

Amytornis goyderi, Eyrean (formerly Goyder's)
Grass-wren, etc.

By J. Sutton.

Amytornis goyderi was obtained by the Lake Eyre Expedition dispatched by the South Australian Government under the command of Mr. J. W. Lewis, with whom were Mr. A. G. D. Beresford, surveyor and draughtsman (second in command); Mr. F. W. Andrews, collector and naturalist; Mr. G. W. Tolmer, assistant; J. Davis, cook; and three Afghan camel-drivers, viz., Halleem (Jemidar), Sheik Willie, and Nazere. The camels, fifteen or more, were supplied by the Hon. Thomas Elder. An aboriginal named "Tommy" was attached to the expedition until 3rd March, 1875, when he "went bush." The expedition left Beltana on 22nd October, 1874, and returned to that place on 12th July, 1875. During that period the western, northern, and eastern shores of Lake Eyre were surveyed, the Macumba was traversed to its mouth, and the Warburton and Everard—now known as parts of the course of the Diamantina River—were followed up to six miles beyond the South Australian and Queensland border. From that point the survey party had to retreat, as the whole of the country, except the rises, was covered by the floodwaters of the Diamantina. They later crossed over to Cooper's Creek, or the Barcoo, and its course was traced from Innamincka to its mouth in Lake Eyre. The official report of the expedition is contained in Parliamentary Paper No. 114 of 1875, to which is attached a map of the route, and the copy of Lewis's Journal forms Parliamentary Paper No. 19 of 1876. The map is too large for reproduction in the "S.A. Ornithologist," so that only that portion which shows the route of the main party around the northern end of Lake Eyre and along the Macumba is reproduced. *Amytornis goyderi* was taken by Andrews on the Macumba during December, 1874. Six specimens were obtained, and two of them were sent to John Gould, in London, for description and naming. Those two specimens were included in a Gould collection which was acquired by the British Museum, where they now are, and, as far as is known, are the only specimens in existence.

In the "Catalogue of the Birds in the British Museum," Volume IV, page 109, the birds are referred to thus:—
"*Amytis goyderi*, two adult skins, Macumba, Lat. 27° 4' S., Long. 145° 1' 23" E. Gould Collection. Types of species." No portion of the Macumba has that latitude, and the longitude is almost that of Melbourne! Mathews, however, in his "Birds

of Australia," gives the information as "Amytis? Macumbra, Central Australia, Lat. 27° 41' 23". That is the latitude given by Lewis on 18th December, 1874, as that of the Brackish Waterhole, Macumba River (Camp 21), and is without doubt the camp near which the specimens were secured.

All the information with regard to the expedition is taken from Lewis's journal, and each camp he was at personally was dated and numbered as far as 60, when the numbers were dropped and dates only were given. There is an error as to the time Camp No. 21 was occupied (17th to 27th December), and the Camp at Christmas Waters has been omitted, as will be seen by the narrative herewith. It was the practice of Lewis, as well as other explorers, to form a depot with the main body of the expedition, and undertake minor surveys. He formed a depot at Camp 11 on 7th December, and left there on 8th December with "Tommy" with the intention of going to Charlotte Waters for supplies of food. Meanwhile the depot party were to search for better water, and if found to shift the camp there. I assume that party transferred to Camp 21 within three days, reaching there say on 10th December. The camp was maintained at the Brackish Waterhole until 19th December, over a period of nine days. On 19th December, 1874, Lewis took Tolmer on a further survey trip, leaving Beresford in charge of the party with instructions to move down the river to Christmas Waters, which was reached, say, on 20th December, and was occupied until 28th December, 1874, when the expedition proceeded eastward.

Attached to Parliamentary Paper No. 19 of 1876 is a list of the specimens of natural history, minerals, fossils, etc., collected by Andrews, and in the "South Australian Register" of 12th August, 1875, there is an account of these collections with notes by Mr. F. G. Waterhouse, Curator, South Australian Institute Museum, wherein he gives the number of the specimens obtained by the Museum, and he adds at the foot of the article:—"Many of these birds are rare, and two, if not three, are quite new to science. Specimens of these have been forwarded by the last mail to Mr. Gould for description and to be figured in the next supplement to his great work on the birds of Australia. The specimens collected form valuable additions to the collection in the Museum, and have evidently been collected with zeal and good judgment." It is with regret that I have to add that none of these specimens are now in the collection of the South Australian Museum. The natural history specimens had been so neglected that the Curator reported on 30th June, 1882, that most of them would have to be destroyed, and in the report

of 30th June, 1885, the Acting Director stated that "they had previously been destroyed." Against that, however, it is to be mentioned that for some years (including the above period) a dishonest employee sold much material from the Museum to European collectors, and the specimens referred to in the list may have been so disposed of.

