Journey of Exploration from South to Western Australia, in 1875

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Source: *Journal of the Royal Geographical Society of London*, Vol. 46 (1876), pp. 328-357

Published by: [Wiley](#) on behalf of [The Royal Geographical Society \(with the Institute of British Geographers\)](#)

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disported themselves. On this river, at the commencement of the flow of the tide, a huge tidal wave, 6 to 10 feet high, comes rolling along, and woe to the boatman who has not placed his vessel in safety. Even where we were, generally at the mouth of some creek or behind a bank, the commotion of the water was very great, and the water returned with the force of a mill-race.

On the 25th of June I landed at Maranhão, and the same day embarked on a coast-steamer for Bahia. The change was very great, and at sea I gave in at last to a severe attack of fever.

XII.—*Journey of Exploration from South to Western Australia, in 1875.* By ERNEST GILES.*

ON arriving at Youldeh, a point which we reached after a troublesome and difficult march from Beltana, the main body of the expedition remained in dépôt, whilst I visited Fowler's Bay to the south, at the same time despatching my two officers, Mr. Tietkens and Mr. Young, with my black boy Tommy, to endeavour to discover a new dépôt to the north, at or as near to the 29th parallel of latitude as possible. When I returned from Fowler's Bay they also had returned from the north, having discovered two native wells, a small native dam, and some claypans, each having water in, and at different places. This was exceedingly good news, and I wasted no time before I departed from Youldeh, giving my letters to Richard Dorey, who had accompanied me back from Fowler's Bay. I will now give a condensation of Mr. Tietkens's report of his journey with Mr. Young.

On leaving Youldeh, which is situated in lat. 30° 24' 10", and long. 131° 46', they went first to a small rock waterhole I had visited when here previously in the summer; it was 15 miles away, and lay about N. 74° W., and called Paring. The black boy Tommy followed my old horsetracks to it, but on reaching it they found it dry. The following day they travelled north, and passed through a country of heavy sandhills and thick scrubs, with occasional open patches with limestone, and camped at 24 miles. Continuing their journey the next day, they went over better country and more open, and made 24 or 25 miles of nothing. Some more good country was seen the following day, but no water, though they saw native huts and native tracks. On the following day they sighted two small flat-topped hills, and

* Being the substance of a Report furnished by Mr. Giles to the Hon. Thomas Elder, of Adelaide, who fitted out the Expedition.

Map
OF THE EXPLORATIONS
from
BELTANA STATION
(South Australia)
to the
CITY OF PERTH
(Western Australia)
by Ernest Giles.
1875.

Note.
My track from Fowler's Bay during the latter end of March and beginning of April when going to organise the Expedition to Perth shown thus ---
The track of Mess^{rs} Tietkens and Young North of Youldeh, to and beyond Ouldabirna while I revisited Fowler's Bay
Main track shown thus

found a native well in their neighbourhood, which, however, did not promise a very great supply of water. The views obtainable from the little hills were not very inviting in any direction, as scrubs appeared to exist nearly everywhere. This little well was 82 miles from Youldéh, and lying nearly N. 10° W. from it. They continued on further north for 25 miles to lat. $28^{\circ} 52' 10''$, and long. $131^{\circ} 31' 8''$, when they turned to the south-west, and continued on that course for 18 miles, finding a small native dam with water in it; then turning a little to the north of west they found some claypans with a little more water. They went 44 miles nearly west from the little dam, and though the country seemed improving they could discover no more water. From their farthest westerly point in lat. $28^{\circ} 59'$, and long. $130^{\circ} 29'$, they turned upon a bearing of S. 55° E. direct for the native well found near the two little flat-topped hills mentioned previously. In their progress upon this line, at 45 miles, and right before them, they came upon a small, open, flat space, very well grassed and very pretty, and upon it they found another native well, and saw some natives, with whom they held a sort of running conversation. There were several wells, all of which had water in. Their black boy managed to elicit from the natives the name of the place, which they said was Ouldabinna. This seemed a very fortunate discovery indeed, as the first well found near the flat-tops was by no means a good one. Here they encamped, being quite delighted with their successful journey, as they now had found a new dépôt 92 miles, lying N. 20° W. from Youldéh, the position of this spot being in lat. $29^{\circ} 7' 4''$, and long. $131^{\circ} 15' 4''$. From here they departed in a straight line for Youldéh, where they arrived the day before I returned from Fowler's Bay.

On Tuesday, the 27th of July, having nineteen camels and provisions for eight months, and a most perfect equipment for water carriage and otherwise, we left Youldéh. Richard Dorey and his black boy went away to the south; my caravan departed in a long single string to the north; and Youldéh and the place thereof knew us no more.

On my departure from this dépôt I had the choice of first visiting the native well my officers had found at 82 miles, and thence to the further one at Ouldabinna. I decided to go straight for the latter, as the other was not so good. The weather was cool, and the camels could easily go there without water. Their loads were excessively heavy, averaging about 550 lbs. all round. It took us six days to reach the new dépôt. The country nearly all the way consisted of mallee scrubs and spinifex sandhills, with occasional grassy flats between; and at one place we actually crossed a space of nearly 10 miles of open

good limestone grassy country. By the time I reached Ouldabinna I had travelled 1010 miles from Beltana.

Ouldabinna I found to consist of a small and pretty little open space amongst the scrubs that surrounded it, and on it a place where the natives for untold ages have obtained their water supplies. There were several wells, but my experience immediately informed me that they were simply rock holes filled with soil from the periodical flow of the rainwaters over the little flat—they lying on the lowest ground; and I perceived that the water supply was most ungratifyingly limited, though there was a sufficiency for our immediate requirements. The camels were not apparently thirsty when we arrived, but drank more the following day, which completely emptied all the wells, and our supply then depended upon the soakage, which was of such small volume that I was greatly disappointed in my new home. I wanted water here only for a month, but it seemed probable it would not last a week. We deepened all the wells, and were most anxious watchers of the fluid as it slowly percolated through the soil into the bottom of each well. After I had been here two days, and the water supply getting less, I very naturally became most anxious to discover more, either in a westerly or northerly direction, and I again sent my two officers, Messrs. Tietkins and Young, to the north to endeavour to discover more water, while I determined to go myself to the west on a similar errand. I was desirous that my two officers should share the honour of completing a line of discovery from Youldeh northwards to the Musgrave Ranges, and thus connect that great geographical feature with the coast at Fowler's Bay; and I promised them if they were fortunate and discovered more water for a dépôt to the north, and I be equally successful to the west, they should finish their line, which, ending at the Musgrave Ranges, would form of itself a very interesting expedition. These ranges lay nearly 200 miles to the northward from here, and knowing them to exist, and they being a high (the highest in South Australia) and continuous chain, I had every reason to expect that my officers would have no difficulty in finding water between here and there, especially as when I discovered that chain of mountains I had seen other ranges to the south and south-west from them. Their present journey, however, was only to find another dépôt and return, as the water supply here might cease at any moment; as at each succeeding day it became considerably less.

This was otherwise a pleasant little oasis, as there was plenty of good herbage for the camels, which enabled them to do with very little water after their first skinful. We arrived here on Sunday the 1st of August, and left it again on the 4th. Mr. Tiet-

kens and Mr. Young took only their two riding camels, and one other to carry water and other things; they took thirty gallons of water and provisions for nine or ten days, as I expected they would easily discover water in less than 100 miles, when they would immediately return, and it might be necessary for them to remove the whole camp from this place. I trusted all that to them, requesting them at the same time to hold out at Ouldabinna (on their return) as long as it was possible, as if I returned from the west unsuccessful my camels might be unable to go any further, and being quite sure that the country to the west was not likely to prove a garden of Eden. I thought it probable I might have to go 200 miles before I found any water, and if unsuccessful at that distance, I should have precisely the same distance to come back again; so, with the probabilities of such a journey before me, I determined to carry out two casks of water to about 90 miles, send some of the camels back from there, and push on further with the remainder. I therefore took six excellent camels, three for riding and three for loads, two carrying thirty gallons of water each, and the third carrying provisions, mugs, &c., &c. I took Saleh, my only Affghan camel driver, and young Alec Ross—Saleh to return from where I would plant the casks, and Alec and I would go on. Mr. Tietkens and Mr. Young left Ouldabinna the same day as I did, that is to say on the 4th of August, one party going north and the other west, leaving Peter Nicholls (my cook), and the black boy Tommy to look after the camels and camp. I will first give an outline of my journey to the west.

