems to be cold on first acquaintance, but is immediately affable, without reserve, obliging, gladly giving without offending, and is without fuss and a grateful recipient. She is a loving, exceptionally attentive mother, an affectionate wife, a busy housekeeper, and a thoughtful woman, who takes an interest in nature, striving all times to connect it with our Creator and anxiously comparing its teachings with those of acquired religion. She is a firm believer in this acquired religion, perhaps even in the rites themselves; and she may be unfair towards dissenters. Her husband's demeanour is very much like hers and rarely have I seen two people so in harmony with one another. Even in their appearance they show some resemblance.

Mrs Barney is a good mother and an excellent wife. She seems to be kindly disposed to her servants and open-handed towards the poor. But on the one hand, she is not so thoughtful, and on the other she is more boastful, talking more about herself, her own actions, her family, stressing her manifold connexions. She is not free of family pride and perhaps has a tendency to mockery and gossip and to unfavourable judgment of others. Her conversation is pleasant and she speaks well and with animation. Since she has seen and experienced a great deal and enjoyed a good education, she is not only agreeable, but also instructive. Much if not everything depends on the circle, in which these women move. While the one takes pains to assert a high rank in the local society, the other is almost completely wrapped up in the narrow circle of her home and garden, in which she tries to make new discoveries every day and where she finds fresh satisfaction day by day.

Although these women differ so much in character, I hold both in high esteem; albeit Mrs Mitchell's modest reserve corresponds closely to my own character. Both are worthy women and estimable friends. Mrs Marlow ranks below them both; not so much in her kindly disposition to me or perhaps to anyone else, but in the wealth of feeling or of intellect. She has not enjoyed as good an education. She has flitted about in society like a butterfly and learnt its manners and

maxims, which she considers to be true knowledge. She can talk about nothing but the external impressions, which society, fashion, and manners produce on her. Since these impressions are extremely shallow and soon exhausted, she must resort to her own imagination, and by assuming things, she is led to make superficial judgments of people, to witty remarks and mockery, which are most annoying to a humanitarian. She takes an interest in the education of her children, but as she has not received a proper education herself, she does not know how to engage in it or how to regulate and to govern. The wonderful intelligent children are exposed to distractions by irresponsible indolence and carelessness, which cause them to find pleasure only in amusements. Marianne, for example, already talks of nothing else but men, women, and girls in this superficial way, following external impressions.

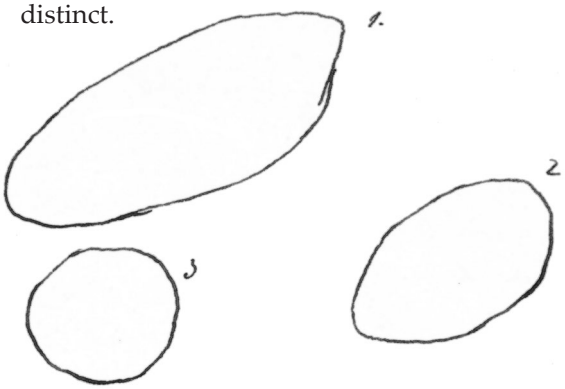
It is interesting to compare the husbands of these women. Colonel Barney is a serious-minded reserved businessman, who leaves the house and the honours entirely to his wife, though he knows very well how to preserve his dignity as master of the house. My esteemed friend Captain Marlow, perhaps a connoisseur and vegetative creature from his early days, has left the reins entirely to his wife, who also excels him by far in practical wisdom. He has shown his paternal feelings perhaps only to Marianne, whereas he seems to be in open conflict with his other children.

19 September (21st in my etiquette)

Yesterday I paid nature a very long visit and we were both alone with each other like the time I was making excursions to Paris and Naples, and going on walking-trips from Rome to Florence or through Switzerland. The day was unusually mild: the mountains enveloped by a bluish-white glimmer, which became more intensely blue upwards and whiter downwards. I have rarely seen really blue distances out here, but during the setting of the sun, often when it is half an hour above the horizon, it floods the hills with delightful soft purple light just as it always hovered around the mountains of Italy.

I noted down for myself what I found, and I shall copy out these notes here:

Lead and sulphur in the sandstone, which is being quarried close to the jail. Round inclusions of grey clay and distinct imprints of shells. Particularly No 1 and No 2 are very distinct.



They are in a block in the sentry-box next to the jail on the jail side. They are the first traces of fossils, which I have observed in the sandstone.

Grevillea dubia? The leaves are very broad compared with those of other species and the edges are not curled[?]. An *Oreodicus* with parallel pieces of plants arranged parallel in a sort of spiral.

A small grey *Rynchophorus* with a whitish line on each side. A yellow wasp was looking for a night cap among the dewy leaves of *Banksia ericaefolia*.

Lambertia is now beginning to develop young shoots; likewise *Hakea* and perhaps all the Proteaceae one after the other. Those just mentioned are the first two I noticed. They do not appear to have very much sap pressure throughout the winter. *Isopogon anethifolium*

is in beautiful bloom; likewise *Conospermum tenuifolium, taxifolium*, and *linearifolium* (a variety of *longifolium*?), *Baeckea densifolia*.

It is interesting to observe the distribution of the dew on the leaves and petals of *Philotheca australis* (*scabra*): while there are large drops on each side of the petals, the leaves of the stem are quite dry already. Is this in any way connected with the distribution of the glands containing volatile oils? – I observed the plant at 9 a.m.

A small spider, apparently belonging to the Lycoseae (?), on the under side of a leaf of *Angophora cordata* /*-ifolia,* beneath some loose cobwebs.

Hakea gibbosa exudes a tasteless, yellowish-white gum.

On *Casuarina stricta* a black hymenopteran, covered with grey hairs and considerably larger than a bee though somewhat similar in appearance was copulating. The female was winged and very big; the male, wingless and very small, had grasped the female with its mandibles at the end of the abdomen and had itself carried away by her at the threat of danger. The females were very shy; I found them on only one species of *Casuarina*.

21 September. Continuation of 18 September

I found a small plant with four sepals and four petals (which were hat-shaped at the base), eight filaments (four longer); the anthers were at the end of a cross-beam so as to form a Latin T with the filaments (Lynd called the little plant *Tomanthera*). Two styles. There was an abundance of them in moist spots. The pod with six stigma [...] adhering. On *Conospermum taxifolium*, which is in flower and according to its veins[?] shows some differences, I found a metallic green, slender beetle, which must belong to the telephorid family. Also an elaterid with four pairs of white spots on a brown background (in the act of copulation) and finally a blackish-brown beetle, which resembled almost a carabid, but probably belongs to quite a different insect family. All these beetles seem to be in full copulation. They were shy, and the first and the last mentioned ones usually flew away very quickly, whereas the elaterid pretended to be dead when caught. I found only a very small beetle on *Ricinocarpos*. A grey spider with its young ones in a cell between the twigs of *Petrophile pedunculata*. {In addition I found a small beetle with yellow dots on the same plant, as well as *Rhynchophora* on some others. It seems that the flowering-season of this plant forms an entomological period. – A green-reddish bug.}

The dark round shrubs of *Banksia ericifolia*, with their blackish, orange-coloured, cylindrical flowerspikes, are characteristic of the country around me. *Gompholobium grandiflorum* is a very beautiful legume. *Conospermum taxifolium*, *Ricinocarpos* with its white flowers, *Eriostemon salicifolium*, *Sprengelia incarnata* (the latter only in very moist soil) cover the ground all over. *Casuarina stricta*, and *Comosperma virgata* also add much to the beauty. *Eucalyptus* is only found as a very low tree. *Genetyllis diosmoides, Petrophile*. and *Isopogon*. All around I heard the broken calls of several birds; it always is as if they are going to whistle a full tune, but they stop short. I was told that Australian birds generally have no coherent song or even do not sing at all. One of the gentlemen (Mr Rennie) said that they were only diatonic, which I have probably misunderstood, however. In a hole, apparently made by the larvae of the mantis, I found a very large black *Rhynchophorus*.

In Europe we are almost certain to find various insects, particularly small staphylinids and scarabs, in dry cow pats. Here you find only ants. Just as the ant here

changes its food, since originally there was no cow dung in Australia, so have various other insects relinquished their original food and chosen the introduced plants. The most striking example is an *Acharista* (a butterfly), which once laid its eggs on a native plant, but now badly damages the grape-vine, covering the young leaves with its echinoid-like eggs, from which little caterpillars crawl out in about 12 days and feed on the leaves of the vine during the whole summer. Mr Scott told me that *Acharista* still afflicts native plants as well, which, however, are related to the grape-vine(?). It would be worth the trouble to test whether the eggs can be transferred from one plant to the other.

The butterfly larvae, which live in the *Banksia* and *Lambertia*, seem to metamorphose now like the *Occodicus*. However, the former must certainly take the chrysalis form first like the *Occodicus* did a long time ago (mid-August).

The bark of the white *Eucalyptus* is very rich in sap and so soft that the impressions of the claws of the opossum can be seen everywhere. These impressions cause a kind of inflammation, or at least a more abundant flow of sap, and gradually small protuberances are seen to cover the smooth surface. Apart from these impressions, tracts of beetle larvae are found on nearly every trunk with smooth bark. They commence as very fine threads and become wider as the larva grows.

I found a leafless plant with four petals, eight filaments (four long and four shorter), with separate anthers. This plant and the little one, which I found earlier, probably belong together. Very beautiful *Leucopogon lanceolatus* and *Correa speciosa* were found in a very delightful gully below the orphanage. *Hibbertia cinerea*[?] and many other fine plants are here together.

I observed very strange excrescences on *Banksia serrata;* the bark of the tree is swollen, thick, and torose.

Dianella cyanea. A hairy caterpillar on *Lepidosperma* (I gave it to the Kirchners; I do not know whether it is new).

Let me have a little rest on one of the sandstone boulders or on a dry fallen-down eucalypt trunk. All day I have roved through low-growing bush and scrub land, and my eyes have become tired of looking at the pale-green distance and the simple undulating contours of the hills. Here a deep wooded gully descends to the sea. A small creek gives the vegetation greater freshness and vigour. Not only does the *Eucalyptus* rise to a considerable height in order to look, though unsuccessfully, over the walls of the gully, but also the *Banksia* with its thick knobbly bark rises higher. The warbling of the birds becomes more cheerful, the rustling of the leaves more animated. Below the damp rocks ferns, and particularly beautiful *Osmunda barbata* and *Davallia dubia*, grow luxuriantly. The trunk of *Xanthorrhoea arborea* (the grass-tree) attains a height of 3-4'. *Callicoma serratifolia* bows its ever thirsty branches over the little creek, while the sweet-leaved *Smilax* stretches over them. Everywhere *Bauera* is pushing forward to the moisture. *Gleichenia flabellata*. The magnificent *Telopea speciosissima* and a host of small plants, which did poorly in the constant heat of the sun further up, thrive vigorously down here. – And what mild air! Though our senses are not delighted by the perfume of flowers, the

fresh smell of the vegetation does invigorate us. The white bulky trunks and branches of the eucalypts, and the frequent dry and leafless trunks add a wintry element to this warm but languid nature.

In a small gully, which runs into the main gully further down, I found a new *Logania*.

Newcastle on the Hunter River

Monday, 19th September, I left Sydney for Newcastle, accompanied by Mr Walker Scott. Inclement weather had set in; it was raining. Mr Lynd, the amiable man, gave me more signs of his sincere friendship. Superstitious as ever, or at least as often, I considered the rain setting in to be a good omen, which accompanied me on all my travels. The steamship (the *Rose*) went a steady course, and though the wind blew strongly, I was not sea-sick since I lay down early. The next morning my head felt somewhat dizzy, but I was better after a short rest. Newcastle, which I have only seen on a rainy and cheerless day, is bleak and desolate. Only a distant mountain-range gives some life to the landscape. Mr Scott showed me his workshops and his salt-graduation on the northern bank of the Hunter River. For one person, they are a rather significant undertaking. He employs joiners, smiths, iron-founders, and sawyers, and others at the salt-graduation. The graduators are very tall, but they seem too close to me. Mr Scott, however, told me that this density is quite permissible in this dry atmosphere. The pans are very large – I think too large!

We wandered a little through the bush. *Leucopogon richeri* was covered with white berries (like currants). I found several *Loranthus*, but only one in full blossom, and *Leucopogon margarodes* ~~*Trochocarpa*~~. ~~At least I think it is *Trochocarpa*~~. I do not know whether I am dealing with another *Persoonia. {Persoonia falcata} Fabricia laevigata* is very common. *Xerotes*. On the sandy bank there were pebbles of trap? of primitive rock, which I will identify. {A small plant like *Hydrocotyle*.}

22 September

Mild and sunny weather favoured our excursion yesterday in a south-westerly direction from Newcastle. This township lies on a sandy neck of land, which protrudes far out into the sea and was perhaps, like the north shore, partly sand deposited at the mouth of the river. Hilly ranges in the south and south-west form a large basin with an almost level bottom, the deepest parts of which are occupied by swamps. It is covered by bush and scrub with rarely a tree in between. The open areas are covered everywhere with good turf, which is formed from couch-grass imported from India according to Mr Scott. The abundance of the flowers of the plants is just as great and as diversified as at Sydney. A large number of plants, the main body of the vegetation, is identical in both places. But many of the plants in common have a somewhat different character. Some are different either in their distribution or in their actual shape. *Epacris obtusifolia*, for example, shows a finer leaf, *Conospermum taxifolium* shows the characteristics of the axil flowers as indicated by Brown more distinctly than Sydney. We likewise find that *Leucopogon virgatus* is extremely abundant, whereas in Sydney it appears only in rare stems. *Baeckea diffusa*, which makes the whole bush red with its richer flowers, was characteristic. It was surprising not to find a single *Grevillea*, which in any place all around Sydney we always see as one or the other species. *Melaleuca*, on the other hand, are common, and other species of *Loranthus* occur on *Casuarina* and *Banksia*. Of orchids, *Diuris* and *Prasophyllum elatum* were found; a maranthacean, *Anguillaria dioica*, and *Burchardia umbellata*.

Mr Scott showed me three trees growing together in the drift sand of the seashore (or mouth of the river) and of which all three were unknown to me. One is interesting because of its peculiar growth. A short thick trunk about 2″ ['?] high, sends out a large number of long white-barked branches, whose tips bend to the ground, so that the whole shrub resembles a fountain, whose waters fall uniformly and evenly all-round. The branches are moderately thorny, the leaves soft, ovoid or an ovoid upside down (I am not quite sure).

Next to this shrub there is a tree, whose yellow racemes Mr Lynd has already brought to Sydney. Its fruit is a trilocular capsule. Perhaps it is an *Elaeodendron*. Over it twines a vine-like plant with the knots and tendrils of the grape vine with beautiful dark-green, oval leaves, which are serrate on the upper half. It seems to be a *Cissus*. This is the plant on whose leaves the *Acharista* lived previously, which now prefers the introduced grape-vine.

As we returned home, we found a large number of marine oniscen (*Sphaeroma*?) rolling up in the bark of an old tree trunk on the shore. Mr Scott drew my attention to some furrows in the fresh sand just left by water and showed me that they had been made by the *Natica*, which pushes the sand up over itself with its very broad foot and then resembles a small heap of fresh sand, until you pick it up and wash it. The *Cerithium*, which also crawls across the moist sand, makes similar furrows.

Mr Scott told me about an insect (tick) which bores into the flesh and can eventually even kill dogs.

Baron Hugel was of the opinion that the orchids of this region cannot stand manure. Mr Scott planted them in cow-manure, and they have thrived very well.

Last night a certain Mr Dupper, who lived a long time at Hofwyl near Bern in Switzerland, called on us. He went to New Zealand and has property there. He is now busy shipping cattle from here to New Zealand. He told me he lost 42% in the first attempt and that the beasts were not strong enough to keep themselves on their feet, collapsed and were trampled to death by the others. He has now given each a separate stall and hopes to be luckier this time. He pays the skipper £500, and has about £300 for the cost of the voyage and fodder; so that a shipment of oxen costs him £1000.

He very much prefers New Zealand to this colony; the vegetation is richer and the atmosphere more invigorating. There are no native mammals, no snakes, no frogs nor toads, and few lizards. When we compare these islands with Madagascar we must be surprised at the limited creative power of Nature here. The young man told me that the oxen were keen on eating the young shoots of a shrub, but which kills them irrevocably. I recollect having read in Burkhard's *Travels*[7] that camels also liked a plant, which was always deadly poison for them, so that a trade-route, on which this plant occurred, frequently had to be abandoned.

24 September

Yesterday a pleasure-trip was made to Ash Island [with] Mrs Crummer, a Greek, her two children, and two very pretty girls, the Miss Reeds, one of them a bride accompanied by her bridegroom, and Mr Bolton. The weather was very favourable, warm, but moderated by a fresh sea-breeze. In the estuary of the river, there are several islands of considerable extent, all of them very flat, like both the river-banks, and only slightly elevated above water-level. *Avicennia* and *Aegiceras* crowd into the water, covering the banks, so that you glide along between two thick, green, hedge-rows on the clear wide sheet of water.

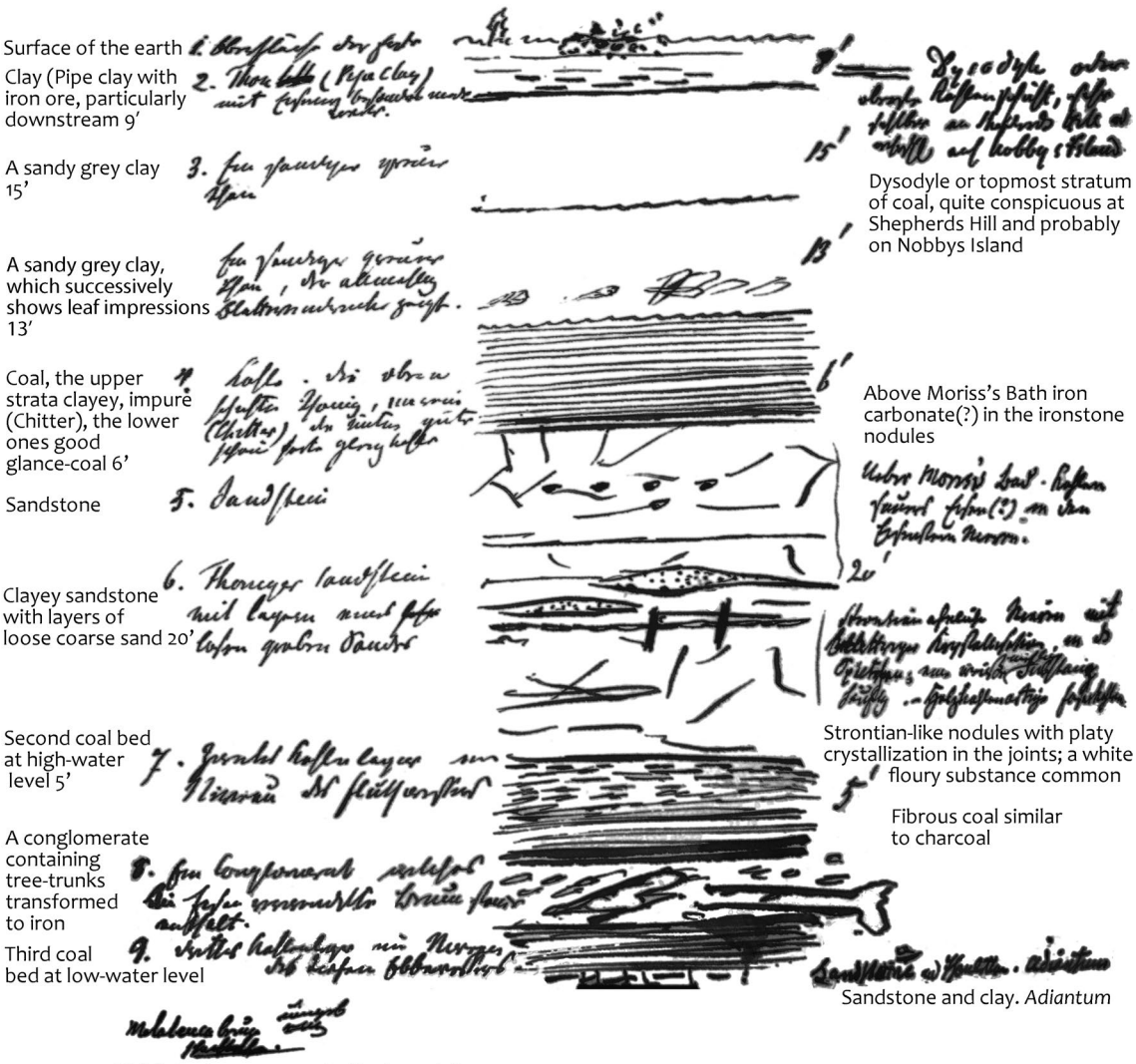
Mosquito Island is of considerable extent, perhaps about 2,000 acres, but very swampy and not suitable for cultivation. Ash Island, the property of Messrs Scott, is higher with excellent black soil without swamps. Since the elevation over the river level is so slight, these islands are subject to flooding, but since the river is so extremely wide, the flooding is only a few feet; some of Mr Scott's buildings are built on 2½ ft piles. Mr Scott has given particular attention to the growing of oranges, and the trees are extraordinarily fresh and strong, although many of the trees are infested partly with black fungus and partly with *Coccus* (scab). Mr Scott said that the fungus did little damage, because it was peeling off as a black film, leaving the surface of the leaves fresh and dark-green. But the scab is a real pest and many remedies against it have been suggested. I think one should look for and observe the natural enemies and encourage them as much as possible. Among their natural enemies, for example, are the chrysomelids, which are insectivorous (living on other animals) both as larvae and fully developed insects.

We made a little excursion through the bush. It is wild, just as it sprang from the womb of Australian Nature. There were fallen-down melaleucas and fig-trees, which wreath dead and living with strong tendrils and are the causes of death for their bearers and perhaps for their own. The wild vine, *Tecoma* (*Clematis*), and many other woody, climbing shrubs spread out around and between trees, making our advance extremely difficult. *Polypodium confluens* and a related species were climbing up trees, and *Achrostichum* grew rankly on them wherever thick branches caught some moisture between themselves and the trunk. {The fig-trees show very interesting features. They can grow up independently, forming extraordinarily shady trees of medium height. In the bush where the plant is probably seeking air, if the trunk is too weak to support the crown and leans over onto a neighbouring tree, it fastens itself on to it with roots; which penetrate into the bark and often hang right down to the ground. Gradually they become stronger, like branches climbing down, and grow together with neighbouring ones so they often form a thick wicker-work round the tree trunk. Mr Scott assured me that he had seen a perfect tube, the inside of which was rotting away)}

It was late when we returned. A sparkling sky stretched out above us, and the clear river, bordered by dark clusters of trees, reflected the bright constellations in the rippling waters. At half past eight the moon rose and cast a new spell on the scene.

25 September

I made the acquaintance of two clergymen, Mr Wilton and Mr Bolton. The former has collected zealously, but without knowledge of the objects he was collecting. The latter was educated in St Petersburg, speaks German quite well, although too slowly and clumsily. Once he was rich, now he is poor and needy. Mr Wilton reminded me of Mr Clarke, whose extensive knowledge he lacks. In the afternoon, I investigated the geological conditions of the estuary, opposite Nobbys Island. There were some points of considerable interest here. The strata are in the following order:



The clay of the uppermost stratum is often of such pure whiteness that the soldiers use it to whiten their belts. The lower strata of the top coal-seam contain beautiful coal as well as those of the second seam. The third, which is only visible at very low tide, contains the best quality. The sandstone in 5 and 6 is also worked and the sand of No 6 has been used profitably at Mr Scott's iron-foundry. At the moment a causeway is being built from the mainland to Nobbys Island, and convicts are used for this work, which will be of great benefit to Newcastle.

As far as I could see the strata of Nobbys Island correspond to those of the mainland, but I was told that protruding pockets of hard rock (trap) had altered the order of the strata.

The impressions of leaves (I no longer doubt that they are ferns) are particularly numerous in the clay (which becomes quite soft when it rains) on top of the upper coal-seam. Above the third coal-bed there is a conglomerate containing trunks of trees altered into iron-stone. I immediately saw the close conformity with the structure of wood, but some strangely

twisted specimens were so similar to ropy lava that I examined them very carefully before I was certain of their tree-nature. The trunks are of different sizes, slightly compressed, and usually with a deep furrow on one side, which makes the cross section kidney-shaped. Often it is the stem of a tree, often branches, often also the upper portion of the roots. They lie in various directions, having drifted there when the conglomerate, in which they are found, was forming.

I must also mention that at the very top, above the top beds of white clay, there is a conglomerate which has a great resemblance to the one further down. In fact this conformity has made me believe that the lower conglomerate with the tree trunks had been only deposited later in one spot in a hollow of older rocks. I am not yet completely certain about this, as I have seen neither its roof nor its floor clearly, since the contact points were covered with sand.

With regard to animals the sea-shore was no less interesting. Clumps of ascidians grew in the rock crevices like cabbage-stalks. Broad chitons, red and multicoloured sea anemones and alcyonarians were everywhere.

I was told that the aborigines caught crabs (*Palinurus*) between the crevices of the rock.

When I arrived back home, Mr Scott was talking to a young Aborigine. The boy was well-built, though very slim; his features not unpleasant, although his protruding eye-brows, white eyes, broad flat nose, and broad mouth could hardly be claimed to be beautiful. The forehead was wide and well-curved, and the hair nicely curled and jet black.

Mr Bolton, a customs-official, had shown me his skulls of Aborigines. They had nearly all the characteristics that I have noticed amongst the Moreton Bay savages, only on a reduced scale. There was a number of interesting indentations on the outer surface of the skulls of the women, which result from blows, which the men rain on the women. That portion of the women's temporal bone, which is behind and above the ear-hole is strongly vaulted (this part corresponds to Gall's Destructiveness). The men without exception lacked the right frontal incisor, which is broken off as a sign of full manhood at a certain age. It is amazing what hard blows on the head these savages can stand. Mr Bolton told me that they confer blows on each other with their waddies freely and in turn. Their addiction to drink, however, destroys them, and they disappear like the snow from the mountains in the summer sun.

[Letter in English to Robert Lynd, 26 September 1842. Aurousseau, 1968: 525-526.]

27th September

Yesterday I was invited to a child's baptism. There I met a middle-aged gentleman named Robertson, who has rambled much about the globe, seen a great deal, and committed many a foolish prank and finally was reduced to great poverty. I was greatly attracted by his clever conversation and his sound knowledge. He gave me amusing information about the camel and shared my opinion on the expediency of their introduction into the colony. With regard to the selection of coolies (labourers) it was necessary, he said, to consider what parts of a country they come from. The highland coolies from the Himalayas are stronger and better suited for the change to this region. The coolies of the lowlands are weaker and accustomed to a very warm and uniform climate.

When we got home Mr Scott told me what type of man Robertson is, and I was distressed to find such good knowledge and so much experience not reflected in the moral character of the man.

