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Explorations in the Interior of Western Australia

Author(s): David W. Carnegie

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The greatest depth of water which I sounded was 15 feet. The reeds are intersected in all directions by "chappgans," or passages about a foot wide, which are kept open by the Lob-dwellers for fishing-nets. These passages are made by pulling up the new shoots from the bottom every spring. When we enter such a passage it becomes dark and close, and it seems as if we were disappearing in a tunnel of reeds. We lived here on wild ducks and geese and their eggs, as well as on fish, and lived an idyllic life. My stay on Lob-nor is one of my most pleasant recollections from my journey through Asia.

From Chargalik we set out with our caravan of horses on our journey of 600 miles to Khotan, partly the same way taken by Marco Polo, and which took us through Cherchen, the gold districts of Kopa and Surgak, Nia and Keria. In Khotan, which place I reached on May 28, the obliging *amban* of this city, Liu-darin, gave me back a large portion of the things which I had lost when shipwrecked in the desert. Herdsmen and hunters from Khotan-daria had found them by following the tracks of foxes who had scented our provision-chests during the winter; but I did not find much joy in getting back my fine photographic apparatus, for the natives had taken all the negatives and put them to use as window-panes.

In Khotan we prepared for a hard campaign in North Tibet, marched back to Kopa, and from there to Dalai-kurgan, near the north foot of the Kuen-lun mountain, the last place where we found human beings. They were Tagliks, and Jaggatai-Turks, and live a half-nomad, half-domiciled life, subsisting mostly on sheep-breeding, but sometimes raising barley. They live in dens in the ground, dug in the yellow, loose layers of loess, which form a transition from the mountains to the desert.

On August 6 we left Dalai-kurgan, and marched through the secondary pass Sarik-kol to the upper course of the Mitt river, where the country is called Lama-chimin. The names Dalai and Lama, as well as Kalmak-chapp and Kalmak-uturgan, and others, remind us that Mongolians have once lived here.

(*To be continued.*)

EXPLORATIONS IN THE INTERIOR OF WESTERN AUSTRALIA.*

By the Hon. DAVID W. CARNEGIE.

THE Expedition consisted, besides myself, of Joseph A. Braden as second in command, Godfrey F. Massie, Charles W. Stansmore, and Warri (an aboriginal boy from the McDonnell ranges, South Australia); nine

* Paper read at the Royal Geographical Society, February 14, 1898. Map, p. 332.

camels (eight packs and one riding), equipment, etc.; and provisions for five months.

July 9, 1896.—A start was made from Coolgardie, heavy rain falling at the time, but unfortunately not extending any great distance towards the interior, and, passing through Goongarrie (Ninety Mile) and Menzies, we left civilization at Cudmore's (or Doyle's) well, some 50 miles south of Lake Darlot; the country between Coolgardie and Cudmore's looking well after the winter rain, grass (a short spear-grass of no great value for fodder for stock) and everlastings, pink and white, having sprung into life, giving a very pleasing appearance to an otherwise dreary belt of country. A mob of some three hundred bullocks were camped near the well, the first lot to be brought from the Gascoigne to the Coolgardie fields by a direct route. The stockman told me that they had had no difficulty, either on account of water or feed, and had travelled in an almost direct line *viâ* Lake Way and Lawlers. These were the last white-faces we saw until reaching Hall's Creek (Kimberley goldfields) in the middle of December. Taking a general north-east by east course, so as to leave Lake Wells on our north, and strike Mounts Allott and Worsnop (two very noticeable table-topped hills) on Forrest's route of 1874, we crossed an auriferous belt near the southern end of the Neckersgat range (Wells). Here we found good green herbage and bushes, and pools of rain-water in small creeks. Numerous prospectors have visited this locality, but so far, I think, no payable gold has been found. This was the last gold-bearing country we saw until well within the Kimberley district.

In approximate long. 122° 30' we entered the desert proper, which continued in unbroken monotony to Mount Worsnop. Vast sand-flats timbered with desert gums and a few quondongs and acacia bushes, interchanging with long stretches of rolling sand-ridges, high and steep in places, but of a far less formidable character than those met with later on; the one characteristic vegetation being spinifex.*

Throughout this part of the country cliffs, terraces, and little low tablelands of sandstone are met with. In these rock-holes may be found, and from them small watercourses run out, only to be swallowed in a mile or so by the sand. Though in no case did we find water in these creeks, yet the rains of the early winter had caused splendid herbage and green grass to grow on the banks—both excellent feed for our camels. But few natives inhabit these parts, animal life being very scarce and the water-supply precarious. During this part of the journey we had our longest dry stage, viz. thirteen and a half days, during which time the camels were without any water, and we

* Spinifex (*Triodia*) grows in round isolated stools from 1 to 3 feet high, from which wave a few straggling blades of grass. The needle-like spikes which form the stool make walking unpleasant, cause sores on the feet and legs of the camels, and before long rub all the hair off their shins.

ourselves were very hard pressed. By following natives' tracks, even those of quite recent date, we would only be rewarded with a *dry* rock-hole, or one from which it was plain the natives had just taken the last drop. Doubtless had we continued to follow tracks from hole to hole, regardless of the direction in which we travelled, we should have at length got water. But having a definite object in view, I pushed on, only using such footprints as led us on the course I wished to follow, or as near as might be. On leaving the comparatively well-watered country, we had come so suddenly into a dry and desert belt that we were hardly prepared to stand a long drought. I had carelessly omitted to have every available can or canteen filled at our last watering-place, and in consequence we suffered more discomfort than would otherwise have been the case. On leaving camp in the morning, we would travel from seven to nine hours straight on end, with a halt of no more than a minute or two to readjust nose-lines or packs, and would have neither water nor food until camp had been made at night.

Having but one riding-camel between five of us, we were on foot the greater part of the day. This training, though rather severe at first, stood us in good stead later on in the year, when the weather was hotter and water harder to obtain; and, indeed, without it I do not doubt but that some of us would have succumbed to the hardships of the great sandy desert. Besides the benefit we obtained, the practice of walking saved the camels an extra load and many a mile of travel, for when on water-hunting excursions, away from the main party, we always worked on foot, and so gave the camels all possible rest. On the thirteenth day, shortly after noon, I, leading with the compass, was rejoiced by the sight of a fresh track, and only some 60 yards ahead of us we saw a "buck" (male native) engaged in unearthing an iguana. At once we set out, and, he running, we gave chase, and, weak as we were from want of water and consequently of food also, would have had a poor chance of securing him had not Stansmore on the riding-camel cut him off in front. No doubt he had at least heard of the white man, for, after the first surprise of capture, he showed more confidence, and, quickly understanding our wants, led the way, with a guard on either hand, at a swinging pace—too fast for our camels or ourselves. Soon after sundown we arrived at the promised water; a low outcrop of conglomerate surrounded by mulga and enclosed between two sand-ridges, seen in the uncertain light, gave us high hopes, which, alas! were doomed to disappointment, for the rock-hole was dry. I was doubtful at first whether the native had led us wrong intentionally or no, but I was soon satisfied that his idea had been to bring us to a dry hole and give us the slip during the night. In this he was not successful, being too closely guarded, and thus frustrated in his design to burn through or bite the rope with which he was secured. Partly from necessity and partly to ensure his going to water in the

morning, I allowed him no water to drink. This had the desired effect, for within 5 miles he took us to a water-hole, at which we were able to obtain a splendid supply. This I named the "Empress Spring"—a name appropriate to the year of rejoicing over Her Gracious Majesty's long reign.

A very curious water this—between two sand-ridges some 1½ mile apart, a low outcrop of white limestone, in which could be seen what appeared at first sight to be a series of three rock-holes, which one might easily pass within 60 yards and not notice. On further inspection, two of the three holes turned out to be circular entrances, 2 and 3 feet in diameter, leading vertically into a cave beneath, the floor of this chamber, which is 28 feet across, being some 20 feet from the surface, and covered to a depth of 2 feet with sand. From the cave two passages run, one west and upwards, the other east and downwards. Along this latter passage one can just crawl, and at the end of it, some 50 feet from the surface, is a small pool of water, evidently a soakage from the surrounding country, and possibly a spring. Though only a small supply was visible, yet continual bailing did not appreciably lower the level of the water. Considerable work had to be done before we could get the water to the surface; the native bailed the water into a bucket, which was passed from hand to hand along the passage to the floor of the cave, and finally hauled from above to the surface.

A rough ladder formed of mulga poles and branches had served the aboriginals to come and go, and all along the passage the remains of old fires could be seen.

Surrounding the outcrop, a small patch of buckbush (or roly-poly grass) and good camel bushes exist. From the man who guided us to this water I made out the following words, which I look upon as pretty reliable, though it is very hard to be certain whether or no one is getting the correct word:—

Fire or smoke	...	...	...	...	...	Warroo or walloo.
Wood	...	...	...	...	...	Taalpa.
Dog	...	...	...	...	...	Puppa.
Water	...	...	...	...	...	Gabbi.
Nose	...	...	...	...	...	Woola or 'oola.
Arm	...	...	...	...	...	Menia.
Hand	...	...	...	...	...	Murra.
Hair	...	...	...	...	...	Kuttya.

Here we found, too, a curiously carved flat board, rounded on the back, some 10 feet long by 6 inches broad, similar to one shown in sketch, hidden away in some bushes. I do not know the use to which these boards are put, but fancy they have some mysterious significance, and are produced at "coroborrees." From the unusually careful way in which they are hidden, I should judge they were of some value.

Around Mounts Allott and Worsnop we found an oasis of some 5 or
No. III.—MARCH, 1898.]