Lewis's remarks on the collections of Andrews were as follows:—"The country beyond the Macumba for some distance during our trip was of the most sterile and barren character—no rain had evidently fallen for, at least, say (from all the information we could gather from the natives), two years. We had no spring-time "to unlock the flowers to paint the landscape." At my suggestion, Mr. Andrews at once turned his attention to making a collection of the grasses indigenous to the parts of the country through which we travelled. . . . I am quite certain that all opportunities for collection were eagerly embraced by Mr. Andrews, who spared no time nor trouble."

In "The Emu," Volume XXIII, 1923, page 81, the two "*Amytornis goyderi*" are figured in colour, and a short article on the nomenclature is added by Mr. A. J. Campbell.

Topographical Details.—Beltana is 365 miles north of Adelaide (by rail). Umbum Station is 165 miles north-west of Beltana. Christmas Waters is 81 miles east of Oodnadatta, which town is 688 miles north-west of Adelaide (by rail). Macumba is the name of the river from the junction of the Alberga and Stevenson Creeks, 30 miles north of Oodnadatta, and runs (when it does flow) south-easterly for some 110 miles into Lake Eyre. From Camp 11 to the junction of the Macumba and Kallakoopah Creek is 26½ miles in a direct line, but 31½ miles by the route taken by the expedition. Kallakoopah Creek is the northern arm of the delta of the Diamantina River, and it leaves the main stream about 80 miles to the north-east of its junction with the Macumba. The Diamantina River was also known as Salt Creek, Will's Creek, the Warburton, and, north of Goyder's Lagoon, the Everard. The evaporation in the Lake Eyre country has been estimated at 100 inches a year. The rainfall there varies in amount up to 6 inches a year. The southern shore of the lake is 36 feet, and the centre 60 feet below sea-level; the distance of the centre to Port Augusta is 260 miles. The northern lake is roughly 90 miles long by 50 miles broad; the southern, which is connected with the northern by a narrow channel, 10 miles in length, is 15 miles long by 40 broad. If full of water both lakes would cover 5,000 square miles. The area of the basin has been given

as about 500,000 square miles. There is one low gap between Lakes Eyre and Torrens, but it is 175 feet above sea-level. (Lake Torrens is about 105 miles long by 20 broad; 111 feet above sea-level; its northern shore is 45 miles from the Southern Lake Eyre, and its southern shore is 37 miles from Port Augusta.)

I am greatly indebted to Dr. A. M. Morgan for his help in the preparation of the list of species of birds; Mr. F. E. Parsons, with regard to the surveying, etc.; and Professor J. B. Cleland for the botanical names of the trees and shrubs.

To show the type of country which *Amytornis goyderi* inhabits, I have added some extracts from Lewis's Journal. A list of the species of birds obtained by Andrews is also appended:—

EXTRACTS FROM LEWIS'S JOURNAL.

The Macumba and North of Lake Eyre.

Saturday, 5th December, 1874. Koorakarinna Creek.

Barometer 29.76; thermometer 71°; calm. Not judging it prudent to follow down this creek to the other water spoken of by the black, as this one failed us, I started at 5.45 a.m. north, over fairly grassed, undulating, redstone plain; at four miles crossed a narrow, boggy marsh drainage from the country westward and falling into Koorakarinna Creek; at five miles crossed another branch of the same marsh. At five and three-quarter miles we changed our course a little to the eastward, and in two miles got into good sandhill country. Continued course a little east of north for 13 miles, following along a small creek, which I observed spread in many places into salt marshes. At two and a quarter miles, crossed the creek (at a small, dry box (*Eucalyptus microtheca*) waterhole, country around very good) and got into good sandhills. At five miles crossed the Frew (native name, Manarrinna), quite dry. After crossing the Frew we got to a well-grassed flat; but I fancy it is subject to lengthened inundation. At three and a half miles crossed another small creek; in the bed of this creek we found an old native well, supply, I think, good, but slightly impregnated with soda. Above where we crossed is a very large and very salt waterhole. After crossing this creek we changed course to north, and at two and a half miles struck the Macumba at a small sand drainage we found by scratching. After letting the camels go, all hands set to work to enlarge the hole; but after clearing out a place eight feet long by four feet wide and two feet deep, we found the supply insufficient. It was a very strange place.

