

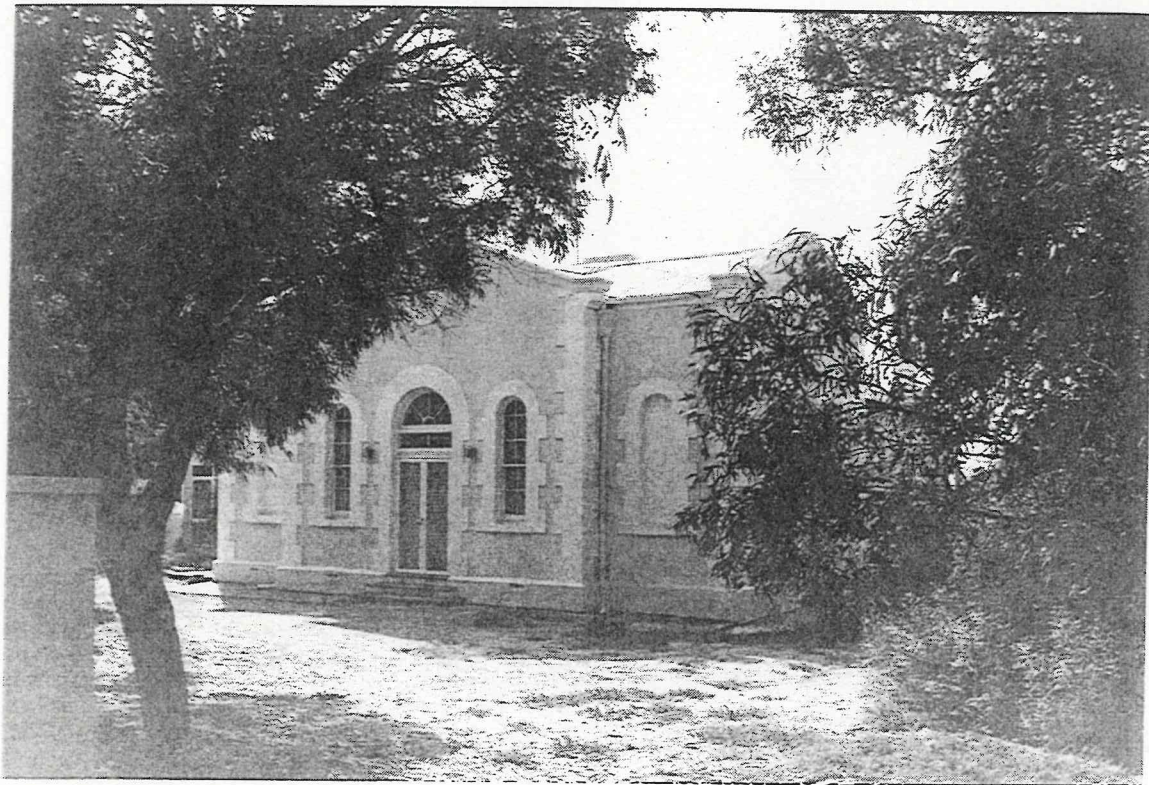
former Customs House**CC:222****LOCATION**

Jetty Road.
Address Chatfield Terrace, Wallaroo SA 5556
Land Description Lot 260, Township of Wallaroo, Hundred of Wallaroo
Certificate of Title 5363/94

Owners P M Plews, 1 Jetty Road, Wallaroo SA 5556

State Heritage Status Registered, 28 May 1981 SHR File No 10144
Other Assessments Register of the National Estate, Registered
National Trust of SA, Classified (File No. 79)

Photograph No 04/08



former Customs House

former Customs House**CC:222****DESCRIPTION**

Classically proportioned, this building is constructed of limestone with expressed quoins. Windows to the principal facade are symmetrically located around the central axis, with arched heads and multi-panes to the double hung windows. Blind windows repeat this form. A rendered cornice mould projects from the gable parapet and conceals the corrugated iron roof beyond.

STATEMENT OF HERITAGE VALUE

This building reflects the development of Wallaroo as a major port in South Australia for the export of copper which was mined in the region. This building is also one of a system of customs houses which were located in several of the ports of South Australia, remaining from a time when South Australian authorities were responsible for the collection of customs.

HISTORY

This former customs house was built at Wallaroo shortly after the discovery of copper at the nearby Wallaroo Mines and in the early stages of the establishment of the town of Wallaroo.

The building was erected by David Bower in 1862. Bower had established a business in Wallaroo in the early 1860s and developed a virtual monopoly on the timber trade on Yorke Peninsula. Apart from supplying the copper mines, he also acquired large building contracts such as the Customs House and Police Station at Wallaroo.

As a result of the discovery of copper on the northern Yorke Peninsula, a shipping industry was quickly established which was to remain an important part of the region's economy long after the copper mines had closed. The naturally deep and sheltered harbour at Wallaroo was to become the destination for many vessels from all round the world. In the period from 1862 to 1927 three jetties were constructed at Wallaroo to cater for the enormous demand for shipping berths. The first shipment of ore from Wallaroo was a 50 ton load in the schooner *Daphne* which left on 26 July 1860. After the completion of the first jetty in 1862 the shipping trade rapidly increased.

