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❁ The ❁

North-Eastern Goldfields.



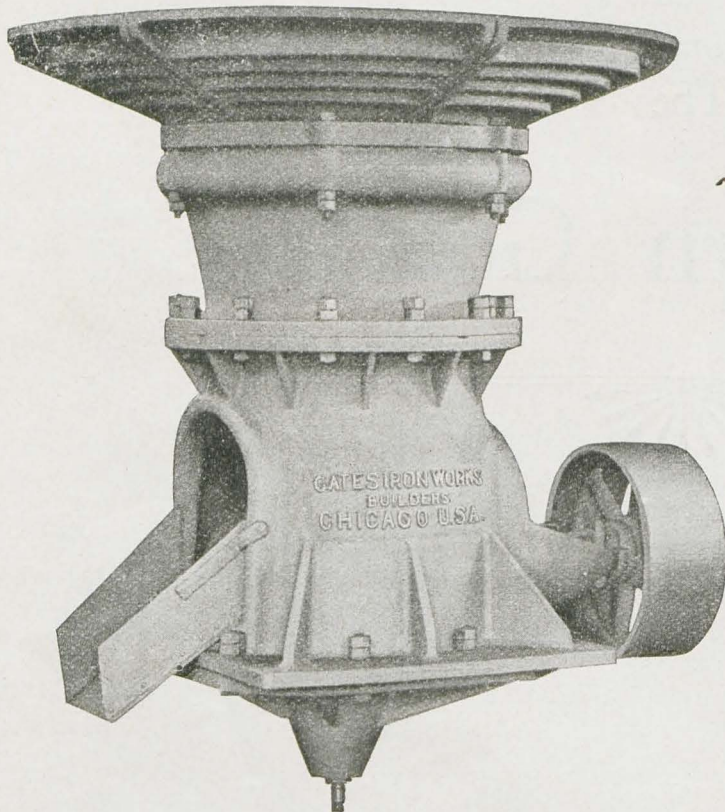
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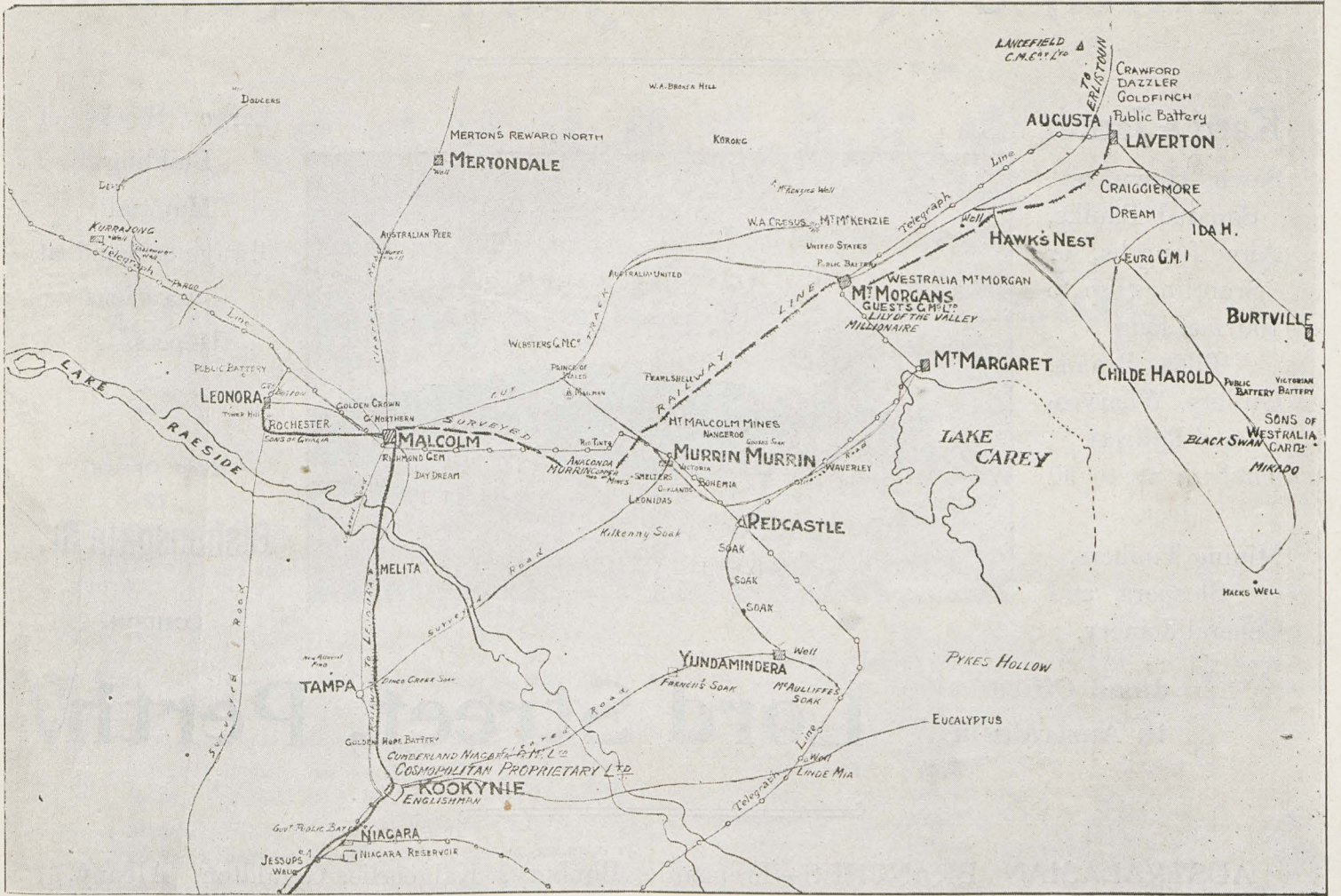
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ROUTE MAP.

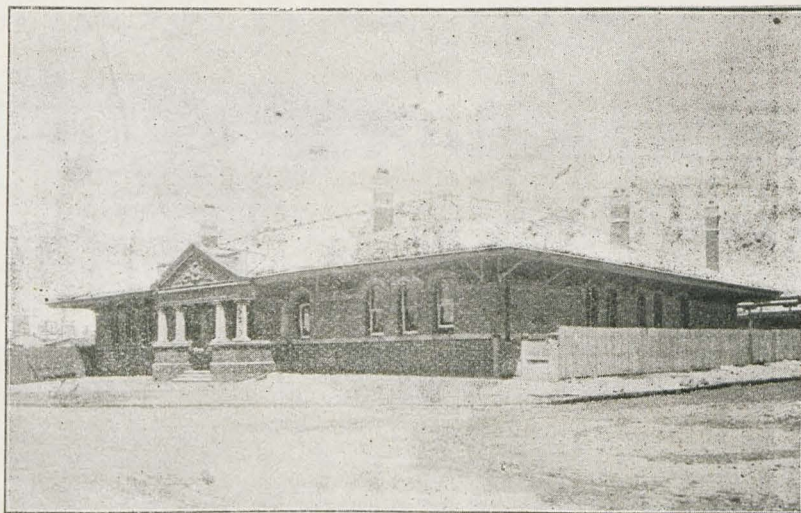
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The North-Eastern Goldfields.



FROM KOOKYNIE TO LAVERTON.



HOW TO GET THERE.

WHAT IT COSTS.



INTRODUCTION.

WHAT have you beside the Golden Mile in Westralia? Take that away, and there's nothing left." This is what a stranger within our gates might remark, and naturally enough, because the Golden Mile has been boomed the world over, and has established a unique record, so far as much boomed places are concerned, in that it has more than realised the most sanguine boomster's anticipations in actual results. The Golden Mile is in the East Coolgardie Goldfield, and may, for all practical purposes, be said to be "the" East Coolgardie Goldfield, and the output of that field is shown in the following table:--

EAST COOLGARDIE GOLDFIELD.

OUTPUT.

Year.	Quantity. Oz.	Value. £
1896	85,287	324,090
1897	300,037	1,140,141
1898	450,312	1,711,186
1899	923,617	3,509,747
1900	810,906	3,081,445
1901	1,033,670	3,697,833
1902	1,172,405	4,182,799
1903 (to May 31)	575,743	2,053,483

At £3 11s. 4 $\frac{1}{4}$ d. per ounce.

Average per ton of ore milled 1901—1.42oz.; 1902—1.31oz.

It is known to few, however, that, beyond Kalgoorlie, further north-east than the 90-Mile—or Menzies, as it is now known—lies a new Eldorado where Golden Miles are being gradually and steadily developed, and into this region—the Mount Margaret field—it is proposed in this small volume to take the visitor. Although one of the youngest goldfields, Mount Margaret ranks only second to East Coolgardie in its gold yield.

MOUNT MARGARET GOLDFIELD.

OUTPUT.

Year.	Quantity. Oz.	Value. £
1987 (from Aug. 1)	8,685	33,006
1898	43,267	164,413
1899	81,807	310,905
1900	141,523	537,787
1901	198,808	745,530
1902	216,637	812,389
1903 (to May 31)	87,576	328,410

At £3 15s. per ounce

Average per ton of ore milled 1901-1902, .76oz.

The Niagara district, in the North Coolgardie Goldfield, will be touched upon, because, although in a field distinct from the Mount Margaret, the growth of Kookynie and its surrounding mines is coincident with the progress of the district beyond Menzies, while the extension of the Menzies-Laverton railway had its first section here. In fact, Kookynie is a much younger town than Mount Morgans, which it bids fair to out-rival.

Also, the statistics as to population, the conditions of everyday life, the cost of living, and the cost of travelling, together with the route, will be interesting and valuable, not to the casual visitor alone, but to many to whom this rich country is a terra incognita at present, though they live in the State. By contrast with Kalgoorlie, the progress of these

North-Eastern towns has been even more rapid than that of the metropolis of the Eastern Goldfields, which, less than a decade ago, was a dusty, scrub-covered desert patch, with just a few prospectors' hessian or bag humpies, while to-day there are well-made streets, lighted by electricity and planted with sugar gums and pepper trees along the edges of the footwalks; electric overhead trolley trams to convey the public speedily whither they wish, at moderate rates; separate cycle tracks in all the streets for those who use this popular means of locomotion; stone and brick buildings, of two or three storeys; hotels, which are not excelled by the finest in Perth in regard to appointments and cuisine; and last, but not least, water laid on by means of what may be truthfully said to be one of the finest engineering schemes of the century, generally known as the Coolgardie Water Scheme.

It may not be amiss, later on, to give a few details of this undertaking.

What does the traveller find in the Margaret field, and all within the space of five years? Big stone and brick hotels, lighted by electricity, and equipped in the most modern style; the streets well-formed and graded, and lighted by electricity; and water laid on—not from the great scheme however, but from the natural supply, for the Mount Margaret, unlike its elder sisters, the Coolgardie, East Coolgardie, North Coolgardie, and North-East Coolgardie fields, has abundance of natural fresh water, and embraces vast tracts of good pastoral country, so that it has its own meat supply—far better meat than in Perth—drawn from the herds of the Nor.-West, the stock being travelled overland.

Moreover the field has been made the scene of an unique experiment in social legislation, for at Gwalia, two miles from Leonora, is the Government State hotel, or as it is facetiously termed "the Government pub." A view of it is given with details of its working, and particulars as to results to date. Lord Grey's scheme has worked wonders in the Motherland, and what the future may hold in regard to State hotels, depends largely on the success or otherwise of "the Government pub." at Gwalia.