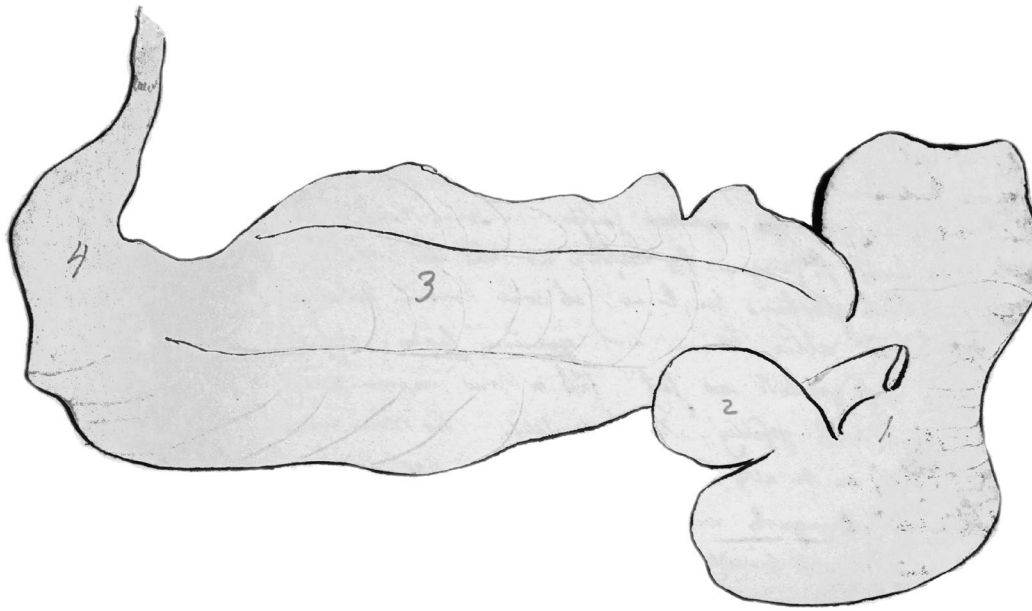
28 September

Yesterday I made an excursion to the Valley of Palms, a name which Mr Wilton, clergyman of Newcastle, has given to a wild, romantic, wooded gorge where each rocky crevice and each boulder is covered with an exceedingly luxuriant vegetation. From Shepherds Hill, above Newcastle, we enjoyed a romantic view over the Hunter River and some of its islands across hilly ridges and valleys, which cross-cut each other rather irregularly. Shepherds Hill is covered with *Westringia rosmarinifola* and *Melaleuca juniperoides;* both plants form isolated elliptic masses of scrub, which offer a peculiar sight. All the hills around Newcastle are covered with good thick turf, which is formed partly from couch-grass (*Cynodon*) and partly from fescue-grass (*Festuca*), and a fine-bladed grass. We descended to the sea and walked along the shore, which is covered partly by fine sand, partly by sandstone boulders, but also shows large level areas of hard sandstone. The three coal-seams, and later on even a fourth were visible everywhere intersected by the tall vertical rocks. There were frequent deposits of ironstone, which are perhaps sufficient for quarrying.

As we made for the Valley of Palms, a stark-naked Aborigine was coming briskly and nimbly towards us. His forehead was adorned with a white ribbon, round his bare waist was slung a sort of apron, and over his arm hung a small coat. In one hand he was holding his waddy. The proportions of his body were agreeable. His limbs were thin and the muscles did not stand out strongly, but neatly covered his bones, giving the limbs appropriate roundness. There seems to be the same difference between Blacks and Europeans as there is between wild animals and tamed domestic animals. We asked him his name, and he replied he was called Moses. He was going to catch crabs among the rocks washed by the sea. After casting a scrutinizing glance at us, he asked whether we had any tobacco. He was an old grey-haired man, but his chest was well-formed and broad, he had fine hands and feet, his features were pleasant, slightly melancholy. He reminded me very much of old Becquerel in Paris. When we were returning later, we met the same Moses. He was carrying a small bundle on his head and as he walked past, waving his waddy at us, he greeted us amicably with *good bye*.

From the sea the Valley of Palms is shut off by a low sand dune, but as the sea washes over this sandhill in stormy weather, the valley-side is filled with sea-water. At the entrance I found *Renealmia umbellata*. Further up I found a great many new plants; the most interesting ones were, however, the ferns. *Notholaena pumilio*. A large number of creeping polypodia, which grew partly on rocks and partly on trees. Wonderful specimens of *Asplenium nidus*; the young plants reminded me vividly of the impressions of leaves in the clay above the coal in Newcastle. *Aspidium* or *Nephrodium*. In addition I also found many monocotyledonous and dicotyledonous plants.

The dog caught a wallaby. It was a male. We examined the stomach and found a great similarity between its various sections and those of ruminants.



1. Consists of two bags, to which 2 is attached like a pocket. A thick wrinkly epidermis covered the walls. 3 was like the large intestine of horses, bound up into pockets by two sinewy ligaments; the epidermis was thinner; the contents of this stomach were much more digested, whereas those of the first stomach were still rather coarse. 4 was covered with a mucous-membrane, the mucous secretion could be seen; the food was very fine and already like chyle. In the second and third stomachs there was a large number of intestinal worms.

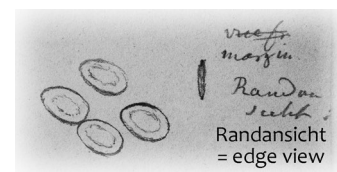
We killed a black snake; its back was black, its belly reddish white, about 4 ft. long. It was trying to hide in a water-filled hole, as seems to be the case with most snakes in New South Wales.

Mr Bolton had brought along beef steaks, which were now going to be cooked in a very simple way on the solid rocky bottom of a most charming glen. A big fire was lit, dry sticks of wood were laid across it like a grid, and then the steaks laid on these sticks. Then we ate the steaks as well as the liver of the wallaby with a hearty appetite.

30 September

Yesterday's excursion yielded me some good observations on the four coal-beds. Crystallized iron carbonate in the *Adiantum* impression. On Shepherds Hill I found a great many little plants forming the sward. Behind the buildings of the Coal Company I found *Loranthus* germinating. I do not feel well. The changed mode of life makes me very susceptible to diarrhoea. I feel weak and exhausted.

The blood of a *Scincus* showed the little oval discs centred round the core. They are two and a half times larger than those of humans. It is possible that the inner core is an illusion. They are quite transparent, since one can easily distinguish the outlines of a little disc lying under another one.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= edge view

1 October

A short excursion to South Head. I found beautiful *Calamites* or *Equisetum* in the sandstone No 6. A layer of separate or continuous tabular nodules, which to me looked almost like strontianite. In the crevices there were tabular crystals, also a white substance like kaolin was found here. Some carbonized tree trunks with an efflorescence of iron pyrites stood vertically on this layer. Under it there was genuine charcoal (?) bedded in the sandstone. This charcoal is extremely peculiar. The soldier in charge of the inspection, an Irishman, was again right on the spot to help us. He is a friendly, very clever young man. He showed me the dam that leads across to Nobbys Island. An extraordinary project! All around the mountain the stone had been quarried and tipped into the sea. However, they had now discovered a beautiful hard sandstone (No 6) and quarry from it huge blocks, which are lifted up twenty to twenty five feet by two cranes and then carried by small wagons on iron rails to the end of the dam to sink them into sea. The biggest blocks are of course laid towards the open sea, which dashes against and across them with enormous vigour in an easterly or south-easterly gale. Since the sea is fairly deep here, the work is progressing only slowly; another three years might be necessary for its completion.

2 October

When I arrived at Newcastle, I had to completely alter my simple mode of life. As Mr Scott rises very late, I had to wait till ten and even eleven o'clock before I could have my breakfast and this was usually so rich and so plentiful that I went without difficulty until seven p.m. when dinner would be served. I not only ate a larger quantity of meat, but also drank more wine than was good for me. The result of this altered mode of life was an unusual susceptibility to diarrhoea, which troubled me for a long time. {Bathing in the sea and washing in cold water showed a very good effect. 18th October.} My complexion turned pale and yellow and I felt terribly exhausted. This induced me to resume my old habit of washing my body on getting up. A quarter of an hour walk from Newcastle, on the flat rocky sea-shore, there is a regular quadrilateral depression, which is connected with the sea during high tide, but it is like a calm bath tub at low tide.

In one place it is just deep enough to have a little swim. The rock wall to the west protects the bather from the land-wind, which still blows strongly in the early morning. I thought I must avail myself of this good opportunity. I have enjoyed a really refreshing bath twice and I feel much stronger. The spot is called Moris's Bath and it really looks as if man had a hand in the construction of this bath. {It was blasted by Captain Moris [Morisset].}

Mr Scott treats me very hospitably. But the man himself does not conduct a quiet, cheery, enjoyable life, in quiet pursuits, nor even in respectable, steady business activities. He is an erratic genius, as he once called himself. Ever restless, he roams about all day from place to place, as often as not without purpose, often making new plans and forgetting the old ones in doing so. On the north shore he has a salt-works, an iron-foundry, and a smithy, but instead of closely supervising his men or lending a hand himself, his restless mind drives him out of the house onto the street and from the street into the house. He is a strange character: I know that on first impression he strongly reminded me of my brother Herrmann. He is exactly the same easy-going and easy-to-get-on-with, humorous type, but he is not sincere, jokingly adopting untruthfulness to his purposes. Several times we talked about religion. He said one should go to church to set a good example. I have always found that people, who go to church for the sake of the

example, certainly have no religion, since religion inwardly urges them to church and never allows a sophistry of this kind to arise. It is more an example of religious hypocrisy.

When I visited the establishments on the north shore and later on Ash Island, I saw on the one hand that a man like Mr Scott would never be able to make either the one or the other really profitable, whereas a man or rather two men, who persevere and are industrious and lend a hand themselves, could make both establishments extremely profitable. I am reflecting on the possibility of establishing myself here as a leaseholder or landowner; the situation of Ash Island is very advantageous for shipping the products to Newcastle and to Sydney. I was about to tell Mr Scott about my intentions, but discretion stopped me. I said to him once that I was convinced that the cultivation of Ash Island could be better carried out and that I believed I could pay myself through a good share of the increased profit. This occurred in the presence of Major Crummer, and both he and Mr Scott raised a host of objections. Later I spoke to Mr Bolton. This intelligent young man has plenty of experience, which was now very useful to me. But as I grew more familiar with Mr Scott's unstable character, I realised that I would benefit little from closer relations with him, particularly in matters of money, and that if I really intend to become a landowner I would have to turn either to other landed proprietors or to the government.

[Letter in English to Robert Lynd, 2 October 1842. Aurousseau, 1968: 526-528.]

3 October

Yesterday afternoon we went fishing among the sandstone boulders, from which the sea had receded during low tide, while in the low-lying parts in between there was still water. Hardly had Mr Scott sunk his fishing-line into the water than a fish took it, which we caught. It was a rock cod, which seems to live on bladder-wrack in the deep holes. Mr Scott soon caught another very big one, but which fell off the line and escaped us.

3 October

Carried on from September 28. The wind comes from the south-west. There is a faint haze: in the west the sun is setting over the islands of the Hunter River, in front of me – in the east and south – lies the expanse of the sea, whose roaring reached me from the depths. Around me there are *Westringia* shrubs; dwarf *Pimelia* and small species of *Xerotes* in the sward. Just now a steamship is ploughing its way through the sea like an ant.

8 October

On Tuesday Major Crummer, Mr Bolton and I went over to the north shore and landed near the home of Mr MacDonald, who has leased a considerable property from Cpt. Holingworth. We put our provisions on a pack-horse and persuaded MacDonald junior to accompany us with another horse. The first part of our journey was very pleasant. A clear forest, or shrub land with bigger *Eucalyptus* soaring up here and there, the *Corypha* with its slender stem, thick grass or ferns, climbing plants, which covered the tree or bush bearing them with their dark green foliage and often with fruit. After proceeding three miles the scene changed, however. To the left there was an extensive swamp filled with tall sharp-edged grass and ferns, with a swamp *Casuarina* here and there. To the right rose sandhills, which were partly covered with *Fabricia laevigata* and some other shrubs, but partly were composed of loose white sand, similar to a desert. This was particularly the case at a spot, which had been named Hell. Everywhere at the foot of these hills, water came out feeding the swamp and during the

drought of great value for the grazing herds of cattle. Further on the sand was covered by a richer vegetation. Instead of a single line of hills, there was a slightly undulating surface with better soil and with many mussel shells in it. For these reasons this soil appeared to me to be suited for the growing of the grape-vine. On the one hand it was a slightly calcareous soil with sufficient humus and on the other it was also easy to cultivate, and thirdly water was found everywhere at a depth of 3 to 4 ft. I am also convinced that by letting the trees stand, the young plantation can be protected against parching winds. Captain Crummer's property consists partly of those hills, but partly of the north-eastern end of the great swamp, which is covered with a thick *Carex* sward. The cattle thrive very well on this pasture, and Major Crummer intends to start a dairy farm here. His men live in some huts built of boards and bark.

We arrived at one of these miserable huts on Tuesday night, tired out, and tried to make ourselves as comfortable as possible in it. A big fire was lit immediately; the food was prepared, and before long we were sitting and squatting round a small table fervently restoring our strength. It was funny to see with what little household gear man is able to manage if he must, and one cannot help thinking of Diogenes, who threw away his spoon when he saw a peasant scoop and drink water with his hand. We had two little benches, each seating two persons, who had to hold the balance in such a way that, if one rose without warning the other, the latter would immediately tumble over with the bench, plate, spoon, knife, and fork. For the night a soft bed of grass and ferns was prepared. Tired as we were, we would have had no need of the infinite silence of the bush night to enjoy a good sound sleep. But we had not that quietness so often mentioned by the inhabitants of the dry bush: the neighbouring swamp held a legion of frogs and under the grass there lived and chirped a host of merry crickets. The following morning it was very cold on our simple beds and a heavy dew had fallen. The servant came to light the fire for breakfast and soon we were on our feet again.

A great number of birds were to be heard from the dawn of day. The postilion-bird, which gives a single long swelling note, the bellbird, which indicates the proximity of water by its full sounding call, chattering parrots, which were squabbling with and chasing each other from tree to tree, the large wild pigeon, and the wild duck were all astir around us in great numbers. It was a hot day; no puff of wind found us, shut off as we were from the refreshing sea-breezes. I botanized and found a *Loranthus* unknown to me. The next day we returned to Newcastle. Three black snakes were shot dead and a brown one, which is considered to be far more venomous. The black snake has perforated poison-fangs and a very large poison-gland, but its bite, although of very great consequence, is said not to be fatal, if the requisite remedy is taken immediately.

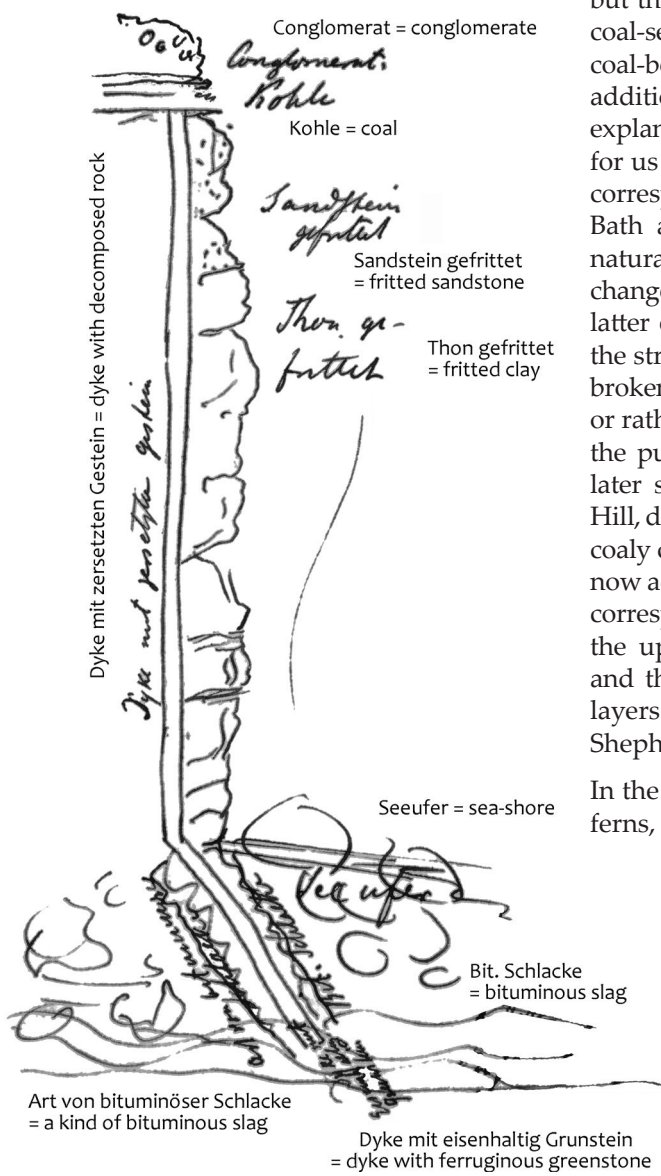
Afternoon.

I have just returned from Nobbys Island. This island or rock is about an English mile from the southern head of the estuary, almost halfway between the north and south heads, only a little further out to sea. By its precipitousness and its sharp contours, it gives the harbour its peculiar character. For ten years they have been busy connecting this island with the mainland by a stone causeway in order to protect the harbour from south-east winds, which usually cause a very high sea in it.

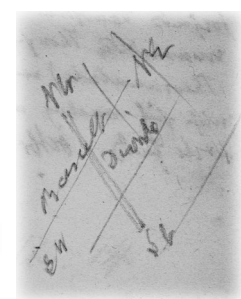
The base consists of indurated clay to a considerable height (50′ and more), which shows a fine splintery jointing; the recent fracture is a light grey, the surface greenish. Above this clay there is sandstone, also indurated; above this grey clay with *Equisetum*

and ferns; and finally several layers of coal and directly over them the conglomerates.

All these strata are traversed by a vein of greenstone. The greenstone itself has changed into a clayey rock, not only where it is visible in the strata raised above sea-level, but also on the shore itself. Where it is submerged by the waves, it is completely fissured and the surfaces of the fissures are covered with iron. On the sea-shore it is lined on each side by bituminous slag. This bituminous slag is a mixture of the rock and the coal, which was, as it were, carbonized by the heat. When we look for the corresponding strata on the mainland, an explanation seems difficult and open to argument. Above Moris's Bath we find indurated clay on the uppermost coal-seam: there this clay is also covered by conglomerate; but there it is above, not under the uppermost coal-seam. We must therefore accept a fourth coal-bed, which is nearer to the surface in addition to the three known ones, or drop that explanation altogether. Nothing further remains for us but to accept that the existing coal-seam corresponds to the lowest coal-seam at Moris's Bath and that the clay-strata, which we see naturally or not at all at Moris's Bath, were changed into a thermantide by heat. I prefer the latter explanation. It is natural to assume that the strata above the lowermost coal-seam were broken off by the sea raising such small masses or rather by the force of this upraising and that the pudding-stone was deposited on top at a later stage. {After another visit to Shepherds Hill, during which I noticed an upper stratum of coaly clay right underneath the conglomerate, I now adopt Clarke's opinion that Nobbys Island corresponds to the upper part of the series i.e. the upper conglomerate, the first coaly clay, and the following sandstone and altered clay layers (thermantide), analogously found in Shepherds Hill. 14 October).}



In the coaly clays I found very fine *Equisetum*, ferns, and perhaps *Calamites*.



***The Indian's Prayer**

Let me go to my home in the far distant west
To scenes of my childhood in innocence blest
When the tall cedars wave and the bright waters flow
Where my fathers repose. Let me go let me go.

2

Let me go to the spot where the cataract plays
Where oft I have sported in boyhood's bright days
And greet my poor mother, whose head will overflow
At the sight of her child. Let me go let me go!

3

Let me go to my sire, by whose battle scarred side
I have sported so oft in the morn of my pride
And exulted to conquer the insolent foe
To my father the chief. Let me go, let me go

4

And oh! Let me go to my flashing eyed maid
Who taught me to love 'neath the green willow's shade
Whose heart like the fawns leaps as pure as the snow
To the bosom it loves. Let me go let me go.

5

And Oh let me go to my wild forest home
No more from its life cheering pleasures to roam
Neath the groves of the glen let my ashes lie low
To my home in the woods. Let me go let me go!
Black Hawk Jr.[8]*

10 October

Very vivid old reminiscences crowded in on my mind when, from my bed of ferns in the night in the bark hut of Telligerry, I saw the dancing flames of the fire reflected on the brown walls of bark. I remembered my journey to the valley of the Mescal[?] and our walk through the valley of the Rhine. The narrowness of the room recalled to mind a pretty French post-coach and the images kept playfully dancing up and down, separating from and rejoining each other in manifold ways, just like the flickering reflection of the fire, until the chirping of the crickets and the croaking of the frogs had lulled my tired mind into a deep, unconscious sleep.

At the desolate outer door[?] of 'Hell' wild dogs, wallabies, opossums, snakes, and lizards had strangely met together. Their tracks converged on one common centre from all directions, and even the snake had left behind it a wriggling line in the loose sand.

[Letter in German to Wilhelm Kirchner, 14 October 1842. Aurousseau, 1968: 528-533.]

18 October

Last Saturday I made a small journey on foot to a cattle station of Mr Scott at the foot of the Sugar Loaf. This is a very important, clearly defined mountain range striking from north to south, which the map of Buckland[9] shows as consisting of trap. Since in the proximity of Newcastle I was not able to discover any trace of limestone, I thought it was possible that the mass of eruptive greenstone might have pushed upwards and brought to light deeper lying limestone beds. From Newcastle accompanied by Mr Bolton, a customs officer, who had been so kind as to promise to show me the way, I traversed a sandy plain covered with low scrub and woody plants, which probably owes its origin to the activity of the sea breaking down sandstone rocks. After passing through a coppice of low-growing *Melaleuca*, also containing, apart from the paper-barked white, knobby *Melaleuca* tree, *Callistemon linearifolium* and *marginatus* with magnificent red flower-spikes, we crossed a plain similar to the first one; however, there now appeared dark alluvial soil, which, rising only a little above the level of the

Hunter, owed its formation to the latter. Ash Island, Buffalo Island, and a number of other islands in the estuary of the river, are of similar formation. Mr Scott told me that he had drilled his artesian well pipes through 96 feet of alluvial soil without striking the rock strata that occur around Newcastle. He also told me that on Ash Island in dry weather the ground is often covered with white salt, which he believes to be sodium chloride. This is, however, not certain, it could just as well be saltpetre, because I think that a soil so richly saturated with sodium chloride cannot be as fertile as that of Ash Island. {I distinguished fine transparent elongate crystals, which I think belong to the "base rectangulare" (magnesium), and a fine powdery coating, which is probably common salt. In the swamps. October 26.}

We now entered the bush, which vividly reminded me of our native oak and beech forests. There are indeed many points of extraordinary similarity. The casuarinas represent the conifers, the stringy bark the beech, and the spotted gum and the ironbark the oak. While the stringy bark has a smooth bark, similar to that of the *Platanus*, those of the spotted gum[10] and ironbark are fissured and rough. The timber of the ironbark is used for fences – a very important item for New Holland's landscape and agriculture, since the fences allow the cattle to be left to themselves without further supervision, thus saving great expenditure on herdsmen. It is of the utmost importance to have a kind of timber that resists the damaging forces of this climate for a long period, and the ironbark (a species of *Eucalyptus*) has this quality to a high degree. {*Melaleuca* is also used for fencing, also *Corypha australis* where it grows. 26th October.} An experienced eye can readily tell by the fissures in the bark whether a tree can be split easily and regularly or not. A suitable tree is cut down and split with wedges in the direction of the medullary rays. Parallel fissures in the bark indicate easy splitting. {Bolton.}

~~I was delighted~~ The trees were of enormous girth and height. Many certainly rose to 120 ft including the branches, the trunk being 80 ft. This was particularly the case in Dark Creek, in which the ground was moister.

At the same time a large number of other shrubs occurred, which I had already found on Mitchell's farm under the same conditions and in the same company. *Eudesmia*, a strongly smelling labiate, {*Prostanthera*.} a *Cassinia*, and in addition several other very beautiful composites. After refreshing ourselves on a dairy-farm with a glass of milk, we crossed the stretch of forest still ahead of us more quickly, reaching Minmy to my pleasant surprise earlier than I had expected, where Mr Scott's Irish overseer kindly invited us into his timber cottage. ~~The soil, where marshy ground does not indicate connection with the river, rested everywhere on sandstone rocks, from whose decomposed elements and mixture with plant matter … a moderately ..~~.

The soil consisted of the elements of the ferruginous sandstone, which formed the basement, and a moderate proportion of decomposed vegetable matter. Though it did not look very fertile, it did provide adequate sustenance for a prolific vegetation of trees. *Pultenaea villosa*, *Chorizema*, several species of *Acacia*, the wattle-tree (an *Acacia* the bark of which contains plenty of tannin), and two/one new leguminous plants form low and medium-sized shrubs. Mr Scott's station at Minmy consists of larger and smaller tracts of swampy land, of which the ones closest to the dwelling are already being cultivated, and of wooded hills, which for the greater part show the previously mentioned sandy soil. Water is available all the year round, and in the winter-time the low-lying land is usually flooded. Reeds grow everywhere and the curradjong [kurrajong], the bast of which

is used by the Aborigines to make mats, is common. *Acmena ovalifolia*, *Eudesmia* (?) and many other plants, which like moisture thrive well. The formation of the surface is interesting here. The sandhills form an almost perfect basin, which, however, is broken through in the south-east where the basin winds round the end of the curved ridge of sandhills. A deeply cut water-course enters the basin from the south, follows this curve and leaves it through the south-eastern opening. Further upstream there is a coal-bed about 3½['] thick. The top part of it is chidder, i.e. a kind of carbonaceous clay; the bottom layer consists of fine solid anthracite.

On Sunday we rode to the foot of the Sugar Loaf. At Cocked Hat clay beds became visible. Mr Scott's second station, which is now abandoned, comprises an extensive plain sparingly covered with *Melaleuca* trees. A large number of *Doryanthes excelsa*, and hundreds of sturdy plants grew by the wayside, particularly on slopes descending towards the moist hollows, often joined by *Xanthorrhoea arborea*(?), which formed a strange and rather peculiar fence behind Mr Scott's station. They were often 15 and even 20 ft high. However, we found only one of the giant lilies, as they are called by the settlers, in bloom. They grow a flower stalk sometimes 15 to 18 ft high. At its top the large dark-red flowers, being joined into bracts in twos, formed a rather short cluster, whose circumference often equals that of two human heads. Where there are hundreds of these flower-heads standing together, they must make a truly magnificent impression. Watching everywhere for trap, we arrived at a gully into which the mountain creek had rolled big boulders during the winter rains. Here everything again was sandstone with large quartz grains, similar to that of Sydney and pudding, in which I again found the porphyry of Pt. Stephens in small pebbles. Nodules of iron were equally numerous. Returning to Minmy I was in a sense disappointed, bringing back nothing save a bad sore as a result of my ride.