A report published in the local paper in February 1863 indicates the variety of vessels trading at Wallaroo:

'This port, at the present time, wears a most business-like appearance. There are a number of ships at the bay and at the jetty. The *Wallaroo* direct from England with a full cargo of Welsh passengers for the smelting works, also the *Stately*, *George Washington* and the *Frowning Beauty* - all with coal for the smelters. There are also several coasters here, and the *Lubra* has called and taken away about 100 tons of cake copper. The *Liberator* is also coming here with machinery for the Cornwall Mining Company, and general cargo. There are also about 1,700 tons of copper ore to go to England from the Moonta Mines alone'.

A new customs house was built at Wallaroo in the 1920s and this building has since been converted to a private residence.

References

- Drew, G. J. 1989, *Discovering Historic Wallaroo, South Australia*, Department of Mines and Energy and the Corporation of the Town of Wallaroo, p. 12
- Wallaroo Branch of the NTSA, n.d. *An Historical Walk Around Wallaroo*, Yorke Peninsula, South Australia, NT, Cultural Tourism SA & Corporation of Wallaroo.
- Wiltshire, R. n.d. *Copper to Gold: A History of Wallaroo 1860-1923*, Corporation of the Town of Wallaroo, p. 23, 39-49, 77-80

Virginia via Penfield to Salisbury by mail coach and thence by rail. Virginia has a post office, a public pound, and a branch of the South Australian insurance company. The hotels are the New Wheatshaf inn (Saint's,) and the Virginia (Gera's.) The surrounding country consists principally of slightly undulating plains with no eminences of any note; it is eminently adapted for agricultural pursuits, and with very slight exception is all taken up and under cultivation, which is carried on generally and in an admirable manner. The population of Virginia numbers 163 persons, there being 37 men, 35 women, and 73 children in the township and its outskirts.

VIVONNE BAY (*Kangaroo island*) is an excellent bay situated on the S. side of the island, 5 miles N.E. $\frac{1}{2}$ E. from cape Kersaint. The entrance is obstructed by an extensive reef, known as the Snares. This bay receives the water of 2 small streams, known as the rivers Eleanor and Harriet.

VIVONNE CAPE (*Flinders district W.*) is the S. horn of Denial bay, and has a few rocks off its extremity. From this point the coast trends to the E. into Decres bay.

VON RIEBENS (*Co. Eyre.*) See NORTH-WEST BEND.

WADNAMINGA SPRINGS RUN (*N.E. district;*) lease, No. 1125; occupier, H. and R. P. Boucaut; area, 12 square miles; rental, £6 per annum. This run lies in the pastoral country of Eastern plains, the next post town being Koorunga, to the W.

WADEEMAR GAIPE (*Flinders district*) is a spot on the E. coast of Fowler's bay, where good water can be obtained by digging in the sand-hills. There is a small salt lagoon lying to the S.W. of this place, which lies on the track of Eyre's terrible journey from port Lincoln to Western Australia, in 1840. The surrounding country is an arid and scrubby desert, but much of the back country is taken up for pastoral purposes.

WAITE'S HILL RUN (*N.E. district;*) leases, Nos. 576, 572, 316, and 506; occupier, P. Waite; respective areas of leases, 239, 118, 16, and 12 square miles. This run lies in the pastoral country of Eastern plains, near Black rock, the next post town being Koorunga, to the E.

WAITPINGA (*Co. Hindmarsh*) is a S. hundred of the county, extending from cape Jervis to Rosetta head, and containing about a fourth part of its area in purchased land, principally taken up for agricultural purposes.

WAKEFIELD, MOUNT (*Kangaroo island,*) is a peak in the scrubby pastoral country in the middle of the island.

WAKEFIELD, PORT, 34° 10' S. lat., 138° 10' E. long. (*Cos. Stanley and Gawler*) is a postal township and port in the electoral district of Stanley, and hundreds of Goyder and Inkerman, situated at the E. side of the head of the gulf of St. Vincent, and being the place where the wool and other produce of the pastoral country of the counties Daly, Stanley, and Gawler are shipped. There is an aboriginal station at this place.

WAKEFIELD RIVER (*Cos. Gawler and Stanley*) is a fine stream rising in the S.E. part of the county Stanley, and flowing in a W. direction into the head of the gulf of St. Vincent at port Wakefield. It is singularly curved during its course, and contains deep waterholes and a permanent current of good water. It is fed by several small creeks at its upper part, and flows through good pastoral and agricultural country.

WAKEFIELD, UPPER (*Co. Stanley,*) is a district council in the electoral district of Stanley. It is under the control of a chairman, the present one being M. A. King, of Watervale, and 4 councillors. The receipts and expenditure in this district council for 1865 were as follow:—Assessment, £15,083 16s. 9d.—rate, 9d in the pound; rates collected, £507 18s. 6 $\frac{1}{2}$ d.; total receipts, £1190 19s. 11 $\frac{1}{2}$ d.; office expenses and salaries, £1392 1s. 5d.; expended on public works, £758 8s. 6d. The population numbers 2299 persons; the area is 100 square miles, or 64,000 acres; land under cultivation, 17,764 acres; and number of dwelling-houses, 419.