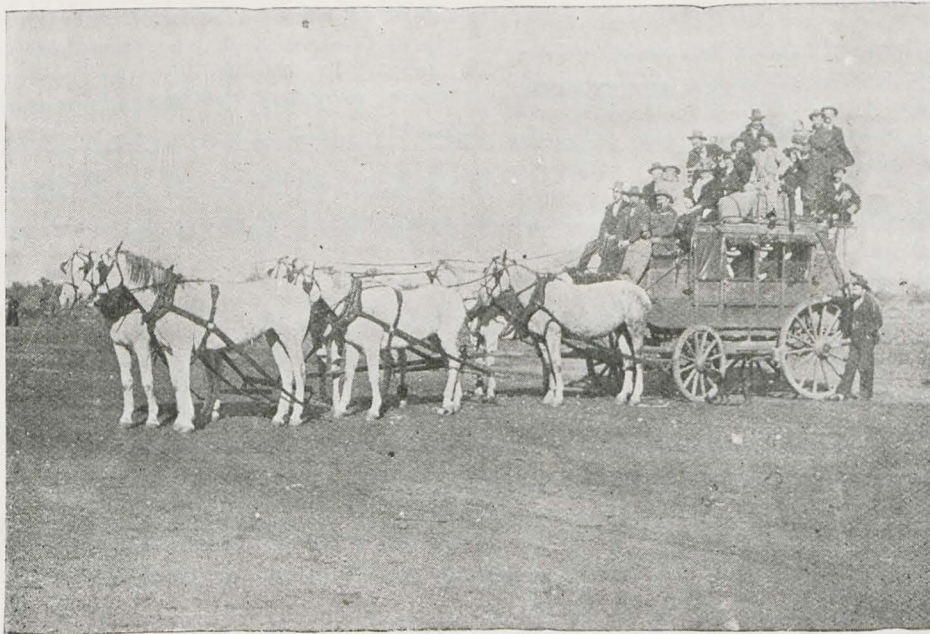
To get down to bedrock. What every man wants to know about the "Margaret" is

- (1) How to get there.
- (2) What it will cost.
- (3) What are the opportunities and openings offered for energy and capital.
- (4) What is the cost of living.
- (5) What are the conditions of life.

business premises, and so on, are reproduced. All particulars herein may be relied upon, as the details have been collated on the spot, and are acquired by actual experience, so that the value of the work lies in its accuracy.

THE MOUNT MARGARET GOLDFIELD.

The Mount Margaret Goldfield, as before mentioned, ranks second in the State as a gold-producer, though only in



A BACK COUNTRY COACH.

All these particulars are given in this book, and in order that what is set down may be more easily assimilated mentally, photographs of all places of interest, towns, mines,

the sixth year of its existence. Originally part of the North Coolgardie Goldfield, it now comprises three districts, Mount Malcolm, Mount Morgans, and Mount Margaret, and has a

total area of 42,252 square miles. The Warden's headquarters are in Mount Morgans, because of the central position of that town.

The field had practically to rely upon itself, as very little capital came from outside. In many instances crushings from the mines had to be depended upon to provide the machinery needful for further development. The district was also hampered by the lack of transit facilities, but this has been greatly relieved by the extension of the Government railway from Menzies to Malcolm and Leonora. The line is at present in course of construction to Mount Morgans, and thence it is proposed to take it to Laverton.

The methods adopted by the James Government, in erecting public batteries, will doubtless relieve to a large extent the hardships which in many cases have been endured by prospectors, who, having medium-grade propositions, frequently had to abandon their "shows" before they were sufficiently developed to warrant the speculator placing money in them. There are three State batteries on the Mount Margaret field, one at Leonora, one at Laverton, and another at Burtville.

The population was estimated to be, on December 31, 1902, 6,025 persons, distributed as follows:—Mount Malcolm, 2,741; Mount Morgans, 1,114; and Mount Margaret, 2,170.

The rain fall last year averaged 10 inches, and several market gardens are in full cultivation, and the vegetables are excellent and far superior to the imported, but the prices are rather high. Several pastoral leases have been taken up; the ruling price of meat being from 8d. to 1s. 3d. per lb., according to the "cut."

The rate of wages per week, as compared with East Coolgardie, is as follows:—

		EAST COOLGARDIE.															
Miners.		Above Ground.		Underground.		Eng. Drivers.		Mechanics. Carpenters. Labourers									
£3	10	0	£4	3	0	£4	5	0	£4	10	0	£4	10	0	£3	0	0
		MOUNT MARGARET.															
£3	10	0	£4	0	0	£4	10	0	£4	10	0	£4	10	0	£3	10	0

The total number of miners employed on the field in 1902 was—Above-ground, 884; underground, 1,253; total, 2,137. In the East Coolgardie field there are 6,254 miners employed—3,250 above-ground, and 3,024 underground.

Taking the three districts separately, and including alluvial miners, the figures are:—Mount Malcolm, 964; Mount Morgans, 470; and Mount Margaret, 771.

THE RAILWAY JOURNEY.

In order to make matters as clear as possible, the principal towns on the railway line after leaving Menzies will be dealt with first in the order they are reached, and it may be well to give the distance from Perth and the fares straight-away. The map will give the necessary idea of the locality more clearly than could be set down in writing.

Station.	Miles.	Single.		FARES.					
		1st.	2nd.	Return.		1st.	2nd.		
Niagara	489	£4	1 3	£2	10 8	£6	1 11	£3	16 0
Kookynie	493	4	1 11	2	11 1	6	2 11	3	16 8
Malcolm	521	4	6 7	2	14 0	6	9 11	4	1 0
Gwalia	534	4	8 9	2	15 9	6	13 2	4	3 2
Leonora	536	4	9 1	2	15 7	6	13 8	4	3 5

There are four trains daily to Kalgoorlie and their times of starting may be seen from the published time-tables. For the purpose in hand, however, the express, which leaves Fremantle at 6.40 p.m. and Perth at 7.30 p.m. every day, except Saturday, will be taken.

Sleeping berths may be obtained at a cost of 10s. each, and these should be applied for early in the morning as there is a good deal of passenger traffic to the fields. The express is due at Kalgoorlie at 1.5 p.m., the following day. On the route refreshments and meals are always obtainable, the price being 2s. 6d. per meal; and due provision is made of time in which passengers may eat.

An hour is available at Kalgoorlie for luncheon and this costs in an hotel 3s., and the 3s. Zone may be said to be entered here—3s. per meal and 3s. per bed: 12s. a day—and this is the standard rate throughout the goldfields.



RAE BROS

CUMBERLAND STREET, KOOKYINE.

Roy Millar, Photo.

The train for Niagara leaves at 2.15 p.m.—it is generally called the “Menzie’s train,” because, until recently, when the line was extended, Menzie’s was the distributing centre—and is due at Niagara 8.25 p.m., Kookynie 8.31 p.m., Malcolm 9.56 p.m., Gwalia 10.29 p.m., and Leonora 10.35 p.m. Thus in round figures the journey to Leonora may be accomplished in 26 hours, and without discomfort.

NIAGARA.

The glory has departed from Niagara, which in 1895 was a flourishing town. In the old days it was a coaching town and a busy centre. Now Kookynie has supplanted it, but there are many good shows round Niagara, and at the time of writing there were outward and visible signs of things taking a turn for the better.

Niagara is a “mud” town, nearly every building in the place being constructed of sun-dried mud bricks. In adobie building the clay is sunk in mould frames and allowed to settle and dry; in mud brick building each particular brick is formed and dried and then laid. These bricks are about four times the size of ordinary bricks and the buildings are very cool and present a solid appearance.

The population of Niagara is small—about 75.

There are four hotels, two stores, a butcher, and baker. The town possesses a post, telegraph, and money-order office.

The water supply is obtained from the Government reservoir; and the pan sanitary system is in use.

There are about 50 prospecting “shows” within a radius of two miles, and on the Eagle Hawk a 10-head battery is being erected. About a mile outside the town is a State battery and cyanide plant (10-head), which was started on public crushings in November, 1900.

Of the leases, the Opal, Pearl, Heather, and Pine Lodge have been sold to companies, the first being owned by the Hannan’s Main Reef Company. They were all practically abandoned shows until the advent of the State battery.

The deepest shaft on the leases round Niagara is 180ft.—water level—and the ore bodies vary in size. The quartz is friable in character and easy to crush. In all 7,000 tons have been crushed at the State battery for a yield of 9,000oz.

There is in the town a Mechanics’ Institute, in which is a library; and the attendance at the local school is increasing every month.

KOOKYINIE.

Kookynie, 493 miles from Perth, and 1,497ft. above sea level, is the town next Niagara.

The town, which has an area of two and a-quarter square miles, was incorporated on May 22, 1902; and is governed by nine Councillors, exclusive of the Mayor. Half-a-mile (of the $2\frac{1}{2}$ miles of streets, within its boundaries) has been formed at a cost of £23 per chain.

The total number of buildings within the municipality is 400; and the population 2,320, made up of 1,693 males, 331 females, and 296 children. The municipal rate is 1s. 3d. in the £. The sanitary system employed is that of sealed pans.

There are seven hotels and a workmen’s club, five general stores, three drapers, and four confectioners and greengrocers, etc., besides stationers, tobacconists, and so on. There are a State school, hospital, and post, telegraph, and money-order offices. The water supply is derived from wells, and mains are being laid down for service in case of fire and for street watering. The water is fresh and of good quality, and the town has an excellent swimming bath, which is a great boon in the summer months.

An electric light installation to comprise, 7 arc lamps for street lighting, supplemented by 15 kerosene lights, is at present being established.

The maximum shade temperature recorded last summer was 112 deg. Faht, and the minimum, in winter, 46 Faht.

The town supports two newspapers, one published once and the other twice a week.

Fruit and vegetables of all descriptions are plentiful.

PUBLIC LIBRARY of W. A.



NAE BROS

McADAM'S NATIONAL HOTEL, KOOKYNIIE.

Banks also have branches in the town, and some very handsome brick buildings adorn the streets; which are very level, as the town is in flat country.

fore anybody guessed that, within a year and a-half, the town would become what it now is. The rooms in both hotels are large and comfortable, and they are lighted by electricity.



THE KOOKYNIE HOTEL.

In contrast to each other may be cited Campbell's Kookynie Hotel (the first hotel in Kookynie) and McAdam's National Hotel, of which buildings illustrations are here given. Although the front of the Kookynie Hotel is not so imposing as that of the National, numerous additions in brick have been made in the back, but as a landmark of the early days the front remains almost identical with what it was be-

Bathrooms are on the premises, and the traveller will find in regard to menu and appointments much to marvel at, considering the brief period in which all these things have been accomplished.

Last, but not least, the town has an excellent recreation ground and racecourse, and on the latter the Kookynie Turf Club hold three meetings annually.

THE COSMOPOLITAN GOLD MINE.

On the town boundary is the Cosmopolitan Gold Mine, which practically brought Kookynie into existence. The mine is owned by the Cosmopolitan Proprietary, Ltd.

The following is the output of the mine:—

	Tons	Ozs.	Value
1898 ...	208	187	£698
1899 ..	9,901	9,067	35,363
1900 ...	15,430	14,246	54,992
1901 ...	15,288	22,719	81,740
1902 ...	57,171	50,222	181,991

The following are the monthly returns during the present year;—

1903	Tons	Value	Value per ton
January ...	6,028	£14,244	£2 7 3
February ...	6,031	15,600	2 11 8
March ...	6,957	18,403	2 12 10
April ...	7,126	18,708	2 12 6
May ...	7,459	19,823	2 13 1
June ...	7,607	19,104	2 10 2
July ...	7,734	19,872	2 11 4
August ...	7,803	20,333	2 12 1
September ...	7,678	19,832	2 11 8

The depth of the main inclined shaft on September 30, 1902, was 1,135ft.

The general managers are Messrs. Bewick, Moreing and Co., the local superintendent being Mr. W. H. Shipman.

MALCOLM.

By the time this book is in type the railway line will, in all probability, have been completed to Mount Morgans, north-east of Malcolm, whence it will, at a later date, be extended to Laverton. At the time of writing, Malcolm is the terminus, but a branch line runs westward to Leonora.

Malcolm is an old town—so far as goldfields towns go—having been incorporated in October, 1900. It is 521 miles from Perth, at an altitude of 1,360ft. above sea level. The area of the municipality is one square mile, and its destinies are controlled by a Mayor and six Councillors.

The town is scattered in appearance and lacks compactness, there being many unsightly gaps along the building-line of its streets. There are seven miles of streets, of which 36 chains have been formed and four miles cleared. Sixteen kerosene lamps serve to light these streets by night.

Within the town boundaries are 210 buildings, and the population is 450, of whom 255 are males, 120 females, and 75 children.

The increase in the proportion of females to males in the older towns will be apparent and is in the natural order of things, as places become more settled and their permanency more assured. A municipal rate of 1s. 4d in the £ is levied; and the sealed pan sanitary system is employed.

There are five hotels in the town, as well as a brewery, and an equal number of stores. There are postal, telegraphic, and money-order offices; and a State hospital.

The rainfall per annum averages eight inches; and the water supply for the town is derived from five good wells, all equipped with windmills. The maximum shade temperature last summer was 120 deg. Fahr., and the minimum (winter) 34 deg. Fahr.

Vegetables are supplied from three local gardens, the supply being supplemented from Perth, which provides fruit also. Fresh milk is obtainable from a dairy in the town.