6 square miles of fair stock country. Alexander spring we found dry, and in appearance more like a soakage in the shallow bed of a small watercourse than a spring; at the same time, not 5 miles south of the spring, and visible from the top of Mount Worsnop, the welcome sight of a fine deep clay pan met our eyes. This clay pan (Woodhouse lagoon), some 400 yards in diameter, is surrounded by sandhills, and is evidently formed from the drainage off Mounts Allott and Worsnop, and the neighbouring cliffs and hills, and into it the creek in which is Alexander spring, after spreading out on to a blood-wood flat, eventually finds its way. Teal and water-hen were fairly numerous, and one camp of natives, who retired on our appearance.

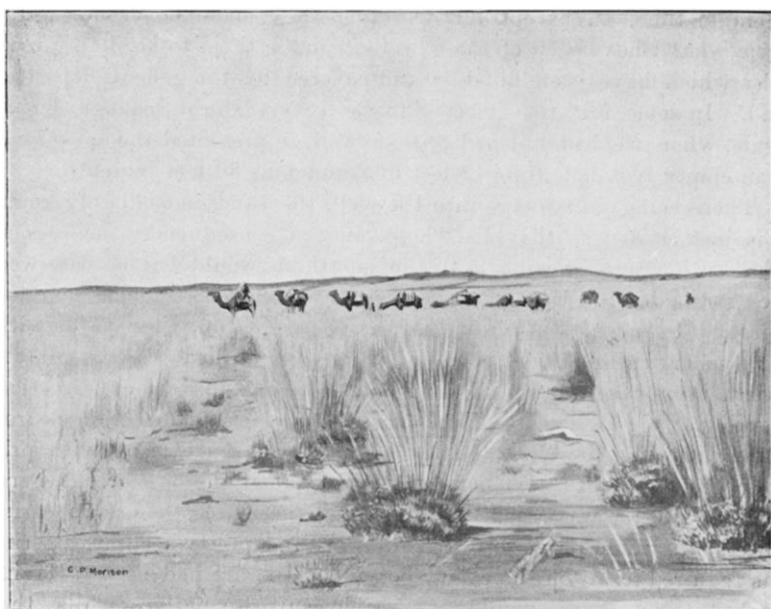
Striking north now, we shortly got into spinifex country of a new character: undulations of sand covered with a light gravel of iron-stone—most barren and wretched country, only relieved by the occurrence of belts of blood-woods in the valleys between the undulations. In these belts of timber good feed might sometimes be found. Besides the blood-woods and a species of beef-wood, no timber grows, though occasional thickets of mulga are met with. This gravelly desert extends as far north as lat. 22° 40'. Between Alexander spring and the Alfred and Marie range, a few hills and low ranges of sandstone occur, but north of the latter no hard country or hills were seen for a great distance. A few small and scattered families of blacks inhabit this desert, subsisting on spinifex rats, boodies (a smaller rat), snakes, lizards, iguanas, grubs, seeds, and occasionally doves or pigeons, an emu or kangaroo (of which a few exist in the Young range) very rarely falling to their lot. For water they depend almost entirely on native wells, which yield a scanty and unreliable supply. Forced from the nature of the country, scarcity of water, and their peculiar method of hunting, viz. by burning large tracts of spinifex, to be always wandering, they seldom camp for more than a week or two in one place, and do not trouble to build any sort of houses or shelters.

Having set alight to a patch of spinifex, the natives surround the blaze as far as their small numbers will admit, and with throwing-sticks and spears knock over any rats or other animals or reptiles which are trying to escape from the burning spinifex. So soon as a patch of country has been burnt, the "gins" and "picaninnies" go carefully over the ground with a pointed stick in one hand and a wooden "cooliman"* in the other, gathering up any lizard, snake, or grub which has perished in the flames.

When the country immediately surrounding the well at which the tribe is camped has burnt out to a radius of some 4 or 5 miles, they wander on to another well. The Australian aboriginal is not noted, as a

* A small trough of wood or bark, used for either carrying food or water, or for scooping out the sand from native wells.

rule, for his provident customs, but their unwillingness to camp near a good water shows that these desert natives are not without some thought for the future. The small native wells are used first, and when these and the rock-holes are exhausted, then the more dependable waters are made use of. As well as the rats and reptiles, on which they chiefly live, they use an edible bean not unlike the bean of our English broom ; this they heat on the wood coals and eat with evident relish, though to us the taste of the beans was most unpleasant, being very bitter. A small yellow seed they grind on a flat stone with a small round boulder of granite (evidently traded for from a distance), and by mixing a little water make a paste, sometimes baked into a very black and unpalatable-



IN THE QUEEN VICTORIA DESERT.

looking cake. Though feeding, as a rule, only night and morning, they sometimes sit down and cook and eat a rat as soon as killed. Everything is eaten in a half-cooked state. The process of preparing a meal is simple in the extreme ; the rats are plucked and thrown on to the hot ashes with no further preparation, and are greedily devoured red and bloody, and but barely warm. A lizard or iguana calls for a further exercise of culinary knowledge : first, a crooked twig is forced down the throat, and the inside pulled out, which dainty is thrown to any dog or child that happens to be near ; the reptile is then placed on hot coals until distended to the utmost limit that the skin will bear without bursting ; then it is put on ashes less hot and covered with the

same, and after a few minutes is pronounced cooked and ready for the table. The old gins usually do the cooking, and keep up an incessant chattering and swearing the while. They drink twice a day, on going out and on returning from hunting, and swallow an enormous quantity of water, blowing themselves out to a noticeable degree. Using no shelter or "mia" of any kind, they sleep two or three together in a hollow scraped out in the sand; between each hollow a little fire is kept burning all night (in the cold weather), replenished from a bundle of sticks and roots kept handy for the purpose. To break the force of the wind, a fence is made of uprooted tussocks of spinifex some 2 feet high, and behind this they lie coiled up higgledy-piggledy like a litter of pups. Poor as is the supply from the native wells, they last the blacks a considerable time, as, except for drinking, they make no use of water. From what I have seen of these wells, I judge them to be simply rock-holes which have been filled in and covered by the general deposit of sand. In some few there seems to be a very slight soakage, but as a rule, when we had finished with a well, it presented the appearance of an empty rock-hole from 12 feet to as much as 30 feet in depth.

There being no soakage into the well, the sand immediately round it is just as dry as that elsewhere, and in consequence one sees no grass or herbage growing near the mouth, as would be the case were the ground damp. Except for native camps or tracks, one has no guide whatever to these holes, and might easily pass within a few yards without seeing them. The plan on which we worked was as follows: Every day or so we would see smokes arising in various directions (usually at about 9 a.m.). Choosing a smoke in the direction nearest to that in which I wished to travel, I would take a bearing with prismatic compass, and travel on that bearing until the fire or the burnt patch of country was reached. Sometimes these fires, though appearing quite close, would prove to be 30 miles off, and pretty accurate steering was required to hit off the exact spot where the fire had been. Having reached the spot, we would, if possible, surprise natives whilst they were hunting, and secure one or more; or, failing that, we would pick up the tracks of the lighters of the fire, and follow them until their camp was found. This often entailed hours and hours of patient search, for so many footprints surround the burnt country that it is hard to single out the tracks leading campwards. On our approaching a tribe, astonishment and awe would keep them spellbound for a few minutes, and then up and away they would run helter-skelter, leaving everything behind them—some hiding behind bushes, others climbing into trees, and a few of the bolder spirits awaiting our arrival, with but ill-assumed confidence, after the first retreat. It would often happen that they had only one or two of us to deal with, the main party being behind, and on such occasions they were bold and insolent, and sometimes ready to dispute our unceremonious arrival into their country. A young "gin" (girl) or small

boy would always show us their camp and well without much hesitation, a "buck" sometimes, but an old lady never; they are the hardest to manage, and are quite untamable, yelling and screaming, kicking, scratching and biting, spitting, and presumably cursing, until one is by no means sorry to be quit of them. Having secured a native, or two if possible, for they fret less in company and sooner get over their fear, should he take us to water at once, well and good; if not, we would continue on our course for the rest of the day, taking the captive with us. A single night without water would soon bring him to reason, and one could be pretty sure that in the morning he would be only too anxious to get started. When thirsty they travel very straight and at a great rate, with long swinging strides, often carrying a short stick behind the shoulders like a "backboard." Though apparently there is little advantage in this, it will be found that the position one's arms take expands the chest and opens the lungs, and certainly makes rapid walking easier.

On starting, I would make the native point out the direction of the water, and take a bearing; as a rule they deviate but little from the direction pointed out. Sending the captive on ahead with one of us to prevent his escape, I would walk behind the line, and so watch our course.

These captures were a necessity—matter of life or death for us,—our guides were never cruelly dealt with, but, as a rule, dismissed with presents, and well enough contented.

Arrived at a well, our troubles, so far from being over, were only just beginning, and long hours (often days and nights without rest) of hard work lay before us before we could have any water for our camels or ourselves, though we might be able to get sufficient to keep us going whilst we worked.

On first acquaintance with these wells, a novice's impulse would be to dig out the sand until the bottom was reached, and wait for the water to soak in, in which case he would be woefully disappointed, for the water is held a long time in the sand, and, there being no soakage from the surrounding country, every shovelful of sand would contain an appreciable amount of water, and finally he would be left with a rock-hole cleaned out certainly, but cleaned not only of sand, but of water also. To sink by degrees and bail the water as it oozes from the sand above is equally out of the question, for every shovelful taken out only leaves room for the surrounding sand to fall in. Therefore, without some means of holding back the sand, one is placed in the wretched position of finding and seeing the water without the power of getting it. The natives use so little water at a time that, as the water becomes less, they are able to scoop out the sand very gradually, and plaster it round the sides of the well, and so prevent the inrush of sand. As often as not, they do not bail the water at all, but suck it up from the sand through a bunch of grass.