situated in the bottom of a waterhole, in which there was a pool of frightfully salt water; the hole we cleared out was only two feet from the salt pool, but the water we obtained was perfectly fresh; the bottom of the salt pool being covered with sand, then six or eight inches of soft, black mud, through which the salt water cannot drain. On finding the supply insufficient for our wants, Mr. Beresford and Mr. Tolmer followed up the river in search of more, while I and the others still kept enlarging the hole, timbering it, and getting out what water we could. In a very short time they returned, having found a splendid sand drainage about three-quarters of a mile above the camp, Lat. 27° 37' 35".

Sunday, 6th December, 1874. Macumba River.

Barometer 29.76; thermometer 68°; calm, cloudy, and very sultry. After a very early breakfast, Mr. Tolmer, Mr. Andrews, and two Afghans started up the river to the place found last night, for the purpose of sinking and timbering a well. I began with Halleem getting out the water here with buckets (or rather with a quart pot into buckets); by 10 a.m. we managed to water eight of our camels. Shortly after this, we observed a smoke up the river, which was the signal agreed upon with the wellsinkers to inform us when the well was finished, and also to start the camels up to it. I sent them up, and had them thoroughly watered with buckets—the supply being sufficient for any number, as far as we could judge, at a depth of four feet. There had been great difficulty in getting down, even to this small depth, as the sand was so fine it caved in as fast as it could be shovelled out, and it was only by very close timbering that the work was accomplished; just as they had finished watering the camels, the blackboy (who had wandered up the river on his own account) returned to them with the pleasing news that there was a fine fresh waterhole about half a mile higher up. After dinner, Mr. Beresford, Mr. Andrews, and Mr. Tolmer went up the river to the waterhole found by the black, for the purpose of shooting and fishing, and their labours were most satisfactorily rewarded by obtaining seven Ducks, and two and a half dozen small fish. The fine fat condition of the Ducks was noted by all the party.

Monday, 7th December, 1874. Macumba River.

Barometer 29.77; thermometer 74°; wind light, from east. Started at 4.42, and proceeded one and a half miles up the river, past the well which suited us so admirably yesterday, to the top-end of the waterhole found, and camped on a splendid

prickly acacia (*Acacia victoriae*, probably) flat. Here I determined to form a depot, leaving the party to examine the country above the depot, the river down to Lake Eyre; thence along the shore to the Neales, and to proceed up the Macumba myself with one companion to the telegraph-line; thence by the known portion of the Dalhousie Springs to the Charlotte Telegraph Station, to obtain a slight supply of rations, and to return to the Dalhousie and follow them eastward as far as possible, then return by a southerly course to the depot.
. . . . Lat. $27^{\circ} 35' 54''$; variation $5^{\circ} 18'$ east.

Thursday, 17th December, 1874. Pecherina Waterhole.

Barometer 29.53; thermometer 89° ; wind S.W., cloudy. Started at 8 for the depot, following back nearly along my upward tracks. At 12.30 arrived at the depot, and found a memo. from Mr. Beresford stating that he had moved the camp nine miles lower down the river, to a waterhole found by Mr. Tolmer. The day being frightfully hot, I turned out the camels during the extreme heat—thermometer 130° in the shade. I managed to procure three ducks, which were very acceptable, as our breakfast only consisted of a small piece of bread each. Shortly after partaking of our frugal meal a very severe gale of wind sprang up from S.S.E., carrying clouds of dust before it, and breaking off several large limbs of the surrounding trees. Started on again at 4.50 p.m., and followed down the left bank of the river, passing over reasonably well-grassed sandhills and flats. At 7.10 arrived at the camp; found all well. From this place, during my absence, Mr. Beresford had followed down the river, in order to find out its mouth into Lake Eyre, and from there survey the shore of the lake southwards to the Neales, but had been prevented by what he thought was a large swamp joining the river from the sandhills south. This was afterwards found to be the Salt Creek. This mistake was one that any traveller might have made, as the Salt Creek below the junction of the Macumba forms no channel, being merely a broad salt marsh, penetrating in between the sandhills in all directions—and, leaving out the question of crossing, it is in many cases unapproachable.

Friday, 18th December, 1874. Lat. $27^{\circ} 41' 23''$. Brackish waterhole, Macumba River.