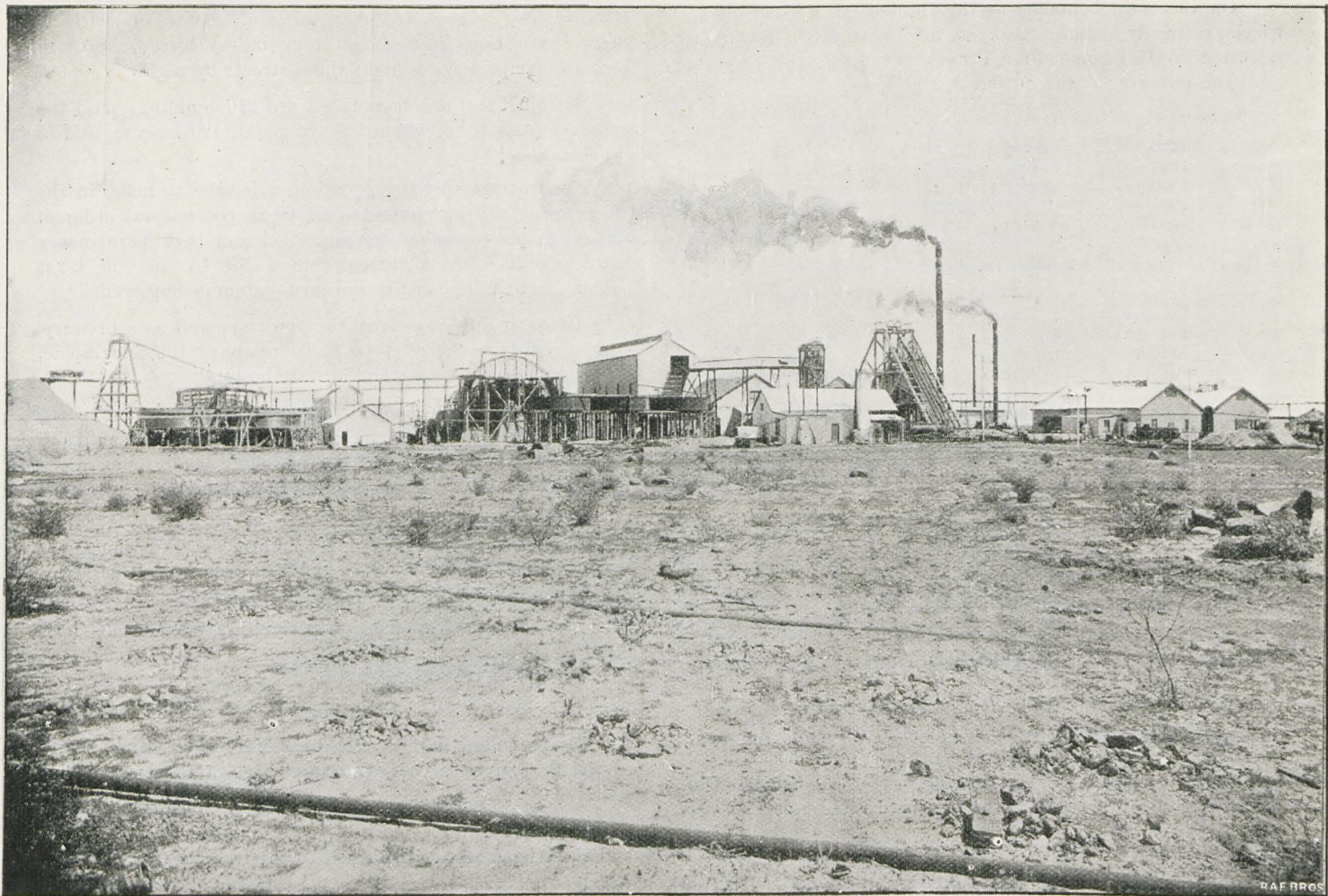
A local court is held monthly, and a warden's court fortnightly.

The Richmond Gem Gold Mine, which has passed through many vicissitudes, is working, and is just outside the town.

Twelve miles east is Webster's Find Gold Mine, owned by the Perseverance G.M. Ltd., and both of them are paying well.

The "Pig Well" leases are about 12 miles north of Malcolm, and these have been coming well to the front of late.

There is an hotel there at the parent lease, "The Flying Pig," which rejoices in the name of "The Wattle Bark Hotel"; and within a radius of a mile about 60 men are working. The



THE COSMOPOLITAN, KOOKYNIE.

Roy Millar, Photo.

chief "show" is "The Harriston," named after its finder Harris, a drover for a Mal'co'm butcher. A recent crushing of 232 tons averaged 4oz. per ton.

MERTONDALE,

Where is situated the erstwhile famous Merton's Reward Mine, is eight miles further north.

At Mertondale there are three hotels and four stores, and at present it appears to be simply a question of the survival of the fittest. Mining matters are very quiet.

There is a cleared track to Mertondale via the Pig Well, and the journey may be accomplished either by horse and buggy, bicycle, or on foot. Of course, there are many other leases working in the district, as will be seen by the map, but the limited space at our disposal allows only reference being made to those, which are at the moment attracting attention.

Harking back to the railway, the next place is

GWALIA.

534 miles from Perth, where is situated the famous Sons of Gwalia Mine—and an unique experiment in social legislation, the Gwalia State Hotel, of which an illustration is given. This hotel was erected by the Government, from plans prepared by Mr. W. E. Robertson, architect, at a cost of £4,800, and its furnishings and stock cost another £1,200. It was built mainly for the benefit of the men working on the Sons of Gwalia Gold Mine, on the boundary of which it is situated. The hotel is comfortably equipped, and contains on the ground floor a bar-room, a bar parlor and billiard-room (all fitted with fireplaces), a smoking room, dining-room, kitchen, and offices, with stabling, etc., at the back. The hotel is of brick, and is two-storeyed, with a wide balcony on the northern and western ends. Upstairs there are a drawing-room, and three single and three double bedrooms, all roomy and furnished with a due regard to comfort. The menu is excellent, and includes fresh meat, fresh fish, fresh milk, vegetables, and fruit. All liquors are of the best quality. Spirits are a shil-

ling a glass, beer and "shandygaff" 6d. per glass. The hotel closes at 11 p.m. to the minute, no credit is given, and the moment it is deemed that a man has had enough to drink, more liquor is refused him. Of course, the bar is never open on Sunday. The hotel is controlled by a manager, who is paid a fixed salary, and has no interest or share in the profits whatever. With the exception that, in the Peoples' Refreshment Houses Association's Hotels in England, where the manager is allowed, in addition to his salary—a profit on non-intoxicants, the State Hotel at Gwalia is run on similar lines.

That it is a complete success was proved by the writer of this brochure, who "interviewed" 30 or 40 miners on pay-night and they were all unanimous that it was the best institution they knew. They were prevented drinking to excess, got good liquor, and thus saved money, because when there was no hotel there, they went to "shanties," got bad liquor, and more often than not were robbed when they lay stupefied through drink.

The Gwalia Mine pays once a month, and as some men, on the contract system, earn as much as £1 a shift, it can easily be estimated what this means—sometimes £26 for one "pay."

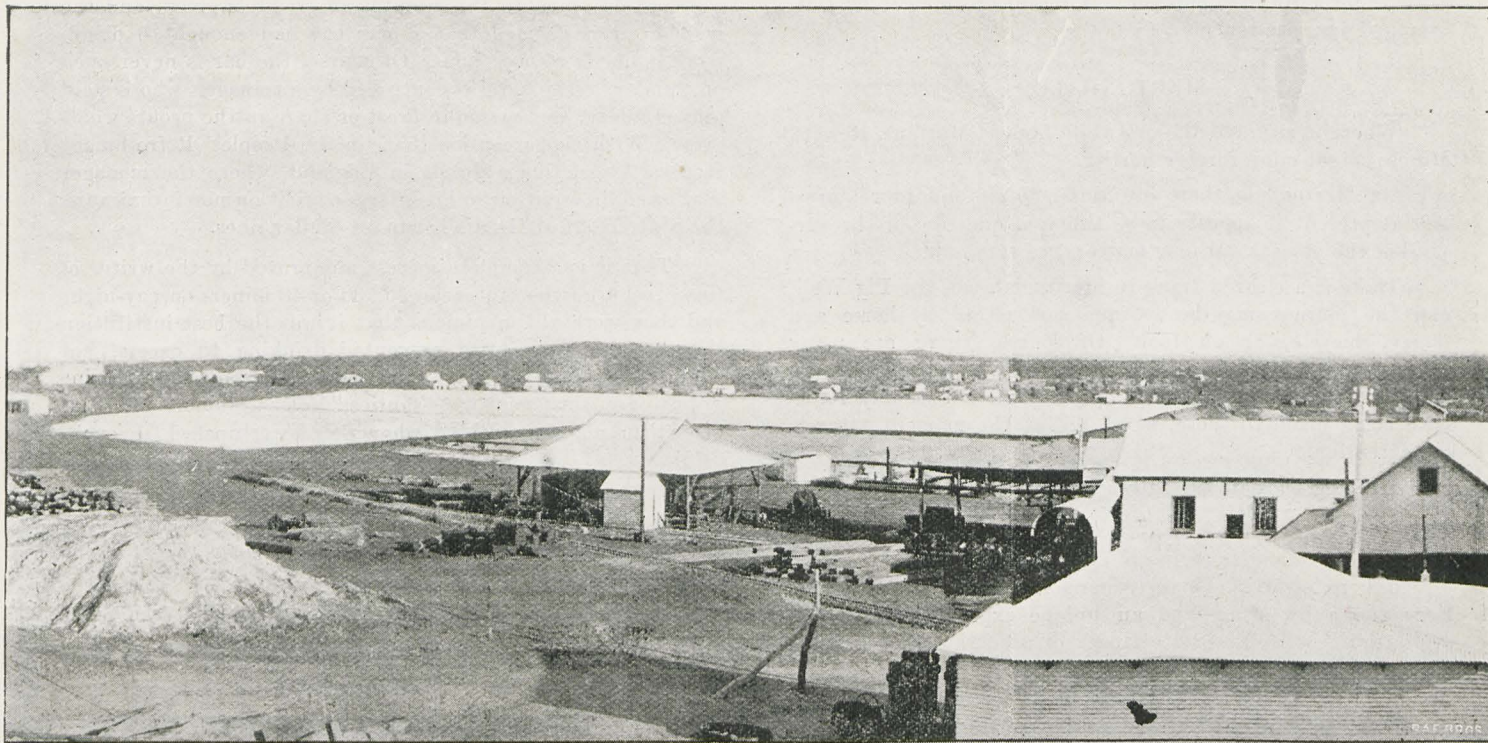
In conclusion, it is satisfactory to know that the State Hotel, which was only opened on June 3, 1903, is a paying concern, and the profits are increasing.

THE SONS OF GWALIA, LIMITED.

The Sons of Gwalia Mine, which is just over two miles distant from the township of Leonora, was discovered and pegged out by some Welsh prospectors in July, 1896, work being commenced on the leases in the September following.

The London and Westralian Exploration Company first obtained the property from the prospectors, and it was subsequently floated in London into the present company, with a nominal capital of £350,000, in £1 shares, 318,000 of which have been issued, fully paid up, to date.

The present company now hold in all 29 leases, covering 683 acres.



GVALIA GOLD

The mine is well equipped with all the latest machinery, including a Fraser and Chalmers' 50-stamp mill (with divided plates to allow the tables being scraped and cleaned up whenever necessary without the stoppage of a single stamp. A cyanide plant, capable of treating over 5,000 tons of sands monthly; grinding pans, agitators and filter presses for the treatment of concentrates, and a nest of Spitzkastins for settling of slimes.

The mill crushes on an average close upon 8,000 tons of

ore per month, giving a stamp duty of 5.32 tons per 24 hours. From 4,000 to 5,000 tons of sands are cyanided monthly, and about about 100 tons of concentrates treated.

Since crushing was started in May, 1897, there have been put through the mill 362,623 tons, which have yielded in all 276,972 ounces of bullion, being an average extraction per ton to date of 15dwts. 7 grs., and giving a total value of £1,042,433 2s. 3d.

The Gwalia lode consists of a schistose formation, oxi-



MINE, GWALIA.

Roy Millar, Photo.

dised for the first few levels, and gaining very slightly in sulphides as depth is attained.

The main shaft is down 1,555 feet on the incline, and 12 levels in all have been opened up, ore for the mill being obtained at the present time from eight of these levels.

The prospects of this property are, perhaps, better at date of writing than in any previous period of the mine's history. Under the superintendence of Mr. W. J. Loring, the mine has made rapid strides, both in development and economy

of working, and it is now in the fortunate position of making a net profit of over £10,000 per month.