Luckily, amongst our gear we had two galvanized iron boxes made with deep lids, on the same pattern as those of a commercial traveller; by cutting the top of the lids off, we were able to make a sort of "caisson" without damaging the rest of the box. By sinking these in the sand in the well, by digging out the sand contained in them, and by patiently waiting with a pannikin for the small trickle of water soaking in from the sand contained between the outside of the boxes and the sides of the rock-hole; and then again forcing the boxes lower and continuing the bailing process, we were able to drain the native well of all the water it contained, and by the time we had finished, an empty rock-hole surrounded by sand would remain, with only a few traces of moisture at the bottom.

The water from these wells always had a nasty taste, and on boiling a thick scum would come to the surface. Tea made with it turned quite black. Iron the water certainly contained, but, besides that, the remains of birds, lizards, sticks, and other rotting vegetation, and the flavour left by countless aborigines go to make a very remarkable beverage.

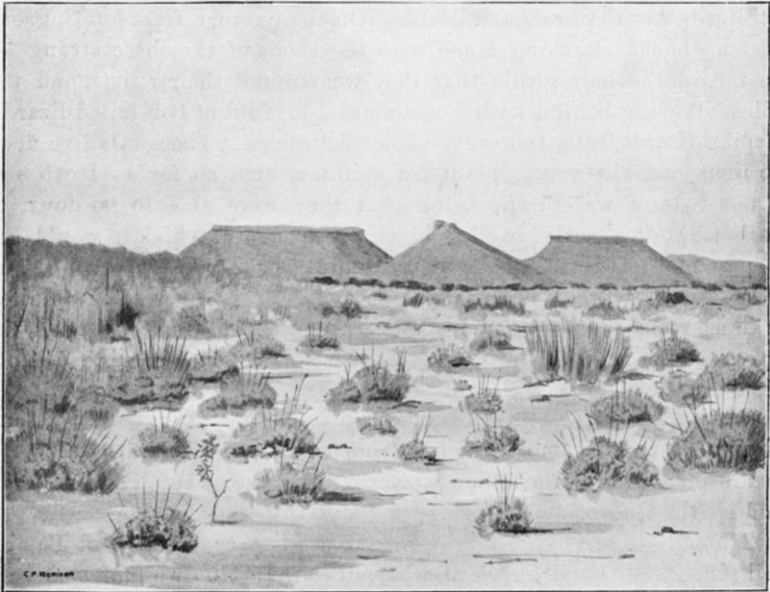
So wretched a supply do these wells yield that, after sometimes as much as four days' and nights' constant work, we would be only rewarded by 100 to 180 gallons; we were seldom able to fill the camels and the water-cans at the same well, and week after week for nearly five months it was one continual battle for water.

The weather was now very hot for the time of year, and the temperature increasing daily, though in the early morning a cold east wind blew that freshened us for the coming heat of the day. We passed over large tracts of burnt country, from which the strong winds were continually blowing clouds of black dust and ashes—little spiral winds, small "willy-willies," being of common occurrence, when a black cloud would suddenly rush up into the air, and many feet overhead bunches of spinifex, small branches, and grass would be whirled round in rapid confusion.

On September 19, after leaving Family well in lat. $22^{\circ} 40'$, we entered the most miserable and barren desert of sand-ridges it is possible to picture, and from this date until November 16 we were never out of sight of a sand-ridge. From lat. $22^{\circ} 40'$ up to lat. $20^{\circ} 45'$ there stretches a vast howling wilderness of high spinifex-clad ridges of red sand, so close together that in an average day's travelling of seven hours we would cross some sixty ridges, so steep that as often as not the camels would crest them on their knees, and so barren and destitute of vegetation (saving spinifex) that even camels are hard put to pick up a living. The average height of these ridges from trough to crest I should judge to be at least 50 to 60 feet vertical.* With almost heart-breaking regularity, they keep their general trend of north by east and south

* Colonel Warburton estimated the average height of sand-ridges seen by him to be over 80 feet. Gregory gave from 30 to 60 feet as the average height of those seen by him east of the Oakover river.

by west, which made our travelling the more difficult and tedious as, from our northerly course, we were always crossing the grain of the country. As well as the troughs and waves, so to speak, the ridges seem to run in great undulations, so that for half a day, or a day perhaps, we would reach the top of one ridge only to find a higher one in front, and, similarly, the next part of our journey would be over ridges gradually sinking before us. Words can give no conception of the ghastly desolation and awful, hopeless dreariness of the scene which meets one's eyes from the crest of a high ridge. The barrenness of the sand is only intensified by the few sickly and shrunken gums that are dotted over it, and everywhere spreads spinifex; true it is, though, that even this poverty-stricken plant has its uses, for it serves



CONICAL HILL AT ENTRANCE TO BREADEN VALLEY.

to bind the sand and keep the ridges for the most part compact. Where the spinifex does not grow—that is, on the crest of the ridges, probably kept back by the wind—one realizes how impossible it would be to travel for long over dunes of loose sand.

In such country as this one can appreciate the many good qualities of the camel. Poor kind and noble-hearted beasts, with what patience and undaunted courage do they struggle on with their loads, never complaining, and never giving in until they drop from sheer exhaustion! Night after night we searched in vain for any feed; after vainly wandering in their hobbles, picking up a few scattered mouthfuls from a dry and shrivelled thistle-like plant (good feed when green, and full

of sticky white juice), tired nature would at last give in, and empty-stomached and well-nigh worn to death, they would lie till morning, until again dragged relentlessly across several dozen more of ridges.

All through this wretched country small families of natives (eight or nine together) exist. Contrary to what one would suppose, they are by no means small or ill made; rather the opposite, some "bucks" being upwards of 6 feet high, and on the whole a better race than those seen further south about the Eastern Coolgardie fields. And the reason is not far to seek, for with the southern black it is either a feast or a famine—that is to say, that once in a while he kills an emu or kangaroo, and in the mean time lives upon "bardies" (large white grubs found in the roots of a shrub), and so forth; whereas the desert nigger never knows want, and has always a full larder, though it may contain nothing better than rats and lizards. On their return from hunting, one sees the bucks marching home with the spoils of the chase strung by the tail in the hair girdle that they wear round their waists, and the ladies following behind with "coolimans" brimful of bob-tailed lizards, sleeping-lizards, rats, and other choice delicacies. These rats live upon the roots and the young plants of spinifex, and, so far as I can see, do not require water; supposing that they were able to go down to the bottom of a native well, and climb up again, which it would not be possible for them to do, they would certainly leave well-beaten paths leading to the water, and these one does not ever see. Spinifex contains a considerable amount of turpentine, and from the roots the natives make a kind of gum, so that perhaps sufficient moisture is obtainable from it to keep the rats alive.

Whilst hunting or travelling, the natives get some satisfaction, and I suppose a certain amount of nourishment as well, from the pulp of a certain plant which they chew, something of the nature of "pitcheri" used by the Queensland blacks.

The natives are by no means free from disease, and both at Family well (lat. 22° 40') and at the Jew's well (lat. 19° 40') we found natives, one a woman, the other a man, suffering from some horrible outbreak of running sores, covering the arms, legs, chest, and back, accompanied by a swelling of the joints. We doctored them with Stockholm tar and linseed oil (a mixture used for mange in camels), which seemed to relieve them somewhat. Disease of the eye is not uncommon, one poor little boy having the inner corner of either eye completely eaten away, leaving a cavity into which one could easily put the point of one's thumb. At a native well (lat. 21° 40') was a stone-blind native, and from what we could gather he had been always so.

Wounds and scars from burning are of common occurrence, from the fact that they sleep so close to their small fires, and owing to the careless manner in which the babies and children are thrown down and left close to a fire, to roll in and have an arm half-charred or to be merely blistered

and roasted, as chance may direct. The mothers care very little for their children, and the elderly ladies especially will show far more affection for a litter of domesticated dingo pups. When a tribe has been in full retreat on our approach, I have seen an old gin stop and turn back to their camp to pick up some small puppies; yet when, as sometimes happened, we had a small boy in captivity, no attempt at rescue was made.

Amongst the weapons and treasures in a camp are nearly always found several bundles rolled in a covering of bark and tied round with hair string. In these bundles they carry all sorts of finery (in the shape of plaited bands of string for the arm or wrist, "sporrans" or tufts of dingo hair, or the tips of rats' tails, necklaces of beans, and so forth), and valuables—carved sticks, flat or round, as shown in sketch; pieces of quartz or opaline for making tools for carving; a sort of red ochre and another white substance, from which they make paint for decorating themselves; bunches of emu's, crow's, or hawk's feathers; a few bones of birds or rats for putting through the nose; and numerous other odds and ends. As evidencing the extent to which they trade from one to the other, I mention you that in camps as far in the interior as Helena spring and Family well we found such things as pearl-oyster shells (used slung round the waist for a "sporran"), lids of tin match-boxes, an iron tent-peg, a piece of a saddle-tree, piece of glass (carefully packed in a case of feathers and grass), and tomahawks made from old iron, apparently part of the tyre of a dray-wheel. This trading is all the more curious when one considers the small extent of country to which one family is confined, and also the very rapid changes in language. I should say that about 70 or 80 miles would be the very longest distance that any native could travel without leaving his own particular district. On our return journey, two men caught near Mount Elphinstone knew no waters beyond Stansmore range, where we liberated them. I think it probable that there are no natives who are entirely ignorant of the existence of the white man, though doubtless to many we are as little known as the pigmies of Africa were to the ancients.

The blacks nearer settlements add the word "womany" to their English vocabulary. Again, at Helena spring the native that we had with us would look on quite unmoved at us as we shot the small tufted pigeons, which came to water in fair quantities; whilst further north, at Jew well, on my picking up a rifle there was a general stampede of the natives, who surrounded us as we worked at the well, and who were somewhat impeding us by their inquisitiveness.