The country, except in the immediate neighbourhood of the wells, was, as usual in this region, all sandhills and scrub, though at 18 miles I came upon the shores of a large salt lake, which had numerous sandhill islands scattered about it. It appeared to extend a vast distance southerly. By digging we easily obtained a quantity of water, but it was all pure brine, and utterly useless to us; after this we met lake-bed after lake-bed, all existing in dense scrubs and sandhills for 60 miles; some were small, some large, though none of the size of the first one. At 78 miles from Ouldabinna, having come as nearly west as it was possible to steer in such a country on a camel, we had met no signs of water fit for man or animal to drink, though brine and bog existed in most of the lake-beds. The scrubs were as thick as possible, being chiefly mallee with spinifex; we could seldom get a view 100 yards in extent; and we wandered on farther and farther away from the only place where we knew that water existed. At this distance, on the shores of a salt lake, I sent Saleh back with two camels, this being the middle of the fourth day. Saleh would have to encamp by himself for at least two

nights before he could return to the depôt, and the thought of such a thing almost drove him distracted, for I do not suppose he had ever camped by himself in his life previously. I, however, carried the two casks his camels had brought until Alec and I camped on the fourth night, being now 90 miles from Ouldabinna; after Saleh left we passed only one more salt lake, and then the country became entirely bedecked with unbroken scrubs, while spinifex covered the whole ground. The scrubs consisted mostly of mallee, with patches of thick mulga, casuarinas, sandal-wood, and quandong-tree. No traces of any human inhabitants were seen, nor, were they ever present (in all other parts of the Continent) tracks of native game or wild dogs distinguishable upon the trackless sands of this previously untrodden wilderness. The silence and the solitude of this mighty waste were appalling to the mind, and I almost regretted that I had sworn to conquer it. The only sounds the ear could catch, as hour after hour we slowly glided on, was the passage of our noiseless treading and spongy-footed ships, as they forced their way through the live and dead timber of the hideous scrubs that environed us, and thus we travelled on. At our sixth night's encampment we had left Ouldabinna behind us 140 miles. I did not urge the camels to perform quick or extraordinary daily journeys, as upon the continuance of their powers and strength our own lives depended; no water had yet been met, nor had any place where it could lodge been seen, even if the latter rain had descended upon us—except, indeed, in the beds of the salt lakes, where it would immediately have been converted into brine. On the seventh day of our march we continued on, and had accomplished 15 miles, when our attention was drawn to a plot of burnt spinifex, and the tracks of one or two natives of a somewhat recent date; this set us to scan the country in every direction where any view could be obtained. Alec Ross climbed a tree with a pair of field-glasses, discovered and informed me there was a fall of country into a hollow, with an apparently broken piece of open grassy ground some distance away to the south-west. I therefore determined to go to it, whatever might be the result. In 5 miles we were disgusted to find that it was simply the bed of another salt lake; but as we saw numerous tracks of natives both going to and coming from it, we persevered until we reached the shore. The bed of the lake was quite dry; there was very fine herbage round the edges, and we turned our four camels out to graze on it. The day was exceedingly hot for this time of year—the thermometer standing at 95° in the shade. We first had some dinner, and then went exploring. There was a very inviting-looking spot at the opposite end of

the lake, and Alec went to inspect it and any other likely places, while I dug wells in the bed of the lake. The soil was reasonably good, rich, and moist; and, on tasting it, I could discover no taint of salt, nor had the surface the same sparkling crustation of saline particles as I had seen upon all the other lakes. At 10 or 11 inches I reached the bed rock, and found the soil rested upon a rotten kind of bluish-green slate, but no water rewarded me in any of the numerous holes I dug, and so I gave it up in despair, and returned to the camp to await Alec's return and the report of his travels, as there was only one place to inspect which gave any promise, and to which he had gone. He was a long time away, and it was getting very late when he returned; on his arrival he rejoiced me with the news that having met a number of fresh native tracks, all trending round to the spot that looked so well from here, following them they took him to a small native dam in which there was a supply of yellow water. His information, however, was qualified by the remark that there was not a sufficiency of water there for all our mob of camels, though there was plenty for our present number. We immediately packed up and went over to our new treasure. This spot is 156 miles straight from Ouldabinna. I was greatly pleased at the discovery, though the quantity of water was so small. Though just at this moment had I brought all my camels, they could, I believe, all have had a good drink; but by the time I could return to the depot, and then get back here, it would be gone and the dam dry. "Sufficient unto the day is the evil thereof," is a maxim that explorers, at all events, must be content with. Our four camels got as much water as they desired, and were hobbled out in most excellent pasturage, there being a great quantity of the purple vetch-plant, which is so nutritious both for horses and camels; it grows on a bright green stalk, and when camels can get it they require very little water. No natives appeared now to be in the immediate neighbourhood; we encamped here, and also shot one or two bronze-wing pigeons that came to water at night.

The following morning we found that the camels had decamped in consequence of having long hobbles allowed them, as we did not think they would ramble from such splendid herbage and water. Alex went after them, but did not return until long after midday; during his absence I was extremely anxious, as if he should be unable to track them and return without them, our case would be almost hopeless, as if camels once get a good start, there is no overtaking them on foot. They are not like horses, which will return themselves to water. Camels know their own powers and their own indepen-

dence. However, he brought them, having had to track them for several miles. Now that I had found this water, I was very undecided what to do; it would be gone before I could return to it, and where I should find any more to the west it was impossible to say—it might be 100 miles, it might be 200 or even 300 miles—and I hesitated for a day what to do, whether to go still further west in search of more, or return at once and chance bringing the whole party here. I was also in a state of great anxiety as to the continuance of the water supply at the dépôt. I eventually decided to try a few more miles to the west, to see if the character of the country was in any way inclined to alter, before I returned to the dépôt. We went 39 miles beyond the dam, and the only alteration in the country I found to consist of a return to the salt lake system that had ceased for so many miles prior to my reaching the one at which the little dam was situated. At the furthest point we reached, being 195 miles from my dépôt, it was upon the shore of another salt lake, and there was no water of any kind to be got; the only horizon that could be seen was about 15 miles distant, and was simply an undulation in the dreary scrub, and was covered with the usual timber in which this region is enveloped, that is to say, a mixture of the *Eucalyptus dumosa*, *Casuarinas*, a few *Grevillea*, pakea-bushes, and leguminous trees and shrubs, such as mulga and a kind of silver wattle-bush, from the latter order of which trees and plants the camels find their sustenance; two stunted specimens of the native orange tree (*Capparis*), were seen where I left the two casks, at 90 miles from the dépôt. A profusion of the beautiful desert pea (*Clianthus dampieri*) was, for the first time upon this expedition, found growing in the neighbourhood of the little dam. From my farthest point west, in lat. $29^{\circ} 15'$, and long. $128^{\circ} 3' 30''$, I returned to the dam, and found that even during my short absence of three and a half days the diminution of the volume of water in the dam was amazing, and I was perfectly staggered at the decrease, as it was at the rate of more than an inch per day. The dimensions of this singular little dam were very small, the depth was the most gratifying feature about it; it was, of course (as all native water places are), funnel-shaped, and to the bottom of the funnel I could poke a stick about 3 feet; but most of that depth was mud, the surface was not more than 8 feet long by 3 feet wide; its shape was elliptical; it was by no means full, having shrunk at least 3 feet from its highest water-mark. I now decided to return by a new route to the dépôt, hoping to find some other waters on the way. The last night we camped here was exceedingly cold, the thermometer falling to 26° at sunrise on the morning of the 16th of August; and on that day