Life out in the bush is in a certain way very attractive for many a mind. A young man is left to his own devices; his horse, accustomed to life in the bush, is always at hand; his gun gives him despotic power over animate nature. In a bark or timber hut, which may be partitioned into separate rooms, he will enjoy a huge log-fire merrily crackling and blazing in the big fire-place during cold and bad weather. Here he will also enjoy his damper and his tea sweetened with brown sugar, which are never missing at breakfast, lunch, or dinner. Here the young men from the neighbouring stations gather together telling each other funny jokes, which are unfortunately often of a frivolous nature. The night hovers silently above and around him; the moon, with the full clarity of the sky here, casts its magic light over the clouds and the tops of the thinly-leaved *Eucalyptus* trees. From time to time the deep silence is broken by the screeching call of the opossum, which crawls from its deep tree hollow at nightfall; the owl circles with soft wings around the hut, calling its mates with a broken boo! boo! In the winter-time he is startled at the howling of the wild dog, which is prowling round the fold to carry off an unguarded sheep or calf.

We were disturbed by the constant bellowing of the cows, which had been separated from their calves and were returning from the pasture to the hut and calling for their calves with plaintive bellows. In the morning the herdsman gets up and milks his cows, which he has to catch and then fasten well by the head and feet to be able to milk them easily. This done, he enjoys his breakfast, then gets on his horse and visits the wild wandering cattle. On his return home, he attends to his

business matters, eats his lunch, and then pursues his own inclination; what he does in the evening I already mentioned. Better, profounder minds usually complain about the lack of occupation during free moments. In this regard scientific observation of nature could become the most pleasurable pastime. But unfortunately a liking was seldom directed to these subjects previously, and now instruction is lacking to fill the gap.

Only as much maize and wheat is grown in the bush as is necessary to give the settler sufficient bread. Oats, barley and lucerne are frequently cut and serve as green fodder for the horses and cattle. Only rarely does the settler think of growing vegetables, though these would do so well in this soil. Things are, however, different of course in those settlements where agriculture is the chief industry. The soil can produce plenty; on the Hunter River it is usually rich alluvial soil, which yields rich wheat crops in favourable years. Unfortunately these favourable years are rare, since the lack of rain makes all the trouble of the agriculturist futile. But even this lack of rain could be remedied by artificial ponds and irrigation in connection with them, if only cheap labour were available; but the extraordinarily high wages that have to be paid make any attempt of this kind impossible. It is very disheartening to see such rich properties lying unused, because there is no labour to wrest its treasures from this bountiful nature. On the other hand we see the settlers toiling and moiling for years, living in their miserable huts, without enjoying either physical or intellectual pleasures, always inspired just by the craving to become rich and dispelling any suggestion of nobler pursuits with the reply, "I have no time, I must concentrate on making money." And when they see somebody pay greater attention to nature, their first and ever repeated question is, "What's the use of collecting plants and studying nature: what material advantage can be derived from that?" But since man when he has social contact must have something to talk about and at the same time arousing universal interest, he starts to talk scandal about his neighbours as soon as the topic of oxen, horses, &c. is exhausted. Here at Newcastle there are two parties, which almost fight against each other, of which one sides with Mr Scott, and the other with Mr Reed. The one faction probably ridicules the other, and in this way they while away the time as best as they can.

19 October

Yesterday my dear friend, Mr Lynd, came to Newcastle, and today we once again went on one of our joint excursions. We made for the small garden and tillage allotted to the rectory. Behind it there is a shady, moist valley, where there was a large number of plants, particularly ferns growing. We found several interesting plants in flower and which I had previously seen only in foliage, for instance the beautiful climbing *Lyonsia straminea*. The sandy plain behind the property of the Australian Company is rich in beautiful Myrtaceae. There are *Callistemon salignum, marginatum*, and *linearifolium*. Here is *Melaleuca virdiflora*, *lanceolata*?, *armillaris*?, and *juniperoides*, various species of *Eucalyptus*, *Fabricia laevigata*, *Baeckea diffusa*, and several species of *Leptospermum*.

We have again those north-westerlies, which increase and abate with the sun, which I mentioned a fortnight ago. Yesterday and the day before yesterday it was unusually cold. Today, however, it is again very warm.

26 October

Last Friday we went on foot to Ash Island, which is about 11 miles distant from here, accompanied by Mr Scott and Mr Bolton. The road to Maitland, which we followed,

took us through good timber country, which, as mentioned before, vividly reminded me of oak and beech forests of northern Germany in the shape and distribution of the trees. The dry land, elevated above the water-level of the river, is broken from time to time by swamps or moist low-lying parts, which are covered with the swamp *Casuarina*, *Callistemon* bushes, and various species of *Carex*. These swamps are the best parts of the cattle stations around Newcastle, since they keep the moisture much longer, providing the cattle with good feed and water. When we were approaching Hexham, Mr Bolton shot a landrail (*Crex*). We noticed and collected a new species of *Davallia* on the masses of *Acrostichum*; of which one or several were carried on almost every tree and a new species of *Loranthus*, unknown to us, with sweet pleasant tasting fruits on a *Eucalyptus* tree.

Ash Island is one of the numerous islands in the mouth of the Hunter River. On the one hand these islands have been formed by the finely washed and pulverized clay and sand and particles of humus carried down by the river, and on the other hand by the sands and shells driven up by the tide. These alternating streams are perhaps the very cause of this island building, as the strong water-currents, stopped by an opposing force, now drop the foreign bodies of greater specific gravity floating in them. The western end of the island shows a dark, humus-rich and fertile soil, whereas the south-eastern end consists of bivalve shells and sand. At that end fresh water is found at a depth of 5 ft, whereas in the other parts of the island it is more or less salty (brackish). {The berm[?] is frequented by birds.} On the northern side extensive swamps, thickly overgrown with a species of reed, break up the higher parts of the island; some of these swamps are tinged yellow by iron-ochre and may contain pink ironstone. A sharp grass is common everywhere; the cattle seem to like it less, preferring the reed by far. The whole southern part of the island is more fertile by far and its wild nature is much richer. Mr Crummer has laid out a vegetable garden here, and one old man {the deaf man} is sufficient to produce a good crop. From this garden to that of Mr Scott on the western part of the island, a thick scrub of all sorts of trees and plants extends on the banks of the river. The latter are mostly parasitic species of orchids and ferns; the fertile soil is perhaps too shady. However, *Hydrocotyle*, *Notolaena*, *Pteris*, and a number of other plants grow here.

Among the conspicuous trees and plants are the *Corypha australis*, *Acrostichum alcicorne*, a most interesting *Ophioglossum* {The *Ophioglossum*, like the *Davallia*, grows in the half decomposed seed-leaves of the *Acrostichum*.}, *Capparis*?, the parasitic fig-tree, *Lyonsia straminea*, the Australian vine, the Australian apple, *Ripogonum*, the nettle-tree, which, however, I have seen nowhere for certain except for a young specimen. A beautiful *Croton*? is common; a fairly big tree with red berries, probably belonging to the celastrines, the native plum, which seems to me to be a *Myrsine* (but is not a *Myrsine*).

Although a long-lasting drought and north-westerly winds have done very great harm to the vegetation on the banks of the Hunter River, the garden plants on Ash Island are fresh and vigorous. The orange-trees, of which Mr Scott has about 1200, delight the eye with the deepest and freshest green, and the vine pushes out extraordinarily luxuriant shoots. This is probably due to the clayey subsoil, which retains the moisture for a long time, only gradually yielding it to the top part. *Cocus hesperidum* is extremely troublesome. I poured a solution of copper sulphate on one tree and a strong solution of common salt on another in order to cauterize this insect. The latter usually causes the fall of the leaves, but the new foliage is free of the pest.

In the evening, shortly after sunset, a grating noise in the orange-trees aroused our attention and curiosity. At first we thought it was produced by a frog, therefore we were not a little surprised to find a cicada inflated like a bladder. At the hindmost ring of its thorax it had a kind of drum on both sides, the structure of which I shall examine at the next opportunity. After one or two hours of uninterrupted grating, it became more broken, and it was answered by a less loud but similar call, probably that of an approaching female. Shortly after they were silent for the rest of the night. Apart from this grass-green cicada, which even the sharpest eye could hardly distinguish from the surrounding mass of leaves, the silence of the evening was animated by two other crickets. A large owl frightened friend Lynd. Mr Scott tried in vain to shoot it.

The lizards, which go hunting insects among the low grass, are dark and resemble the tilled land, but they seem not to be specifically different from the small *Lacerta* in the Government Garden in Sydney. Black snakes are common, but I have not seen any. They escape quickly as soon as they hear footsteps, and you are perfectly safe if you beat the grass in front of you with a long stick.

When I came to Newcastle facing, after a long time, a more rustic kind of life, my mind was vividly preoccupied with the images of former times, with reminiscences of former happiness, and I was seized with the desire to settle here and try my luck. I had sanguine hopes and I was confident of achieving great things. But as I became gradually more acquainted with the circumstances, I saw that the social conditions were deplorable, that envy, jealousy, and hard-heartedness did not allow one to think of a friendly community life, and that the most persevering industry would not suffice to gain a comfortable independence, because of the lack of labour and the high cost of wages. This cooled me down considerably. On the other hand the progress, which I made in the knowledge of nature, stimulated me exceedingly to more extensive endeavours. I wished to extend my journeys and to see other parts of the colony, so I resolved then to use the money, which I had in the savings-bank for scientific purposes and to earn my daily bread otherwise only if compelled by necessity. This morning I saw a horse, which seems well suited to me and which I shall probably buy. The owner is a young man, who came out with me from England. I did not recognise him at first, but later he told me that he had travelled as a steerage passenger because of his poverty. His name is Calvert. His brother-in-law owns some land here, but he went bankrupt and his property is unfortunately of little value.

On the south-eastern end of Ash Island, which is surrounded by salt-water, and which has no natural springs, Mr Scott had caused a 6 ft deep pit to be dug in which a little fresh water collects. Hornets and wasps flew from all directions to this fresh-water pit, and little birds were not deterred even by our presence from flying into the pit in order to quench their thirst.

On our return to Ash Island, we called at Mr Crummer's garden at Cobham. The old deaf gardener was sitting before his timber hut, carefully cleaning the dirt from a wound on his finger. He had not noticed our arrival, and we five grown-up people stood around him watching what he was doing as attentively as he was watching his hurt finger. Finally I knocked my stick against the bench. He looked up at us, quite astonished for a moment; then recognizing Mr Scott he touched his straw-hat in salutation and invited us to sit down on his bench.

[Letter in German to William Nicholson, c. 26 October 1842. Aurousseau, 1968: 533-553.]

I have just returned from the north bank, where the ripe white berries of *Leucopogon richei* refreshed me and the beautiful flowers of the *Ipomoea* delighted me. The plant climbs up low trees and then spreads all over them. Numerous splendid violet flowers cover the green intertwined bush, which so adorned creates an agreeable impression all the more considering it appears here on sandy soil and among a poor vegetation. Where *Pteris esculenta* and *Melaleuca viridiflora*(?)/ *juniperoides* with its membranous bark grow, there is usually little to be had.

It was interesting to observe the shoots sprouting forth from the young wood around the perimeter on the remaining trunk of a felled *Casuarina*. They do not come from the medulla, or from the medullary rays, as far as I could see.

Suddenly I was startled by an iguana running away. A little later when I stopped at an open place, it came forth from under the bushes, but as soon as it saw me, it stopped and when I moved my head slightly, it quickly ran away terrified. It might be 6-7′ long.

The diversity of the ants astonishes me more every day. If I were more skilled in the art of drawing, I would prepare a monograph of the Australian ants. Today I found three different families together on the same tree trunk. Very small black ones in company with very large ones. A small green metallic species seems to sting.

Besides a *Hieracium*(?) and an *Epilobium*, the petals of which were rounded, I found an unknown tree with ternate flowers.

Under the bark of a *Melaleuca* I caught two brown beetles with long comb-like antennae, which when caught, not only gave a strange sound, but also excreted a yellow liquid, which had a peculiar smell.

[Letter in English to Robert Lynd, 11 November 1842. Aurousseau, 1968: 582-585 and letter in German to Dr W. J. Little, 12 November 1842. Aurousseau, 1968: 586-592.

23rd November 1842

~~My dearest William~~. (It is not urgent enough for a letter).

Yesterday I safely arrived back at Newcastle from a walking-trip to Lake Macquarie and to Brisbane Water. People had raised many objections against the undertaking: the heat, the lack of water, the distance between the isolated settlers, and the poor accommodation for the night, which is found everywhere. Moreover a man, who was commissioned by the government to collect the quitrents accompanied me. Such a man is never liked by the colonists, my friends said, and I would be made to feel that too. But all this did not put me off, and at 5a.m., on the 14th November, we left Newcastle on foot in a cheerful mood. My companion was a fat man, who wanted to walk himself a little slimmer; he was the postmaster of Newcastle, auctioneer, and commissioner. He was experienced, well-travelled, communicative and of ever cheerful disposition. I had given him to understand that he would have to put up with my scientific objectives a little, although I anticipated that they would bore him after a while. He showed, however, enough scientific curiosity that I generally appreciated him very much for that. As we were walking along the lightly wooded track behind the buildings of the Coal Company, we sighted a wallaby, which was browsing on the grass while hopping along, but when it noticed us, it flew away in long bounds. *Melaleuca thymifolia*, with its violet flowers, was in full bloom, and the air was filled with the perfume of honey from a *Leptospermum* with a shaggy calyx. The *Melaleuca* and *Leptospermum*, and the *Calothamnus* have a very pleasant sweet smell in general, while

other plants lack it, as I noticed repeatedly. {*Leptosp[ermum]. with broad ovate leaves, oblong, blunt, mucronate or not, 6‴ long, 4‴ broad, a little tree, bark separating in long ragged strips or bands.*} The clear whistling of the bellbird indicated that we were in the vicinity of water. Many times during our often exhausting travels, it cheered us up by its simple call. The birds here have much more varied calls than in the vicinity of Sydney, they enliven the forest. The singing of one of them is very much like that of the finch. The laughing jackass amused us with its loud gobbling, teasing call. The cattle station, which Mr Fenwick holds, has plenty of water and in the few lean years is rich in fodder, but at present the poor beasts are so emaciated owing to the poor pasture that they can hardly give milk. In the oppressive heat of the day, they rush into the swamps to quench their thirst in the remaining pools. In doing so, they sink up to their bellies and, as they are unable to get out of the mud again, either starve or perish of thirst, unless they are eaten alive by the wild dogs, for the latter, prowling about the herds by day and night, soon notice where strength for defence is wanting and form into packs up to six and chase the weakest cattle or calves into the water and then pounce upon the floating animal until, exhausted by the loss of blood, it finally falls as their prey.

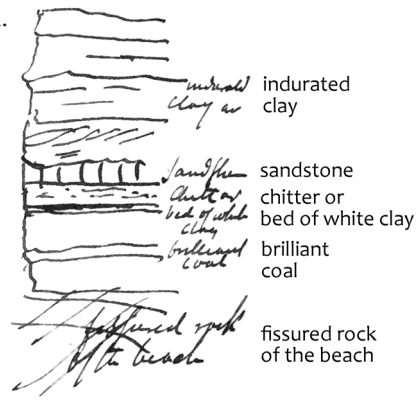
We now walked, always along the high ridges, from both sides of which valleys and gullies descended on one side to the Hunter River and on the other to the sea. I earlier described their indented and basin-like shape, which seems to have originated from water during violent downpours. The ridges from Newcastle to the Lake are almost without exception covered with conglomerates. The same conglomerate is found on the other side of the lake up to Newport and almost as far as Brisbane Water where the sandstone, corresponding to that of Sydney, becomes, however, more general and supplies very good building-stone at West Gosford. On our mountain track, where we saw ourselves constantly surrounded by bush, *Eucalyptus* and *Casuarina* and low brushwood of *Pultenaea*, *Daviesia* and *Chorizema*, a sapling of the white cedar, which normally prefers moist, fertile ground, surprised me. *Zamia* grows in abundance everywhere. I was delighted to see *Blandfordia grandiflora* with its beautiful, large, hanging, red funnel-shaped flowers here on this sandy soil among shrubs of *Leptospermum*. *Lambertia* also occurs here and *Persoonia falcata* is very common.

Shortly before our arrival at the lake, I noticed coarse-grained sandstone, which to all appearances is of limited extent. It is possible that this sandstone corresponds to that below the first coal-bed. The lake itself is surrounded on its western side by a zone of peculiar fresh vegetation – all of it trees and shrubs, which I have not yet classified. I must mention here a *Persoonia* with lanceolate-linear leaves and slightly compressed fruits, which seem to indicate a different species.

Mrs Brooks received us with great hospitality. She treated us to plenty of milk, killed a turkey, and served us home-made ham, whose excellent quality they could both be rightly proud of. The meat is first salted and peppered and remains in brine for some time, then hung up in the chimney for smoking.

Mr Brooks showed me his coal-bed on the shore of the lake. The site and position of the rock corresponds exactly to those at the entrance to the Valley of Palms and at the entrance to Lake Macquarie (South Head). The coal rests on a broken, blue, clayey sandstone or sandy clay, and consists of a lower 2½′ thick seam of anthracite, which is separated from the upper useless carbonaceous clays by a 2″ thick bed of white clay. On top of these there are fritted sandstone and clay deposits. Among the coal

are many impressions of leaves, which are not different from those of the second bed at South Head.



The garden is well kept, and the fruit-trees are doing very well. The wine would be richer, if Mr Brooks had not left too much wood on the vine. On the jasmine foliage I saw the first *Citysus laburnum* in the colony. His peach and almond trees also have little fruit. He told me that one of his young trees, which stood in full bloom in the morning, had withered by night-time as a result of the burning sun. It should be mentioned that a loquat tree, which he planted at the same spot had also withered.

Mr Brooks told us that during the rainy season a chalybeate spring comes from underneath the conglomerate almost at the water-level of the lake. The native plum had strewn its beautiful large plum-like fruits over the ground. Mr Brooks told us that the savages bury them in the ground for three days and then suck out the juice, without swallowing the coarse parts, because these cause abdominal pains. I did, however, eat the fruit and the probable result was that I suffered from a violent stomach-ache on the following day. I also want to make mention of two beautiful strong dogs, owned by Mr B. which were very savage and frightened even their own master.

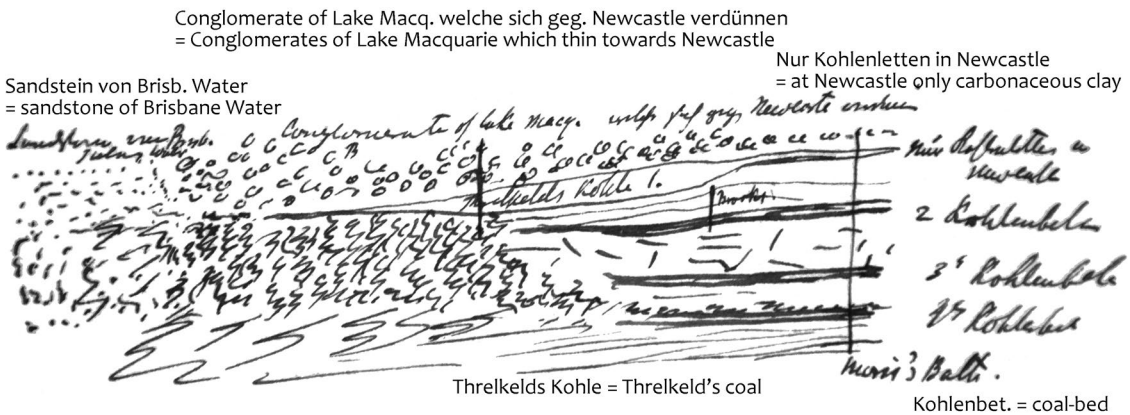
After a distressing night, during which the bugs did not give me a minute's sleep, we waded through the lake at a spot where many flat islands rose just above its surface. We saw a fish, which had been hidden in the mud and, as it heard us, speedily shot away, churning up the mud. A *Pittosporum* and a *Plumbago* (if I am not mistaken) were found on the Brooks' side of the lake.

We lost the track, picked it up and lost it again, and after an arduous journey in the oppressive heat of the sun reached Mr Threlkeld's property, where I was most cordially welcomed by my old acquaintances, Mr Davies and his children. We killed a black snake, which had been pretty close to Mr Flood and had probably not been roused by our footfall. On a *Eucalyptus* tree, in a cavity formerly the base of a branch, which had broken off and rotted away, I found a beautiful unknown orchid with long grass-like, ribbon-shaped leaves and hanging flower-spikes. {*The leaves were 2′ and more long, 4‴ broad, acute, sheathing at the base, distich, flowers in racemi of about 9″ long with a fine spicy honey flavour, of greenish colour. (Ochroleucon) the upper lip cut in; the labellum oblong blunt articulate. The Center purple coloured. Anthers therminal, the pollen one simple[?] 2 lobed. *Cimbydium suave*?*}

Lambertia was the only plant, which refreshed us with its rich honey. The Australian countryside is too poor indeed in nutritious tasty plant products. The few, which are edible, give only little satisfaction. On a water-pool, about 2 to 3 miles before Threlkeld's, *Callicomis* was in bloom, a beautiful legume (perhaps a *Gompholobium*), a narrow-leaved *Leptospermum*. *Calothamnus* seemed to have a different leaf here. The *Doryanthes excelsa* and another species of *Xanthorrhoea* with a very short flower spike grew in large numbers everywhere. Old Davies took me to the shore of the lake, where I found conglomerates outcropping, alternating with fine-grained sand. The conglomerate contained pebbles of porphyry, trap, and another volcanic rock, and indurated clays. An efflorescence

was seen mainly on the sand, which Clarke regarded as saltpetre; which to us, however, seemed to taste more of magnesia. {The porphyries contained crystals, which seem to be feldspar. The decomposed material seems to be identical with the efflorescence!} We now went to Mr Threlkeld's coal-pits, where we found the coal directly under the conglomerate, and separated from it only by a thin clay-seam. The top chitters are just a brownish clay, impregnated with vegetable matter, which does not burn. The lower ones are a thick bed of matt coal, which is worked out in large lumps. This coal burns very well, leaving only fine, white ashes but no caked lumps. {We did not find any impressions of leaves here.} Mr Threlkeld is about to sink a new shaft in order to strike a second coal-bed. He has already bored through 36′ of bluish masses of pudding-stone. I am very doubtful whether he will find more coal below this. I had not yet seen the coast south of Lake Macquarie and therefore judged only according to the observations, which I had made at Newcastle. There the blue conglomerate appears on the coast below South Head and below the gaol and seems to have its place under the 3rd coal-bed. The workmen told me, however, that similar conglomerates are found under each coal-seam. This will no doubt be correct, since conglomerates can take the place of clayey sandstone anywhere. The conditions of the coast at Newcastle therefore do not give sure information about the coal-beds of Lake Macquarie. However, as we go further south, we see that the upper yellow ferruginous conglomerates gradually become thicker and thicker and that beneath the coal underlying them a rock appears again, which consists of large rounded boulders. Opposite Birds Island (Wabury Head?) these two pudding beds are contiguous or are separated only by a thin layer of plastic clay, which is of a brown colour in its upper parts and probably represents the coal, which gradually becomes thicker towards the north, until it appears in greater thickness about 12 miles to the north between two conglomerates, which both correspond to those in Threlkeld's coal-pits. The upper conglomerate accompanies us far to the south, but about Brisbane Water it seems to make way for coarse-grained sandstone, which looks exactly like the Sydney sandstone. If we could properly reconcile these observations with one another, it might lead to a proof that the coal perhaps belongs to a confined basin and that the upper bed, which is insignificant in the neighbourhood of Newcastle, develops to significant proportions around Lake Macquarie, while the three lower ones disappear completely, making way for a blue conglomerate or pudding; and that these are also local formations insofar as coarse-grained sandstone takes their place 50 miles further on. But as it stands there are difficulties in interpretation, which cannot be put aside at the moment. These difficulties reduce to four points in the main: Nobbys Island, Little Red Head, William Brooks' coal-pits, and South Head of Lake Macquarie. In all these places we find a bed of anthracite at the base, at sea-level or approximately so. Above it appear fritted sandstone and clay hardened by volcanism. There is not a trace of conglomerate in their proximity. They usually lie on blue clays or clayey sandstone. I have always identified this anthracite with the second coal-stratum of the coastal sections, and the altered rocks correspond quite well to the clays and sands resting on top of that bed. But I cannot explain how the coal-bed of those localities and its position in relationship to the sea do really correspond to the 4th coal-bed, and why Threlkeld's matt coal and Brooks' anthracite and that of South Head are, as it were, found mixed with one another at the same level on Lake Macquarie. Nor that Threlkeld's upper coal is seen beneath conglomerates at South Head, Lake Macquarie, and that there is

not the blue conglomerate in Threlkeld's pit under it, but indurated clay and sandstone. Since the distances are so small and the strata lie almost horizontal, it is very difficult to explain such a mixture and diversity of rocks. Perhaps an ideal section would better express my thoughts.



Cross-section from Newcastle to Brisbane Water.

On comparing Nobbys Island, Little Red Head and South Head of Lake Macquarie, our attention is drawn to another fact. We find that these localities are bounded towards the north or north-east by flat sandy sea-shores. The mouth of the Hunter River separates Nobbys Island from the flat sandy north-shore and the long beach, which extends as far as Pt. Stephens. There is a similar mass of sand between the mouth of Lake Macquarie and Great Red Head, and Little Red Head is surrounded by sand in the direction of the lagoon and the north-east. Where do these sands come from? They have no resemblance to sandstone in the vicinity of Newcastle, but are reminiscent of decomposed Sydney sandstone. Should one assume, then, that the sandstone around Sydney was deep down in those localities and that its comminuted fragments were thrown on to the shore by the play of the waves? This would quite agree with my theory that the Newcastle coal and the Sydney sandstone are contemporaneous formations, which owe their difference in character to the difference of the localities.

Old Davies had much to tell me about his own affairs and about our former fellow-passengers on the boat. Afterwards he explained to me the art of making cheese and showed me the moulds, in which the cheese is pressed. After the milk has been made to curdle with rennet, the remaining whey is pressed out in a press. The cheese is dried by rubbing it with salt and cleaned daily, probably to keep the flies off. I think the Australian cheese, which in any case is not as rich as the English or Swiss cheeses, would lose its somewhat flat taste if a mixture of herbs were added. Since there are many bitter, strong-smelling herbs in this country, it is only a question of making the right selection. I can hardly hope to gather good experience in this matter.

On November, 16th, we left our friendly host, and tramped along the little used bush track to Newport or Stingy Ray Point. The conglomerate and later on sandstone cropped out on our way. After losing the track at a waterhole, we followed the compass across the bush. *Lomatia* grew abundantly here. *Lobelia gibbosa*, which I had already found in the vicinity of Newcastle, and *Xanthorrhoea* grew in rich abundance, a sure indication of sandy, infertile soil. A probable new species of *Persoonia* with leaves arranged horizontally and flowers in axial clusters, 1 to 2′ tall. In all the tall *Eucalyptus* a large number of cicadas were singing their shrill or rasping song. As soon as one started, the whole chorus joined in and they all fell silent at the same moment. This is the very season of their resurrection. The larva lives in the moist soil throughout the winter. At the beginning of November it climbs from its funnel-shaped hole, secures itself with its sharp claws to the lower part of the tree-trunk or on stakes, waiting here for its metamorphosis, which takes place by the skin of the larva bursting along the centre-line of the back. The complete cicada now crawls up the tree, and soon joins in the song of its mates. At first I thought they were not very agile, but later I frequently saw them flitting about, and many came and sat on my straw hat.