WAKEFIELD, UPPER (*Co. Stanley,*) is a S. hundred of the county, consisting almost exclusively of purchased land, largely taken up for agricultural purposes. The townships of Auburn and Watervale lie in this hundred.

WALDEGRAVE ISLANDS, 33° 36' S. lat., 134° 44' E. long. (*Flinders district W.,*) is the name given to two islands in the Investigator group—a large and a

small one—lying off the S.E. head of Anxious bay. Under the larger island Flinders's ship, the *Investigator*, anchored in 1802, and found shelter during a strong breeze at S.W. by S. This island is joined to the mainland by a sunken reef in a narrow channel, and to the small island a mile W. of it by a similar obstacle. These islands are the most northern part of the Investigator group.

WALDEGRAVE POINT RUN (*W. district;*) lease, No. 664; occupiers, W. J. and J. H. Browne; area, 11 square miles; rental and assessment, £111 8s. 4d. This run lies at Waldegrave point, the next post office being at lake Hamilton.

WALKERVILLE (*Co. Adelaide*) is a small postal village suburban to Adelaide, in the electoral district of Yatala, hundred of Adelaide, and under the control of the district council of Walkerville. It is situated on the Torrens river, in an agricultural, wheat, and hay growing district. There is a post office, a brewery (Ball & Huntley's,) a store, and 2 hotels—the Sussex Arms and the Walker's Arms—in the village. There are several small farmers and gardeners in the village, and a number of suburban residences of gentlemen having business in Adelaide. The nearest places are Nails-worth, three-quarters of a mile N.; Modbury, 7 miles N.E.; Payneham, 2 miles E.; and Stepney, 1 mile S.E. The communication with these places is by suburban omnibus from Adelaide, with which place the communication from Walkerville is by Pywell's and Tucker's conveyances throughout the day. A coach also runs from Walkerville to Modbury twice a-day. The surrounding country is low and flat, and of limestone formation. Walkerville has a public pound, a Foresters' court, and an Oddfellows' lodge. The resident magistrate is G. C. B. Hawker, Esq., J.P.

WALKERVILLE (*Co. Adelaide*) is a district council in the electoral district of Yatala. It is under the control of a chairman, the present one being Mr. E. Smith, of Medindie, Walkerville, and 4 councillors. The receipts and expenditure in this district council for 1865 were as follow:—Assessment, £3809—rate, 1s. in the pound; rates collected, £180 14s.; total receipts, £494 6s. 6d.; office expenses and salaries, £52 0s. 2d.; expended on public works, £366 13s. The population numbers 660 persons; the area is 1 square mile, or 640 acres; land under cultivation, 285 acres; and number of dwelling-houses, 165.

WALLABY, MOUNT (*Flinders district,*) is a peak in the W. end of the Gawler range, first seen by Hack in his journey from Streaky bay to the head of Spencer's gulf in 1857. The surrounding country it now taken up for pastoral purposes.

WALLACE, MOUNT, STATION (*N. district;*) lease, No. 403; occupier, the hon. J. Baker; area, 81 square miles. The station is part of the Pernunna run—which see.

WALLALA RUN (*W. district;*) leases, Nos. 972 and 973; occupier, J. W. Framp-ton; respective areas, 38 and 28 square miles; total rent, £34 per annum. This run lies at Streaky bay, the next post town being Flinders.

WALLAROO, 38° 58' S. lat., 137° 30' E. long. (*Co. Daly;*) is a postal mining township in the electoral district of port Adelaide and hundred of Wallaroo. It lies on and forms part of the Kadipa mineral flat, and has no streams or natural surface water anywhere in the district. The country is exclusively taken up for pastoral purposes and under mineral leases, there being large copper mines near the township known as the Wallaroo mines, and others at a short distance, at Kadina, Moonta, and other places. (See KADINA.) The Wallaroo mines were visited by Mr. Austin in 1863, and described by him as follows:—"Little more than three years since, some excitement was caused in Adelaide by the announcement that a valuable discovery of copper had been made on Captain W. W. Hughes's sheep run at Wallaroo. Copper had been found on the peninsula years before; but the small attempts made at the time to trace the lode were not so successful as to lead to any extended operations. The excitement I have alluded to did not at once become general, but before many months had elapsed there was a perfect *furor* for securing 'claims' at Wallaroo. To such an extent did this proceed, that, to my knowledge, persons who had never seen the place went to the Land office and, asking to see the plans, indicated two or three spots where they desired to take out claims; and some of these 'dips in the lucky bag' resulted satisfactorily! I think I should scarcely exaggerate if I were to say that hundreds of claims were taken out for no other reason than they were north, south, east, or west, of some other claim said to contain copper! Some really good discoveries were made, and many persons who undertook a systematic search for mineral on the peninsula were well rewarded for their trouble. But notwithstanding all the 'splendid prospects,' I think I shall not be