Helena spring, a small basin in a surface outcrop of limestone formation, fed from some subterranean source, is surrounded by a little oasis, not more than 400 yards wide, of splendid herbage of thistle-like appearance, and numerous good camel bushes; outside this welcome spot, away to the horizon on all sides stretches the desolate sea of sand-ridges, at the time of our journey looking all the more inhospitable

and dreary from having been recently burnt. The basin, through the bottom of which the water rises, contains no more than 70 gallons; on exhausting this supply the water will be found to rise again, and before long attains its former level nearly flush with the surface. Here we camped some few days, allowing the camels to enjoy to the full the good feed and unlimited supply of water; not sorry ourselves for a few days' rest, occupied in washing, mending clothes and saddles, diary-writing, and the numerous little duties which had necessarily been somewhat neglected. Who can picture the satisfaction and relief of finding one's self at a good water, easy of access and unfailling of supply, after weary days and nights of toil in the wretched native wells? What a Godsend this spring was to us and our tired camels! Without it 'tis hard to say how we would have fared, for the camels were well-nigh exhausted from the heat and want of feed, and had been coaxed along with the greatest difficulty. The sand during the day became so overpoweringly hot that the camels would not stand still, and on a necessary halt to adjust a pack or nose-line, some would break away and drop down in the wee patch of shade afforded by some small bush or shrub, some would lie down, and those that stood would be continually lifting their feet. The aboriginal we had with us suffered more from the heat than we did, and would hurry forward when a tree came in sight, straining at the rope or chain like a dog at his leash, throw himself in the shade of the trunk (for the few ill-leaved branches afforded no shade), and with a stick dig a small hole in the sand, then from a foot or so below the surface he would bring up handfuls of cool sand, with which he would anoint his legs and arms. Sometimes he mixed with the sand his own urine, plastering the mud so formed over his head and body. To two dry wells he took us, until our patience was nearly exhausted, and we resorted to the unfailling argument of allowing him no water until he guided us aright. The outcome of this was the finding of Helena spring, on arrival at which our friend was most anxious to plunge into the basin of water, so eager was he to alleviate his thirst.

Words got from Natives near Helena Spring.

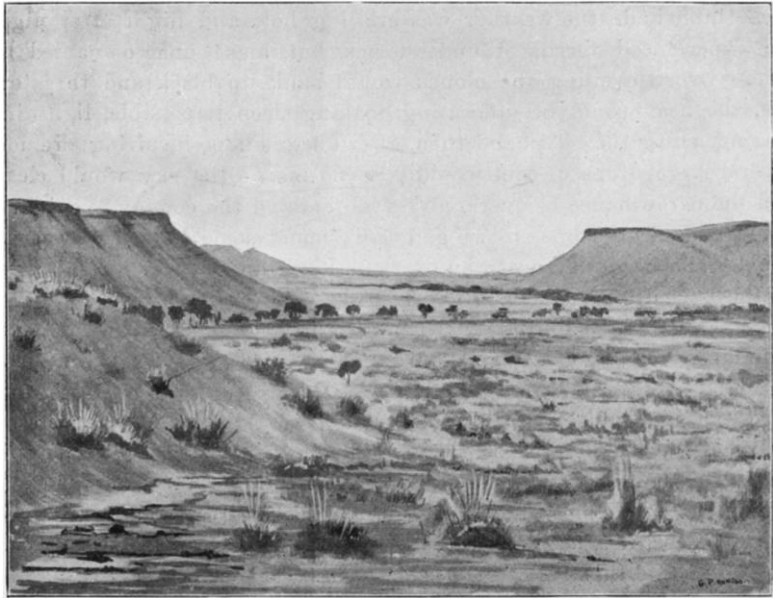
Native.					English.
Goondooroo	...	...	...	...	Eagle-hawk.
Waldi	...	...	...	...	Gum tree.
Godadjudah	...	...	...	...	Spinifex.
Nooah	...	...	...	...	Sand.
Warroo	...	...	...	...	Smoke, fire, or firewood.
Gabbi	...	...	...	...	Water.
Puppa	...	...	...	...	Dog.

Native Words near "Point Massie."

Native.					English.
Yowie	...	...	...	...	Water.
Yurrie	...	...	...	...	Water.

It may sound cruel to keep a man thirsty for so long, but it must be remembered that our lives depended on the natives showing us water, and if unwilling to do so they had to take the consequences; and for that matter, though in such a case they had no water for perhaps thirty hours, yet we, working and walking, had no more day after day than would just suffice to keep body and soul together.

From latitude $20^{\circ} 50'$ to latitude $19^{\circ} 20'$, the monotony of the desert was somewhat broken by the occurrence of detached blocks and tablelands of sandstone (the Southesk tablelands) which, in the distance, had the appearance of bold headlands, cliffs, and points such as one



VALLEY AT HEAD OF WHICH IS GODFREY'S TANK, A LARGE POOL IN A DEEP ROCKY GORGE.

sees on the sea-coast. These are in some cases some 200 feet above the surrounding country, with sheer rocky faces and more or less flat tops, from which there stand out conical peaks, and hills like so many gigantic mole-hills. The flat top gradually slopes away from the highest cliffs, until at a distance of some 3 to 6 miles the sandhills and the summit of the tablelands are one. Barren of all trees—except here and there a fig which somehow manages to live with its roots, some finding a foothold in clefts in the face of the rock, and some hanging into space—and innocent of all vegetation but spinifex, these hills present a most forbidding and desolate appearance. In the valleys between the headlands and around the foot of the cliffs a narrow belt of fair grass grows, and, torn away by occasional thunder-

storms, rough and steep little gorges and glens give rise to narrow though deeply scored watercourses, which with their fringes of bushes and shrubs are soon swallowed by the all-devouring sand. From the appearance of these little creeks, I should judge that very occasional, but very violent thunderstorms must visit this region. The beds overgrown with spinifex go to show that running water is of infrequent occurrence, whilst the upturned roots of trees and large boulders and broken fragments of rock strewn about in wild confusion, and the way in which a channel has been torn out through the sand until the bed-rock is exposed beneath, give one the impression that some powerful storm-agency must sometimes be at work. Whilst we were amongst these tablelands the weather was broiling hot, and night after night we experienced terrific thunderstorms, but, alas! unaccompanied by rain. Every evening the clouds would bank up black and threatening, the heat would be suffocating, making sleep impossible, lightning tearing across the sky; and then, after all this hope-inspiring prelude, several large drops of rain would fall—no more—the sky would clear, and the performance be over, only to be repeated the coming evening.

At the head of one or two gorges we found some large rocky pools, usually situated underneath an overhanging ledge of rock. The largest of these (Godfrey's tank), situated in a position almost inaccessible to camels, I estimated to contain, when full, about 40,000 gallons. As we found the hole, it held sufficient water to enable us to have a good bathe before leaving it.

From Godfrey's tank to Mount Bannerman there was another uninterrupted stretch of sand-ridges, and one well with a good supply (lat. 19° 40'). To this we had tracked a tribe of some twenty blacks, about which the most noticeable thing was their pronounced Jewish cast of features—fine, big men most of them, very inquisitive and bold. To the east of this well a belt of black desert oak stretches, the first we had seen.

Near Mount Bannerman we had our first mishap, losing three camels from poison-plant. I could not discover which bush it was that had such fatal properties, and could only be thankful that we lost so few. One day past Mount Bannerman, and the desert of sand-ridges was behind us. Here, in the shape of horse-tracks, we saw the first signs of white man since sighting Forrest's pile of stones on Mount Allott. Our journey through unknown country was now at an end, and along the banks of the creeks and rivers in the Kimberley country, into which we shortly entered, our path was through pleasant places—shady trees, long grass, and frequent pools of water in the shingly beds of the creeks (alive with fish and ducks), made a welcome change after the awful desolation of the desert. This Kimberley country is too well known to need any further description here. Let it suffice that we followed up the Margaret river to the crossing of the Derby—Hall's

Creek telegraph-line, and along the latter to Hall's Creek, the official centre of the Kimberley goldfield. Our joy and self-congratulations at having overcome the dangers and difficulties of the desert were doomed to a short existence, for a most deplorable accident, resulting in the death of poor Charles Stansmore, took half the pleasure from our hard-earned victory. For some time past, having exhausted our supply of meat, it had become customary for one of us to carry a shot-gun and follow up the opposite bank of the river, or walk wide of the line of march, on the chance of shooting a kangaroo, of which we saw a fair quantity when once out of the desert. On November 30, Stansmore was carrying the gun, and on descending a steep face of rock his heels slipped, the gun fell forward, striking the hammers on the rock at his feet, the cartridge exploded, and the charge entered his body just below the heart, death being instantaneous. I cannot describe our sorrow at the side of poor Charlie's lonely grave. So good and true, and a man in every sense of the word. 'Twas better thus than a lingering death from thirst in the desert, and yet how hard it seemed—to die on the edge of the promised land, with the bad country passed and left behind!

We reached Hall's Creek on December 4, having travelled some 1400 miles, and here we remained until March 20, the guests of Mr. Cummins, the extremely hospitable warden.