we left the dam on our homeward course, and, steering south-east, we came out of the scrubs (which had been thinning) on to a plain in 49 or 50 miles. We skirted along this plain east for 25 miles, and then turned E.N.E. for 106 miles, when we reached our old track from Youldeh to Ouldabinna, having been turned from a straighter course by a large salt lake, which most probably is the southern end of the one we met first, at 18 miles west from Ouldabinna. On the 22nd of August, having camped 15 miles from home, soon after starting it became very cloudy and threatened rain; the weather for the last six days had been intolerable, the thermometer standing at 92° and 94° every day when we had outspanned, and which was not the hottest time of day either. As we approached the depot some slight sprinklings of rain fell on us, and as we got nearer and nearer our anxiety increased to become certain whether our party were yet there or no, and also if our camels, which had now come 196 miles from the dam, could get any water when we did arrive, for we had found none whatever on our return route. On reaching the spot we were pleased to see the fluttering of the canvas habitations, and we were soon welcomed by our friends. I was indeed glad to find the party there, as I had my doubts if they could hold out until my return. They were there certainly; but all the water that existed in all the wells was barely sufficient to give our four camels a drink, there being only a few buckets of water in the whole camp. However, it appeared as though fortune was inclined to favour us, for the light droppings of rain continued, and before night we were obliged to seek the shelter of our tents. I was indeed thankful to heaven for paying me such a long-standing debt. A slight trickling of water commenced to run into the best catching of our wells; and though the rain did not continue long nor fall heavy, yet a sufficiency drained into the receptacle to enable us to fill up all our water-vessels, and give a thorough good drink to all our camels on the following morning. While I was away to the west my two officers, Messrs. Tietkens and Young, had not been idle, as they also had started away at the same time as I did, and had gone to the north. Their first point was to the little native dam they had seen previous to discovering this place, and where they encamped the first night, it being 10 miles N. 9° E. from here (Ouldabinna). Leaving it they went north for 25 miles, over high sandhills and through scrubs, when they saw some fresh native tracks, and discovered a small and poor native well—there being only a bucket or two of water to be got out of it. They kept on, still going further north for 25 miles, when they found a hollow with natives' tracks in it, and

some diamond birds, but were unsuccessful in all their searches for water. Going further north for 15 miles they observed some smoke to the north-east, and reached the place in 6 or 7 miles. Here they found and surprised a large family of natives who had apparently only recently arrived also. Here a wide and deep hollow or valley existed amongst otherwise a high sandhill country, timbered mostly with a kind of *Eucalyptus* which is simply a gigantic species of mallee—but as it grows singly and not in bunches, it resembles gum-trees. Having descended into this hollow, which is a mile and a half wide, and having seen the natives there, they were in hopes of gaining some information from these persons; but, unfortunately, the whole mass of them decamped, uttering loud and prolonged cries. Following this most peculiar valley still northwards, they reached its head in about 6 miles, but could discover no place where the natives obtained their supplies of water. At this point they travelled over burnt sandhill scrubby country still north, 4 miles further, when the natives that before had appeared so shy now came running after them in great numbers, in the most threatening manner, howling at and annoying them in every possible way. These people were now arrayed in their war-paint, and had all their fighting weapons in hand, and evidently meant mischief: but they managed to part from them without coming to a hostile encounter. They endeavoured to parley with them, and stopped for that purpose, but could gain no information whatever as to the waters which existed in their territory. Another 4 miles was travelled north, over burnt country; and, having failed in discovering any places, or even signs of places (otherwise than the presence of black men), where water could be obtained, and being anxious as to the state of the water supply at the depôt—as I had advised them not to remain too long away—from this point, whose position is in lat. $27^{\circ} 48' 5''$, and long. $131^{\circ} 19' 8''$, they returned, though they were aware that the great Musgrave chain was not more than 100 miles to the north of them; but they had not yet sighted it. They were greatly disappointed at having been so unsuccessful, and returned on a slightly different route, searching every likely-looking place for water, but none appeared to exist, though they are both of opinion that the country is watered by native wells; and had they had sufficient time to have more thoroughly investigated it, they would doubtless have been successful.

When I returned with Alec Ross from the west they had returned some days; and they were most anxious to hear how I had got on out west. Saleh also had returned by himself, all right; and the only anxiety now at the camp was, as usual, the

question of water supply. I had found so little where I had been, and the water here had been failing steadily every day, that had I not returned when I did, in another day I might have found the place deserted, and all the wells dry.

Now, however, we had got our present stock replenished by the light rain, and, for the present, all was well; but it did not follow as a sequence because it rained here that it must also rain at the little dam, 160 miles away. But yet I decided to take the whole party off to it; and as we had now a sufficiency of water for the purpose, to carry as much as we possibly could, and if no rain had fallen at the dam when we got there, we should have to give the camels what water they carried, and keep pushing on west, and trust to fate, or fortune, or chance, or Providence, or whatever it might be that brought us to more water. So, the day after I returned, we filled up everything we had that could hold water; and on Tuesday, the 24th of August, we finally departed from this little *dépôt*, having 160 miles of desert for certain without water, and perhaps none at the end of it. But having watered our camels and filled our bottles, we "folded our tents like the Arabs, and as silently stole away."

In consequence of having to carry so much water, our loads upon leaving Ouldabinna were enormously heavy, and the weather became annoyingly hot just as we commenced our journey. The four camels Alec Ross and I had out with us looked wretched beside their more fortunate companions that had been spelling at Ouldabinna, and which were now in most excellent condition, while our unfortunates had been travelling for seventeen days, at the rate of 23 miles per day, with only one drink of water in the interval. These four I took were certainly most excellent creatures. We had been travelling for six days from Ouldabinna, and were very well on our way towards the little dam, having come 120 miles, the days having been very hot and oppressive. At dusk of the sixth day, some clouds obscured the sky, and light rain fell, which continued till the morning of the seventh day, which was August 30th. I was more gratified than ever with heaven for this partial payment, for now I felt sure we should find in the little dam more water than when I left it. On the morning of the 30th more rain fell, and there was every appearance of a good wet day setting in, so we quietly camped in the scrubs, and enjoyed it amazingly under our canvas roofs, and made ourselves as happy and comfortable as we could in the distressing circumstances in which we were placed. The ground was far too porous to hold any surface water, and had the camels wanted it ever so much, it could only be caught on the canvas; and what with the rain,

and what we carried, and what we caught, we could give them as much as they wanted to drink, as I was now sure of getting more in the little dam when we reached it. During the night of the 29th one of our cow camels calved, and, unfortunately, the animal strained herself so severely in one of her hind legs that she could never rise from the ground. She seemed also paralysed with cold—her little cow calf had to be killed—we milked her as well as we could whilst she was lying down, and we fed and watered her—at least, we offered her food and water, but she was in too great pain to eat. After delaying an additional day here on her account, and all efforts to raise her proving unsuccessful, I could not leave the poor brute on the ground to die by inches slowly by famine, so I in mercy shot her just before we left this place, and she lay dead alongside the calf that she had brought to life in such a wilderness only at the expense of her own. This cow had been one of our best riding camels, and was Mr. Tietkens's hack. We had now little over 40 miles to go to reach the dam, and all our water being drunk, the loads were now light enough. We reached the little dam on the 3rd of September, and were delighted to find that it had not only been replenished, but had become full to overflowing, and a little water was actually visible in the bed of the lake alongside of it, but only at the southern end; but it was undrinkable. The little dam had now 6 feet of water in it, and there was ample for all my expected requirements; the camels could drink at their ease and pleasure, and the herbage was more green and luxurious than ever—there was the purple vetch and numerous leguminous bushes that camels are so fond of, besides quantities of the beautiful desert pea, which they ate with great avidity. Mr. Young told me he saw two or three natives where we pitched our encampment, but I did not see them, and they never returned while we remained in possession of their dam. I stayed at this very agreeable little place for a week to recruit the camels, and more particularly to enable another cow camel to calve; during this interval, we had continued oppressive weather, the thermometer usually standing at 92°, 94°, and 96° every afternoon, but the nights were agreeably cold. We had generally very cloudy mornings; the flies were particularly numerous and troublesome, and I began to conclude that any further travel to the west would be done under very unfavourable circumstances. We had now been, for $7\frac{1}{2}^{\circ}$ longitude, that is to say, 450 miles of westing, and 130 miles of northing, and occupying the intervening period, from the 9th of June to the 3rd of September, entirely enveloped in dense scrubs; and I may take upon myself to say that very few people ever had such a country to traverse previously. I have managed to