Two dividends of two shillings each per share have been paid to date, one in 1901, and the other in June, 1903, and at the last general meeting of shareholders in London, the Chairman of directors (Mr. Cyril Wrangklyn) forecasted future dividends of two shillings each per share being payable every four months. We are given to understand that the present position of the mine fully bears out his prognostica-



STATE HOTEL, GWALIA.

Roy Millar, Photo.

RAE BROS

tions. The mine has as general managers the well-known firm of Bewick, Moreing and Co., their local superintendent being Mr. W. J. Loring.

LEONORA.

Leonora is 536 miles from Perth, and is a compact town, with many brick buildings. The population is 400, and the town is connected with the Gwalia by a steam tramway as well as by railway. A fine public hospital is situated between the town and the Gwalia. There is a local rifle club, and an excellent fire brigade, to aid whose efforts the town has been reticulated from a large reservoir, constructed on a natural eminence. The town possesses a racecourse and recreation reserve, both within easy access of the town. It also maintains a newspaper.

The largest building in Leonora is Thompson's Hotel, a fine two-storeyed brick structure, which contains nineteen rooms, exclusive of the bathroom, two parlors and the bar. The proprietor claims to have the finest stabling outside Perth.

The Tower Hill Mine, which belongs to the Octagon Explorers' Ltd., is one mile south-west of the town, and covers an area of 96 acres. There are eight shafts on the property, and all but one are down to water level (70ft.). Independent of surface work, about 3,000ft. of crosscutting and driving have been done. It is a low-grade proposition, with large bodies of ore. One reef is 120ft. wide. A parcel of 1,000 tons was going through the Government battery in August, estimated to yield 6 dwts. 5grs. per ton at the mill, with 5dwts. 5grs. per ton in the tailings. The gold is worth £4 per ounce.

About four miles north-east of Leonora are the Ironstone leases, owned by a Westralian syndicate. The deepest shaft is 170ft.; and the reef averages about 5ft. in width. 1,400 tons were crushed, and yielded 1,500oz. of gold. The owners are now about to erect a 10-head battery.

From Leonora travellers proceed by road to Lawlers, about 87 miles north in the East Murchison Goldfield.

YUNDAMINDERA.

Having particularised these towns on the railway line, it may be as well to proceed to Yundamindera (originally known as "The Granites"), which lies north-east from Kookynie, about 38 miles, in the Yerilla district of the North Coolgardie Goldfield, and which is reached by coach. When the railway is finished the route will be via Anaconda. At present the coach runs from Malcolm via Anaconda to Murrin Murrin, and thence to Mount Morgans and Laverton. A connecting coach runs twice a week from Yundamindera to Murrin Murrin to pick up the main line coach. The fare is 30s. to Malcolm, and 15s. to Murrin.

This place and its surroundings were, for a time, kept back owing to the lack of crushing facilities, but a Huntingdon mill is now being erected by the Government, with the result that several abandoned "shows" have been again taken up and are working. The town is controlled by a progress committee numbering seven, and a health board, also composed of seven members. The double pan sanitary system is in use.

The town is fortunate in that the streets need no forming, being ironstone, but a rate of 1s. in the £ is levied by the North Coolgardie Roads Board, while a health rate of 6d. in the £ is also collected.

There are three hotels in the town. "The Granites," belonging to Mr. C. E. Williams, is a wood and iron building, containing 15 rooms. A feature of the hotel is a cool room for use in summer. This has a trellis-work front, and hessian (a kind of coarse canvas) five inches from the corrugated iron to allow a draught to circulate. This is furnished with cane lounges, and is a great boon in the heat of summer.

Another hotel is worthy of mention, "The Bulletin," of which Mr. C. B. Webb is proprietor. "The Bulletin" Hotel takes its name from "The Bulletin" newspaper, to which its proprietor is a constant contributor. The picture of the building (here reproduced) shows what may be termed a typical goldfield's hotel of the early type—in between the hessian and brick age, so to speak.



THOMPSON'S COMMERCIAL HOTEL, LEONORA,



A BUSH PICNIC, YUNDAMINDERA.



THE GRANITES HOTEL, YUNDAMINDERA.

There are two general stores in the town, two draper's shops, a baker, a butcher, and a hairdresser.

The Australian Workers' Association have a hall here, in which dances take place, while it is used as a half-time school and as a church, occasionally, when a clergyman visits the town. The town does not possess either a doctor or chemist. There are post, telegraph, and money-order offices. A tender has been let for the erection of a lock-up, but at present prisoners are chained to a tree, like wild beasts, their only shelter being that of a tent.

Vegetables are supplied by travelling hawkers, but there is no lack of good food, as the following meal, partaken of in one of the hotels will testify:—Vegetable soup, roast beef, potatoes and cabbage, rhubarb pie with fresh cream, cheese, etc. The water supply is derived from a Government well and from soaks.

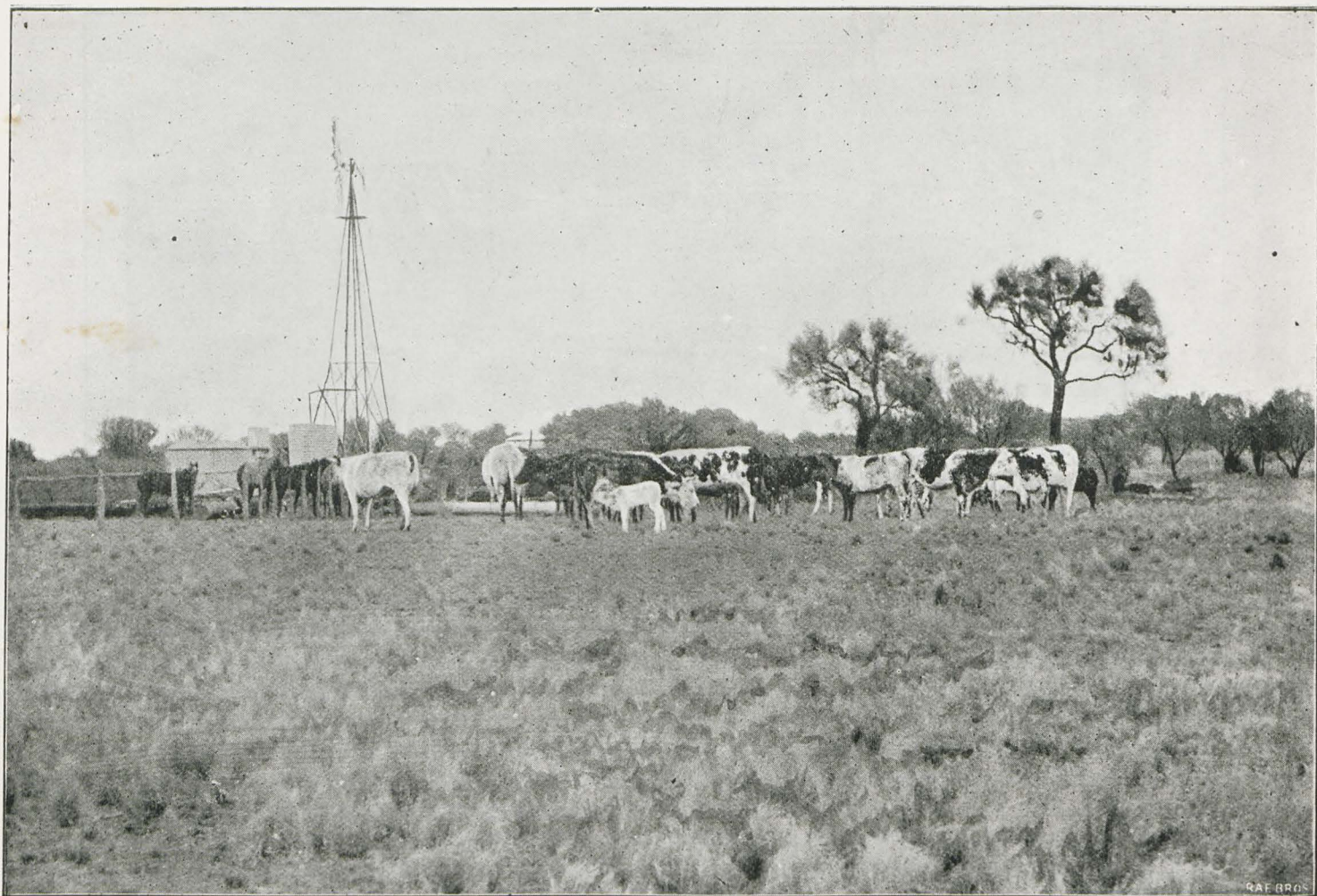
An opportunity occurs right here, as the Americans would say, to describe a typical goldfield's town store, and this will very well stand for all of them. At the same time it will give those unfamiliar with colonial life, an idea of the vicissitudes a man has to undergo. S. J. Ottery started originally at Yerilla, but the place went down, so he packed up his goods and chattels and went to Pendinnie Soak, and, later, moved on to what was then the scene of a new "rush"—"The Granites." Fortunately, as the place progressed, he kept pace with it. The way the goldfield's storekeeper runs his business is not to sit down and wait for chance trade. One "round" in a cart is 30 miles. Goods are taken out and orders for the following week obtained, and so on. An idea of the varied and comprehensive character of the articles kept in stock by a goldfield's storekeeper may be gathered by the following list jotted down casually after glancing round the in-



THE "BULLETIN" HOTEL, YUNDAMINDERA.

terior of Ottery's:—Butter, eggs, tinned meats, milk and vegetables, chains, linoleum, straw matting, nails, tin trunks, flock pillows, canvas water bags, enamelled iron, fellmongery, tinware, general ironmongery, mining tools, explosives, leather belts, dungaree and tweed clothing, boots, kerosene, corrugated galvanised iron, timber for building purposes, padlocks and penknives, and heaven only knows what besides. This

ought, however, to serve as a guide to anyone wishing to go storekeeping on the goldfields. It is apropos in this connection to give the prices current of food-stuffs in the town:—Potatoes are 2½d. per lb.; butter, 1s. 10d. per lb.; meat (tinned) 11d. per tin; flour, per 50lb. bag, 12s.; jam (2lb. tins), 1s. 1d.; tea, from 1s. 6d. to 2s. 6d. per lb.



PENDINNIE STATION.

PENDINNIE STATION.

As mentioned in the prefatory remarks, good pastoral country exists on the North Coolgardie and Mount Margaret Goldfields, and the following account of Pendinnie Station, $\frac{1}{2}$ miles south of Yundamindera, and 42 miles east of Kookynie, should be interesting.

About five miles out from Yundamindera a holt was made at the Pendinnie Soak Hotel, a wayside house constructed of sun-dried bricks, and the front of which was covered with creepers, which made the otherwise ugly building look quite attractive. Hard by, is a garden, where the following vegetables are grown, and it may be as well to give the retail prices at the same time:—Lettuce, 4d. and 6d. a head; cabbage, 4d. per lb.; silver beet, 5d. per bunch; turnips, 4d. per bunch; and radishes, onions, and parsnips, all 4d. per bunch. Some fine water melons are also grown.

Refreshments having been partaken of, a fresh start was made, and Pendinnie Station was reached shortly afterwards.

The station, which is held by Milbank and Co., under 30 years' pastoral lease from the Government, comprises 458,000 acres. Sheep, cattle, and horses are running, and the accompanying illustration will give a good idea of the fattening qualities of the herbage, which consists of salt and cotton bush, kangaroo, mulga, and spear grasses. The country is thickly timbered with stunted mulga, cork, and salmon gum trees. There is, likewise, plenty of milk bush and wild geranium, both of which are good for fodder. The soil is sandy loam, in granite country, bisected by low ridges. The land is undulating.

To illustrate how luxuriantly kangaroo grass grows in the creeks, "The Bungalow," as Mr. Milbank's house is called, is thatched with grass that grew 6ft. and 7ft. high. Water for the homestead is obtained from a well 36ft. deep; it is of excellent quality, almost equal to rain water. There is a bore hole 46ft. deep on the centre of the run, about six miles from the homestead, and another is to be put down at "Marloo," the out-station.

A nice garden has been laid out near "The Bungalow," and here were growing in profusion lettuce, beetroot, cabbage, onions, swede turnips, and melons.

A large number of pear, peach, apricot, apple, lemon, and orange trees have been planted and are flourishing. Cape gooseberries grow almost wild, while a young grape vine is already over 8ft. high, all of which testifies to the prolific nature of the soil. The grass is best when the summer rains come on, but there is plenty of herbage throughout the winter.

Wild turkey, emu, kangaroo, and wallaby abound, so there is no lack of sport for spare hours.