Hall's Creek is the official centre of the once populous Kimberley goldfield. This goldfield was discovered in 1882 by Mr. Hardman, government geologist attached to a survey expedition under Mr. Johnston (now Surveyor-General), who found "colours" in numerous localities; but it was left for prospectors to find payable gold; and early in 1886 one of the largest and most unprofitable "rushes" known in Australia set in for the newly-discovered alluvial field. The sinking being shallow, what ground there was was soon worked out, and before long the "rush" set back again as rapidly as it had come, and the goldfield was condemned as a "duffer," and left to the few faithful "fossickers," who have made a living there to this day. The alluvial gold was the great bait, and of this but little was found, and to reefing no attention was given, and so, at the present time, we see miles upon miles of quartz reefs, leaders, and blows untouched and untested as they were before the "rush" in 1886. No one can say what systematic prospecting might disclose in this neglected corner of the colony. There are many countries less well favoured for cheap mining; for one thing, Kimberley is blessed with an abundant rainfall, and the district contains some of the finest pasture-lands for cattle in the continent of Australia. The roads, except during the rainy season, are good, and cartage from the port of Wyndham (200 miles) should not be a very costly item. A scarcity of suitable mining timber, the remoteness of the district from settled parts, and the bad name with which it is loaded, are the disadvantages under which the goldfield labours. For all that,

two batteries are working at the present time, and a rich find by some old "fossicker" is not so rare.

The present mining population of Hall's Creek is about twenty. This is augmented occasionally by the influx of "overlanders" from the Northern Territory and Queensland.

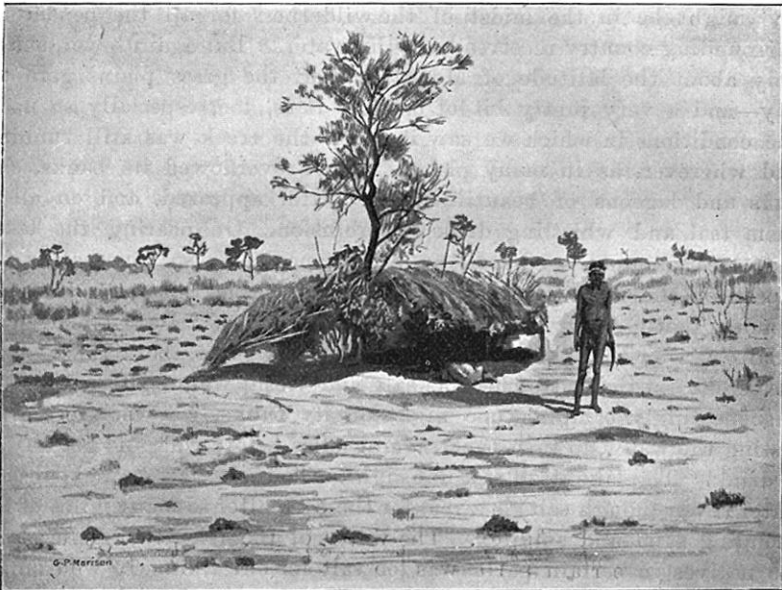
The gold-bearing country is cut off to the south-east by what is locally known as the "Sandstone," a bluff wall-like range named the "Albert Edward" range. In the same direction, between the Sturt and the border, "colours" of gold have been found, and the existence of this narrow auriferous belt, well known to the present prospectors on Kimberley, to the eastward of Messrs. Stretch and Week's station on the Sturt, gave us faint hopes that the same belt might be met with to the southwards. But to this, I may say, we pinned little faith, and beyond the feeling that we were to some extent benefitting the community in general by coming back through unknown country in the place of an uninteresting and useless return by the coastal stock track, we had little thought of any practical advantage resulting from our work, unless it were the opening up of a stock route between the cattle country of Kimberley and the southern goldfields; of this I had but little hope after our former experiences. It needs no expert to say in most decided terms that such a route is utterly impracticable; seeing that, when in the best of seasons it would be a matter of extreme risk to bring over a mob of, say, one hundred camels, what chance could a herd of cattle have of getting even a quarter of the distance? Any one reading the briefest account of the style of country encountered by us will, I think, be of the same opinion as myself.

We left Hall's Creek on March 22, on our return journey. There is no place that I shall so long remember for its kindness and hospitality as that out-of-the-way settlement.

Our party consisted of Messrs. Broaden and Massie (companions of my former journey), two black boys (one our faithful "Warri" and the other a Sturt creek native, "Tiger" by name, an excellent boy, but one so devoted to his own comfort that he left us on the first signs of the desert), eight camels, and three horses. By using canvas bags as well as our iron casks, we were enabled to carry a large quantity of water (about 100 gallons), and by allowing the horses one bucket (3 gallons) apiece nightly, we managed to keep them alive for the extraordinary periods of eight, nine, and ten and a half days; extraordinary, not so much because of the short allowance of water (for of course horses, when on good feed, have been known to live an almost equal length of time without any water), as on account of the almost total want of feed and the extremely trying nature of the country they had to cross. In many places the utter sterility of the country would not allow even the spinifex to grow its accustomed tops of coarse grass, and on more than a few occasions both camels and horses were

forced to content their hungry stomachs with the prickly stool of that everlasting and useless plant.

Crossing those splendid grass plains (the Denison) discovered by Gregory, we reached Sturt creek, which that famous traveller has so well described, that little need be said about it here. Following the track down the creek, we arrived at Mr. Stretch's homestead on April 1. This is the most southerly settlement in the East Kimberley district. The Sturt, which up to this point had had the appearance of a broad line of blue-bush * swamps and flats, with hardly a defined channel to mark its course, here becomes confined between two rocky ridges of sandstone, the result being a fine water-hole some 5 or 6



NATIVE CAMP.

miles long, and, so far as I remember, about 300 yards across. Mr. Stretch accompanied us down the creek as far as the junction of it and the "Wolfe" (named by Mr. Stretch), which occurs some few miles north of the border of the Kimberley district. Above the junction the same swamps and flats, alternating with large rock-bound pools wherever a sandstone ridge runs across the course of the creek, exist. Below the junction the combined channels take on themselves the character of the Wolfe, which, in common with all the Kimberley creeks seen by us, is fringed with large gums, Leichardt pines, and Bauhinia trees. At the junction of the two creeks, the Wolfe is

* *Atriplex*.

of the greater volume, though the Sturt is certainly deeper; and, seeing that the Wolfe (which rises somewhat on the opposite fall to Christmas creek and the Mary river) floods twice or thrice a year, whereas the Sturt runs its entire length but once in every three or four, it must, I think, be to the former that the lakes (Gregory's "Salt sea") owe their existence. In any case, the combined waters of the Wolfe and Sturt have made but an insignificant channel between them, and one can hardly credit that this creek has a length of nearly 300 miles. From the junction downwards a war between the desert and the grass lands is waged for the supremacy of the river-banks. For miles the sandy channel, not one chain wide in places, is hemmed in on either side by desert gums and spinifex, and once out of sight of the creek, one might be in the midst of the wilderness for all the benefit the surrounding country receives from the water. But again lower, noticeably about the latitude of Mount Müller, the grass plains gain the day—and a very pretty bit of country it is, too, especially so under the conditions in which we saw it, when the creek was still running, and wherever, as in many places, it had overflowed its banks, clay pans and lagoons of beautiful clear water appeared, and on all of them teal and whistling duck in profusion. On nearing the lakes, the creek assumes so dismal an appearance, and so funereal is the aspect of the dead scrub and dark tops of the "boree," that one wonders that Gregory did not choose the name of "Dead" instead of "Salt" sea for the lakes he found. A curious point about this part of the creek is that stretches of salt and fresh water alternate. On unsuspectingly camping one night on its banks, we were forced, on tasting the water, to turn back several miles before we could get any fit to drink. The lake itself is a fine sight. To see so large an expanse of water (even though salt) is a rest for the eyes after so many miles of the unending sand and spinifex. The water of the lake, though used by the natives in certain parts, was too salt for our liking, so we camped on a high bank overlooking an estuary opening out into the large lake some 5 miles further south. There one can easily understand the reasons which caused Gregory to call it a sea rather than a lake, the more usual term, for anything more like the low-lying arms of the sea, such as those in Southampton Water at home when the tide is out, it would be hard to imagine. Even the smell of the seaweed and muddy ooze is not wanting, and, to complete the picture, myriads of wild-fowl cover the sandbanks and the surface of the water. In the early morning so dense is the crowd of shags, ducks, pelicans, snipe, and other birds, that to say that there was acre upon acre of wild-fowl would not be wide of the mark; but in spite of their abundance they are not easily shot, their very numbers ensuring the watchfulness of some of the various flocks. Large camps (perhaps two hundred in all) of natives were dotted round the lake, and on our first arrival we had an escort of

nearly a hundred yelling and excited blacks—mostly men and boys, for, though very ready to talk of their “womany,” they were careful to keep them in the background. They were peaceable enough, anyway, and I made them take one side of the water, while we camped on the other, and won their hearts by shooting pelicans for them, though the ungrateful fellows took our boy “Tiger” from us, and would have actually murdered poor “Warri” had he not been too clever for them. Here we saw some of our former Jew acquaintances, who recognized us at once; one old man, whose son’s eyes I had doctored with lotion, was greatly pleased, and told us through Tiger that the boy’s eyes were all right again. We questioned them about Wells and party, but of this they seemed to know little, though they knew of the murder of a white man by a native down the Fitzroy, an occurrence of recent date. They also told me of some white men who were speared in a cave a long while ago, somewhere about Christmas creek. Hoping to find some interesting facts for students of ethnology, I asked the old man his name. He said he hadn’t got one, which seems strange, but he should know best, so I christened him “Jacob,” for the benefit of the next person who recognizes in him the characteristic features of the Jewish people.

These Sturt natives are fine, well-set-up men for the most part. The abundance of game and fish no doubt accounts for their good appearance. Fish, from what I could gather, is not a common article of diet amongst them, for, having nothing in the shape of hooks or nets, they are unable to negotiate the deep water, and only catch fish on the rare occasions on which they find them up the creek in the shallows. Out of these they sweep them with a sort of fence of branches, which they drag through the pools on to the banks, the water running back through the sticks, and the fish being left high and dry on the sand. They find also quantities of mussels, which we thought disgusting in taste, but they greedily devour them when baked in a heap of ashes.