penetrate it up to this point—the little dam being situated in lat. $29^{\circ} 19' 4''$, and long. $128^{\circ} 38' 16''$, showing we have crossed the boundary line between the two colonies of South and Western Australia, which is the 129th meridian. It appeared evident to me, that in such a country as I now had got into, having traversed nothing but scrubs for hundreds of miles from the east, and having found no water of any size whatever in it, I say it appeared evident (arguing by analogy) that no water really existed in it, except an occasional native well or native dam. Concluding such to be the case, and our object being that the expedition should reach the City of Perth, I decided that there was only one way to accomplish it, and that was simply to go there haphazard at any risk, and trust to Providence or chance for an occasional supply of water here and there in the intermediate distance. I was able to carry a good supply of water in casks, water-beds, and bags; and to enable me to carry the water, I had done away with various articles, and made the loads as light as possible; but it was merely lightening them of one commodity to increase them with a corresponding weight of water. At the end of a week I was tired of the listless life at the camp. The cow camel had not calved, and showed no greater disposition to do so than when she arrived, so I determined to delay no longer on her account. The animals had done remarkably well here, as the feed was so excellent. What water had been lying in the bed of the lake when we arrived had now entirely dried up; and the quantity of water taken by the camels and ourselves from the little dam was beginning to tell considerably upon it, plainly intimating to us that it was by no means inexhaustible, and that for the sustenance of life more must be found. Where the next favoured spot would be was more than tongue could tell. The last water we had met was over 150 miles away; the next might be double that distance. The only way to find out that riddle was by going to see. Having digested all these matters to myself, I consulted my officers and men, and I determined on leaving here to push on until we did get water. We were on the worst desert probably upon the face of the earth; but that thought only gave me the more pleasure in conquering it. We were surrounded on all sides by dense scrubs, and the sooner we pushed our way out of them the better. The natives belonging to this little dam had never come near us, and therefore we had got no information from them concerning any other waters, though it is highly probable all I should have got would have been valueless. This region evidently does not support many of them, and there is not, so to say, any game whatever on it. I never before saw any part of Australia so devoid of animal life.

As before mentioned, I remained at this welcome little spot for a week, and then I departed, leaving it on Friday, 16th September. The morning we left was cloudy and cool, and I anticipated a change from the quite sufficiently hot weather we had lately had, though I did not expect any rain. We had no conception how far we might have to go, nor how many days it would be, before we might next come to water; but we left our friendly little dam in high hope and excellent spirits, as we also hoped, as well as water, to discover some more agreeable geographical features than had yet fallen to our lot. I had set my own and all my party's lives upon the cast, and will run the hazard of the die; and I may say that each person at starting into the unknown displayed the greatest desire and eagerness for our attempt.

On leaving the dam I had determined to travel upon such a course as would enable me to reach the 30th parallel of latitude at its intersection by the 125th meridian of east longitude, as I thought it probable the scrubs would terminate sooner in that direction than in one further north. Our course was now on a bearing of s. 76° w. (which left the line of salt lakes Alec Ross and I had formerly visited, and which lay nearly west to our right, or northward of us). Immediately on leaving the dam we entered thick scrubs as usual; they were mostly composed of the black oak (*casuarina*) with sandalwood and mulga. We passed by the edge of two small salt depressions at 6 and 9 miles. At 10 miles we were overtaken by a shower of rain, which induced me to encamp at 11 miles, upon another small salt lake. During the evening some slight showers fell, and we saved sufficient water, by means of our tarpaulins, for all our requirements for the day, so that our original stock of water that we carried was untouched. At dusk more rain fell, and continued the greater part of the night. We were thus enabled to fill a large canvas trough, which I always carried for watering the camels, and which held a sufficient quantity of water for all of them to drink. On the following morning, however, none of the camels would look at it, as they had so lately come from the dam, and as they probably had imbibed sufficient fluid through their pelts to moisten their clay during the night. So, as all our water-carrying vessels were full, the troughful had to be poured out upon the ground. We did not start till 12 o'clock that day; and at 11 miles on our course, after passing two small salt lagoons, we came upon a much larger one, where there was excellent herbage, and the recent rains had left several sheets of water in the bed of the lake in various places, but they were all as salt as brine, in fact, it was brine itself. The country which we passed to-day was

all scrub, and nothing could be seen a-head, or, indeed, in any other direction. The latitude of the camp upon this lake was $29^{\circ} 24' 8''$, and it was 22 miles from the dam. We now continued our march, and proceeded on still upon the same course; by the fifth day of our travels we had met with no water or places to hold it, and had left all the salt-lake basins behind. Up to this point we had been continually in the dense scrubs, but here the country became a little more open. Myal timber generally took the places of the mallee and casuarinas; the spinifex had disappeared, and real grass grew in its place, and I was in hopes of finding some water if we should debouch upon a plain, or perhaps discover some ranges or hills which the scrubs had hidden from us. On the sixth day we entered fairly upon a plain, the country being very well grassed, and it had several kinds of salsolaceous bushes upon it, though the soil was not very good; it was very hard and good travelling country, the camels made scarcely any impression upon it, and only by the crushed grass could the trail be followed—no one could trail us after leaving the scrubs and the softer soil, or sand, which they inhabit. The plains appeared to extend for some distance. On them we saw one or two wild turkeys, only one of which could we get—Mr. Young just managed to wing one, on the seventh day from the dam; on the morning of the eighth day, we actually had cold fowl for breakfast, with a modicum of cold water. On the ninth and tenth days of our march the plains continued, and I began to think we were more liable to death from want of water on them than in the dense scrub we had been so anxious to leave behind. Though the country was now all plains, yet no view of any extent could be got, as the country still rolled on in continued undulations in the same way it had done in the scrub. It was evident the region we had entered was utterly waterless; and in all the distance we had come in ten days no spot had been found where it could lodge. It was totally uninhabited both by man or animal; not a track of a single marsupial, emu, or wild dog was to be seen, and it seems we had penetrated into a region utterly unknown to man and as utterly forgotten by God. We had now come 190 miles from water, and our prospects of obtaining any appeared to get less and less. On the eleventh day the plains died off again, and we re-entered a new bed of scrubs, consisting again of mallee, casuarinas, sandal-wood, and quandong trees, and the ground overgrown with spinifex. By the night of the twelfth day from the little dam (having daily increased our rate of progress), it being the 21st of September, we had traversed scrubs more undulating than previously, consisting as usual of mallee, myal, mulga, casuarina, &c.; and at

sundown we descended into a hollow, which I thought would prove the bed of another salt lake; but upon reaching it I found it to be a rain-water basin or very large claypan, and though there were signs of the former presence of natives, yet the whole basin, grass, and herbage about it, were all as dry as the desert around us. Having found a place where water could lodge, I was certainly disappointed in finding none, as it showed that no rain whatever could have fallen here when we had good but useful showers immediately upon leaving the dam. From the appearance of the vegetation no rains could have visited this spot for many months, not to say years; the grass was white and dry, and ready to blow away with any wind. We had now travelled 242 miles from the little dam, and I thought it advisable here to give our lion-hearted camels one day's respite, and to apportion out amongst them the amount of water that some of them had carried for the purpose. By the time we had reached this distance from the last water—though no one had uttered the word retreat, as every one probably knew it would be useless, yet I was not unassailed by a few croakings from some of the party who strongly advised and wished me, for the sake of saving some of the camels' lives, to sacrifice a certain number of the worst, and not give these unfortunates any water at all. But I represented that it was wrong and unjust to pursue that course and yet expect these neglected ones still to travel with us; as, even in their dejected state, some of them might actually go as far without any water as the others would go with; and as for turning them adrift, or shooting them in a mob, as long as they could travel that was out of the question. So declining all counsel, I declared it should be a case of all sink or all swim; and in the middle of the thirteenth day, during which we rested for the purpose, the water was fairly divided amongst them—the quantity each got was a little over four gallons, and there being 18 grown animals and one foal, the quantity given was about 80 gallons. The position of this dry water-basin is in lat. $30^{\circ} 7' 3''$ and long. $124^{\circ} 41' 2''$. We had now passed the intersection of the 30th parallel by the 125th meridian, and since reaching it my course had been five degrees more southerly; and on departing from this wretched basin on the 23rd of September, with animals greatly refreshed, and carrying much lighter loads in consequence of the water being drunk, we continued our course, entering immediately dense scrubs of mallee, with spinifex, black oaks (*casuarina*), and numerous gigantic mallees like gum-trees. The country rose into sandhills, and a number of the melancholy cypress pines (*callistris*) ornamented both the sandy rises and the spinifex depressions through and over which we went. Some