Barometer 29.94; thermometer 71° ; calm, clear. This morning, on hearing Mr. Beresford's account more fully, I was obliged to abandon the attempt of reaching the mouth of the Macumba by following it down. Thirteen miles below the

camp, Mr. Beresford learnt from a blackboy that the mouth of the river was a two-days' journey from there. In consequence of this I determined to return to the mouth of the Neales, and from there survey the shore of the lake as far as possible northwards. This I was prevented from carrying out at once, as, when riding along yesterday evening, I caught swelling-blight in one of my eyes, and while walking about to examine the waterhole on which the camp was, one eye completely closed up, and rendered the other one unfit for taking or following a bearing.

Saturday, 19th December, 1874. Brackish waterhole, Macumba River.

Barometer 30.06; thermometer 69°; calm, clear. Leaving Mr. Beresford in charge of the camp, with instructions to move down the river about five miles, to where he had found some good waterholes, I started, taking Mr. Tolmer with me, at 7.10. On bearing 213° 30' for two miles, over low sandhills, to a high red point. Changed to 229°, over sandhills with samphire flats between. At one mile crossed the Frew Creek; continued same bearing for five and three-quarter miles over similar samphire country, when we got into a number of small salt lagoons between low sandhills. At six miles more struck the main baggage track. Changed to south-west by south, and at 4.50 arrived and camped at the middle waterhole in Koorakarinna Creek. After letting our camels go, Mr. Tolmer and I began to fish, and by dark had caught over four dozen, which we cleaned and soaked in a small pool of intensely salt water for half an hour, when they were thoroughly cured, and kept quite sweet for three days after.

Friday, 25th December, 1874. Camp in gully north of Lake Eyre.

Barometer 30.06; thermometer 68°. Started at 6.45, and followed the shore of the lake for five miles, over loose sandy ground, nothing on it but samphire (*Pachycornia* or *Salicornia*) and a few canebrushes (*Spinifex paradoxus*) to the top of a very high sandhill overhanging the lake. From here we had a dismal and disheartening view—nothing to be seen but the white lake south and high barren sandhills north, with nothing on them but dead canebrush and samphire. Here the shore of the lake turned considerably to the south, and being quite sick of it for one journey, and thinking it might be more easily surveyed from some more eastern water, I determined to let it rest for a while. Continued an easterly course for five miles, over terrible sand-

hills, with hard claypan flats between. On one occasion we had to go a mile out of our course to get down one of them; but it is impossible to give even a vague idea of the height of those hills and the steepness of the eastern side. At five miles we were effectually stopped by what I thought was a large marsh, but which eventually proved to be the Salt Creek. On nearing this place I thought it was a large marsh southward and a smaller round one north, separated by a narrow neck of land, which we followed along between the marshes. We were very much disappointed on finding them connected by a narrow strip, about 200 yards wide, and very boggy. I walked half-way across, and tested the softness and depth with a stick, but did not judge it safe to take the camels over it. Around the northern marsh the sandhills were perfectly perpendicular; nothing short of a wallaby could ascend or descend them. Consequently I was obliged to follow round the edge and estimate the distance across. On rounding the marsh we continued over the same high, barren, steep sandhills (course west of north) for five miles, when we struck a southern branch of the Macumba; followed it up for two and three-quarter miles to where we found some native lupins (perhaps *Lotus australis*, var. *parviflorus*), flourishing wonderfully, considering the dryness of everything else, and camped. By going on two miles we could have got to some native wells, found by Mr. Beresford, but as Mr. Tolmer said they were extremely brackish, and not opened out, I judged it better to let my camels have a little greenfeed than to take them to wells out of which I could not obtain a sufficient supply.

Saturday, 26th December, 1874. Camp below brackish wells, Macumba River.

Barometer 30.01; thermometer 66°. Started at 6.30, and followed up right bank of river. At two miles got to native wells previously spoken of, found to be in the bottom of a dry waterhole, varying in depth from one to two feet—some very brackish, others quite salt. Continued up right bank, and at about half a mile came upon a camp of natives, who had a well put down in sand fully eight feet deep. At eight miles reached another well, found by Mr. Beresford; by scratching near this we gave our camels sufficient water to enable them comfortably to reach the camp. At 15½ miles we found the camp pitched on the bank of the river, near some very nice waterholes, fresh and brackish, which Mr. Beresford had, in my absence, appropriately named and mapped Christmas Waters. The chain of