wrong in saying that not more than half-a-dozen out of the hundreds of 'promising mines' on Yorke's peninsula show at the present time any prospect of proving remunerative; and not even half that number are as yet actually paying. Still this is a wonderful mineral district, and when the bad effects of the mania shall have passed away, and mining is pursued in a legitimate and less speculative way, it may be that still greater riches may be brought to light. Of course the treasury benefited largely by the unexpected influx of wealth, derived from the rents of so many sections; besides, 2 large townships were laid out and the land sold at a high price; but, as usual, the proceeds of the whole were absorbed in the general revenue, and the locality which had added so much to the public funds received the usual amount of official neglect in return. The inhabitants complain, and very justly, that nothing has been done by the government to improve their roads; and notwithstanding the scheme for drainage—so essential to the successful prosecution of mining at Wallaroo—which was laid before Parliament, no action has been taken, and the working of one really valuable mine has been stopped in consequence of the 'mad water.' Acres are covered, for a depth of 2 or 3 feet, with water pumped out of the mines, and which must soon percolate back through the light porous soil. Besides this evil, the health of the inhabitants is likely to suffer from the amount of stagnant water which can find no natural outlet. The surveyor-general, in his report, estimated that at least a fair interest on the cost of constructing a drain would be readily paid by the mining companies—yet nothing is done. Perhaps the present Parliament will move in the matter. Private enterprise is generally in advance of governments, and so it has proved at Wallaroo, for a railway has been constructed from the mines to the port, a distance of about 5 miles, by Mr. A. H. Gouge, the Peto of South Australia. Since Mr. Gouge got the railway into working order, a company has purchased it, Mr. Gouge, however, retaining a considerable share. It is in contemplation to extend a branch from port Wallaroo to the Moonta mines (9 miles) as the present line is paying handsomely. I should also state that a fine jetty has been constructed at the port, so that although close in shore the water is shoal, vessels of 1000 tons can load and discharge in safety at the jetty, which is connected with the railway. Before commencing a description of the mines, I may state that the two townships contain many very substantial buildings, the hotels being equal to any in Adelaide. The population of the peninsula, which 3 years ago consisted of a few shepherds, besides Captain Hughes and his family, in a few months after the opening of the mines began to be reckoned by thousands; the number of the inhabitants at the present time is somewhere about 6000. The land is low and undulating, and, in the latitude of the mines it stretches for about 30 miles between the 2 gulfs. The soil is loose and sandy, and abundance of limestone is found in nodules and blocks on the surface. This part of the peninsula is well-grassed, in large patches of pasture land, surrounded by mallee scrub. The first mine which attracts the attention of the traveller proceeding from Clinton, or port Arthur, to Wallaroo, is 'The Cumberland,' which is prettily situated to the left (S.) of the road, on open rising ground, surrounded by scrub. The buildings of the mine are plainly seen from the road, although about a mile and a-half distant. Soon after the working of this mine was commenced, what appeared to be a fine lode was discovered on the surface, but it proved to be only a boil, and ran out in about 3 fathoms. Some fine galena was also met with in a similar way. A considerable amount of work was done with the view of finding the lost lode, but without success. 3 shafts were sunk, one of which was, at the time, the deepest on the peninsula, viz., 27 fathoms; and many fathoms of drives were made, besides costeening. Above 8 tons of good ore, altogether, were raised here; but eventually the mine was abandoned. I shall not pretend to enumerate, much less to give a notice of, all the 'mines' started in this district. I may, however, briefly allude to some of the unsuccessful ones, and amongst these are 'The Finnis claims,' which really deserved to have resulted in a good mine, from the patient, untiring perseverance displayed by the unfortunate proprietors. If some others had pursued as legitimate and systematic a course of genuine mining, in search of ore, as did the Finnis claims company, the state of affairs in connection with their pockets and their claims might have been very different from what it is. One of the first mines which commenced working at Wallaroo after the original Wallaroo mines was the New Cornwall." (See NEW CORNWALL MINE.) The others are the Matta-Matta, Kurilla, Duryea, Yelta, Moonta, Karkarilla, Wheal Stuart, and Wheal Humby—which see respectively. The Wallaroo mine proper is better known by the names of the shafts, the "Home" and "Wombat." There are also Taylor's engine shaft, Young's shaft, and Hughes's engine shaft; the last is the deepest, being