occasional signs and traces of natives were met, but no water seen, the only water they can possibly obtain in this country must be got from the roots of the trees. A great number of the so-called native poplar-trees, of two varieties, were now met, and the camels ate them as they passed by; the smaller vegetation here assumed the familiar similitude to that which obtains an existence at and around the Mount Olga of my first and last expeditions. Two wild dog puppies were seen in the scrub to-day. My black boy, Tommy, had occasionally found some lowans' (*Leipoa ocellata*) nests, and we had thence obtained a few of the eggs, as this is the laying season; and these, with the turkey Mr. Young had shot, were the only adjuncts to our supplies that we obtained from this region. After this day's stage there was nothing for the camels to eat but the native poplar-tree, and they devoured them with great apparent relish, though to my human taste it is about the most disgusting vegetable I ever put into my mouth. The following day we travelled 26 miles of scrub, and camped in the mallee as usual. The latitude here was $30^{\circ} 17'$. The country continued to rise into sandhills from which the only views obtainable presented spaces precisely similar to those already traversed and left behind us to the eastwards; and if it was only from the experience of the past we were to gather an intelligence of what was before us in the future, then would our future be most gloomy indeed. At 12 o'clock some native fires were seen straight on our course, and a little to the north of it their tracts were somewhat numerous. The day was quite warm enough, the thermometer standing 94° in the shade. On Saturday, 25th September, being the sixteenth day from the water at the boundary dam, we travelled 27 miles, still on our course, through mallee and spinifex, pines, casuarina, mulga, acacias, and quandong-trees, and noticed, for the first time upon this expedition, some very fine specimens of the grass-trees (*Xanthorrhæa*). The giant mallee also were very numerous; they give a most extraordinary appearance to the scenes they adorn, as they cheat the eye of the traveller into a belief that he is passing through tracts of alluvial soil, and gazing upon the ever water-indicating gum-trees. This night we reached a most abominable encampment, as there was nothing that the camels could eat, and the ground was entirely covered with great bunches of spinifex; before us and all along the western horizon we had a black and scrubby rise of very high sandhills, and each of us upon observing it noticed its peculiar resemblance to those sandhills which had confronted us to the north and east when at Youldah. By observation we found we were upon the same latitude as Youldah, but had reached a point in longitude 500 miles

to the west of it; and it is highly probable that no water exists in a straight line between the two places. Shortly before evening I took the compass and steered in a more southerly direction than Mr. Young, who had been then in advance; this took us over a long white sand-ridge, and brought us to the hollow, where, as I said before, we had such a wretched encampment for the night. I mention this, as a circumstance attaches to it. We had now come 323 miles without having seen a drop of water. Towards the line of dark sandhills, which formed the western horizon, was a great fall of country into a kind of hollow, and Mr. Tietkens, upon the following morning, appeared greatly impressed with the belief that we were in the neighbourhood of some water; but I would not believe it. He started away on foot, a-head of the string of camels, to steer, and gave Tommy his little riding bull—the best leading camel we have—and told Tommy to go on top of a white sandhill to our left (a little south of us), and see if he could find any black tracks or other indications of water. I did not know Tommy had gone at all, nor could I see that Tietkens was walking, as it was quite an extraordinary event when the whole string of camels can be seen at once in this country; and we had gone some $2\frac{1}{2}$ miles when Alec Ross and Nicholls declared they heard Tommy calling out “Water!” but as I never will believe this kind of things until they are proved, I kept the party still going on. However, Tommy came after us, and between a scream and a howl yelled out, now quite loud enough for me to hear, “*Water! water! water!*” when, of course, all turned after him to our left. Soon after he left us, he had ascended the white sandhills Mr. Tietkens had sent him to, and what sight was presented to his view! An open piece of grass-land at half a mile distance, surrounded entirely by pine-trees, and falling into a funnel-shaped hollow. Before ascending the sandhill, he had picked up the tracks of an emu, and, on descending it, he found the tracks went for the open circle he had seen, and followed them along to it where he saw, to his great satisfaction, a small and miniature lake lying in the sand with plenty of that invaluable fluid he had not beheld for more than 300 miles. He watered his camel, and then came after us, as we were slowly passing on to death and doom ignorantly by this life-sustaining prize. Had Mr. Young steered rightly the morning before, we should have had this treasure right upon our course, and had I not checked his incorrect steering we should have passed under the northern side of a long white sandhill more than 2 miles from this water, and neither Tommy nor any one else would have seen the place on which it lies, as it is completely hidden in the scrub; and as it was we should have passed within half a

mile of it, if Mr. Tietkens had not sent Tommy to look out. When I arrived at this newly-discovered liquid gem I found it to be as described above; it is the most singular existing water I have ever seen—lying in a small hollow in the centre of a small grassy flat, surrounded by clumps of the funereal pines.

The water here is, no doubt, permanent, as it is supplied by the drainage of the sandhills surrounding it. It lies exposed to view, in a small open basin, 150 yards round, and 2 to 3 feet deep. Farther up the slopes, native wells had been sunk in all directions, in each and all of which there was water. There was one large well, a natural one I consider, lying 12 or 15 feet higher up than the largest basin, which had a plentiful supply of water in. Beyond the immediate precincts of this open space the scrubs abound. It may be imagined we were gratified at the discovery of this only and lonely watered spot, after traversing such a desert to it. How much longer the expedition could have gone on without water we were now saved the necessity of trying. But this I may truly say, that your South Australian camels are second to none in the world for strength and endurance. In a human and humane point of view, it was certainly most fortunate to have found this spring, and enjoyed both for men and animals a respite from the unceasing march; and as the point for which I desired to make (Mount Churchman) was yet 330 miles distant, it was evident that this discovery was a vast benefit to, if not the entire salvation of, the whole party.

During our march from the little boundary-dam, for seventeen days, though I had not put the members of the party upon any actual short allowance of water, yet the implied restraint upon each was so great that we were all in a continued state of thirst during the whole time; and the small quantity of water consumed (of course we had neither tea nor coffee) showed how all had restrained themselves. Geographical features have been most terribly scarce upon this expedition, and this spring is the first permanent water I have found. I have ventured to dedicate it to the Queen, naming it "Queen Victoria Spring."

On arriving here our camels drank as only thirsty camels can, and our own great delight was to find ourselves enabled to indulge in the luxury of a bath, as we had been seventeen days without a change of apparel, or the slightest attempt at a wash. At this peculiar spring the thorny vegetation of the desert grows alongside the more agreeable water-plants at the water's edge, so that fertility and sterility here stand side by side. Mr. Young here planted the seeds of numerous vegetables, plants, and trees, and amongst others some of the giant bamboo (*Dendroclanus striatus*), also Tasmanian blue gum, and wattles;

though I am afraid they will never reach maturity, as the natives are continually burning the rough grass and spinifex, which on a favourably windy occasion will consume everything green or dry down to the water's edge. There seems to be very little native game here, though a number of bronze-wing pigeons came to the water at night and morning; but there being several small native wells, besides the larger sheet, for them to drink at, and there being also a quantity of a thorny vegetation to screen them, we have not been very successful in getting many—our best shot, Mr. Young, having bagged only four or five. Having found this spring, I determined to give our noble camels a fair respite, as we have yet 330 miles to travel to Mount Churchman, and it is just as highly probable we shall get no water between here and there, as between here and the little dam we have left behind us.