"The Bungalow" itself is a picture, covered with wild native flora, with mignonette and other flowers blooming hard by. The thatched roof keeps the house very cool, and on the hottest day in summer it is never more than 65 deg. Fahr. inside. Pepper trees aid in lending their graceful shade. Truly, a pleasant picture!

In due time the party returned to Yundamindera, and then drove to Mt Morgans via Redcastle, where there is a wayside hotel. Redcastle lies about 11 miles north-west of Yundamindera. Changing our course again, we bore north-north-east for Mt. Morgans, which was reached in due course.

Between each of the places visited by road, a day's journey may be reckoned, unless otherwise specified.

MT. MORGANS.

Mt. Morgans, which has a population of 1,250, is 566 miles from Perth, and 1,573ft. above sea level. It was incorporated in September, 1900, and has an area of about 1,112 $\frac{1}{2}$ acres.

There are about 500 buildings within the municipality; and the streets, which cost from £3 10s. to £15 per chain to form, are lighted by electricity.

The town is built on an ideal site, which gently slopes on three sides, while the hill, on which are situated the mines, forms a striking background on the east.

There are six Councillors and the Mayor to look after the welfare of the citizens. The sanitary system is the duplicate sealed pan, and the rates are 1s. 3d. in the £.



PANORAMA OF MOUNT MORGANS.

Roy Millar, Photo.

There are six hotels, four general stores, two chemists, tobacconists, stationers, hairdressers, butchers and bakers' shops. Most of the buildings are of brick. The A.W.A. have also a large hall, and there is a Workmen's Club. A Government hospital stands on a rise to the west of the town, and is one of the finest on the field.

The town also possesses a brewery and an iceworks and cool-storage house, which are necessary, seeing that last summer the thermometer recorded 122deg. Faht. in the Council Chamber, which is, however, a galvanised iron building.

There is a vegetable garden not far from the town, and

the prices are only slightly in excess of those charged in Yundamindera. Fruit comes from Perth, and is dear, oranges costing 3s. per dozen. The water supply, which is derived from wells, is slightly brackish, but of fair drinkable character.

Mt. Morgans is the seat of government, so to speak, for here the warden resides, whence he pays periodical trips to Malcolm, Laverton, Leonora, etc. The town possesses a newspaper; and, as was remarked earlier, will probably be connected by railway ere this book is in type. The current price of fresh meat is from 1s. 1d. to 1s. 5d. per lb.

THE WESTRALIA MT MORGANS' GOLD MINE.

The mine, which was responsible for the existence of the town of Mt. Morgans, is a property owned by the Westralia Mt. Morgans' Gold Mines Co., Ltd., and upon this mine the town at the present principally depends.

It was taken up by the prospectors about 1896, and was later sold to a limited liability company, which was formed in Perth in 1897, by Mr. A. E. Morgans, M.L.A., after whom the mine and town were named. In 1899 the head office of the company was transferred to London.

The plant at first was a small one, and comprised two Tre-main mills, which commenced operations in 1898, and treated 3,000 tons of ore, which yielded approximately 4oz. to the ton.

The Tre-main mills were superseded by a 20-head stamper battery in July, 1899, but, as development work went on, large bodies of ore were opened up, and it was found necessary to increase the plant and a 60-head mill with King engine, self-feeders, rock crushers, and ore bins were erected in 1902. Thirty heads of the new mill have a falling weight of 1,250lb. per stamp, and the other 30 have a falling weight of 1,500lb. per head.

An air compressor (Corlis type) has been erected, which is capable of operating 25 large size rock drills.

The mine is equipped with electricity, and two dynamos each of 120 h.p. have been installed. These supply current for lighting the mine and town. Current is also derived from these dynamos for operating motors in the carpenters' and fitters' shops and cyanide and slimes plants.

Power for driving the plant is supplied by five 125 h.p. Fraser and Chalmers' multitubular boilers, and four 106 h.p. Babcock and Wilcox multitubular boilers.

At the No. 1 level the lode averaged 15ft. in width, and its value is over 30dwts. per ton.

At the No. 2 level the lode has been proved for a length of over 700ft., and averages over 20ft. in width and over 1oz. per ton in value.

At the No. 3 level, neither the full length nor the full width of the lode has been proved. North and south of the main crosscut at this level the lode has been opened out to an average width of 50ft. (in places 90ft.), for a length of 750ft., and carries good grade milling ore.

At the No. 4 level the main lode was recently intersected for a width of 40ft., and it carries good milling ore at the point of intersection. Driving on the lode was proceeding at the date of publication. 5,000 tons of ore have been stoped from this level.

The nominal capital of the company is £125,000 in 500,000 shares of 5s. each, of which 480,000 have been issued, and the following details are interesting and instructive, more particularly as it will be observed that the £15,000 in excess of the nominal capital has been returned in dividends, besides which all the working expenses and equipment have been paid out of the earnings of the mine.

Total tonnage treated to August 12, 1903	...	156,567
Total yield to date	174,741oz.
Total value of same	£639,347
Average per ton	1oz. 2dw. 8g.

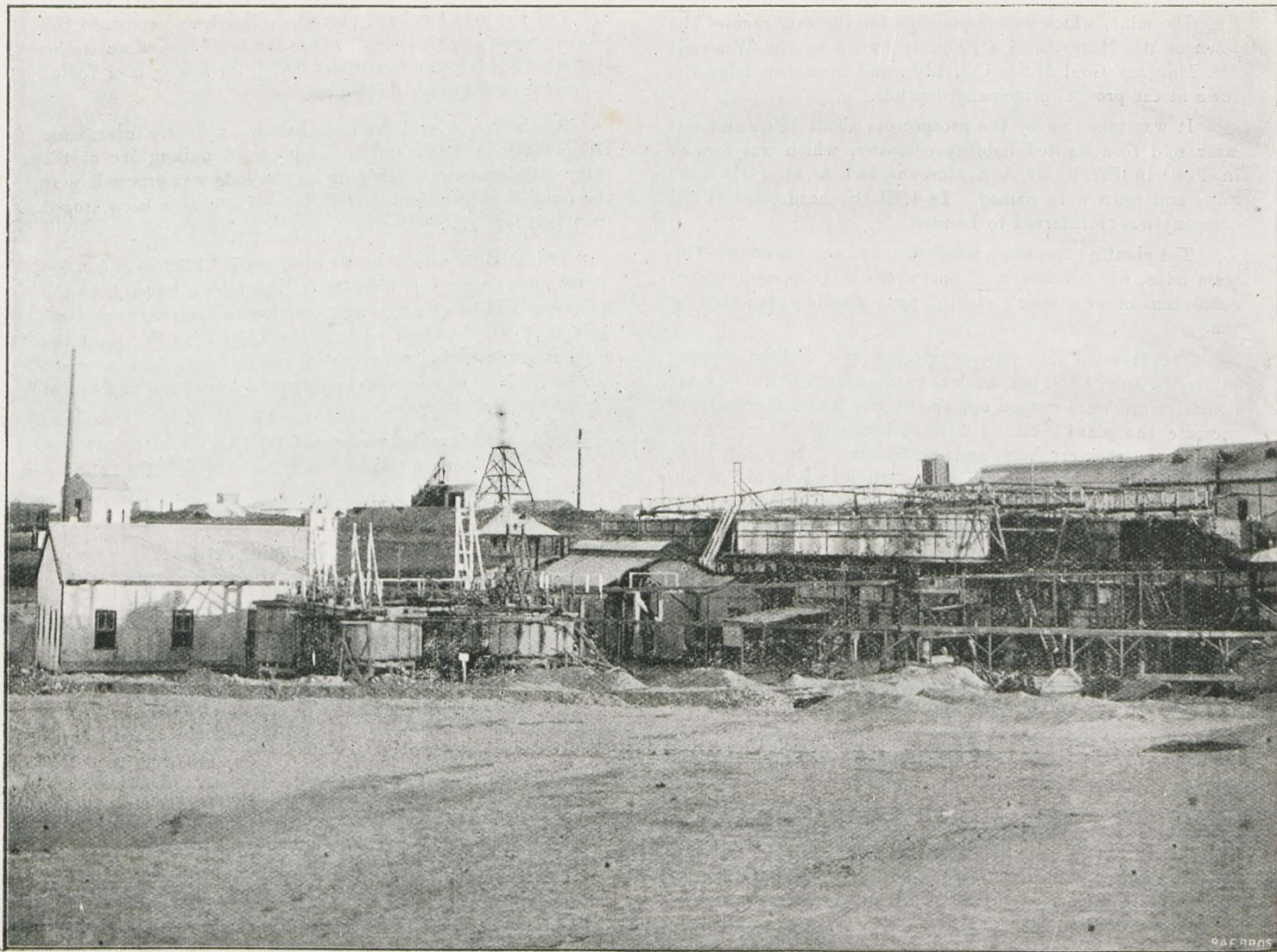
Present working cost per ton, including extraction, milling, cyaniding, and filter pressing 24s.

Dividends paid as shewn below:—

	£	s.	d.
To December, 1900	...	31,902	8 0
To December, 1901	...	44,350	16 0
To December, 1902	...	64,350	0 0
		£140,603	4 0

Besides the Westralia, there are the Guest's Mine, the Millionaire, Lily of the Valley, and Fire King, all adjoining.

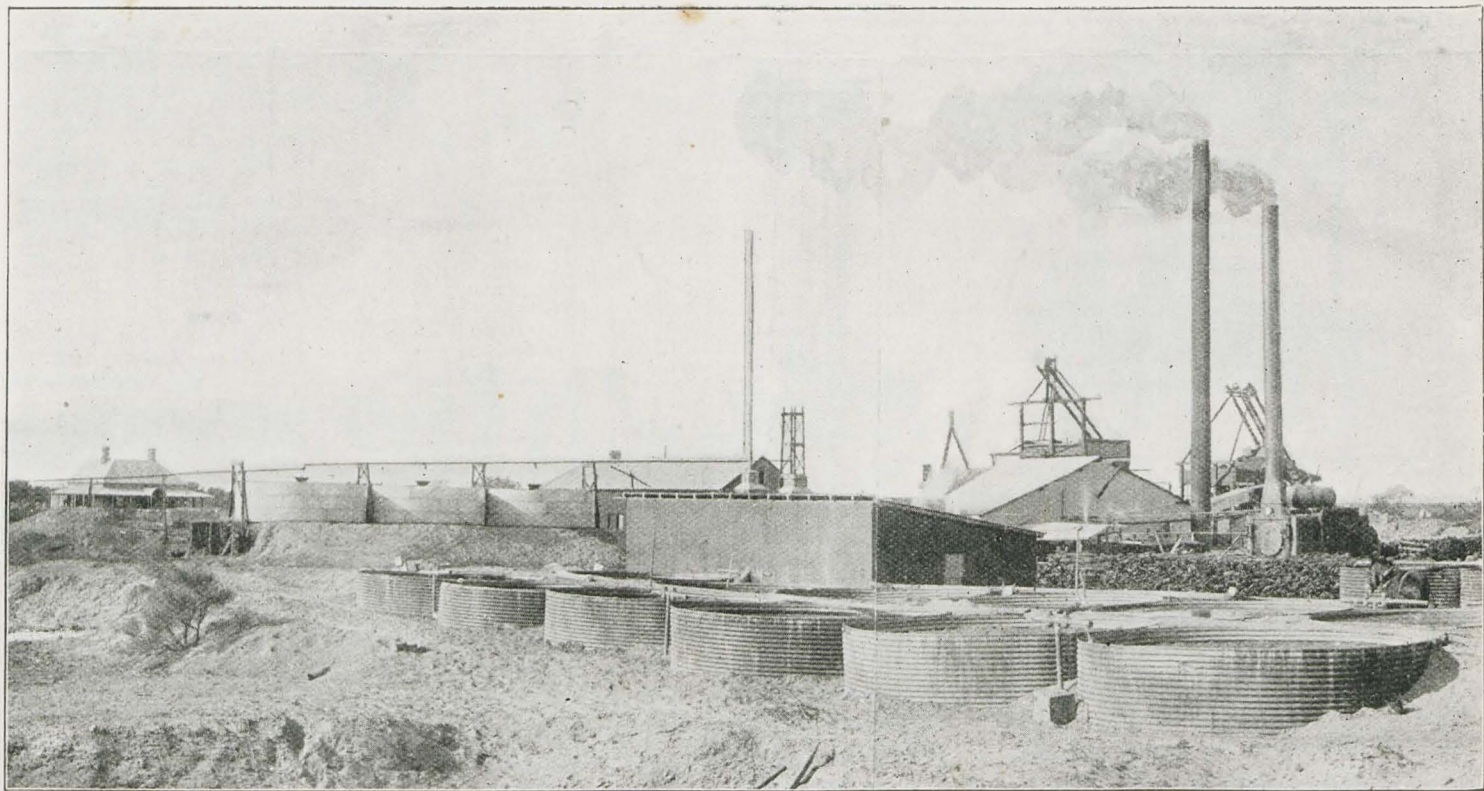
On the north of the Westralia is the Mt. Morgans Consols (owned privately), a 24-acre lease, on which there are three shafts. Two are down 135ft., and the other has been sunk



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GOLD MINE.