Using “Tiger” as interpreter, I got the following words from the natives, which I look upon as reliable. Without much trouble one could make up a lengthy vocabulary, as the blacks are only too fond of talking, but in most cases their information is untrustworthy, and it was only after testing several natives with the following words that I satisfied myself that they were pretty correct:—

English.	Native word.
Gregory’s Salt sea ...	Burrow.
Fresh water ...	Nappa, or yowie.
Salt water ...	Moorabba (compare Hunt’s Slate well, near Lake Lefroy, which is sometimes salt, called by the natives “Moorabbi”).
Creek ...	Gilli.
Fire ...	Walloo, or warroo.
Fish ...	Yagoo.
Mussel ...	Bambirri.
Whistling duck ...	Tchibillu, in imitation of the cry of the bird.

No. III.—MARCH, 1898.]

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English.				Native word.
Pelican	Coya.
Moon	Young'un.
Star	Gigi.
Sun	Brung.
Southern Cross	Wun-num.
Dog...	...	...	...	Puppa.

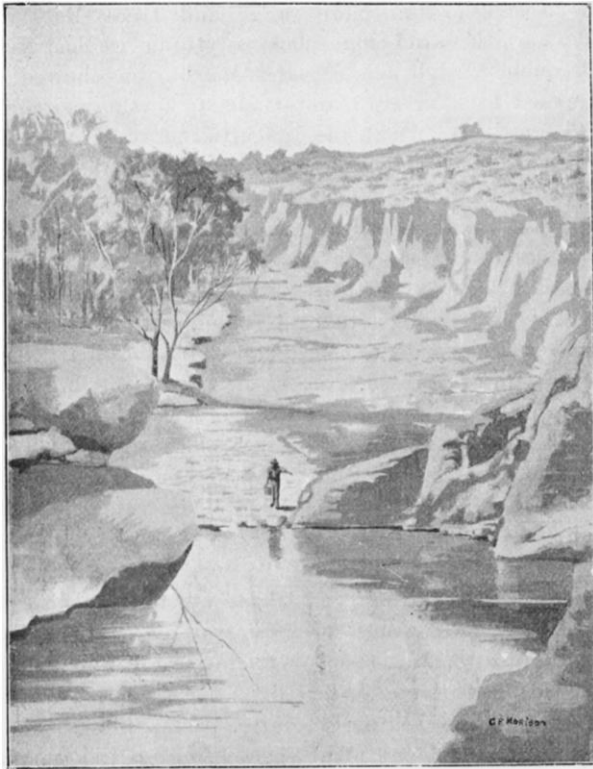
We left the lakes on April 20, shaping a course to take us generally through the country mapped by Warburton, though I did not actually steer for any of his points or waters, knowing that doubts as to the accuracy of their position existed; and I may say here, though it is rather ahead of our journey so far, that our course should have taken us right through the salt lakes marked by him close to the border, yet no such lakes crossed our path. But in the same latitude as Lake White, and some 17 miles to the east of the position given to that lake by Warburton, we passed close to a lake the general description of which would agree with that of the first-mentioned lake: sandhills and spinifex right up to the edge of the lake (salt and dry, of course), and fringing the eastern shore a high tableland of sandstone. After striking this lake we turned west to the Stansmore range, and so, had another lake existed in that latitude, we must have seen it, which we did not. Now, if I am right in saying that Warburton thought he was 17 or 18 miles further west than he was in reality, this would account for his failure to connect with Gregory's traverse in 1856 at the Sturt lakes, and also for the failure of two parties to locate certain of his positions. The one was Mr. Buchanan's, who travelled a few days into the desert beyond the Salt sea, and returned quite satisfied that his idea of a stock route between the Sturt and the Oakover was impracticable. Mr. Buchanan looked in vain for Lady Edith's lagoon, which is marked as only 50 miles from the lakes. The other party was that of Mr. Smith, who attempted to cross the desert to the Oakover, but returned after penetrating it only a short distance. Mr. Smith told me that he thought he had located "Bishop's dell," and this he placed due south of the larger lake instead of south-south-west, as shown on Warburton's route.

Mr. Wells (the leader of the Calvert expedition), too, eventually found Joanna springs some 20 miles east of Warburton's position, therefore I am inclined to think that Warburton's work wants shifting bodily on the map some 17 or 20 miles to the east. Considering the sufferings that he and his party went through, one can only marvel that Colonel Warburton was able to keep any sort of reckoning.*

On leaving the lakes we got almost at once into desert country, a belt of "boree" scrub intervening; but not into the sand-ridges until

* Out of seventeen camels with which Colonel Warburton started, sixteen died. Some succumbed to hardship, and the rest were killed for food. Colonel Warburton lost the sight of his right eye. Neither he nor his son, nor, indeed, any member of the expedition, would have reached civilization but for the faithful courage of Samuel Lewis.

about lat. $20^{\circ} 35'$, when we took a turn to the south, leaving a prominent single hill to the north of us. Beyond the lake we got water in a small gully running down a tableland, but after that our old method of steering for smokes, surprising camps, and running down the natives had to be resorted to. To the westward of the big hill (Mount Elphinstone) we surprised two natives as they hunted, after steering for their fire for no less than two days—for, of course, the actual smoke only lasts a few hours. One was an exceptionally fine man, and would be reckoned large in any community, the other older and smaller. We



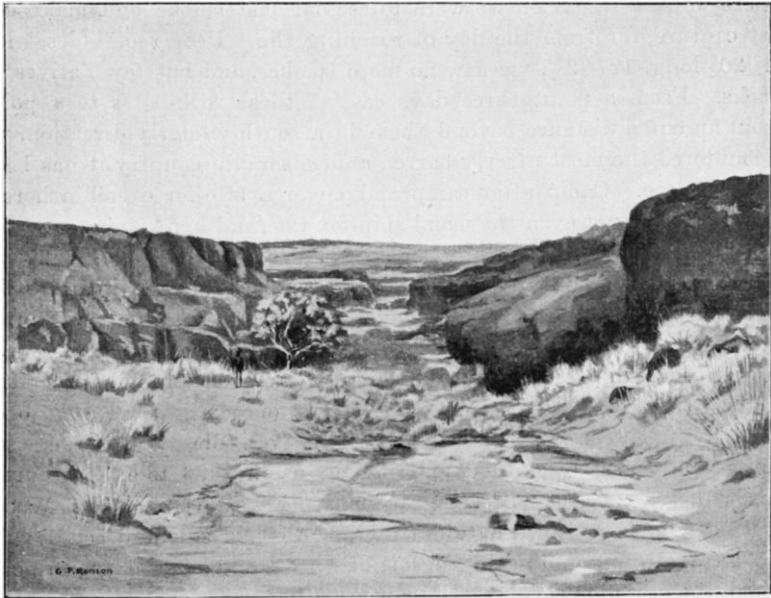
FISH-POOL IN JANET CREEK.

kept these men for some days, and they took us to three good waters: a splendid soak not far from Mount Elphinstone, and some pools in rocky, desolate glens in the Stansmore range. Except that they did not seem to value each other's society—for we never saw them conversing—they appeared fairly contented so long as our course coincided with their wishes. No doubt they took us to one dry well, but that was my fault, for, on the old man pointing one direction and the younger one another, I chose the one that suited us best, and, in

consequence, arrived at a dry hole. When I unloosed them they were unwilling to go, until I pointed out our proposed course—then about south. This at once decided them—off they went. Seeing their indisposition to accompany us, we were prepared for a stretch of bad country—nor were we disappointed. Till now the sand-ridges had been bad enough—high, red, barren, running right up to the ranges—where, by the way, several good creeks take their rise, only to be engulfed in the greedy sand, though, judging from a line of large gums which I could follow with field-glasses for a great distance, I fancy that one at least must reach the lake, which I take to be Lake White. Between the Stansmore range and Lake MacDonald (and beyond that too), the sand-ridges beat anything we had yet seen for sterility, frequency, and height; and Warburton showed discretion when he turned back in 1873, and made up further north before attempting to cross. As usual, the difficulties of travel were intensified by the obstinacy with which these ridges hold to their east and west direction, causing us infinite labour in having to cross the country “dead against the grain.” Mr. Breaden counted the ridges as we crossed, and in one day’s march we passed over no less than eighty-six ridges. I do not remember this as a particularly bad day; in fact, we got a good many flats between the ridges that afternoon, so that we may take it as an average experience. As to the distance in an ordinary day’s march of eight hours—uninterrupted, except when mounting and dismounting to tie together broken nose-lines, or to give each other a spell at steering—(reckoned, when travelling due south, as the difference in latitude), we did not cover more than $12\frac{1}{2}$ to 13 miles, though probably our actual mileage, reckoned up and down the switchback ridges, would be more than half as much again. In lat. $22^{\circ} 19'$ we got a change: black desert oaks in place of the more usual stunted gums, and one day’s flat travelling. Here, too, we made more captures; amongst them a very small man, almost a dwarf, with most peculiar wall-eyes like a Skye terrier. They were camped on the usual wretched well, and amongst their spoils of the chase we were surprised to see a domestic cat—a black one. Continuing on a southerly course, past a prominent bare hill capped with quartzite (Mount Webb), standing up like an island from a surrounding sea of sand and scrubs—crossing the Winnecke hills of Tietkens (1889), we struck the north-east corner of Lake MacDonald; this, in common with all the so-called lakes of the interior, is merely a vast expanse of mud and salt. The sand-ridges hereabouts are comparatively low, and have some feed on them, but high enough to so limit one’s view that we only once got a sight of the lake. From this point we marched over samphire and salt-bush flats, and finally across the Davenport hills until again into the sand, when, just on the edge of the ridges on the east slope of the hills, we came on a native camp, and Godfrey on Monk, the only horse able to go out of a walk,

succeeded in stopping one of the men—a fierce, well-made native, with an enormous length of hair and beard. After lengthy consideration he guided us to their water-supply—an enormous cavity in the sandstone rock, some 30 feet deep, and filled, to three-quarters of its depth, with sand. I estimate the capacity of the hole at 4000 gallons, yet our unremitting labours of nineteen hours' duration were rewarded with less than 90 gallons.