On Saturday, the 2nd of October, we had been resting under the umbrageous foliage of the cypress-vines, amongst which our encampment was fixed for nearly a week, the party and camels had all recovered from the thirst and fatigues of our late march, and it really seemed impossible to believe that such an extent of country as 325 miles could actually have been traversed between this and the last water. The weather during our halt here had been very warm, and yesterday was a most abominable day—a heated tornado blew from the west from morning till night, and continued until the morning of the 2nd of October, when without any otherwise apparent change in the atmosphere, and no clouds, the temperature of the wind became entirely changed, and the 2nd was an exceedingly cool and delightful day. We found the position of this spring to be in lat. $30^{\circ} 25' 30''$, and long. $123^{\circ} 21' 13''$. On leaving a depôt and making a start early in the morning, camels, like horses, may not be particularly inclined to fill themselves with water which they might do in the middle of the day, and might thus leave a depôt on a long dry march not half filled. The Arabs in Egypt and other camel-countries, when starting for a desert-march, force the animals (so I have read) to fill up by using bullocks' horns for funnels, and pouring the water down their throats till the creatures are ready to burst; and the animals, knowing by experience as soon as the horns are stuck into their mouths that they are bound for a desert-march, fill up accordingly. Strange to say, though I had brought almost every article that could be mentioned for the journey, yet I did not bring any bullocks' horns, and, consequently, could not, as above described, fill up my camels at starting. So as to obviate any disadvantage on that account, I sent to-day, with Mr. Tietkens and Alec Ross, three camel-loads

of water to deposit about 25 miles on our next route, so that the camels could top-up *en passant*. The water was to be poured into two canvas troughs, and covered with a tarpaulin. After Mr. Tietkens and Alec returned we remained yet two days longer at the Queen's Spring; and before I leave the spot I had perhaps better remark, that to any other traveller it might prove a very difficult (perhaps dangerous) place to attempt to find, as though there are many white sandhills in the neighbourhood, yet the open space on which the water lies is so small in area, and so surrounded by scrubs, that it cannot be seen from any conspicuous one, nor can any conspicuous sandhill (distinguishable at any distance) be seen from it. It lies at or near the south-west end of a mass of white-faced sandhills, there being none to the south or west of it. While we remained here there were a few natives prowling about the camp, but they never showed themselves on the top of the bank. Above the water was a well-beaten corroberrie path, where these denizens of the desert have often held their feasts and dances. Tommy found close by a quantity of long, flat, sword-like weapons, and brought four or five of them up to the camp. They were ornamented (?) after the usual aboriginal fashion—some with slanting cuts or grooves along the blades, others with square, elliptical, and rounded figures. Some of these two-handed swords were 7 feet long. Mr. Young and I collected as many specimens of plants here as we could. Some grass-trees grew in the vicinity of this spring; some of these trees reached a height of 20 feet and over. On the evening of the 5th of October a small snake and several scorpions came crawling about us as we sat round the fire, and we managed to kill the scorpions, but though we wounded the snake, yet it escaped. While at this water we occasionally saw some hawks, crows, corillas, black magpies, which in some parts of the country are also called mutton-birds, and pigeons. One day Peter Nicholls shot a queer kind of carrion bird, like a crow, only it was not so large though its wings were as long; it had the peculiar dancing hop of the crow when on the ground; its plumage was of a dark slate colour, with whitish tips to the wings; its beak was similar to the crow's. I now desired to go as straight as possible for Mount Churchman, discovered by Gregory in 1846. Its position on the chart is in lat. $29^{\circ} 58'$, and long. 118° , being distant from this dépôt 330 miles in a straight line upon the map; but straight lines upon the map and straight lines through dense scrubs are two different things, and, go as straight as we could, we should still make it several miles farther.

On the 6th of October, Wednesday, we departed, and at once entered into the second division of the desert. That night we

reached the place where Mr. Tietkens and Alec Ross had left the two troughs full of water, it being 25 miles about W.N.W. The country was all scrub and sandhills. We saw a few cur-rajing-trees during our day's stage, and where we camped there were a number of well-grown eucalyptus-trees with yellow bark. They appeared to me very much like the yellow-jacket timber of parts of Queensland and New South Wales. The water I had sent out here was just sufficient to fill up the camels. On the following day, just after we started, at 3 miles from camp, we came to some large and rounded granite boulders in the scrubs, but there were no receptacles for holding any water at any time. At 16 miles we reached a dry salt lake on our left hand, which continued near our line for 4 miles. Both yesterday and to-day we saw some native wallaby-traps in the dense scrubs. At 20 miles we sighted a low hill, and reached its foot in 24 miles; there were salt-lake depressions nearly all around us. Here we found a small quantity of good feed for the camels, namely, some of the little pea-vetch, of which all herbivorous animals are so fond. From the summit of this little hill—the first I had met for nearly 700 miles—another low and scrubby range was lying to the westward, and nearly across our course, with salt lakes intervening, and others nearly all round the horizon, though the farthest vision was bounded, except where the low range lay, by dense scrubs as usual; we encamped at the foot of this little hill. A few hundred acres of ground were open, and there were clay-pans on it; but no rain could have fallen here for ages, I should imagine. The hill was about 200 feet high; it was composed of granite stones. I was glad at last to see some granite crop up, as we were now, so to say, approaching the western coast-line formation, which I have always understood to be all granite; and it was time something like a change of country occurred. The day following, in making for the low range, we found ourselves caught in the ramifications of some of the saline depressions, and had therefore to go a long way roundabout to avoid them. Just previous to reaching the low range we came to the shore of another salt lake, having a hard, firm, quartz, pebbly bed, and were enabled to travel across it to the hills, which we reached in 16 miles from last camp. The view from the summit was as discouraging as ever. To the west densely scrubby rises appeared, with many salt arms and channels below them to the south, and all round in every other direction nothing but scrubs and scrubby rises bounded the view. The ridges beyond this low range, which was about 300 feet high, continued in our course, a little north of west, for 2 or 3 miles, when we again entered the sandy scrub, and camped after travelling 28 miles—our position here

being in lat. $30^{\circ} 10' 5''$, and long. $122^{\circ} 7' 6''$. The next day we made good 24 miles, all scrubs, sighting three low ranges, northerly, north-easterly, and E.N.E. at 12 miles, the most easterly appearing the highest. They were 20 to 30 miles away from our track.

On the 9th and 10th of October we had all scrubs. On the 11th, towards evening we had some scrubby ridges in front of us, and were again hemmed in by salt lakes, and, to save several miles of roundabout travelling, we attempted to cross one, which, though not very broad to the west, was exceedingly long to the north and south, and lay right across our track. Unfortunately we got a number of the leading camels into a fearful bog, and had the greatest difficulty in getting them safely out. It was only by the strenuous exertions of all hands, and by pulling up their legs with ropes, and poking tarpaulins into the vacated holes, that we finally got them all out without loss; then we had to carry out all their loads ourselves, and the pack-saddles. We found it no easy matter to carry 200 lbs. (half a load) on our backs through the boggy soil on to the dry shore; however, we were most fortunate in having no loss with the camels, for a camel in a bog is the most helpless creature imaginable. Leaving the bog we started up the shore of the lake northerly, where we found some more of the little pea-vetch, and encamped near the top end of the lake, having travelled nearly 30 miles, but only making 24 straight from last camp. The camels had nothing to eat for three nights previously. We saw some native smoke 3 or 4 miles away from where we camped; and, as there were some ridges near it, I intended to send some one in the morning to look for water. The following day we had got 3 or 4 miles to go round to get clear of this boggy lake; and Alec Ross and Tommy walked across to hunt up any traces of natives, &c., and look for water. On clearing this feature we ascended some densely scrubby granite rises which had some bare rocks exposed here and there, but no indentations for holding a drop of water could be seen. At 15 or 16 miles, having passed all the ridges and entered mallee scrub again, Alec and Tommy overtook us, as Mr. Young had remained behind with camels for them, and reported they had found one small rock-hole—Alec said with 20 or 30 gallons of water in—but Tommy said it was only a little drop, so I did not think it worth while to send any camels back so far for so little reward. We saw two or three dozen grass-trees to-day with quandong and curraja trees. Camping again in the scrub, where there were only a few leguminous bushes for the camels to eat, having travelled $28\frac{1}{2}$ miles, but only making 24 straight. The last three days had been very warm, the thermometer going up to