waterholes in the river is about two miles long, and might water a few head of cattle for six months; but the country on both sides is absolutely worthless, consisting of high, barren, and precipitous sandhills, which run close to the river, growing nothing but samphire, pigsface (*Mesembrianthemum*), and cane-bush, and, in my opinion, only suited for the natives to prowl over after rain, when pigweed (*Portulaca*) doubtless grows profusely, and at other times, when the seed of the pigsface plant is ripe. After resting for an hour or so, we tried our luck at what, in bush language, is called driving a waterhole for fish. This is done by cutting a quantity of bushes and twisting them together, so as to reach across the waterhole; then, by pushing it slowly from one end to the other, the fish are either driven before it or entangled in the bushes. At this we failed greatly—whether from want of practical experience or the depth of the water I cannot say; but, after working hard for three hours, we only obtained three small tookerie, or bony bream. Lat. 27° 43' 42".

Sunday, 27th December, 1874. Christmas Waters, Macumba River.

Barometer 30.03; thermometer 68°; calm, clear. Halted. Very hot day; thermometer, under a thick shade of bushes, 122° at 2 p.m. A whirlwind passed right through the centre of our camp from south to north, carrying away everything that was loose in the shape of towels, bags, etc., some of which went too far to be recovered.

Monday, 28th December, 1874. Christmas Waters, Macumba River.

Barometer 29.86; thermometer 61°; calm, sultry. Started at 7.2 down right bank of the river; at two and three-quarter miles crossed the Frew, a dry sandy bed, bordered with acacia and silver wattles. At eight miles reached the first water found by Mr. Beresford. Turned out and sank and timbered a well five feet deep; water fresh and plentiful. Watered the camels, although we had only travelled a short distance. I thought it prudent to give them a drink at the last available water. At 5.12 p.m. continued right down bank of river for four miles to the brackish native wells previously mentioned, and camped on the north side of the river. Tried to use the water, but found it rather too brackish. Lat. 27° 44' 3".

Tuesday, 29th December, 1874. Brackish wells, Macumba River.

Barometer 29.84; thermometer 68°; calm, hazy. While the camels were being loaded, Mr. Beresford and I walked half a mile to the top of a sandhill, bearing 82.15, when we found that white boggy channel of the river took a sharp turn northwards; took some bearings, and Mr. Beresford walked across the point while I followed round with the baggage. We then followed down the left bank for five and a half miles to the junction of Kallakoopah, crossed it, and followed the left bank for three miles north-east, passing several large salt waterholes to where our black guide had promised to show us a good well of water; but on arrival at the place the good well proved to be three small holes in the bottom of a dry waterhole, about two feet in depth, containing a small quantity of water on blue sandy clay. After unloading the camels and fixing our camp we began work and cleared out two large holes, one twelve feet by four, but the water only covered the bottom about two inches deep. This was of no use to us for the camels, the whole of which kept coming round us, although repeatedly driven away. After waiting some time to see if more water drained in, I left and went to the camp, and began arranging our movements for the next few days with Mr. Beresford. My intention had been to leave the baggage and four men in charge of Mr. Beresford (the water being sufficient for them), while two Afghans returned to the last well on the Macumba with the camels for water. Taking the blackboy, I purposed to make a push through the sandhills to the Salt Creek. During the time we were settling our movements Mr. Tolmer returned to the hole for the purpose of filling a waterbag; the water not being sufficiently deep to enable him to dip it up, he made a small hole in the clay at one end, but fortunately going a little too deep, he penetrated through the clay to sand again, when all the water disappeared. This excited his curiosity, and he perseveringly set to work and put down a hole about seven feet to water again. Immediately on reporting this cheerful news to me, we all set to work enlarging the well, and got plenty of water; but after watering three camels the sides gave way and half-filled the well. Cleared it out again, and, although the work was very hard (as the quantity of sand we had to remove made the well fully 40 to 50 feet in circumference at the top), we had the satisfaction of watering five more camels by 9 p.m., working by candle-light and half-smothered in dust. At sunset the wind rose from the southward and increased to a gale, carrying clouds of dust and

sand before it, the salt nature of which rendered our task very unpleasant.

Sandhills.

Friday, 1st January, 1875. Camp on Kallakoopah Creek.