LANCEFIELD GOLD MINE.

110ft. In the last there are two reefs at the 50ft. level, one about 18ft. wide, and the other about 30ft. At the 110ft. level the first reef is small, but there is another 40ft. wide, and the values in the latter are 15dwts. for about 15ft., while the balance is estimated to go 8dwts. A tunnel has been put in on the eastern side of the hill, and there is stone valued at 1oz. per ton in this, the reef being about 5ft. wide.

About one mile east, on the flat, some other leases are being worked, among them the Transvaal, belonging to Walter Hamblin, and this has been giving a good return for two or three years past. A five-head battery and cyanide plant is also owned by Hamblin, and here parcels are crushed for the public.

LAVERTON.

Proceeding 24 miles in a north-easterly direction we reach Laverton, and this town will also shortly be connected with the metropolis by the railway, but at present is reached by coach, which runs daily. It is named after Dr. C. W. Laver (brother of Frank Laver, the well-known cricketer), who was largely identified with its early progress.

It is, approximately, 590 miles from Perth, and has 300 inhabitants, of whom 80 are females, and 25 children. Its local government consists of a progress committee. Laverton possesses four hotels, and six stores, a butcher, baker, and two breweries. There are post and telegraph and money-order offices, and a Government hospital. The sanitary system is that of the sealed pan; and the water supply is derived from wells.

The maximum shade temperature recorded last summer was 112 deg. Fahr., and the minimum 32 deg. Fahr., so that the extreme from frost to great heat is apparent. However, owing to these towns being so far inland and at such an altitude, a temperature of 85 deg. on the coast is much more enervating and exhausting than 112 deg. on the goldfields. The rainfall per annum averages 12 inches.

Laverton possesses a weekly newspaper. There is an excellent recreation ground and a racecourse.

Vegetable gardens are within a short distance of the town. The Government battery is a great boon to the prospectors of the district.

The current prices for "tucker" are:—Tinned meat, 1s. per tin; flour (50lb. bag), 11s. 6d.; potatoes and onions, 3d. per lb.; sugar, 4½d. per lb.; jam, 1s. 2d. per 2lb. tin; tea, 1s. 9d. to 2s 9d per lb.

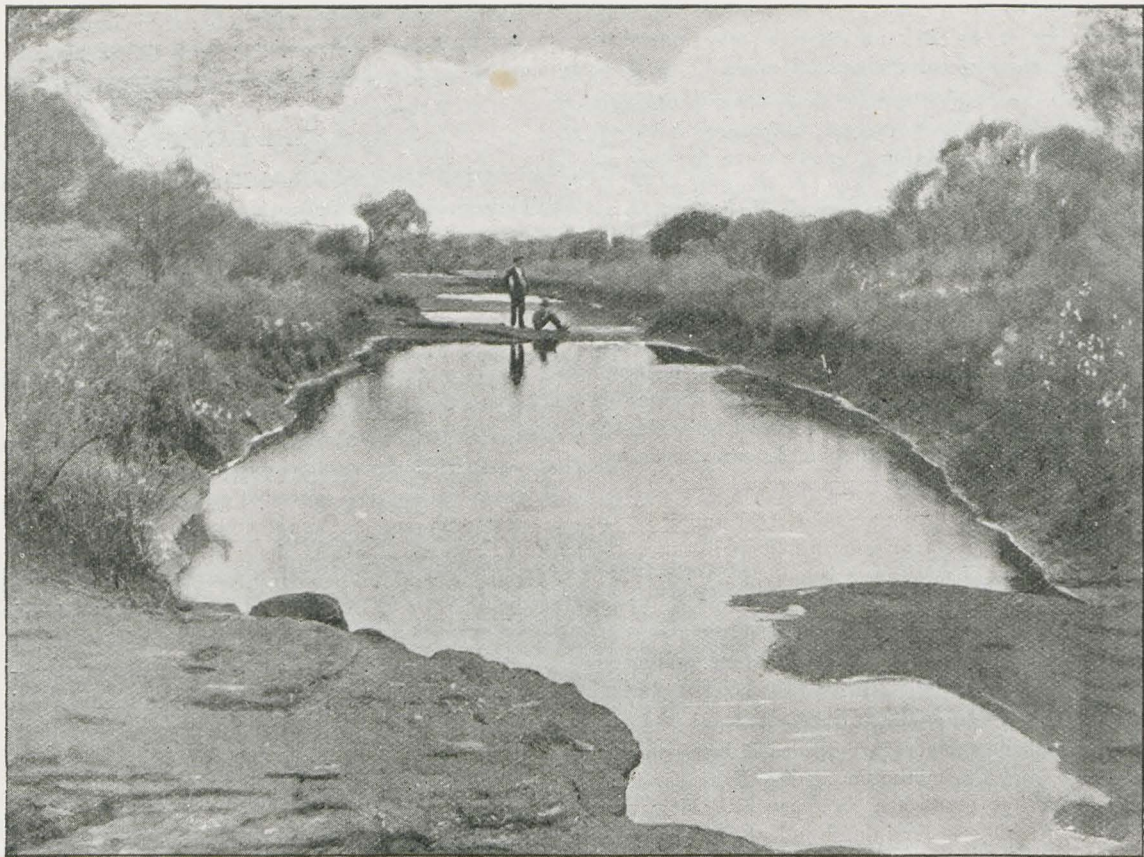
THE LANCEFIELD.

The Lancefield Gold Mine, which is the property of the Lancefield Gold Mining Co., Ltd., well deserves a full account of its progress, as it is essentially locally-owned, and has been developed purely out of its own earnings.

It lies five miles west of Laverton, by a cut track, and comprises 87 acres, and was first discovered by a prospector named Lemon, hailing from Lancefield, Victoria—hence the name of the mine. It was bought by a syndicate, which included the discoverer. They leased the battery from the old Quartz Hill Reward Mine (now known as the Euro) at £12 per week, with the option of purchase at the end of 12 months, which option they exercised and purchased out of the proceeds from the mine. Progress continued to be satisfactory, and in September, 1900, the syndicate was transformed into a limited liability company, with a capital of £25,000 in £1 shares fully paid. Out of these shares 3,400 have not been issued.

The deepest shaft is a vertical one 220ft.; while the main underlay shaft is down 200ft. on the incline. There is a most complete plant, and it must be remembered that all of this has been paid for out of earnings.

This plant comprises a 20-head stamper battery (fitted with rock breakers and self-feeders) and a cyanide plant of 1,600 tons capacity. Water, which is drinkable and is used in the boilers, was originally struck at 30ft., and they are now pumping at 200ft. by a Cornish lift pump, with a capacity of 3,000 gallons an hour, and this pump lifts from the incline shaft and discharges from the vertical. In order to avoid shifting the pump from its original position, a connecting



A WATER HOLE, YUNDAMINDERA.

beam from the mouth of the incline to the mouth of the vertical was put in, and this measures the exceptional length of 300ft.

A new cyanide plant with a capacity of 2,000 tons a month is being erected: and two 50-cake 3in. Dehnes' filter presses are being put in.

Steam power is derived from two Cornish and one multi-tubular boiler and there is an air compressor. Everything is done on the mine, there being a fitting shop with lathes, etc.

The buildings are constructed of sun-dried bricks and comprise:—Manager's house, offices, assay and retort houses, store room, and blacksmith's shop. All these are neatly finished, and are plastered inside and out.

The Lancefield is a low-grade proposition and is an object lesson in what can be accomplished by careful management. The ore averaged about 18ft. wide for a distance of 1,000ft. in the No. 1 level; and in No. 2 level averaged about 15ft. for 300ft.; and in No. 3 level it is 26ft. wide, and assays $10\frac{1}{2}$ dwt. per ton (fine gold). It is a blue mineralised, free-milling quartz.

The crushings since the syndicate first took the mine over are as under:—

	oz.	dwt.
By battery, 68,409 tons for ...	13,793	14
„ cyanide, 39,982 „ „	16,795	15
	<hr/>	<hr/>
	30,589	9

Leaving 28,427 tons of slimes on hand, which will average about 6dwt. to the ton.

About £70,000 has been disbursed in wages since the company took the mine in September, 1900, £19,000 having been expended on the plant and development work. £12,240 has been disbursed in dividends since the same date.

A new brick on stone extraction house was going up at the time of the writer's visit. The history of this mine is particularly interesting, when it is known that the company consists, with hardly an exception, of the original shareholders,

the majority of whom live there, and work on the mine.

Adjoining the mine are gardens, and one of these, a home-stead area of 50 acres, deserves more than passing notice.

It was originally taken up by one of the proprietors of the Lancefield, Mr. Cameron, who afterwards disposed of it to Mr. John McFarlane. That the soil is productive, may well be judged, when it is stated that pumpkins, melons, vegetable marrows, Turk's head, potatoes, and cabbage grow to magnificent proportions. Rock melons have been grown up to 60lb. in weight. The prices obtained are:—For melons (wholesale), 1½d. per lb., retailed at 3d. per lb.; potatoes, 4d. per lb. Lettuce, beetroot, and Cape gooseberries flourish, and a specialty has been made of vine growing, besides planting oranges, lemon, apple, peach, apricot, loquat, plum, and fig trees, all of which thrive. The owner expects to have about two tons of grapes for the current season, and these will easily fetch 1s. per lb., so that the venture promises to be profitable.

The whole area is irrigated by water obtained from the Lancefield mine, and this is run along channels.

THE CRAIGGIEMORE.

The Craiggie more is another important mine, and lies about the same distance from Laverton as the Lancefield, only in the opposite direction. It was discovered in 1896 by Duncan Rose, Alex. Fraser, and Alex. McPhail. Dr. Laver later on became interested in the property and floated it in England. The area of the mine is 100 acres. The plant is complete and up-to-date and includes battery, cyanide plant, etc. The ore bodies are large, but of low-grade.

THE IDA H.

Seven miles out of Laverton, on the track to Burtville, is the Ida H. Mine, which is turning out well. The name is one to arouse curiosity, and, as apparently it has not been recorded before, it may be interesting to know that the mine was christened after the daughter of the prospector, "Dick" Heaphy—hence Ida H.

The nominal capital of the company is £60,000, in originally 60,000 shares of £1 each, now cut up into 5s. shares,



CAMEL TEAM AND WAGON.

making 240,000 shares of 5s. each, 6,000 £1 shares, or now 24,000 5s. shares being held in reserve, leaving 54,000 £1 shares fully subscribed.

This company acquired the property from the prospectors about November, 1900, and, after a considerable amount of development work had been done, commenced crushing in November, 1901, and up to September 30, 1903, had crushed 21,374 tons of ore, yielding 24,784oz, being an average of 1oz. 2dwt. 15gr. per ton; gold valued at £96,720, and have paid in dividends equal to 50 per cent. in 1902, and 30 per cent. up to September of the present year, making 80 per cent. up to date.

The reef, which averages about 2ft. wide, has been followed on the 100ft. level a distance of 1,300ft., and at the 200ft. level a distance of 1,090ft., the ore raised and crushed being mainly taken from these two levels.

At the 300ft. level the reef has been driven on north and south a distance of 270ft., and at the 400ft., the deepest level, 100ft.

The main shaft has been sunk a depth of 420ft., at which depth a plentiful supply of salt water for battery purposes is obtained.

The mine is equipped with a 10-head mill and cyanide plant, and is now averaging about 1,150 tons per month.

BURTVILLE.

Burtville is about 19 miles from Laverton, to the south-east, and is 628 miles from Perth. It is a very new town, with a population of about 400 for the town and district, of which total 30 are females, and 16 children. There is a progress committee of seven; and a health rate of 6d. in the £ is levied.

There are two hotels, and three stores. The water supply is derived from a Government well; and the sealed pan sanitary system is used. The postal duties are discharged by a civilian, who is paid about £40 per annum by the Government. The conditions of life are not too hard now, fresh lettuce and

cow's milk being obtainable. Burtville possesses a half-time school. There is a 10-head State battery and also a five-head battery—the Burtville Ore Reduction Works, while the Sons of Westralia Mine also crushes for the public.