After we had been worrying a long time at the thought of being lost in the bush, we discovered to our great joy the ruts made by a two-wheeled cart, which we followed and which brought us to a cleared cultivated field with some four or five small bush huts standing around. The inhabitants gave us the necessary information about our way, and supplied us with water and tea, which we enjoyed with great satisfaction. The tea-pot in a bush hut is hardly ever taken off the fire. Very rarely does one remove the boiled-out tea-leaves, while fresh ones are continually being added. In this way the astringent principle of the tea is given to the usually bad water, while the excitant one is very slight and does not harm the stomach. Moreover the tea is sweetened with brown sugar, which also diminishes its property; and milk or fresh eggs are also added. Tea with a fresh egg in it is a very pleasant drink and quenches the thirst better than any other drink that I know. The quantity of tea and sugar, which is consumed in the bush is considerable, and I think no other region of the world consumes as much proportionally as this colony.

The usual meal is damper, i.e. flour and water kneaded together and baked in hot ashes. The poor colonists around Newport had only damper made of Indian corn (*Zea mays*), but it was offered to our hungry stomachs so hospitably that we valiantly devoured them. These colonists have leased small tracts of land from Mr Holden, and conditions for them will be considerably improved if Newport should really become a town one day, which seems to me rather certain because of its good position. Mr Holden owns the land. He divided it up into one-acre and half-acre allotments, which were then duly announced in all the journals by the best auctioneers. There were, however, not so many buyers as had been expected, although a schoolmaster and a clergyman were sent to the place in order to make it as attractive as possible. A public house, which is usually the centre point of larger settlements, was also immediately provided for. The land is only suitable if it is well cultivated; without good cultivation it will soon be exhausted and it suffers much from drought-conditions. {It is a mild black soil with lots of mussel shells. It would be very suited for viticulture. Indian corn, potatoes, pumpkins, and vegetable marrow do very well in Carter's garden; cabbage not so well.}

It is a peculiar feeling to find oneself in a town right in the middle of a virgin forest. The

streets have their names, public buildings, and churches and markets their sites, yet the traveler is in danger of getting lost in this town laid down on the map!

With the choice of ground that you intend to cultivate in this district, you have to consider its position. If the place is very much exposed to southerly or south-easterly winds, one must fear winter-frosts, which kill the vegetation with the quick change in temperature.

North-westerly winds are no less detrimental, because of their desiccating nature. In both cases you must, if there is no other choice, leave tracts of bush standing, in order to mitigate the damaging effect of the winds.

Mr Carter, who like so many other young men brought money to Australia only to lose it, lives in a humble cottage together with his very well educated wife. I pitied the poor creature, who had certainly been brought up to a better life of greater comfort. Though she had probably very strictly observed order and propriety while in England, these refined sentiments of a rich society slackened in the bush; she became lazy and careless, and went without stockings. This is the usual fate of young ladies of her class. Low-class women, who have gradually worked their way up and gained wealth, showed me the opposite tendency: they think highly of white linen, clean clothes, and neatness.

The cork-tree, which grows on the lake-shore, is a *Myoporum*. A herbaceous *Hibiscus*(?) grew in the garden, also an *Epilobium* with emarginate petals, and *Erythraea*, and a *Geranium*.

Mr Dodd, the schoolmaster sent to Newport, complained bitterly about his position. He had been promised every convenience and when he arrived at Newport, nobody wanted to accommodate him, so that he was obliged to take up his abode at the public house. He hopes that he will have about 40 pupils from the district.

Mr Rogers, the clergyman of Brisbane Water, comes along every six weeks to preach to the leaseholders and colonists around Newport. The divine service took place at the public house, and both prayer and sermon were really very good. But only two women and two men, besides ourselves, had come to listen to his sermon. This is all the more surprising, since it is usually the married women, who live out in the bush that complain of the lack of divine service.

Newport lies on the south-western end of Lake Macquarie, the circumference of which is 350 miles, including all its bays and the peninsulas jutting out into it. The scenery is not grandiose, but attractive and were its hills covered with vines, instead of with the dull, characterless native bush, it would perhaps by far surpass the much praised Lake of Zurich thanks to the diversity of its bays and the constant variation of its views. The soil around the lake is very poor; the conglomerate forms an insufficient, shallow foothold for the roots of the trees, and it is amazing to see how the big trees, in spite of storms, are held to the ground by a small number of flat, interlaced roots.

On the 17th November we left Newport, which lies on a wide shallow (hardly 2 ft deep) lagoon or bay of Lake Macquarie. Some of the views, for example that from Mitchell's Inn, are very romantic. A channel filled with salt-water extends far to the south-west. We crossed it and found ourselves on an extensive low-lying plain with good soil, on which the government intends to survey and sell small leasehold-estates. The position seems to me very suitable. There is no lack of water, i.e. fresh water is found at a depth of about 6 to 8 feet. The cows are in good condition. But though this country gives the cattle sufficient feed to keep them in a good external condition, the feed is not rich enough to fatten them. This leads us to the difference between the wild animals,

for instance in Germany, and stall-fed farm animals. The former are rarely fat, or only at certain times of the year. I was told, however, that the pastures on the upper Hunter are much richer and that the butcher can easily distinguish cattle from there and from here.

From the plain we climbed up the hilly ridges in the oppressive heat of the sun, which was not alleviated by any breeze. All the hills seemed to consist of conglomerate, since the path was covered with ferruginous boulders. The small *Xanthorrhoea* grew everywhere and scattered *Eucalyptus* trees, small casuarinas; *Comesperma ericaefolia* was in flower, *Scaevola pubescens*(?) very common, *Goodenia bellidifolia* in low-lying spots; a pale-green leafless legume. *Lambertia*, truly a traveller's delight with its honey-flowers. The first *Grevillea sericea* that I have seen since I left Sydney.

A boy, whom we met, showed us a female possum that he had killed, whose two young ones had escaped. The pouch was very wide; two suppurating glands were full of blood and developed. The teats were very long and both on the left side, so that it seems quite fortuitous, which teat the young ones in the pouch will choose. Towards Tuggerah Beach Creek, the trees became taller and taller and they were often 12 to 18 feet in circumference. But here again we noticed the small number and weakness of the roots.

Several green elaterids were caught on a *Xanthorrhoea bracteata*. At night-time we were delighted by thousands of fire beetles, which flitted like bright stars, everywhere through the dark shrubs, moving up and down, one of the most delightful phenomena I have seen on my trip. The silence of night and the mildness of the air put me in a state of comfort and passive enjoyment, in which impressions of this kind wonderfully stimulate the imagination, lifting it up to fairy realms and enchanted palaces.

I had promised the clergyman to put a branch of *Callicoma*, which always likes the proximity of water, on the track for him, so that he would know the tree. But whenever I searched the next water holes, *Callicoma* was no longer to be found. Instead I found a very similar tree in bloom with serrated leaves, petals lacerated, and anthers opening in pores, which are certainly the characteristic features of *Elaeocarpus*. Another tree budding, with broad glossy leaves placed opposite each other.

We had knocked at two houses for a shelter for the night, but in vain: in neither of them was the master of the house at home, and the women were afraid of accommodating two strangers. The inhabitant of one cottage had just been threatened with court-action, and his wife saw in us two bailiffs, who had come to carry out the order.

As we were enjoying our tea in the still night, we heard one of those huge trees crashing down, probably as a result of a bushfire. At first a tremendous crack, a thunderclap, then the crackling and cracking of the breaking branches.

When you tramp for days on end through the bush of New Holland, you will get rather tired of its monotony. The same trees, the same shrubs surround us all the time, and although we are walking across hilly terrain, the hills are never high enough to grant long vistas across valleys, gullies, lakes, and meadows, which actually do not exist[?]. The forest is like the sea; its silence and its solitude are most impressive at first, but after a length of time they tire the mind, and it yearns for refreshing variety.

Where water is found in narrow valleys, the vegetation usually changes and other genera of trees, with a darker green, occur, crowding more closely together. Neighbouring trees are tied together by creepers, which spread their rich assortment of flowers all over the

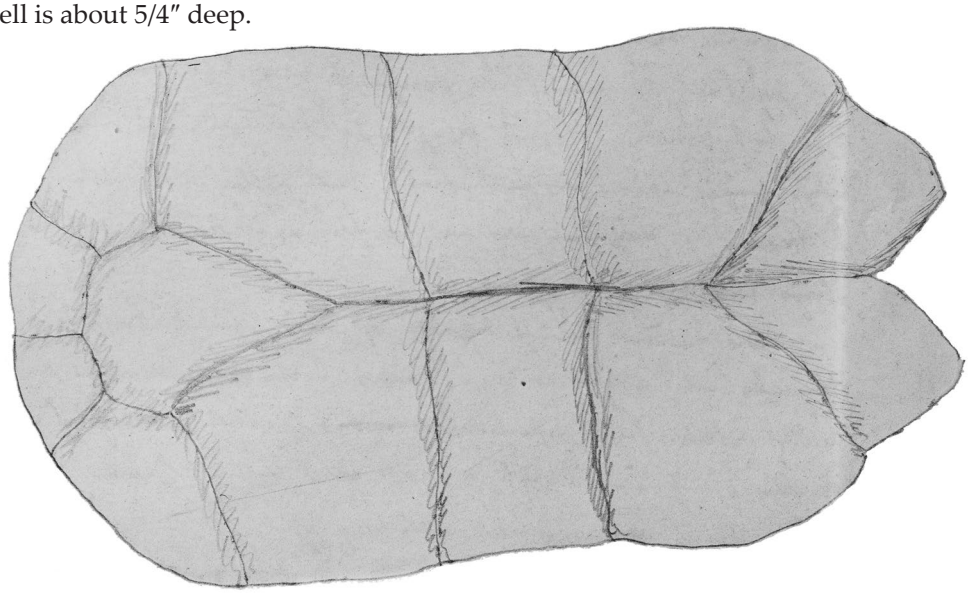
tree-tops that carry them. Parasitic plants, *Acrostichum*, *Asplenium*, and species of orchids find adequate nourishment on the moist trunks and even more so in the moist atmosphere.

18 November

A poor cowherd on Mr Healey's [Hely} cattle station had put us up for the night, and we gratefully departed from his hut on 18 November. On the brackish water, which is connected with Lake Tuggerrah, I found a fine-leaved, green-flowered shrub, which seems to belong to the Celastraceae. *Hibiscus* was in beautiful full bloom. This tree grows in the vicinity of salt-water and fresh-water pools.

On Mrs Sidebottom's Sunday table there was, besides some mussels, the shell of a fresh-water tortoise. The colour of the carapace was black, that of the plastron yellow, each plate lined in black. 25 lateral plates – four – four lateral dorsal plates, five median dorsal plates, two shoulder plates, three breast plates. The sternum had the following shape:

The shell is about 5/4″ deep.

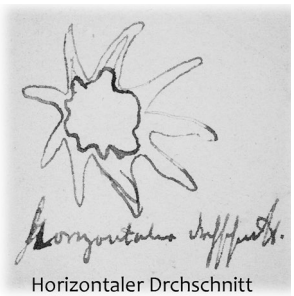


About 2 miles distance from Sidebottom's in the pleasant valley not far away from the foot of the Jangeganga, lie eight huge sandstone boulders on the slope of the hillside, regularly cleft by earth-tremors and pushed down the slope a little. They show the features of the Sydney sandstone. The Jangeganga itself is a sandstone mountain; its top is strewn with more or less rounded blocks. At its southern foot commences a rich valley with *Seaforthia* trees, with tree-like ferns and extraordinarily tall, huge *Eucalyptus*. A species of tree with fissured bark was called mahogany-tree. I think it is a eucalypt, but I don't know which it is.

This is the longest stretch of such rich and beautiful country I have seen in this colony. On black marshy soil there grew fern-trees, seaforthias, white cedars, stringy bark, (?mahogany), *Asplenium nidus*, *Acrostichum alcicorne*, *Polypodium*, and a large number of beautiful unknown trees, some of which were in flower. One was about 50′ high up to where the branches began, a dense bark and wood, with broad elliptic lanceolate leaves (three in the whorl). I very frequently noticed

a small tree with smooth lanceolate leaves, seven veins, and purple berries in small clusters of a somewhat sharp taste. {*Anona*.}

In another gully I found a good example of a fig-tree, which had clasped and eventually choked another tree. I particularly noticed the way in which it had wound round the lower trunk and the root part like a garment.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The raspberry shrubs were full of red raspberries. ~~They did not taste good~~.

They are dry and at the same time have a caprid taste. Mr Flood found that they gave him indigestion.

After crossing one of the most fertile districts, which may perhaps still have to wait a long time for the farmer's hand, we arrived at one of Mrs Healey's properties which is being managed by a certain Mr Spencer. He and his wife received us with great hospitality, and showed us the orchard, in which approximately 900 orange-trees did relatively well. {The trees have no scab.} The soil is sandy and the orchard extends from two hills down into a valley, in which flows a scanty rivulet. The orange-trees in the valley were green; those on the hill-side had suffered much from the drought. Peaches, apples, pears, and loquats were doing very well. Mr Spencer trained the grape vine in low shrubs and believes that this form is best suited for the vine in this colony. Those stems, which he trained on trellises, were much poorer, suffering more from the drought. This year's shoots were small, there were many grapes but small. Muscatel thrives best.

He showed us a species of silver-pine from the Cape of Good Hope that grew beautifully and imparted a characteristic view.

Mrs Spencer showed us an oak, which bore some resemblance to *Ilex flaminata*.

At last we got to West Gosford on the banks of Brisbane Water, at present a still wretchedly built township. It was surveyed and laid out by the government, whereas East Gosford, about two miles to the east, had been the private property of a certain Samuel Peake, who made much money by selling the allotments. However, he partly lost it again as a result of fraudulent practices and ensuing lawsuits. East Gosford is extremely romantically situated. A wide extremely indented water-basin, and some significant hills opposite join together to give this countryside an unusual natural gracefulness. The soil, if cultivated, can bear any crop. It has been argued that a rich hinterland, which could use Gosford as the port for its produce, is lacking for the progress of the town. This is perhaps right. I am only speaking of the personal and immediate satisfaction of a dense population, which is not to carry on commerce and export-trade, but to live happily on limited tracts of land cultivated by themselves and content with what they grow for themselves.

"Brisbane Water is a deep bay of Broken Bay, surrounded by significant hilly ridges which, however, do not show any geological sections, but are rounded and covered with vegetation. There are often flat marshy lands in front of the mountains, and deep channels (creeks) penetrate as far as 5 to 6 miles inland. The swamps around Brisbane Water are covered with exceedingly rich vegetation and cultivation would certainly be amply rewarded, once communication has been established to market the produce at low cost. At present there are only shingle-splitters, who use the swamp oak (*Casuarina*) and the blue gum, in the extensive woodlands around Brisbane Water. In the present unfavourable conditions of the colony, people have little money and everyone is complaining".

The rocks, which can be seen on the shore at Gosford, are l) sandstone, formed from coarse grains of quartz, but hard and good for building purposes. The clergyman's house is a fine building and the natural colour of the stone gives a pleasing impression, 2) pudding stone, 3) sandstone and sandy clay containing many mica flakes. In the first-mentioned sandstone there are some impressions, the nature of which, however, cannot be ascertained.

We negotiated with a family of Blacks to accompany us to Newcastle. They did not want to leave before the following Sunday and we resigned ourselves to their whim. From all I could understand, they did not dare to leave that day because the moon rose too late to light them their way to the stopping-places. They did not refrain from asking us for wine, and after we had given them a bottle, we actually had the satisfaction of being let down by them on Sunday. The family consisted of five persons; the man called Aemiable, his gin Maria, a vigorous clever woman, who spoke English well, her brother, a well-built young man with easy, natural movements, a child, and an old man. The following day another family came. The public houses are the greatest attraction for them. Like guests they walk around and hang around the doors, until a kindly soul gives them a glass. They are extremely lazy and only brandy and hunger rouse them from their lethargy. They crouch round the fire or warm themselves in the sunshine, lying on their stomachs, with sprawling legs, or lazily lounge about. Indeed a sad pity for the man who is looking for labour! I heard that they are usually quick and persevering walkers, who easily follow a horseman.

20 November

After allowing ourselves a day's rest on the 19th November, we returned to Newcastle again by another track. I must, however, mention here that in East Gosford I made the acquaintance of George Prince, the schoolmaster, whose wife showed me 'the native lady and gentleman' (a kind of mantis) and gave me many different cicadas, which probably live on different trees. Should a scientific society gradually spread throughout this colony with my assistance, I shall again turn to him to interest him in further collections and observations.

As early as our last day's journey to Gosford, we had noticed the conical clay hills built by the white termite. Today we found them again, often only 1,000 paces away from each other, on a fertile soil, usually built on a fallen tree trunk, 3' in diameter, 5' high; the outer cover consisting of 3" of yellow clay, in the interior a mixture of somewhat kneaded anastomosing rounded branches of brown colour.

As we crossed Tuggerah Beach Creek on our way to Tuggerah Beach Lake, we saw, apart from a large number of seaforthias, beautiful, up to 18 ft tall tree-ferns, perhaps even more picturesque and more pleasant than the *Seaforthia* or *Corypha*. On a lagoon there was a thicket of low, stunted *Melaleuca* trees, which were all bent inland by the prevailing southeast wind.

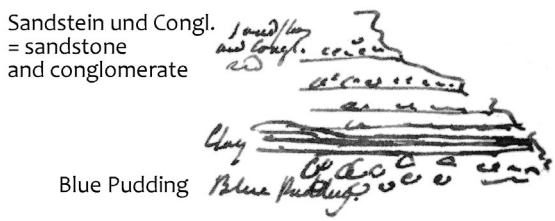
In a swamp 3 miles from Foster's dwelling there was *Blandfordia grandiflora*, *Xyris*, *Caustis* and *Callistemon* in full bloom.

Here green groves of apple eucalypts (*Angophora*) and big *Melaleuca* trees alternated with wide, open turf-covered pasture lands. Foster's house itself stands on the neck of land between Tuggerah Beach Lake and the sea.

Here we refreshed ourselves with milk and tea and damper, then waded through the

lake entrance, which will probably soon silt up completely unless human wit prevents it in time, and walked along the sandy coast at low-tide.

The next rocky headland was Bungarah Norah; pudding-stone jutting far out into the sea intersected by joints, which strike from east-north-east to west-south-west, big rounded boulders. On top of this bluish pudding-stone there is the red conglomerate; there seems to be no coal at all here. At the next headland is a bed of plastic clay, with upper brown layers between the two conglomerates. This clay-bed becomes hard near the dyke.



Bungarah Norah

The dyke strikes from south-west to north-east and reappears in the several headlands following. A narrow crevice runs parallel to it. Gradually, as you go north along the sea-shore, the yellow or red upper conglomerate becomes thicker and thicker and so does the lower bluish one. Both become more homogeneous and contain fewer boulders (this, however, changes considerably at every step). Where you first catch sight of Birds Island, you see peculiarly corroded and oddly shaped, torn-off rocks. The upper rocks are reddish and seem to contain much iron. A spring of good water, but with deposits of iron-ochre.

Our strength being so little exhausted and the sandy sea-shore being so firm, we walked rapidly on. Not knowing our distance from Lake Macquarie, we even conceived the ambitious plan of walking by moonlight on to Newcastle during the night. In the meantime the tide began to rise, driving us higher up from the firm sand, so that our feet sank into the lighter ground and our strength diminished more quickly. Eventually we walked around a long, long shore-line, and we found ourselves opposite Birds Island. The sun had set, Venus and Jupiter were shining brightly, but the night was so dark that we could no longer distinguish the rocks ahead from the forest. My companion still wanted to carry on, as he thought he would only have to walk round the next headland in order to reach the entrance to Lake Macquarie. I told him that I was irrevocably resolved to stay where we were and spend the night here, and he gave in. I lit a fire on the bare hard rock, feeding it with dry sea-weed till the big pieces of timber from shipwrecks began to blaze up, giving us a good big fire. We lay down to rest beside the fire, the black masses of rock above us, the sea roaring wildly, the bright star-lit sky, in which the moon rose two hours later. It was a glorious night, the first that I ever spent out in the open. The sea-breeze was very gentle, but by and by the wind turned more to the south and became cooler. I alternately warmed the one side of my body, then the other, sleeping quite well, considering the hard stone bed.

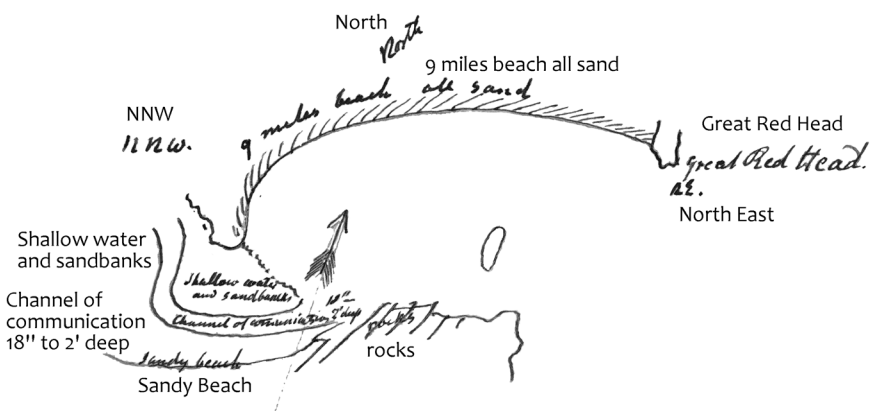
Our stomachs were empty and early the next morning we pushed forward to the tea-pots of Lake Macquarie. But how disappointed was my companion when, on our rounding the cape, countless headlands, one after the other, still lay ahead of us, without the slightest indication of an entrance to Lake Macquarie. We climbed up the hill, in order to make our way by a shortcut further inland. But we soon got entangled in thick scrub and bush, where coryphas were numerous, so we thought it more advisable to return to the sea-shore as quickly as possible. We had one advantage though; *Lambertia* had yielded us its sweet honey for breakfast, though in small quantities. After regaining the shore, we

crossed two fresh-water creeks, which came forth from green valleys. The Bangelorah Caves astonished us. They are wide fissures in the lower conglomerate, through which the sea dashed against the rocks with great force, washing out wide caves, in which numerous swallows are now nesting.

The rocks now became so steep and stood so close to the sea that we had to leave the shore to find a track inland. We very luckily found one. It took us across treeless, meadowlands covered with thick, high, but now dried-up grass, on which the sun smouldered. We dragged ourselves exhausted from one cluster of trees to the next; my fat companion was almost at the end of his tether. At last we sighted Moon Island, which is opposite the entrance to the Lake. This bolstered our strength, and we stepped out more vigorously. We noticed a hut, where we stretched ourselves out extremely tired, thirsty, and hungry. The owner of the hut arrived and took us in his boat to a fisherman's house, where his wife refreshed us with tea and cold fish. Never had tea and cold fish tasted so good to me; almost better than the wine and fish of Montefiasconi. The friendly constable later took us to his own cottage, where his wife killed two young fowls for us.

So everywhere we found signs of the greatest hospitality and friendly benevolence. However, there was no ignoring the fact that in those places where they did not know my companion, people eyed us with suspicion. This manner of traveling and receiving hospitality is no longer possible in populous countries like those of Europe, but it is surely the way that still unites man with man, because the visitor, remindful of his host's kindness, always takes on new obligations, endeavouring in his turn to be of use to others on another occasion. Maybe the accommodation would not be agreeable to the mollycoddled European, but since so much is learnt so quickly here, perhaps the 'dandy traveller' in France and Italy might discover unexpected sweetness in the Australian bushman's tea-pot.

Lake Macquarie is separated from the sea by a sand-bar. Only a narrow channel is left, which changes almost daily, through which smaller vessels can depart at high tide. At low tide the depth is from 18″ to 2′, at high tide from 4′ to 5′. The annexed sketch will perhaps give a better idea of the conditions.



North-westerly winds carry the sand from the 9 mile sandy coast to the lake entrance. A dam from the northern shore towards Moon Island (in the direction), could keep back all this drifting sand.

On 22 November, we left our host and returned to Newcastle by a track across high wooded ridges already known to us for its greater part. However, I have yet to mention a bastard boy, whose father is a white man, his mother an Australian Black. The boy has a yellowish brown, not unpleasant colour. His nose is flat, its tip broad, but he has large and intelligent eyes, his forehead is broad, his hair black. The constable brought him up in his family from his earliest childhood, because his mother had died very early. The boy is diligent, obliging, and intelligent. He speaks English well, though there is something special about his pronunciation. He is in any case a great improvement on the native race!

24 November

On returning home on 22 November, I found letters from Mr Lynd, William, and Schmalfuss. The first reproached me for assisting the Murphys; William's letter gave me fresh evidence of his unchangeable friendship; Schmalfuss announced to me the death of my youngest sister Mathilde, who had died in childbirth on the 11 November 1841. Her death moved me most deeply, since the healthy, open-minded girl had been dear to me above all others. But Schmalfuss's letter so much took my mind back to the old country and he dimmed the painful feeling so skillfully with many old local reminiscences, that the mourning-letter was, in spite of all, a good letter of consolation. The depressing feeling of grief, however, associating itself with the fatigue of the journey, made me exhausted and sick. Gradually, however, my strength is coming back, body and mind are regaining their freshness, and my old wanderlust will soon drive me hence once more.

Every night a man plays English and Scottish tunes on his clarinet in front of our window. It is an occasion on which I feel how strange the English sphere of life is to me, as all the tunes affect me in a pleasant but unknown way, while the Englishmen sitting around me are filled with the joy and comfort of old reminiscences.

20[?] November ? 1842. Count Streleski was in Newcastle; he is leaving today. I have not yet seen him!

[Letter in English to Robert Lynd, 24 November 1842. Aurousseau, 1968: 592-593.]

Just as I had written this letter, Mr Lynd, who is on his way to Port Macquarie, arrived, and now I had to repeat my letter to him orally. He brought me the money required for my journey.

Today, 24th November, we had an extremely hot wind from the north-west, the hottest I have experienced. The morning was calm; the wind sprang up at sunrise and was very strong about 11 o'clock, when Mr Lynd arrived, and seems to be abating now.

[Letter in German to William Nicholson, 24 November 1842. Aurousseau, 1968: 594-599.]

4 December, 1842

For a long time the conical hills and the blue range of hills, which I glimpsed from our window on clear days at the other end of the widely curved shore, had aroused my curiosity. I had seen rocks from Pt. Stephens; a peculiar reddish porphyry and I decided therefore to pay those hills a visit. On Tuesday, 29 November, at three o'clock, I passed over to the northern shore and started my excursion all by myself, since on the one hand the walk seemed only a short one, and on the other, my companions did

not suit me. The tide began to come back and forced me to wade in deep loose sand, which was extremely tiring.