down 40 fathoms. The Home shaft is the next in point of depth, being down 24 fathoms; and the rest are all about 20 fathoms deep. There is also Smith's shaft, which will not be used at present for want of sufficient drainage to carry off the water. The inconvenience suffered from want of drainage is manifest at all the mines on the peninsula, and unless some prompt action is taken in the matter it will become very serious. Captain Warmington states that—"At these mines he has just been obliged to discharge 12 boys in order to allow of a pair of tributers washing their ore; and this need not have been the case had the drainage been such as to admit of arrangements being made to enable the boys and tributers to work at the same time. Thus the poor lads are thrown out of employment, and the mine is deprived of the benefit of their services. The shafts referred to above are all sunk, at considerable intervals apart, on the same lode, running E. and W., and a very considerable length of drives has been made on the course of the lode, besides a large amount of stoping having been done. In Hughes's shaft, at the 40-fathom level, a drive has been carried E. on a splendid course of solid ore, 8 feet in width. At the 30-fathom level and 20-fathom level, E. of Hughes's shaft, there was an extraordinary course of ore, the lode having opened out to a width of 30 feet of good yellow ore, a little intermixed with spar, and having a very small 'horse' in it, but worth nearly 60 tons to the fathom of ore which would produce, as raised, probably 12 per cent. of copper. This course of ore had increased regularly from 10 feet wide at the 10-fathom level, to 20 feet at the 20, and so on. Ten fathoms further E. the lode is 8 feet wide of solid ore. The prevailing nature of the ore in this mine is yellow sulphuret, but a variety of ore has been met with in the course of the workings—red and grey oxides, carbonates and muriates, and a little malleable copper. The average produce of the ores from this mine, I suppose, does not exceed 15 per cent., but the quantity is enormous, and the close proximity to a shipping port (5 miles) and the convenience of a railway passing within a few fathoms of the shafts, would enable the mine to pay with a much lower produce. The extensive smelting works erected at port Wallaroo by the proprietors of this mine should also assist in increasing the profits of the undertaking. These will be noticed by-and-by. There are two engines at present at work, both high pressure, one of 24 and the other of 18 inch cylinder; the latter is used for crushing as well as pumping. An engine-house is just completed for the reception of a fine new Cornish pumping engine, recently imported, of 60-inch cylinder. This will work at Taylor's shaft." Not to tire the reader with a more detailed description of the works at these wonderful mines, the best account we can give of them is the following statement of the quantity of ore raised:—The total quantity of ore sent away from the mines, from the commencement to the 31st January, this year, was 15,910 tons 12 cwt.; and, probably, from 1500 to 2000 tons more are now at grass. About 300 men are employed at wages varying from 4s. 6d. to 7s. 6d. per day. About half-a-mile S. from the Wallaroo mines we see the now abandoned "new Devon mine," which was, for a time, worked with very good prospects of success; some fine ore was raised from a very promising branch lode, but it did not hold out. With regard to the prospects of these mines, the *Wallaaroo Times* of September 26th, 1866, says:—"Although no startling discoveries of minerals have been made during the past month, yet the progress of mining events has been generally satisfactory. Our great mines continue to yield ore in increasingly large quantities, and of the usual percentage, whilst our smaller mines, with one or two exceptions, still keep up their accustomed supplies. The Wallaroo mines are, we are informed, greatly improving and it is said that before long they will equal if not excel the Moonta. The lodes, as they descend, without diminishing in size, increase in richness. The lode discovered some months since whilst cutting a drain is turning out large quantities of ore, and is proving itself to be the richest lode on the mine, the ore containing upwards of 20 per cent. of copper. The new engine at the Wandilla is nearly completed, and will be set to work shortly. Operations are still pressed forward vigorously at the adjoining mine—the New Cornwall. The results of late have not been of a very encouraging character, but there is scarcely any doubt that the mine eventually will pay handsomely. The yield from the Matta is much the same as hitherto. The Matta mine is stated to be out of debt—a significant indication of progress—and is in other respects going on in a highly satisfactory manner. There has been a partial stoppage of operations at the Karkarilla mine. A call of £2 per share has been agreed upon, and we expect soon to see the works pushed on more vigorously than ever. Between 60 and 70 tributers are employed, and are making, it is said, fair wages. Upwards of 155 tons of ore, averaging 28 per cent., were sent away from the

Yelta mine during the month of August, in addition to which a large quantity was at grass awaiting carriage. The various lodes in this mine continue to yield ore of excellent quality and in moderate abundance. There is a well-defined lode at the Euko, but as yet there has not been much copper met with. A new shaft is about to be sunk at the Poona, the proprietors being sanguine of cutting copper there. A lode exists, but there is no copper ore in it. The indications, however, are said to be very 'keenly.' The Wilkawat yields occasional stones of ore from a lode which at a greater depth is expected to become a paying one. We have received no particulars as to the value of the discovery. There are a good many little prospecting companies at work in the district, and the indications in some of the claims lead to the hope that they will turn out paying concerns. On the other side of the gulf there are various parties of men at work. Some splendid specimens of ore have been received from the Yelpie mine, and this property will, we have no doubt, in time amply remunerate the spirited proprietors for their outlay. The increase in the produce of the Wallaroo and Moonta mines is evinced by the additional furnaces in course of erection at the smelting works. These additions comprise 8 reducing furnaces, 2 refining furnaces, and a number of calciners, and when the new furnaces are in operation they will afford the means of augmenting the weekly yield of pure copper to about 100 tons. A Moonta correspondent also sends us the following:—"I have visited or made inquiry about nearly all the mines in this neighbourhood, and find they are, on the whole, looking promising. At the Yelta they are sending up a fine pile of yellow ore, and the lode is very good in the ends, &c. At the Wheal James the lode is about 2 feet 6 inches wide, and contains black ore and mundic, and is said to resemble the lodes in Cornwall more than most lodes in the colony. There is copper in 3 shafts now at Wheal Hughes. In the last, or No. 3 shaft, they have got malleable copper very good. At the Euko they have commenced to drive at the 14-fathom level, with the hope of meeting with the lode which is thought to be a little south of the shaft. The appearances are said to be very encouraging. The Poona is still very poor, as the miners say. Still everyone is convinced that it will prove a remunerative mine. Things are not very cheering at the Karkarilla. A good part of the mine is now set on tribute. The proprietors of these mines exhibited at the Melbourne exhibition of 1866 yellow ore, copper pyrites, from the 50-fathom levels, 25 to 30 per cent.—and from the 20 to 50-fathom levels, 20 to 30 per cent.; purple copper, from the 10-fathom levels, 40 to 50 per cent.; muriate of copper, from surface to 5-fathom level, 20 to 30 per cent.; grey ore, from the 10-fathom levels, 40 to 50 per cent.; red copper ore, red oxide, from the 10-fathom levels, 50 to 60 per cent.; iron pyrite ore, with muriate, from the 5-fathom levels, 25 to 30 per cent.; grey ore, red oxide with native copper, from the 10-fathom levels, 50 to 60 per cent.; muriate of copper, from the 5-fathom levels, 20 to 30 per cent.; black ore, with native copper, from the 10 to 20-fathom levels, 40 to 50 per cent.; black and yellow ore, from the 30-fathom levels, 20 to 30 per cent.; clay slate—the country in which the lodes of the Wallaroo mines run. Four photographic views descriptive of the works.