Clear; strong wind from south. Started early, course south-east by east. At one mile struck turn of the creek. Here the black pointed north, to where he said he had camped with several others at a waterhole. The creek being too boggy to attempt crossing the camels, I tied them up and walked across (up to my knees in mud) to the waterhole, but found it quite dry: by digging down six inches, I got very soft, blue clay—no water. Returned to the camels, and being quite satisfied with this creek, I made all possible haste to the camp, at which we arrived at 6.25 p.m. To obtain even a faint idea of this country it must be seen—the sandhills (sand mountains would be more appropriate) are high, barren, and steep, growing nothing but a little cane-bush, samphire, and pig's-face. The country up to the dry waterhole I visited is simply frightful. The north side of the creek seemed to be high hills running parallel to it, and close to the bank; on the south side a high range followed along about one and a half miles off, and throwing off spurs at right angles into the creek, with narrow boggy channels between. To follow the creek up and down, I had to make considerable detours to cross the boggy channels, and also to get down or up the east side of the sandhills. The creek would doubtless be fresh while flooded, but I am quite certain, from the salt nature of the bed and the surrounding country, that the water left would not remain drinkable for half a day. Tommy's Well is undoubtedly permanent and fresh, but the country around it is abominable; to take a view from any slight elevation of the bare sandhills, sandcliffs, and utter want of vegetation, is sufficient to create thirst, without having to travel over it. Lat. $27^{\circ} 41' 11''$.

Weather.

Thursday, 7th January, 1875. Camp opposite the junction of Kallakoopah Creek.

Barometer 29.80; thermometer 76° ; clear; light wind from south-east. During the night I suffered very much from the effects of the water from Tommy's Well; the silver wattle sticks which we put in it imparted a very disagreeable taste to the water, and also rendered it a violent purgative and emetic. Started at 6.10, and followed southward down the right bank of the Macumba, for eight and a half miles, to the junction with

the Warburton, crossing high points of sandhills with samphire flats between. This portion of the river is about two miles wide, fairly grassed, and producing very large saltbushes (*Atriplex*). The junction of the two rivers, when viewed from the north side, presents innumerable small boggy channels. I tried to cross the first one I came to, which was only about six feet wide, but without success, as a stick could be thrust down to any depth. Followed round a marsh for three miles and struck the Warburton again; continued down it north of east, and crossed the narrow neck connecting the river and the marsh, which, as previously mentioned, balked Mr. Tolmer and myself. At 1.40 a strong breeze came up from the south-east, and gradually changed to south, carrying clouds of dust with it. Ten minutes after the wind came from the south I was obliged to turn out; the camels would not face it, and, in addition to this, I could not see. We made a shelter with our blankets, which served us but very little, as the whole atmosphere was thick with dust; and the sun hardly visible. At 5.30 the force of the wind abated a little; we saddled up and continued our journey downwards for four miles, when the dust again became unbearable. What colour I was I am unable to say, but the blackboy was nearly white, with furrows down his cheeks where the tears ran down from his eyes, caused by the salt nature of the dust. On searching about we fortunately came across a steep water-washed gully, in which we were partially sheltered. After dark I endeavoured to set out my artificial horizon. This proved no slight undertaking, and, although the boy held a large rug around me, I am certain I had to filter the quicksilver twenty times before I could get it clean—before the trough was half-full it was generally quite covered with sand. However, all things have an end, and at about 9 o'clock the wind ceased, and I was enabled to take the necessary observations. The result of three sights north and south of the zenith gave the latitude as $27^{\circ} 54' 6''$. This was certainly the most trying afternoon I ever spent, and sincerely trust that no one else will ever be caught during a dry season in a south gale on the north end of Lake Eyre. One thing I am quite sure of, that is, had the wind continued all night, we would have figured on the list of missing explorers, as our water was becoming short, having, incredible as it may seem, consumed two gallons each during the afternoon, and, had economy not been necessary, would gladly have had more.

Lake Eyre.

Thursday, 15th April, 1875. Second Camp on Lake Eyre.
South of the Barcoo.