The whole northern shore consists of sandhills, which the sea probably has heaped up against the mouth of the Hunter River after uplift of the porphyry hills, in this way shutting off from it a long series of low-lying grounds from Telligerry Creek as far as the Hunter River. These were covered with alluvial soil, supporting luxuriant paludal vegetation. At least some had filled up so high that they are completely dry in very dry years. The line of sandhills between these morasses (swamps) and the sea is 1 to 4, 5 miles wide and even wider, and has also gradually been covered with the usual bush vegetation.

On the northern bank I found a climbing plant with small green flowers, arranged in umbels, and with shield-shaped (peltate) leaves. It climbs from left to right and it seems to like sandy ground everywhere near the sea.

{*6 petals round the female flower, 5 sessile stigmata*}

On the sea shore itself I found spongin, the horn-coloured frame of which was covered with reddish soft crust. *Euphorbia* with fleshy leaves on the sandhills. An umbellifer, which spread over the sands and which tasted like celery, also had fleshy leaves.

A composite with fleshy oval leaves, tapering towards their bases (running down the leafstalk). *Dianella* with the most beautiful blue fruits. *Scaevola* with bluish berries. A fleshy *Ipomoea*, which together with *Mesembryanthemum aequilaterale* (pigs face), with *Correa alba*, and with *Spinifex*, are binding the sandhills next to the sea and striving to get the better of the play of the winds. About 8 miles from Newcastle, you have a good view of Nobbys Island, of the beacon and the elevation on which Newcastle is situated and which ends at Windmill Hill.

The sun has set, and the glimmer of its afterglow is playing through the *Fabricia* boughs in the trough-shaped hollow where I am lying. Here among the dunes covered with low scrub, I have lit a fire, in order to spend the coming night as comfortably as possible. I can hear the roaring sea, and I can clearly distinguish the breaking of the bigger waves, and in between there is a sound almost deceptively like human voices. Around me only the little black ant is busy, climbing up the branches of *Fabricia laevigata*, to milk *Coccus* of a peculiarly reddish colour, as if covered with dust. A solitary cricket is chirping here and there; the solitary call of a bird; but save these all is silent, listening, as it were, to the powerful roar of the sea.

It seems to me that a great number of plants are quickly spread by cow-dung over all parts of the bush: that is why at this lonely spot I discover the same composite (*Erigeron*), which grows so commonly on Ash Island and on all the cultivated places. Likewise there is a species of *Chenopodium* here – sticky.

The night was cold; especially toward dawn, around two and three o'clock, a strong dew fell, and I had repeatedly to replenish the fire and to change my position to warm my limbs in turn.

The day had broken on my last deep slumber, and the red disk of the sun, softened by a thick haze, had been standing for an hour high above the sea. I had brought bread from Newcastle and a bottle filled with cognac. Both made up my modest breakfast, since there was no water. As the haze, brought about by widespread bushfires, did not allow me to view the mountains, for which I was making, I decided to cross the sandhills to reach the edge of the swamps, and then walk along them to Telligerry, where Major Crummer, the police-officer of Newcastle, has a cattle station and a dairy. This route not only gave me the certainty of having sure accommodation for the night, but also promised me fresh water,

which comes forth everywhere along the foot of the sandhills towards the swamps. Fresh water is generally found here in the sand at a certain depth near the sea, and it is interesting to observe how the lighter fresh-water rises and falls above the heavier sea-water during high-tide and low-tide.

At Telligerry milk and tea very soon restored my exhausted strength, and I walked on the dry mud in the vicinity of the huts through the dry swamp as far as the shallow sea-shore, which is not sandy here, but boggy, collecting a great many interesting plants. In the swamp itself grew *Seaforthia* and *Corypha* and *Caladium*, which at present is in full flower, filling the air with its extremely pleasant scent of violets. {*Caladium macrorhizon* subacaule foliis profunde cordatis repandes.} The upper male part of the flower had been gnawed through by a host of small reddish staphylinids, of which I took home a large number. This *Arum* had previously taught me a very sharp lesson. I was about to taste the inner white parenchyma of its thick, woody stalk, when the man, who is in charge of the cattle station, called out to me: "Watch out, sir; the plant is poisonous." I did, however, taste a little, and, noticing a sweetish taste at first, I replied that he was probably mistaken. But immediately after I felt a considerable sting and burning on my tongue; at once I spat out what I had in my mouth, and rinsed it as best I could, but my tongue swelled and became so sensitive that I could hardly take any food all day, at least not without great pain. Besides the *Caladium*, which draws our attention with its broad, fresh-green cordate leaves, *Typha* was in flower. {Brown mentions only *T. angustifolia*, but the leaves of my plant are by no means semicylindrical} Several species of *Carex*. *C. pseudocyperus*, which grows also in the vicinity of Paris. As you get closer to the sea, a number of smaller plants appear, which always seem to occupy the same position relative to each other on swampy ground. In the swamp scrub I must also mention the native elder, which by its leaves and pithy stem calls to mind our elder, whose flower has, however, three outer and three inner, almost white petals and three filaments. The fruit is crowned with the remainder of the withered perianth; it has three compartments, each containing one seed, the ovule is pendant. *Nephrodium* was in bloom. *Carex* flowering and with fruits. Two species of *Juncus*. A *Polygonum* with hastate leaves; the centre vein, the leaf-stem, and the lower portion of the ochrea and even the stalk covered with stiff hairs turned downwards. {*P. strigosum*}

A *Convolvulus* is common. The violet (*V. hederaefolia*) with pale bluish flowers was blooming all over the place. In the Big Swamp, of which the swamps of Telligerry form part, I frequently found a *Hydrocotyle*; another one near Telligerry; a third when I came to the swamp of Hanobay. (I lost the last one, however).

I found a plant, which seemed to me to be very close to the *Hydrocotyle*, however, the leaves are lanceolate and the flower-heads sit in the axils or at the end.

When we have a look at the distribution of the plants, we see the low sea-shore, which rises hardly a foot above the low-water mark, lined by a wreath of *Avicennia tomentosa*. Below them the ground is palisaded right into the sea with the sticks of dead young avicennias. Next to this tall green wreath of trees, which fill the air with sweet scent of honey during the flowering-season, *Salicornia indica* grows, which, as it were, forms a sward, on which the cattle come to graze from time to time. This is followed by a thick pale green grass, which I have not yet found in flower, with leaves arranged in two rows; then comes a *Lepidosperma* (if I am not mistaken), no doubt a Cyperaceae with round, thin halms and leaves. A *Juncus*, which resembles the

foregoing very much, appears next in larger bushes, either separate, or intermingled with the three foregoing ones. This lower vegetation forms an open space between the line of *Avicennia* and the tall trees of the swamp. Among the latter there are especially the swamp *Casuarina*, *Melaleuca*, *Seaforthia*, *Corypha* and in dry spots, *Eucalyptus*. {But in the depressions from which the sea-water cannot run off during low-tide, there are again *Avicennia* shrubs, which jointly with the foregoing give the whole landscape the appearance of a well-laid out English garden.}

At Telligerry on the casuarinas I had already previously found a *Loranthus* with wiry round leaves. An orchid, which is common at Dark Creek near Newcastle, with long wiry leaves, occurred here too. A number of chenopods and an amaranthacean[?] were also growing here. *Villarsia parnassifolia* was on the other side of the *Casuarina* thicket.

Also the wattle-tree, an *Acacia*, whose bark is full of tannin, but whose gum is transparent and lacks all astringent qualities, is now in full bloom. It grows in deep moist or fertile ground, especially on the edges of the swamps, and fills the air with a pleasant scent. A *Leptospermum* with small lanceolate pale green leaves was in flower.

A small greyish fly with a long abdomen and folded wings kept on tantalizing me at Telligerry whenever I stopped or sat down. When you are moving it is kept back by the draught, but as soon as you stop, it flies about your face, choosing particularly forehead and eyes as its pasture. It is commonly observed that Europeans, who come to New Holland, have to suffer far more from mosquitoes on their arrival than a year later. I think the explanation for this is to be found in the thickening of the epidermis, since with the "old" colonists the mosquitoes definitely prefer the forehead and the region around the eyes, which are always protected from the sun, to any other parts of the face.

1st December

I left Telligerry in the early morning, hoping to find, after ten miles, the home of a Mrs Connoli, from where I had the intention of visiting Point Stephens. But since the stockmen had not blazed the trees here to indicate the way to an inhabited place, I lost my bearings, when I got to the first cattle fence, from where cattle tracks diverged in all directions. These enclosures or stockyards may perhaps hold 50 to 100 head of cattle, and they serve to drive in the cattle from time to time, so that the cows that have calved can be separated, or in order to catch and brand the calves. The cattle in the bush are in the habit of wandering, like geese, in single file from one pasture to another or to the fresh-water pools. It is, therefore, always unsafe to follow such a cattle track, which is often well-trodden, resembling a man-made foot path. It is often rather annoying to lose every trace after three or four miles of the path, when the track arrives at a rich pasture, as the beasts spread out in all directions here. Or, as happens in this dry weather, you find yourself led to a dried-up water hole. Occasionally, however, these tracks will take the lost traveller to farms and houses, which is especially the case where dairy farms are established, to which the cows are driven daily.

On the tips of the branches the broad black cockroach (*Blatta*) was on the lookout everywhere; whether with the intention of catching insects, or to enjoy the fresh leaves of the young buds, I do not know. A small black ant had laid out covered paths for itself, out of sand grains, on tall *Eucalyptus* trees, and was busily running up and down on them. Similar covered passages are built by the soft termite with the pointed head. This termite, however, glues the grains of sand together with a kind of brown cement not unlike the one which I observed inside the termite-cone on Brisbane Water. On a cordate-leaved

Bossiaea I caught a *Rhynchophorus*, which looked very similar to the one of Ash Island, but differed on account of its simple white longitudinal lines. {In the cracks of *Banksia* bark, a black beetle.}

A *Phalangista scuirea* was caught just when it was about to hide in a tall *Eucalyptus* tree; it seemed to be half starved and could not escape.

Longer and shorter hilly ridges, perhaps 50′ high, alternate with a terrain, which is delicately moulded by low, rounded hillocks and trough-shaped depressions. All have been formed of loose sand and are frequently covered with the remains of still extant sea-shells, which are often found in thick layers and used for burning lime. The low vegetation consists of *Pteris esculenta* and *Antistheria* (the kangaroo-grass), except where this has not also been destroyed right down to the roots by bushfires. The dry foliage of *Eucalyptus* trees and *Banksia serrata* lie thickly over the ground. The low shrubs are *Persoonia salicina*(?), *Dodonaea triquetra*, *Acacia* wattle, *Dillwynia*, *Bossiaea*, and here and there *Leptospermum* with hairy calyx. The trees are sometimes of great girth, but rarely very tall; the branches of the smooth-barked eucalypts are strangely twisted and their surface can be hard like the skin of a pachyderm. *Banksia serrata* is very common. A *Eucalyptus* with irregular bark. {This irregular bark strips off from time to time, however, and the tree is then smooth. The young branches are usually smooth from the first crotch. Another *Eucalyptus* is common, which detaches a more woody bark in long strips.}

Cicadas sing in full chorus on the *Eucalyptus* trees; a yellow-winged *Acridium* constantly leaps across my way, ants are busy on the ground, and a swarm of flies are flitting about the uncovered, freely perspiring parts of my body.

The cork-tree, with red sappy young bark, approximately 25 ft to the first crotch; 30 to 35′ high. The leaves seem to be lanceolate.

On a *Monotoca* I found a species of *Cassytha* covered with cherries; big green fruits, the ripest of which had lost their resinous taste and were of a very pleasant somewhat sour taste. I ate them without the slightest ill-effects.

When I came to the swamp and was walking along its edge through green wattle scrub, a wild dog lay in my way, in a moist nook formed by two contiguous sandhills. Its colour was a mottled brown. Immediately my footfall had roused it, it ran away at full speed. Numerous birds were hopping among the branches here, and a *Phalangista scuirea* was swinging from shrub to shrub. I crossed the swamp, large tracts of which were on fire, to get to the sea. Red fiery masses enveloped tall trees, which crackled around me in all directions. The smoke took my breath away. Never before had I been exposed to the danger of a bushfire to such an extent.

However, these great fires sweeping through the bush and to whose progress the grass, the shrub, and the sturdy tree alike, must succumb, offer a grand natural spectacle. Cattle herds, after goggling in amazement at the traveler for a moment, stampede from it, blindly breaking through bush and grass. In the calm bay surrounded by avicennias, flocks of wild ducks were looking for feed. As I was getting closer to the sea, I startled from the grassy hollows covered with shrubs, numerous wallabies, which bobbed up above the shrubs, disappearing with long, catapult-like leaps. At last I found the long-expected porphyry on a hillock. At first it appeared as an irregular pile of boulders and blocks, the surface of which was covered with white lichens and which was decomposed down to a certain depth. The vegetation on this new soil differed little from that of the surrounding sandhills.

The forest *Casuarina* was somewhat more common; *Eucalyptus* was rare or absent altogether, but *Pteris* and the other low plants were the same. Eventually I reached treeless green grasslands, which formed the north-westerly slopes of hills and ranges, which were without vegetation and covered with angular pieces of the porphyry rock. They were partly of conical shape, partly widely curved or longish ridges, the latter being particularly the case with regard to those nearest to Port Stephens. Towards the sea, they formed precipitous cliffs and separated masses lay far out into the sea, with white waves dashing against them. At the second headland (if I am not mistaken), I found the porphyry traversed by a basaltic dyke, but it was by no means as regular as the dykes near Newcastle. A larger dyke, perhaps 15 feet long, and 3′ to 4′ wide, running from east-south-east to west-north-west (?), was accompanied by a parallel narrower one. Both suddenly stopped, being displaced sideways. The basalt contained much peridotite.

In the following bay I was delighted to find a spring, which was only poorly fed at present, under the thick shade of steganias and blechnums. {I also found *Crinum* in blossom here.} I walked a mile or two inland, where I made a fire under the hanging branches of a *Casuarina*. Although hungry, I was refreshed by a dip and a drink. I sat down comfortably and finally, fanned by a gentle breeze, went to sleep. From time to time I was roused by a curious wallaby browsing around me. Early in the morning I felt the dew more strongly and therefore moved closer to the fire.

On 2 December, I returned to the sea-shore and followed the coast to Newcastle. I found several *Donax* beds and, as I was hungry, I ate a great many of them. They were, however, too salty, which caused me to eat only the foot, since the stomach and liver were very bitter. I found a lot of insects on the sea-shore, particularly *Cerambyx*, and a huge hemipteran. Also hawk-moths, which I had noticed in the homes, were frequently found drowned on the beach.

Continuing like this I returned to Newcastle at 2 o'clock, where my prolonged absence had already caused some concern.

I would like to add that half way, exhausted by hunger and heat, I found a cask of fresh-water, which very conveniently for me had probably been thrown overboard from a ship in distress.

6 December 1842

Returning from yesterday's wallaby-hunting, we found a large number of oysters sticking together in large clusters, not fastened on rocks or buried in the mud. Baker had fertilized Chinese peaches with almond-pollen and so bred a cross, which, however, offers few advantages.

In the morning a very hot wind was blowing, which had followed a cold southerly. In the afternoon we had rain lasting for several hours. It also rained through the night. This shows that the hot wind must have brought sufficient moisture to cause such a strong downpour.

11 December

On 9 December I left Newcastle in the morning to undertake a longer journey to Glendon, Bengala, and perhaps New England. For this purpose, I had bought a horse for £16, and the friendly owners, two young men called Calvert, who had come out with me on the same ship from England, assisted me by word and deed to make my journey as easy as possible. I provided myself with a few things, but still far more than the ordinary bushman does. A woolen

blanket, 4 shirts, 4 pairs of socks, 1 extra pair of trousers, a hunting-coat (the numerous pockets of which were rather useful), a pair of strong boots, a tin pot to make tea in, and a smaller one to drink from, some tea and sugar, a rope to tether my horse during the night, a botanizing-tin, and some paper constituted my travel requisites. On the 9 December I rode from Calvert's to Minmy, to Messrs Scott's cattle station and dairy-farm, where I was cordially received by Mr Rorke, an old acquaintance. I had chosen this route, because I wanted to visit the Sugar Loaf again, which was marked on Mitchell's map as consisting of trap, whereas I had previously found only loose sandstone, at least all around its foot, and the same conglomerate, which covers all the hills from Newcastle to Maitland and Brisbane Water and whose decomposed, iron-coloured boulders compose the ground over the hill and valley. The result of my walk yesterday was that the summit of the Sugar Loaf, where the tree stands marked by the surveyor, is formed of tall bare blocks of conglomerate, which stand out about 30′ above the surrounding tree-covered mountain proper. They are covered with white leaf-like lichens and yellow hair-like ones, and *Polypodia confluens* with a fleshy-stemmed orchid, while *Davallia* and *Doryanthes excelsa* and some *Exocarpos* have established themselves at their foot and between them.

Once again I had the opportunity of comparing the various *Eucalyptus* with each other. The spotted gum has probably received its name from the mottled appearance of its bark, as the half dried-up and almost dead pieces are brown, whereas the young bark is whitish-green. The iron-bark has a deeply split, rough bark, which does not peel off like that of the spotted gum. The stringy bark seems to have received its name from its bark, which comes off in long strings.

In the high tops of the eucalypts, hundreds of parrots were making a din. They move from tree to tree in small flocks and resemble starlings in the constant noise they make. A couple of white cockatoos were seen; they are very shy and remain on the uppermost tops of the highest trees. Their flight is gliding and like an eagle; their call is raucous. In the vicinity of Newcastle, around Mr Dawson's station, I saw the black cockatoo on several occasions.

There are several settlements at the foot of the Sugar Loaf. The settlers are mainly occupied with cattle- and sheep-breeding. They cultivate only as much land as is necessary for their own subsistence.

We had the chance to catch a number of large cicadas. Two very similar species in particular attracted our attention – the one with broad red sound drums, the other larger with small black tympana, but with bulging drums. The tympanum of the first one consists of the following parts:

1. of a red 2½‴ long and wide tympanum, after a space two holes are seen, one of the

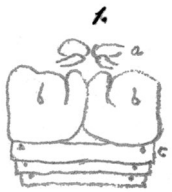
2. holes on each side – contains a convex, scarious, white, ribbed organ.

3. The 2nd hole – on each side of the midline shows a white taut membrane between a dark brown ring formed by transformation of the body segments.

If the abdomen serving as the bellows is separated, two muscles are perceived, which originate from the midline between the taut membranes, rising obliquely outwards and upwards and are inserted into a palette, which is set on the back edge of the membrane, but in addition is joined to it by a fine ligament. If the muscle is tightened, it pulls the palette inwards, which follows the stiff membrane. This causes a grating and crackling. This shows that a little tongue does not vibrate here, but a stiff

elastic membrane is pulled in and jerks back producing the noise, which is amplified to a deafening racket by a resonance board, by an empty abdomen and by tympana.

Explanation of the Figures.



1a the third pair of legs, b the red tympanum, c,d, e the abdominal rings

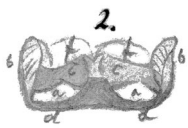


fig. 2. a.a the white inner drum b.b the outer ribbed convex membranes, which drawn inwards and jerking back vibrates

c the inner brown edge of the drum, modification of the segments f.f membrane, which joins the last thorax segment and the first abdominal and drum segment.

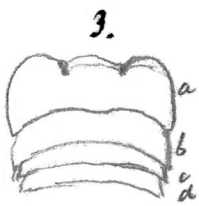


fig. 3 Upper view of the back. a first segment and cover of the grating membrane b,c,d the following segments

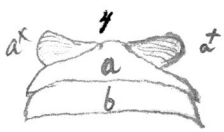


fig. 4 a first segment partly separated to show the membrane ax lying under it.

fig. 5 Vertical view of the separated abdomen a first abdominal segment ax convex membrane. b.b muscles, which originate from an edge of the first segment axx and rise obliquely upwards to be inserted into a palette d.d, which is connected to the convex membrane ax by a small transparent ligament c.c.

I have noticed several times that male cicadas continued to live even if by chance their whole abdomen, with the exception perhaps of the first abdominal ring (or drum-ring) had been torn off. This shows that the abdomen does not enclose any vital organs, with the exception of the testicles and the rectum.

After walking for about 8 miles over hills and across a plain, covered with *Eucalyptus* and inhabited by large numbers of bronze-winged pigeons, we eventually arrived at a very simple hut, in front of which stood a small table with a tea-pot on it and some tin spoons. We went to the owner of the hut, who was busy erecting a wheat shock, to ask him the nearest way to the Sugar Loaf. He very obligingly gave us the information, adding: "If the gentlemen would seat themselves on these logs, tea will be served immediately." Thanking him very much for the invitation, we sat down. He put his tea-pot on the fire, which was licking at the trunk-end of a thick, fallen *Eucalyptus* tree, and then searched his hens' nests where he found some eggs. A piece of pork was also served. We had brought dampers with us, and as soon as the tea was ready, which our host sweetened for us, we enjoyed our simple meal chatting. After we had thanked him and took leave, we climbed the mountain which is about 2,000' high. My companion, Mr Callaghan, sighted a rock-wallaby and, as I have already mentioned, we passed a large number of *Doryanthes excelsa*. At the foot *Mirbelia* was common, in fruit; a new species of *Pultenaea* with linear pointed prickly leaves; a *Leptospermum* with small flowers, such as I had found on my trip to Telligerry, a *Bossiaea* with cordate leaves; an *Acacia* with long linear leaves, flowers arranged in little heads, the heads growing from the axils singly or in pairs. *Comesperma*, *Zamia*, and *Xanthorrhoea*, which seems to be identical to the one at Dawson's place.

The view from the Sugar Loaf is bounded to the north by some mountain ridges running

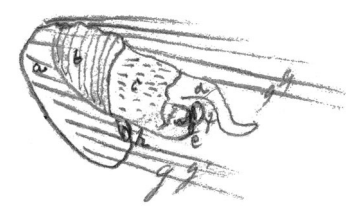
from east to west and to the east and south by the sea. Newcastle with Nobbys Island is very clear, and Lake Macquarie, with all its bays, lies open before our eyes. To the west the view is impeded by a cross-shaped ridge, and two mountain-tops, which almost equal the Sugar Loaf in height. The Hunter River is visible in some places and a succession of places that have been cleared of timber and cultivated. To the east a number of almost parallel ridges taper away; they repeatedly diverge without really diverting from the main direction. The water, which is found in water holes at the foot of the Sugar Loaf all the year round for the most part, runs down to the swamps on the Hunter River; the waters of Soldiers Flat, which extends towards Lake Macquarie, are probably drained off into the Lake. We had been told that we would have to follow one of these ridges in order to get to Minmy. The difficulty was that we did not know which one. After much hesitation and guessing, our kindly star led us to the right one, and after an arduous scramble we were back on the right track.

Let me also mention the termites, which here build hemispherical habitations out of grey clayey soil.

My companion drew my attention to a peculiar horizontal gnawing on some eucalypts, from which sap was oozing, eagerly being sucked up by metallic ants. My dog caught a thrush-like bird with a long slightly curved bill, very strong legs, sharp claws, a bald head, a fleshy protuberance between or behind the nostrils, and a feathery tongue. It is called 'pie bald'. It made an incredible noise, when I grabbed it, hurting me painfully with its claws.

12 December

Last night a large male opossum was shot by moonlight. Neck and shoulders were a reddish-grey, back grey, abdomen reddish-yellow, a brown stripe on its breast between the forelegs. The end of the hairy tail was black. The underside of the tail bare. {Two very strong veins appear at the tip of the prehensile tail. The latter is strong enough to hold the heavy animal on the tree. The tip firmly gripping round the finger. The tongue has two glandulae circumvallatae at its base.} The pelt is thickly covered with soft hair over an inch long. Very large scrotum, testicles and epididymis very much developed (each testicle the size of a nightingale's egg). The penis close to the anus, the glans a fleshy thin process; the urinal opening surrounded at its base by two caruncles. The deep base[?] of the glans with small turned-back horny tubercles. Anus and urinal region surrounded by long strong hairs.



Explanation of the sketch:

a. The general skin-torus, surrounding both parts and covered with hairs g.g.g.

b. Foreskin.

c. Base of glans.

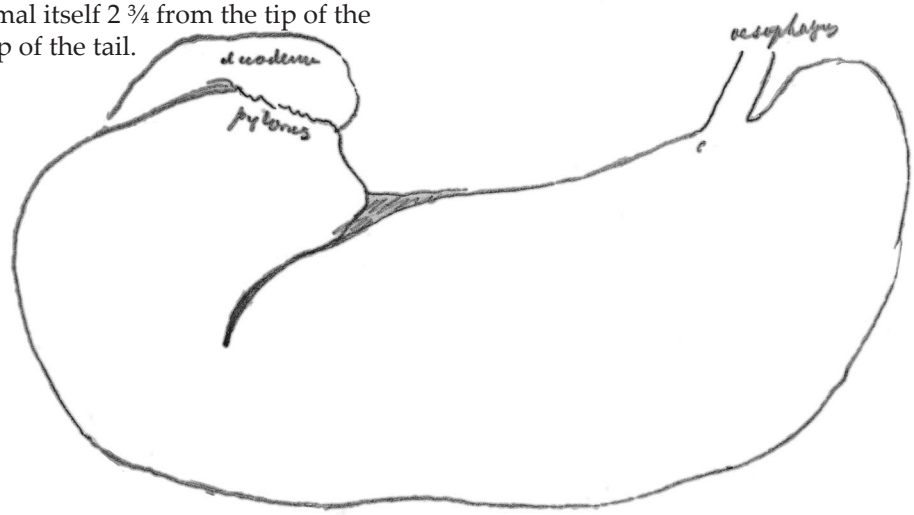
d. Fleshy process of the glans.

e. Urinal opening.

f. f. Fleshy caruncles on both sides of the opening.

h. Anal-opening behind and above the penis.

The stomach consists of one cavity. The pylorus part slightly bent over upwards over the centre part of the stomach. It was filled with ground up *Eucalyptus* leaves and metallic insect elytra. The intestines were 18′ long; the animal itself 2 ¾ from the tip of the nose to the tip of the tail.