"The smelting works at Wallaroo are the most extensive in the colony, and the largest, I believe, out of Swansea. There are at present 22 furnaces, under a galvanised iron roof, measuring 695 feet in length, by 55 in breadth; 10 feet high to the wall-plate, and 18 feet to the ridge; besides a refinery containing 3 furnaces, and measuring 80 feet by 50 feet in the clear, and 27 feet high. The sides of the shed over the furnaces being necessarily open, the roof is supported on massive stone arches. When rain falls, an immense quantity of water is collected on so large a surface. Tanks are constructed to hold 50,000 gallons of water, and during a heavy shower the water from the roof completely fills the main pipe, of 8 inches diameter, leading to the tanks. 18 furnaces are at present in operation, besides the 3 refining furnaces. Wood is burned in the latter, and in some of the others; the remainder burn coal. Over the furnaces is a tramway, leading from the place where the ore is prepared for smelting, and the crushed ore is put into a truck having a simple contrivance for tilting, so as to shoot the contents into the hoppers over the furnaces. The building runs parallel with the beach, and close to the sea is a culvert 6 feet high and 6 feet wide, built of stone and slabs of slag from the furnaces, moulded into the shape of bricks, but much larger. This culvert, running parallel to the furnaces, receives the smoke from them, through flues passing downwards into it, and communicates with the chimney-stack by means of another culvert at right angles to it. A tremendous draught is thus obtained, and the heat generated is intense. We walked into a part of the culvert, and, through an aperture in a temporary party wall, could see, feel, and hear the effects of

the tremendous blast of hot air rushing through. The chimney-stack is a fine pile of bricks and mortar, being 120 feet in height, 24 feet square at the base, and 12 feet at the summit. The walls at the lower part are 5 feet in thickness, having a lining of firebrick, and a space or chamber for the admission of cold air between the exterior and interior of the stack. The air is admitted through holes in the ground, which lead to apertures in the foundation of the stack; these holes are covered with gratings. Nearly 300,000 bricks have been employed in this erection. This huge chimney is on a bank about 25 or 30 feet above the ground where the furnaces are built, and a flue or culvert slopes upwards from the culvert behind the furnaces to the base of the chimney, which is 150 feet from the culvert connected with the furnaces. The assay office in connection with this establishment is very complete, and fitted up with every convenience. The draughts necessary for blowing the fires are introduced from the large culvert near the great chimney. There are two or three furnaces of different descriptions, and a sand bath for boiling chemical tests in porcelain vessels. To prevent any danger from the fumes there is a glass cover over the sand bath, so that the operator can watch the process, while the fumes are carried through a flue to the outside of the building. Mr. Ludwig Sieger, of the University of Munich, has the appointment of assayer and analytical chemist, and rejoices in the completeness of the establishment over which he presides. There are also 4 large furnaces for burning the yellow sulphuret ores, to drive off the sulphur, before putting them into the smelting furnaces. A few bushels of wood are sufficient to start them, and the ore will continue to burn fiercely until the sulphur is consumed; a great saving of fuel is thus effected. There is a crushing engine of 16-horse power, for reducing the ore to powder before smelting. The offices, &c., in connection with the establishment make it as complete as could be desired. The erection of these immense works was planned and designed by Messrs. G. and E. Hamilton, architects and civil engineers, Adelaide, and I believe they received several suggestions, as to the practical part from Mr. Lysson Jones, the superintendent of the smelting, and formerly of the Patent Copper company's works at the Burra, and more recently of Kapunda. About 150 hands are employed here, besides wood-carters, and the rate at which pure copper is made is, at present, from 36 to 40 tons per week; much more could be accomplished if the works were in full operation."