The Sons of Westralia was the first lease taken up, in September, 1899. It is situated four miles south of Burtville, and is owned by Mr. Maurice Brown. There is a 10-head (850lb.) stamp battery, which was erected in February, 1902, and a cyanide plant was put up about the same time. There are two main shafts on the property, the deepest being 120ft. Water is reached at 100ft. The water is brackish, but there is not enough mineral in it to injure the boilers. Part of the equipment includes a condenser, with a capacity of 4,000 gallons in 24 hours.

The property comprises two 24-acre lease blocks—The Sons of Westralia, and the Great Westralia. The battery is on the Sons of Westralia, and so is the main shaft. The reef is about 2ft. wide, and the character of the stone is free-milling quartz.

About £28,000 worth of gold has been won so far, and the mine paid its way from the start.

On the Great Westralia the reef is 4ft. to 5ft. wide, and averages about 12dwt. per ton.

The battery crushes for the public at 20s. per ton, within a radius of two miles, and for the furthest part of the field for 23s.—any sized parcel, and cyaniding is done on the basis of a 4½dwt extraction. There are about 50 leases in the district, in the prospecting stage, with average crushings of about 2oz. per ton.

The Karndale is about one mile south, and its deepest shaft is down 110ft. The reef is about 4ft. wide, and the crushings average 35dwt. per ton.

The Rock of Ages is about three miles in the same direction, and its crushings average 2½oz.

The Wanderer lies about one mile north-east; the reef averages 2ft. in width, and the crushings about 2oz. per ton. The deepest shaft is down 100ft.

The Tempus lies three-quarters of a mile north, and has a reef about 1ft. wide, which gives crushings averaging about 3oz. per ton, and the deepest shaft is 90ft.

The Mikado, with a reef about 6ft wide, averages about 18dwt. per ton.

The Government battery at Burtville has 10-head of stamps, 1,000lb. each, and there is a compound condensing engine capable of driving 40 head. There are also two Berdan pans, and steam is generated by two boilers. There are two settling pits to each five head of stamps, and two settling dams for water.

The Carib, four miles south-east of the town, and 24 acres in area, had just been sold to a London company at the time of our visit. The lode is about 6ft. wide, the reef about 2ft. 6in. The average was 35dwt. to 2oz. per ton, and the gold is worth £4 1s. 7d. per oz.

Fresh meat is obtainable in Burtville at 1s. 2d. to 1s. 3d. per lb., while tinned meat is sold at 1s. per tin. Potatoes fetch 3d. to 4d. per lb.; butter (box), 2s. 3d. per lb.; milk (condensed), 10d. per tin; flour, 12s. 6d. per 50lb. bag; tea, 1s. 6d. to 2s. per lb.

After leaving Burtville a return was made to Laverton, and thence a trip was made to Eristoun. The return journey was accomplished via Laverton to Mt. Morgans, whence a route was followed via Murrin Murrin to Anaconda (21 miles south-west of Mt. Morgans), and thence west-north west 17 miles to Malcolm. As mentioned before, the coaches run this way, but the railway, which goes the same way will be completed by the time this brochure is issued from the press.

MURRIN MURRIN

At Murrin Murrin the Malcolm Mines Ltd are doing development work while public crushing is undertaken with the 50-head battery. There is a cyanide plant, and a slimes

plant is being put in. The main shaft is down 600ft on the underlay, but the stone, which was good down to 200ft., has decreased considerably in value. Prospecting is now going on in the deeper levels.

A short distance away is the Malcolm Proprietary Extended, owned by Wm. Hill. He started originally with two 3-head mills, but the mine has opened up so well, that he has now a 10-head battery and cyanide plant. The deepest shaft on this lease is down 120ft., and the stone averages about 1oz. of free gold per ton.

About four and a-half miles further on is the Hard Case, a lease which is reported to be very rich. This is worked by a man named Mitchell, and his wife, the lady taking a due share of the work with her husband. There are numerous other prospecting "shows" about.

ANACONDA.

There is a fair amount of settlement at Anaconda, and the care of the town rests with a progress committee of seven. No townsite has yet been proclaimed, but 64 residence areas have been surveyed. The population is about 350, of whom 30 are females, and 12 children.

There are about 36 buildings of all kinds within its surveyed limits, and of these, two are hotels and two stores. There are also a chemist, newsagent, and fruiterer.

Anaconda has no sanitary system at present.

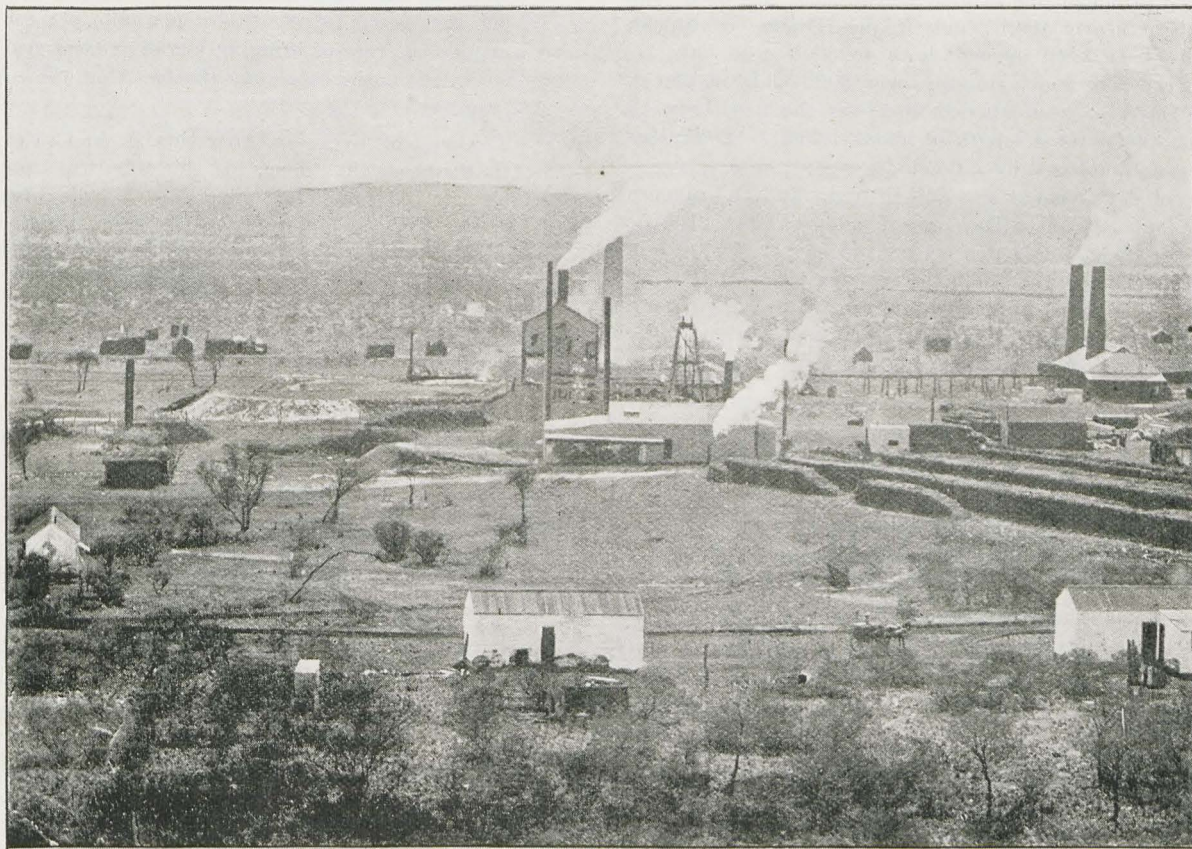
There is a mail receiver, but no telegraph office. The water supply, which is of fair quality, is obtained from a well, and costs 2s. 6d. per 100 gallons at the well.

Fresh meat is obtained from a butcher at Murrin, and averages for beef and mutton 1s. per lb. The townsite lies in hilly country, on a slope to the west. When the railway is opened, Anaconda will become the distributing point for the Yundamundera (18 miles east), Pendinnie, and Linden districts.

The town relies principally for support on the Murrin Copper Mines Ltd., formerly known as the Anaconda. Experienced miners aver that the hills for three miles round have surface traces of copper.

MURRIN COPPER MINES, LIMITED.

These mines are situate about four miles from Murrin Murria, and 16 miles from Malcolm, the Government railway being within a few chains of the main workings.



MURRIN COPPER MINES, LIMITED.

The property consists of 205 acres. During past three and a-half years the mines have produced about 30,000 tons of ore, containing copper of a gross value of about £121,000, which is about half the total quantity of copper produced in Western Australia. The management is in the hands of Mr. Earle Huntley, who has been in charge of the properties for over three years.

On the principal line of lode a main shaft has been sunk to a depth of nearly 400ft., and sinking is being continued. Levels here have been opened down to 300ft. and have revealed a very wide lode, running over 30ft. wide in places. This lode has also been opened up along the new faces by prospecting shafts for a length of about 1,200ft. The mines were last year purchased by a London company, when a vigorous policy of development was substituted, and a modern smelting plant erected. The process adopted was "Pyritic smelting," as the ore is a dense iron and copper pyrites and smelts readily with the addition of two per cent of coke. The mine is equipped throughout with high-pressure boilers, compound winding engines, and Cornish pumps, the mine making about 40,000 gallons of fresh water per day.

The smelting plant consists of a water jacket furnace with steel jackets, of a capacity of 150 tons per day, hot blast stoves, and a very powerful blowing engine for supplying blast to the furnace.

This is, we believe, the first blowing engine used in a smelting plant in Australia, and is a huge air compressor with compound steam engines, and designed to furnish an

enormous volume of air at the pressure necessary for smelting:—the air cylinders being about 5ft. in diameter. This machine is found to work admirably. Reverberatories are used for producing copper—part of the produce is shipped as matte, and part as copper.

The company complains that, although it is opening up, practically, a new industry for Western Australia, yet the rate on copper on the Government railways has been fixed at £2 17s. per ton, equal to about 1½d. per mile per ton, or more than double the rate of bringing jarrah or local coal up to the goldfields, this notwithstanding the fact that the copper is all sack loading.

The cost of living in Anaconda is moderate. Tinned meat is 10½d. per tin; flour, 10s. per 50lb. bag; potatoes, 2d. per lb.; jam (2lb. tins), 1s.; sugar, 3½d. per lb.; tea, from 1s. 6d. per lb. There is a garden on the mine, where vegetables are grown. Cabbage costs 3d. per lb.; while fruit, which comes from the coast, costs:—Apples, 3s. to 1s. 6d. per doz., and oranges, 1s. 6d. per dozen.

LAND SETTLEMENT,

In conclusion, it may be of interest to give some particulars of the facilities for going on the land in Western Australia, and, although this book may be of interest to those whose sole idea is to learn about the goldfields, it is not improbable that, by, chance, some may wish to know the terms on which they can acquire land whereon to make a home, while the head of the household works on the goldfields.



Guide to Land Selection in Western Australia.

LAND TENURES IN BRIEF.

Free Farms.—Min. area 10, max. 160 acres. £1 deposit: no other payments. Title earned by following improvements:—Fence one-fourth within 3 years, the whole within 7. Within 2 years erect house or do clearing worth £30, or prepare 2 acres of orchard or vineyard. Within 5 years clear and crop one-eighth of the area, or spend 30s. per acre on one-fourth of it. Within 7 years clear one-fourth or spend 60s. per acre on it. Personal residence required 6 months in each of first 5 years, or double improvements.

Residential C. P.—Min. area 100, max. 1,000 acres. Price, 6d per acre per annum for 20 years, payable half-yearly. Fence one-tenth within 2 years, all within 5. Spend 10s. per acre, less half-cost of exterior fence in 10 years. Residence on other C. P.'s within 20 years fulfils residence requirement.

Non-residential C.P.—Same min. and max. area and rent, but double above improvements.

Direct Payment C.P.—Min. area 100, max. 1,000 acres. Payment, 1s. per acre on application, balance in 4 equal quarterly instalments. Fence whole within 3 years. Within effect improvements worth 5s per acre.

Orchard C. P.—Min. area 5, max. 50 acres. Payments, 2s. per acre on application, balance by 6 equal half-yearly instalments of 3s per acre. Fence within 3 years, and plant one-tenth area as vineyard, orchard, or vegetable garden.

Grazing Lands.—All applications subject to individual inspection and possible delay. Min. area 1,000, max. 5,000 acres. Three hundred min. allowed where adjoining applicant's holding. Land valued according to quality, anywhere between 3s. 9d. and 10s. per acre. Payments, one-sixtieth of face value per acre half-yearly. Improvements:—Fence one-tenth in two years, all in five. Spend face value of land in improvements in 15 years, less half cost exterior fence if latter rabbit-proof. Pay half-cost survey in 10 half yearly instalments.