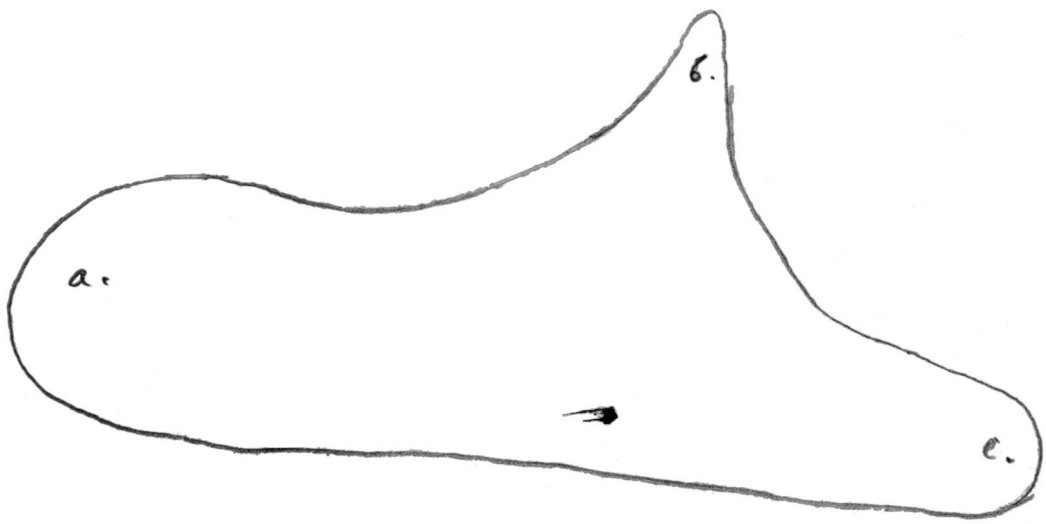


Duodenum pylorus oesophagus

The caecum is 3 ft long. The bladder was empty, very muscular; the base of the urethra was covered by a very spacious glandulose bag, which was bursting with a stiff fatty substance; it seemed to be connected by its opening with the urethra. The spleen has three tips, a broad one, a pointed one, and a tongue-like one.

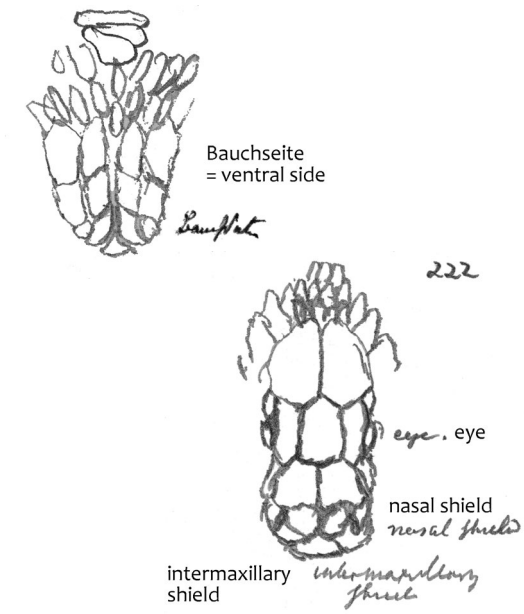
The liver has about six distinct lobes – the left long one with two, the right one with three lobes.

The front part of the larynx is dilated like a bladder. It seems that the glottis itself shows some interesting details, but conditions were too poor for further dissection.



The brown snake about 3′ long, the head scutate. The nasal opening is in a scute, however, shielding the edge of a maxillary scale.

The body scales are elliptical, and small at the back of the head, increasing in size further back, weakly keeled. The tail 5″ has a simple row of broad ventral scales. I think that this snake is only a variety of the black snake.



In a shady gully, where good water is found throughout the summer in a hard rocky basin, I found several frogs and insects. The water has a yellowish colour and has a strongly aromatic, astringent flavour thanks to the *Eucalyptus* leaves falling into it. On the surface *Didiscus* were swimming about like glistening drops; in the water there was a species of small crab, similar to some marine crabs. *Hygrometra* was also here. A larger lizard was not caught, but two or three species of frogs. Leeches were also noticed.

One of the frogs was the green goldfrog. Between the two nostrils two gold-coloured lines meet, each of which continues over the eye and ear across the shoulders to the flanks as far as the inguinal region or the insertion of the hind feet. On the back some scattered golden spots. Golden stripes on the front part of the upper part of the forearm, loins, and leg, while the inguinal and hinder lumbar regions are a beautiful blue. Below the nasal opening a golden stripe; below the ear a white stripe. Throat white, breast and belly studded with small white warts or specks, but only under the upper arm and lumbar region. The tips of the toes are slightly palette-shaped. Teeth in the upper jaw and in the vomer? on one side of the inner nasal opening – two wide openings of the tuba eustachiana.

The pale yellow frog with black stripes above the tympanum descending to the back. Apart from this, spots of yellowish-green all over the body, but the rear part of the lumbar region mottled with black. Throat white, belly flesh-coloured, all the other features the same as the above mentioned, from which it is perhaps only distinguished by its age.

A small dark green frog with a white line from the eye across the tympanum. This frog is even smaller (5/4″ long), while the foregoing one is 1½″ and the first one 2½″ to 3″ long. They all seem to belong to the same species.

Acacia wattle (*decurrens*) and a large-leaved, white-barked *Melaleuca* grew above the gully. It was extremely hot; a scorching wind was blowing from the north-west. But I felt the same heat even where I was not struck by the wind. When I consider this dry aromatic heat, how it is found independently wherever there are singly growing *Eucalyptus* trees and casuarinas, and assume that a similar forest covers the greater part of Australia, I must admit that this completely explains these hot winds to me, which will be all the hotter the larger the area of Australia is over which they blow. The volatile oil of the Myrtaceae family may perhaps contribute greatly to the dryness of the air.

An *Acrydium* flecked with grey, with sharp-edged thorax, 3 lateral bands; the inner lumbar zone yellow with black spots. The large, reddish-brown, more than an inch long *Acrydium*, which I found here, was the same as in Sydney.

A long-legged spider was hidden under the rock; the first, second, and last pairs of feet were the longest. A white stripe on each side of the black thorax.

The crab has pincers ~~claws~~ only on its second pair of feet, if I am not mistaken.

14 December

Mr Rorke and Mr Callaghan showed the Irish character to a high degree: good-natured, obliging, but extraordinarily apathetic, unless they were excited by something special. If they were worked up, at least the former was quick, exaggerating, laughing; but they soon fell back into their old apathy, smoked all day long, were dirty, and almost incapable of any other thoughts after they had fulfilled the narrow boundaries of their daily duties. My trip to the Sugar Loaf particularly revealed the good humour of my Irish companion. Although we lost our way and though I usually walked ahead of him quickly and restlessly, his face showed the same imperturbability and resignation to his fate. But such a man cannot make progress here, and not surprisingly Mr Callaghan has become bankrupt.

It was late when I rode from Minmy. We crossed the large, now dry swamp, which spreads everywhere between the high ridges descending from the Sugar Loaf towards the Hunter River, and because it is not much elevated above the water-level it is flooded by the high river water.

However, I must mention here an observation I made at Minmy. On 10 December we caught the larva of a cicada, which got out of its paper bag on 14 December, restlessly crawling about on the table. It succeeded in dropping to the floor and immediately hastened to the nearest wall, crawled up it about 2', fastened itself with its sharp claws, and then burst open along the centre line to bring forth a fully grown cicada. Though this had happened three days before I left Minmy, it had hardly fully developed its breast, which is, however, the broadest part of the creature, so that the rest of the body can quickly emerge from the opening once the breast has come out.

On the road I found a dead monitor. It was almost 3' long; the tail l ¾ of the length of the body, keeled; the back black with yellow cross-patches and cross-bands; the belly yellow with black cross-bands; the forelegs had more distinct colours than the hind legs; the head was covered with small roundish scales; the tympanum was clear at the level of the eye or slightly below, the tongue split; teeth sharp, large, separate (standing apart). Anus in a transverse slit, no lumbar glands. A number of ticks (parasitic louse-like creatures) around the anus.

These ticks require special mention. Mr Scott told me that a single one could kill a dog. The dog gradually loses flesh, becomes lame in the hip, trembles and stumbles, and finally dies. These creatures originally live free in the bush, particularly in moist places, like Ash Island and the other islands; they stick to people (I removed one myself from Mr Scott's side-whiskers), dogs, opossums (I found one on the opossum shot by Callaghan), snakes, and iguanas, and probably on many other animals. Whether they can really endanger the animal's life, I do not know. Should it be true, it will probably depend on the part of the body to which they stick. {Mr Harper also assured me that this fear is justified.}

On very young trees of the spotted gum, I found the broad-leaved *Loranthus*, which I had seen on a very old *Eucalyptus* in Burwood.

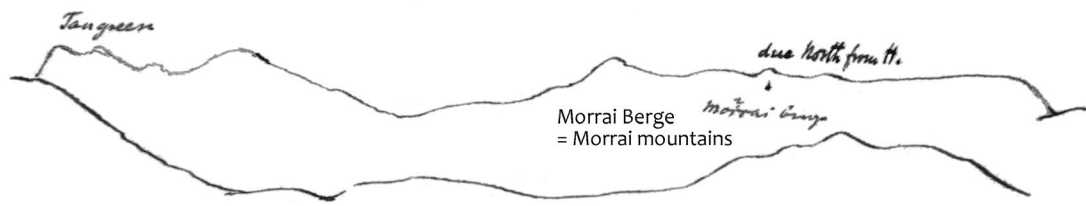
About four miles before Maitland sandstone occurs; it is quarried close to Maitland, where it is used for building purposes. I saw a small church there and a chapel of hewn stone, which have the same slightly yellow colour as the Catholic church in Sydney.

Maitland consists of cottages scattered over a wide area. Some are made of timber and shabby; others of brick are very elegant; in addition there are regular houses two or three storeys high. The site consists of low, elongated hills. East Maitland is separated by a stream ~~the Hunter?~~ from West Maitland. The latter is laid out more regularly and more like a town. As you continue on the fine road to New England, these low hills gradually begin to swell, Harpers Hill and the neighbouring hills rising to considerable, arduous heights. Harpers Hill is cut by the road. Work has been done here for the geologist. A great number of fossils had already been shown to me at Newcastle. Now I am here to examine the locality more closely.

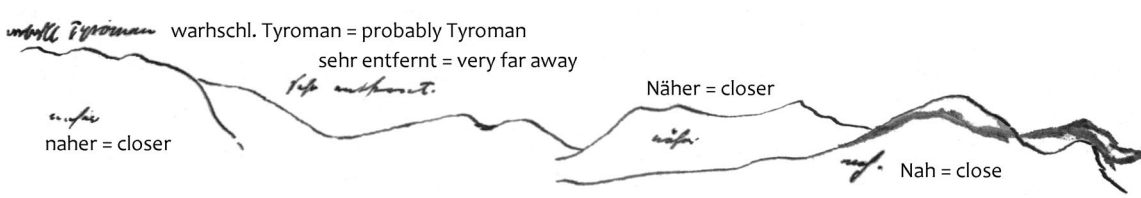
Mrs Harper, an old Scottish lady, received me with great hospitality, She is slightly hard of hearing, which renders conversation rather difficult. One of her sons, a boy of 13 years of age, has lost the normal use of his feet. He went swimming five years ago; whether he stayed in the water too long, or whether he suffered from the scorching sun right after his swim – he lost the full use of his legs, feeling a constant weakness, and tripping over all the time. Like all the other boys of 13 years, he is well-fed, his arms and legs are fleshy, but his arms tremble. What can be done in this case?

There is less vigorous growth of trees on this rich black-brown soil than on the poor conglomerate soil of Newcastle. This is probably due to the greater humidity of the atmosphere. At the moment the grass is scorched everywhere. The vegetation has, however, not suffered in the least.

15 December



Ranges seen to the north of Mrs Harper's house.



Continuation of the range towards the east.

The hill, on which the house has been built, consists of grey-greenish sandstone. It is formed from rounded pieces of a cavernous ferruginous conglomerate, which contains beautiful *Spirifer* apart from the pebbles. Moreover there is a kind of *meulière* scattered over the hillside; it is porous, often containing powdery masses, often indicative of organic substances, with druses of chalcedony. I also found the first granite boulders here. Sandstone cropped out, as I descended to the river. It changes to conglomerate further up, or the latter appears in large masses in the sandstone. It is surprising that so many shells were preserved in the conglomerate, since the grinding up of organic substances is so much hastened by the water rolling about the stones. But there seem to have existed particular conditions here, similar to those in the vicinity of Mr Brook's place on Lake Macquarie, where iron-ochre, deposited in great quantity by a spring among the pebbles of the lake, bound them together more quickly than in the rest of the conglomerate.

I found a large number of shells in the sandstone, both at the foot of the hill and in the rock-wall in the garden, where *Trochus* was particularly common. Sometimes the shells are very well preserved. *Spirifer* has often retained its shell here. In addition *Terebratula* and *Pecten* (often very large ones) occur there. In a small hole I found a very large shell completely free, as the rock round the shell had decomposed. I saw several similar holes, but without shells. The mason bees have particularly built their nests in them. Perhaps they contributed to the widening of them.

At the moment the Hunter is hardly a continuous stream; large pools of water fill its empty bed, fed by random rains or by the moisture drained from the surrounding hills. You can walk dry shod across its bed. It is obvious from the formation of the terrain it must fill up very quickly. Everywhere there are high, rounded hills with gullies descending to the Hunter between them, in which the water running down from the heights collects and rushes down in wild forest streams to the main river. The river-banks are very steep in parts, in other parts they are flat; the bed is filled with pebbles. Among them I found a wide selection of the rocks of the higher-lying country, particularly porphyry, flint conglomerate (conglomerate the cement of which is extremely hard and seems to me to be flint). Phonolite? Anagenetic pebbles, which are like porphyry in some cases or partly consist of its components; the single pieces of which indicate, however, that they were abraded and later combined again. The porphyries have sometimes a red, or sometimes an almost violet or green, or even a yellow cement – some of them would be easy to polish. The rounded-off glassy crystals seem to me to be quartz. They are absent in some, but occur in others, which very much resemble trachytes or rather phonolites. Slate pebbles were also found, but I did not discover the slightest trace of limestone.

When I investigated the other side of the hill in the afternoon, I found broken sandstone slabs containing many impressions of zoophytes almost resembling *Flustra*. Madrepores and *Flustra* also occur in the conglomerate boulders of the hill.

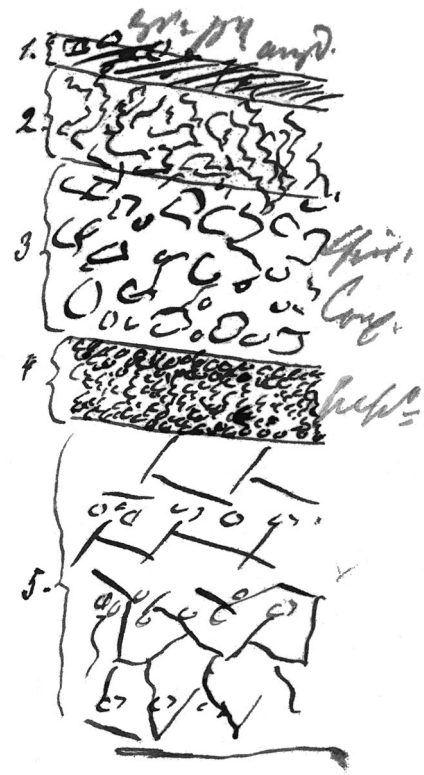
In the river-bed grew a *Najas*?, *Potamogeton*, and a plant with sword-shaped leaves and parallel veins. A *Limnaeus* – eye-stalks wide at the base, but tapering like a thread, the eye on the inner side. Two carinate *Planorbis*, which lay their eggs in little clumps on *Najas*.

Casuarina and *Cassia* were growing on the bank. Ants were very busy on the leaf-stalk glands of the latter. The membraneous placenta peeling off are interesting. A bluish larva of a beetle in the fruit. *Campanula* with linear leaves covered with stiff hairs. Tobacco in the garden. A peculiar pilose fern under the rocks of the hillside; a new *Hydrocotyle* at the bottom with a greyish *Oxalis* and *Apium*, presumably spreading from the garden.

A scorpion was found and the nest of the large brown-breasted ant between two slabs of rock. Its eggs were 2‴ to 3‴ long. Some ants had very big black heads.

This morning I investigated Harpers Hill. Climbing up a gully south of the homestead, amygdaloid rock was abundant, which contained chalcedony in its pores as well as feldspar crystals. The lowest rock was again sandstone, which everywhere shows tendency to conglomerate. On top of it there was a strange kind of rock, which very much reminded me of the peperite of the valley of the Limagne and of the peperino (Lago[?] albino) in its outward appearance. But there was no trace of pumice or tuffs. It was stratified and over it lay the ferruginous conglomerate containing shells (*Spirifer*). In other respects it is like decomposing basalt and I have a piece, which seems to indicate such an origin.

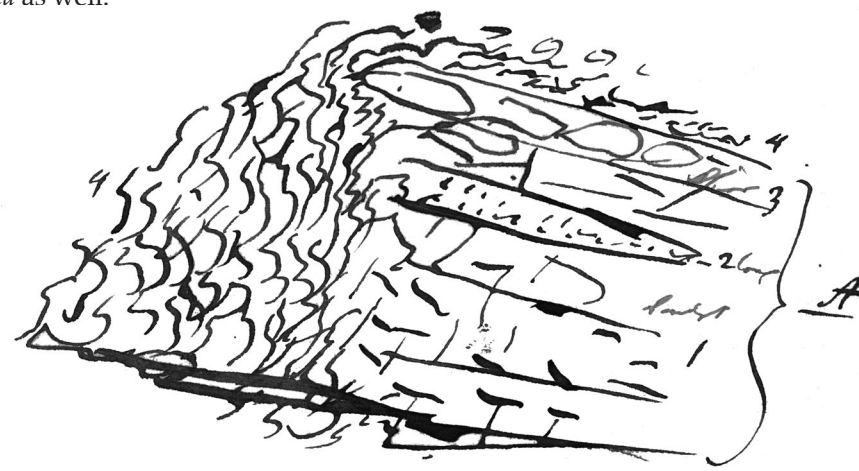
The road cutting shows on a large-scale the stratification of a greenish sandstone with a more whitish one further up, on top of which there are decomposed, rounded masses. Between the first two there is loose black soil in one place. It seems that the green sandstone once formed a steep cliff and that the valley was filled in those times with a reddish sandy clay, which now falls into small roundish pieces crumbling away during the summer heat. The greenish grey sandstone is hard and provides good building material. It frequently contains *Trochus* and *Spirifer*. The sandstone lying above contains impressions of *Equisetum obtuse striatum*(?), which make it the same age as the Newcastle rocks. From the top of Harpers Hill beautiful views are enjoyed in all directions. The mountain ranges to the north, which are silhouetted in lovely blue at various distances on the horizon, make a particularly beautiful view. Also to the south-west and south show several blue round mountain tops and mountain ranges. It is a pity that I have none of their names.



Probable cross-section of the terrain around Harpers Hill.

1. Alluvium of black or brown colour with boulders of porphyry and amygdaloid. Rocks and granite on top of it.
2. Iron coloured sandy clays visible in Harpers Hill, on the steep river-bank, in the ravines between the hills.
3. Coarse conglomerate, very iron coloured, with *Spirifer* washed loose in large pieces by the water and scattered over the hills.
4. A peperite-like rock.
5. A grey greenish sandstone, here and there with tendency to conglomerate. *Spirifer* and *Trochus*, often with the shell; often filled with calcspar. (Mrs Harper showed me a beautiful druse with calcspar crystals).

In addition *Pecten* and various other shells. In the upper strata *Equisetum obtuse striatum*. *Fenesta* (the *Flustra*), which occur particularly commonly in the gully below the stockyard. *Phyllotheca* as well.



Probable section of Harpers Hill

A Is the sandstone in No 5 of the above cross-section, which here shows three different strata.

1. Is a fine, hard, greenish-grey rock.
2. Is a black loose earth.
3. Is a loose grey sandstone, which further up decomposes into large, rounded, ferruginous masses filled with *Spirifer*.
4. Is an iron-coloured sandy clay, which probably covered the former cliffs and filled an old valley.

I caught a spider, very similar to one of the Lycosa, which seemed to me to have only six eyes: four in the front row, two in the rear one. It was living underneath stones and without a web.

I found several species of *Eucalyptus*, which I must at last try to distinguish clearly.

1. The young tree with whitish, rush-like bark, the youngest twigs four-edged as a result of the descending leaf-stems, leaves broad, ovoid (ovate), pointed, colour pale green, edges whitish. Marginal vein irregularly curved. About eight principal veins on each side, alternating, running down the leaf-stem a little. 2″ long, 5/4″ wide. Leaves alternate.
2. Youngest twigs angularly compressed, red; the leaf-stems are also like this; the lower part of the mid vein and the edges of the leaves are red. More than 40 pairs of veins, close to each other. Regular marginal vein parallel to edge; fine network between veins; leaves lanceolate, long and pointed, sometimes ovate because of damaged tip, colour dark green; the fine network allows few translucent dots to be seen, but the strong scent reveals their presence. 3″ to 4″ long, 1″ to 5/4″ wide. Leaves alternate.

3. Young twigs green, angular, leaves alternate. About 14 veins or rather principal veins, fine-netted; principal veins differing little from the others. Marginal vein about 1‴ from the edge, very distinct, regular. Shape of leaf rather variable, partly almost linear, lanceolate, sickle-shaped, then regular, lanceolate, l ½″ long or 4″ long (if very narrow).

{*Angophora*. The flower-stalk and the ribs of the calyx covered with hairs, calyx ten ribs, five denticles correspond to the sepals, five white-winged ones to the petals.}

4. Young twigs round, both twigs and leaf-stems reddish. Leaves glaucous, round, truncated, mucronate, about nine principal veins, marginal vein curved somewhat irregularly, often more than 1‴ from the edge of the leaf, 5/6[″] wide, 6/6 [″]long.

   A *Coccus* lives on it, with reddish body edge and reddish marks on the back.

5. Young twigs sharply angular; they, the leaf-stems, as well as the lower part of the principal vein, and leaf-margins are red. About seven curves of the irregular marginal vein, coarsely netted, the glandular tips clearly visible. Leaf-stems thick and swollen. Length to width 6:5. Broadly ovate.

16 December

Yesterday in the garden, I had an opportunity of studying the different effects of drought on pear-, apple-, quince-, peach-, and apricot-trees, and the vine in contrast to the orange-trees. Whereas the former were covered with fresh vigorous foliage, the leaves of all the orange trees were all shriveled and bleached. I noticed, however, that the tips or centre parts of the leaves of some peach-trees had dried up. I was told that this was a result of the hot winds.

The drought has at least one advantage: it prevents development of the mosquitoes, which in wet summers are sufficient alone to turn the whole colony into half a hell. Harper junior told me that it had happened that one man had shorn 150 sheep in one day. Young mares are taken to the stallion at the age of two here.

What joy and expectation is caused by the postman! Here more than in the city, he is the most welcome visitor, no matter whether he brings sad news or glad tidings.

18 December

On Friday, December 16, I left Harper's. I rode up a hill separated by a gully from the main ridge and then turned right towards the Hunter, whose wide basin, or former bed, became very obvious to me from these rather steep slopes. I saw the quarry from which the building-material for Harper's house had been taken. The whole mountain towards Windham's [Wyndham] place seems formed of it. It is a yellowish rock; only few strata are hard and suitable for use, the others come off in short laminae and crumble. The edge of the hill towards the river roughly and unusually trends from east to west. The old river-bed has secondary hills, probably alluvial masses. On the opposite side the Tangeren and Morrai Mountains come into view.

All the strata seem to dip to the north-west here, just as they do at Harpers Hill. The dip itself is low (about 25 to 30'). The red loam, and the pebbles and boulders, which cover the sandstone, seem to have been deposited by floods.

In the pebbles of the sandstone (which itself graduates into pudding-stone or changes its nature), are mostly quartz and other kinds of sandstone, but also pebbles with clearly visible crystals reminiscent of porphyry. But I found no granite here. No fossils.

While I was climbing about the rocks, the dog had brought to bay an opossum, which had taken refuge in a crevice. I attempted to catch it, but the unruly dog seized it, killed it and tore it to pieces, before I could come to its aid.

When I arrived at Mr Windham's fence gate, I was dismayed to find that I had left behind my botanizing-box in Harper's quarry. I had no option but to turn the horse out to grass, while I walked back three English miles to look for the box. Fortunately the only punishment I received for my forgetfulness was tiredness.

I came to Windham's, who have been living on the Hunter River for as long as 15 years, without being able to gain good economic independence for themselves. They are a large family. She is a woman of noble bearing and probably from a very good family. She is tall, but well-proportioned, has black hair and a fine complexion, large expressive eyes, friendly most of the time, but brimming with conversation. She told me that she and her husband taught their children themselves and that the children were really interested in learning. Mr Windham arrived later. He too proved to be an educated friendly, well-meaning man, who gave me information and advice on many points.

My intention was to see his vineyard and hear what he thought of the cultivation of the vine. Owing to lack of manpower, he has been neglecting his vineyard for the last two years, and the cattle have almost grazed it bare. It lies close to the bank of the Hunter on a sandy, mild but fertile elevation. It is surrounded by lemon-trees, whose fruit were completely shriveled as a result of the heat. The vines are 6′ away from each other, and the rows are the same distance from one another. The vines are very sturdy, real trees more than 6 feet in height, as in Italian vineyards. The sticks are thick, square, rough. His orange-trees are free of *Coccus* and black fungus.

Mr Windham told me that he lets the fermentation take place in a timber house, in which fresh air can freely enter all the time; the warmer the day the better. North-westerly winds are very welcome to him; the wilder and more unruly the fermentation, the better the wine will turn out. After three days, or when all is quiet, the wine is racked off and left in the barrels for a year. He once added sugar without deriving any advantage. The wine, which he offered me, was a strong spirituous wine, but without a really pleasant full and aromatic flavour. Mr Dawson served me a bad quality wine of unpleasant, sour taste, which had been pressed as it were at Windham's. Though Mr Windham had neglected his vineyard, he did assure me that his attempt had encouraged him to make new efforts. A vineyard on a large scale will in all probability be a success. He made, however, a discouraging statement: people do not want to drink his wine; they prefer tea by far. This might change with time, since although they are not accustomed to wine, Windham's good-quality wine mixed with water really is a very pleasant drink.

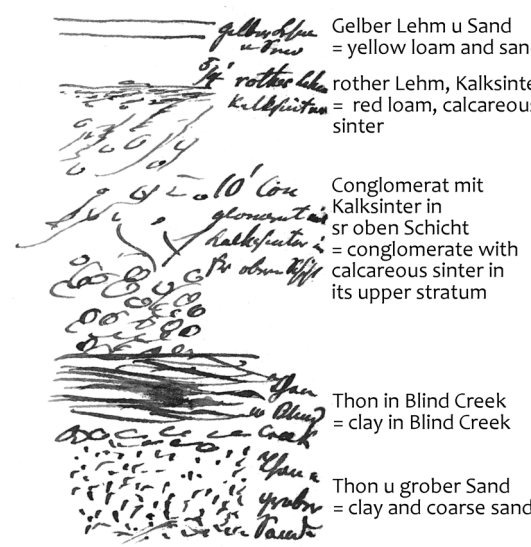
Before I left him, he showed me his wool-press and his wine-house – a stone building serving as a cellar. Moreover he also had some pieces of limestone, which his wagons had brought back from a station (Gummon) in the Liverpool Range. This limestone resembled the travertine in the vicinity of Rome. It was deposited by springs, such as are still found in the neighbourhood. The cavities, in which reed stems had once been, were quite distinct.