The proprietors of these works exhibited at the Melbourne exhibition of 1861 a number of specimens of ore in various stages, also of coarse and refined copper, and of sulphur and superphosphate of lime produced at the works. The nearest places to Wallaroo are Kadina, S.E., distant 6½ miles, situated on a plain near Wallaroo mines; Moonta, S., distant 11 miles, situated about 4 miles from the sea; the communication being by tramway. With Adelaide, 116 miles S.E., the communication is by coach over natural road, or by coasting vessel. The hotels are the Globe, Cornucopia, Prince of Wales, Ship inn, Commercial, Wallaroo inn, and Smelters' home. There is in the township the office of the Kadina and Wallaroo railway and pier company (limited,) with extension to Moonta. The surrounding country is gently undulating; the highest land for 20 miles from the sea does not rise to a greater height than 200 or 250 feet. The geological formation is the tertiary, we believe, but presents several peculiar features, here and there a kind of bastard granite or sienite is seen cropping out; porphyritic and quartzose rocks are found, also schistose rocks, sandstone, indurated clay slate, schorl, micaceous rocks, &c.; but limestone of various kinds and degrees of hardness is very abundant. A rock, which is believed to be a kind of limestone, is full of fossils of shells and fish. It is intensely hard, and being found in large blocks is used for building the engine houses on the mines. The geological formation of the peninsula, in connection with its vast mineral deposits, render it a place of interest to the scientific student. Game abounds here in the shape of kangaroo, wombats, wallaby, and similar animals; turkeys also are by no means uncommon, while wild ducks and even geese are found in the winter season, besides other birds, including the native companion. No springs of good fresh water are found within several miles of Wallaroo, the water obtained by digging being in every case intensely salt. The population numbers about 2000 persons. Wallaroo has a local court, a post and money order office, a telegraph station, a jetty at the port, an aboriginal station, an Oddfellows' lodge, a Foresters' court, a public pound, a volunteer rifle corps, and branches of the National bank and the South Australian insurance company. The resident magistrates are J. Duncan, P. A. Nation, J. B. Shepherdson, and J. B. Young, Esqs. It has been proposed to construct a tramway from Wallaroo to Clare, and the committee appointed to inquire into the practicability of the scheme have brought up their report:—"The computed length of the line from Kadina to the

suggested terminal point 'near the western range in the hundred of Clare,' allowing for deviations, is 55 miles, and the estimated cost, at £1700 per mile, is £93,500, to which they add £6500 for stations, stables, and extras, making a total of £100,000. The cost of trucks, horses, and harness is put down at £2556, and the working expenses of one year are reckoned at £5228 16s. The total traffic is estimated at 20 tons per day during 312 working days in the year, and the price of carriage at 20s. per ton. The passenger traffic is put down at the very moderate estimate of 4 passengers each way daily, at 10s. each. The total annual traffic which it is thought could be reckoned on, supposing the railway were now completed, would thus amount to £7492; but it is estimated that in 3 years' time—which is the earliest time the railway is likely to be completed—the traffic would be double what is at present. The report concludes thus:—"1st. This tramway would pass through 45 miles of unsold Crown lands, thereby materially enhancing their value. Say it would enhance their value to the same extent of 5s. per acre for 5 miles on each side of the road, each mile of tramway would raise the value of 10 square miles of land, or, in other words, each mile of tramway would raise the value of 6400 acres of land 5s. per acre, or £1600 per mile, thus providing for the repayment to the government of £72,000 out of the total of £100,000 required. 2nd. It would greatly stimulate the production of all the minor kinds of agricultural produce in the northern hundreds by opening up a market for them, of which they are at present entirely devoid; and wheat, by reducing the price of carriage to the sea-board (this item falling more heavily on the farmers in these districts than any other in South Australia, and oftentimes amounting to one-third of its value,) it would reduce this from 1s. 3d. per bushel, its average rate, to 6d., thereby affording great relief to the agriculturists. It would greatly facilitate communication between two of the most populous and industrious communities in the province, mutually benefiting both, and would open a first-class port frequented by shipping with every convenience (the jetty being already made) for the export of the yearly increasing agricultural produce of the northern hundreds."

WALLAROO (*Co. Daly*) is a hundred lying on the W. side of the county, and on the E. side of Spencer's gulf. It is celebrated for its copper mines which lie at Wallaroo, Moonta and Kadina, both townships in the hundred. The seaport of Wallaroo lies on the coast, and is also within the hundred. The purchased land is limited in extent. In this hundred is a steam flour mill, working 2 pairs of stones by a steam engine of 12 horse-power.

WALLAROO PORT OR BAY, (*Co. Daly*), is a shipping port lying on the W. coast of Yorke's peninsula, near the township of Wallaroo, and is an important place for the exportation of copper from the Wallaroo, Kadina, Moonta and other mines on the peninsula. A dangerous reef, nearly dry, lies about 10 miles W. by S. of this bay.

WALL (*Co. Sturt*) is an agricultural settlement near Reedy creek, and situated between the townships of Tungkillo and Mannum. It is inhabited by a few farmers engaged in the culture of wheat and other produce.

WALL CREEK (*Flinders district N.*) is a good gum creek with grassy banks lying to the N. of the Bagot range and on Sturt's exploration route of 1860. There is abundance of mulga scrub in the neighbourhood of this creek, with gum trees having large gouty swellings growing in the sandy soil. The bark of these trees is smooth, and of a pure white; the trees are affected with gall-flies, which produce gall nuts as large as turnips, the larvæ having somewhat the taste of artichokes, and being considered a luxury by the aborigines.