The next day, with the help of the native, who pointed out our course, we found a splendid rock-hole brimful, with more water in it than we could use in four days. How that black man must have laughed to himself as he watched us slaving away the previous day! This



AMONG THE SOUTHERN TABLELANDS.

was one of the many occasions on which a fourth man would have greatly assisted us. For on our first journey, before poor Charles Stansmore died, whilst three worked on the well, the remaining one and the boy could be hunting for more water.

In the native camps here we found barbed spears and a generally better class of implements. These people, I fancy, only make occasional desert trips away from the well-watered country over the border. Amongst other treasures we found a piece of glass bottle (evidently used for fining down and smoothing spears, etc.) most carefully tied up in a grass-woven case, opening like an oyster, and lined inside with feathers. In the same camp (this was near Mount Webb) we got a

“sporran” consisting of a pearl oyster-shell or large conch shell, also one formed from the top portion of a human skull, whether that of a white or black I cannot say; a piece of the covering of a camel-saddle was also in use as a sort of sack for carrying their belongings in.

From this last rock-hole we kept a southerly course until about the centre of what was formerly marked as the probable outline of Lake Amadeus, this side of the border; no lake, however, was to be seen, only sand-ridges. We now turned westwards, running parallel with the Rawlinson and neighbouring ranges, though too far off to see them, except from one point, where we got sight of a large and prominent block of apparently bare red sandstone standing up alone on the horizon. This should be Mount Skene from its bearing, and distant some 40 miles from where we saw it. Soon we were to see our last smoke and make our last capture, for from the day of reaching the “Deep rock-holes,” lat. $24^{\circ} 20'$, long. $127^{\circ} 20'$, we saw no more smokes, and but few natives or tracks. From a point three days east of these rock-holes to a point about an equal distance beyond them in a south-westerly direction, we encountered the most utterly barren and miserable country it has been our lot to see. Camp after camp and never a bite for camel or horse; no animal life, not even the usual spinifex rat (and here I may mention that the rats went out with the smokes, and south of latitude $24^{\circ} 20'$ we saw hardly any), no birds, no natives, no tracks, no vegetation save the everlasting spinifex, and that in its most decrepit state; a few stunted gums or desert oaks stand in their solitude on the crests of the sand-ridges. Luckily, this wretched wilderness was near an end, for, a little south of the end of the Rawlinson range, to our delight we came once more into open country—the undulating gravelly desert* first crossed from west to east by Giles, and found by us in 1896 to extend northwards to lat. $22^{\circ} 40'$. Steering a due south-west course, with Woodhouse lagoon as our ultimate destination, we had splendid country for rapid travelling—undulating desert of gravel and spinifex, with occasional thick mulga scrubs. Here we saw but very few natives' tracks, and those which we followed took us constantly to dry rock-holes. Even fresh tracks merely led us to recently exhausted reservoirs. At length we found a serviceable hole, from which we got between 20 and 30 gallons.

About lat. $25^{\circ} 30'$ we sighted what I took to be a long, low range of hills, and by my reckoning the Sutherland range; but on nearer approach we found that the supposed ranges were only high sand-ridges—cut off suddenly by a line of salt lakes and samphire flats, which, running in a southerly direction, and consequently at right angles to the sand-ridges, leave the butt ends, as it were, of the latter standing out above the flats, in such manner that these extremities and the ridges beyond them offer in the distance the appearance of a line

* “Gibson's desert”—named by Giles, after one of his party who perished in this region.

of broken hills, and were at first mistaken by us for a range. On the margin of these small lakes we got most excellent green feed, the first really good feed for either camels or horses since leaving the Sturt creek. We kept on our south-west course until lat. 26°, where by following some fresh tracks we came on a nice little soakage in the sandy bed of a fair-sized gum creek. This I took to be the Blyth, both from its position, course, and size. Forrest in 1874 marked a tree on this creek, but this I was unable to find—it is possible that it has fallen or been burnt. But a sketch that I made of a remarkable chimney-like peak seen from the head of the creek was at once recognized by Sir John Forrest, so there can be no doubt that we were on the Blyth creek.

Forrest buried numerous articles at his camp on the creek, including a bottle containing letters; I much regret that we were unable to recover such interesting relics. From these cliffs, in which the Blyth and other creeks originate, I saw the sand-ridges which we had just been skirting.

On leaving the creek, we steered for Woodhouse lagoon (a mile or so south-south-east of Mount Worsnop), and that day we had the first rain that we had experienced on either trip. This enabled us to get on without carrying water for the horses, of which we had now lost one—from internal complaints brought on by hardship. The lagoon we found to have but a few inches of water, whereas last August it had as many feet; and, again, last August, Alexander spring was as dry as a bone, and resembled a common rock-hole in the bed of the gully, whereas this time I found it brimful of the most crystal clear water. Small pools of water were lying about all over the rocks, so evidently the rain had been fairly heavy, but not heavy enough to run the creek below Alexander spring, which is the main supply for the lagoon.

A fairly large camp of blacks must have been camped here shortly after our first visit, evidently holding a corroboree, for between the Mount and Alexander spring I found a cleared place in the scrub, stones stuck up in the forks of the enclosing mulga trees, and a sort of altar of bushes, before which numerous tracks had passed to and fro. Hidden in these bushes I found one of these peculiar long, flat mulga boards, similar to those already described.

From the lagoon we steered a course a little south of west, intending to pass Lake Wells on the north and cut the Bonython creek, but on nearing the lake we found our progress barred by an unmarked arm, which runs away in a chain of small lakes, swamps, and samphire flats, broken by sandhills and ridges, in a northerly direction as far as the eye can see. This arm joins Lake Wells about the centre of what is marked as Von Treuer plateau. This tableland does not extend nearly as far east as was originally thought, and from the north side has not at all an imposing appearance. After several unsuccessful attempts at crossing, all ending in the hopeless bogging of horses and camels alike, we made down to Mr. Wells's crossing, which we knew to

be narrow and good, and here we got over with great ease, not having to carry a single pack—a piece of good fortune. The lake here has a hard bottom within a few inches of the surface, consequently the camels could not sink to any appreciable degree. Mr. Wells's tracks (though made as far back as 1893) are still visible at the crossing. We now followed the same route as Mr. Wells to the Bonython, which, though only a flat shallow watercourse, as described by that traveller, has several good pools in it. Now prospectors' tracks became more numerous, four or five parties having apparently been here. Tracks recently made by cattle—probably stragglers from the Gascoigne district—were also to be seen, but we were not lucky enough to come upon the animals. From the Bonython we steered for the Erliston creek, cutting it just below Mr. Wells's marked tree. The country between the two creeks is for the most part flat desert country and mulga thickets, with a coarse undergrowth of grass. Before cutting the Erliston, we passed through the only auriferous country we had met with since leaving the vicinity of Hall's Creek, but, having been some days without provisions, we made all speed towards Lake Darlot township, and at last reached that place, after an absence from the southern goldfields of almost exactly one year. Thence we went on by easy stages to Coolgardie, having travelled upwards of 3000 miles, for nearly half that distance through country hitherto unexplored.

On looking at the large expanse of "Blank" on the map of West Australia before starting last year, I had argued myself into half expecting to find at least a small belt of mixed country similar to that which includes Lake Darlot and the outlying "finds" in the Mount Margaret district—mixed country in the sense that all round and between many of these far-out fields one finds patches of desert, so that one might probably make the complete circuit of the Lake Darlot field, within a radius of, say, 20 miles, and be all the time in sand and spinifex. But now, after the best part of a twelvemonth spent in travelling, it seems to me fairly certain that if any such mixed country exists, we must have dropped across some of it. Once past the longitude (roughly) of $122^{\circ} 30'$, the character of the country, as well as of the rocks, undergoes an entire change; and from there right away up to the old-established diggings of Kimberley, it is the same dreary monotony of sand and sandstone. Coming back we fared no better, and I am forced to the melancholy conclusion that the greater part of the vast West Australian interior, as seen by us, is useless to man or beast; that a direct stock route between the Kimberley district in the north and the Murchison-Coolgardie fields in the south can by no possibility be found; that there can be little or no hopes of the goldfields extending to any appreciable distance in a north-east direction (that they are most unlikely to extend further east I am satisfied, from what I saw of the country traversed by me in 1894); and that all idea

of any auriferous connection between Kimberley and Coolgardie must be banished from our minds, though I consider it most likely that gold will be traced from Lake Way by the Ophthalmia range to the Nor'-west goldfields. It is no pleasant task to have to condemn as useless so large a portion of a prosperous colony; yet I must speak of the country as I have seen it, and would remind you that Western Australia contains many hundreds of square miles of valuable land, of which only an insignificant part has as yet been occupied.

Judging from what Sir John Forrest tells me, I should say, also, that gold may be found near Mount Moore, in the vicinity of Lake Augusta, and it may be added that a small patch of auriferous country (in which no more than "colours" have been obtained) is known to exist in the Warburton ranges, already visited by one or two prospectors. Of the various sources of water-supply found by us, only two can be claimed as permanent, viz. Helena spring and Empress spring.