Barometer 30.27; thermometer 59°; calm; very cloudy. The camels strayed a good way during the night. Started at 8.8, along the shore, on bearing 156°, over good grassy country of very peculiar formation—a low and almost milk-white sandrise; following the shore of the lake, thin limestone flat, for three-quarters of a mile, to sandhills running nearly north and south. At five miles, stopped by a sharp turn of the lake, changed to 106° for a quarter of a mile; changed to 153° 30', along shore of lake, for four miles; it then turned sharp west. Altered our course to 182°, along a fine valley, between sandhills; at three miles we found ourselves in a corner of the arm or marsh into which the River Clayton empties itself. Being now south of the 29th parallel of latitude, I was heartily glad to think that the whole of the east side of Lake Eyre was finished, as this joined on to the south and east end of the lake, surveyed many years ago by the Surveyor-General, and I sincerely trust I may never see it again; it is useless in every respect, and the very sight of it creates thirst in man and beast. To read over my account of my travels on it will convey to the reader a very scanty knowledge of the hardships and uninteresting work we had in mapping the shore. I had instructions to level the head of the lake. This was only found to be practicable on the north end, on account of water, and to sink holes, and to ascertain the nature of the bottom we sank fully 100 holes; when we did get bottom it was from six inches to three and four feet on yellow clay, and blue sandy clay, other places where there was black mud, and I should be sorry to hazard an opinion as to how far it is to the bottom I could not find. I was also instructed that if the lake contained water to make a boat and sound it. This was not necessary, as all the water we saw was under the surface. We were out on it for two or three miles in several places, and examined it with powerful glasses, and also from the top of the highest sandhills, and never saw a drop of water. It is my opinion that Lake Eyre is dry (as far as concerning surface water) north of the 29th parallel of south latitude. After taking a number of bearings of the lake, we gladly turned our backs to it for Tidnacoodaninna. At 3.30 p.m. started on bearing 61°; at a quarter of a mile tried to cross a narrow point of the arm, found it too soft, and had to turn back and follow it round north; after getting round to the point—to the end of the bear-

ing, one mile—we changed course to 85°, along points of sandhills, with samphire flat on right hand, extending three-quarters of a mile, to the arm; struck and camped on a narrow marsh from the arm, 450 yards wide; most wretched place for the camels. Mr. Beresford was almost blind, and I could hardly see to take an observation. Lat. 29° 0' 27".

The following is the list of species of birds obtained by F. W. Andrews. The R.A.O.U. Checklist, 1926, has been followed in the order and scientific names. The numbers in front of each name indicate the specimens handed over to the S.A. Institute Museum, according to Waterhouse's list; the asterisks indicate that the species are not mentioned in the latter list:—1 *Turnix varia*, Painted Quail; 1 *Geopelia cuneata*, Diamond Dove; 1 *Phaps chalcoptera*, Common Bronzewing; 1 *Histriophaps histrionica*, Flock Pigeon; 1 *Ocyphaps lophotes*, Crested Pigeon; 5 *Charadrius ruficapillus*, Red-capped Dotterel; 2 *Peltohyas australis*, Australian Dotterel; 1 *Tringa nebularia*, Greenshank; 1 *Erolia ruficollis*, Red-necked (Little) Stint; 1 *Threskiornis spinicollis*, Straw-necked Ibis; 1 *Notophox pacifica*, White-necked (Pacific) Heron; 1 *Dendrocygna eytoni*, Plumed Tree-Duck; 2 *Elanus scriptus*, Letter-winged Kite; 1 *Falco subniger*, Black Falcon (rare); 1 *Falco berigora*, Brown Hawk; 1 *Falco cenchroides*, Nankeen Kestrel; 1 *Tyto alba*, Barn Owl; 9 *Kakatoe roseicapilla*, Galah; 1 *Barnardius zonarius*, Port Lincoln Parrot; 4 *Psephotus haematogaster*, Blue Bonnet; 1 *Neophema bourki*, Bourke Parrot; 1 *Neophema splendida*, Scarlet-chested Parrot; 2 *Melopsittacus undulatus*, Budgerygah; 1 *Geopsittacus occidentalis*, Night-Parrot. [In a paper read by Andrews before the members of the Royal Society of S.A. on 6th February, 1883, he stated:—"I shot some specimens at Cooper's Creek in 1875, when out as collecting naturalist for the late J. W. Lewis in his exploration of the country about Lake Eyre. They were in that district observed to conceal themselves during the day in the thick patches of shrubby samphire, on the salt flats bordering on the creeks and on Lake Eyre." A specimen in the National Museum, Melbourne, was obtained on this expedition. Andrews also obtained this species in the Gawler Ranges, S.A., in 1880.] 1 *Halcyon pyrrhopygius*, Red-backed Kingfisher; 2 *Merops ornatus*, Australian Bee-eater; 1 *Eurostopodus guttatus*, Spotted Nightjar. [The name appears on both lists as the White-throated Nightjar—Andrews gives the scientific name as *E. guttatus*, whilst Waterhouse writes it as *E. alboocularis*, which is a synonym of *E. mystacalis*. There is in the S.A. Museum an