Repurchased Lands.—Max. area 1,000 acres. Payments, 40 half-yearly instalments of £3 16s. 5d. for every £100 worth of land acquired. Fence one-fourth in 2 years, all in 5. Clear one-tenth in 5 years. Within 10 years have improvements—including exterior fence—to show equal to face value of land. Personal residence a sine qua non.



COOLGARDIE WATER SCHEME.

The lack of an adequate water supply for the Eastern Goldfields obtruded itself upon the notice of the Government in 1894, and the early part of 1895, because of the more than usually scanty rainfall, and it was felt something must be done. In 1894 a contractor, named John Maher, applied to the Minister for Mines for a right to take water from the tributaries of the Avon, at Northam, to erect reservoirs there and pump the water to Coolgardie, a distance of 290 miles. The Government promised support, and there the matter ended for the time being, but finally preliminary surveys were made, schemes were submitted by the late C. Y. O'Connor, C.M.G. M.J.C.E., Engineer-in-chief, and one which had the construction of a reservoir at Mundaring, on the Helena River, and thence pumping it to the summit of Mount Burges, near Coolgardie, at an estimated cost of £2,500,000 for 5,000,000 gallons per diem, was adopted. A bill was introduced in Parliament by Sir John Forrest, then Premier, in July, 1896, and was finally passed by both Houses on September 3, 1896.

The whole of the gigantic work was completed on January 26, 1903, at a cost of £2,670,000, and to-day the water is overflowing at the Mundaring Weir. The towns of Kalgoorlie and Coolgardie are reticulated, and householders may purchase good, clear water at 7s. per 1,000 gallons, as against 15s. per 100 gallons for condensed water less than two years ago. The benefit to the mines at Kalgoorlie is enormous, the Trust obtaining water at 5s. per 1,000 gallons.

The two illustrations show the site of the great Weir at Mundaring, with the work of construction in progress, and the

Weir complete with the water overflowing—a monument of courage, enterprise, and engineering skill.

The principal particulars of the scheme as adopted (after consultation in London with a commission of the leading English engineers) are embodied in the following summary:—

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Item.	Description.	Unit of Measure.	Amount.
1	Quantity of water required to be pumped per day of 24 hours	Gallons	5,600,000
2	Length of pipe main from storage reservoir to Kalgoorlie	Miles	358
3	Diameter of pipes to be laid (steel, locking-bar type)	Inches	30
4	Velocity of water per second	Feet	2,124
5	Net maximum lift from storage reservoir to main distributing reservoir 1,290 Plus allowance for immediate reservoirs 157	Feet	1,447
6	Head per mile allowed for friction (minimum)	Feet	376
7	Total head allowed for friction	Feet	1,208
8	Estimated gross head	Feet	2,655
9	Weight of water to be raised per diem	Tons	25,000
10	Work per diem	1,000 ft.-tons	66,375
11	Net effective power required	No. of H.P.	3,129
12	Power to be supplied P.H.P. of engines in work 3,712 Plus P.H.P. of engines in reserve 2,475	No. of H.P.	6,187



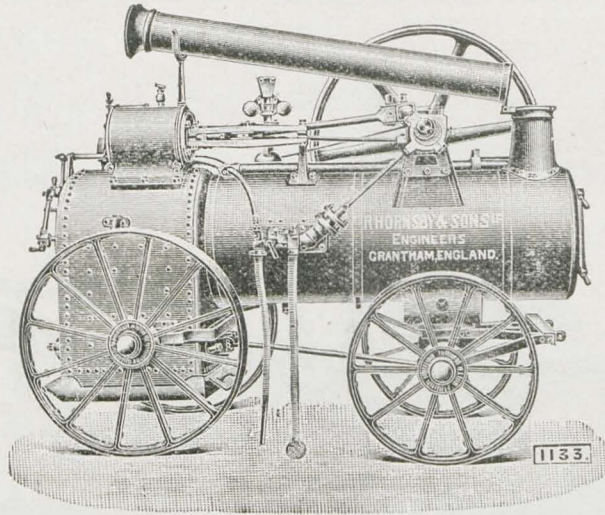


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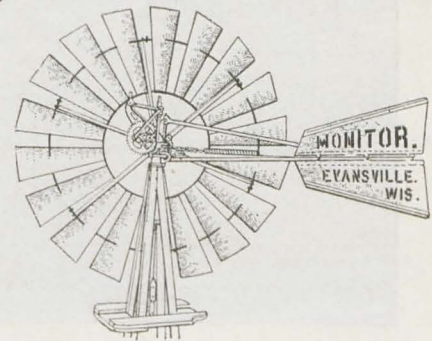
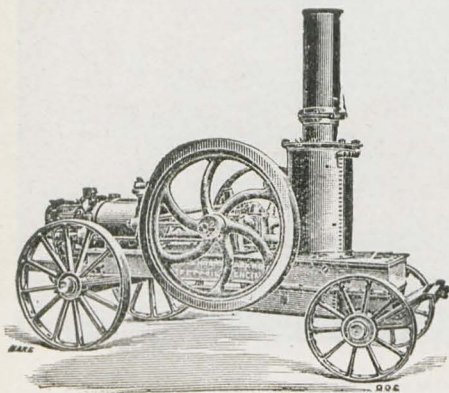
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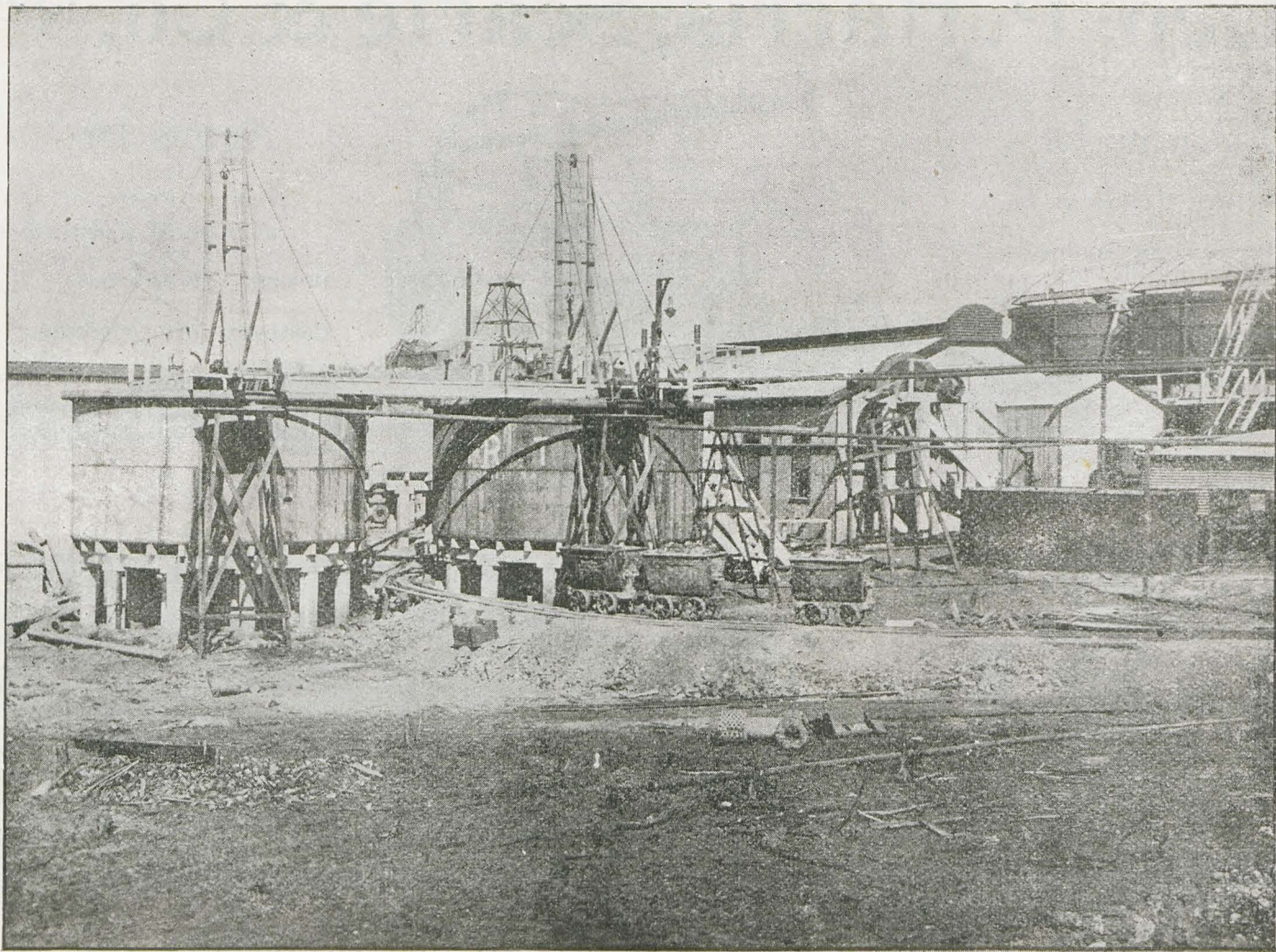
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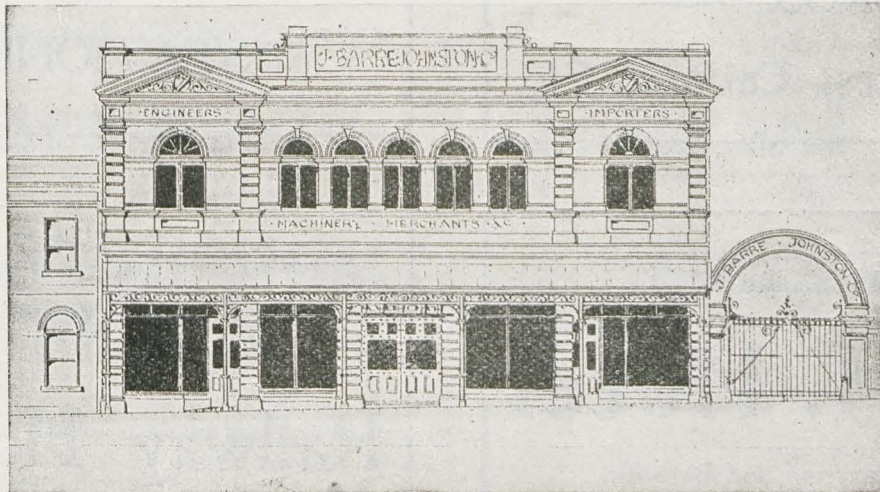
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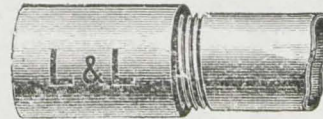
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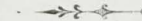
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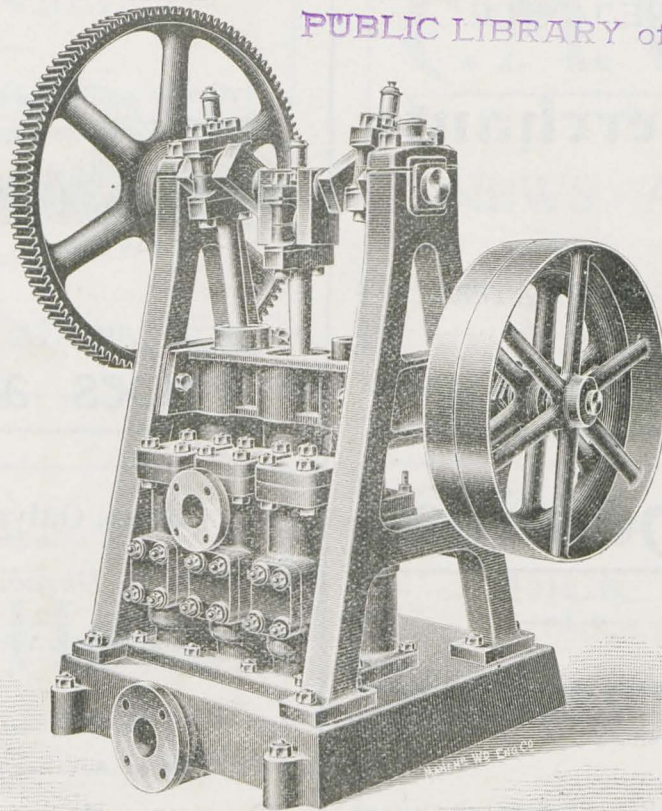
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