98° in the shade each day. The camels appeared thirsty, and would not feed well upon what bushes there were for them, which was very poor provender. During the last few days we had met with occasional patches of grassy and clayey ground, generally where the yellow-bark mallee-trees grew, and we passed numerous small clay-channels and pans in which rain-water might lodge for some time after a shower; but it was very evident from the appearance of the grass and vegetation that no rains could have visited this ungodly region for a year at least—every vegetable thing seemed dry, sere, or dead. On the 13th of October, at 12 miles from camp, we passed over some more scrubby granite ranges, and where some extent of bare rock lay exposed. I searched about it, but the indents upon it were so small and shallow that water could not remain more than a week after rains. Mr. Young and Tommy, from their camels' backs, saw another mass of bare rocks further away to the north-west, so I took Tommy and my riding camel and we went over to it while the party went on. On arriving, we found a very pretty piece of scenery—several hundred acres of bare red rocks with grassy flats sloping down from them to the west, and forming little watercourses or flat channels. We saw great numbers of crows, and many fresh natives' tracks, also the smoke of several fires in the surrounding scrub. Tommy took the lower grounds while I searched on the bare, flat, granite rocks. He soon found a small native well in a grassy water-channel, and called out to me; on joining him I found there was very little water to be seen in it, but I thought a supply might be got with a shovel, and I decided to send him back on my camel to bring the party back here. We gave my little riding camel Reche, or, as I usually call her, Screechy, all the water that was in the well; and Tommy started away, while I intended to search all about in his absence for more. When he had gone about 200 yards on his road down the grassy channel he called to me again, and pointed to the ground and said, "Plenty water here; plenty water here;" and the camel would not go past it. I walked down and found a very excellent large native well, with a good body of water, and evidently permanently supplied by the drainage from the mass of bare rocks in its vicinity. I was now greatly pleased at our discovery; and, after giving my little camel a good drink with Tommy's hat, he went off after the party. I remained till they returned. Soon I heard the voices of the natives, and their smokes came gradually nearer. I thought they must have seen me when on top of the rocks, and desired to make my farther acquaintance; it, however, turned out to be only two women coming to the well for water, as they both had vessels for carrying it back to

their encampment. When they came near enough to see me they bolted, and looked at me with their four eyes. I made signs for them to come to the well and drink, but they dropped their bark water-vessels and walked somewhat smartly off; I picked up these things and found them to be of a most original, or rather aboriginal, construction—they being simply a small sheet of the yellow-tree bark, tied up at the ends with a kind of bark-string, and forming a small trough. I was not near enough to distinguish whether they were very beautiful or not, and all I could make out was that one was younger and fatter than the other—the youngest and fattest being the last to decamp. These were the first natives I have seen on this expedition; no other natives appeared while I was by myself. In about four hours the whole party arrived. We soon watered all the camels. They had travelled 6 miles past this place, and therefore had to come 6 miles back again, having travelled in all 202 miles from Queen Victoria Spring. This, in an actual straight line on the map, is only 180 miles. Almost immediately upon the arrival of the party, a number of native men, and one young boy, made their appearance; they were apparently very quiet and inoffensive, and had probably seen white people before. One or two spoke a few English words, as “whitefellow,” “what name,” “boy,” &c. They seemed quite pleased to see the camels drink so much, as they completely emptied the well, which they had probably never seen empty before. The water drained in pretty fast, as in an hour the well was as full as ever, and much purer than formerly. There was plenty of good herbage and bushes here for the camels, and it is altogether a most romantic and pretty little place. The little grassy channels were green and fresh-looking; and the whole space for a mile round is open and dotted with shady acacia-trees and bushes, amongst some of which our camp was pitched. The slope of the whole area is to the west. It reminded me of Wynbring more than any other place I have seen. At first only eight natives made an appearance, and Mr. Young cut up a red handkerchief into as many strips, which were tied around their regal brows, and of which they seemed exceedingly proud. Towards evening, three or four more came to the camp, one of whom had a large piece of pearl-oyster shell depending from a string round his neck; another had a queer ornament made of short feathers, likewise worn round the neck—it had the appearance of the mouth of a portemonnaie; it seemed very curious, and, when we wished to examine it, he popped it over his mouth and opened that extensive feature to its fullest dimensions, laughing most heartily; and at the same time he had a very theatrical air,

and the extraordinary mask gave him the appearance of a demon in a pantomime. In taking this ornament off his neck he broke the string, and I supplied him with a piece of elastic band, so that he could put it on and off when he pleased without undoing it; but the extraordinary phenomenon of the extension of a solid was rather more than he was prepared for, and he scarcely liked it to touch his person again; but, as I put it over my head first, it re-assured him, and he wore it again as usual. They seemed a very good-natured lot of fellows, and we gave them a trifle of damper and sugar each. In the morning before we arrived here Tommy had been most successful in obtaining lowans' eggs, and to-day we had eleven or twelve. When the natives saw these, which they, no doubt, considered their own lawful property, they eyed them with great anxiety, expecting probably we should hand them over to them; but we did not do so. The following morning was very cold, indeed, the thermometer having descended to 32° (freezing point), though there was no dew; our sable friends came very early to breakfast, and brought a few more we had not previously seen, also two old and faded frail, if not fair ones. Soon after, a little boy came by himself—this imp of iniquity was just like a little toad, being all mouth and stomach. It appears these natives practise the same rites of incision and circumcision as the Fowler's Bay tribes; and my black boy, who comes from there, said he could understand a few words they spoke, but not all—he was too shy to attempt a conversation with them, but he listened to all they said, and occasionally translated their remarks to us. To-day Alec Ross and Peter Nicholls walked over to their encampment, and said that most of the men that had been over to our camp were sitting there with nothing to eat—the women probably being out on a hunting excursion, whilst they, as lords of the creation, waited quietly at their club till the dinner-hour should be announced. They got very little from me, as I had very little to give away. Nicholls told me they had some tin billies and shear-blades in their camp; and I noticed on two of the first batch we saw that one had a small piece of coarse cloth on, and another a piece of horse's girth webbing. After questioning the most civilised and inquiring about some places with native names marked in Petermann's chart, they knew two or three of them, and they generally pointed in the proper directions. It was very evident they had often seen white people before, if they had never eaten any.

It was rather a cloudy morning (18th) when we left this place—Ularring—which is situated in latitude $29^{\circ} 35'$, and longitude $120^{\circ} 31' 4''$, rather late in the day, and immediately re-

entered the dense scrubs, which were now more than usually thick. We passed a small salt-lake bed on our right. We made good 20 miles by night, which became cold and windy, and threatened rain. At 3 or 4 miles, on the following morning, we saw some bare granite rocks to the south of our line, and noticed the tops of some low ranges to the north, but which were partially hidden by some nearer ridges, the summit of one of which was a mass of exposed rock, similar in appearance to Ularring, and seemed remarkably high—but being 5 or 6 miles away from our line, which was now nearly west, we did not visit it. At 15 miles from camp, from the top of a scrub undulation, we sighted a pointed hill a little south of west, also another, higher, longer, and more southerly. We could not reach the pointed hill by night. The country is now more densely scrubby than ever, and though we toiled the whole day, we only made good 24 miles. Upon nearing the hill the following day we saw some more of the grass-trees, and passed between two salt lakes. At 10 miles we were upon the top of the hill. The scrubs surrounding it were so terrifically dense that we had the greatest difficulty in getting the caravan to move along at all. Only Mr. Young and I ascended the hill, and I was very much surprised at the view I obtained. In the first place, as we were now so gradually approaching Mount Churchman, the hills to the south were, or should have been, Mount Jackson, but according to the chart I had there was nothing visible in any easterly direction from Mount Jackson, whereas, from the range to the south, not only the hill I was upon, but all the others, in various directions, must also have been seen from it by any one who had ascended it. It was very puzzling, as here we were in a place where there should be no hills, according to Mr. Gregory, and yet we not only stood upon one, but others surrounded us in nearly all directions. The composition of this hill was almost iron itself, and there were also some fused rocks, like volcanic slag, upon it. It was too magnetic for working angles with a compass. It was between 500 and 600 feet above the surrounding country. The horizon, from about E.N.E., round by north and west to south, was bounded by low ranges, detached into seven groups, and the white beds of small lakes were visible, running up to the northern or north-eastern group—the intervening country being all scrubs, and which grew even to the summits of the hills. The view from this hill was enough to horrify the spectator. Another pointed hill lay nearly west, and we pushed on to it, but could not reach it by night. Yesterday and to-day we managed to get a good number of lowans' eggs—yesterday twenty-seven, to day thirty-four; those birds must swarm in