I may mention that ours was one of the few expeditions through the interior which was unaccompanied by Afghan camel-drivers, and that throughout both journeys we had only one sore back amongst the camels, in spite of the heavy loads they carried across country, well calculated to knock both packs and backs to pieces.

In conclusion, I take this opportunity of putting on record my most deep feelings of gratitude to my companions for their untiring, energetic help through all our journeyings. I verily believe that worse country (or better country either, for that matter) has never been travelled through by a more cheerful party, or by one in which the members of it were more fully in accord; and to the unanimity and ready co-operation that prevailed throughout the camp the successful issue of the expedition must in a large degree be ascribed.

OUTGOING JOURNEY.

	Latitude.	Longitude.
	° ' "	° ' "
Clay pans south of Doyle's or Cutmore's well (July 21) ...	28 35	120 57
Native well on small creek (August 1)	27 40	122 54
Small creek (August 6)	27 9	123 59
Empress spring (August 10)	26 47	124 25
Woodhouse lagoon (August 19)	26 10	124 48
Native well, dry (August 25)	25 15	124 48
Warri well (August 29)	24 57	125 9
Family well (September 17)	22 40	125 54
Native well (September 29)	21 49	126 33
Helena spring (October 5)	21 20	126 20
Soak east of Point Massie (October 14)	20 45	126 23
Godfrey's tank (October 19)	20 15	126 25*
Jow's well (October 27)	19 41	127 17
Mount Bannerman (November 1)	19 27	127 11*
Mount Hawick (November 20)	18 53	127 3
Hall's Creek (December 4)	18 16	127 47

Latitude by observation; longitude by account.

* Latitude by account.

RETURN JOURNEY.

	Latitude.		Longitude.	
	°	'	°	'
Hall's Creek (December 4 to March 22)	18	16	127	47
Denison Downs homestead (April 1 to April 6)	19	9	128	13
Lagoon on Sturt creek (April 11)	19	45	127	39
Camp on estuary, above Salt sea (April 15)	20	11	127	31
Camp (April 23)	20	32	128	10
Camp (April 28)	21	4	128	33
Camp near mouth of Glen Wilson (May 2), Stransmore ranges	21	25	128	20
Dwarf well (May 7)	22	19	128	16
Native well, 1 mile west of Mount Webb (May 12)	22	57	128	20
Native well (May 16)	23	26	128	42
Large rock-hole (May 20)	23	44	128	52
Deep rock-holes (May 29)	24	20	127	20
Tree (?) on Blyth creek (June 17)	26	0	125	22
Woodhouse lagoon (June 17)	26	10	124	48
Camp (June 25)	26	20	123	23
Camp 2 miles south-west of tree marked L. A. W., on Erlistoun creek (July 12)	27	36	121	46

Before the reading of the paper, the President said: This evening we shall be engaged in listening to the narrative of the very remarkable and, I think, important journey which has been made by Mr. Carnegie from south to north, and again from north to south, over the desert of Western Australia. It is, I think, almost a quarter of a century since I listened to the terrible account which was given to us by Colonel Egerton Warburton, who crossed that desert from east to west; but I look upon it as a still greater feat to have crossed it from south to north, passing over the tracts of previous explorers, and I feel sure that we shall listen to a most interesting and instructive paper. I will now ask Mr. Carnegie to be kind enough to read his paper to us.

After the reading of the paper, the following discussion took place:—

Sir HENRY NORMAN: I must express my great admiration at the energy and perseverance which Mr. Carnegie has displayed. Unfortunately, I have no personal knowledge of Western Australia, but I believe there are several gentlemen here who have a good deal of knowledge of that portion of the continent.

Sir MALCOLM FRASER (Agent-General for West Australia): I am sure you will agree that Mr. Carnegie has made a most interesting statement out of an apparently uninteresting subject. I have been personally acquainted with all those of whom he has spoken, Mr. A. Gregory, Mr. Forrest, Major Warburton, and Mr. Giles, and his statement is a full corroboration of what they have said. But pray do not go away imagining that Western Australia does not possess a great deal that is interesting. It has been rather unfortunate with our explorers that they have passed within a short distance of excellent country. The Messrs. Forrest passed over or by both Coolgardie and Kalgoorlie, and where Burke and Wills perished years ago is now covered with a flourishing settlement. Therefore let me say, that whilst Mr. Carnegie has only spoken of what he saw, let me hope that there may yet be outside and beyond the range of his horizon, as fine a country as any in the world. The goldfields extend from south to north almost continuously. We undoubtedly owe a great debt to Mr. Carnegie for his explanation of the desert part of the country. But, as I have said, I hope and trust that the present limit of our discoveries may

121 122 123 124 125 126

18

EASTERN PART OF WEST AUSTRALIA

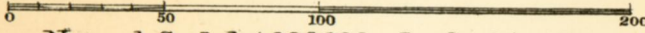
19

Illustrating the route of the exploration
by

THE HON. DAVID W. CARNEGIE

1896-7.

Scale of Miles.



Natural Scale 1:4,000,000 or 1 inch = 64 miles.

Route

S O U T H E R N B O U

Godfrey's Tank

M^t Elgin

M^t Bomilly

P^t Massie

Forebank H

Helena Spring

No permanent water seen
between Empress spring and
Helena spring

Native Well

H i g h

S a n d

of

Gravelly undulations

Tropic of Capricorn

Wretched country
no animal life 2 Native Wells (

Patience Well

(30 feet deep)

M^t Pherson's Pillar

Giles 1871

Alfred & Maria Range

Warri Well (Good supply)

M^t Cox

Charles Knob

Young Range

Nature Well (dry)

Brown Range

M^t Moore

L. Augusta

Thick Scrub

Low Range

Alexander Sutherland Ra

L. Breaden's

Boyd Lagoon

M^t Allott

Blyth Ck.

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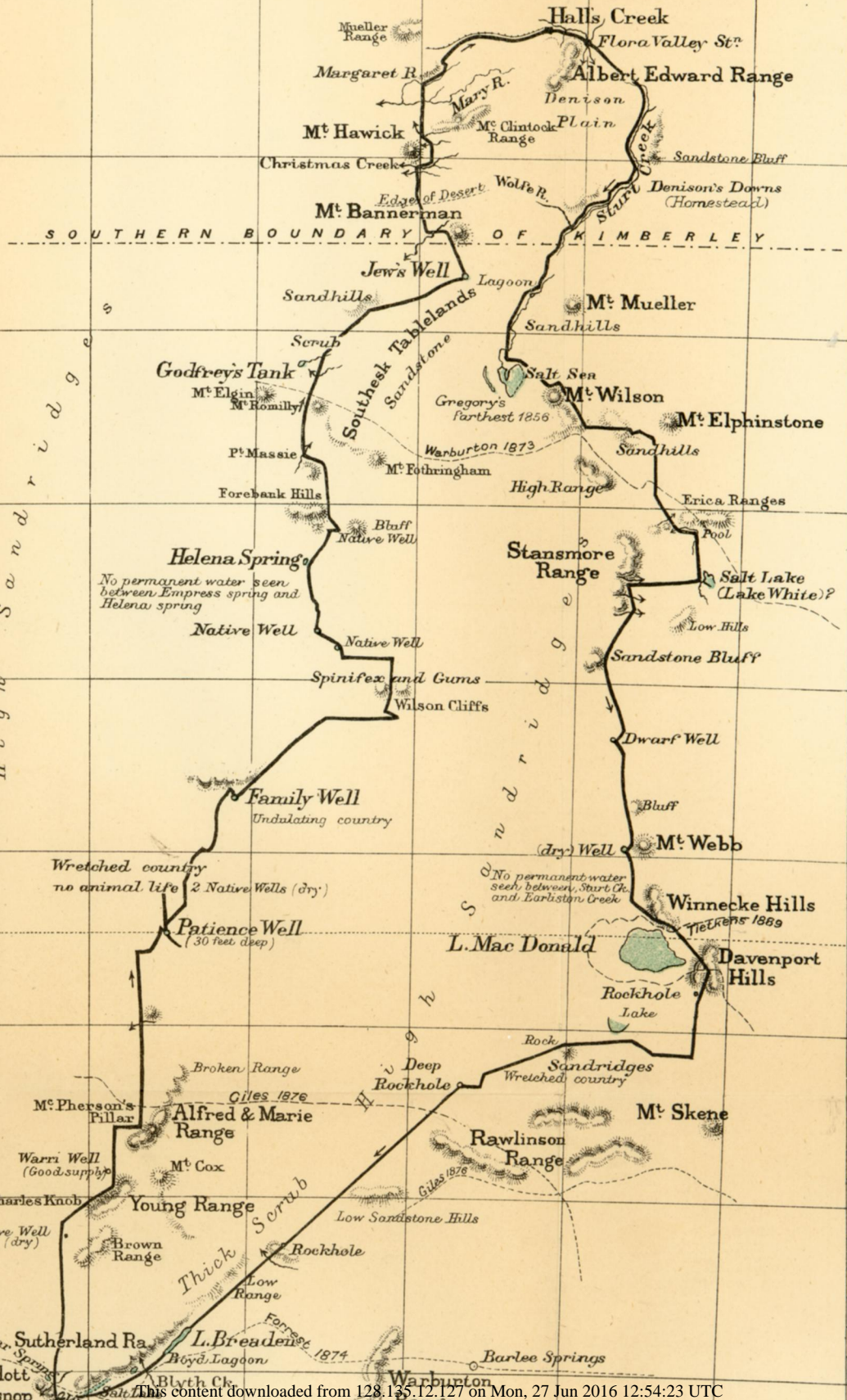
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A
ion
E

200
es.

Sandridge
High sand
of
Gravelly undulations
cliffs





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