He had a well sunk 60′ deep in front of his house. First he found 25′ clay, then 25′ of loose sand, and finally clay with pebbles, which seem to me to be alluvial.

From Windham's I rode on to Mr Dawson, who rents land from Dr Mitchell, to investigate the locality, in which the much talked-of limestone is found.

On the evening of the 16th December, we had a heavy thunderstorm. It was not so much the loudness of the rolling thunder than the incessant electric discharge, an almost continuous light from lightning that was remarkable. The whole atmosphere was like a phosphorescent light, by which the trees, which simultaneously became visible, and the pouring waters combined in a strange landscape picture.

On the 17th we rode to the bush hut of a man called Johns, a butcher, at Black Creek, who described to us the way to the newly opened limestone quarry. We crossed Black Creek, a small stream, which takes a bend here and runs along the foot of a corresponding ridge, while a plain with slight elevations spreads to the north and north-east. We rode up that ridge and followed it for about half a mile until it was met by another ridge running from east to west. To the south of the latter there was another small valley with a small stream (Blind Creek), which was dry with the exception of a few deep water-holes. We rode on along this ridge for about two miles and found the indicated pit on its northern slope, in which they had searched for limestone. {I was told that the shepherds had discovered the limestone through the ants' nests, which usually go down to a depth of several feet and bring up little pieces from below. However, since this presupposes a very sharp eye, I almost doubt the truth [of this story]. The ant hills may, however, have shown a whiter colour.} All along the way we had found pebbles and boulders of porphyry and particularly quartzite, but not even the smallest piece, nor the slightest change in the colour of the ground indicated the presence of limestone. In the pit I saw the following cross-section:



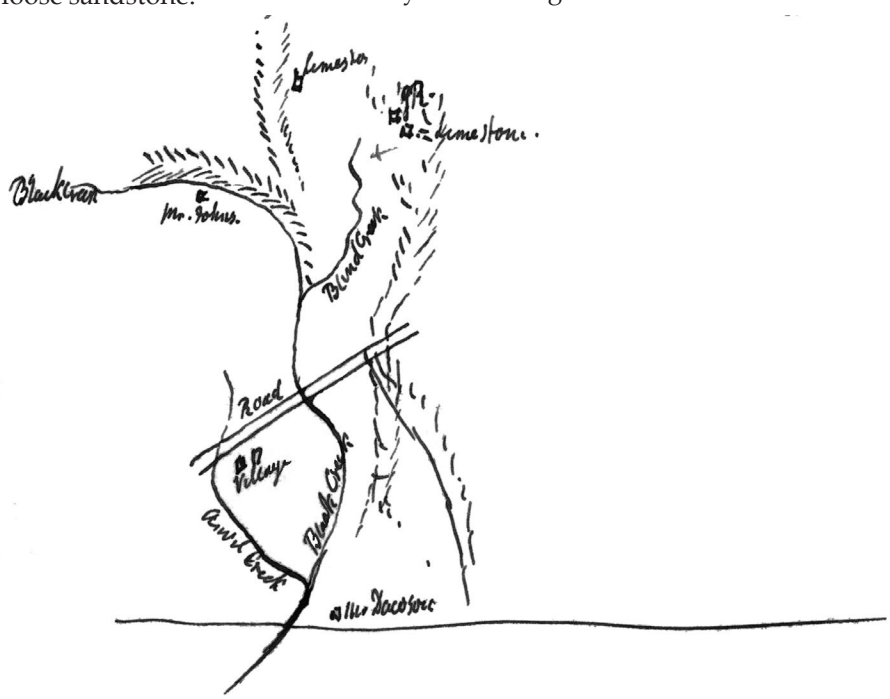
A thin crust of yellow loamy sand covered a 5/4′ deep bed of very red loam. Under this was a loose calcareous sinter, forming thicker and more solid pieces in some places: these pieces, however, contained quartz grains and boulders containing many quartz grains just like the sinter. Gradually the conglomerate became harder, and at a depth of 10 feet it was a very hard rock. In the top half, bands of calcareous sinter could clearly be seen to penetrate the conglomerate; further down all traces of it were lost. This seemed to me to show most clearly that the calcareous sinter was dissolved in a liquid, which deposited it as it penetrated to the bottom. These bands of calcareous sinter seem to descend towards the north.

Most of the boulders, which are in the conglomerate, were quartz and quartzite, but there was also that peculiar porphyry. It is, however, not correct to call it this. It is an indistinctly crystalline feldspar, or with discernible crystalline cleavage, which contains beautiful large quartz crystals more

than 2‴ wide. It should, therefore, be called pegmatite. While granite boulders are very rare, this rock is extremely common. I have constantly confused it with the porphyries of Pt. Stephens, but shall from now on use the name pegmatite. I found a genuine granite boulder in this calcareous sinter.

Mr Johns then took us to the hills on the opposite bank of Blind Creek, on which shepherds had successfully searched for limestone. Here we found the same red clay, the lower parts of which contained small pieces of lime that also looked like sinter. Under it there was about a half a foot or a foot thick layer of separate pieces of limestone, much more solid, but containing a great deal of flint. As we tested this rock with acetic acid, carbonic acid was noticed developing on its whitish edges, but the siliceous centre remained completely free from it. Further upstream, at the bottom of the creek, we found a strangely stratified clay, which later on changed into conglomerate; lower down it was coarse-grained loose sandstone. {Would it be possible that this clay is detritus of the vegetable mould washed down from the mountains?} Nowhere did I find even a trace of fossils. {Mr Scott showed me conglomerate from the same locality. It contained lime, in which oyster-shells and, if I am not mistaken, *Spirifer* were visible. 21st December.}

I now believe that a perfect cross-section would show first red clay, then calcareous sinter, then conglomerate, which changes to coarse sandstone at a greater depth. This sandstone is probably a contemporaneous formation with that of Harpers Hill. The earthy clay-bed recalls to mind similar formations on Harpers Hill and in the gully near Harper's house. Presumably Blind Creek was once the closed basin of a lake, in which a calcareous spring came out, depositing its lime on the bottom of this lake. Now there is no trace of it anymore; Blind Creek is the outlet of the lake. But if one were able to recognise the outline of the former basin, one would find the boundaries of the limestone. {The oysters disprove the assumption of a fresh-water lake basin.} From the description of the limestone, it follows that one cannot expect too much of it and that it would never pay the transport from Mitchell's land, nor even the quarrying. It is a very local formation of little thickness, which by no means remains the same. Presumably the whole basin was once covered with this sinter, but downpours eroded gullies and washed away the existing rocks.



A young man, who had lived a long time in Germany and speaks German well, showed me Mr Dawson's horses. He has three beautiful stallions – Seegrave, Farmers Delight, and a third one, which is not quite so good. He drew my attention particularly to their full flanks and the long sloping shoulders. The former are dependent on a wide curvature of the last ribs. The colour is a dark brown without the slightest tinge of white – a feature which is highly valued. From September to January five mares can be covered per day.

Persoonia mollis and *Angophora saligna*(?), the apple-tree, is in blossom. At Mr Dawson's stockyard I found a beautiful yellow malvacean, which stretches along the ground. In the trunk of the old *Eucalyptus* tree many green and red beetles and their larvae were found. Also an *Anguis*(?) blind-worm of silver-grey colour, which had been drowned in the thunder-shower.

The morning after the thunderstorm, the heavy rainfall formed torrents, tearing down fences all over the place, but at the same time filling all the water-holes. Nature seemed to be awakening as from a stupor and, as it were, expanding her still heavy breast with the first deep breaths. The sky was hung with a low cloud cover; it was very sultry, and we had a kind of East Indian climate, a warm humid atmosphere.

Glendon, 21 December

I have now to catch up with a lot of things. At Belford, as Mr Dawson's place is called, I watched the covering of mares for the first time in my life. In the morning they are taken to the stallion to find out whether they are in heat. This is recognised to be so when the mare begins to stall when near the stallion, or when she patiently bears his wild caresses, or when her vagina widens. She is not in heat when she begins to cry and lash out under the caresses of the stallion. With young mares it is often difficult to recognise, because they are too shy and will neither stall nor kick. The stallion, on catching sight of the mare, starts neighing, and his penis comes out. He comes closer, champing the bit. The mare neighs, and the stallion gnaws at her flanks, her neck, and knees (Achilles tendon), sniffing and, as it were, blowing at her teats and vagina by violently blasting his breath from his dilated nostrils. If the mare is in heat, he usually raises his head up and moves his lips in a peculiar way, which shows his teeth. For the actual covering the stable-hand lifts the mare's tail and inserts the stallion's penis into the vagina. Unless this is done quickly, the member will swell up so much that it will not fit into the vagina. In this case the stallion must break off till the penis is quite limp again. I noticed that after each erection of the member during the first attempts clear drops fell from the penis as it became limp. This seems to depend on another secretion, presumably that of the prostate. These various phenomena are important, since they are involuntary. At the commencement of the breeding-season the stallions are very quick in covering the mares, later they are calmer, but at the same time more productive. Seegrave, the thoroughbred, was far more lively, quicker, and wilder than Farmers Delight. The latter would, during the act, seize the mare's neck with his mouth and hold on to it. The mare did not reveal the slightest sign of voluptuous feelings or sensual pleasure. After the covering, she either quietly remained where she was, or unconcernedly walked or galloped away. Dawson would normally take a mare to the stallion on the eighth or ninth day after she had foaled. {On jumping off some semen usually fell to the ground from the stallion's member.}

A small beetle, probably belonging to the melolontha family, was in large numbers on *Angophora* saplings. A big red-legged scarab ran all about the ground, making a chirping

noise by rubbing its last broad body segment with the rear edge of the elytra.

In the morning one of the men brought two heavy eels, which he had caught in Black Creek after the violent thunderstorm. Mr Porter and I immediately set out to see the spot and catch more, if possible. We saw several eels near the bank with their heads out of the water, looking, as it were, asleep. The man who was accompanying us stole upon them with a sharp knife, which he thrust into their necks, trying at the same time to throw the animal onto the land. In this way we caught three eels, each more than 3′ long and 9″ in circumference, weighing up to 4 lbs. Later Mr Helenus Scott told me that the eels come up the banks to draw air, as they are accustomed to clear water and finding it at present full of dirt and clay particles, which impede their respiration, they are forced to breathe from the atmosphere. {The teeth are free and cover the jaws in large numbers} Mr Scott went on to say that three species of eels are to be distinguished: the thick eel, a slender species, and the silver-eel, the last tasting better than the other two. One of the men had slit open the eels and showed us the strips of fat hanging from both sides of the spinal cord into the abdominal cavity. I said that I believed they were the male genitals, at which remark he had a good laugh thinking it rather a silly opinion. {The small black tortoise is common in Black Creek.}

I found no teeth in the mouth of the small blind-worm; it cannot be poisonous, although it is decried as poisonous. It has fine shining scales all over the body and even partly over the eyes. The foremost ones (maxillary scales) are large. The anus is scarcely half an inch from the tail-end.

Miss Dawson showed me an acorn-shaped fruit, which is said to grow on the root of a low plant. If I remember correctly, it is a *Zamia* seed freed from its husk.

I shall always remember the friendly young man, who would really like to take an interest in science, but who has just lacked a magnet for strengthening him. His interest was aroused in all directions and after all in a case like his it is better to take in every new thing. His name is William Porter, from Essex in England. He seems of a good family and intends to return to England one day. He is an obliging, well-educated man, who is not only pleasant to get on with, but also instructive. He accompanied me to Mr Kelman, a Scotchman, to whom he introduced me. The latter has laid out a large vineyard and made wine. As it was of special importance for me to see this branch of agriculture, I did not intend to miss the opportunity of making myself familiar with the experience of this man. His vineyard is about 40′ above a gully, which, after some bends, falls into the Hunter. It contains water almost all the year round. There is a stiff clay at the bottom. The soil of the vineyard itself is reddish and yellowish sand intermixed with a slight clay and humus content (a light garden-soil), loose, easy to cultivate. {When pressed with the hand, it will retain the impression – this perhaps now only because of the moisture present.} Mr Kelman had only ploughed his garden without trenching it. At first he planted the vines at intervals of 6′ by 6′, training them 6′ high. He has, however, come to the conclusion that it is better to plant them 3 by 3 feet apart and drive in a stake from 15-18″. He does not tie up the vines, but lets them hang over. {Mr Bell follows the same principle in his garden.} The reason is he wishes to obtain good table-grapes and these require plenty of shade. He prunes the vine in autumn. Formerly he had tall stocks like Mr Windham, but now he has pruned them low, and trains long branches. He rejects summer pruning, because he thinks this would deprive the grapes of the necessary shade, which is perhaps true considering this rich climate. This supports

the Italian way of training grape-vines on trees as a good method for this climate. Instead of poplars and elm-trees, one might perhaps choose the Cape mulberry-tree. This year he had beautiful grapes, though not many, because he had just cut the old stocks back, and these were only bearing shoots from the old wood. He has red Alexandria, red and white Hermitage, Cornuta, Chazelas and many other kinds.

His fermentation is very wild and violent; it is often over within 24 hours. His fermenting-tub stood on a verandah closed in with boards, his wine-casks lay in a 4 foot deep vault-like hollow, over which a timber-hut had been erected, surrounded on three sides by a closed-in verandah. This cellar was cool compared with the outside air, but there was no thermometer for exact determination. His fermenting-tub was a very large wine-barrel, which he stood up vertically and knocked out the bottom. His wine-casks were mostly sherry-casks.

He has pressed out only the white Hermitage and the red Hermitage. The former is excellent; the latter tastes very flat. The colour of the white wine is greenish.

The vineyard is surrounded by a beautiful cactus-hedge. This cactus is very similar to the cactus *Opuntia*, but it has thick round stems and branches and retains its long spines. It comes from one of the South Sea Islands.

In addition he has planted a mulberry-hedge to the west, north-west, and north, to protect the vineyard from the hot winds. The Cape mulberry-tree grows very quickly and gives a pleasant though not too dense a shade. The track leading to his house is lined with aloes, which, in conjunction with the cactus, give the vineyard and house quite a tropical character. One of the aloes in front of the house has now pushed out its flower-stalk almost 30′ high, which is full of flower buds. If it is true that such a beautiful and noble plant dies down once it has ceased blooming, the reason for this seems to lie in its excessively rapid vegetation and in the exhaustion caused by it. One would, therefore, have to prevent the flowering as long as possible, in order to preserve the plant proper for a long time in its undiminished vigour.

Mr Kelman complained bitterly of bed-bugs, ants, birds, and thieves. He had piled up a high stack of wood over an ant-hill, which he lit in the evening. When I went there in the morning, I saw that the three wide paths radiating from the hill were covered with the same crowd of ants, which were coming home from a distance, running into the ashes, but turning back when they felt the heat. One of these paths led to a flowering *Angophora* tree. I could not help thinking of that prophecy, according to which England would be engulfed by an earthquake. Thus the countless ships would return and steer across the vanished homeland they were looking for. {The ants' nests often reach down to a depth of 5′ and the animals withdraw to the lowest parts as they feel the heat. Consequently a big fire has to be maintained for a long time to choke them.}

In the orchard he had apricots and the red-flowered small peaches ripening; a black fig and a brown one (the latter softer and juicier). A black fig-tree was particularly beautiful. He planted one new variety of fig with deeply lobed leaves, which is said to bear well. At his house he has an American vine with insignificantly lobed leaves, which yields few and little-valued grapes, but offers plenty of shade. The mulberry-tree bore beautiful large black fruit. The colour was excellent and could perhaps serve to colour the wine.

The magpie, a black-and white-coloured bird, is here in large numbers. There is one sitting just now on the flowering stalk of the aloe; it has a somewhat gurgling song. {These, the parrots and leatherheads do great damage to the fruit. They are extremely fond of figs.}

The orange trees are only slightly covered with cocci, but there is no black fungus.

Yesterday morning, December 20, I left this friendly family, and rode to Glendon. Mr Kelman, however, accompanied me to show me a coal-bed. Not far from his house we rode across the Hunter. On the northern side rose high hills, all of which consist of sandstone. This sandstone seems to be of the same nature as that of the hills between Harper's and Windham's. As I was inspecting the quarry, my horse, which I had left untethered, walked slowly away, and conscious of its liberty, ran away from me when I wanted to catch it again. Mr Kelman had a sharp ride to recapture it for me.

Mr Helenus Scott and also his wife received me in a very friendly way. He is one of those men, with whom one immediately feels familiar. It was like meeting an old friend again, and I could not at first account for this feeling. Later, however, I found that Mr Helenus Scott bore a great resemblance to two men I had known previously. One had come out with me from England, the other was Mr Robert Scott of Sydney, whose voice and eyes I found again in Helenus Scott.

In the afternoon he accompanied me to the steep banks of the Hunter, where there was a very interesting site: blue clays, which contained pseudomorph crystals and round nodules, lay on large sandstone lenses. Thirty and more of them had been stripped by the water of the clay cover and now showed a regular decomposition. The jointing partly ran from ESE to WNW; partly from the periphery to the centre. In addition the jointing differed slightly in the flat river-bank; one joint went from E by S to W by N, the other cut the former diagonally, so that rhombic figures were formed. Over the blue clays there was again sandstone, which changed to the nature of pudding-stone.

Those huge sandstone lenses, which effervesce a little with acid, showed the greatest convexity on top and lesser on the bottom. Perhaps the latter was caused by the longer action of the water. They resembled round haystacks or gigantic bee-hives. Sir Thomas Mitchell had tried to determine their position relative to one another, but there was no evidence of any definite rule; occasionally there are three in a row and the fourth is different. I was thinking of local springs containing limestone, which bound the sand-masses more closely as the limestone was deposited in them. Mr Clarke seems to have thought of an explanation by volcanic activity, of which there is, however, no trace.

Mr Scott drew my attention to the peculiar shape of the flat terrain, which showed slight hollows and elevations all over it, which sometimes continued in regular rows. When they had asked the savages about the cause, they replied that it had probably been done by the devil-devil many years ago, and that was why this ground formation was called the Devil-devil land. {The Devil-devil lands proper, however, are continuous elevations and their origin is very difficult to explain} It seems to me, however, that there are several reasons for this formation. The burnt-out roots of trees left hollows behind; the water, without outlet on a plain, formed puddles, which gradually deepened, unless already existing depressions develop a more definite shape.

Growing on this rich soil we found a plant with finely pinnate leaves, *Mimosa terminalis*, the little leaves of which fold upwards when touched; the yellow flowers are united in little flower-heads; each flower seems to have five yellow petals. The stem is weak and prostrate. *Lobelia serrata*. The leaves are serrated and arranged in two rows; the plant lies flat on the ground.

A tree of medium height grew on the Hunter, with white tubular flowers in

clusters or panicles, with yellow fruits. {The malvacean (*Sida*) and the Rubiaceae grow commonly here. The couch-grass is present; it seems to have been introduced, but there is also another grass. Mr Scott showed me a perennial grass from the Liverpool Plains, which seems to be a species of *Avena*.}

Melia in the garden was in flower, five deciduous sepals, five or six slightly purple petals, stamens united in a brown tube, eight anthers on the one side of the tube overtopped by the tips of the filaments; five capsules, monosperm in the form of berries.

Sterculia has no petals, the sepals have coalesced, five. {Anthers double!} The fruit in a capsule (or a pod) with yellow seeds covered with stellate hairs. Albumen present. Straight embryo.

Mr Scott told me that the wild dog often pretends to be dead; it is often whipped to death. Where hunting dogs are kept, they often hunt by themselves, ridding the district of wild dogs.

The savages have an extraordinary gift of being able to recognise persons even in the dark by their voice. It is common practice to kill bastard boys at the age of nine.

{No wheat has been grown here, at least not for the last two years. It is cheaper to buy wheat; they grow maize and millet.}

A sheep-shearer shears only 30 to 50 sheep well. If they are paid by the dozen, they shear a hundred and more, but very badly. Sheep are now being shorn at Glendon.

Thunderstorms usually form in the north-west and then pass over to the south-east, but often storms rise in the west and then separate; one mass of clouds moving along Mount Royal, the highest mountain in the district and the other moving along the Wollomba Range. Later they often rejoin each other. This separation had thwarted the farmer's hope here during the whole summer.

The savages make a peculiar kind of spear for catching fish. They tie three to four sharp wooden needles of hard ironbark wood, the needles with or without barbs, on to a stick, and hurl this into the fish.

Three big aloe plants stand in front of Mr Scott's cottage. One, however, has suffered a little from the north-westerlies. The rain has generally stimulated the vegetation, and field and forest begin to be covered with a fresh and delicate green.

Before breakfast Mr Scott assembles his immediate domestic servants for morning prayer. This is rather a gratifying enjoyable divine service.

Quite a number of cottages surround the main residence.

22 December

This morning I went to the ridge with the sandstone quarries. On a wattle *Acacia* I found a grey *Rhynchophorus*, the belly or the flanks as if covered with pink dust; the female almost double the size of the male. Six rows of sharp tubercles.

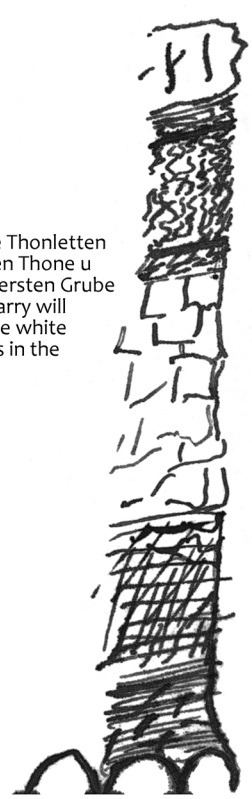
On a reddish *Acacia* or *Inga* in Mr Scott's garden, I found a small caterpillar of a greenish base-colour with eight pairs of humps on its back; the first three, the biggest, were a reddish colour, just like a band along its sides. It is difficult to distinguish them from the similarly coloured flower-buds.

The hilly ridge lies to the NNE of Glendon and seems to trend from east to west. Its elevation hardly amounts to 100′ (80′). It bounds the plain traversed by the river and seems to isolate the alluvial formation. Comparing the various quarries, we find furthest towards the west, where the stream or gulley touches the hilly ridge, a clayey, jointed sandstone the colour

of iron-ochre, which contains impressions of ferns. Over it lies a bluish hard sandstone of excellent quality, almost too hard for working. There are several beds of it and some beds also seem to have impressions of leaves. Further up, however, it is covered by an even harder, jointed sandstone, which contains the same articulated stems from Nobbys Island and fern impressions. Over it, where the track first touches the ridge, white clay with a coal seam, and, again on top of this, sandstone, of which several beds are also quarried and shows a brownish colour. In the coarse sandstone of the first pit, I found calcspar in a fissure. Close to the brown coal seam are rare leaf-impressions in the clay (particularly those of the netted fern-leaf).

The strata dip very steeply to the north (about 39°). The stone cutter told me that this made the quarrying of the blocks extremely difficult. "I have been working for a long time in the stone quarries of this colony", he said to me, "but I have never seen strata dip so steeply; they lie horizontal nearly everywhere."

In the quarry proper, there were many impressions of leaves in a bed of clay shale over the hard sandstone and which were often remarkably well-preserved in the hard sandstone itself. They belong to the ovate or spatula-shaped ferns. Immediately above this clay shale there is a thin layer of limestone or limestone concretions, as are also found in the clay on the Hunter River.



Yesterday I rode to Jump-up Creek with Mr Scott. There I discovered those fossil zoophytes, which I had found in the gully near Harper's house. Here the whole sandstone seems to have been formed of them. Stratum upon stratum, two or three species, one with larger, another with finer meshes. In addition a ribbed bivalve and a *Spirifer* were seen. Both demonstate the identity of the rocks at Harper's house and here. {*Spirifer* with concave beak and twelve vertical ribs is different from that of the pudding.} It is possible that these sandstones run under the blue clays with the pseudomorph crystals on the Hunter and consequently belong to the gigantic lenses.

While I was investigating the rocks, Mr Scott had made a fishing-spear by fastening three barbed iron hooks to a cane, and he was now trying to spear eels and smaller fish with it. He caught a heavy spotted eel and a mullet. The latter fish is very similar to the one living in sea-water.

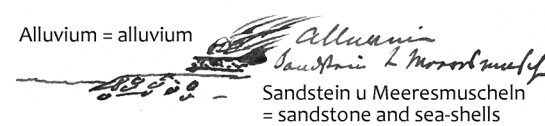
I discovered a new reddish legume on the banks of Jump-up Creek.

Afternoon

I followed the Hunter River southward from Glendon as far as Mr Bell's property. Immediately below Scott's garden, the river flows in a bed of pudding-stones and loose sandstone.

Besides the beautiful quartzite boulders (which Mr Clarke mentions as the only erratic blocks in this district) among the gigantic sandstone lenses, there are some more similar ones immersed in the pudding-stone further up. It is an extremely hard rock, consisting of quartz grains, which are almost fused together by siliceous cement. The hammer rebounds from it, as if it were elastic. {It is not a proper erratic block. It has been freed from the pudding-stone by water. Erratic blocks belong to the youngest geological period and are found on the surface of the earth. We believe that they were scattered across the earth by diluvial floods, or that they are to be explained by causes, which can still be observed at the north-pole}.

On the western side of the Hunter, a thin layer of clay lies over the coarse pudding-stone, and on top of the clay there is loose ferruginous sandstone about 2″ thick, which contains ribbed sea-shells.

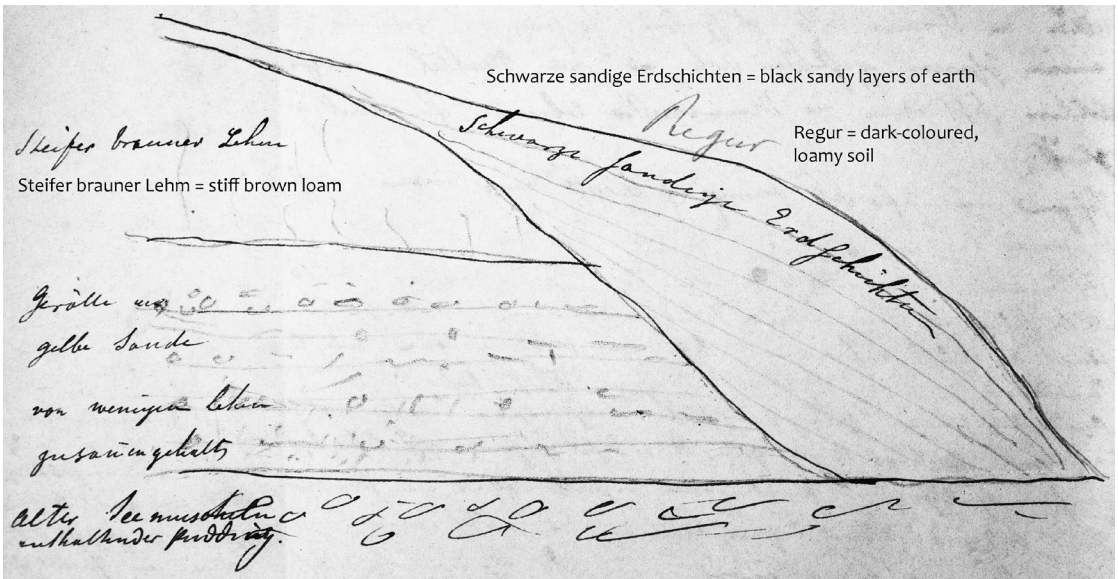


Slate pebbles occur in the upper conglomerate.