these scrubs, and their eggs form a principal item in the daily fare of the natives during the laying season. We never see the birds, but so long as we get the eggs I suppose we have no great cause to complain. The following morning we reached the second hill, and ascended it. Some more hills, a few miles away, ended nearly west, and some bare granite rocks also appeared a few miles beyond them, and which I determined to visit. This hill was of a similar formation to the last. The far horizon, to the west, being all dense scrub, the Mount Churchman should have been visible. Really the sight of the country visible from these hills is frightful. To the oft-repeated question, "When will the scrubs end?" the only reply can be—"Never until our journey ends also." On descending we pushed on for the large granite rock seen, and which we reached in 12 miles from the east camp. As we approached it we could distinguish a large extent of bare rock, and there was every likelihood of water existing there, as we saw numerous crows and some hawks, and we were soon made aware that there were plenty of natives also, as we soon heard them yelling out when they became aware of our approach. A well was soon found, and our camp fixed at it. The natives were rather numerous here. The well was very shallow, but had a good supply of water in it, and there were a few acres of open ground round the rocks, though the scrubs came as close as they possibly could. This spot is 77 miles from Ularring, and our well is situated at what may be called the north-east end of the rocks; at the south-west end there is another and larger valley, where I saw two native wells. On Sunday, 22nd October, we rested here. The upheaval of the few hills we have lately passed seems to have induced a more vigorous growth of scrubs, for they are now hideous in the extreme. No views to any distance could be obtained from these rocks, as the undulations of scrub occur continuously throughout the desert, so to say, at almost regular intervals of a few miles. We obtained a good many bronze-wing pigeons here, and I called these the Pigeon Rocks. Their position is in latitude $29^{\circ} 58' 4''$ and longitude $119^{\circ} 15' 3''$. The day was very warm, the thermometer rising to 100° in the shade, and at night a very squally thunderstorm came up from the west, which agreeably cooled the atmosphere, though no rain fell.

On the 24th October we left the Pigeon Rocks, still steering away nearly west; we travelled 25 miles through the dense scrubs with an occasional break in it, and on which breaks a few well-grown yellow-bark gum-trees were found—the old lame cow following, but reaching the camp some time after us. The day after another 25 miles were made good; and just at

evening we tore through a piece of most horrible scrub or thicket, and arrived at the edge of a cliff which stood perpendicularly over the surrounding country, and which we had to circumnavigate to descend. Right on our course, being in the proper latitude, 26 or 28 miles away, was a small-looking hill, which, being the object I had traversed so many hundreds of miles of desert to reach, I was delighted to recognise as Mount Churchman; the intervening country was filled to overflowing with the densest of scrubs. We encamped at the foot of the cliff. Yesterday and to-day we got several lowans' (or, as the West Australians call them, *Gnows'* eggs)—we got forty-five to-day and thirty yesterday. The following day we hoped to reach Mount Churchman, but the scrubs were so dense that we could not get to it by night, though we travelled continuously for twelve hours. We got only twenty-four lowans' eggs to-day. Last night and to-night we had a slight dew, the first we have had for a long time. Early on the morning of the 27th October, we stood upon the summit of Mount Churchman; and, though no mention whatever is made upon charts of the existence of water there, we found a native well, which soon supplied all our wants. In the afternoon some natives made their appearance; they had evidently been at or belonged to stations, as they told us of a station called Guingham (Mount Singleton) in a north-west direction, where they said a gentleman named Major Cook resided, and that we could reach it in four sleeps; but, as I wished to make down towards Perth, I decided not to go that way. The day was very warm—thermometer being 99° in the shade.

On leaving Mount Churchman on the following day, our friendly natives all came and camped with us at night; our course was nearly south-west, and we only travelled 11 miles. The following day our friends departed, as they said, to visit Guingham; we pursued our own course, and reached the shores of Lake Moore. In about 30 miles we found some rock water-holes, and encamped on the edge of the lake. The following day we crossed its bed, which is 7 miles wide; it is a salt lake, but the bed where I crossed it was dry. We left it on the 30th October, and travelling on a course nearly w.s.w. We struck some old dray-tracks at a dried-up spring on November 3rd, which, however, ran eastwards, which was in a direction I did not desire to go. From here I turned to the south, and early on November 4th we dropped down upon an out sheep-station, where there was a shepherd living. This was the first settlement seen in Western Australia, and here we saw the first white man, who was so surprised at the appearance of the caravan that I am sure he would have galloped away, had his horse not

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been completely fascinated by the sight of the camels. However we soon assured him we were not denizens of another sphere; and he then welcomed us in the name of the whole Colony. He then went and found the shepherd, who came with his flock, and we very soon had an excellent meal of capital mutton. Here exploring was at an end; roads led to and from all the other settled districts, and we were again in the neighbourhood of civilisation. This out-station belongs to the Messrs. Clunes Brothers, who live lower down the country. On the 6th November we reached Mr. Clarke's homestead, called Inderu, where we were treated with the greatest kindness by every member of his family. Here we were also met by young Mr. Lefroy, son of the Hon. A. O'G. Lefroy, acting Colonial Secretary for the Colony, and who took us off to his station, where we remained some days, thoroughly enjoying a recruiting at so agreeable a place. Our next reception was at the Benedictine Monastery and Home for Natives. Here was the first telegraph station we had reached, and I received a number of congratulatory telegrams from most of the leading gentlemen in Perth; from his Excellency the Governor's Private Secretary, the Press, and from my brother explorer, Mr. John Forrest.

In concluding the tale of a long exploration, a few remarks are perhaps necessary. In the first place, I travelled during the expedition 2500 miles, and unfortunately no areas of country available for settlement were found. The explorer does not make the country, he must take it as he finds it; and though to the discoverer of the finest regions the greatest applause is awarded, yet it should be borne in mind that the difficulties of traversing such a country cannot be nearly so great as those which confront the less fortunate traveller, who finds himself surrounded by heartless deserts. Still, the successful penetration of such a region has its value, both in a commercial and scientific sense, as it points out to the future emigrant or settler those portions of our continent which he should most shun.

It never could have entered into any one's calculations that throughout a distance of more than 1000 miles, in a straight line, the expedition would have to bore its way, "like moles in the earth," through interminable scrubs, with nothing to view and less to cheer. The labours of the exploration ended only at the sea at Fremantle—the seaport of the West; and after travelling under those trees for months from eastern lands through a region accursed, we were greeted at last by the roar of the ocean.

The officers (Mr. Tietkens and Mr. Young) and all the other

members of the expedition acted in every way so as to give me satisfaction, and when I say that the *personnel* of the expedition behaved as well as the camels, I cannot give any greater praise.

XIII.—*Geography of Perak and Salangore, and a brief Sketch of some of the adjacent Malay States.* By W. BARRINGTON D'ALMEIDA, F.R.G.S.

THE kingdom of Perak lies between 4° and 6° N. lat. For its northern boundary it has the Krian River, which until lately separated it from Province Wellesley. At the south, the Bernam River divides it from the neighbouring Malay State of Salangore. To the east we have the Malayan chain of mountains which, like a backbone, runs through the middle of the peninsula, separating it from Tringanu and Pahang; and on the west its coast-line of 130 miles is washed by the Straits of Malacca. The portion of Perak best known to us, at present, is an oblong strip of country hemmed in by the Perak River on two sides and by the sea and the Krian River on the other. This slip of country is said by the late Mr. Birch to cover an area of from 2000 to 3000 square miles. A bird's-eye view of it, from somewhere above the Island of Pangkore, would give a panorama of the loveliest description; extending to the north, east, and west, you would see a landscape varied with forests of primeval jungle, smiling valleys, teeming with the richest produce, and watered by innumerable streams. As the eye gets gradually accustomed to this picture, some of the leading features begin to be defined. First, you would be struck with the great river of Perak, running south, east, and north; then the eye would rest on a chain of mountains, situated at the north-east of this strip of country, stretching beyond the Krian River in the north and almost touching the Bruas River in the south. In this chain of mountain, known as the Laroot Range, you would perceive three conspicuous elevations, standing almost at equal distance from each other: they are the three principal mountains on this side of the Perak River, and are known to the natives as the Gunong Hijau, or Green Mountain; Gunong Pondok, or Shark's Tooth; and the Gunong Bubbo, or Wild Man Mountain. The famous tin-mines of Laroot are found in this neighbourhood, and the sides of these mountains are covered with tall jungle-trees, some of them remarkable for their durability and well suited for shipping and building purposes.