WALLIANIPPIE, postal name Smoky Bay, 32° 15' S. lat., 133° 50' E. long. (*Flinders district*), is a postal station in the electoral district of Flinders, lying on the coast of Smoky bay, and being the central post office for the surrounding country. It lies about 4 miles from an inlet of the sea, not navigable, called Lindsay creek, which flows into the head of the bay. The district is exclusively a pastoral one, sheep being largely depastured on the belts of available country in the neighbourhood. The nearest place is the township of Flinders, on the E. coast of Streaky bay, at 45 miles distant S.S.E., the communication being by horse or private conveyance, and the mail being carried on horseback. With Adelaide, 450 miles S.E., the communication is by coasting vessel, or overland to port Lincoln, and thence by steamer. The surrounding country is low and flat, gradually rising inland, but to no great height. It consists of sandy flats and scrubby plains, with salt lakes, and occasional patches of lightly

grassed and timbered land. Water is obtained by digging wells in the sand-banks lining the shore. There is an aboriginal station at this place. The geological formation is limestone.

WALLIANIPPIE STATION (*W. district*;) occupiers, Heath and Wooldridge. This run includes the stations known as Alpachina, Yonnamura, Edrielpa, Prorellala, Cardella, Muraminga, Wangalongoorina, and Choonbeingina, and has an area of 200 square miles, and a grazing capability of 10,000 sheep, there being also 12 horses on the run. It lies 45 miles N.W. of the township of Flinders, Streaky bay. This run includes leases Nos. 796, 917, and 947.

WALLOWAY STATION (*N. district*;) occupier, Price Maurice, is part of the Pekina run—which see. This station comprises leases, Nos. 311 and 383, and has a total area of 170 square miles.

WANA RUN (*W. district*;) lease, No. 52A; occupier, W. J. and T. H. Browne; area, 7 square miles; grazing capability, 700 sheep, or 100 per square mile; Goyder's valuation, £15 per annum, deducting improvements valued at £50. This run lies on Sleaford bay, 12 miles south of port Lincoln and 420 miles overland from Adelaide. This, with other leases held by the same occupiers, grazes 6200 sheep and 25 head of cattle, and has an area of 108 square miles.

WANDILLA (*Co. Burra*) is the head station of J. and A. Hallett, and lies near Kooringa. See also CAROONA.

WANEA (*Flinders district*;) See PONARA.

WANGALONGOORINA STATION (*W. district*) lies 60 miles N.W. of the township of Flinders; occupiers, Heath and Wooldridge. See WALLIANIPPIE.

WANGARY (or WAUNGERRI) LAKE (*Flinders district W.*) is a picturesque sheet of water, lying about 25 miles W. of port Lincoln, in good pastoral country. It is 1½ miles long and ¾ mile wide. The surrounding land is of excellent quality. The next post town is Warrow, 10 miles distant N.W., with which place there is communication by mail car once a fortnight. There is a post office and 1 hotel—the Traveller's Rest—at Wangary, which lies 236 miles W. of Adelaide.

WANGARY RUN N. (*W. district*;) lease, No. 73A; occupier, W. R. Mortlock; area, 10 square miles; grazing capability, 450 sheep, or 45 per square mile; Goyder's valuation, £15 per annum. This run lies to the N. of lake Wangary, and 23 miles W. by N. of port Lincoln. On this, and on the Wallana, Strawberry hill, and other runs held by the same lessee, are 18,000 sheep and 50 head of horses.

WANGARY RUN, S.E. (*W. district*;) leases, Nos. 146 and 495; occupiers B. and H. Holroyd; respective areas of leases, 14 and 10 square miles. This run lies to the S.E. of lake Wangary, the next post office. Rentals, £42 and £17 10s. per annum.

WANILLA RUN, No. 1. (*W. district*;) lease, No. 75; occupier, J. Anderson; area, 18 square miles; grazing capacity, 2700 sheep, or 150 per square mile; Goyder's valuation, £143 8s. per annum, deducting improvements valued at £58. This run lies 20 miles N.N.E. of port Lincoln, and 395 miles by overland route from Adelaide. This run also includes lease, No. 547, which has an area of 44 square miles.

WANILLA RUN N., No. 3 (*W. district*;) lease, No. 741; occupier, P. Levi; area, 42 square miles; rental, £21. This run lies 20 miles N.N.E. of port Lincoln.

WANKARINGA STATION (*N. E. district*) is a squatting station, occupied by G. Hiles, and lying 25 miles N.E. of Black rock. It has an area of 270 square miles, and a grazing capability for 18,900 sheep, or 70 sheep to a mile. The head station is Mungibbie.

WANOTTA CREEK (*Flinders district N.*) is a small creek flowing in the pastoral (sheep) country round mount Deception. It is about 12 miles distant from the postal station of Beltana or mount Deception.

WARAULTEE ISLAND (*Yorke's peninsula*) is a name of Wardong island—which see.

WARAULTEE STATION (*Yorke's peninsula*;) lease, No. 965; occupier, S. Golds-worthy; area, 8 square miles; rent and assessment, £10 11s. 8d. This run lies on Wardong or Waraultee island, in the E. part of Spencer's gulf—the next post town being Moonta.