egg of the former species obtained by Dr. (Sir) E. C. Stirling in September, 1899, at Cowarie Station, on the Diamantina, about 60 miles from Lake Eyre.] 2 *Scythrops novae-hollandiae*, Channel-billed Cuckoo; 1 *Cheramoeca leucosterna*, White-backed Swallow; 2 *Petroica goodenovii*, Red-capped Robin; 1 *Melanodryas cucullata*, Hooded Robin; **Pachycephala inornata*, Gilbert Whistler; 3 *Sphenostoma cristatum*, Wedgebill; **Lalage tricolor*, White-winged Caterpillar-eater; 1 *Cinclosoma cinnamomeum*, Cinnamon Quail-Thrush. [This was sent to Gould for comparison, being lighter-coloured and smaller than any specimens which had hitherto come under Waterhouse's observation. Gould stated that he could not separate it from the true *C. cinnamomeum*.] **Pomatostomus ruficeps*, Chestnut-crowned Babbler; 7 *Epthianura tricolor*, Crimson Chat; 2 *Epthianura aurifrons*, Orange Chat; 1 *Smicronis brevirostris*, Brown Weebill; 1 *Acanthiza chrysorrhoa*, Yellow-tailed Thornbill; 1 *Pyrholaemus brunneus*, Redthroat; 1 *Chthonicola sagittata*, Speckled Warbler. [Andrews obtained a specimen of this species in the Gawler Ranges on 26th September, 1882. These are the only occasions in which it has been recorded in S.A.] 6 *Amytornis goyderi*, Eyrean Grass-Wren; 11 *Malurus cyanotus*, Blue-and-White Wren (very rare). [This is given by Andrews as *M. leuconotus*, White-backed Wren, very rare, yet Waterhouse states that eleven specimens (the greatest number in the list) were handed over to the S.A. Institute Museum; possibly the number is a misprint for 1.] 3 *Malurus assimilis*, Purple-backed Wren; **Artamus leucorhynchus*, White-breasted Wood-Swallow; **Artamus personatus*, Masked Wood-Swallow; **Artamus melanops*, Black-faced Wood-Swallow; 3 *Dicaeum hirundinaceum*, Mistletoe-Bird; **Pardalotus ornatus*, Red-tipped Pardalote; **Pardalotus rubricatus*, Red-browed Pardalote; 4 *Melithreptus laetior*, Golden-backed Honeyeater. [This was a new discovery named by Gould. It was in a Gould collection acquired by the British Museum, and in their Catalogue of Birds this type was stated in error to be apparently a very old male in full plumage of *M. gularis*, and the name was placed as a synonym of the latter species. Reference is made to this in Campbell's, North's, and Mathews's works. One of the co-types of the species is now in the Australian Museum (North, Volume II, p. 196).] 1 *Certhionyx variegatus*, Pied Honeyeater; 2 *Meliphaga cratitia*, Purple-gaped Honeyeater. [Andrews gives it as *Ptilotis cratitia*. The two specimens were sent by Waterhouse to Gould as "2 *Ptilotis* sp. I have frequently received specimens of this bird from the far north, and am doubtful as to the species." Gould stated

("Annals and Magazine of Natural History," Vol. XVI, No. 94, 38, 1875) that "the *Ptilotis* will require further comparison." I can find no further references by the latter to the matter. The furthest north *M. cratitia* has been found in later years is 101 miles north of Adelaide. (See "S.A. Ornithologist," Vol. VIII, page 173.) Dr. Morgan thinks that the specimens sent to Gould might probably be *M. keartlandi*, which species had not then been recognized.] 3 *Meliphaga plumula*, Yellow-fronted Honeyeater; 1 *Meliphaga penicillata*, White-plumed Honeyeater (doubtless *M.p. leilavalensis*); 3 *Taeniopygia castanotis*, Zebra-Finch; 1 *Corvus ceciliae*, Crow.

Other species mentioned in the Journal of Lewis are Spoonbills (*Platalea* sp.), Black Swans (*Chenopsis atrata*), and Freckled Duck (*Stictonetta naevosa*). With regard to the last he writes:—"Goyder's Lagoon (Diamantina River), 10/2/1875. 'Tommy' shot a large Freckled Duck—the first of the kind I ever saw; but unfortunately, native-like, he plucked the breast of it before reaching the camp, to see if it was fat: had it not been for this, I would have preserved the skin for the collector."