As you walk on from the tree-trunk that serves as a foot-bridge across the river, new strata gradually rise above the water. They may perhaps be distinguished by the shells, which they contain, although all of them will certainly belong to a formation from a long period of time.

Close behind the fence, I found a *Helix*-like shell, the sole univalve that I was able to discover here in the conglomerate. Pebbles of an older conglomerate with traces of shells occurred here as well.

A gully below Mr Bell's garden revealed the cross-section of the alluvium.



Gerölle u gelbe Sande von wenigem Lehm zusammengehalten= pebbles and yellow sand bound by a little loam
Alter Seemuscheln enthaltender Pudding = old pudding-stone containing sea-shells

It was interesting to observe that the sands and pebbles and the loam were stratified horizontally, whereas the soil layers were sloping down obliquely to the river. The former had been deposited by the river, which later probably cut itself a new bed through them. The latter were formed as a result of heavy rainfall, which carried the humus down the hillsides.

The conglomerate gradually changes into schistose clayey rock with pebbles and some extraordinarily large boulders.

There were shells, but very crushed. Those pseudomorph crystals, which occurred in the blue clays further downstream, seem to turn up again. The outer surface is coated with salt here, which seems to me to taste of soda.

The deeper you get into this clayey rock, the more finely-ground mica flakes appear. Oysters? *Hemicardium*, *Spirifer*, and zoophytes occur and these zoophytes, whose abundance increases in the lower strata, lead us to the sandstone of Jump-up Creek, which lies under this clay conglomerate.

The dip of the strata is about 10°. They dip to the north-west diagonally towards the river.

A beautiful block of whitish granite is in the conglomerate below Bell's garden. It is full of quartz and mica, and a little feldspar, the presence of which, however, is proved by the whitish surface in consequence of decomposition.

23 December

Another boulder that has come free, consisting of quartz grains cemented together by flint, is angular. For the first time I found here a boulder of whitish marble of approximately a foot in length, which perhaps promises interesting information about the previous terrain formation.

I have to make the following comments on the fossils found here:-

Spirifer sexcostatus. Three very strong vertical ribs, decreasing in size in front and at the back. Between the biggest central ones a weak seventh rib. I found it right behind the gully below Bell's garden.

Spirifer without ribs, very large, 2½″ long, 2″ high, with relatively short beak, the latter ⅓ of height. In the micaceous pudding.

Spirifer 16 *costatus*. Eight sharp ribs on each side of the beak-line. Ribs very close and low. In the mica pudding.

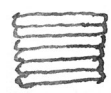
Spirifer with eleven ribs, it is not symmetrical on both sides.

Spirifer multicostatus, very long, with many ribs, growth lines fine and very conspicuous.

Another series of fossils had fine vertical lines; shell is thinly laminated. I do not know whether they are *Spirifer* or not; I think not.

In addition the trace of a bivalve with long spines, which remained visible here and there like white lines in deeper spots.

Hemicardium seems rather distinct immediately behind the gully.



A flat articulate fossil similar to *Nereis*.

A *Turbinolia*? Another zoophyte like a caterpillar.

An oyster?

A crinoid stem.

An *Anomia*-like shell with spines and another one with fine tubercles.

Two other zoophytes, one resembling a Neptune's-wristband; the other forms a network in a coniform cavity.

{I want to show the secondary meshes.}

Moreover I found tapering fragments filled with limestone, which corresponded to the pseudomorph crystals in the blue clay on the Hunter River.

{A shell, like a *Panopaea*, half a foot long and 2 to 2½″ wide, was found likewise below Bell's garden.}

Some shells also contained an impression like that of an operculum. It is, however, surprising, that I could not discover any other univalve apart from the *Helix*.

Yesterday we had a thunderstorm, which approached from the south, from which quarter Mr Scott had never seen thunderstorms rise. This will probably be due to the position of the mountain ridges. The flashes of lightning were a striking red, whereas the ones watched at Belford last Friday were very pallid and phosphorescent. {The heavy thunderstorm on 16 December came from the south-west. At Maitland it seemed to come from the west. In the evening of 25 December another heavier thunderstorm came from the south-west. There have been thunderstorms nearly every day now, which hit Glendon more or less. The storm on the 16th was the first.}

The yellow lucerne comes from South America; here it is mixed with the purple-coloured one. The cattle eat it, although they do not seem particularly fond of it. The horses at first even refused to eat the purple one.

In the river there are *Anodonta*, which has, however, a small tooth in each valve. *Limnaeus* and *Cyclus*.

Mr Scott has built a very neat little house for his bees. There are three separate stands, one for each hive. He told me that the channel surrounding the pedestal ought to be wider, and should be covered because the bees kept falling into it. The main thing, however, was that the hive has two openings which jointly open to the outside. The mother-hive is at

first placed over both openings, but when it is full, it is pushed aside so as to allow only one opening to give access into it and an empty hive is put over the other opening. The bees now use the empty hive to deposit their honey. The hives are green and almost cubical.

Apart from the *Sterculia*, I have seen the *Callitris* as a native tree. *Glycine*, in two species, from China.

I found a *Polygonum* with flattened, lenticular seeds. Inflorescences surrounded by a green calyx, inflorescence axillary and terminal, several flower-stalks in one ochrea, leaves pointed, lanceolate, very finely serrated or ciliated, secondary veins simple, distinctly parallel, One line apart from each other. Ochrea extending almost as far as the next leaf, ciliated with long stiff hairs, – accumbent stiff hairs. A peculiar tall grass with sprigs from the articulations, sepula small, glabrous, short leaf surface. Flowers terminal, pediculate spikelets (on one side), in pairs, on the underside of the secondary axis, eight to ten and more of these.

The legume has a smooth-edged vexillum, which slightly overlaps the wings and carina, stamens 9-1. Ovary pilose. {Another species has ovate leaflets.} Styles somewhat bent, stigma simple little head, calyx weakly bilobed, five-toothed, pilose, two little scales at the base. Inflorescence racemose, very short pedicels, common flower stalk very long. Ternate leaves, two small lanceolate stipules, each leaflet with linear stipules, linear and lanceolate reticulation, hairs prostrate on underside and all over the plant, more than two seeds.

I have been watching an Aborigine throw the boomerang. They propel it extremely high up into the air. It described a curve without, however, returning. The wind was a bit too strong.

Afternoon

Right below Glendon loose sandstone. *Helix* and ribbed sea shells. Also an anagenetic boulder. I think the quartz grains in the pegmatite are too watery for quartz. Another pebble was green and was of a feldspathic nature.

There are a lot of impressions of stems contained in this sandstone conglomerate. Could it correspond to the one below Moris's Bath?

Smaller, harder nodules (lenses) of one foot and more in diameter are found here, which are distinguished by their red colour resulting from their iron content.

A beautiful lichen was found here on the moist sandstone cliff. Other kinds of liverworts were common on the micaceous clay.

Fungi are shooting forth from an old tree-trunk after the rains. They had burst and raised the outer rings of the timber. Several little red beetles were in them.

Further upstream harder, clayey rocks, which have defied the weather and the river, form a ledge. They were followed by micaceous clays, in which again occurred the little crusted horns, which correspond to the pseudomorph crystals. They seem to dip towards the north-west ~~towards the river~~. This rock with its cleavage, with its hard lenses, and abundance of mica, vividly reminded me of the clays under the fourth coal-bed, in which Moris's Bath had been hewn near Newcastle. The fossil stems contained in the pudding underneath would agree with that very well; but there is no coal above and between them.

There are pebbles in the hard lenses. A trap boulder(?) in the clay itself.

Among the clay particles I found two peculiar yellow-banded worms.

The *Verbena*, which is flowering at present, is a shrub-like plant. *Dianella* with blue berries and black seeds, long leaves at the base (half the length of the 3′ tall leaf stem), small stem leaves, leaves sheathing the stem, sharp on edge and keel.

Were it permissible to assume that those clays and puddings wholly correspond to those mentioned in Newcastle, the zoophytic sandstone, which is found on Jump-up Creek, would be expected to occur beneath them at Newcastle.

It seems that the rainfalls mainly occur at the four turning-points of the sun – the equinoxes and the solstices. Mrs Scott told me that the last heavy rain fell here in July.

I found two annelids, which are very similar to leeches. They are approximately 3″ in length, venter a beautifully bright yellow, three yellow longitudinal dorsal bands, the central one being broadest; the head section is slightly reddish.

24 December

The moreton bay chestnut grows in Mr Scott's garden. It is a small tree here with dark green, asymmetrically pinnate leaves. The leaflets are oblong, unequal, the underside narrower than those towards the end, the veins are curved, the secondary veins forming a beautiful tight network; they are shiny, smooth-edged, five pairs of pinnae. The large beautiful red flower sits on a long flower stalk, which grows right on the wood. The calyx is yellow, ventricose with five broad blunt denticles, which differ little from one another. The red corolla is perigynous (joined to the calyx almost in a line), the vexillum is not bigger than the wings and the two separate carina leaves. The stamens are deciduous and are absent in inner flowers. The fruit is a long pod with three chestnut-like seeds, which are roasted and eaten by the savages of Moreton Bay.

Apart from the poplar-leaved *Sterculia*, there is another variety in the garden – the 'emu-footed' one, the leaves of which have three lobes like the foot of an emu. Male and female flowers on the same stem.

25 December

Yesterday I made a long excursion towards the east. At first I followed a little creek down to the Hunter, then this river as far as the junction of Glendon Brook, and then I went up Glendon Brook to the spot where coal has been found. {The conglomerates are like those of Blind Creek; the lower strata, more sandstone-like, contained beautiful shells with spines. Along the stream towards the south, there is a wall of coarse conglomerate, containing shells, trap, and granite boulders. The conglomerate is 60′ to 70′ thick here. It is yellow and sandy in its upper parts. Coarse violet sandstone at the very top.} At the sheepfold, Mr Scott has had a well dug, in which loose pudding stone was found at first, which, however, became extremely hard at depth and showed smaller components, so that he was forced to abandon the work. On the stream there is pudding, covered with loose pebbles and clayey alluvium.

{A sandy, clayey, yellow conglomerate like that on the river below Glendon.}

A hilly ridge trending to the east reveals pudding in its lower parts; higher up the whole ridge is covered with a coarse-grained violet sandstone, which is not very hard.

The same conditions are found between the junction of this stream and Glendon Brook. {On the Hunter the whole bank consists of conglomerate. The heads crop up to the SSW. Impressions of shells in a hard flint of the conglomerate.} In the pits, which Mr Scott caused to be dug opposite Mr Kelman, with the view of finding limestone, you see some big blocks of sandstone, the joints of which

are covered with calcspar, in a kind of sandy marl; the strata dipping very steeply.

{They strike south-east and dip north-east. A good cross-section. Transition of pudding to sandstone opposite Kelman's.}

As you go up Glendon Brook, you find loose sandstone in the river-bed or projecting into it, but it is covered everywhere with alluvium. About a mile from the junction, however, steep cliffs rise on the eastern bank. The uppermost strata contain pudding, then follow clay-shales containing countless impressions of leaves, and further down highly jointed sandstone with coarser components and impressions of leaves and plants. That there is coal both in and under the river-bed is shown by the pits which were dug about half an English mile further up. The coal is not good; it contains too much iron. No doubt these are conditions, which suggest Newcastle to us. It is indeed very likely that these cliffs correspond to the upper series of the rock strata of Newcastle. The pudding, the lignite seam and the yellow sandstone speak very much in support. But what the relation is between these cliffs and the other rocks at Glendon is not yet quite clear. I would only like to add that the hilly ridges on the Hunter are covered everywhere with very ferruginous sandstone pebbles.

I passed an almost dead *Eucalyptus*, to which a large number of covered passage-ways made by the white termite lead up. I made an opening into one of them and was now delighted to observe how industriously the ants sought to repair the damage. On the one hand they are a small kind, whose head is drawn out into a horny tip; on the other, a larger kind with big abdomens and without the tip on the head. As soon as the opening was made, the pointy-headed ones came, palpating the opening with their feelers, as though they wanted to estimate the extent of the damage. They each remain at their posts, turning their pointed heads towards the enemy. Many of them make a peculiar nodding motion with their heads. After them the pot-bellies arrive, and, turning round, secrete a drop of a yellow liquid, which soon solidifies, turning a dark brown. But before this happens, the same termite or another one will put a hard pellet, held between its biting-pincers, on top of the yellow substance, kneading the two together. It seems that in case the substance has already solidified too much, they can again liquefy it with their spittle. Joining pellet upon pellet together in this way, they work very rapidly. If you touch the pointy heads, which are guarding the operation, they will not run away in spite of the danger. The workers, however, are shy and run away immediately.

A green grasshopper with a white band on its back. The empty shell of a *Limnaeus*.

Particularly on the dry tufts of grass an *Acridium* was frequently found, about 5‴ in length; grey back, black flanks, yellow venter. With it was another one of the same size, mottled with black brands on the grey hind legs. Since they always occur together, I am inclined to suppose that the former is the female, the latter the male.

The slender brown ant lives in holes in clayey ground, in front of which it throws up mounds of loose sand.

The swarming of the purple ants was in full swing.

A *Chlamydophorus* (Jew Lizard) was half hidden under cow-dung. I killed and skinned it. I saw its slightly split tongue, its long lungs, the apex of the heart fastened by a firm band to the pericardium, its simple stomach, the duodenum with thick villi and small intestine, the large colon very large with caecum, the bilobed liver, the glands (about seven) on the loins, two tubercles or glands in the tail on both sides of the anus, two small oval bodies in the pelvis, and the large yellow fat-bodies.

On the stream (east of Glendon) *Lobelia* with serrate two-rowed leaves is very common on black fertile soil. The leaves are now close together, now further apart, which gives the plant rather varying habits.

A *Chenopodium* forms almost a meadow in the bend of the stream. It is a low plant with narrow leaves and a weak stem. *Hibiscus* and *Cassia* grow with it. I am going to call it *Hibiscus belonecaefus*[?], because its most developed leaves bear a resemblance to those of that plant; the leaves of the old branches are almost round. The stamens of *Cassia* are very conspicuous. One sterile, two rostriform, four large and fertile, three sterile (ten altogether).

The native elder {*Tripetelus australis*} (which probably belongs to the monosperms thanks to the triad of its flowering parts or a similar family) has beautiful yellow palatable berries; they taste a little too watery. This plant very much resembles the elder in its growth, the distribution of the pith, its pinnate leaves, the colour of the flowers, its inflorescence, and its berries, and even in its taste; but in spite of all this they belong to different families.

In a shady, fertile spot on the Hunter a *Cynoglossum* was flowering; also *Malva*. (with three involucre leaflets), which vividly reminded me of a similar one around Goettingen. {*Myosotis*}

A beautiful legume, the leaves with two leaflets (a yoke), two very large broad bracts, calyx bilobed, stamens united. {*Zornia*}.

A shrub-like *Opercularia* grew in the company of *Ricinus*?, on which I noticed glands in the place of the stipula.

Where the Glendon Brook falls into the Hunter, there is a small grove of that monopetalous tree, whose rich white flower-clusters ripen like those of the elder, while the yellow fruits adorn the dark green tree in no lesser degree. The leaf is long-stalked, serrate, broad, pointed-lanceolate, glabrous on both sides. An *Amaranthus*, or at least a plant belonging to that family, was growing in their shade.

I mention here the following fossil shells, which I found in the pudding and loose sandstone on the Hunter below Glendon. They all are conspicuous by a fine coat of iron-ochre. The shells no longer exist.

Mytilus? a fully oval shell.

Cardium with strong vertical ribs, six-seven.

Terebratula not very distinct, smooth, without ribs.

Zoophytes like those of Jump-up Creek, but perhaps specifically different.

A grey feldspathic rock with decomposed white masses of feldspar. A rock with a white harder substance in the yellow decomposed cement. An anagenetic rock: quartz and feldspar in small pieces of quartzite united by a flint-like cement.

27 December

Rarely have I spent Christmas so quietly and in so unsolemn a manner as here; and yet it was a hundred percent more pleasant than those Christmas days spent aboard the ship or at Naples or Paris. Mr Scott observes the fine custom of having morning-prayers every day with his wife and children and the nurses. I was present several times, but whether they thought I did not enter into their feelings, or they were embarrassed by my presence, they failed to let me know each morning when their prayers were to start, and as I am not really accustomed to their ways, I prefer not to be present after all. They all kneel down; Mr Scott reads the prayers, and at the Lord's Prayer his wife and children join in praying aloud. The children, who do not yet grasp the meaning of the prayer, do not always keep quiet, and the scene on the Mezenc is consequently involuntarily

brought back to mind.[11] On Christmas Day they also had a Sunday-prayer at 11 o'clock, and for the afternoon they were expecting a clergyman, who did not, however, come. We had a very late dinner at half past seven in the evening, as seems to be the custom in the whole Scott family. The roast goose reminded me of home, the plum-pudding of Old England, but for dessert figs, peaches, and apricots were served, which are to be had fresh at Christmas only in this part of the world. Yesterday even ripe grapes were served to us. {The rooms were decorated with oak branches, some of which were bearing young acorns.}

I had the pleasure of meeting Mr Glennie, who has rented some land from Mr Scott and, at the same time, follows his profession as a surgeon and general practitioner. He promised to show me an interesting locality near Singleton. Yesterday morning I rode to his place. He showed me *Convolvulus batatas*, which is doing well in his garden, producing a very large number of big tubers. The larger the tubers, the sweeter the juice; they almost exceed a human head in size. The stem and branches of this plant lie flat over the ground, and young roots shoot from each leaf-insertion. During the first year these swell out into potatoes of moderate size, which would yield a good crop even at this stage. But it is better to plant these young tubers in the ground for the second year, which then will yield an extremely rich harvest. Seven plants produce 900 pounds of Batatas tubers. Instead of tubers you can also choose the young plants, which formed in the leaf-insertions for propagation. These, however, make poorer crops.

Mr Scott had shown me in his garden a big white bean, with large leaves, which he calls Swan River bean. He liked its taste, although I was later told by others neither man nor beast can eat it.

The small rubiacean, which I first noticed in Harper's garden, is a weed here. It spreads its long branches over the ground in all directions, covering the paths as with a mat, while its small red flowers look rather pretty, imparting an undue beauty to the wrong place.

I was shown a tree, which belongs to the family of the Leguminosae and whose flowers will open in a few days time. The tree has dark green pinnate leaves. I shall give a more detailed description of it later on. A *Cyperus* was a common weed in Mr Glennie's garden. He and Mr Scott had previously shown me a *Malva procumbens*?, while I myself had found a plant very similar to the *Malva sylvestris*. The former is introduced and grows as a weed everywhere, the latter is indigenous and grows in shady, slightly damp places on the Hunter.

The olive-tree thrives well in Mr Scott's tree-nursery, and he is paying great attention to its propagation. The elm and pine seem to be less suited for this climate; the ash-tree grows rather well.

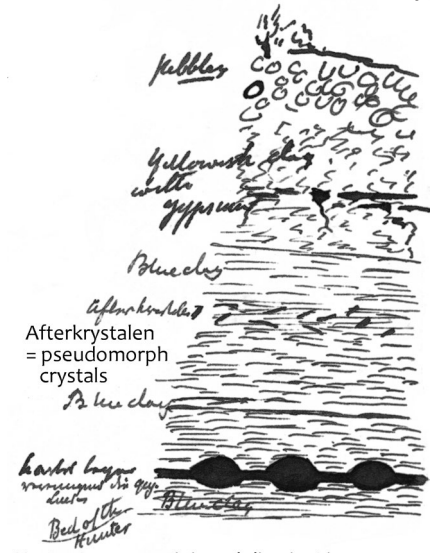
We rode to Singleton. Mr Glennie remarked that the Devil-devil-land had its origin in the irregular deterioration of the soil, caused by its different degrees of hardness. This explanation seems not to be acceptable. At least it would be equally difficult to explain the regular features of this irregularity.

On our way we were overtaken by Mr Gordon, a man of a very noble family connected with that of the Duke of Argyle. Having squandered his fortune in horse-racing and other gentlemanly occupations he came out to New Holland to improve his financial situation. He wore a long full beard and was dressed in a straw hat, blue jacket, and tightly buttoned trousers. And this made him look rather odd, whereas his alert eyes and pleasant features seem to betray an educated man and witty conversationalist.

Singleton is a township, a budding little town on Patricks Plains. These plains, through which the Hunter winds, hidden in its deep bed, are bounded on all sides by blue mountain ranges, with lower ridges lying before them. To the west and south-west there is the Wollombi Range, the eastern foot of which is skirted by the Wollombi, and the western by the Macdonald River. To the north lies Mount Royal and before it lies Deren. Tangreen is to the east. These mountain-tops, particularly the Wollombi Range, rise so suddenly and sharply from the plain and are so peculiarly shaped that you could almost suppose that they were of volcanic origin. ~~They are, however, not volcanic –Mount Royal is a limestone range~~. Mt. Royal is basaltic rock!!

We crossed the Hunter and found a beautiful geological cross-section on its eastern side, a high bank. At the bottom there were blue micaceous clays with spheroidal and peculiar conchoidal crumbling (splitting). On top of these clays rests a bed of hard clay and micaceous rock, about 1½ ft thick and firmly bound presumably by carbonate of lime. This bed swelled out into a giant lens of 20 by 20 feet, similar to the one that I had seen on the river-bank above Glendon. Over this bed again micaceous clays with pseudomorph crystals and pseudomorph druses, consisting of carbonate of lime. {Some of the simple pseudomorph crystals were 1′ in length.} These crystals formed an almost regular layer, although they also occur scattered about. Further up they were corroded and covered with gypsum. On top of the blue clay lay a yellow clay without mica; the latter contained gypsum veins (horizontal and vertical), gypsum seams, gypsum concretions, and gypsum druses with lenticular crystals. The gypsum is laminate and fibrous. Right on the very top the clays are covered with a mass of pebbles embedded in clay or loam. Below this a rock layer visible here and there, which I could not investigate owing to the steepness of the cross-section.

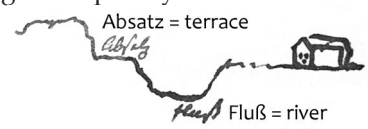
In some of the gigantic lenses, I discovered fissures filled with a 4‴ thick layer of chalcedony. In another one the impression of a bivalve was found. – The gypsum formation seems to be still going on, for I found a slight efflorescence of gypsum on a fairly recently broken piece of lens. It must have formed after the lens was exposed to the atmosphere. The section was approximately 60′ high above the river-level. The giantic lenses were 15′ above the river; whereas at Glendon they are in the river bank. The fall of the Hunter is not very great.



Hartes Lager vereinigend die gig. Linsen
= hard stratum, containing the gigantic lenses

When we returned to Mr Rotton he told us that a layer of fine powder, the true nature of which was not known, had been noticed in a gully leading to Macauley's (?) house.

In this locality, a little way up the Hunter River, you see a sort of terrace formation, the present steep bank being interrupted by a wide offset. On the opposite side the plain corresponds to this terrace.



The country is furrowed by a great number of ravines and gullies descending to the Hunter. On the terrace grew some plants, which I did not know: an *Oxalis* with deeply divided leaflets, a dioecious tree, the male plant with flowering catkins, the female with naked pistils, each with two styles and stigmas. *Tecoma australis* was here; a plant outwardly resembling the *Bryonia*, but hermaphroditic, four stamens, one dioecious, one style, four petals and sepals. Ovarium inferior.

In the field I found a legume, which reminded me of *Crotalaria*. Simple leaves, separated stamens. Inflated polyspermous pods.

Mr Rotton showed us a wheat variety, which he thought was Polish wheat, a small brownish bean, and a pea, the chalaza of which was black. He told us that this bean turned black when boiled in iron pots. Its skin probably contains gallic acid, which forms iron gallate with the iron.

Later on he showed us his method of brewing beer. There is a tap down at the bottom of his upright-standing barrels, to draw off the beer, and two openings on top, a bung-hole to pour in the beer, and another opening, through which went a bent lead pipe. The outer arm of this pipe is immersed in a bottle filled with water. The fermentation drives the carbonic acid gas through this water, so that no air can enter. The result is that the beer will never turn sour.

The man as well as I immediately thought of using this method for the fermenting of wine. After the wine has almost settled in a vat covered with a woolen blanket, it would have to be drawn off into smaller casks. These casks would need to be provided with the bent pipe, in order to allow the wine to complete its fermentation undisturbed. This having taken place in a leisurely way, the wine could be filled in new casks or perhaps better in bottles. If you wanted to draw off the wine from the barrel, the ambient air would no doubt be prevented from infiltrating for some time by the carbonic acid compressed by the water, but this could not last for very long and therefore you would have to compress in either carbonic acid or sulphurous fumes from time to time. This could easily be done by means of an ox-bladder.

Mr Scott told me that he mixed all his grapes. He has many different sorts and it will surely happen that such mixing ruins the character of wine. It is necessary to cultivate only one variety, which is considered to be the most profitable one. This variety would best be selected from a hot climate, such as Madeira or Tenerife or Spain. However, this is by no means certain. French and German grapes will in all probability produce good wines here too. Mr Scott told me that in France all the grapes are also mixed. I do not believe this.

To make beer, you take 1 pound of sugar for one gallon of water (and 4 pounds of hops for one hogshead??).

[cuttings]

The Spectre Ship

My Native Land! Farewell!

Tuesday, Friday free

*Found day stave tiptoe on the misty mountain tops

He has too many irons in the fire

Sublimate 8 gr to the ounce.

Jan 1843.*

End of Diary 1

❑ ENDNOTES

1. William Reid, *An Attempt to Develop the Law of Storms by Means of Facts*. London, 1838.
2. Armida and Rinaldo were two characters in Torquato Tasso's *Gerusalemme liberate*, published in 1574, which was the basis of several operas including George Frideric Handel's *Rinaldo*.
3. *Ernest Maltravers*, a novel written by Edward Bulwer-Lyon, published in 1837.
4. Parts of six stanzas of a poem by George Darley, published in 1835.
5. *The lady of the lake*, a poem by Sir Walter Scott, published in 1810. The characters include Roderick Dhu and Malcolm Graeme.
6. Letter in part published by M.J. Berkeley *London Journal of Botany* 3 (1844), pp. 191-2, pl. 5A. The figures are not given in the diary.
7. Johann Ludwig Burckhardt (John Lewis Burckhardt) (1784-1817), a Swiss-born traveller, whose works were published posthumously in London. *Travels in Nubia* (1819); *Travels in Syria and the Holy Land* (1822); *Travels in Arabia* (1829).
8. The source of the poem is unknown. It was set to music by J.B. Woodbury and published in Boston in 1846.
9. On page 75, Leichhardt calls it Mitchell's map and in a letter to Robert Lynd, Nicholson's map.
10. Stringybark has rough, fissured bark and spotted gum has smooth bark
11. About 7 June 1841 in France.